CHECK SHEET

Date: 3/12/2013 API Number: 083-23131

Company: Continental Resources Inc

Well Name: Collins 1-28H

County: Richland

Field: Wildcat Richland

Surf. Location: 295 FNL 1980 FWL NE NW Lot: Sec: 28 Twp: 23 N Rng: 52 E

Permit Number: 30621 Drilling Fee:

Intention to Drill: 3/12/2013 Expiration Date: 9/12/2013

Mineral Ownership: ☑ Private ☐ State ☐ Federal ☐ Indian

Well Type: Horizontal ☐ Multiple Laterals

Proposed Depth/Formation: MD: 13770 TVD: 9201 Bakken

Drilling Unit Acres Description:

Samples Required: ☐ Received:

COMPLETION INFORMATION

Completion Date: 5-15-13 TD: 13720 PBTD:

Completed As: Oil IP / Formation: 176 Bo/ 151 mcf/ 116 BW Bakken

Geological Well Report: 11-8-13 Mud Log: (27 11-8-13

Sundry Notices:

Subsequent Report of Abandonment: Received: Approved:

Electric Logs: GR-ROP (MD & TVD) 5-1-13
CBL · GR · CCL / 40 Arm Imaging Tool 11-8-13

Miscellaneous: Directional Survey (13720') 5-1-13

Form No. 4 R10/09

LOCATE WELL CORRECTLY

(SUBMIT IN TRIPLICATE)

TO

MONTANA BOARD OF OIL AND GAS CONSERVATION
2535 ST. JOHNS AVENUE
BILLINGS, MONTANA 59102

ARM 36.22.302
ARM 36.22.307
ARM 36.22.1011
ARM 36.22.1013
ARM 36.22.1414

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COMPLETION REPORT

API # 25 - 083 - 23131

Company Continental Resources, Inc. Lease Collins Well No. 1-28H

Address P. O. Box 268870 Field or Area Wildcat

Oklahoma City, OK 73126

Surface Location: 295 ft. from N (N/S) Line, 1980 ft. from W (E/W) Line, Sec. 28 T 23N R 52E

County Richland Elevation 2476' (Surface) 2502' (KB)

Date Spud 3/19/2013 Date Completed 5/15/2013 Completed as Oil (Oil, gas, cbm, injection, dry hole, etc.)

The information given herewith is a complete and correct record of the well as of the date of preparation.

Signed Christi Scritchfield

Title Regulatory Compliance Date 11/4/2013

Telephone (405) 234-9257

For Vertical Well: Total depth N/A ft. Plugged back to N/A ft.

For Horizontal or Directionally Drilled Well: Enter well bore and bottom hole location data on page 2 of this form.

For coal bed natural gas well: Static water level *N/A* ft. below reference elevation of *N/A* *ft.*

Casing and Tubing Record

Well Bore	String Type	Size	Weight	Grade	Length (Feet)	From (MD, Feet)	To (MD, Feet)	Cement (Sacks)	Cement Top (MD, Feet)	Packer Set (MD, Feet)
Lateral #1	Conductor	16"				0	106'	10 yds	Surface	
Lateral #1	Surface	9 5/8"	36	J-55		0	1518'	510	Surface	
Lateral #1	Intermediate	7"	26-29	P-110		0	9496'	873	Surface	
Lateral #1	Liner	4 1/2"	11.6	P-110		8666'	13565'	No Cmt		

Perforated or Open-hole Intervals

Well Bore	Open Hole/Perf'd Zone Top	Bottom	Holes per foot	Size and Type	Open or Isolated (method of isolation)
Lateral #1	9496'	13720'	6 spf	3 1/8" Slick Guns	Swell Packers
				23 gm Charge	
				0.38 Holes	

Acidized, Shot, Fraced, Squeezed, or Cemented

Well Bore	Interval Top	Bottom	Treatment Type	Amount and Type of Material	Max. Rate (BBLS/Min)	Max. Pressure (PSI)
Lateral #1	9496'	13720'	Frac'd	749050	41	7027

Well is producing from Upper Bakken Shale formation(s) or pool(s).

I.P. 176 barrels of oil, 151 MCF of gas, and 116 barrels of water per 24 hours.

Initial 10-day average production 122 /day (if taken)

Pressures (if measured): Tubing 207 psi flowing: N/A psi shut-in

Casing 76 psi flowing: N/A psi shut-in

Formation Volume Factor N/A Porosity N/A % Water Saturation N/A %

Type Of Trap N/A Producing Mechanism N/A

Bottom Hole Locations

Well Bore	Kick-off MD	Kick-off From (Well bore)	Total Depth MD	Total Depth TVD	Location, T-R-S Twp	N/S	Rng	E/W	Sec.	From N/S Line Feet	N / S	From E/W Line Feet	E / W
Lateral #1	8745'		13720'	9225'	23	N	52	E	28	232	S	2009	W

Drill Stem Tests

DST #	Interval From	Interval To	Tool Open (Min.)	Shut-in (Min.)	F.P.	S.I.P.	Recovery	Cushion
	N/A							

Cores

Core #	Interval From	Interval To	Recovery
	N/A		

Logs

Log Type	Interval From	Interval To
Mud Logs	7150'	9510'
Mud Logs	9510'	13720'
CBL	0	8810'
MAC	0	8810'

Geological Markers

Formation	Top MD	Top TVD	Formation	Top MD	Top TVD
Greenhorn	4084'				
Dakota	4746'				
Rierdon	5916'				
Tyler	6730'				
Charles	7276'				
Mission Canyon	7978'				
Lodgepole	8508'				
Upper Bakken Shale	9206'				
Three Forks	9207'				

Continental
RESOURCES

Updated: 4/26/13

Collins 1-28H (Montana Prospect)

Section 28, T23N, R52E 295' FNL, 1980' FWL
Elevation: 2476' GL, 2502' KB
Richland Co., Montana

Pumping Unit

Spud: 2/19/13

Completion: In Progress

Casing Detail:

16" : Set @ 106'.

9 5/8" 36# J-55: Set from surf – 1518'

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Production String Detail: (X-XX-2008)

TBD After completion

Total:

Intermediate Casing Detail:

Ran 219 jts 7" csg as follows:

Float Shoe	1.7'
1jts 29#, P-110	37.96'
Float Collar	1.9'
39jts 29#, P-110	1427.10'
24jts 32#, P-110	923.88'
89jts 29#, P-110	3038.18'
92jts 26#, P-110	3941.27'
3jts 32#, P-110	98'
Set Casing @	**9,496.00'**

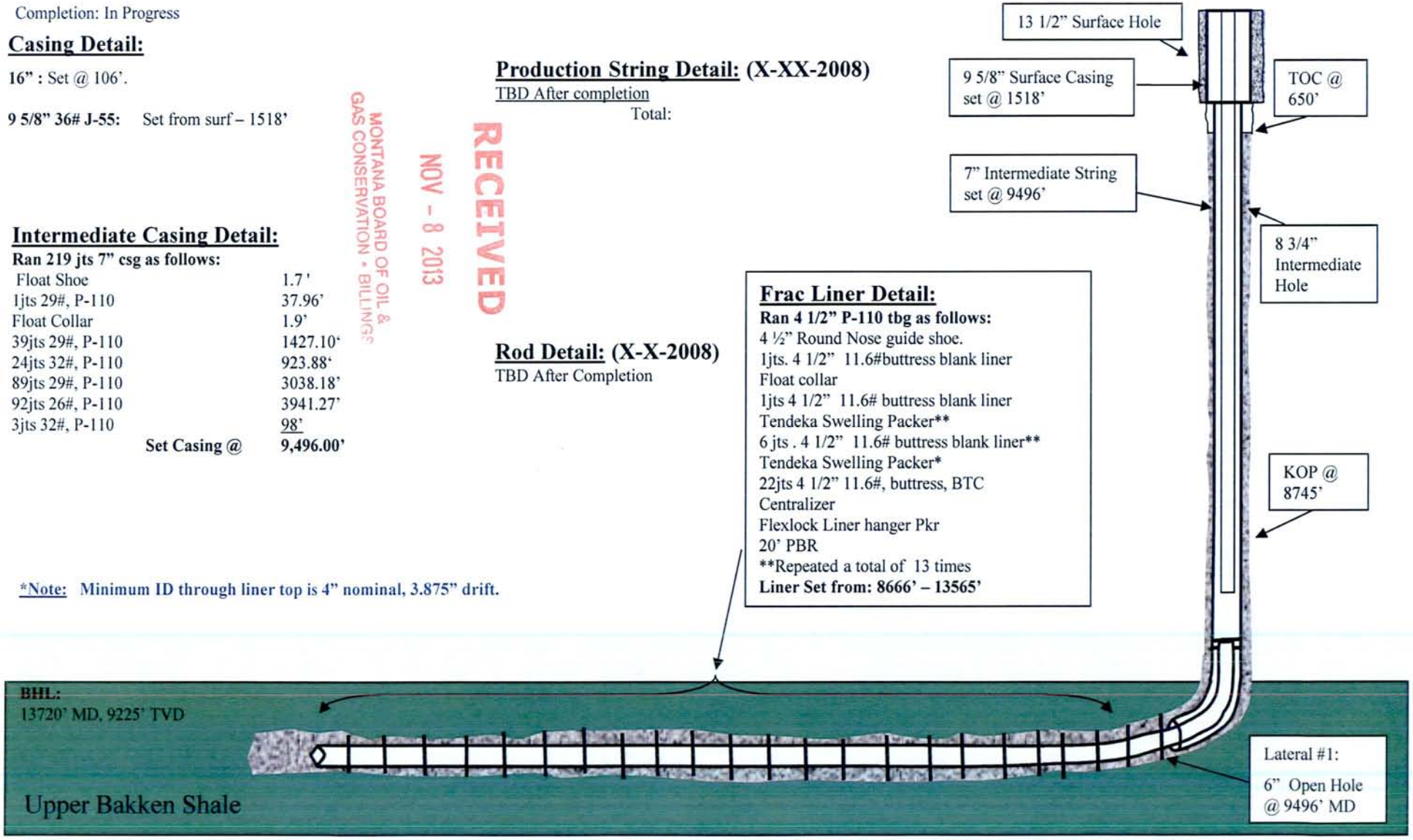
Rod Detail: (X-X-2008)

TBD After Completion

Frac Liner Detail:

Ran 4 1/2" P-110 tbg as follows:
4 ½" Round Nose guide shoe.
1jts. 4 1/2" 11.6#buttress blank liner
Float collar
1jts 4 1/2" 11.6# buttress blank liner
Tendeka Swelling Packer**
6 jts . 4 1/2" 11.6# buttress blank liner**
Tendeka Swelling Packer*
22jts 4 1/2" 11.6#, buttress, BTC
Centralizer
Flexlock Liner hanger Pkr
20' PBR
**Repeated a total of 13 times
Liner Set from: 8666' – 13565'

*Note: Minimum ID through liner top is 4" nominal, 3.875" drift.



7" 26# Casing

Continental Resources
Enid, OK

		KB	25'
Date:	4/13/2013	Field:	
Well Name:	Collins 1-28H	Rig Name & #:	H&P 257
County:	Richland	NSC Rep:	Lloyd Ivey
State:	MT	Company Rep:	Chris Smith

NORTHERN STATES COMPLETIONS
Williston, ND 701-572-5720

4 1/2" LINER——"AS RUN" DETAIL

ITEM	DESCRIPTION (19.00' of 5" Seal Bore Length)	OD	ID	LENGTH	DRILL PIPE DEPTHS TOP	BOTTOM
1	5" ID x 20' Polished Bore Receptacle	5.875"	5.000"	20.00	8649.61	8669.61
2	4 1/2" x 7" OptiPak Liner Packer w/ 1' SB Ext	5.875"	4.000"	3.18	8669.61	8672.79
	Centralizer (Buttress Box x Pin)	5.920"	4.000"	0.52	8672.79	8673.31
	22 Jts 4 1/2" 11.6# Buttress Blank Liner	5.000"	4.000"	910.87	8673.31	9584.18
3	TAM Swell Packer (Water Reactive Elastomer (5 FT) / 5.750" Centralizer (Top & Bottom))	5.625"	4.000"	15.85	9584.18	9600.03
	12 Jts 4 1/2" 11.6# Buttress Blank Liner	5.000"	4.000"	506.89	9600.03	10106.92
4	TAM Swell Packer (Water Reactive Elastomer (5 FT) / 5.750" Centralizer (Top & Bottom))	5.625"	4.000"	15.85	10106.92	10122.77
	7 Jts 4 1/2" 11.6# Buttress Blank Liner	5.000"	4.000"	288.00	10122.77	10410.77
5	TAM Swell Packer (Water Reactive Elastomer (5 FT) / 5.750" Centralizer (Top & Bottom))	5.625"	4.000"	15.85	10410.77	10426.62
	7 Jts 4 1/2" 11.6# Buttress Blank Liner	5.000"	4.000"	290.03	10426.62	10716.65
6	TAM Swell Packer (Water Reactive Elastomer (5 FT) / 5.750" Centralizer (Top & Bottom))	5.625"	4.000"	15.85	10716.65	10732.50
	7 Jts 4 1/2" 11.6# Buttress Blank Liner	5.000"	4.000"	299.01	10732.50	11031.51
7	TAM Swell Packer (Water Reactive Elastomer (5 FT) / 5.750" Centralizer (Top & Bottom))	5.625"	4.000"	15.85	11031.51	11047.36
	6 Jts 4 1/2" 11.6# Buttress Blank Liner	5.000"	4.000"	250.54	11047.36	11297.90
8	TAM Swell Packer (Water Reactive Elastomer (5 FT) / 5.750" Centralizer (Top & Bottom))	5.625"	4.000"	15.85	11297.90	11313.75
	6 Jts 4 1/2" 11.6# Buttress Blank Liner	5.000"	4.000"	254.49	11313.75	11568.24
9	TAM Swell Packer (Water Reactive Elastomer (5 FT) / 5.750" Centralizer (Top & Bottom))	5.625"	4.000"	15.85	11568.24	11584.09
	6 Jts 4 1/2" 11.6# Buttress Blank Liner	5.000"	4.000"	248.59	11584.09	11832.68
10	TAM Swell Packer (Water Reactive Elastomer (5 FT) / 5.750" Centralizer (Top & Bottom))	5.625"	4.000"	15.85	11832.68	11848.53
	6 Jts 4 1/2" 11.6# Buttress Blank Liner	5.000"	4.000"	250.59	11848.53	12099.12
11	TAM Swell Packer (Water Reactive Elastomer (5 FT) / 5.750" Centralizer (Top & Bottom))	5.625"	4.000"	15.85	12099.12	12114.97
	6 Jts 4 1/2" 11.6# Buttress Blank Liner	5.000"	4.000"	239.92	12114.97	12354.89
12	TAM Swell Packer (Water Reactive Elastomer / 5.750" Centralizer)	5.625"	4.000"	15.85	12354.89	12370.74
	6 Jts 4 1/2" 11.6# Buttress Blank Liner	5.000"	4.000"	246.11	12370.74	12616.85
13	TAM Swell Packer (Water Reactive Elastomer (5 FT) / 5.750" Centralizer (Top & Bottom))	5.625"	4.000"	15.85	12616.85	12632.70
	6 Jts 4 1/2" 11.6# Buttress Blank Liner	5.000"	4.000"	247.42	12632.70	12880.12
14	TAM Swell Packer (Water Reactive Elastomer (5 FT) / 5.750" Centralizer (Top & Bottom))	5.625"	4.000"	15.85	12880.12	12895.97
	6 Jts 4 1/2" 11.6# Buttress Blank Liner	5.000"	4.000"	251.90	12895.97	13147.87
15	TAM Swell Packer (Water Reactive Elastomer (5 FT) / 5.750" Centralizer (Top & Bottom))	5.625"	4.000"	15.85	13147.87	13163.72
	6 Jts 4 1/2" 11.6# Buttress Blank Liner	5.000"	4.000"	254.43	13163.72	13418.15
16	TAM Swell Packer (Water Reactive Elastomer (5 FT) / 5.750" Centralizer (Top & Bottom))	5.625"	4.000"	15.85	13418.15	13434.00
	2 Jts 4 1/2" 11.6# Buttress Blank Liner	5.000"	4.000"	86.00	13434.00	13520.00
17	4 1/2" Float Collar (Double Valve)	5.000"	—	1.90	13520.00	13521.90
	1 Jts 4 1/2" 11.6# Buttress Blank Liner	5.000"	4.000"	43.00	13521.90	13564.90
18	4 1/2" Guide Shoe w/ Aluminum Nose	5.000"	.750"	3.60	13564.90	13568.50
				Lateral TD		13,720.00

LINER RUNNING TOOLS	
Drill Pipe Pup Joint	4.44
NSC Bumper Sub	7.21
Drill Pipe Pup Joint	4.57
2 Cylinder Setting Tool (Seals / Port / Seals / Ball Seat)	6.68
TOTAL	22.90

Casing Collar Depths near Liner Top Packer	
DP Depths	Casing Tally Depths
	8559.23
	8598.93
	8642.51

LINER SPECIFICATIONS	
4 1/2" 11.6# BTC	P-110 GRADE
TUBE ID = 4.000"	DRIFT = 3.875"

SWELLING PACKER LINER--------for isolated section fracs
w/ Blank Liner Sections.
(Float Collar in the Toe Section)

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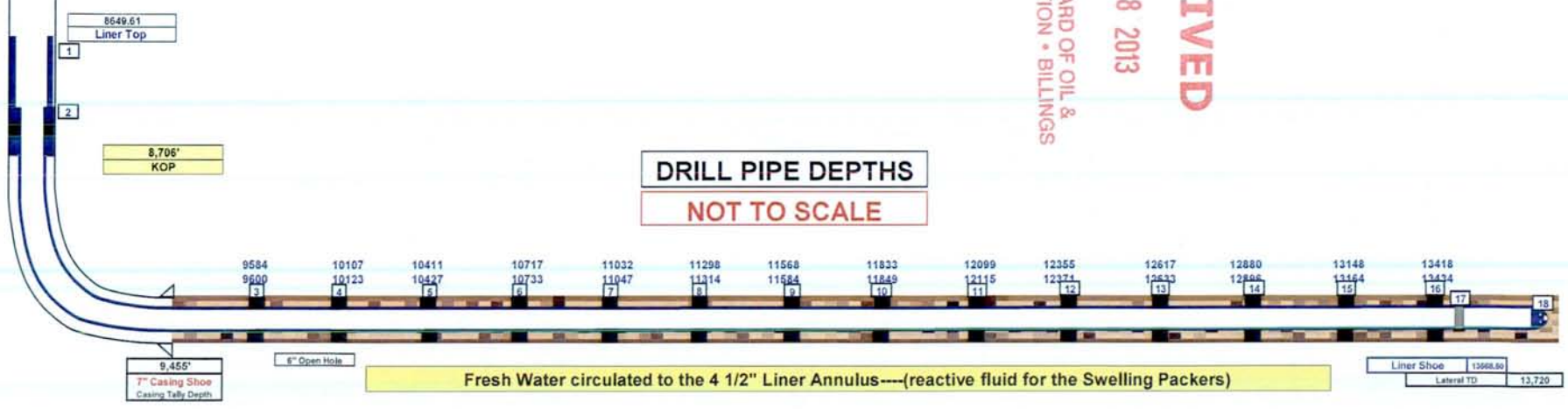

FORM NO. 22 R 10/09

SUBMIT IN QUADRUPLICATE TO:

ARM 36.22.307
ARM 36.22.601

MONTANA BOARD OF OIL AND GAS CONSERVATION
2535 ST. JOHNS AVENUE, BILLINGS, MONTANA 59102

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Application for Permit To:

Drill [X] Deepen [ ] Re-enter [ ]
Oil [X] Gas [ ] Other _____ [ ]

Lease Name: Collins

Lease Type (Private/State/Federal): Private

Well Number: 1-28H

Operator: Continental Resources, Inc.
Address: P. O. Box 268870
City: Oklahoma City State: OK Zip: 73126
Telephone Number: (405) 234-9000

Field Name or Wildcat: Wildcat

Unit Name (if applicable):

Surface Location of Well (quarter-quarter and footage measurements):
295' FNL 1980 FWL; NENW Sec 28-23N-52E

Objective Formation(s): Bakken

Proposed Total Depth and Bottom-hole Location(s) if directional or horizontal well:
200' FSL 1980' FWL; SESW Sec 28-23N-52E
13770' MD; 9201' TVD

Township, Range, and Section: Sec 28-23N-52E

County: Richland

Elevation (indicate GL or KB): 2476' GL

Size and description of drilling/spacing unit and applicable order, if any:	Formation at total depth:	Anticipated Spud Date:
Spacing Unit Sec 28-23N-52E; 640 acres; Feb Docket #44-2013	Bakken	3/15/2013

Hole Size	Casing Size	Weight / Foot	Grade (API)	Depth	Sacks of Cement	Type of Cement
26"	16"	42#	X-42	60'	48	Grout
13 1/2"	9 5/8"	36#	J-55	1500'	567	35/65 Poz/C, Class C, 2% CaCl
8 3/4"	7"	26# - 32#	HCP-110	9466'	732	35/65 Poz/G, Class G, 3% KCl

Describe Proposed Operations:

Describe or attach labeled diagram of blowout preventer equipment. Indicate if air drilled or describe mud program.

Plans are to drill a vertical wellbore to the Lodgepole, then build angle at 12°/100 to land 7" casing in the Bakken formation @ approximately 90°. A 6" horizontal wellbore will be drilled in the Bakken formation. The lateral will be fracture stimulated via an uncemented liner. See attached diagram of BOP, Mud, and Casing program.

Plans are to use a closed pit system for this well in place of using a reserve pit.

Request variance to not run openhole logs. Offset logs used will be Amoco Production Co., Sec 31-23N-52E, Richland County, MT.

BOARD USE ONLY

Approved (date) MAR 12 2013
By Steven P Sasaki
Title CHIEF FIELD INSPECTOR

Permit Fee $150.00
Check Number 079322
Permit Expires SEP 12 2013
Permit Number 30621

THIS PERMIT IS SUBJECT TO THE CONDITIONS OF APPROVAL STATED ON THE BACK

API Number: 25 - 083 - 23131

The undersigned hereby certifies that the information contained on this application is true and correct:

Signed (Agent) Christi Scatlfield
Title Regulatory Compliance Specialist
Date 2/22/2013
Telephone Number (405) 234-9257

Samples Required: NONE ✓ ALL _____ FROM _____ feet to _____ feet

Core chips to address below, full cores to USGS, Core Laboratory, Arvada, CO. Required samples must be **washed, dried** and delivered prepaid to:

Montana Board of Oil and Gas Conservation
2535 St. Johns Avenue
Billings, MT 59102

SUPPLEMENTAL INFORMATION

Note: Additional information or attachments may be required by Rule or by special request.

1. Attach a survey plat certified by a registered surveyor. The survey plat must show the location of the well with reference to the nearest lines of an established public survey.

2. Attach an 8 1/2 x 11" photocopy of that portion of a topographic map showing the well location, the access route from county or other established roads, residences, and water wells within a 1/2 mile radius of the well.

3. Attach a sketch of the well site showing the dimensions and orientation of the site, the size and location of pits, topsoil stockpile, and the estimated cut/fill at the corners and centerstake. (Note: the diagram need not be done by an engineer or surveyor). Attach a sketch of a top view and two side views of the reserve pit(s), if utilized. The reserve pit sketch must show the length, width, depth, cut and fill, amount of freeboard, area of topsoil stockpile, and the height and width of berms.

4. Describe the type and amount of material or liner, if any, to be used to seal the reserve pit. If a synthetic liner is used, indicate the liner thickness (mils), bursting strength, tensile strength, tear strength, puncture resistance, hydrostatic resistance, or attach the manufacturer's specifications.

5. Describe the proposed plan for the treatment and/or the disposal of reserve pit fluids and solids after the well is drilled. If the operator intends to dispose of or treat the reserve pit contents off-site, specify the location and the method of waste treatment and disposal. (Note: The operator must comply with all applicable federal, state, county, and local laws and regulations with regard to the handling, transportation, treatment, and disposal of solid wastes.)

6. Does construction of the access road or location, or some other aspect of the drilling operation require additional federal, state, or local permits or authorizations? If yes, indicate the type of permit or authorization required:

   - [X] No additional permits needed
   - [ ] Stream crossing permit (apply through county conservation district)
   - [ ] Air quality permit (apply through Montana Department of Environmental Quality)
   - [ ] Water discharge permit (apply through Montana Department of Environmental Quality)
   - [ ] Water use permit (apply through Montana Department of Natural Resources and Conservation)
   - [ ] Solid waste disposal permit (apply through Montana Department of Environmental Quality)
   - [ ] State lands drilling authorization (apply through Montana Department of Natural Resources and Conservation)
   - [ ] Federal drilling permit (specify agency)
   - [ ] Other federal, state, county, or local permit or authorization: (specify type) _____

NOTICES:

1. Date and time of spudding must be reported to the Board verbally or in writing within 72 hours after the commencement of drilling operations.

2. The operator must give notice of drilling operations to the surface owner as required by Section 82-10-503, MCA, before the commencement of any surface activity.

BOARD USE ONLY	CONDITIONS OF APPROVAL

The operator must comply with the following condition(s) of approval:

WARNING: Failure to comply with conditions of approval may void this permit.

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Existing Wells Within Spacing Unit

Continental Resources, Inc. has identified the following wells which currently exist in the spacing unit consisting of:

Sec 28, T23N, R52E

Richland County, MT

File Number	API Number	Location	Well Name	Footages		Wellbore
N/A						

CRI has determined that there are no existing wells in the spacing unit specified above.

MONTANA BOARD OF OIL AND GAS ATTACHMENT TO APD "CONDITIONS OF APPROVAL"

Continental Resources, Inc.
Collins 1-28H
NE NW Section 28 T23N R52E
Richland County, MT

A If gravel, sand or coal is encountered while constructing cuttings pit the following must be done:

1. **All of Richland and McCone county contact field inspector, Ron Prevost, 406-433-2098.**
2. If rathole and mousehole encounter gravel, sand or coal. Rathole and mousehole must have a steel liner cemented in, notify field inspector.

B. Surface casing must be set at least 50' into the Pierre Shale or estimated minimum surface casing to be set at this location is 1331', whichever is greater. If an operator wants to modify the surface casing setting depth. He must file a Form Number 2 requesting a change to the surface casing setting depth before setting surface casing on the well.

C. 36.22.703 HORIZONTAL WELLS

(1) Unless otherwise modified herein, the requirements of ARM 36.22.702 shall apply to horizontal wells.

(2) For the purpose of determining the size of drilling units and the permissible location of horizontal wells, "projected depth" as used in ARM 36.22.702 means the projected true vertical depth of the deepest horizontal drainhole.

(3) A horizontal well meets the location requirements of ARM 36.22.702 if the point where the well bore first penetrates the common source of supply, the horizontal drainhole end point, and every part of the well bore lying between these points meet the minimum distance requirements from the drilling unit boundaries that would apply to a vertical well of the same projected depth, regardless of the surface location proposed.

(4) The operator of a horizontal well may designate an optional drilling unit, which must consist of two, three, or four contiguous drilling units of the size and shape otherwise authorized for a vertical well of the same projected depth. The operator must receive administrative approval of the optional drilling unit before starting to drill the horizontal drainhole. Minimum distance requirements from drilling unit boundaries that would apply to the contiguous drilling units apply to the optional drilling unit, except that such requirements do not apply to the common boundary of the contiguous units. Any operator designating an optional drilling unit under this section must apply for proper well spacing within 90 days after the completion of a well capable of production.

(5) Within 30 days after completion of a horizontal well, the operator must file with the board a complete and accurate directional survey showing the location, direction, and length of each horizontal drainhole and demonstrating that all drainholes are at locations permitted by this rule or by a board location exception order.

(6) In those cases where a horizontal well is drilled following an initial vertical penetration of the target horizon, or the horizontal well includes more than one horizontal drainhole, the completion report submitted under ARM 36.22.1011 must adequately describe each well path.

History: Sec. 82-11-111 MCA; IMP, Sec. 82-11-124 and 82-11-201 MCA; NEW, 1992 MAR p. 654, Eff. 4/1/92; AMD, 1995 MAR p. 285, Eff. 2/24/95.

D. 36.22.1005 DRILLING WASTE DISPOSAL AND SURFACE RESTORATION

(1) The operator of a drilling well must contain and dispose of all solid waste and produced fluids that accumulate during drilling operations so as not to degrade surface water, groundwater, or cause harm to soils. Said waste and fluids must be disposed of in accordance with all applicable local, state and federal laws and regulations.

(2) When a salt-based or oil-based drilling fluid is used to drill a well located within a floodplain, as defined by ARM 36.15.101, or in irrigated cropland, drilling waste and produced fluids that accumulate during drilling operations must be disposed of off-site in a manner allowed by local, state, and federal laws and regulations unless an alternative on-site disposal method is approved in writing by the board administrator.

(3) The operator of a drilling well must construct, close, and restore any reserve pits in a manner that will prevent harm to the soil and will not degrade surface waters or groundwater. When a salt-based or oil-based drilling fluid is used, the reserve pit must be lined with a synthetic liner approved by the board administrator.

(4) **Within 10 days after the cessation of drilling or completion operations, all hydrocarbons must be removed from earthen pits used in association with drilling or completion operations or such pits must be fenced, screened, and netted. Such pits that contain water with more than 15,000 parts per million total dissolved solids or salt-based drilling fluids must be fenced within 90 days after the cessation of drilling and completion operations.**

(5) Earthen pits used in association with drilling and completion operations must not be used for the disposal of any additional fluids or materials after the cessation of drilling and completion operations.

(6) All earthen pits used in association with drilling and completion operations must be closed and the surface restored according to board specifications within one year after the cessation of drilling operations. Upon written application by the operator, an exception to the one-year pit closure requirement may be granted in writing by the board administrator upon a showing that:

(a) no dumping or disposal of waste or fluids in the pit will occur; and

(b) delayed closure of the pit will not present a risk of contamination to soils or water or a hazard to animals or persons. .

History: Sec. 82-11-111, MCA: IMP, Sec. 82-11-123 and Sec. 82-11-124, MCA; Eff. 12/31/72; AMD, Eff. 7/5/75; AMD, 1992 MAR p. 654, Eff. 4/1/92

2/22/2013

GEOLOGIC PROGNOSIS

Well Name: Collins 1-28H
Rig: H&P 258
Prospect: Wildcat Richland
Target: Upper Bakken Shale
Spacing: 640

☐ Pre-Staked
☑ Staked

SHL: 295' FNL & 1980' FWL
Sec. 28 - 23N - 52E
Richland , MT

BHL: 200' FSL & 1980' FWL
Sec. 28 - 23N - 52E
Richland , MT

Rig Grade Elevation: 2476'
KB: **25'**
RKB: **2501'**

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FORMATION	SUBSEA	TVD
Pierre Shale	1,100	**1,401**
Greenhorn	-1,630	**4,131**
Dakota Group (fka Mowry)	-2,033	**4,534**
Basal Dakota Sand	-2,873	**5,374**
Dunham Salt Top	-3,880	**6,381**
Dunham Salt Base	NA	
Pine Salt Top	NA	
Pine Salt Base	NA	
Minnekahta	NP	
Opeche Salt Top	NA	
Opeche Salt Base	NA	
Minnelusa Group	-3,977	**6,478**
Tyler	-4,280	**6,781**
Kibby	-4,624	**7,125**
Top Charles	-4,749	**7,250**
Base Last Charles Salt	-5,283	**7,784**
Mission Canyon	-5,453	**7,954**
Lodgepole	-5,995	**8,496**
Upper Bakken Shale	-6,689	**9,190**
Upper Bakken Target	-6,693	**9,194**
End of Lateral	-6,700	**9,201**

PRELIMINARY DRILLING PROGRAM

2/22/2013

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Lease and Well No. Collins 1-28H

MUD PROGRAM

Depth	Type	Weight	Remarks
0 ' - 1500 '	Freshwater	8.4-8.8	Add Soap Sticks for Mud Rings
1500 ' - 6500 '	Invert	9.3-9.5	35-50 sec, 10-30 cc's
6500 ' - 9466 '	Invert	9.6-10.0	40-55 sec, 10-15 cc's O/W 70/30 to 80/20
9466 ' - TD	Brine	9.0-10.1	29 Vis, No control, Dry Cuttings

TUBULAR PROGRAM

String Type	Hole Size	Depth	Feet	Casing Diameter	Weight, Grade, Connection	ERW/ Seamless	Critical Inspection
Surf	13 1/2 "	1500 '	1500 '	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
		7050 '	3050 '	7 "	7", 29#, P-110 IC, LTC	ERW	BCI & Drift
		7980	930 '	7 "	7", 32#, P-110 IC, LTC	ERW	BCI & Drift
		9466	1486 '	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 "	13590 '	4910 '	4 1/2 "	4-1/2", 11.6 #, P-110, BTC		
Tubing		8720 '	8720 '	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	1050 '	0 '	333	35/65 Poz/Class "C", 3% CaCl, 12% gel	2.39	12
Surf	1500	Tail	1500 '	1050 '	234	Class "C", 2% CaCl	1.46	14.3
(Basis: Guage hole + 55% excess, tail 30% of length, lead to surface.)								
Int	9466	Lead	6750 '	0 '	398	35/65 Poz/Class "G", 3% KCl, 5 #/sk Silica	3.21	11.3
		Tail	9466 '	6750 '	334	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)								

WELL LOCATION PLAT
CONTINENTAL RESOURCES INC.
COLLINS 1-28H
SECTION 28, T23N, R52E
RICHLAND COUNTY, MONTANA
295' FNL & 1980' FWL

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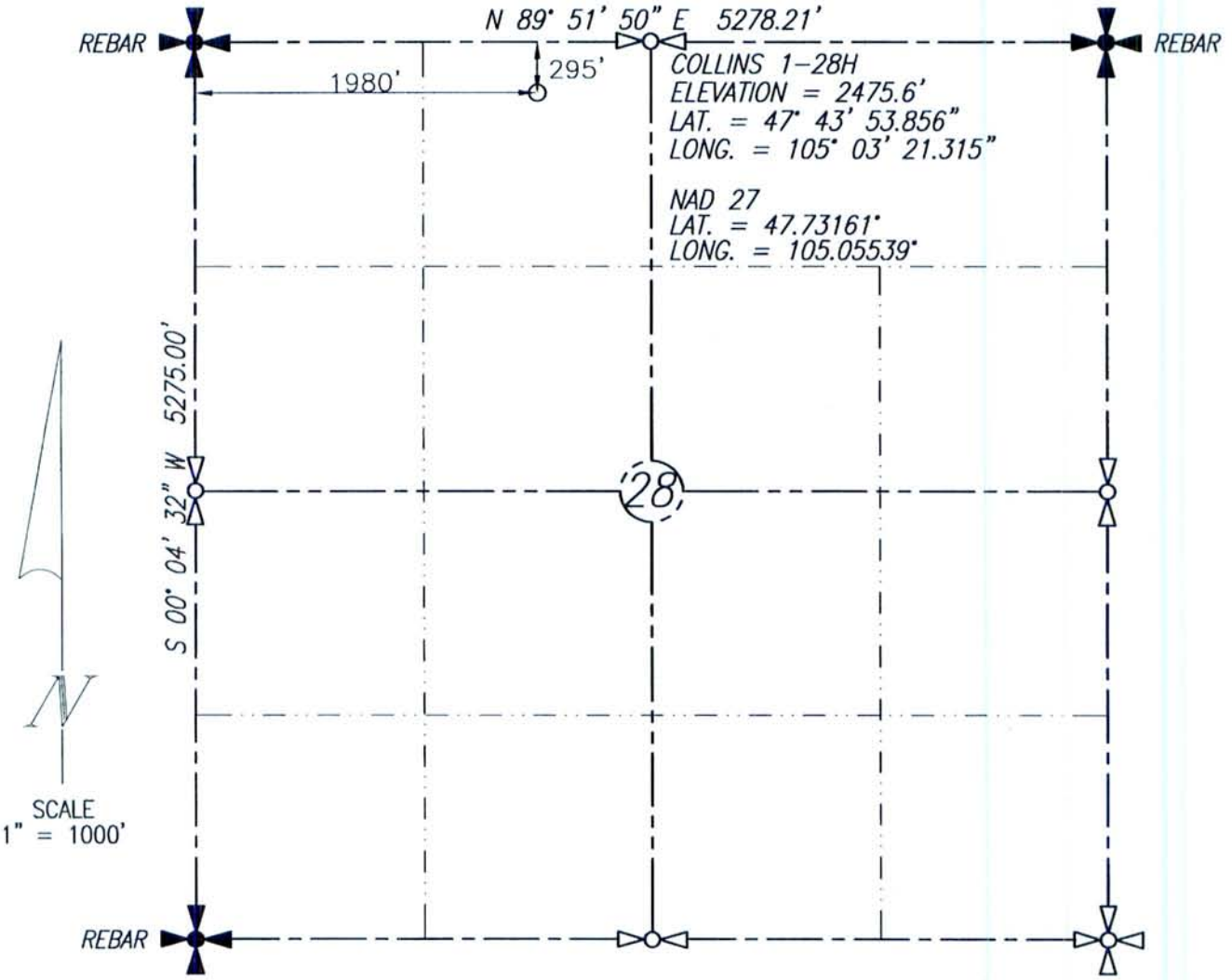

I CERTIFY THAT THIS PLAT CORRECTLY REPRESENTS WORK PERFORMED BY ME OR UNDER MY RESPONSIBLE CHARGE, AND IS TRUE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF

1-28-13

JOHN PAULSON R.L.S. #11705LS

JOHN R. PAULSON 11705LS REGISTERED LAND SURVEYOR MONTANA

DATE STAKED: 1-24-2013

BASIS OF VERTICAL DATUM: NAVD 1988

PERSON AUTHORIZING SURVEY: MARCUS SIMPSON

EXPLANATION AREA: NAD83(96)

BASIS OF BEARING: TRUE NORTH

BROSZ ENGINEERING INC.
BOX 357
BOWMAN, N.D. 58623
PHONE: 701-523-3340
FAX: 701-523-5243

PROJECT NO. 13-10

BOTTOM HOLE LOCATION PLAT
CONTINENTAL RESOURCES INC.
COLLINS 1-28H
SECTION 28, T23N, R52E
RICHLAND COUNTY, MONTANA
295' FNL & 1980' FWL

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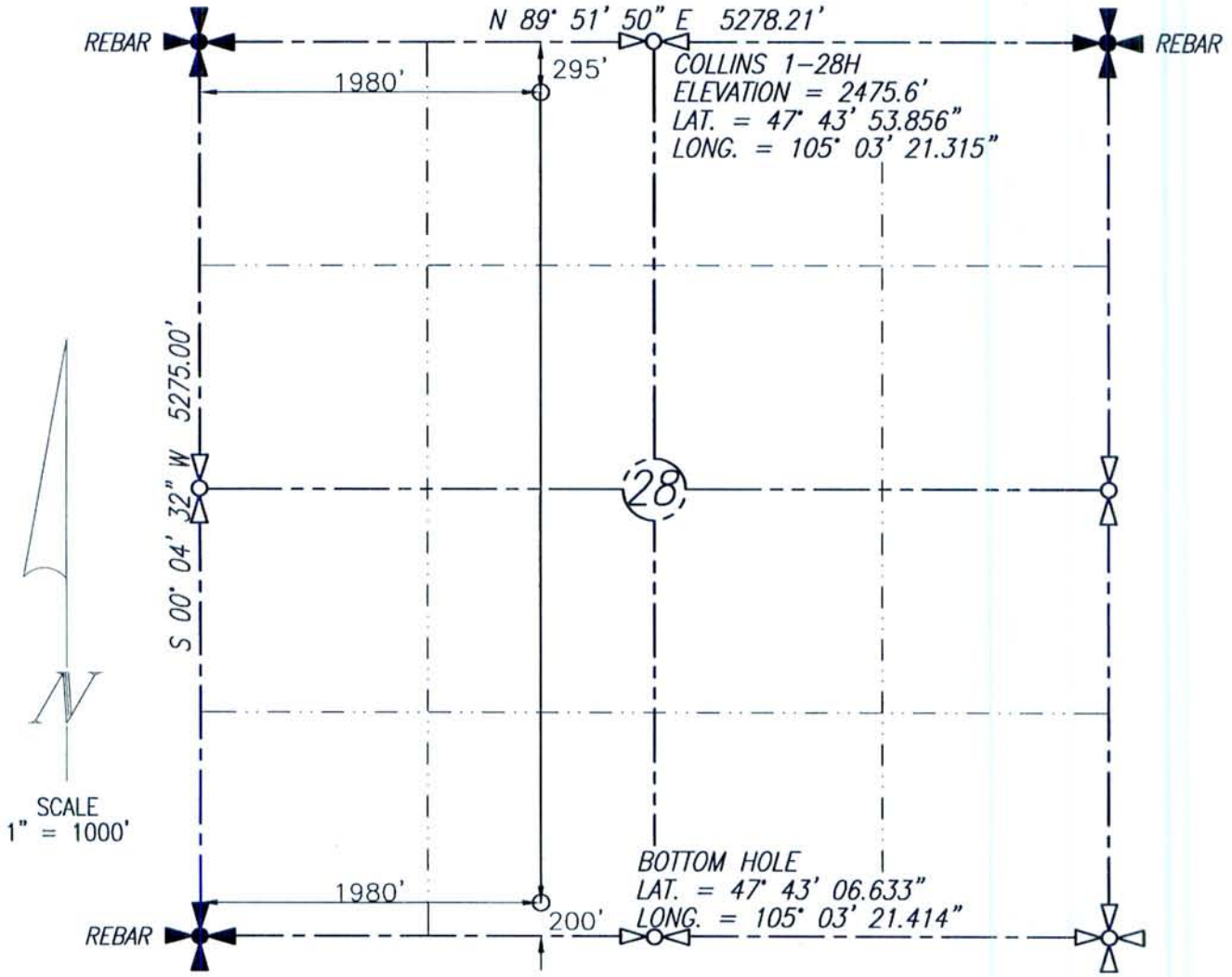

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1-28-13

JOHN PAULSON R.L.S. 11705LS

MONTANA PAULSON 11705LS REGISTERED LAND SURVEYOR

DATE STAKED: 1-24-2013

BASIS OF VERTICAL DATUM: NAVD 1988

PERSON AUTHORIZING SURVEY; MARCUS SIMPSON

EXPLANATION AREA: NAD83(96)

BASIS OF BEARING: TRUE NORTH

BROSZ ENGINEERING INC.
BOX 357
BOWMAN, N.D. 58623
PHONE: 701-523-3340
FAX: 701-523-5243

PROJECT NO. 13-10

HORIZONTAL SECTION PLAT
CONTINENTAL RESOURCES INC.
COLLINS 1-28H
SECTION 28, T23N, R52E
RICHLAND COUNTY, MONTANA

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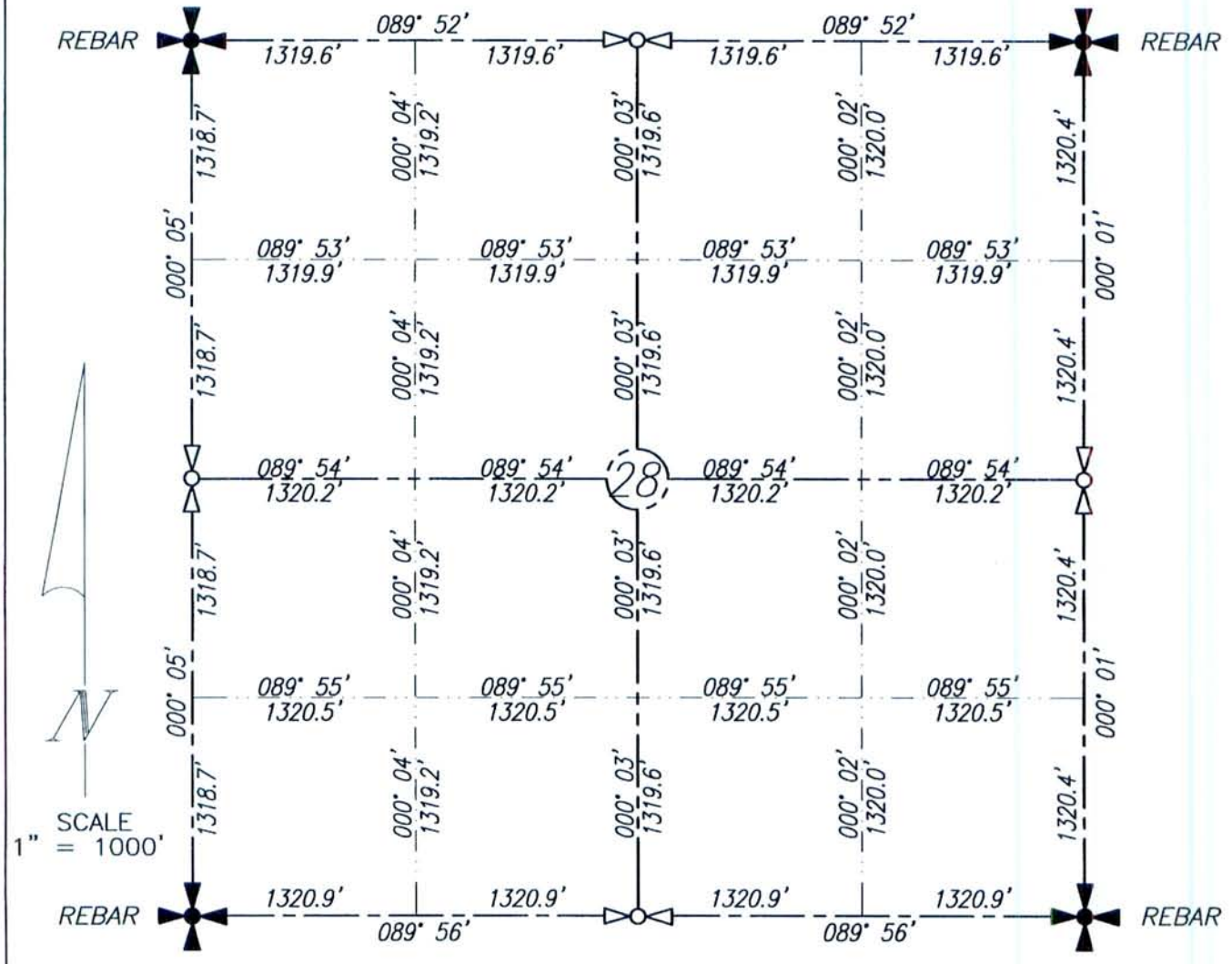

ALL CORNERS SHOWN ON THIS PLAT WERE FOUND IN THE FIELD
DISTANCES TO ALL OTHERS ARE CALCULATED.
ALL BEARINGS SHOWN ARE ASSUMED.

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.

8-13

JOHN PAULSON R.L.S. #4705LS

MONTANA JOHN R. PAULSON 4705LS REGISTERED LAND SURVEYOR

BROSZ ENGINEERING INC.
BOX 357
BOWMAN, N.D. 58623
PHONE: 701-523-3340
FAX: 701-523-5243

PROJECT NO. 13-10

PHOTO
CONTINENTAL RESOURCES INC.
COLLINS 1-28H
SECTION 28, T23N, R52E
RICHLAND COUNTY, MONTANA

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PHOTO – PAD FACING NORTH

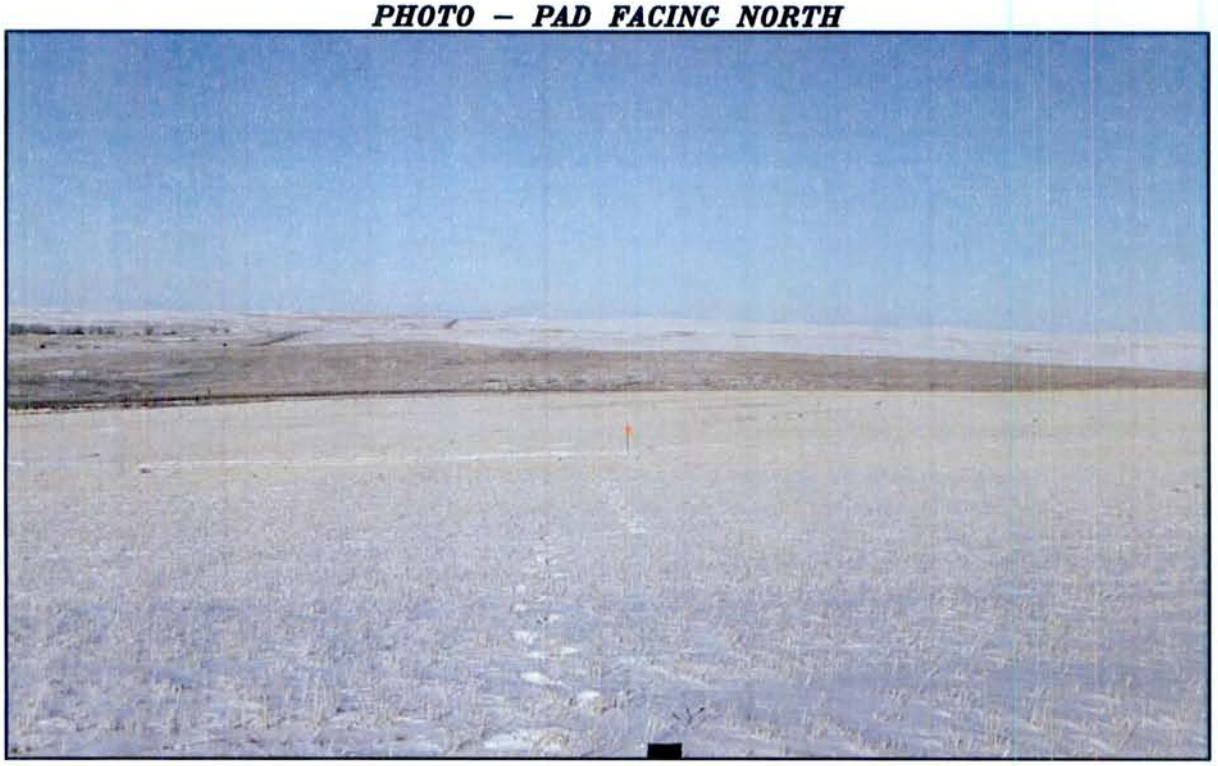
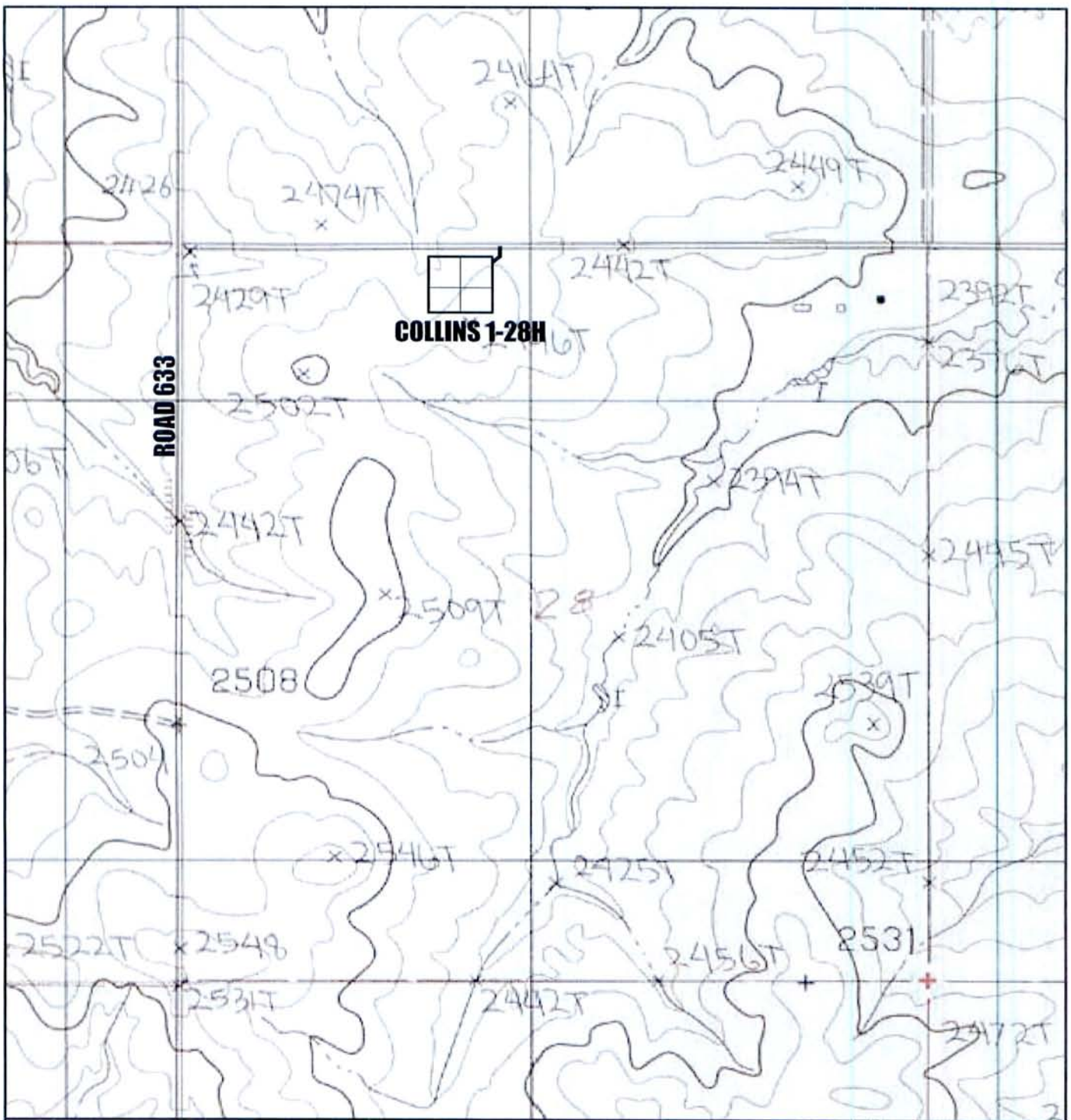


PHOTO – PAD FACING EAST



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CONTINENTAL RESOURCES INC.

WELL LOCATION

COLLINS 1-28H
SECTION 28, T23N, R52E
RICHLAND COUNTY, MONTANA

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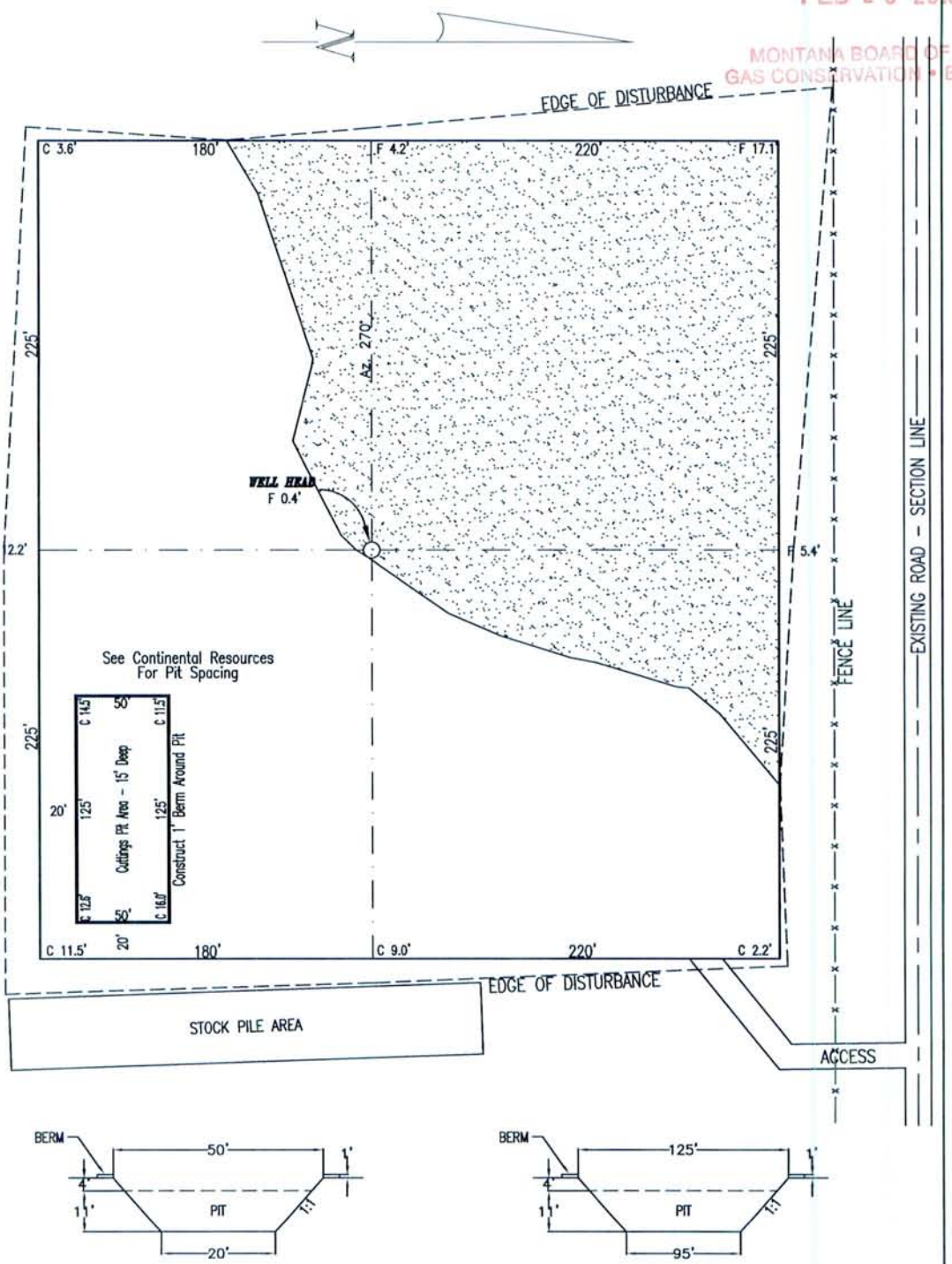
AREA OF DISTURBANCE– 4.7 ACRES±



CONTINENTAL RESOURCES INC.
PO BOX 268870
OKLAHOMA CITY, OKLAHOMA 73126

DRILLING RIG LAYOUT
COLLINS 1–28H
SECTION 28, T23N, R52E
RICHLAND COUNTY, MONTANA

ESTIMATED EARTH QUANTITIES

TOP–SOIL:	3,333	CUBIC YARDS
SUB–SOIL:	25,333	CUBIC YARDS
TOTAL CUT:	28,666	CUBIC YARDS
TOTAL FILL:	24,283	CUBIC YARDS

Use excess materials in access road fill

ALL INDICATED CUTS & FILLS ARE STAKED GRADE ELEVATIONS.

BACKSLOPES ASSUMED AT 1 1/2 : 1 %

Ground Elevation at Well Head: 2475.6 ft. ASL
Finished Rig Grade Elevation: 2476.0 ft. ASL

DRAFT: HEDGE	SCALE 1" = 70'	DATE: 1–24–2013	PROJECT NO. 13–10

TOTAL ROAD LENGTH:
141.4 FEET OR 8.57 RODS

ROAD LOCATION PLAT
CONTINENTAL RESOURCES INC.
COLLINS 1-28H
SECTION 28, T23N, R52E
RICHLAND COUNTY, MONTANA

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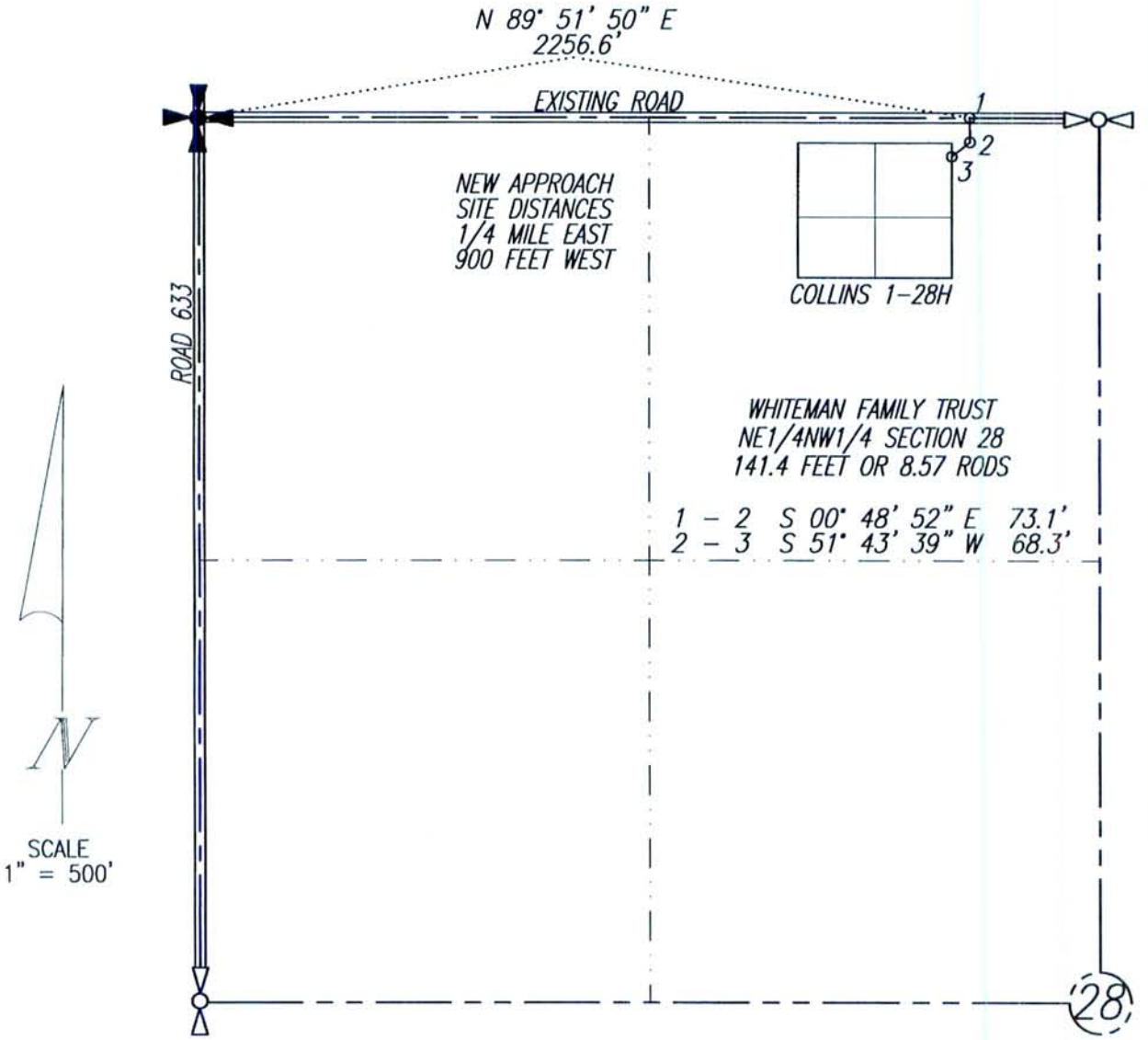

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JOHN R. PAULSON 11705LS
REGISTERED LAND SURVEYOR
1-28-13

JOHN PAULSON, R.L.S. 11705LS

DATE STAKED: 1-24-2013

PERSON AUTHORIZING SURVEY;
MARCUS SIMPSON

BASIS OF BEARING: TRUE NORTH

BROSZ ENGINEERING INC.
BOX 357
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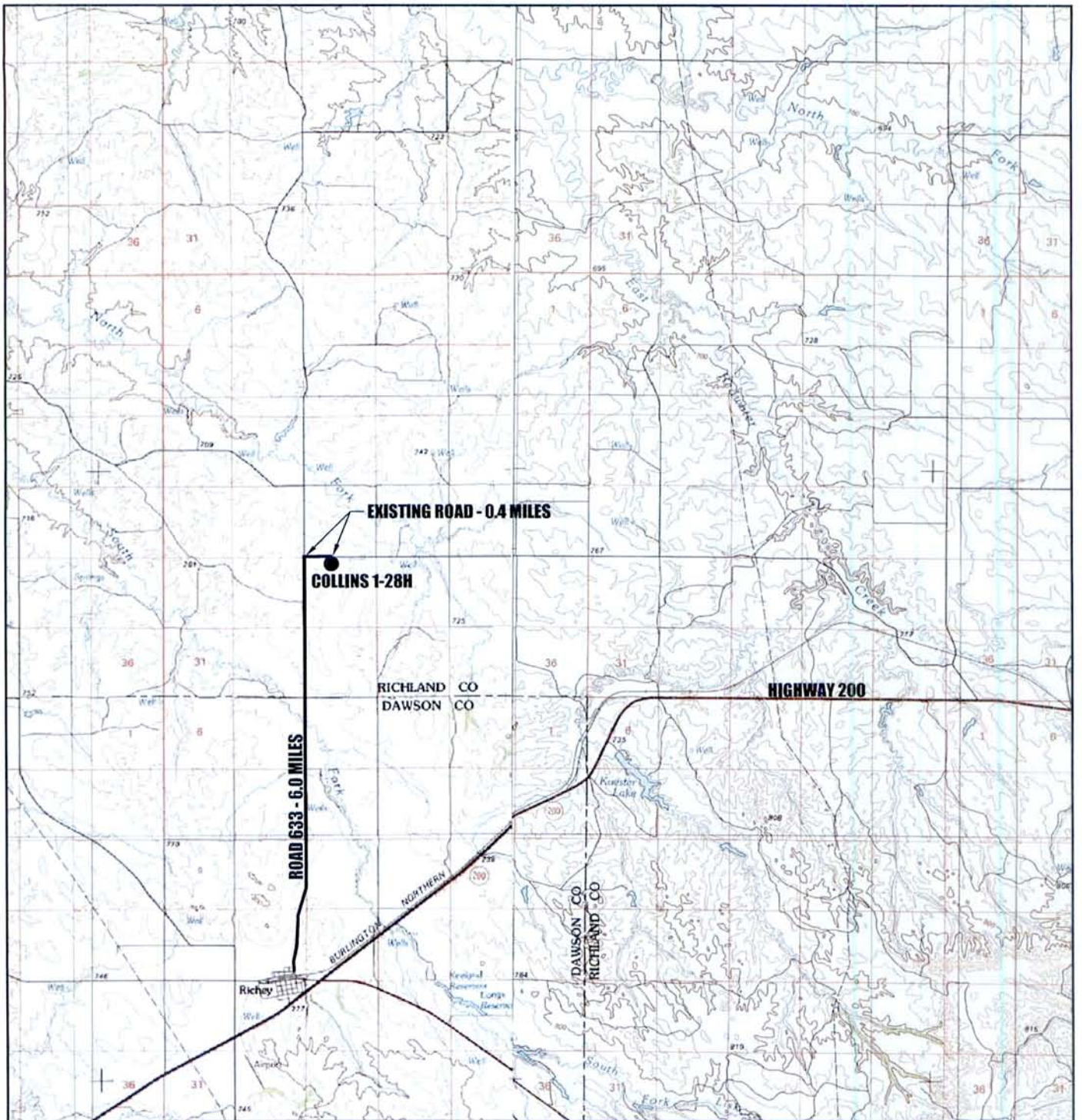
PROJECT NO. 13-10



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CONTINENTAL RESOURCES INC.

VICINITY MAP

COLLINS 1-28H
SECTION 28, T23N, R52E
RICHLAND COUNTY, MONTANA

J & L Fencing & Pit Liners, Inc

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Sidney, MT 59270

406-433-3655

Protector 16 B/B (F)

Specification Sheet

Properties	Unit	Values	Test Method
Unit Weight	oz/yd^2	7.2	ASTM D3776
	tapes/in	Warp 12.2 Weft 9.1	ASTM D3775
Width	In	144"	
Tensile Grab Strength	lbf	Warp 270 Weft 270	ASTM D751
Tear Strength * (tongue)	lbf	Warp 62 Weft 70	ASTM D2261
Scrim Color Coating Thickness	mil mil	Black Black 1.9 Black 1.9	ASTM D1777 MOD
Low Temperature Bend	131F	n/t	ASTM D2136
Mullen Burst Strength	psi	435	ASTM D751
Water Permeance	$g/(m^2/24\ hrs)$	.02	ASTM D4491
Accelerated Weathering/UV	80% Grab Tensile Strength Restrained 2000 hours		ASTM G154
1" Tensile Elongation	%	12	ASTM D882
Nominal Thickness *Includes force to shift tapes- Tear may be crosswise to direction of force	mil	16	ASTM D1777 MOD

The values listed are typical properties and are intended to be used as guidelines only, not as specification limits. No guarantee or warranty is made by J & L Fencing & Pit Liners, Inc. as the manner of use and handling and site conditions are beyond our control. It is assumed that install in accordance with accepted industry standards.

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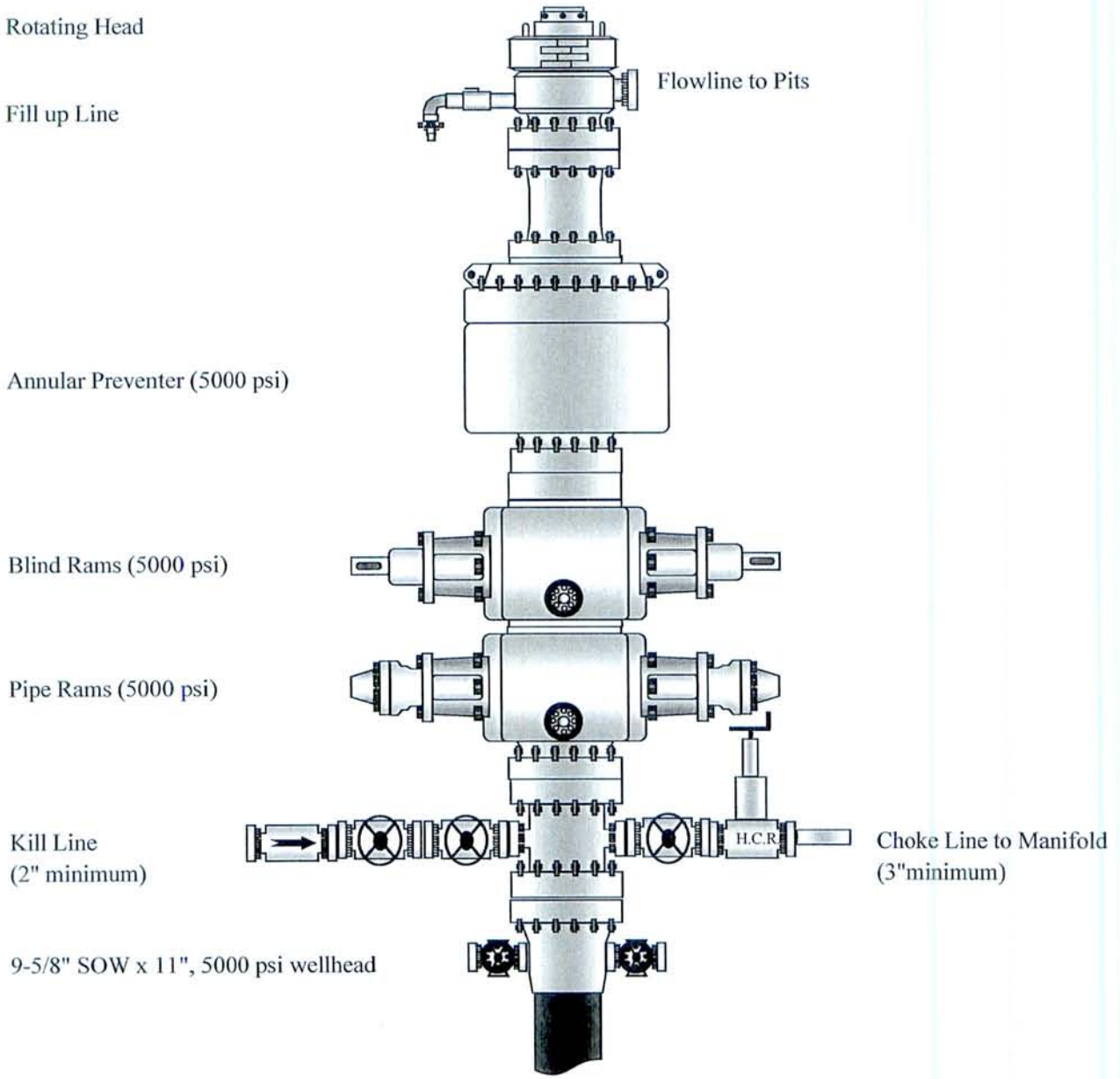
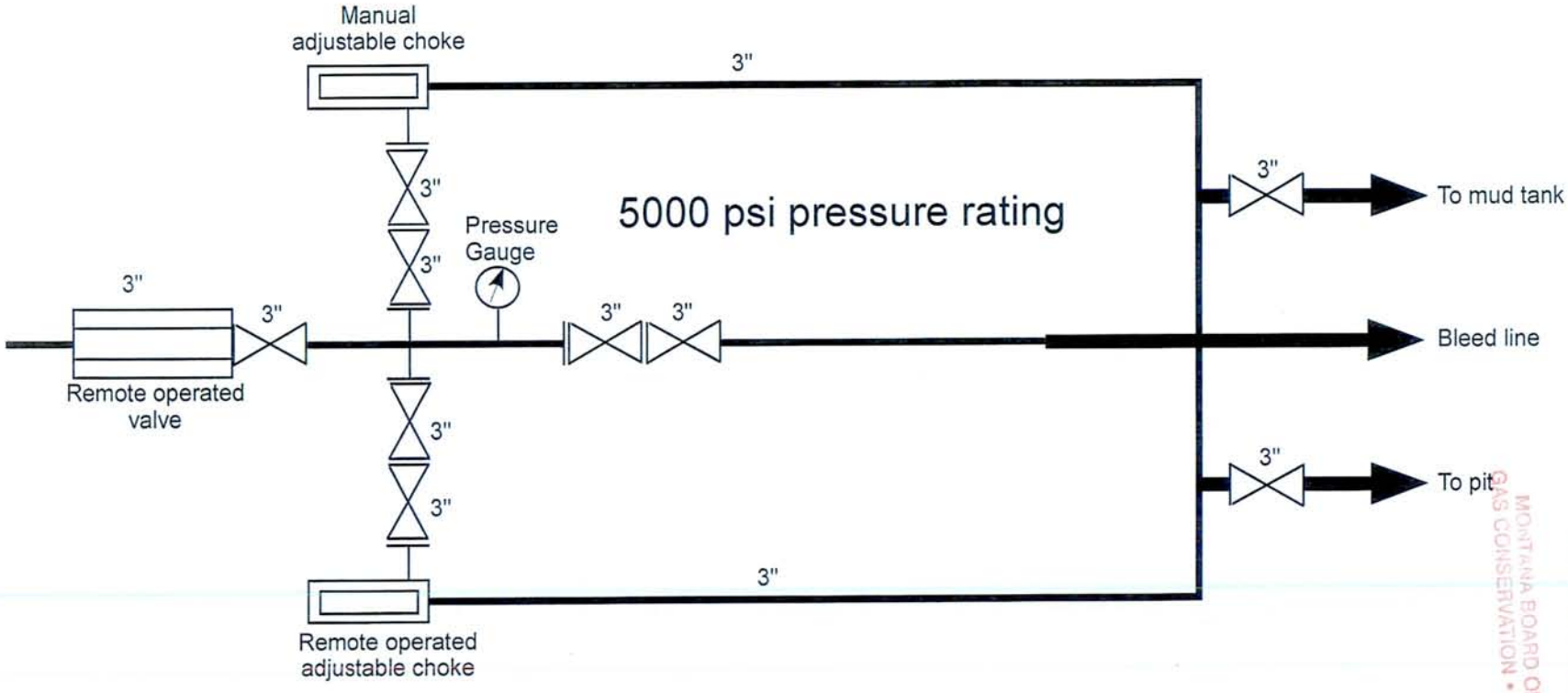
Continental Resources, Inc

Blow Out Preventer Schematic
(5000 psi)



CONTINENTAL RESOURCES INC.
CHOKE MANIFOLD DIAGRAM



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manifold schematic.cvx
GFast 11-6-12

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Company: Continental Resources Inc.
Field: Richland County, MT
Location: Sec.28 - T23N - R52E
Well: Collins 1-28H
Wellbore: Original Hole
Plan: Rev 0
Rig: H&P 258

PATHFINDER
A Schlumberger Company

WELL DETAILS: Collins 1-28H

KB 25 ft @ 2501.00usft (H&P 258) Ground Level: 2476.00

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
0.00	0.00	1300261.171	3061025.415	47° 43' 53.856 N	105° 3' 21.315 W

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Annotation
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	8716.54	0.00	0.00	8716.54	0.00	0.00	0.00	0.00	0.00	KOP, Build 12.0°/100' DLS
3	9465.76	89.91	180.00	9194.00	-476.69	0.00	12.00	180.00	476.69	LP: U Bakken Tgt 9194' TVD
4	13770.08	89.91	180.00	9201.00	-4781.00	0.00	0.00	0.00	4781.00	PBHL/TD

WELLBORE TARGET DETAILS

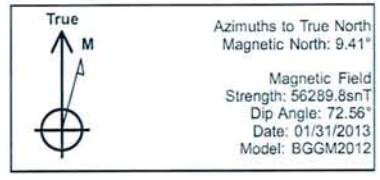
Name	TVD	+N/-S	+E/-W	Latitude	Longitude
PBHL Collins 1-28H	9201.00	-4781.00	0.00	47° 43' 6.647 N	105° 3' 21.315 W

FORMATION TOP DETAILS

TVDPath	MDPath	Formation
1401.00	1401.00	Pierre Shale
4131.00	4131.00	Greenhorn
4534.00	4534.00	Dakota Group (fka Mowry)
5374.00	5374.00	Base of Dakota Sand
6381.00	6381.00	Dunham Salt Top
6478.00	6478.00	Minnelusa Group
6781.00	6781.00	Tyler
7125.00	7125.00	Kibbey
7250.00	7250.00	Top Charles
7784.00	7784.00	Base Last Charles Salt
7954.00	7954.00	Mission Canyon
8496.00	8496.00	Lodgepole
9190.00	9404.66	Upper Bakken Shale
9194.00	9464.62	Upper Bakken Target

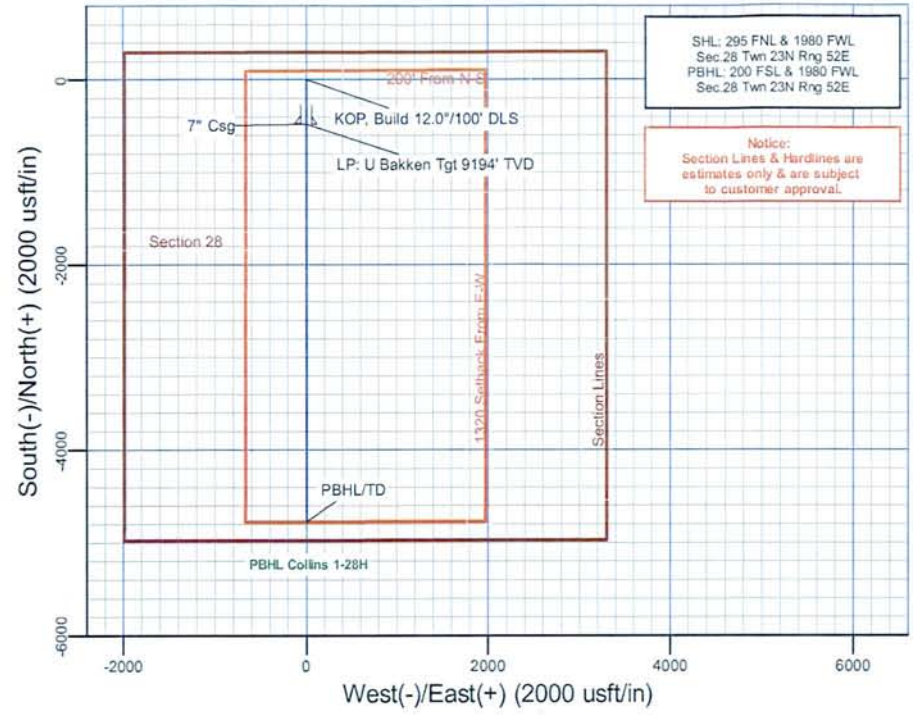
CASING DETAILS

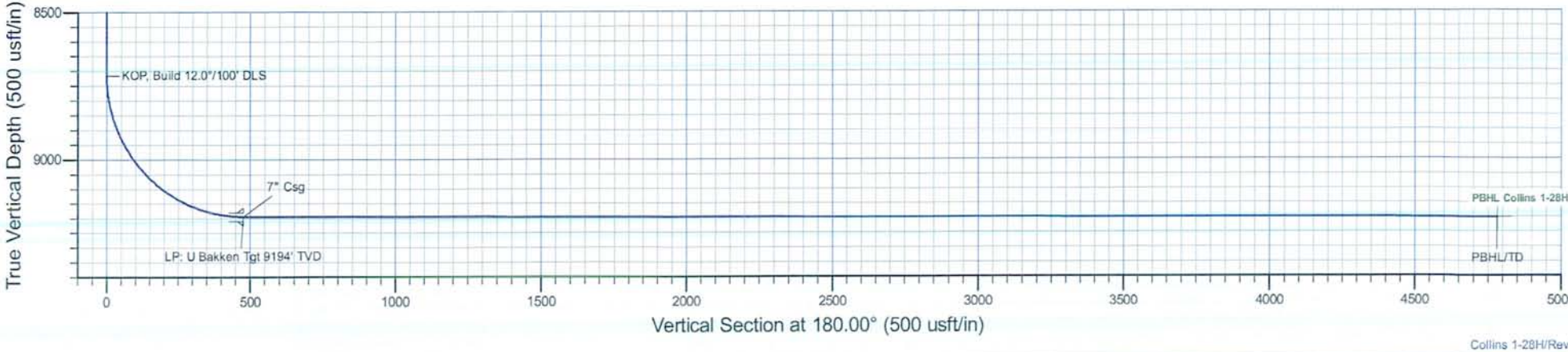
TVD	MD	Name	Size
9194.00	9465.76	7" Csg	7.000



Azimuths to True North
Magnetic North: 9.41°

Magnetic Field
Strength: 56289.8snT
Dip Angle: 72.56°
Date: 01/31/2013
Model: BGGM2012





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Continental Resources Inc.

Richland County, MT
Sec.28 - T23N - R52E
Collins 1-28H

Original Hole

Plan: Rev 0

Standard Planning Report

01 February, 2013

PATHFINDER®
A Schlumberger Company

Database:	EDM 5000.1 Single User Db	**Local Co-ordinate Reference:**	Well Collins 1-28H
Company:	Continental Resources Inc.	**TVD Reference:**	KB 25 ft @ 2501.00usft (H&P 258)
Project:	Richland County, MT	**MD Reference:**	KB 25 ft @ 2501.00usft (H&P 258)
Site:	Sec.28 - T23N - R52E	**North Reference:**	True
Well:	Collins 1-28H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Original Hole		
Design:	Rev 0		

Project Richland County, MT

Map System:	US State Plane 1983	**System Datum:**	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	Montana		

Site Sec.28 - T23N - R52E

Site Position:		**Northing:**	1,300,261.171 usft	**Latitude:**	47° 43' 53.856 N
From:	Lat/Long	**Easting:**	3,061,025.415 usft	**Longitude:**	105° 3' 21.315 W
Position Uncertainty:	5.00 usft	**Slot Radius:**	13.200 in	**Grid Convergence:**	3.25 °

Well Collins 1-28H, NENW Sec 28 Twn 23N Rng 52E

Well Position	**+N/-S**	0.00 usft	**Northing:**	1,300,261.171 usft	**Latitude:**	47° 43' 53.856 N
	+E/-W	0.00 usft	**Easting:**	3,061,025.415 usft	**Longitude:**	105° 3' 21.315 W
Position Uncertainty		0.00 usft	**Wellhead Elevation:**	2,476.00 usft	**Ground Level:**	2,476.00 usft

Wellbore Original Hole

Magnetics	**Model Name**	**Sample Date**	**Declination (°)**	**Dip Angle (°)**	**Field Strength (nT)**
	BGGM2012	01/31/13	9.41	72.56	56,290

Design Rev 0

Audit Notes:

Version:		**Phase:**	PROTOTYPE	**Tie On Depth:**	0.00

Vertical Section:	**Depth From (TVD) (usft)**	**+N/-S (usft)**	**+E/-W (usft)**	**Direction (°)**
	0.00	0.00	0.00	180.00

Plan Sections

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
8,716.54	0.00	0.00	8,716.54	0.00	0.00	0.00	0.00	0.00	0.00	
9,465.76	89.91	180.00	9,194.00	-476.69	0.00	12.00	12.00	-24.02	180.00	
13,770.08	89.91	180.00	9,201.00	-4,781.00	0.00	0.00	0.00	0.00	0.00	PBHL Collins 1-28H

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PathFinder
Planning Report

PATHFINDER
A Schlumberger Company

Database:	EDM 5000.1 Single User Db	**Local Co-ordinate Reference:**	Well Collins 1-28H
Company:	Continental Resources Inc.	**TVD Reference:**	KB 25 ft @ 2501.00usft (H&P 258)
Project:	Richland County, MT	**MD Reference:**	KB 25 ft @ 2501.00usft (H&P 258)
Site:	Sec.28 - T23N - R52E	**North Reference:**	True
Well:	Collins 1-28H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Original Hole		
Design:	Rev 0		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	0.00
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00
600.00	0.00	0.00	600.00	0.00	0.00	0.00	0.00	0.00	0.00
700.00	0.00	0.00	700.00	0.00	0.00	0.00	0.00	0.00	0.00
800.00	0.00	0.00	800.00	0.00	0.00	0.00	0.00	0.00	0.00
900.00	0.00	0.00	900.00	0.00	0.00	0.00	0.00	0.00	0.00
1,000.00	0.00	0.00	1,000.00	0.00	0.00	0.00	0.00	0.00	0.00
1,100.00	0.00	0.00	1,100.00	0.00	0.00	0.00	0.00	0.00	0.00
1,200.00	0.00	0.00	1,200.00	0.00	0.00	0.00	0.00	0.00	0.00
1,300.00	0.00	0.00	1,300.00	0.00	0.00	0.00	0.00	0.00	0.00
1,400.00	0.00	0.00	1,400.00	0.00	0.00	0.00	0.00	0.00	0.00
1,401.00	0.00	0.00	1,401.00	0.00	0.00	0.00	0.00	0.00	0.00
Pierre Shale									
1,500.00	0.00	0.00	1,500.00	0.00	0.00	0.00	0.00	0.00	0.00
1,600.00	0.00	0.00	1,600.00	0.00	0.00	0.00	0.00	0.00	0.00
1,700.00	0.00	0.00	1,700.00	0.00	0.00	0.00	0.00	0.00	0.00
1,800.00	0.00	0.00	1,800.00	0.00	0.00	0.00	0.00	0.00	0.00
1,900.00	0.00	0.00	1,900.00	0.00	0.00	0.00	0.00	0.00	0.00
2,000.00	0.00	0.00	2,000.00	0.00	0.00	0.00	0.00	0.00	0.00
2,100.00	0.00	0.00	2,100.00	0.00	0.00	0.00	0.00	0.00	0.00
2,200.00	0.00	0.00	2,200.00	0.00	0.00	0.00	0.00	0.00	0.00
2,300.00	0.00	0.00	2,300.00	0.00	0.00	0.00	0.00	0.00	0.00
2,400.00	0.00	0.00	2,400.00	0.00	0.00	0.00	0.00	0.00	0.00
2,500.00	0.00	0.00	2,500.00	0.00	0.00	0.00	0.00	0.00	0.00
2,600.00	0.00	0.00	2,600.00	0.00	0.00	0.00	0.00	0.00	0.00
2,700.00	0.00	0.00	2,700.00	0.00	0.00	0.00	0.00	0.00	0.00
2,800.00	0.00	0.00	2,800.00	0.00	0.00	0.00	0.00	0.00	0.00
2,900.00	0.00	0.00	2,900.00	0.00	0.00	0.00	0.00	0.00	0.00
3,000.00	0.00	0.00	3,000.00	0.00	0.00	0.00	0.00	0.00	0.00
3,100.00	0.00	0.00	3,100.00	0.00	0.00	0.00	0.00	0.00	0.00
3,200.00	0.00	0.00	3,200.00	0.00	0.00	0.00	0.00	0.00	0.00
3,300.00	0.00	0.00	3,300.00	0.00	0.00	0.00	0.00	0.00	0.00
3,400.00	0.00	0.00	3,400.00	0.00	0.00	0.00	0.00	0.00	0.00
3,500.00	0.00	0.00	3,500.00	0.00	0.00	0.00	0.00	0.00	0.00
3,600.00	0.00	0.00	3,600.00	0.00	0.00	0.00	0.00	0.00	0.00
3,700.00	0.00	0.00	3,700.00	0.00	0.00	0.00	0.00	0.00	0.00
3,800.00	0.00	0.00	3,800.00	0.00	0.00	0.00	0.00	0.00	0.00
3,900.00	0.00	0.00	3,900.00	0.00	0.00	0.00	0.00	0.00	0.00
4,000.00	0.00	0.00	4,000.00	0.00	0.00	0.00	0.00	0.00	0.00
4,100.00	0.00	0.00	4,100.00	0.00	0.00	0.00	0.00	0.00	0.00
4,131.00	0.00	0.00	4,131.00	0.00	0.00	0.00	0.00	0.00	0.00
Greenhorn									
4,200.00	0.00	0.00	4,200.00	0.00	0.00	0.00	0.00	0.00	0.00
4,300.00	0.00	0.00	4,300.00	0.00	0.00	0.00	0.00	0.00	0.00
4,400.00	0.00	0.00	4,400.00	0.00	0.00	0.00	0.00	0.00	0.00
4,500.00	0.00	0.00	4,500.00	0.00	0.00	0.00	0.00	0.00	0.00
4,534.00	0.00	0.00	4,534.00	0.00	0.00	0.00	0.00	0.00	0.00
Dakota Group (fka Mowry)									
4,600.00	0.00	0.00	4,600.00	0.00	0.00	0.00	0.00	0.00	0.00

RECEIVED
FEB 25 2013
MONTANA BOARD OF OIL & GAS CONSERVATION BILLINGS

Database:	EDM 5000.1 Single User Db	**Local Co-ordinate Reference:**	Well Collins 1-28H
Company:	Continental Resources Inc.	**TVD Reference:**	KB 25 ft @ 2501.00usft (H&P 258)
Project:	Richland County, MT	**MD Reference:**	KB 25 ft @ 2501.00usft (H&P 258)
Site:	Sec.28 - T23N - R52E	**North Reference:**	True
Well:	Collins 1-28H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Original Hole		
Design:	Rev 0		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
4,700.00	0.00	0.00	4,700.00	0.00	0.00	0.00	0.00	0.00	0.00
4,800.00	0.00	0.00	4,800.00	0.00	0.00	0.00	0.00	0.00	0.00
4,900.00	0.00	0.00	4,900.00	0.00	0.00	0.00	0.00	0.00	0.00
5,000.00	0.00	0.00	5,000.00	0.00	0.00	0.00	0.00	0.00	0.00
5,100.00	0.00	0.00	5,100.00	0.00	0.00	0.00	0.00	0.00	0.00
5,200.00	0.00	0.00	5,200.00	0.00	0.00	0.00	0.00	0.00	0.00
5,300.00	0.00	0.00	5,300.00	0.00	0.00	0.00	0.00	0.00	0.00
5,374.00	0.00	0.00	5,374.00	0.00	0.00	0.00	0.00	0.00	0.00
Base of Dakota Sand									
5,400.00	0.00	0.00	5,400.00	0.00	0.00	0.00	0.00	0.00	0.00
5,500.00	0.00	0.00	5,500.00	0.00	0.00	0.00	0.00	0.00	0.00
5,600.00	0.00	0.00	5,600.00	0.00	0.00	0.00	0.00	0.00	0.00
5,700.00	0.00	0.00	5,700.00	0.00	0.00	0.00	0.00	0.00	0.00
5,800.00	0.00	0.00	5,800.00	0.00	0.00	0.00	0.00	0.00	0.00
5,900.00	0.00	0.00	5,900.00	0.00	0.00	0.00	0.00	0.00	0.00
6,000.00	0.00	0.00	6,000.00	0.00	0.00	0.00	0.00	0.00	0.00
6,100.00	0.00	0.00	6,100.00	0.00	0.00	0.00	0.00	0.00	0.00
6,200.00	0.00	0.00	6,200.00	0.00	0.00	0.00	0.00	0.00	0.00
6,300.00	0.00	0.00	6,300.00	0.00	0.00	0.00	0.00	0.00	0.00
6,381.00	0.00	0.00	6,381.00	0.00	0.00	0.00	0.00	0.00	0.00
Dunham Salt Top									
6,400.00	0.00	0.00	6,400.00	0.00	0.00	0.00	0.00	0.00	0.00
6,478.00	0.00	0.00	6,478.00	0.00	0.00	0.00	0.00	0.00	0.00
Minnelusa Group									
6,500.00	0.00	0.00	6,500.00	0.00	0.00	0.00	0.00	0.00	0.00
6,600.00	0.00	0.00	6,600.00	0.00	0.00	0.00	0.00	0.00	0.00
6,700.00	0.00	0.00	6,700.00	0.00	0.00	0.00	0.00	0.00	0.00
6,781.00	0.00	0.00	6,781.00	0.00	0.00	0.00	0.00	0.00	0.00
Tyler									
6,800.00	0.00	0.00	6,800.00	0.00	0.00	0.00	0.00	0.00	0.00
6,900.00	0.00	0.00	6,900.00	0.00	0.00	0.00	0.00	0.00	0.00
7,000.00	0.00	0.00	7,000.00	0.00	0.00	0.00	0.00	0.00	0.00
7,100.00	0.00	0.00	7,100.00	0.00	0.00	0.00	0.00	0.00	0.00
7,125.00	0.00	0.00	7,125.00	0.00	0.00	0.00	0.00	0.00	0.00
Kibbey									
7,200.00	0.00	0.00	7,200.00	0.00	0.00	0.00	0.00	0.00	0.00
7,250.00	0.00	0.00	7,250.00	0.00	0.00	0.00	0.00	0.00	0.00
Top Charles									
7,300.00	0.00	0.00	7,300.00	0.00	0.00	0.00	0.00	0.00	0.00
7,400.00	0.00	0.00	7,400.00	0.00	0.00	0.00	0.00	0.00	0.00
7,500.00	0.00	0.00	7,500.00	0.00	0.00	0.00	0.00	0.00	0.00
7,600.00	0.00	0.00	7,600.00	0.00	0.00	0.00	0.00	0.00	0.00
7,700.00	0.00	0.00	7,700.00	0.00	0.00	0.00	0.00	0.00	0.00
7,784.00	0.00	0.00	7,784.00	0.00	0.00	0.00	0.00	0.00	0.00
Base Last Charles Salt									
7,800.00	0.00	0.00	7,800.00	0.00	0.00	0.00	0.00	0.00	0.00
7,900.00	0.00	0.00	7,900.00	0.00	0.00	0.00	0.00	0.00	0.00
7,954.00	0.00	0.00	7,954.00	0.00	0.00	0.00	0.00	0.00	0.00
Mission Canyon									
8,000.00	0.00	0.00	8,000.00	0.00	0.00	0.00	0.00	0.00	0.00
8,100.00	0.00	0.00	8,100.00	0.00	0.00	0.00	0.00	0.00	0.00
8,200.00	0.00	0.00	8,200.00	0.00	0.00	0.00	0.00	0.00	0.00
8,300.00	0.00	0.00	8,300.00	0.00	0.00	0.00	0.00	0.00	0.00

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MONTANA BOARD OF OIL & GAS CONSERVATION - BILLINGS

Continental

PathFinder
Planning Report

PATHFINDER
A Schlumberger Company

Database:	EDM 5000.1 Single User Db	**Local Co-ordinate Reference:**	Well Collins 1-28H
Company:	Continental Resources Inc.	**TVD Reference:**	KB 25 ft @ 2501.00usft (H&P 258)
Project:	Richland County, MT	**MD Reference:**	KB 25 ft @ 2501.00usft (H&P 258)
Site:	Sec.28 - T23N - R52E	**North Reference:**	True
Well:	Collins 1-28H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Original Hole		
Design:	Rev 0		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
8,400.00	0.00	0.00	8,400.00	0.00	0.00	0.00	0.00	0.00	0.00
8,496.00	0.00	0.00	8,496.00	0.00	0.00	0.00	0.00	0.00	0.00
Lodgepole									
8,500.00	0.00	0.00	8,500.00	0.00	0.00	0.00	0.00	0.00	0.00
8,600.00	0.00	0.00	8,600.00	0.00	0.00	0.00	0.00	0.00	0.00
8,700.00	0.00	0.00	8,700.00	0.00	0.00	0.00	0.00	0.00	0.00
8,716.54	0.00	0.00	8,716.54	0.00	0.00	0.00	0.00	0.00	0.00
KOP, Build 12.0°/100' DLS									
8,800.00	10.02	180.00	8,799.58	-7.28	0.00	7.28	12.00	12.00	0.00
8,900.00	22.02	180.00	8,895.52	-34.81	0.00	34.81	12.00	12.00	0.00
9,000.00	34.02	180.00	8,983.64	-81.70	0.00	81.70	12.00	12.00	0.00
9,100.00	46.02	180.00	9,060.09	-145.88	0.00	145.88	12.00	12.00	0.00
9,200.00	58.02	180.00	9,121.52	-224.55	0.00	224.55	12.00	12.00	0.00
9,300.00	70.02	180.00	9,165.25	-314.28	0.00	314.28	12.00	12.00	0.00
9,400.00	82.02	180.00	9,189.38	-411.14	0.00	411.14	12.00	12.00	0.00
9,404.66	82.57	180.00	9,190.00	-415.76	0.00	415.76	12.00	12.00	0.00
Upper Bakken Shale									
9,464.62	89.77	180.00	9,194.00	-475.54	0.00	475.54	12.00	12.00	0.00
Upper Bakken Target									
9,465.76	89.91	180.00	9,194.00	-476.69	0.00	476.69	12.00	12.00	0.00
LP: U Bakken Tgt 9194' TVD - 7" Csg									
9,500.00	89.91	180.00	9,194.06	-510.93	0.00	510.93	0.00	0.00	0.00
9,600.00	89.91	180.00	9,194.22	-610.93	0.00	610.93	0.00	0.00	0.00
9,700.00	89.91	180.00	9,194.38	-710.93	0.00	710.93	0.00	0.00	0.00
9,800.00	89.91	180.00	9,194.55	-810.92	0.00	810.92	0.00	0.00	0.00
9,900.00	89.91	180.00	9,194.71	-910.92	0.00	910.92	0.00	0.00	0.00
10,000.00	89.91	180.00	9,194.87	-1,010.92	0.00	1,010.92	0.00	0.00	0.00
10,100.00	89.91	180.00	9,195.03	-1,110.92	0.00	1,110.92	0.00	0.00	0.00
10,200.00	89.91	180.00	9,195.20	-1,210.92	0.00	1,210.92	0.00	0.00	0.00
10,300.00	89.91	180.00	9,195.36	-1,310.92	0.00	1,310.92	0.00	0.00	0.00
10,400.00	89.91	180.00	9,195.52	-1,410.92	0.00	1,410.92	0.00	0.00	0.00
10,500.00	89.91	180.00	9,195.68	-1,510.92	0.00	1,510.92	0.00	0.00	0.00
10,600.00	89.91	180.00	9,195.85	-1,610.92	0.00	1,610.92	0.00	0.00	0.00
10,700.00	89.91	180.00	9,196.01	-1,710.92	0.00	1,710.92	0.00	0.00	0.00
10,800.00	89.91	180.00	9,196.17	-1,810.92	0.00	1,810.92	0.00	0.00	0.00
10,900.00	89.91	180.00	9,196.33	-1,910.92	0.00	1,910.92	0.00	0.00	0.00
11,000.00	89.91	180.00	9,196.50	-2,010.92	0.00	2,010.92	0.00	0.00	0.00
11,100.00	89.91	180.00	9,196.66	-2,110.92	0.00	2,110.92	0.00	0.00	0.00
11,200.00	89.91	180.00	9,196.82	-2,210.92	0.00	2,210.92	0.00	0.00	0.00
11,300.00	89.91	180.00	9,196.99	-2,310.92	0.00	2,310.92	0.00	0.00	0.00
11,400.00	89.91	180.00	9,197.15	-2,410.92	0.00	2,410.92	0.00	0.00	0.00
11,500.00	89.91	180.00	9,197.31	-2,510.92	0.00	2,510.92	0.00	0.00	0.00
11,600.00	89.91	180.00	9,197.47	-2,610.92	0.00	2,610.92	0.00	0.00	0.00
11,700.00	89.91	180.00	9,197.64	-2,710.92	0.00	2,710.92	0.00	0.00	0.00
11,800.00	89.91	180.00	9,197.80	-2,810.92	0.00	2,810.92	0.00	0.00	0.00
11,900.00	89.91	180.00	9,197.96	-2,910.92	0.00	2,910.92	0.00	0.00	0.00
12,000.00	89.91	180.00	9,198.12	-3,010.92	0.00	3,010.92	0.00	0.00	0.00
12,100.00	89.91	180.00	9,198.29	-3,110.92	0.00	3,110.92	0.00	0.00	0.00
12,200.00	89.91	180.00	9,198.45	-3,210.92	0.00	3,210.92	0.00	0.00	0.00
12,300.00	89.91	180.00	9,198.61	-3,310.92	0.00	3,310.92	0.00	0.00	0.00
12,400.00	89.91	180.00	9,198.77	-3,410.92	0.00	3,410.92	0.00	0.00	0.00
12,500.00	89.91	180.00	9,198.94	-3,510.92	0.00	3,510.92	0.00	0.00	0.00
12,600.00	89.91	180.00	9,199.10	-3,610.92	0.00	3,610.92	0.00	0.00	0.00
12,700.00	89.91	180.00	9,199.26	-3,710.92	0.00	3,710.92	0.00	0.00	0.00

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Continental

PathFinder
Planning Report

PATHFINDER
A Schlumberger Company

Database:	EDM 5000.1 Single User Db	**Local Co-ordinate Reference:**	Well Collins 1-28H
Company:	Continental Resources Inc.	**TVD Reference:**	KB 25 ft @ 2501.00usft (H&P 258)
Project:	Richland County, MT	**MD Reference:**	KB 25 ft @ 2501.00usft (H&P 258)
Site:	Sec.28 - T23N - R52E	**North Reference:**	True
Well:	Collins 1-28H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Original Hole		
Design:	Rev 0		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
12,800.00	89.91	180.00	9,199.42	-3,810.92	0.00	3,810.92	0.00	0.00	0.00
12,900.00	89.91	180.00	9,199.59	-3,910.92	0.00	3,910.92	0.00	0.00	0.00
13,000.00	89.91	180.00	9,199.75	-4,010.92	0.00	4,010.92	0.00	0.00	0.00
13,100.00	89.91	180.00	9,199.91	-4,110.92	0.00	4,110.92	0.00	0.00	0.00
13,200.00	89.91	180.00	9,200.07	-4,210.92	0.00	4,210.92	0.00	0.00	0.00
13,300.00	89.91	180.00	9,200.24	-4,310.92	0.00	4,310.92	0.00	0.00	0.00
13,400.00	89.91	180.00	9,200.40	-4,410.92	0.00	4,410.92	0.00	0.00	0.00
13,500.00	89.91	180.00	9,200.56	-4,510.92	0.00	4,510.92	0.00	0.00	0.00
13,600.00	89.91	180.00	9,200.72	-4,610.92	0.00	4,610.92	0.00	0.00	0.00
13,700.00	89.91	180.00	9,200.89	-4,710.92	0.00	4,710.92	0.00	0.00	0.00
13,770.08	89.91	180.00	9,201.00	-4,781.00	0.00	4,781.00	0.00	0.00	0.00
PBHL/TD - PBHL Collins 1-28H									

Design Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
PBHL Collins 1-28H - plan hits target center - Point	0.00	0.00	9,201.00	-4,781.00	0.00	1,295,487.865	3,061,296.535	47° 43' 6.647 N	105° 3' 21.315 W

Casing Points

Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (in)	Hole Diameter (in)
9,465.76	9,194.00	7" Csg	7.000	8.750

Formations

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
1,401.00	1,401.00	Pierre Shale		0.00	
4,131.00	4,131.00	Greenhorn		0.00	
4,534.00	4,534.00	Dakota Group (fka Mowry)		0.00	
5,374.00	5,374.00	Base of Dakota Sand		0.00	
6,381.00	6,381.00	Dunham Salt Top		0.00	
6,478.00	6,478.00	Minnelusa Group		0.00	
6,781.00	6,781.00	Tyler		0.00	
7,125.00	7,125.00	Kibbey		0.00	
7,250.00	7,250.00	Top Charles		0.00	
7,784.00	7,784.00	Base Last Charles Salt		0.00	
7,954.00	7,954.00	Mission Canyon		0.00	
8,496.00	8,496.00	Lodgepole		0.00	
9,404.66	9,190.00	Upper Bakken Shale		0.00	
9,464.62	9,194.00	Upper Bakken Target		0.00	

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Database:	EDM 5000.1 Single User Db	**Local Co-ordinate Reference:**	Well Collins 1-28H
Company:	Continental Resources Inc.	**TVD Reference:**	KB 25 ft @ 2501.00usft (H&P 258)
Project:	Richland County, MT	**MD Reference:**	KB 25 ft @ 2501.00usft (H&P 258)
Site:	Sec.28 - T23N - R52E	**North Reference:**	True
Well:	Collins 1-28H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	Original Hole		
Design:	Rev 0		

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates +N/-S (usft)	Local Coordinates +E/-W (usft)	Comment
8,716.54	8,716.54	0.00	0.00	KOP, Build 12.0°/100' DLS
9,465.76	9,194.00	-476.69	0.00	LP: U Bakken Tgt 9194' TVD
13,770.08	9,201.00	-4,781.00	0.00	PBHL/TD

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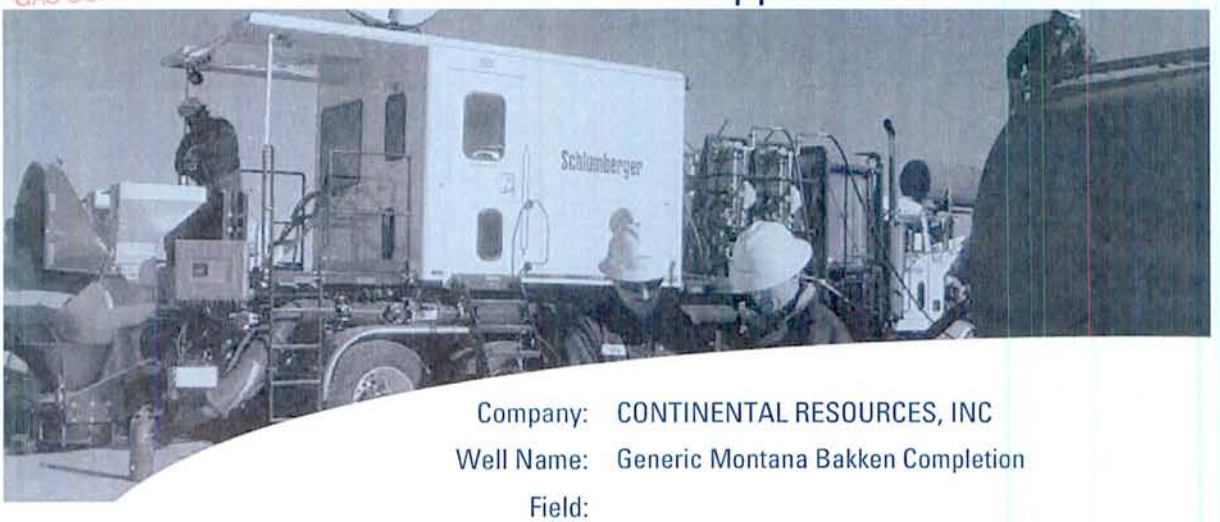
Propped Frac Treatment



Company:	CONTINENTAL RESOURCES, INC
Well Name:	Generic Montana Bakken Completion
Field:	
County:	
State:	MT
Date:	September 22, 2011
Well Location:	
API Number:	
Proposal Number:	1
Contact:	Brad Aman
Made By:	Brett Kreyche
Service from District:	Williston
District Phone:	(701) 572 8393
Objective:	Perform 24 Stages Sliding Sleeves Fracturing Service, Max Anticipated Treating Pressure: 8500 psi

Disclaimer Notice
This information is presented in good faith, but no warranty is given by and Schlumberger assumes no liability for advice or recommendations made concerning the use of any product or service. The results given are estimates based on calculations produced by a computer model including various assumptions on the well, reservoir and treatment. The results depend on input data provided by the Customer and estimates as to unknown data and can no more accurate than the model, the assumptions and such input data. The information presented is Schlumberger's best estimate of the results that may be achieved and should be used for comparison purposes rather than absolute values. The quality of input data, and hence results, may be improved through the use of certain tests and procedures which Schlumberger can assist in selecting. Freedoms from infringement of patents of Schlumberger or others is not to be inferred nor are any such rights granted unless expressly agreed to in writing.

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EXECUTIVE SUMMARY

Enclosed are our recommendations for Schlumberger intervention on the referenced well. The proposal includes well data, design data, materials and resources requirements and cost estimates. The purpose of our services is to perform a Propped Frac Treatment.

Schlumberger has established a safety policy to which all Schlumberger personnel must adhere. A pre-job safety meeting will be held with customer representatives and other on location personnel to familiarize everyone with existing hazards and safety procedures. We would appreciate close cooperation between the customer representative and the Schlumberger representative to ensure a safe operation.

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PUMPING SCHEDULE

*Max Anticipated Treating Pressure: 8500 psi

Treatment 1

Stage Name	Pump Rate bbl/min	Fluid Name	Stage Volume gal	Proppant	Prop. Conc PPA
PrePad	30.0	WF110	4200		0.0
Pad	30.0	YF125Flex	3150		0.0
0.5 PPA	30.0	YF125Flex	20000	40/70 Sand	0.5
1.0 PPA	30.0	YF125Flex	5000	Jordan Unimin 20/40	1.0
2.0 PPA	30.0	YF125Flex	5500	Jordan Unimin 20/40	2.0
3.0 PPA	30.0	YF125Flex	6000	Jordan Unimin 20/40	3.0
3.5 PPA	30.0	YF125Flex	5000	Jordan Unimin 20/40	3.5
4.0 PPA	30.0	YF125Flex	4500	Jordan Unimin 20/40	4.0
4.5 PPA	30.0	YF125Flex - J218(0.5)	3500	20/40 PowerProp	4.5
_Flush	30.0	YF125Flex - J218(1.0)	1500		0.0

Fluid Totals	
WF110	4200 gal
YF125Flex	49150 gal
YF125Flex - J218(0.5)	3500 gal
YF125Flex - J218(1.0)	1500 gal

Proppant Totals	
40/70 Sand	10000 lb
Jordan Unimin 20/40	69500 lb
20/40 PowerProp	15750 lb

Treatment Execution

Stage Name	Stage Liquid Volume	Cum. Liquid Volume	Stage Prop. Mass	Cum. Prop. Mass	Stage Time	Cum. Time
	gal	gal	lb	lb	min	min
PrePad	4200	4200	0	0	3.3	3.3
Pad	3150	7350	0	0	2.5	5.8
0.5 PPA	20000	27350	10000	10000	16.2	22
1.0 PPA	5000	32350	5000	15000	4.1	26.1
2.0 PPA	5500	37850	11000	26000	4.8	30.9
3.0 PPA	6000	43850	18000	44000	5.4	36.3
3.5 PPA	5000	48850	17500	61500	4.6	40.9
4.0 PPA	4500	53350	18000	79500	4.2	45.1
4.5 PPA	3500	56850	15750	95250	3.4	48.5
_Flush	1500	58350	0	95250	1.2	49.7

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PUMPING SCHEDULE

*Max Anticipated Treating Pressure: 8500 psi

Treatment 2

Stage Name	Pump Rate bbl/min	Fluid Name	Stage Volume gal	Proppant	Prop. Conc PPA
Drop Ball	15.0	WF125	100		0.0
Pump Ball	30.0	WF125	20995		0.0
Pad	30.0	YF125Flex	3150		0.0
0.5 PPA	30.0	YF125Flex	20000	40/70 Sand	0.5
1.0 PPA	30.0	YF125Flex	5000	Jordan Unimin 20/40	1.0
2.0 PPA	30.0	YF125Flex	5500	Jordan Unimin 20/40	2.0
3.0 PPA	30.0	YF125Flex	6000	Jordan Unimin 20/40	3.0
3.5 PPA	30.0	YF125Flex	5000	Jordan Unimin 20/40	3.5
4.0 PPA	30.0	YF125Flex	4500	Jordan Unimin 20/40	4.0
4.5 PPA	30.0	YF125Flex - J218(0.5)	3500	20/40 PowerProp	4.5
_Flush	30.0	YF125Flex - J218(1.0)	1500		0.0

Fluid Totals

WF125	21095 gal
YF125Flex	49150 gal
YF125Flex - J218(0.5)	3500 gal
YF125Flex - J218(1.0)	1500 gal

Proppant Totals

None 40/70 Sand	10000 lb
None Jordan Unimin 20/40	69500 lb
None 20/40 PowerProp	15750 lb

Treatment Execution

Stage Name	Stage Liquid Volume	Cum. Liquid Volume	Stage Prop. Mass	Cum. Prop. Mass	Stage Time	Cum. Time
	gal	gal	lb	lb	min	min
Drop Ball	100	100	0	0	0.2	0.2
Pump Ball	20995	21095	0	0	16.7	16.9
Pad	3150	24245	0	0	2.5	19.4
0.5 PPA	20000	44245	10000	10000	16.2	35.6
1.0 PPA	5000	49245	5000	15000	4.1	39.7
2.0 PPA	5500	54745	11000	26000	4.8	44.5
3.0 PPA	6000	60745	18000	44000	5.4	49.9
3.5 PPA	5000	65745	17500	61500	4.6	54.5
4.0 PPA	4500	70245	18000	79500	4.2	58.7
4.5 PPA	3500	73745	15750	95250	3.4	62.1
_Flush	1500	75245	0	95250	1.2	63.3

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PUMPING SCHEDULE

*Max Anticipated Treating Pressure: 8500 psi

Treatment 3					
Stage Name	**Pump Rate** bbl/min	**Fluid Name**	**Stage Volume** gal	**Proppant**	**Prop. Conc** PPA
Drop Ball	15.0	WF125	100		0.0
Pump Ball	30.0	WF125	20761		0.0
Pad	30.0	YF125Flex	3150		0.0
0.5 PPA	30.0	YF125Flex	20000	40/70 Sand	0.5
1.0 PPA	30.0	YF125Flex	5000	Jordan Unimin 20/40	1.0
2.0 PPA	30.0	YF125Flex	5500	Jordan Unimin 20/40	2.0
3.0 PPA	30.0	YF125Flex	6000	Jordan Unimin 20/40	3.0
3.5 PPA	30.0	YF125Flex	5000	Jordan Unimin 20/40	3.5
4.0 PPA	30.0	YF125Flex	4500	Jordan Unimin 20/40	4.0
4.5 PPA	30.0	YF125Flex - J218(0.5)	3500	20/40 PowerProp	4.5
_Flush	30.0	YF125Flex - J218(1.0)	1500		0.0

Fluid Totals	
WF125	20861 gal
YF125Flex	49150 gal
YF125Flex - J218(0.5)	3500 gal
YF125Flex - J218(1.0)	1500 gal

Proppant Totals	
None 40/70 Sand	10000 lb
None Jordan Unimin 20/40	69500 lb
None 20/40 PowerProp	15750 lb

Treatment Execution						
Stage Name	**Stage Liquid Volume**	**Cum. Liquid Volume**	**Stage Prop. Mass**	**Cum. Prop. Mass**	**Stage Time**	**Cum. Time**
	gal	gal	lb	lb	min	min
Drop Ball	100	100	0	0	0.2	0.2
Pump Ball	20761	20861	0	0	16.5	16.7
Pad	3150	24011	0	0	2.5	19.2
0.5 PPA	20000	44011	10000	10000	16.2	35.4
1.0 PPA	5000	49011	5000	15000	4.1	39.5
2.0 PPA	5500	54511	11000	26000	4.8	44.3
3.0 PPA	6000	60511	18000	44000	5.4	49.7
3.5 PPA	5000	65511	17500	61500	4.6	54.3
4.0 PPA	4500	70011	18000	79500	4.2	58.5
4.5 PPA	3500	73511	15750	95250	3.4	61.9
_Flush	1500	75011	0	95250	1.2	63.1

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PUMPING SCHEDULE

*Max Anticipated Treating Pressure: 8500 psi

Treatment 4

Stage Name	Pump Rate bbl/min	Fluid Name	Stage Volume gal	Proppant	Prop. Conc PPA
Drop Ball	15.0	YF125Flex	100		0.0
Pad	30.0	YF125Flex	3150		0.0
0.5 PPA	30.0	YF125Flex	20000	40/70 Sand	0.5
1.0 PPA	30.0	YF125Flex	5000	Jordan Unimin 20/40	1.0
2.0 PPA	30.0	YF125Flex	5500	Jordan Unimin 20/40	2.0
3.0 PPA	30.0	YF125Flex	6000	Jordan Unimin 20/40	3.0
3.5 PPA	30.0	YF125Flex	5000	Jordan Unimin 20/40	3.5
4.0 PPA	30.0	YF125Flex	4500	Jordan Unimin 20/40	4.0
4.5 PPA	30.0	YF125Flex - J218(0.5)	3500	20/40 PowerProp	4.5
_Flush	30.0	YF125Flex - J218(1.0)	1500		0.0

Fluid Totals

YF125Flex	49250 gal
YF125Flex - J218(0.5)	3500 gal
YF125Flex - J218(1.0)	1500 gal

Proppant Totals

None 40/70 Sand	10000 lb
None Jordan Unimin 20/40	69500 lb
None 20/40 PowerProp	15750 lb

Treatment Execution

Stage Name	Stage Liquid Volume	Cum. Liquid Volume	Stage Prop. Mass	Cum. Prop. Mass	Stage Time	Cum. Time
	gal	gal	lb	lb	min	min
Drop Ball	100	100	0	0	0.2	0.2
Pad	3150	3250	0	0	2.5	2.7
0.5 PPA	20000	23250	10000	10000	16.2	18.9
1.0 PPA	5000	28250	5000	15000	4.1	23
2.0 PPA	5500	33750	11000	26000	4.8	27.8
3.0 PPA	6000	39750	18000	44000	5.4	33.2
3.5 PPA	5000	44750	17500	61500	4.6	37.8
4.0 PPA	4500	49250	18000	79500	4.2	42
4.5 PPA	3500	52750	15750	95250	3.4	45.4
_Flush	1500	54250	0	95250	1.2	46.6

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PUMPING SCHEDULE

*Max Anticipated Treating Pressure: 8500 psi

Treatment 5

Stage Name	Pump Rate bbl/min	Fluid Name	Stage Volume gal	Proppant	Prop. Conc PPA
Drop Ball	15.0	YF125Flex	100		0.0
Pad	30.0	YF125Flex	3150		0.0
0.5 PPA	30.0	YF125Flex	20000	40/70 Sand	0.5
1.0 PPA	30.0	YF125Flex	5000	Jordan Unimin 20/40	1.0
2.0 PPA	30.0	YF125Flex	5500	Jordan Unimin 20/40	2.0
3.0 PPA	30.0	YF125Flex	6000	Jordan Unimin 20/40	3.0
3.5 PPA	30.0	YF125Flex	5000	Jordan Unimin 20/40	3.5
4.0 PPA	30.0	YF125Flex	4500	Jordan Unimin 20/40	4.0
4.5 PPA	30.0	YF125Flex - J218(0.5)	3500	20/40 PowerProp	4.5
_Flush	30.0	YF125Flex - J218(1.0)	1500		0.0

Fluid Totals	
YF125Flex	49250 gal
YF125Flex - J218(0.5)	3500 gal
YF125Flex - J218(1.0)	1500 gal

Proppant Totals	
None 40/70 Sand	10000 lb
None Jordan Unimin 20/40	69500 lb
None 20/40 PowerProp	15750 lb

Treatment Execution

Stage Name	Stage Liquid Volume	Cum. Liquid Volume	Stage Prop. Mass	Cum. Prop. Mass	Stage Time	Cum. Time
	gal	gal	lb	lb	min	min
Drop Ball	100	100	0	0	0.2	0.2
Pad	3150	3250	0	0	2.5	2.7
0.5 PPA	20000	23250	10000	10000	16.2	18.9
1.0 PPA	5000	28250	5000	15000	4.1	23
2.0 PPA	5500	33750	11000	26000	4.8	27.8
3.0 PPA	6000	39750	18000	44000	5.4	33.2
3.5 PPA	5000	44750	17500	61500	4.6	37.8
4.0 PPA	4500	49250	18000	79500	4.2	42
4.5 PPA	3500	52750	15750	95250	3.4	45.4
_Flush	1500	54250	0	95250	1.2	46.6

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PUMPING SCHEDULE

*Max Anticipated Treating Pressure: 8500 psi

Treatment 6					
Stage Name	**Pump Rate** bbl/min	**Fluid Name**	**Stage Volume** gal	**Proppant**	**Prop. Conc** PPA
Drop Ball	15.0	YF125Flex	100		0.0
Pad	30.0	YF125Flex	3150		0.0
0.5 PPA	30.0	YF125Flex	20000	40/70 Sand	0.5
1.0 PPA	30.0	YF125Flex	5000	Jordan Unimin 20/40	1.0
2.0 PPA	30.0	YF125Flex	5500	Jordan Unimin 20/40	2.0
3.0 PPA	30.0	YF125Flex	6000	Jordan Unimin 20/40	3.0
3.5 PPA	30.0	YF125Flex	5000	Jordan Unimin 20/40	3.5
4.0 PPA	30.0	YF125Flex	4500	Jordan Unimin 20/40	4.0
4.5 PPA	30.0	YF125Flex - J218(0.5)	3500	20/40 PowerProp	4.5
_Flush	30.0	YF125Flex - J218(1.0)	1500		0.0

Fluid Totals	
YF125Flex	49250 gal
YF125Flex - J218(0.5)	3500 gal
YF125Flex - J218(1.0)	1500 gal

Proppant Totals	
None 40/70 Sand	10000 lb
None Jordan Unimin 20/40	69500 lb
None 20/40 PowerProp	15750 lb

Treatment Execution						
Stage Name	**Stage Liquid Volume**	**Cum. Liquid Volume**	**Stage Prop. Mass**	**Cum. Prop. Mass**	**Stage Time**	**Cum. Time**
	gal	gal	lb	lb	min	min
Drop Ball	100	100	0	0	0.2	0.2
Pad	3150	3250	0	0	2.5	2.7
0.5 PPA	20000	23250	10000	10000	16.2	18.9
1.0 PPA	5000	28250	5000	15000	4.1	23
2.0 PPA	5500	33750	11000	26000	4.8	27.8
3.0 PPA	6000	39750	18000	44000	5.4	33.2
3.5 PPA	5000	44750	17500	61500	4.6	37.8
4.0 PPA	4500	49250	18000	79500	4.2	42
4.5 PPA	3500	52750	15750	95250	3.4	45.4
_Flush	1500	54250	0	95250	1.2	46.6

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PUMPING SCHEDULE

*Max Anticipated Treating Pressure: 8500 psi

Treatment 7					
Stage Name	**Pump Rate** bbl/min	**Fluid Name**	**Stage Volume** gal	**Proppant**	**Prop. Conc** PPA
Drop Ball	15.0	YF125Flex	100		0.0
Pad	30.0	YF125Flex	3150		0.0
0.5 PPA	30.0	YF125Flex	20000	40/70 Sand	0.5
1.0 PPA	30.0	YF125Flex	5000	Jordan Unimin 20/40	1.0
2.0 PPA	30.0	YF125Flex	5500	Jordan Unimin 20/40	2.0
3.0 PPA	30.0	YF125Flex	6000	Jordan Unimin 20/40	3.0
3.5 PPA	30.0	YF125Flex	5000	Jordan Unimin 20/40	3.5
4.0 PPA	30.0	YF125Flex	4500	Jordan Unimin 20/40	4.0
4.5 PPA	30.0	YF125Flex - J218(0.5)	3500	20/40 PowerProp	4.5
_Flush	30.0	YF125Flex - J218(1.0)	1500		0.0

Fluid Totals	
YF125Flex	49250 gal
YF125Flex - J218(0.5)	3500 gal
YF125Flex - J218(1.0)	1500 gal

Proppant Totals	
None 40/70 Sand	10000 lb
None Jordan Unimin 20/40	69500 lb
None 20/40 PowerProp	15750 lb

Treatment Execution						
Stage Name	**Stage Liquid Volume**	**Cum. Liquid Volume**	**Stage Prop. Mass**	**Cum. Prop. Mass**	**Stage Time**	**Cum. Time**
	gal	gal	lb	lb	min	min
Drop Ball	100	100	0	0	0.2	0.2
Pad	3150	3250	0	0	2.5	2.7
0.5 PPA	20000	23250	10000	10000	16.2	18.9
1.0 PPA	5000	28250	5000	15000	4.1	23
2.0 PPA	5500	33750	11000	26000	4.8	27.8
3.0 PPA	6000	39750	18000	44000	5.4	33.2
3.5 PPA	5000	44750	17500	61500	4.6	37.8
4.0 PPA	4500	49250	18000	79500	4.2	42
4.5 PPA	3500	52750	15750	95250	3.4	45.4
_Flush	1500	54250	0	95250	1.2	46.6

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PUMPING SCHEDULE

*Max Anticipated Treating Pressure: 8500 psi

Treatment 8

Stage Name	Pump Rate bbl/min	Fluid Name	Stage Volume gal	Proppant	Prop. Conc PPA
Drop Ball	15.0	YF125Flex	100		0.0
Pad	30.0	YF125Flex	3150		0.0
0.5 PPA	30.0	YF125Flex	20000	40/70 Sand	0.5
1.0 PPA	30.0	YF125Flex	5000	Jordan Unimin 20/40	1.0
2.0 PPA	30.0	YF125Flex	5500	Jordan Unimin 20/40	2.0
3.0 PPA	30.0	YF125Flex	6000	Jordan Unimin 20/40	3.0
3.5 PPA	30.0	YF125Flex	5000	Jordan Unimin 20/40	3.5
4.0 PPA	30.0	YF125Flex	4500	Jordan Unimin 20/40	4.0
4.5 PPA	30.0	YF125Flex - J218(0.5)	3500	20/40 PowerProp	4.5
_Flush	30.0	YF125Flex - J218(1.0)	1500		0.0

Fluid Totals

YF125Flex	49250 gal
YF125Flex - J218(0.5)	3500 gal
YF125Flex - J218(1.0)	1500 gal

Proppant Totals

None 40/70 Sand	10000 lb
None Jordan Unimin 20/40	69500 lb
None 20/40 PowerProp	15750 lb

Treatment Execution

Stage Name	Stage Liquid Volume	Cum. Liquid Volume	Stage Prop. Mass	Cum. Prop. Mass	Stage Time	Cum. Time
	gal	gal	lb	lb	min	min
Drop Ball	100	100	0	0	0.2	0.2
Pad	3150	3250	0	0	2.5	2.7
0.5 PPA	20000	23250	10000	10000	16.2	18.9
1.0 PPA	5000	28250	5000	15000	4.1	23
2.0 PPA	5500	33750	11000	26000	4.8	27.8
3.0 PPA	6000	39750	18000	44000	5.4	33.2
3.5 PPA	5000	44750	17500	61500	4.6	37.8
4.0 PPA	4500	49250	18000	79500	4.2	42
4.5 PPA	3500	52750	15750	95250	3.4	45.4
_Flush	1500	54250	0	95250	1.2	46.6

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PUMPING SCHEDULE

*Max Anticipated Treating Pressure: 8500 psi

Treatment 9					
Stage Name	**Pump Rate** bbl/min	**Fluid Name**	**Stage Volume** gal	**Proppant**	**Prop. Conc** PPA
Drop Ball	15.0	YF125Flex	100		0.0
Pad	30.0	YF125Flex	3150		0.0
0.5 PPA	30.0	YF125Flex	20000	40/70 Sand	0.5
1.0 PPA	30.0	YF125Flex	5000	Jordan Unimin 20/40	1.0
2.0 PPA	30.0	YF125Flex	5500	Jordan Unimin 20/40	2.0
3.0 PPA	30.0	YF125Flex	6000	Jordan Unimin 20/40	3.0
3.5 PPA	30.0	YF125Flex	5000	Jordan Unimin 20/40	3.5
4.0 PPA	30.0	YF125Flex	4500	Jordan Unimin 20/40	4.0
4.5 PPA	30.0	YF125Flex - J218(0.5)	3500	20/40 PowerProp	4.5
_Flush	30.0	YF125Flex - J218(1.0)	1500		0.0

Fluid Totals	
YF125Flex	49250 gal
YF125Flex - J218(0.5)	3500 gal
YF125Flex - J218(1.0)	1500 gal

Proppant Totals	
None 40/70 Sand	10000 lb
None Jordan Unimin 20/40	69500 lb
None 20/40 PowerProp	15750 lb

Treatment Execution						
Stage Name	**Stage Liquid Volume**	**Cum. Liquid Volume**	**Stage Prop. Mass**	**Cum. Prop. Mass**	**Stage Time**	**Cum. Time**
	gal	gal	lb	lb	min	min
Drop Ball	100	100	0	0	0.2	0.2
Pad	3150	3250	0	0	2.5	2.7
0.5 PPA	20000	23250	10000	10000	16.2	18.9
1.0 PPA	5000	28250	5000	15000	4.1	23
2.0 PPA	5500	33750	11000	26000	4.8	27.8
3.0 PPA	6000	39750	18000	44000	5.4	33.2
3.5 PPA	5000	44750	17500	61500	4.6	37.8
4.0 PPA	4500	49250	18000	79500	4.2	42
4.5 PPA	3500	52750	15750	95250	3.4	45.4
_Flush	1500	54250	0	95250	1.2	46.6

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PUMPING SCHEDULE

*Max Anticipated Treating Pressure: 8500 psi

Treatment 10					
Stage Name	**Pump Rate** bbl/min	**Fluid Name**	**Stage Volume** gal	**Proppant**	**Prop. Conc** PPA
Drop Ball	15.0	YF125Flex	100		0.0
Pad	30.0	YF125Flex	3150		0.0
0.5 PPA	30.0	YF125Flex	20000	40/70 Sand	0.5
1.0 PPA	30.0	YF125Flex	5000	Jordan Unimin 20/40	1.0
2.0 PPA	30.0	YF125Flex	5500	Jordan Unimin 20/40	2.0
3.0 PPA	30.0	YF125Flex	6000	Jordan Unimin 20/40	3.0
3.5 PPA	30.0	YF125Flex	5000	Jordan Unimin 20/40	3.5
4.0 PPA	30.0	YF125Flex	4500	Jordan Unimin 20/40	4.0
4.5 PPA	30.0	YF125Flex - J218(0.5)	3500	20/40 PowerProp	4.5
_Flush	30.0	YF125Flex - J218(1.0)	1500		0.0

Fluid Totals	
YF125Flex	49250 gal
YF125Flex - J218(0.5)	3500 gal
YF125Flex - J218(1.0)	1500 gal

Proppant Totals	
40/70 Sand	10000 lb
Jordan Unimin 20/40	69500 lb
20/40 PowerProp	15750 lb

Treatment Execution						
Stage Name	**Stage Liquid Volume**	**Cum. Liquid Volume**	**Stage Prop. Mass**	**Cum. Prop. Mass**	**Stage Time**	**Cum. Time**
	gal	gal	lb	lb	min	min
Drop Ball	100	100	0	0	0.2	0.2
Pad	3150	3250	0	0	2.5	2.7
0.5 PPA	20000	23250	10000	10000	16.2	18.9
1.0 PPA	5000	28250	5000	15000	4.1	23
2.0 PPA	5500	33750	11000	26000	4.8	27.8
3.0 PPA	6000	39750	18000	44000	5.4	33.2
3.5 PPA	5000	44750	17500	61500	4.6	37.8
4.0 PPA	4500	49250	18000	79500	4.2	42
4.5 PPA	3500	52750	15750	95250	3.4	45.4
_Flush	1500	54250	0	95250	1.2	46.6

Schlumberger

PUMPING SCHEDULE

*Max Anticipated Treating Pressure: 8500 psi

Treatment 11

Stage Name	Pump Rate bbl/min	Fluid Name	Stage Volume gal	Proppant	Prop. Conc PPA
Drop Ball	15.0	YF125Flex	100		0.0
Pad	30.0	YF125Flex	3150		0.0
0.5 PPA	30.0	YF125Flex	20000	40/70 Sand	0.5
1.0 PPA	30.0	YF125Flex	5000	Jordan Unimin 20/40	1.0
2.0 PPA	30.0	YF125Flex	5500	Jordan Unimin 20/40	2.0
3.0 PPA	30.0	YF125Flex	6000	Jordan Unimin 20/40	3.0
3.5 PPA	30.0	YF125Flex	5000	Jordan Unimin 20/40	3.5
4.0 PPA	30.0	YF125Flex	4500	Jordan Unimin 20/40	4.0
4.5 PPA	30.0	YF125Flex - J218(0.5)	3500	20/40 PowerProp	4.5
_Flush	30.0	YF125Flex - J218(1.0)	1500		0.0

Fluid Totals	
YF125Flex	49250 gal
YF125Flex - J218(0.5)	3500 gal
YF125Flex - J218(1.0)	1500 gal

Proppant Totals	
40/70 Sand	10000 lb
Jordan Unimin 20/40	69500 lb
20/40 PowerProp	15750 lb

Treatment Execution

Stage Name	Stage Liquid Volume	Cum. Liquid Volume	Stage Prop. Mass	Cum. Prop. Mass	Stage Time	Cum. Time
	gal	gal	lb	lb	min	min
Drop Ball	100	100	0	0	0.2	0.2
Pad	3150	3250	0	0	2.5	2.7
0.5 PPA	20000	23250	10000	10000	16.2	18.9
1.0 PPA	5000	28250	5000	15000	4.1	23
2.0 PPA	5500	33750	11000	26000	4.8	27.8
3.0 PPA	6000	39750	18000	44000	5.4	33.2
3.5 PPA	5000	44750	17500	61500	4.6	37.8
4.0 PPA	4500	49250	18000	79500	4.2	42
4.5 PPA	3500	52750	15750	95250	3.4	45.4
_Flush	1500	54250	0	95250	1.2	46.6

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PUMPING SCHEDULE

*Max Anticipated Treating Pressure: 8500 psi

Treatment 12

Stage Name	Pump Rate bbl/min	Fluid Name	Stage Volume gal	Proppant	Prop. Conc PPA
Drop Ball	15.0	YF125Flex	100		0.0
Pad	30.0	YF125Flex	3150		0.0
0.5 PPA	30.0	YF125Flex	20000	40/70 Sand	0.5
1.0 PPA	30.0	YF125Flex	5000	Jordan Unimin 20/40	1.0
2.0 PPA	30.0	YF125Flex	5500	Jordan Unimin 20/40	2.0
3.0 PPA	30.0	YF125Flex	6000	Jordan Unimin 20/40	3.0
3.5 PPA	30.0	YF125Flex	5000	Jordan Unimin 20/40	3.5
4.0 PPA	30.0	YF125Flex	4500	Jordan Unimin 20/40	4.0
4.5 PPA	30.0	YF125Flex - J218(0.5)	3500	20/40 PowerProp	4.5
_Flush	30.0	YF125Flex - J218(1.0)	1500		0.0

Fluid Totals	
YF125Flex	49250 gal
YF125Flex - J218(0.5)	3500 gal
YF125Flex - J218(1.0)	1500 gal

Proppant Totals	
40/70 Sand	10000 lb
Jordan Unimin 20/40	69500 lb
20/40 PowerProp	15750 lb

Treatment Execution

Stage Name	Stage Liquid Volume	Cum. Liquid Volume	Stage Prop. Mass	Cum. Prop. Mass	Stage Time	Cum. Time
	gal	gal	lb	lb	min	min
Drop Ball	100	100	0	0	0.2	0.2
Pad	3150	3250	0	0	2.5	2.7
0.5 PPA	20000	23250	10000	10000	16.2	18.9
1.0 PPA	5000	28250	5000	15000	4.1	23
2.0 PPA	5500	33750	11000	26000	4.8	27.8
3.0 PPA	6000	39750	18000	44000	5.4	33.2
3.5 PPA	5000	44750	17500	61500	4.6	37.8
4.0 PPA	4500	49250	18000	79500	4.2	42
4.5 PPA	3500	52750	15750	95250	3.4	45.4
_Flush	1500	54250	0	95250	1.2	46.6

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PUMPING SCHEDULE

*Max Anticipated Treating Pressure: 8500 psi

Treatment 13

Stage Name	Pump Rate bbl/min	Fluid Name	Stage Volume gal	Proppant	Prop. Conc PPA
Drop Ball	15.0	YF125Flex	100		0.0
Pad	30.0	YF125Flex	3150		0.0
0.5 PPA	30.0	YF125Flex	20000	40/70 Sand	0.5
1.0 PPA	30.0	YF125Flex	5000	Jordan Unimin 20/40	1.0
2.0 PPA	30.0	YF125Flex	5500	Jordan Unimin 20/40	2.0
3.0 PPA	30.0	YF125Flex	6000	Jordan Unimin 20/40	3.0
3.5 PPA	30.0	YF125Flex	5000	Jordan Unimin 20/40	3.5
4.0 PPA	30.0	YF125Flex	4500	Jordan Unimin 20/40	4.0
4.5 PPA	30.0	YF125Flex - J218(0.5)	3500	20/40 PowerProp	4.5
_Flush	30.0	YF125Flex - J218(1.0)	1500		0.0

Fluid Totals	
YF125Flex	49250 gal
YF125Flex - J218(0.5)	3500 gal
YF125Flex - J218(1.0)	1500 gal

Proppant Totals	
40/70 Sand	10000 lb
Jordan Unimin 20/40	69500 lb
20/40 PowerProp	15750 lb

Treatment Execution

Stage Name	Stage Liquid Volume	Cum. Liquid Volume	Stage Prop. Mass	Cum. Prop. Mass	Stage Time	Cum. Time
	gal	gal	lb	lb	min	min
Drop Ball	100	100	0	0	0.2	0.2
Pad	3150	3250	0	0	2.5	2.7
0.5 PPA	20000	23250	10000	10000	16.2	18.9
1.0 PPA	5000	28250	5000	15000	4.1	23
2.0 PPA	5500	33750	11000	26000	4.8	27.8
3.0 PPA	6000	39750	18000	44000	5.4	33.2
3.5 PPA	5000	44750	17500	61500	4.6	37.8
4.0 PPA	4500	49250	18000	79500	4.2	42
4.5 PPA	3500	52750	15750	95250	3.4	45.4
_Flush	1500	54250	0	95250	1.2	46.6

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*Max Anticipated Treating Pressure: 8500 psi

Treatment 14					
Stage Name	**Pump Rate** bbl/min	**Fluid Name**	**Stage Volume** gal	**Proppant**	**Prop. Conc** PPA
Drop Ball	15.0	YF125Flex	100		0.0
Pad	30.0	YF125Flex	3150		0.0
0.5 PPA	30.0	YF125Flex	20000	40/70 Sand	0.5
1.0 PPA	30.0	YF125Flex	5000	Jordan Unimin 20/40	1.0
2.0 PPA	30.0	YF125Flex	5500	Jordan Unimin 20/40	2.0
3.0 PPA	30.0	YF125Flex	6000	Jordan Unimin 20/40	3.0
3.5 PPA	30.0	YF125Flex	5000	Jordan Unimin 20/40	3.5
4.0 PPA	30.0	YF125Flex	4500	Jordan Unimin 20/40	4.0
4.5 PPA	30.0	YF125Flex - J218(0.5)	3500	20/40 PowerProp	4.5
_Flush	30.0	YF125Flex - J218(1.0)	1500		0.0

Fluid Totals	
YF125Flex	49250 gal
YF125Flex - J218(0.5)	3500 gal
YF125Flex - J218(1.0)	1500 gal

Proppant Totals	
40/70 Sand	10000 lb
Jordan Unimin 20/40	69500 lb
20/40 PowerProp	15750 lb

Treatment Execution						
Stage Name	**Stage Liquid Volume**	**Cum. Liquid Volume**	**Stage Prop. Mass**	**Cum. Prop. Mass**	**Stage Time**	**Cum. Time**
	gal	gal	lb	lb	min	min
Drop Ball	100	100	0	0	0.2	0.2
Pad	3150	3250	0	0	2.5	2.7
0.5 PPA	20000	23250	10000	10000	16.2	18.9
1.0 PPA	5000	28250	5000	15000	4.1	23
2.0 PPA	5500	33750	11000	26000	4.8	27.8
3.0 PPA	6000	39750	18000	44000	5.4	33.2
3.5 PPA	5000	44750	17500	61500	4.6	37.8
4.0 PPA	4500	49250	18000	79500	4.2	42
4.5 PPA	3500	52750	15750	95250	3.4	45.4
_Flush	1500	54250	0	95250	1.2	46.6

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PUMPING SCHEDULE

*Max Anticipated Treating Pressure: 8500 psi

Treatment 15					
Stage Name	**Pump Rate** bbl/min	**Fluid Name**	**Stage Volume** gal	**Proppant**	**Prop. Conc** PPA
Drop Ball	15.0	YF125Flex	100		0.0
Pad	30.0	YF125Flex	3150		0.0
0.5 PPA	30.0	YF125Flex	20000	40/70 Sand	0.5
1.0 PPA	30.0	YF125Flex	5000	Jordan Unimin 20/40	1.0
2.0 PPA	30.0	YF125Flex	5500	Jordan Unimin 20/40	2.0
3.0 PPA	30.0	YF125Flex	6000	Jordan Unimin 20/40	3.0
3.5 PPA	30.0	YF125Flex	5000	Jordan Unimin 20/40	3.5
4.0 PPA	30.0	YF125Flex	4500	Jordan Unimin 20/40	4.0
4.5 PPA	30.0	YF125Flex - J218(0.5)	3500	20/40 PowerProp	4.5
_Flush	30.0	YF125Flex - J218(1.0)	1500		0.0

Fluid Totals	
YF125Flex	49250 gal
YF125Flex - J218(0.5)	3500 gal
YF125Flex - J218(1.0)	1500 gal

Proppant Totals	
40/70 Sand	10000 lb
Jordan Unimin 20/40	69500 lb
20/40 PowerProp	15750 lb

Treatment Execution						
Stage Name	**Stage Liquid Volume**	**Cum. Liquid Volume**	**Stage Prop. Mass**	**Cum. Prop. Mass**	**Stage Time**	**Cum. Time**
	gal	gal	lb	lb	min	min
Drop Ball	100	100	0	0	0.2	0.2
Pad	3150	3250	0	0	2.5	2.7
0.5 PPA	20000	23250	10000	10000	16.2	18.9
1.0 PPA	5000	28250	5000	15000	4.1	23
2.0 PPA	5500	33750	11000	26000	4.8	27.8
3.0 PPA	6000	39750	18000	44000	5.4	33.2
3.5 PPA	5000	44750	17500	61500	4.6	37.8
4.0 PPA	4500	49250	18000	79500	4.2	42
4.5 PPA	3500	52750	15750	95250	3.4	45.4
_Flush	1500	54250	0	95250	1.2	46.6

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*Max Anticipated Treating Pressure: 8500 psi

Treatment 16					
Stage Name	**Pump Rate** bbl/min	**Fluid Name**	**Stage Volume** gal	**Proppant**	**Prop. Conc** PPA
Drop Ball	15.0	YF125Flex	100		0.0
Pad	30.0	YF125Flex	3150		0.0
0.5 PPA	30.0	YF125Flex	20000	40/70 Sand	0.5
1.0 PPA	30.0	YF125Flex	5000	Jordan Unimin 20/40	1.0
2.0 PPA	30.0	YF125Flex	5500	Jordan Unimin 20/40	2.0
3.0 PPA	30.0	YF125Flex	6000	Jordan Unimin 20/40	3.0
3.5 PPA	30.0	YF125Flex	5000	Jordan Unimin 20/40	3.5
4.0 PPA	30.0	YF125Flex	4500	Jordan Unimin 20/40	4.0
4.5 PPA	30.0	YF125Flex - J218(0.5)	3500	20/40 PowerProp	4.5
_Flush	30.0	YF125Flex - J218(1.0)	1500		0.0
PPA	30.0	YF125Flex - J218(1.0)	10000		0.0

Fluid Totals	
YF125Flex	49250 gal
YF125Flex - J218(0.5)	3500 gal
YF125Flex - J218(1.0)	11500 gal

Proppant Totals	
40/70 Sand	10000 lb
Jordan Unimin 20/40	69500 lb
20/40 PowerProp	15750 lb

Treatment Execution						
Stage Name	**Stage Liquid Volume**	**Cum. Liquid Volume**	**Stage Prop. Mass**	**Cum. Prop. Mass**	**Stage Time**	**Cum. Time**
	gal	gal	lb	lb	min	min
Drop Ball	100	100	0	0	0.2	0.2
Pad	3150	3250	0	0	2.5	2.7
0.5 PPA	20000	23250	10000	10000	16.2	18.9
1.0 PPA	5000	28250	5000	15000	4.1	23
2.0 PPA	5500	33750	11000	26000	4.8	27.8
3.0 PPA	6000	39750	18000	44000	5.4	33.2
3.5 PPA	5000	44750	17500	61500	4.6	37.8
4.0 PPA	4500	49250	18000	79500	4.2	42
4.5 PPA	3500	52750	15750	95250	3.4	45.4
_Flush	1500	54250	0	95250	1.2	46.6
PPA	10000	64250	0	95250	7.9	54.5

PUMPING SCHEDULE

*Max Anticipated Treating Pressure: 8500 psi

Treatment 17					
Stage Name	**Pump Rate** bbl/min	**Fluid Name**	**Stage Volume** gal	**Proppant**	**Prop. Conc** PPA
Drop Ball	15.0	YF125Flex	100		0.0
Pad	30.0	YF125Flex	3150		0.0
0.5 PPA	30.0	YF125Flex	20000	40/70 Sand	0.5
1.0 PPA	30.0	YF125Flex	5000	Jordan Unimin 20/40	1.0
2.0 PPA	30.0	YF125Flex	5500	Jordan Unimin 20/40	2.0
3.0 PPA	30.0	YF125Flex	6000	Jordan Unimin 20/40	3.0
3.5 PPA	30.0	YF125Flex	5000	Jordan Unimin 20/40	3.5
4.0 PPA	30.0	YF125Flex	4500	Jordan Unimin 20/40	4.0
4.5 PPA	30.0	YF125Flex - J218(0.5)	3500	20/40 PowerProp	4.5
_Flush	30.0	YF125Flex - J218(1.0)	1500		0.0

Fluid Totals	
YF125Flex	49250 gal
YF125Flex - J218(0.5)	3500 gal
YF125Flex - J218(1.0)	1500 gal

Proppant Totals	
40/70 Sand	10000 lb
Jordan Unimin 20/40	69500 lb
20/40 PowerProp	15750 lb

Treatment Execution						
Stage Name	**Stage Liquid Volume**	**Cum. Liquid Volume**	**Stage Prop. Mass**	**Cum. Prop. Mass**	**Stage Time**	**Cum. Time**
	gal	gal	lb	lb	min	min
Drop Ball	100	100	0	0	0.2	0.2
Pad	3150	3250	0	0	2.5	2.7
0.5 PPA	20000	23250	10000	10000	16.2	18.9
1.0 PPA	5000	28250	5000	15000	4.1	23
2.0 PPA	5500	33750	11000	26000	4.8	27.8
3.0 PPA	6000	39750	18000	44000	5.4	33.2
3.5 PPA	5000	44750	17500	61500	4.6	37.8
4.0 PPA	4500	49250	18000	79500	4.2	42
4.5 PPA	3500	52750	15750	95250	3.4	45.4
_Flush	1500	54250	0	95250	1.2	46.6

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PUMPING SCHEDULE

*Max Anticipated Treating Pressure: 8500 psi

Treatment 18					
Stage Name	**Pump Rate** bbl/min	**Fluid Name**	**Stage Volume** gal	**Proppant**	**Prop. Conc** PPA
Drop Ball	15.0	YF125Flex	100		0.0
Pad	30.0	YF125Flex	3150		0.0
0.5 PPA	30.0	YF125Flex	20000	40/70 Sand	0.5
1.0 PPA	30.0	YF125Flex	5000	Jordan Unimin 20/40	1.0
2.0 PPA	30.0	YF125Flex	5500	Jordan Unimin 20/40	2.0
3.0 PPA	30.0	YF125Flex	6000	Jordan Unimin 20/40	3.0
3.5 PPA	30.0	YF125Flex	5000	Jordan Unimin 20/40	3.5
4.0 PPA	30.0	YF125Flex	4500	Jordan Unimin 20/40	4.0
4.5 PPA	30.0	YF125Flex - J218(0.5)	3500	20/40 PowerProp	4.5
_Flush	30.0	YF125Flex - J218(1.0)	1500		0.0

Fluid Totals	
YF125Flex	49250 gal
YF125Flex - J218(0.5)	3500 gal
YF125Flex - J218(1.0)	1500 gal

Proppant Totals	
40/70 Sand	10000 lb
Jordan Unimin 20/40	69500 lb
20/40 PowerProp	15750 lb

Treatment Execution						
Stage Name	**Stage Liquid Volume**	**Cum. Liquid Volume**	**Stage Prop. Mass**	**Cum. Prop. Mass**	**Stage Time**	**Cum. Time**
	gal	gal	lb	lb	min	min
Drop Ball	100	100	0	0	0.2	0.2
Pad	3150	3250	0	0	2.5	2.7
0.5 PPA	20000	23250	10000	10000	16.2	18.9
1.0 PPA	5000	28250	5000	15000	4.1	23
2.0 PPA	5500	33750	11000	26000	4.8	27.8
3.0 PPA	6000	39750	18000	44000	5.4	33.2
3.5 PPA	5000	44750	17500	61500	4.6	37.8
4.0 PPA	4500	49250	18000	79500	4.2	42
4.5 PPA	3500	52750	15750	95250	3.4	45.4
_Flush	1500	54250	0	95250	1.2	46.6

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PUMPING SCHEDULE

*Max Anticipated Treating Pressure: 8500 psi

Treatment 19					
Stage Name	**Pump Rate** bbl/min	**Fluid Name**	**Stage Volume** gal	**Proppant**	**Prop. Conc** PPA
Drop Ball	15.0	YF125Flex	100		0.0
Pad	30.0	YF125Flex	3150		0.0
0.5 PPA	30.0	YF125Flex	20000	40/70 Sand	0.5
1.0 PPA	30.0	YF125Flex	5000	Jordan Unimin 20/40	1.0
2.0 PPA	30.0	YF125Flex	5500	Jordan Unimin 20/40	2.0
3.0 PPA	30.0	YF125Flex	6000	Jordan Unimin 20/40	3.0
3.5 PPA	30.0	YF125Flex	5000	Jordan Unimin 20/40	3.5
4.0 PPA	30.0	YF125Flex	4500	Jordan Unimin 20/40	4.0
4.5 PPA	30.0	YF125Flex - J218(0.5)	3500	20/40 PowerProp	4.5
_Flush	30.0	YF125Flex - J218(1.0)	1500		0.0

Fluid Totals	
YF125Flex	49250 gal
YF125Flex - J218(0.5)	3500 gal
YF125Flex - J218(1.0)	1500 gal

Proppant Totals	
40/70 Sand	10000 lb
Jordan Unimin 20/40	69500 lb
20/40 PowerProp	15750 lb

Treatment Execution						
Stage Name	**Stage Liquid Volume**	**Cum. Liquid Volume**	**Stage Prop. Mass**	**Cum. Prop. Mass**	**Stage Time**	**Cum. Time**
	gal	gal	lb	lb	min	min
Drop Ball	100	100	0	0	0.2	0.2
Pad	3150	3250	0	0	2.5	2.7
0.5 PPA	20000	23250	10000	10000	16.2	18.9
1.0 PPA	5000	28250	5000	15000	4.1	23
2.0 PPA	5500	33750	11000	26000	4.8	27.8
3.0 PPA	6000	39750	18000	44000	5.4	33.2
3.5 PPA	5000	44750	17500	61500	4.6	37.8
4.0 PPA	4500	49250	18000	79500	4.2	42
4.5 PPA	3500	52750	15750	95250	3.4	45.4
_Flush	1500	54250	0	95250	1.2	46.6

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PUMPING SCHEDULE

*Max Anticipated Treating Pressure: 8500 psi

Treatment 20

Stage Name	Pump Rate bbl/min	Fluid Name	Stage Volume gal	Proppant	Prop. Conc PPA
Drop Ball	15.0	YF125Flex	100		0.0
Pad	30.0	YF125Flex	3150		0.0
0.5 PPA	30.0	YF125Flex	20000	40/70 Sand	0.5
1.0 PPA	30.0	YF125Flex	5000	Jordan Unimin 20/40	1.0
2.0 PPA	30.0	YF125Flex	5500	Jordan Unimin 20/40	2.0
3.0 PPA	30.0	YF125Flex	6000	Jordan Unimin 20/40	3.0
3.5 PPA	30.0	YF125Flex	5000	Jordan Unimin 20/40	3.5
4.0 PPA	30.0	YF125Flex	4500	Jordan Unimin 20/40	4.0
4.5 PPA	30.0	YF125Flex - J218(0.5)	3500	20/40 PowerProp	4.5
_Flush	30.0	YF125Flex - J218(1.0)	1500		0.0

Fluid Totals

YF125Flex	49250 gal
YF125Flex - J218(0.5)	3500 gal
YF125Flex - J218(1.0)	1500 gal

Proppant Totals

None 40/70 Sand	10000 lb
None Jordan Unimin 20/40	69500 lb
None 20/40 PowerProp	15750 lb

Treatment Execution

Stage Name	Stage Liquid Volume	Cum. Liquid Volume	Stage Prop. Mass	Cum. Prop. Mass	Stage Time	Cum. Time
	gal	gal	lb	lb	min	min
Drop Ball	100	100	0	0	0.2	0.2
Pad	3150	3250	0	0	2.5	2.7
0.5 PPA	20000	23250	10000	10000	16.2	18.9
1.0 PPA	5000	28250	5000	15000	4.1	23
2.0 PPA	5500	33750	11000	26000	4.8	27.8
3.0 PPA	6000	39750	18000	44000	5.4	33.2
3.5 PPA	5000	44750	17500	61500	4.6	37.8
4.0 PPA	4500	49250	18000	79500	4.2	42
4.5 PPA	3500	52750	15750	95250	3.4	45.4
_Flush	1500	54250	0	95250	1.2	46.6

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PUMPING SCHEDULE

*Max Anticipated Treating Pressure: 8500 psi

Treatment 21					
Stage Name	**Pump Rate** bbl/min	**Fluid Name**	**Stage Volume** gal	**Proppant**	**Prop. Conc** PPA
Drop Ball	15.0	YF125Flex	100		0.0
Pad	30.0	YF125Flex	3150		0.0
0.5 PPA	30.0	YF125Flex	20000	40/70 Sand	0.5
1.0 PPA	30.0	YF125Flex	5000	Jordan Unimin 20/40	1.0
2.0 PPA	30.0	YF125Flex	5500	Jordan Unimin 20/40	2.0
3.0 PPA	30.0	YF125Flex	6000	Jordan Unimin 20/40	3.0
3.5 PPA	30.0	YF125Flex	5000	Jordan Unimin 20/40	3.5
4.0 PPA	30.0	YF125Flex	4500	Jordan Unimin 20/40	4.0
4.5 PPA	30.0	YF125Flex - J218(0.5)	3500	20/40 PowerProp	4.5
_Flush	30.0	YF125Flex - J218(1.0)	1500		0.0

Fluid Totals	
YF125Flex	49250 gal
YF125Flex - J218(0.5)	3500 gal
YF125Flex - J218(1.0)	1500 gal

Proppant Totals	
None 40/70 Sand	10000 lb
None Jordan Unimin 20/40	69500 lb
None 20/40 PowerProp	15750 lb

Treatment Execution						
Stage Name	**Stage Liquid Volume**	**Cum. Liquid Volume**	**Stage Prop. Mass**	**Cum. Prop. Mass**	**Stage Time**	**Cum. Time**
	gal	gal	lb	lb	min	min
Drop Ball	100	100	0	0	0.2	0.2
Pad	3150	3250	0	0	2.5	2.7
0.5 PPA	20000	23250	10000	10000	16.2	18.9
1.0 PPA	5000	28250	5000	15000	4.1	23
2.0 PPA	5500	33750	11000	26000	4.8	27.8
3.0 PPA	6000	39750	18000	44000	5.4	33.2
3.5 PPA	5000	44750	17500	61500	4.6	37.8
4.0 PPA	4500	49250	18000	79500	4.2	42
4.5 PPA	3500	52750	15750	95250	3.4	45.4
_Flush	1500	54250	0	95250	1.2	46.6

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PUMPING SCHEDULE

*Max Anticipated Treating Pressure: 8500 psi

Treatment 22					
Stage Name	**Pump Rate** bbl/min	**Fluid Name**	**Stage Volume** gal	**Proppant**	**Prop. Conc** PPA
Drop Ball	15.0	YF125Flex	100		0.0
Pad	30.0	YF125Flex	3150		0.0
0.5 PPA	30.0	YF125Flex	20000	40/70 Sand	0.5
1.0 PPA	30.0	YF125Flex	5000	Jordan Unimin 20/40	1.0
2.0 PPA	30.0	YF125Flex	5500	Jordan Unimin 20/40	2.0
3.0 PPA	30.0	YF125Flex	6000	Jordan Unimin 20/40	3.0
3.5 PPA	30.0	YF125Flex	5000	Jordan Unimin 20/40	3.5
4.0 PPA	30.0	YF125Flex	4500	Jordan Unimin 20/40	4.0
4.5 PPA	30.0	YF125Flex - J218(0.5)	3500	20/40 PowerProp	4.5
_Flush	30.0	YF125Flex - J218(1.0)	1500		0.0

Fluid Totals	
YF125Flex	49250 gal
YF125Flex - J218(0.5)	3500 gal
YF125Flex - J218(1.0)	1500 gal

Proppant Totals	
None 40/70 Sand	10000 lb
None Jordan Unimin 20/40	69500 lb
None 20/40 PowerProp	15750 lb

Treatment Execution						
Stage Name	**Stage Liquid Volume**	**Cum. Liquid Volume**	**Stage Prop. Mass**	**Cum. Prop. Mass**	**Stage Time**	**Cum. Time**
	gal	gal	lb	lb	min	min
Drop Ball	100	100	0	0	0.2	0.2
Pad	3150	3250	0	0	2.5	2.7
0.5 PPA	20000	23250	10000	10000	16.2	18.9
1.0 PPA	5000	28250	5000	15000	4.1	23
2.0 PPA	5500	33750	11000	26000	4.8	27.8
3.0 PPA	6000	39750	18000	44000	5.4	33.2
3.5 PPA	5000	44750	17500	61500	4.6	37.8
4.0 PPA	4500	49250	18000	79500	4.2	42
4.5 PPA	3500	52750	15750	95250	3.4	45.4
_Flush	1500	54250	0	95250	1.2	46.6

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PUMPING SCHEDULE

*Max Anticipated Treating Pressure: 8500 psi

Treatment 23					
Stage Name	**Pump Rate** bbl/min	**Fluid Name**	**Stage Volume** gal	**Proppant**	**Prop. Conc** PPA
Drop Ball	15.0	YF125Flex	100		0.0
Pad	30.0	YF125Flex	3150		0.0
0.5 PPA	30.0	YF125Flex	20000	40/70 Sand	0.5
1.0 PPA	30.0	YF125Flex	5000	Jordan Unimin 20/40	1.0
2.0 PPA	30.0	YF125Flex	5500	Jordan Unimin 20/40	2.0
3.0 PPA	30.0	YF125Flex	6000	Jordan Unimin 20/40	3.0
3.5 PPA	30.0	YF125Flex	5000	Jordan Unimin 20/40	3.5
4.0 PPA	30.0	YF125Flex	4500	Jordan Unimin 20/40	4.0
4.5 PPA	30.0	YF125Flex - J218(0.5)	3500	20/40 PowerProp	4.5
_Flush	30.0	YF125Flex - J218(1.0)	1500		0.0
PPA	30.0	YF125Flex - J218(1.0)	10000		0.0

Fluid Totals	
YF125Flex	49250 gal
YF125Flex - J218(0.5)	3500 gal
YF125Flex - J218(1.0)	11500 gal

Proppant Totals	
None 40/70 Sand	10000 lb
None Jordan Unimin 20/40	69500 lb
None 20/40 PowerProp	15750 lb

Treatment Execution						
Stage Name	**Stage Liquid Volume**	**Cum. Liquid Volume**	**Stage Prop. Mass**	**Cum. Prop. Mass**	**Stage Time**	**Cum. Time**
	gal	gal	lb	lb	min	min
Drop Ball	100	100	0	0	0.2	0.2
Pad	3150	3250	0	0	2.5	2.7
0.5 PPA	20000	23250	10000	10000	16.2	18.9
1.0 PPA	5000	28250	5000	15000	4.1	23
2.0 PPA	5500	33750	11000	26000	4.8	27.8
3.0 PPA	6000	39750	18000	44000	5.4	33.2
3.5 PPA	5000	44750	17500	61500	4.6	37.8
4.0 PPA	4500	49250	18000	79500	4.2	42
4.5 PPA	3500	52750	15750	95250	3.4	45.4
_Flush	1500	54250	0	95250	1.2	46.6
PPA	10000	64250	0	95250	7.9	54.5

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PUMPING SCHEDULE

*Max Anticipated Treating Pressure: 8500 psi

Treatment 24

Stage Name	Pump Rate bbl/min	Fluid Name	Stage Volume gal	Proppant	Prop. Conc PPA
Drop Ball	15.0	YF125Flex	100		0.0
Pad	30.0	YF125Flex	3150		0.0
0.5 PPA	30.0	YF125Flex	20000	40/70 Sand	0.5
1.0 PPA	30.0	YF125Flex	5000	Jordan Unimin 20/40	1.0
2.0 PPA	30.0	YF125Flex	5500	Jordan Unimin 20/40	2.0
3.0 PPA	30.0	YF125Flex	6000	Jordan Unimin 20/40	3.0
3.5 PPA	30.0	YF125Flex	5000	Jordan Unimin 20/40	3.5
4.0 PPA	30.0	YF125Flex	4500	Jordan Unimin 20/40	4.0
4.5 PPA	30.0	YF125Flex - J218(0.5)	3500	20/40 PowerProp	4.5
Pre Flush	30.0	YF125Flex - J218(1.0)	1500		0.0
_Flush	30.0	WF110	15576		0.0

Fluid Totals

YF125Flex	49250 gal
YF125Flex - J218(0.5)	3500 gal
YF125Flex - J218(1.0)	1500 gal
WF110	15576 gal

Proppant Totals

None 40/70 Sand	10000 lb
None Jordan Unimin 20/40	69500 lb
None 20/40 PowerProp	15750 lb

Treatment Execution

Stage Name	Stage Liquid Volume	Cum. Liquid Volume	Stage Prop. Mass	Cum. Prop. Mass	Stage Time	Cum. Time
	gal	gal	lb	lb	min	min
Drop Ball	100	100	0	0	0.2	0.2
Pad	3150	3250	0	0	2.5	2.7
0.5 PPA	20000	23250	10000	10000	16.2	18.9
1.0 PPA	5000	28250	5000	15000	4.1	23
2.0 PPA	5500	33750	11000	26000	4.8	27.8
3.0 PPA	6000	39750	18000	44000	5.4	33.2
3.5 PPA	5000	44750	17500	61500	4.6	37.8
4.0 PPA	4500	49250	18000	79500	4.2	42
4.5 PPA	3500	52750	15750	95250	3.4	45.4
Pre Flush	1500	54250	0	95250	1.2	46.6
_Flush	15576	69826	0	95250	12.4	59

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LOAD OUT SUMMARY

Job				
Fluid/Material Type	**Code**	**Quantity**	**% Excess**	**Load Quantity**
Gelling Agent	B306	8572.3 gal	5.0	9000.9 gal
Non-emulsifier	W054	1383.4 gal	5.0	1452.6 gal
Surfactant	J583	2075.1 gal	5.0	2178.9 gal
Breaker	J481	1343 lb	5.0	1410 lb
Cross Linker	J610	0.00	0.0	0.00
Breaker	B368	590.58	35.7	801.58
Delay Agent	J511	6212 lb	5.0	6523 lb
Activator	M007	396.5 gal	5.0	416.3 gal
Breaker	J218	98 lb	5.0	103 lb
40/70 Sand	S022-PREMIUM	240000 lb	0.0	240000 lb
Jordan Unimin 20/40	S020-PREMIUM	1667999 lb	0.0	1667999 lb
20/40 PowerProp	S134-2040	378000 lb	0.0	378000 lb
Biocide	M298	981 lb	5.0	1030 lb
FTL Material	J956	1321701 gal	0.0	1321701 gal

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Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	4/27/2013
Job End Date:	4/29/2013
State:	Montana
County:	Richland
API Number:	25-083-23131-00-00
Operator Name:	Continental Resources, Inc
Well Name and Number:	Collins 1-28H
Longitude:	-105.05539000
Latitude:	47.73161000
Datum:	NAD27
Federal/Tribal Well:	NO
Total Base Water Volume (gal):	1,002,417
Total Base Non Water Volume:	

FracFocus Chemical Disclosure Registry

GROUNDWATER PROTECTION COUNCIL

Oil & Gas

Hydraulic Fracturing Fluid Composition:

Trade Name	Supplier	Purpose	Ingredients	Chemical Abstract Service Number (CAS #)	Maximum Ingredient Concentration in Additive (% by mass)**	Maximum Ingredient Concentration in HF Fluid (% by mass)**	Comments
Ingredients shown above are subject to 29 CFR 1910.1200(i) and appear on Material Safety Data Sheets (MSDS). Ingredients shown below are Non-MSDS.							
Slickwater, YF125FLEX, WF110	Schlumberger	Friction Reducer, Breaker, Gelling Agent, Surfactant , Crosslinker, Industrial Antimicrobial, Emulsion Preventer, Propping Agent, Fluid Loss Additive					
			Water (Including Mix Water Supplied by Client)*	-		91.38382	
			Crystalline silica	14808-60-7	94.73010	8.16211	
			Guar gum	9000-30-0	2.17989	0.18782	
			Tetramethylammonium chloride	75-57-0	0.58710	0.05059	
			Potassium borate	1332-77-0	0.57998	0.04997	
			Phenolic resin	9003-35-4	0.51641	0.04449	
			Propan-2-ol	67-63-0	0.42674	0.03677	
			Glycerol	56-81-5	0.33066	0.02849	
			Potassium hydroxide	1310-58-3	0.18912	0.01629	
			Decyl-dimethyl amine oxide	2605-79-0	0.14143	0.01219	
			Crosslinked PO/EO-block polymer	68123-18-2	0.12802	0.01103	
			Acrylamide sodium acrylate copolymer	25085-02-3	0.07176	0.00618	

			Sodium bromate	7789-38-0	0.06339	0.00546	
			Distillates (petroleum), hydrotreated light	64742-47-8	0.06234	0.00537	
			Alcohol, C11-14, ethoxylated	78330-21-9	0.04254	0.00367	
			Alkyl (c10-c14) alcohols, ethoxylated	66455-15-0	0.04263	0.00367	
			Methyl oxirane polymer with oxirane	9003-11-6	0.04217	0.00363	
			Tetrakis(hydroxymethyl) phosphonium sulfate	55566-30-8	0.03346	0.00288	
			Dioctyl sulfosuccinate sodium salt	577-11-7	0.01991	0.00172	
			Diammonium peroxidisulphate	7727-54-0	0.01325	0.00114	
			Non-crystalline silica	7631-86-9	0.00594	0.00051	
			Propylene glycol	57-55-6	0.00427	0.00037	
			Alkylalcohol, ethoxylate >C10	68002-97-1	0.00382	0.00033	
			Sorbitan monooleate	1338-43-8	0.00305	0.00026	
			Polyvinylidene chloride	9002-85-1	0.00279	0.00024	
			Thiocyanic acid, ammonium salt	1762-95-4	0.00188	0.00016	
			Poly(oxyethylene) sorbitol monostearate	9005-67-8	0.00178	0.00015	
			Hydrogen peroxide (impurity)	7722-84-1	0.00164	0.00014	
			Decyldimethyl amine (impurity)	1120-24-7	0.00164	0.00014	
			2-ethylhexan-1-ol	104-76-7	0.00057	0.00005	
			Oleic acid	112-80-1	0.00023	0.00002	
			Potassium oleate	143-18-0	0.00028	0.00002	
			Acetic acid, potassium salt	127-08-2	0.00006	0.00001	
			Magnesium silicate hydrate (talc)	14807-96-6	0.00007	0.00001	
			Acetic acid	64-19-7	0.00001		
			Tetrasodium ethylenediaminetetraacetate	64-02-8	0.00002		

* Total Water Volume sources may include fresh water, produced water, and/or recycled water
** Information is based on the maximum potential for concentration and thus the total may be over 100%

Note: For Field Development Products (products that begin with FDP), MSDS level only information has been provided.
Ingredient information for chemicals subject to 29 CFR 1910.1200(i) and Appendix D are obtained from suppliers Material Safety Data Sheets (MSDS)

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SPUD INFORMATION

WELL NAME: Collins 1-28H

API #: 083-23131

LOCATION: NENW-28-23N-52E
(Twp-Rge-Sec: ¼ ¼)

SPUD TIME: 5 Am

DATE: 3-19-13

DRILLING COMPANY: White Mtn (HP 257 to drill remainder)

RIG #: 750

CALLER'S NAME: Sonny

COMPANY NAME: CR

OTHER:

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MONTANA BOARD OF OIL &
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SPUD NOTICE:

Company Name:	Continental Resources
API Number:	25-083-23131
Location:	Collins 1-28H
Sec.Twp,Range	SEC 28 T23N R52E Richland Co., MT
Spud Time & Date	00:00 MST 4/1/2013
Drill Company:	Helmerich & Payne
Rig:	Rig # 257
Name:	Myles Shea
Rig Phone:	701-557-2009
Permit and File #	30621

Please call if any questions

Montana Board of Oil and Gas Conservation
Environmental Assessment

Operator: Continental Resources, Inc.
Well Name/Number: Collins 1-28H
Location: NE NW Section 28 T23N R52E
County: Richland , **MT; Field (or Wildcat)** W/C (Bakken Horizontal)

Air Quality

(possible concerns)
Long drilling time: No, 15 to 25 days drilling time.
Unusually deep drilling (high horsepower rig): No, triple derrick rig to drill a single lateral horizontal Bakken Formation test, 13,770'MD/9,201'TVD.
Possible H2S gas production: Slight chance H2S gas from Mississippian Formations.
In/near Class I air quality area: No, no Class I air quality area nearby.
Air quality permit for flaring/venting (if productive): Yes, DEQ air quality permit required under 75-2-211.

Mitigation:
X Air quality permit (AQB review)
__ Gas plants/pipelines available for sour gas
__ Special equipment/procedures requirements
__ Other:

Comments: No special concerns – using triple rig to drill a single lateral horizontal Bakken Formation test, 13,770'MD/9,201'TVD. If there is an existing gathering system for natural gas in the area, then associated gas can be gathered or if no gathering system nearby gas can be flared under Board Rule 36.22.1220.

Water Quality

(possible concerns)
Salt/oil based mud: Yes to intermediate casing string hole to be drilled with oil based invert drilling fluids (oil/water ratio of 70/30 to 80/20). Horizontal lateral will be drilled with brine water. Surface casing hole will use freshwater and freshwater mud system (Rule 36.22.1001).
High water table: No high water table anticipated at this location.
Surface drainage leads to live water: Yes, nearest drainages are unnamed ephemeral tributary drainages to North Fork Lisk Creek, about 1/16 of a mile to the northwest, about 1/8 of a mile to the northeast and about 1/8 of a mile to the southwest from this location.
Water well contamination: None, closest water wells are about ½ of a mile to the east, about 5/8 of a mile to the northwest, about 5/8 of a mile to the east southeast, about ¾ of a mile to east, about 7/8 of a mile to the northwest and all other wells are 1 mile and further away from this location. Depth of these stock water wells range from 10.5' to 370'. Surface hole will be drilled with freshwater and freshwater mud system, Rule 36.22.1001. Surface casing will be set at 1500' and cemented to surface.
Porous/permeable soils: No, silty sandy clay soils.
Class I stream drainage: No Class I stream drainages in the area of review.

Mitigation:
__ Lined reserve pit
X Adequate surface casing
__ Berms/dykes, re-routed drainage
X Closed mud system

X_ Off-site disposal of solids/**liquids (in approved facility)**

X_ Other: Lined cuttings pit will be used since this is a closed loop mud system to be employed.

Comments: 1500' of surface casing enough to cover the base of the Fox Hills and cemented to surface adequate to protect freshwater zones, Rule 36.22.1001.

Soils/Vegetation/Land Use

(possible concerns)

Steam crossings: No stream crossings anticipated.

High erosion potential: Possible high erosion potential on the fill slope at this location. The location will require a moderate cut, up to 11.5' and moderate fill, up to 17.1', required.

Loss of soil productivity: No, location will be restored after drilling if unproductive. If productive, unused portion of this drilling location will be restored.

Unusually large wellsite: No a large wellsite, 400'X450' location size required.

Damage to improvements: Slight, surface use is a cultivated land.

Conflict with existing land use/values: Slight

Mitigation

__ Avoid improvements (topographic tolerance)

__ Exception location requested

_X_ Stockpile topsoil

__ Stream Crossing Permit (other agency review)

_X_ Reclaim unused part of wellsite if productive

__ Special construction methods to enhance reclamation

__ Other _____

Comments: Access will be over existing highway #308 and existing county road #126. About 141.4' of new access road will be built into this location off the existing county road. Cuttings will be buried in the lined cuttings pit. Oil based drilling fluids will be recycled. Reserve pit fluids will be hauled to a commercial disposal. Pit will be allowed to dry and then closed by filling in with clay subsoils. No special concerns.

Health Hazards/Noise

(possible concerns)

Proximity to public facilities/residences: Closest residences are about 5/8 of a mile to the east and about 5/8 of a mile to the northwest from this location. The town of Richey, Montana is about 6 miles to the south from this location.

Possibility of H2S: Slight chance of H2S from Mississippian Formations.

Size of rig/length of drilling time: Triple drilling rig/short, 15 to 25 days drilling time.

Mitigation:

_X_ Proper BOP equipment

__ Topographic sound barriers

__ H2S contingency and/or evacuation plan

__ Special equipment/procedures requirements

__ Other: _____

Comments: Adequate surface casing cemented to surface with an operational BOP stack (annular and double ram (pipe and blinds) rated for 5,000 psig) should mitigate any problems, Rule 36.22.1014.

Wildlife/recreation

(possible concerns)
Proximity to sensitive wildlife areas (DFWP identified): Fox Lake State Game Management Area is about 19 miles to the southeast from this location.
Proximity to recreation sites: Fox Lake State Game Management Area is about 18.4 miles to the southeast from this location.
Creation of new access to wildlife habitat: No
Conflict with game range/refuge management: No
Threatened or endangered Species: Species identified as threatened or endangered are the Pallid Sturgeon, Interior Least Tern, Whooping Crane and Piping Plover. Candidate specie is the Sprague's Pipit and the Greater Sage Grouse. NH tracker website indicate zero (0) species of concern in this township and range.

Mitigation:
__ Avoidance (topographic tolerance/exception)
__ Other agency review (DFWP, federal agencies BLM, DSL)
__ Screening/fencing of pits, drillsite
__ Other: _____
Comments: Private cultivated surface lands. There may be species of concern that maybe impacted by this wellsite. We ask the operator to consult with the surface owner as to what he would like done, if a species of concern are discovered at this location. No concerns.

Historical/Cultural/Paleontological

(possible concerns)
Proximity to known sites: None identified.
Mitigation
__ avoidance (topographic tolerance, location exception)
__ other agency review (SHPO, DSL, federal agencies BLM)
__ Other: _____
Comments: Private cultivated surface lands. There may be possible historical/cultural/paleontological sites that maybe impacted by this wellsite. We ask the operator to consult with the surface owner as to his desires to preserve these sites or not, if they are found during construction of the wellsite.

Social/Economic

(possible concerns)
__ Substantial effect on tax base
__ Create demand for new governmental services
__ Population increase or relocation
Comments: Wildcat well. No concerns

Remarks or Special Concerns for this site

Continental will drill a single lateral Bakken Formation horizontal well test, 13,770'MD/9,201'TVD. No special concerns.

Summary: Evaluation of Impacts and Cumulative effects

No significant long term impacts expected, some short term impacts will occur.

I conclude that the approval of the subject Notice of Intent to Drill (does/**does not**) constitute a major action of state government significantly affecting the quality of the human environment, and (does/**does not**) require the preparation of an environmental impact statement.

Prepared by (BOGC): /s/Steven Sasaki
(title:) Chief Field Inspector
Date: February 28, 2013

Other Persons Contacted:

Montana Bureau of Mines and Geology, GWIC website
(Name and Agency)
Water wells in Richland County
(subject discussed)
February 28, 2013

US Fish and Wildlife, Region 6 website
(Name and Agency)
ENDANGERED, THREATENED, PROPOSED AND CANDIDATE SPECIES
MONTANA COUNTIES, Richland County
(subject discussed)

February 28, 2013
(date)

Montana Natural Heritage Program Website
(Name and Agency)
Heritage State Rank= S1, S2, S3 T23N R52E
(subject discussed)

February 28, 2013
(date)

Montana Cadastral Website
(Name and Agency)
Surface Ownership and surface use Section 28 T23N R52E
(subject discussed)

February 28, 2013
(date)

If location was inspected before permit approval:
Inspection date: _____
Inspector: _____
Others present during inspection: _____

Montana Natural Heritage Program
Animal Species of Concern Report
This Report Generated on: 2013-02-28 Time:11:45:21
For the most current data, visit this link:
http://mtnhp.org/SpeciesOfConcern/?AorP=a

Species List Last Updated 02/22/2013
0 Species
Filtered by the following criteria:
Species = Mammals, Birds, Reptiles, Amphibians, Fish
Heritage State Rank = S1, S2, S3
Township = 23 N Range = 52 E

Use the tabs below to see the data sets

County/Scientific Name	Common Name	Status
POWDER RIVER		
Mustela nigripes	Black-footed Ferret	LE
Centrocercus urophasianus	Greater Sage-Grouse	C
Anthus spragueii	Sprague's Pipit	C
POWELL		
Ursus arctos horribilis	Grizzly Bear	LT
Lynx canadensis	Canada Lynx	LT, CH
Salvelinus confluentus	Bull Trout	LT, CH
Anthus spragueii	Sprague's Pipit	C
Gulo gulo luscus	Wolverine	P
Pinus albicaulis	Whitebark Pine	C
PRAIRIE		
Scaphirhynchus albus	Pallid Sturgeon	LE
Sterna antillarum athalassos	Interior Least Tern	LE
Grus americana	Whooping Crane	LE
Mustela nigripes	Black-footed Ferret	LE
Centrocercus urophasianus	Greater Sage-Grouse	C
Anthus spragueii	Sprague's Pipit	C
RAVALLI		
Salvelinus confluentus	Bull Trout	LT, CH
Coccyzus americanus	Yellow-billed cuckoo (western pop.)	C
Gulo gulo luscus	Wolverine	P
Pinus albicaulis	Whitebark Pine	C
RICHLAND		
Scaphirhynchus albus	Pallid Sturgeon	LE
Charadrius melodus	Piping Plover	LT, CH
Sterna antillarum athalassos	Interior Least Tern	LE
Grus americana	Whooping Crane	LE
Centrocercus urophasianus	Greater Sage-Grouse	C
Anthus spragueii	Sprague's Pipit	C
ROOSEVELT		
Scaphirhynchus albus	Pallid Sturgeon	LE
Charadrius melodus	Piping Plover	LT, CH
Sterna antillarum athalassos	Interior Least Tern	LE
Grus americana	Whooping Crane	LE
Anthus spragueii	Sprague's Pipit	C
ROSEBUD		
Mustela nigripes	Black-footed Ferret	LE
Sterna antillarum athalassos	Interior Least Tern	LE
Centrocercus urophasianus	Greater Sage-Grouse	C
Anthus spragueii	Sprague's Pipit	C
Scaphirhynchus albus	Pallid Sturgeon	LE
SANDERS		
Ursus arctos horribilis	Grizzly Bear	LT
Lynx canadensis	Canada Lynx	LT
Salvelinus confluentus	Bull Trout	LT, CH
Gulo gulo luscus	Wolverine	P
Pinus albicaulis	Whitebark Pine	C
Silene spaldingii	Spalding's Campion	LT
SHERIDAN		
Charadrius melodus	Piping Plover	LT, CH
Grus americana	Whooping Crane	LE
Anthus spragueii	Sprague's Pipit	C

Page	:	1 of 1 01/31/2013 15:44:31	Ad Number	:	10586017
			Ad Key	:	
Order Number	:	20233323	Salesperson	:	IR19 - Inside Classified Sales - IR19
PO Number	:	Chrisit Scritchfield	Publication	:	Independent Record
Customer	:	60004473 Continental Resources, Inc.	Section	:	Class Section
Contact	:	PAM COMBEST	Sub Section	:	Legal
Address1	:	PO BOX 268835	Category	:	9999 Legals
Address2	:		Dates Run	:	02/04/2013-02/04/2013
City St Zip	:	Oklahoma City OK 73126	Days	:	1
Phone	:	(580) 233-8955	Size	:	2 x 3.69, 38 lines
Fax	:		Words	:	313
	:		Ad Rate	:	Legal Line
Printed By	:	Billie Jo Williams	Ad Price	:	143.64
Entered By	:	Billie Jo Williams	Amount Paid	:	0.00
			Amount Due	:	143.64
Keywords	:	BEFORE THE BOARD OF OIL AND GAS CONSERVATION OF TH			
Notes	:				
Zones	:				

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FEB - 7 2013

MONTANA BOARD OF OIL & GAS CONSERVATION • BILLINGS

BEFORE THE BOARD OF OIL AND GAS CONSERVATION OF THE STATE OF MONTANA
NOTICE OF INTENTION TO APPLY FOR PERMIT TO DRILL AN OIL AND GAS WELL

In the Matter of the Application of CONTINENTAL RESOURCES, INC. for a Permit to Drill a horizontal oil and gas well.

1. Name and Address of Applicant: Continental Resources, Inc.
P.O. Box 268870
Oklahoma City, Oklahoma 73126
(405) 234-9000 fax (405) 234-9562

2. Well Name and Legal Description: Collins 1-28H
Surface Hole Location: 295' FNL & 1980' FWL, NENW Sec 28-23N-52E
Horizontal Intercept: 736' FNL & 1980' FWL, NENW Sec 28-23N-52E
Horizontal Terminus: 200' FSL & 1980' FWL, SESW Sec 28-23N-52E
County: Richland

3. Proposed Total Depth: (1) 13786' MD; 9201' TVD

Notice is hereby given that an application for permit to drill an oil and gas well at the surface location set forth above to the depth as stated will be filed with the Montana Board of Oil and Gas Conservation. Pursuant to Rules 36.22.601 and 36.22.604, Administrative Rules of Montana, an interested party may demand an opportunity to be heard by the Montana Board of Oil and Gas Conservation concerning the application. SUCH DEMAND FOR HEARING MUST BE RECEIVED BY THE MONTANA BOARD OF OIL AND GAS CONSERVATION AT THE ADDRESS SET FORTH NO LATER THAN TEN (10) DAYS AFTER THE DATE OF PUBLICATION OF THIS NOTICE, OR THE APPLICATION WILL BE ACTED UPON BY THE BOARD'S PETROLEUM ENGINEER WITHOUT HEARING. A DEMAND MUST: (1) SET FORTH THE NAME, ADDRESS AND TELEPHONE NUMBER OF EACH INTERESTED PARTY, THEIR OWNERSHIP INTEREST IN THE LANDS SURROUNDING THE PROPOSED WELL, AND THE REASONS WHY THE HEARING IS SOUGHT; (2) BE SERVED UPON THE APPLICANT BY COPY MAILED OR FAX TRANSMITTED TO THE ADDRESS SET FORTH ABOVE.

Montana Board of Oil and Gas Conservation
2535 St. John's Avenue
Billings, Montana 59102
FAX Number: (406) 655-6015
February 4, 2013

AFFIDAVIT OF PUBLICATION
STATE OF MONTANA,
County of Lewis & Clark

Billie Jo Williams

Being duly sworn, deposes and says;

That she is the principal clerk of the Independent Record, a newspaper of general circulation published daily in the City of Helena, in the County of Lewis & Clark, State of Montana, and has charge of the advertisement therof:

That the Notice of Intention to Drill
Collins 1-28H

a true copy of which is hearto annexed, was published in said newspaper on the following dates: viz.:

February 4, 2013

making in all_1__ publication(s)

Billie Jo Williams

Subscribed and sworn to me this _6__ day of _February__, 2013.

Colleen D. Simkins

Notary Public for the State of Montana
Printed Name: Colleen D. Simkins
Residing at Helena, Montana
My commission expires March 10, 2013

(Notary Seal)

COLLEEN D. SIMKINS NOTARY PUBLIC SEAL STATE OF MONTANA

COLLEEN D. SIMKINS
NOTARY PUBLIC for the
State of Montana
Residing at Helena, Montana
My Commission Expires
March 10, 2013

AFFIDAVIT OF PUBLICATION

Deb Schieffer, being first duly sworn, deposes and says that she is the Agent to the Publisher of the **SIDNEY HERALD** newspaper printed and published two days a week in the City ofSidney, County of Richland, State of Montana. That the notice, a copy of which is hereto attached and submitted by:

Continental Resources, Inc.
PO Box 268870
Oklahoma City, OK 73126

was printed and published in the regular and entire issue of said **SIDNEY HERALD,** 310 2ND Ave. NE, Sidney, MT 59270, 406-433-2403, for 1 issues, that said publication was made on each of the following dates, to wit:

Feb 6th, 2013

it was also published in said paper

_____, 2013

it was also published in said paper

_____, 2013

it was also published in said paper

_____, 2013

Deb Schieffer

Deb Schieffer

State of Montana)
ss.
County of Richland)

Subscribed and sworn before me on the 11 day of March, 2013.

Libby Berndt

LIBBY BERNDT
NOTARY PUBLIC for the
State of Montana
Residing at Sidney, Montana
My Commission Expires
July 5, 2014

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MAR 13 2013

MONTANA BOARD OF OIL & GAS CONSERVATION • BILLINGS

NOTICE

BEFORE THE BOARD OF OIL AND GAS CONSERVATION OF THE STATE OF MONTANA NOTICE OF INTENTION TO APPLY FOR PERMIT TO DRILL AN OIL AND GAS WELL

In the Matter of the Application of CONTINENTAL RESOURCES, INC. for a Permit to Drill a horizontal oil and gas well.

1. Name and Address of Applicant: Continental Resources, Inc., P.O. Box 268870 Oklahoma City, Oklahoma 73126 (405) 234-9000 fax (405) 234-9562

2. Well Name and Legal Description:
Collins 1-28H
Surface Hole Location: 295' FNL & 1980' FWL, NENW Sec 28-23N-52E
Horizontal Intercept: 736' FNL & 1980' FWL, NENW Sec 28-23N-52E
Horizontal Terminus: 200' FSL & 1980' FWL, SESW Sec 28-23N-52E
County: Richland

3. Proposed Total Depth: (1) 13786' MD; 9201' TVD

Notice is hereby given that an application for permit to drill an oil and gas well at the surface location set forth above to the depth as stated will be filed with the Montana Board of Oil and Gas Conservation. Pursuant to Rules 36.22.601 and 36.22.604, Administrative Rules of Montana, an interested party may demand an opportunity to be heard by the Montana Board of Oil and Gas Conservation concerning the application. SUCH DEMAND FOR HEARING MUST BE RECEIVED BY THE MONTANA BOARD OF OIL AND GAS CONSERVATION AT THE ADDRESS SET FORTH NO LATER THAN TEN (10) DAYS AFTER THE DATE OF PUBLICATION OF THIS NOTICE, OR THE APPLICATION WILL BE ACTED UPON BY THE BOARD'S PETROLEUM ENGINEER WITHOUT HEARING. A DEMAND MUST: (1) SET FORTH THE NAME, ADDRESS AND TELEPHONE NUMBER OF EACH INTERESTED PARTY, THEIR OWNERSHIP INTEREST IN THE LANDS SURROUNDING THE PROPOSED WELL, AND THE REASONS WHY THE HEARING IS SOUGHT; (2) BE SERVED UPON THE APPLICANT BY COPY MAILED OR FAX TRANSMITTED TO THE ADDRESS SET FORTH ABOVE.

Montana Board of Oil and Gas Conservation, 2535 St. John's Avenue, Billings, Montana 59102, FAX Number: (406) 655-6015.

(Publish Feb 6, 2013)

DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION

BOARD OF OIL AND GAS CONSERVATION

STEVE BULLOCK, GOVERNOR

OIL AND GAS CONSERVATION DIVISION

STATE OF MONTANA

CERTIFICATION OF HORIZONTAL WELL

To: Christi Scritchfield
Continental Resources, Inc.
P.O. Box 268870
Oklahoma City OK 73102

As you have requested, I hereby certify that the following described well has been drilled and completed as a horizontal well as defined in 36.22.302(41)ARM and 15-23-601MCA.

Well Name/Number: Collins 1-28H API No. 25-083-23131

Located: 295 FNL/1980 FWL (NENW) of Section 28

Township 23N Range 52E MPM, Richland County, Montana.

Drilling commenced on March 19, 2013 and well was completed on May 15, 2013 in the Bakken formation(s).

This information is being reported to the Department of Revenue, Corporation and Natural Resources Tax Division. Please include a copy of this certification with your tax report for production from this well.

BOARD OF OIL AND GAS CONSERVATION

By: Date: November 13, 2013

Thomas P. Richmond, Administrator

DIVISION OFFICE
1625 ELEVENTH AVENUE
PO BOX 201601
HELENA, MONTANA 59620-1601
(406) 444-6675

TECHNICAL AND
SOUTHERN FIELD OFFICE
2535 ST. JOHNS AVENUE
BILLINGS, MONTANA 59102-4693
(406) 656-0040

NORTHERN FIELD OFFICE
201 MAIN STREET
PO BOX 690
SHELBY, MONTANA 59474-0690
(406) 434-2422

Continental
RESOURCES

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NOV - 8 2013
MONTANA BOARD OF OIL &
GAS CONSERVATION • BILLINGS

November 4, 2013

Montana Board of Oil and Gas Conservation
2535 St. Johns Avenue
Billings, Montana 59102

RE: Collins 1-28H
Sec. 28-T23N-R52E
Richland Co., Montana

Continental Resources, Inc. respectfully requests horizontal well certification on the referenced well. Listed below is the required data needed for the certification approval.

Collins 1-28H
SHL: 295' FNL and 1980' FWL Sec. 28-T23N-R52E, Richland Co.
BHL Lateral #1: 232' FSL and 2009' FWL Sec. 28-T23N-R52E, Richland Co.
API No.: 25-083-23131
Spud date: 3/19/2013
Completed: 5/15/2013
Producing zone: Bakken

If you should have any questions with these reports, please contact me at (405) 234-9257.

Sincerely,

CONTINENTAL RESOURCES, INC.

Christi Scritchfield

Christi Scritchfield
Regulatory Compliance Specialist
(405) 234-9257
christi.scritchfield@clr.com

MS Energy Services

7821 Will Rogers Blvd.
Fort Worth, Texas 76140

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

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MAY 01 2013
MONTANA BOARD OF OIL &
GAS CONSERVATION • BILLINGS

April 29, 2013

Montana Department of Natural Resources and Conservation
Board of Oil & Gas
2535 Saint Johns Ave.
Billings, MT 59102

Company: Continental Resources, Inc.
Lease: Collins 1
Well Number: 28H
Location: Richland County, MT
Job Number: DDMT-130235

Well API# 25-083-23131

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
Blake Holdridge	Original Wellbore	1,617' – 13,667' MD	03/31/2013 to 04/13/2013	MWD

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

Sincerely,

Amber Greer
MWD Operations Office Administrator
Enclosures

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MONTANA BOARD OF OIL & GAS CONSERVATION • BILLINGS

083231131

MS Energy Services.

V09.04.02

SURVEY CALCULATION PROGRAM

4/27/13 13:45

Company:	Continental Resources, Inc.		
Well Name:	Collins 1-28H		
Location:	Richland County, MT		
Rig:	H&P #257	Magnetic Declination:	9.40 REFERENCED TO TRUE NORTH
Job Number:	DDMT-130235		
API #:	25-083-23131		
Vertical Section Azimuth:	180.00	Proposed Direction:	180.00
Survey Calculation Method:	Minimum Curvature		

PTB:	MD	INC	AZM	TVD	N/S	E/W	VS
	13,720	89.70	172.30	9225.42	-4749.34	29.46	4749.34

#	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	1,518	0.30	91.00	1517.97	0.05	6.65	-0.05	6.65	89.57		
1	1617	0.22	176.92	1616.97	-0.14	6.92	0.14	6.92	91.19	0.36	-0.08
2	1712	0.70	220.91	1711.97	-0.77	6.55	0.77	6.59	96.66	0.59	0.51
3	1807	1.10	229.08	1806.95	-1.80	5.48	1.80	5.77	108.19	0.44	0.42
4	1902	1.10	226.30	1901.94	-3.03	4.13	3.03	5.12	126.24	0.06	0.00
5	1997	1.49	226.01	1996.91	-4.52	2.58	4.52	5.20	150.22	0.41	0.41
6	2093	1.71	235.81	2092.88	-6.19	0.50	6.19	6.21	175.37	0.36	0.23
7	2188	1.89	237.39	2187.83	-7.83	-1.99	7.83	8.08	194.27	0.20	0.19
8	2283	1.71	246.40	2282.78	-9.24	-4.61	9.24	10.33	206.51	0.35	-0.19
9	2378	1.41	243.58	2377.75	-10.33	-6.96	10.33	12.45	213.96	0.33	-0.32
10	2472	1.10	236.51	2471.72	-11.34	-8.74	11.34	14.32	217.63	0.37	-0.33
11	2567	1.49	239.89	2566.70	-12.46	-10.57	12.46	16.34	220.31	0.42	0.41
12	2662	1.49	235.81	2661.67	-13.78	-12.66	13.78	18.71	222.59	0.11	0.00
13	2757	1.32	230.88	2756.64	-15.16	-14.53	15.16	21.00	223.79	0.22	-0.18
14	2852	1.32	239.32	2851.61	-16.41	-16.32	16.41	23.15	224.85	0.20	0.00
15	2946	1.19	228.20	2945.59	-17.61	-17.98	17.61	25.17	225.59	0.29	-0.14
16	3042	1.19	239.19	3041.57	-18.79	-19.58	18.79	27.14	226.18	0.24	0.00
17	3136	1.01	222.10	3135.55	-19.90	-20.97	19.90	28.91	226.50	0.40	-0.19
18	3232	0.79	226.40	3231.54	-20.99	-22.02	20.99	30.42	226.38	0.24	-0.23
19	3327	0.79	228.51	3326.53	-21.87	-22.99	21.87	31.73	226.42	0.03	0.00
20	3422	0.70	231.90	3421.52	-22.66	-23.93	22.66	32.96	226.56	0.11	-0.09
21	3516	0.70	243.19	3515.52	-23.28	-24.90	23.28	34.08	226.93	0.15	0.00
22	3610	0.62	243.80	3609.51	-23.76	-25.87	23.76	35.12	227.43	0.09	-0.09
23	3705	0.52	243.00	3704.51	-24.18	-26.71	24.18	36.03	227.84	0.11	-0.11
24	3799	0.31	257.78	3798.50	-24.43	-27.34	24.43	36.67	228.22	0.25	-0.22
25	3895	0.22	242.62	3894.50	-24.57	-27.76	24.57	37.07	228.49	0.12	-0.09
26	3989	0.09	300.58	3988.50	-24.62	-27.98	24.62	37.27	228.66	0.20	-0.14
27	4085	0.31	284.89	4084.50	-24.51	-28.30	24.51	37.44	229.10	0.23	0.23
28	4180	0.40	274.48	4179.50	-24.42	-28.88	24.42	37.82	229.78	0.12	0.09

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MONTANA BOARD OF OIL & GAS CONSERVATION

083231131

MS Energy Services. V09.04.02

SURVEY CALCULATION PROGRAM

4/27/13 13:45

Company:	Continental Resources, Inc.
Well Name:	Collins 1-28H
Location:	Richland County, MT
Rig:	H&P #257
Job Number:	DDMT-130235
API #:	25-083-23131
Vertical Section Azimuth:	180.00
Survey Calculation Method:	Minimum Curvature

Magnetic Declination: 9.40 REFERENCED TO TRUE NORTH

Proposed Direction: 180.00

PTB:	MD	INC	AZM	TVD	N/S	E/W	VS
	13,720	89.70	172.30	9225.42	-4749.34	29.46	4749.34

#	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'
29	4275	0.79	269.29	4274.49	-24.40	-29.86	24.40	38.56	230.75	0.41	0.41
30	4370	1.59	272.41	4369.47	-24.35	-31.83	24.35	40.08	232.58	0.84	0.84
31	4,465	1.32	264.59	4464.44	-24.40	-34.24	24.40	42.05	234.52	0.35	-0.28
32	4,561	1.19	277.11	4560.42	-24.38	-36.33	24.38	43.75	236.13	0.32	-0.14
33	4,656	0.79	269.29	4655.41	-24.27	-37.96	24.27	45.06	237.41	0.44	-0.42
34	4,750	0.62	264.81	4749.40	-24.32	-39.12	24.32	46.06	238.13	0.19	-0.18
35	4,846	0.40	305.68	4845.39	-24.17	-39.91	24.17	46.66	238.79	0.43	-0.23
36	4,941	0.40	318.51	4940.39	-23.73	-40.40	23.73	46.85	239.57	0.09	0.00
37	5,036	0.79	330.99	5035.39	-22.91	-40.93	22.91	46.91	240.76	0.43	0.41
38	5,131	0.88	322.29	5130.38	-21.76	-41.70	21.76	47.03	242.44	0.16	0.09
39	5,227	1.19	325.28	5226.36	-20.36	-42.72	20.36	47.32	244.52	0.33	0.32
40	5,321	1.10	333.72	5320.34	-18.75	-43.67	18.75	47.53	246.77	0.20	-0.10
41	5,416	1.10	331.91	5415.33	-17.13	-44.51	17.13	47.69	248.95	0.04	0.00
42	5,512	0.88	338.68	5511.31	-15.63	-45.21	15.63	47.83	250.93	0.26	-0.23
43	5,607	1.01	347.91	5606.30	-14.13	-45.65	14.13	47.78	252.80	0.21	0.14
44	5,703	1.01	350.90	5702.28	-12.46	-45.96	12.46	47.62	254.83	0.05	0.00
45	5,797	0.88	8.52	5796.27	-10.93	-45.98	10.93	47.26	256.63	0.34	-0.14
46	5,893	0.70	29.40	5892.26	-9.69	-45.59	9.69	46.60	258.00	0.35	-0.19
47	5,987	0.48	37.39	5986.26	-8.88	-45.06	8.88	45.93	258.85	0.25	-0.23
48	6,083	0.40	56.51	6082.25	-8.38	-44.54	8.38	45.32	259.35	0.17	-0.08
49	6,178	0.40	78.22	6177.25	-8.12	-43.94	8.12	44.68	259.52	0.16	0.00
50	6,273	0.31	127.22	6272.25	-8.21	-43.41	8.21	44.18	259.29	0.32	-0.09
51	6,368	0.70	144.88	6367.25	-8.84	-42.87	8.84	43.77	258.35	0.44	0.41
52	6,463	0.70	150.90	6462.24	-9.82	-42.26	9.82	43.38	256.91	0.08	0.00
53	6,557	0.62	162.91	6556.23	-10.81	-41.83	10.81	43.20	255.51	0.17	-0.09
54	6,653	0.88	166.42	6652.22	-12.03	-41.50	12.03	43.21	253.84	0.27	0.27
55	6,748	1.10	153.50	6747.21	-13.55	-40.92	13.55	43.11	251.68	0.33	0.23
56	6,843	0.88	158.51	6842.20	-15.05	-40.25	15.05	42.97	249.50	0.25	-0.23
57	6,938	0.79	151.61	6937.19	-16.30	-39.67	16.30	42.89	247.66	0.14	-0.09
58	7,033	0.62	141.76	7032.18	-17.28	-39.04	17.28	42.69	246.13	0.22	-0.18

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MONTANA BOARD OF OIL & GAS CONSERVATION • BILLINGS

083231131

MS Energy Services. V09.04.02

SURVEY CALCULATION PROGRAM

4/27/13 13:45

Company:	Continental Resources, Inc.
Well Name:	Collins 1-28H
Location:	Richland County, MT
Rig:	H&P #257
Job Number:	DDMT-130235
API #:	25-083-23131
Vertical Section Azimuth:	180.00
Survey Calculation Method:	Minimum Curvature

Magnetic Declination: 9.40 REFERENCED TO TRUE NORTH

Proposed Direction: 180.00

PTB:	MD	INC	AZM	TVD	N/S	E/W	VS
	13,720	89.70	172.30	9225.42	-4749.34	29.46	4749.34

#	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'
59	7,128	0.70	153.10	7127.17	-18.20	-38.46	18.20	42.55	244.67	0.16	0.08
60	7,224	0.62	166.02	7223.17	-19.23	-38.07	19.23	42.65	243.20	0.18	-0.08
61	7,319	0.62	149.89	7318.16	-20.17	-37.69	20.17	42.75	241.84	0.18	0.00
62	7,413	0.62	171.69	7412.16	-21.11	-37.36	21.11	42.91	240.53	0.25	0.00
63	7,508	0.48	179.91	7507.15	-22.02	-37.28	22.02	43.30	239.43	0.17	-0.15
64	7,603	0.62	183.99	7602.15	-22.93	-37.32	22.93	43.80	238.43	0.15	0.15
65	7,698	0.62	177.10	7697.14	-23.96	-37.33	23.96	44.36	237.31	0.08	0.00
66	7,793	0.48	182.28	7792.14	-24.87	-37.32	24.87	44.85	236.32	0.16	-0.15
67	7,888	0.62	179.51	7887.13	-25.78	-37.33	25.78	45.37	235.37	0.15	0.15
68	7,983	0.62	187.82	7982.13	-26.80	-37.40	26.80	46.01	234.37	0.09	0.00
69	8,077	0.40	173.71	8076.12	-27.63	-37.43	27.63	46.52	233.56	0.27	-0.23
70	8,173	0.48	184.48	8172.12	-28.37	-37.42	28.37	46.96	232.84	0.12	0.08
71	8,268	0.48	193.35	8267.12	-29.15	-37.55	29.15	47.54	232.17	0.08	0.00
72	8,363	0.40	182.45	8362.11	-29.87	-37.65	29.87	48.06	231.57	0.12	-0.08
73	8,458	0.31	215.23	8457.11	-30.41	-37.82	30.41	48.53	231.19	0.23	-0.09
74	8,553	0.40	204.73	8552.11	-30.92	-38.10	30.92	49.07	230.94	0.12	0.09
75	8,648	0.31	245.86	8647.11	-31.33	-38.48	31.33	49.62	230.85	0.28	-0.09
76	8,678	0.22	228.86	8677.11	-31.40	-38.59	31.40	49.75	230.87	0.40	-0.30
77	8,710	0.31	266.34	8709.11	-31.45	-38.73	31.45	49.89	230.92	0.60	0.28
78	8,742	1.41	192.47	8741.10	-31.84	-38.90	31.84	50.26	230.70	4.24	3.44
79	8,773	6.42	181.57	8772.02	-33.94	-39.03	33.94	51.72	228.99	16.27	16.16
80	8,805	11.38	178.36	8803.63	-38.89	-38.99	38.89	55.07	225.07	15.57	15.50
81	8,836	14.81	176.43	8833.82	-45.90	-38.65	45.90	60.01	220.10	11.15	11.06
82	8,868	18.72	176.74	8864.45	-55.12	-38.10	55.12	67.00	214.66	12.22	12.22
83	8,900	22.28	175.95	8894.42	-66.30	-37.38	66.30	76.11	209.42	11.16	11.13
84	8,931	26.50	177.53	8922.65	-79.07	-36.67	79.07	87.16	204.88	13.77	13.61
85	8,963	31.11	179.55	8950.68	-94.48	-36.30	94.48	101.21	201.02	14.72	14.41
86	8,995	34.19	181.26	8977.62	-111.74	-36.43	111.74	117.53	198.06	10.05	9.62
87	9,027	36.91	180.34	9003.65	-130.34	-36.68	130.34	135.41	195.72	8.66	8.50

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SURVEY CALCULATION PROGRAM

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4/27/13 13:45

083231131

Company:	Continental Resources, Inc.
Well Name:	Collins 1-28H
Location:	Richland County, MT
Rig:	H&P #257
Job Number:	DDMT-130235
API #:	25-083-23131
Vertical Section Azimuth:	180.00
Survey Calculation Method:	Minimum Curvature

Magnetic Declination: 9.40 REFERENCED TO TRUE NORTH

Proposed Direction: 180.00

PTB:	MD	INC	AZM	TVD	N/S	E/W	VS
	13,720	89.70	172.30	9225.42	-4749.34	29.46	4749.34

#	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'
88	9,059	40.78	178.45	9028.57	-150.41	-36.46	150.41	154.76	193.63	12.65	12.09
89	9,090	42.41	177.53	9051.76	-170.97	-35.73	170.97	174.67	191.81	5.61	5.26
90	9,121	45.22	177.13	9074.12	-192.41	-34.73	192.41	195.52	190.23	9.11	9.06
91	9,153	50.32	176.56	9095.62	-216.06	-33.42	216.06	218.63	188.79	15.99	15.94
92	9,185	52.12	176.56	9115.67	-240.96	-31.93	240.96	243.07	187.55	5.63	5.62
93	9,216	54.10	177.75	9134.27	-265.72	-30.70	265.72	267.49	186.59	7.09	6.39
94	9,248	59.28	179.64	9151.84	-292.45	-30.11	292.45	293.99	185.88	16.92	16.19
95	9,280	62.09	180.65	9167.51	-320.34	-30.18	320.34	321.76	185.38	9.20	8.78
96	9,312	66.40	181.44	9181.41	-349.15	-30.71	349.15	350.50	185.03	13.65	13.47
97	9,343	71.89	181.04	9192.44	-378.10	-31.33	378.10	379.40	184.74	17.75	17.71
98	9,375	75.19	180.96	9201.51	-408.78	-31.87	408.78	410.02	184.46	10.32	10.31
99	9,407	79.58	181.04	9208.50	-440.00	-32.41	440.00	441.19	184.21	13.72	13.72
100	9,438	85.08	180.74	9212.63	-470.71	-32.89	470.71	471.85	184.00	17.77	17.74
101	9,450	87.10	180.25	9213.45	-482.68	-32.99	482.68	483.80	183.91	17.32	16.83
102	9,501	92.80	178.50	9213.49	-533.65	-32.44	533.65	534.64	183.48	11.69	11.18
103	9,564	92.40	178.50	9210.64	-596.57	-30.79	596.57	597.36	182.95	0.63	-0.63
104	9,596	92.80	178.80	9209.18	-628.52	-30.04	628.52	629.24	182.74	1.56	1.25
105	9,627	92.00	178.70	9207.89	-659.49	-29.36	659.49	660.14	182.55	2.60	-2.58
106	9,659	90.10	180.00	9207.30	-691.48	-29.00	691.48	692.09	182.40	7.19	-5.94
107	9,722	91.40	179.50	9206.48	-754.47	-28.72	754.47	755.02	182.18	2.21	2.06
108	9,754	90.90	180.00	9205.83	-786.46	-28.58	786.46	786.98	182.08	2.21	-1.56
109	9,817	88.80	180.30	9206.00	-849.46	-28.75	849.46	849.95	181.94	3.37	-3.33
110	9,849	88.30	180.20	9206.81	-881.45	-28.89	881.45	881.92	181.88	1.59	-1.56
111	9,880	89.30	180.30	9207.46	-912.44	-29.02	912.44	912.90	181.82	3.24	3.23
112	9,943	90.00	180.30	9207.84	-975.44	-29.35	975.44	975.88	181.72	1.11	1.11
113	10,006	88.70	180.30	9208.56	-1038.43	-29.68	1038.43	1038.86	181.64	2.06	-2.06
114	10,038	88.70	181.10	9209.28	-1070.42	-30.07	1070.42	1070.84	181.61	2.50	0.00
115	10,083	89.00	181.30	9210.19	-1115.40	-31.02	1115.40	1115.83	181.59	0.80	0.67
116	10,133	88.80	181.10	9211.15	-1165.38	-32.06	1165.38	1165.82	181.58	0.57	-0.40

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SURVEY CALCULATION PROGRAM

4/27/13 13:45

Company:	Continental Resources, Inc.
Well Name:	Collins 1-28H
Location:	Richland County, MT
Rig:	H&P #257
Job Number:	DDMT-130235
API #:	25-083-23131
Vertical Section Azimuth:	180.00
Survey Calculation Method:	Minimum Curvature

Magnetic Declination: 9.40 REFERENCED TO TRUE NORTH

Proposed Direction: 180.00

PTB:	MD	INC	AZM	TVD	N/S	E/W	VS
	13,720	89.70	172.30	9225.42	-4749.34	29.46	4749.34

#	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'
117	10,227	89.00	181.50	9212.95	-1259.34	-34.20	1259.34	1259.81	181.56	0.48	0.21
118	10,277	90.40	181.70	9213.21	-1309.32	-35.59	1309.32	1309.80	181.56	2.83	2.80
119	10,322	90.40	181.30	9212.90	-1354.30	-36.77	1354.30	1354.80	181.56	0.89	0.00
120	10,353	90.30	181.20	9212.71	-1385.30	-37.45	1385.30	1385.80	181.55	0.46	-0.32
121	10,385	90.80	181.10	9212.40	-1417.29	-38.09	1417.29	1417.80	181.54	1.59	1.56
122	10,416	90.20	181.30	9212.13	-1448.28	-38.74	1448.28	1448.80	181.53	2.04	-1.94
123	10,511	90.10	181.50	9211.88	-1543.25	-41.06	1543.25	1543.80	181.52	0.24	-0.11
124	10,606	89.80	178.20	9211.96	-1638.24	-40.81	1638.24	1638.75	181.43	3.49	-0.32
125	10,700	89.90	179.80	9212.21	-1732.22	-39.17	1732.22	1732.66	181.30	1.71	0.11
126	10,795	90.10	181.90	9212.21	-1827.20	-40.58	1827.20	1827.65	181.27	2.22	0.21
127	10,890	89.90	179.80	9212.21	-1922.19	-41.99	1922.19	1922.65	181.25	2.22	-0.21
128	10,984	89.70	179.60	9212.54	-2016.19	-41.50	2016.19	2016.61	181.18	0.30	-0.21
129	11,079	89.40	178.10	9213.29	-2111.16	-39.59	2111.16	2111.53	181.07	1.61	-0.32
130	11,174	89.30	176.50	9214.36	-2206.05	-35.11	2206.05	2206.33	180.91	1.69	-0.11
131	11,268	89.70	178.70	9215.18	-2299.95	-31.18	2299.95	2300.17	180.78	2.38	0.43
132	11,363	89.50	178.80	9215.85	-2394.93	-29.11	2394.93	2395.11	180.70	0.24	-0.21
133	11,458	90.00	179.60	9216.26	-2489.92	-27.78	2489.92	2490.07	180.64	0.99	0.53
134	11,552	89.20	177.30	9216.92	-2583.87	-25.24	2583.87	2584.00	180.56	2.59	-0.85
135	11,647	90.10	182.00	9217.50	-2678.84	-24.66	2678.84	2678.96	180.53	5.04	0.95
136	11,742	89.40	179.80	9217.91	-2773.82	-26.15	2773.82	2773.95	180.54	2.43	-0.74
137	11,836	89.70	179.40	9218.65	-2867.82	-25.49	2867.82	2867.93	180.51	0.53	0.32
138	11,931	89.70	178.20	9219.15	-2962.79	-23.50	2962.79	2962.89	180.45	1.26	0.00
139	12,026	90.30	177.40	9219.15	-3057.72	-19.86	3057.72	3057.79	180.37	1.05	0.63
140	12,120	90.70	180.90	9218.33	-3151.69	-18.46	3151.69	3151.75	180.34	3.75	0.43
141	12,215	89.00	176.90	9218.58	-3246.65	-16.64	3246.65	3246.70	180.29	4.57	-1.79
142	12,309	88.30	175.70	9220.79	-3340.43	-10.58	3340.43	3340.45	180.18	1.48	-0.74
143	12,404	88.90	180.80	9223.11	-3435.33	-7.68	3435.33	3435.33	180.13	5.40	0.63
144	12,499	89.60	180.80	9224.36	-3530.31	-9.00	3530.31	3530.32	180.15	0.74	0.74
145	12,593	89.50	181.00	9225.10	-3624.29	-10.48	3624.29	3624.31	180.17	0.24	-0.11

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SURVEY CALCULATION PROGRAM

4/27/13 13:45

Company:	Continental Resources, Inc.
Well Name:	Collins 1-28H
Location:	Richland County, MT
Rig:	H&P #257
Job Number:	DDMT-130235
API #:	25-083-23131
Vertical Section Azimuth:	180.00
Survey Calculation Method:	Minimum Curvature

Magnetic Declination: 9.40 REFERENCED TO TRUE NORTH

Proposed Direction: 180.00

PTB:	MD	INC	AZM	TVD	N/S	E/W	VS
	13,720	89.70	172.30	9225.42	-4749.34	29.46	4749.34

#	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'
146	12,688	89.20	178.20	9226.17	-3719.27	-9.82	3719.27	3719.29	180.15	2.96	-0.32
147	12,783	89.20	177.20	9227.50	-3814.19	-6.00	3814.19	3814.19	180.09	1.05	0.00
148	12,878	89.80	177.50	9228.33	-3909.08	-1.61	3909.08	3909.08	180.02	0.71	0.63
149	12,972	90.10	180.40	9228.41	-4003.06	0.11	4003.06	4003.06	180.00	3.10	0.32
150	13,067	91.30	182.50	9227.25	-4098.01	-2.29	4098.01	4098.01	180.03	2.55	1.26
151	13,162	90.30	180.80	9225.92	-4192.96	-5.03	4192.96	4192.96	180.07	2.08	-1.05
152	13,257	89.90	178.50	9225.76	-4287.95	-4.45	4287.95	4287.95	180.06	2.46	-0.42
153	13,351	89.70	176.20	9226.09	-4381.84	-0.10	4381.84	4381.84	180.00	2.46	-0.21
154	13,446	90.50	179.60	9225.92	-4476.76	3.38	4476.76	4476.76	179.96	3.68	0.84
155	13,541	90.00	174.30	9225.51	-4571.59	8.43	4571.59	4571.60	179.89	5.60	-0.53
156	13,636	90.40	173.50	9225.17	-4666.05	18.53	4666.05	4666.09	179.77	0.94	0.42
157	13,667	89.70	172.30	9225.15	-4696.82	22.36	4696.82	4696.87	179.73	4.48	-2.26

Company: Continental Resources
Site: Collins
Well: 1-28H
Project: Richland County, Montana (NAD83)
Rig Name: H&P 257

Continental RESOURCES

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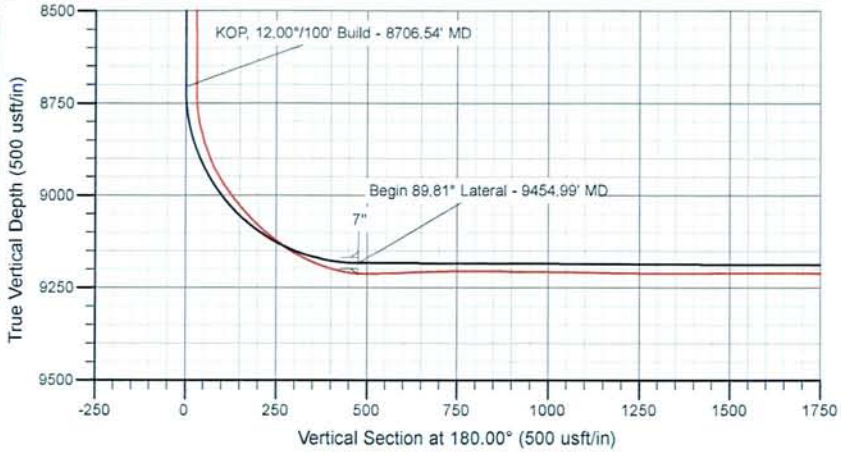
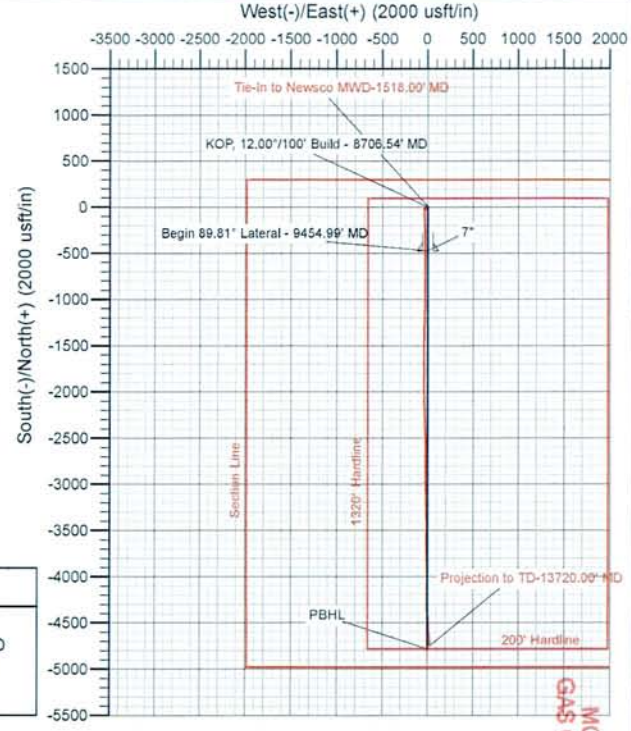
Azimuths to True North
Magnetic North: 9.40°

Magnetic Field
Strength: 56322.5snT
Dip Angle: 72.59°
Date: 04/02/2013
Model: WMM_2010

US State Plane 1983
Montana

Created By: BDJ
Date: 10:16, April 12 2013
Plan: Design #2

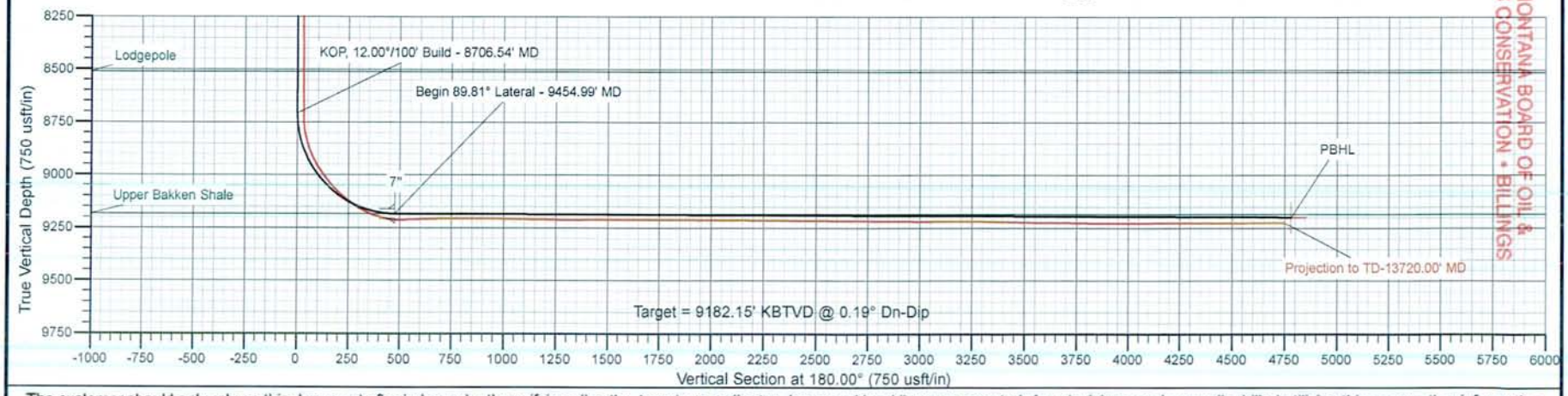




SHL: 295' FNL & 1980' FWL	Sec 28 - 23N - 52E
PBHL: 200' FSL & 1980' FWL	Sec 28 - 23N - 52E

ANNOTATIONS

MD	Inc	Azi	TVD	+N/-S	+E/-W	VSect	Departure	Annotation
8706.54	0.00	0.00	8706.54	0.00	0.00	0.00	0.00	KOP, 12.00°/100' Build - 8706.54' MD
9454.99	89.81	180.00	9184.00	-475.91	0.00	475.91	475.91	Begin 89.81° Lateral - 9454.99' MD
13760.10	89.81	180.00	9198.00	-4781.00	0.00	4781.00	4781.00	PBHL - 13760.10' MD



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RESOURCES

Continental Resources

Richland County, Montana (NAD83)
Collins
1-28H

Wellbore #1

Survey: Newsco MWD

Survey Report - Geographic

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Continental RESOURCES

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Survey Report - Geographic

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Company:	Continental Resources	**Local Co-ordinate Reference:**	Well 1-28H
Project:	Richland County, Montana (NAD83)	**TVD Reference:**	WELL @ 2502.00usft (H&P 257)
Site:	Collins	**MD Reference:**	WELL @ 2502.00usft (H&P 257)
Well:	1-28H	**North Reference:**	True
Wellbore:	Wellbore #1	**Survey Calculation Method:**	Minimum Curvature
Design:	Surveys	**Database:**	Well Planning Conroe

Project Richland County, Montana (NAD83)

Map System:	US State Plane 1983	**System Datum:**	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	Montana		

Well 1-28H

Well Position	**+N/-S**	0.00 usft	**Northing:**	1,300,261.17 usft	**Latitude:**	47° 43' 53.8559 N
	+E/-W	0.00 usft	**Easting:**	3,061,025.41 usft	**Longitude:**	105° 3' 21.315 W
Position Uncertainty		0.00 usft	**Wellhead Elevation:**	usfl	**Ground Level:**	2,476.00 usfl

Wellbore Wellbore #1

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	WMM_2010	04/02/13	9.40	72.59	56,322

Design Surveys

Audit Notes:

Version: 1.0 **Phase:** ACTUAL **Tie On Depth:** 0.00

Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.00	0.00	0.00	180.00

Survey Program **Date** 04/12/13

From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
55.00	1,518.00	Newsco MWD (Wellbore #1)	MWD	MWD - Standard
1,617.00	13,720.00	Extreme EM (Wellbore #1)	MWD	MWD - Standard

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
0.00	0.00	0.00	0.00	0.00	0.00	1,300,261.17	3,061,025.41	47° 43' 53.8559 N	105° 3' 21.315 W
55.00	0.00	0.00	55.00	0.00	0.00	1,300,261.17	3,061,025.41	47° 43' 53.8559 N	105° 3' 21.315 W
Added to adjust for KB-55.00' MD									
190.00	0.40	62.50	190.00	0.22	0.42	1,300,261.41	3,061,025.82	47° 43' 53.8581 N	105° 3' 21.309 W
280.00	0.60	63.90	280.00	0.57	1.12	1,300,261.80	3,061,026.50	47° 43' 53.8616 N	105° 3' 21.299 W
370.00	0.50	67.40	369.99	0.93	1.91	1,300,262.20	3,061,027.26	47° 43' 53.8651 N	105° 3' 21.287 W
460.00	0.50	38.20	459.99	1.39	2.51	1,300,262.69	3,061,027.84	47° 43' 53.8696 N	105° 3' 21.278 W
550.00	0.60	97.30	549.98	1.64	3.22	1,300,262.98	3,061,028.54	47° 43' 53.8721 N	105° 3' 21.268 W
640.00	0.60	114.90	639.98	1.38	4.12	1,300,262.78	3,061,029.44	47° 43' 53.8696 N	105° 3' 21.255 W
730.00	0.30	107.10	729.98	1.11	4.77	1,300,262.54	3,061,030.11	47° 43' 53.8669 N	105° 3' 21.245 W
820.00	0.10	152.80	819.98	0.97	5.03	1,300,262.42	3,061,030.38	47° 43' 53.8655 N	105° 3' 21.241 W
910.00	0.10	125.10	909.98	0.86	5.13	1,300,262.31	3,061,030.49	47° 43' 53.8644 N	105° 3' 21.240 W
1,000.00	0.30	168.70	999.98	0.58	5.24	1,300,262.04	3,061,030.61	47° 43' 53.8617 N	105° 3' 21.238 W
1,090.00	0.20	155.30	1,089.97	0.21	5.35	1,300,261.68	3,061,030.75	47° 43' 53.8580 N	105° 3' 21.237 W
1,180.00	0.20	171.50	1,179.97	-0.09	5.44	1,300,261.38	3,061,030.85	47° 43' 53.8550 N	105° 3' 21.235 W
1,270.00	0.10	212.60	1,269.97	-0.31	5.42	1,300,261.16	3,061,030.84	47° 43' 53.8529 N	105° 3' 21.236 W
1,360.00	0.40	61.80	1,359.97	-0.23	5.66	1,300,261.26	3,061,031.07	47° 43' 53.8537 N	105° 3' 21.232 W
1,450.00	0.40	75.50	1,449.97	0.00	6.24	1,300,261.52	3,061,031.64	47° 43' 53.8559 N	105° 3' 21.224 W

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Continental RESOURCES

MS Energy Services

Survey Report - Geographic

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Company:	Continental Resources	**Local Co-ordinate Reference:**	Well 1-28H
Project:	Richland County, Montana (NAD83)	**TVD Reference:**	WELL @ 2502.00usft (H&P 257)
Site:	Collins	**MD Reference:**	WELL @ 2502.00usft (H&P 257)
Well:	1-28H	**North Reference:**	True
Wellbore:	Wellbore #1	**Survey Calculation Method:**	Minimum Curvature
Design:	Surveys	**Database:**	Well Planning Conroe

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
1,518.00	0.30	91.00	1,517.97	0.05	6.65	1,300,261.60	3,061,032.05	47° 43' 53.8565 N	105° 3' 21.218 W
Final Survey - 1518.00' MD									

Survey Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates +N/-S (usft)	Local Coordinates +E/-W (usft)	Comment
55.00	55.00	0.00	0.00	Added to adjust for KB-55.00' MD
1,518.00	1,517.97	0.05	6.65	Final Survey - 1518.00' MD

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Richland County, Montana (NAD83)
Collins
1-28H

Wellbore #1

Survey: Extreme EM

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Well:	1-28H	**North Reference:**	True
Wellbore:	Wellbore #1	**Survey Calculation Method:**	Minimum Curvature
Design:	Surveys	**Database:**	Well Planning Conroe

Project Richland County, Montana (NAD83)

Map System:	US State Plane 1983	**System Datum:**	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	Montana		

Well 1-28H

Well Position	**+N/-S**	0.00 usft	**Northing:**	1,300,261.17 usfl	**Latitude:**	47° 43' 53.8559 N
	+E/-W	0.00 usft	**Easting:**	3,061,025.41 usfl	**Longitude:**	105° 3' 21.315 W
Position Uncertainty		0.00 usft	**Wellhead Elevation:**	usfl	**Ground Level:**	2,476.00 usfl

Wellbore Wellbore #1

Magnetics	**Model Name**	**Sample Date**	**Declination (°)**	**Dip Angle (°)**	**Field Strength (nT)**
	WMM_2010	04/02/13	9.40	72.59	56,322

Design Surveys

Audit Notes:

Version:	1.0	**Phase:**	ACTUAL	**Tie On Depth:**	0.00

Vertical Section:	**Depth From (TVD) (usft)**	**+N/-S (usft)**	**+E/-W (usft)**	**Direction (°)**
	0.00	0.00	0.00	180.00

Survey Program **Date** 04/12/13

From (usft)	**To (usft)**	**Survey (Wellbore)**	**Tool Name**	**Description**
55.00	1,518.00	Newsco MWD (Wellbore #1)	MWD	MWD - Standard
1,617.00	13,720.00	Extreme EM (Wellbore #1)	MWD	MWD - Standard

Survey

Measured Depth (usft)	**Inclination (°)**	**Azimuth (°)**	**Vertical Depth (usft)**	**+N/-S (usft)**	**+E/-W (usft)**	**Map Northing (usft)**	**Map Easting (usft)**	**Latitude**	**Longitude**
1,518.00	0.30	91.00	1,517.97	0.05	6.65	1,300,261.60	3,061,032.05	47° 43' 53.8565 N	105° 3' 21.218 W
Tie-In to Newsco MWD-1518.00' MD									
1,617.00	0.22	176.92	1,616.97	-0.14	6.91	1,300,261.42	3,061,032.33	47° 43' 53.8545 N	105° 3' 21.214 W
1,712.00	0.70	220.91	1,711.97	-0.76	6.54	1,300,260.78	3,061,031.99	47° 43' 53.8484 N	105° 3' 21.219 W
1,807.00	1.10	229.08	1,806.95	-1.80	5.48	1,300,259.68	3,061,030.98	47° 43' 53.8382 N	105° 3' 21.235 W
1,902.00	1.10	226.31	1,901.94	-3.03	4.13	1,300,258.38	3,061,029.71	47° 43' 53.8261 N	105° 3' 21.255 W
1,997.00	1.49	226.01	1,996.91	-4.51	2.58	1,300,256.81	3,061,028.24	47° 43' 53.8114 N	105° 3' 21.277 W
2,093.00	1.71	235.81	2,092.87	-6.19	0.50	1,300,255.02	3,061,026.26	47° 43' 53.7949 N	105° 3' 21.308 W
2,186.00	1.89	237.39	2,185.83	-7.79	-1.94	1,300,253.28	3,061,023.92	47° 43' 53.7790 N	105° 3' 21.343 W
2,283.00	1.71	246.40	2,282.78	-9.23	-4.62	1,300,251.69	3,061,021.33	47° 43' 53.7648 N	105° 3' 21.383 W
2,378.00	1.41	243.58	2,377.75	-10.32	-6.96	1,300,250.47	3,061,019.05	47° 43' 53.7540 N	105° 3' 21.417 W
2,472.00	1.10	236.51	2,471.72	-11.33	-8.75	1,300,249.36	3,061,017.32	47° 43' 53.7440 N	105° 3' 21.443 W
2,567.00	1.49	239.89	2,566.70	-12.46	-10.58	1,300,248.13	3,061,015.56	47° 43' 53.7330 N	105° 3' 21.470 W
2,662.00	1.49	235.81	2,661.67	-13.77	-12.67	1,300,246.70	3,061,013.54	47° 43' 53.7200 N	105° 3' 21.500 W
2,757.00	1.32	230.88	2,756.64	-15.15	-14.54	1,300,245.21	3,061,011.76	47° 43' 53.7063 N	105° 3' 21.528 W
2,852.00	1.32	239.32	2,851.61	-16.40	-16.33	1,300,243.86	3,061,010.04	47° 43' 53.6940 N	105° 3' 21.554 W
2,946.00	1.19	228.20	2,945.59	-17.61	-17.99	1,300,242.57	3,061,008.45	47° 43' 53.6821 N	105° 3' 21.578 W
3,042.00	1.19	239.19	3,041.57	-18.78	-19.59	1,300,241.30	3,061,006.92	47° 43' 53.6705 N	105° 3' 21.602 W

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Site:	Collins	**MD Reference:**	WELL @ 2502.00usft (H&P 257)
Well:	1-28H	**North Reference:**	True
Wellbore:	Wellbore #1	**Survey Calculation Method:**	Minimum Curvature
Design:	Surveys	**Database:**	Well Planning Conroe

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
3,136.00	1.01	222.10	3,135.55	-19.90	-20.98	1,300,240.11	3,061,005.59	47° 43' 53.6595 N	105° 3' 21.622 W
3,232.00	0.79	226.40	3,231.54	-20.98	-22.03	1,300,238.97	3,061,004.61	47° 43' 53.6488 N	105° 3' 21.637 W
3,327.00	0.79	228.51	3,326.53	-21.86	-22.99	1,300,238.03	3,061,003.70	47° 43' 53.6400 N	105° 3' 21.652 W
3,422.00	0.70	231.90	3,421.52	-22.66	-23.94	1,300,237.19	3,061,002.80	47° 43' 53.6322 N	105° 3' 21.665 W
3,516.00	0.70	243.19	3,515.52	-23.27	-24.91	1,300,236.52	3,061,001.87	47° 43' 53.6262 N	105° 3' 21.680 W
3,610.00	0.62	243.80	3,609.51	-23.75	-25.87	1,300,235.98	3,061,000.93	47° 43' 53.6214 N	105° 3' 21.694 W
3,705.00	0.52	243.00	3,704.51	-24.18	-26.72	1,300,235.51	3,061,000.11	47° 43' 53.6172 N	105° 3' 21.706 W
3,799.00	0.31	257.78	3,798.50	-24.42	-27.35	1,300,235.23	3,060,999.49	47° 43' 53.6148 N	105° 3' 21.715 W
3,895.00	0.22	242.62	3,894.50	-24.56	-27.77	1,300,235.07	3,060,999.09	47° 43' 53.6134 N	105° 3' 21.721 W
3,989.00	0.09	300.58	3,988.50	-24.61	-27.99	1,300,235.01	3,060,998.86	47° 43' 53.6130 N	105° 3' 21.725 W
4,085.00	0.31	284.89	4,084.50	-24.50	-28.31	1,300,235.10	3,060,998.54	47° 43' 53.6140 N	105° 3' 21.729 W
4,180.00	0.40	274.48	4,179.50	-24.41	-28.88	1,300,235.16	3,060,997.96	47° 43' 53.6149 N	105° 3' 21.738 W
4,275.00	0.79	269.29	4,274.49	-24.39	-29.87	1,300,235.12	3,060,996.98	47° 43' 53.6151 N	105° 3' 21.752 W
4,370.00	1.58	272.41	4,369.47	-24.35	-31.83	1,300,235.05	3,060,995.01	47° 43' 53.6155 N	105° 3' 21.781 W
4,465.00	1.32	264.59	4,464.44	-24.40	-34.23	1,300,234.87	3,060,992.62	47° 43' 53.6151 N	105° 3' 21.816 W
4,561.00	1.19	277.11	4,560.42	-24.38	-36.32	1,300,234.77	3,060,990.53	47° 43' 53.6153 N	105° 3' 21.847 W
4,656.00	0.79	269.29	4,655.41	-24.26	-37.95	1,300,234.79	3,060,988.90	47° 43' 53.6164 N	105° 3' 21.871 W
4,750.00	0.62	264.81	4,749.40	-24.32	-39.11	1,300,234.67	3,060,987.75	47° 43' 53.6158 N	105° 3' 21.887 W
4,846.00	0.40	305.68	4,845.40	-24.17	-39.90	1,300,234.77	3,060,986.95	47° 43' 53.6173 N	105° 3' 21.899 W
4,941.00	0.40	318.51	4,940.39	-23.73	-40.39	1,300,235.19	3,060,986.44	47° 43' 53.6217 N	105° 3' 21.906 W
5,036.00	0.79	330.99	5,035.39	-22.90	-40.93	1,300,235.98	3,060,985.85	47° 43' 53.6298 N	105° 3' 21.914 W
5,131.00	0.88	322.29	5,130.38	-21.75	-41.69	1,300,237.08	3,060,985.03	47° 43' 53.6411 N	105° 3' 21.925 W
5,227.00	1.19	325.28	5,226.36	-20.35	-42.71	1,300,238.42	3,060,983.93	47° 43' 53.6550 N	105° 3' 21.940 W
5,321.00	1.10	333.72	5,320.34	-18.74	-43.66	1,300,239.98	3,060,982.88	47° 43' 53.6709 N	105° 3' 21.954 W
5,416.00	1.10	331.91	5,415.33	-17.12	-44.50	1,300,241.55	3,060,981.96	47° 43' 53.6869 N	105° 3' 21.966 W
5,512.00	0.88	338.68	5,511.31	-15.62	-45.20	1,300,243.01	3,060,981.17	47° 43' 53.7017 N	105° 3' 21.977 W
5,607.00	1.01	347.91	5,606.30	-14.12	-45.64	1,300,244.48	3,060,980.65	47° 43' 53.7165 N	105° 3' 21.983 W
5,703.00	1.01	350.90	5,702.28	-12.46	-45.95	1,300,246.12	3,060,980.24	47° 43' 53.7329 N	105° 3' 21.988 W
5,797.00	0.88	8.52	5,796.27	-10.93	-45.97	1,300,247.65	3,060,980.13	47° 43' 53.7481 N	105° 3' 21.988 W
5,893.00	0.70	29.40	5,892.26	-9.69	-45.58	1,300,248.91	3,060,980.46	47° 43' 53.7603 N	105° 3' 21.982 W
5,987.00	0.48	37.39	5,986.26	-8.87	-45.06	1,300,249.75	3,060,980.93	47° 43' 53.7683 N	105° 3' 21.974 W
6,083.00	0.40	56.51	6,082.25	-8.37	-44.53	1,300,250.29	3,060,981.43	47° 43' 53.7733 N	105° 3' 21.967 W
6,178.00	0.40	78.22	6,177.25	-8.12	-43.93	1,300,250.57	3,060,982.01	47° 43' 53.7758 N	105° 3' 21.958 W
6,273.00	0.31	127.22	6,272.25	-8.21	-43.40	1,300,250.51	3,060,982.55	47° 43' 53.7749 N	105° 3' 21.950 W
6,368.00	0.70	144.88	6,367.25	-8.84	-42.86	1,300,249.91	3,060,983.12	47° 43' 53.7687 N	105° 3' 21.942 W
6,463.00	0.70	150.90	6,462.24	-9.82	-42.25	1,300,248.97	3,060,983.79	47° 43' 53.7590 N	105° 3' 21.933 W
6,557.00	0.62	163.91	6,556.23	-10.81	-41.83	1,300,248.00	3,060,984.27	47° 43' 53.7492 N	105° 3' 21.927 W
6,653.00	0.88	166.42	6,652.22	-12.02	-41.51	1,300,246.81	3,060,984.65	47° 43' 53.7372 N	105° 3' 21.923 W
6,748.00	1.10	153.50	6,747.21	-13.55	-40.93	1,300,245.32	3,060,985.32	47° 43' 53.7222 N	105° 3' 21.914 W
6,843.00	0.88	158.51	6,842.20	-15.04	-40.26	1,300,243.86	3,060,986.07	47° 43' 53.7074 N	105° 3' 21.904 W
6,938.00	0.79	151.61	6,937.19	-16.30	-39.68	1,300,242.64	3,060,986.72	47° 43' 53.6950 N	105° 3' 21.896 W
7,033.00	0.62	141.76	7,032.18	-17.28	-39.05	1,300,241.70	3,060,987.41	47° 43' 53.6853 N	105° 3' 21.887 W
7,128.00	0.70	153.10	7,127.17	-18.20	-38.47	1,300,240.81	3,060,988.04	47° 43' 53.6762 N	105° 3' 21.878 W
7,224.00	0.62	166.02	7,223.17	-19.23	-38.08	1,300,239.81	3,060,988.49	47° 43' 53.6661 N	105° 3' 21.872 W
7,319.00	0.62	149.89	7,318.16	-20.17	-37.70	1,300,238.89	3,060,988.92	47° 43' 53.6568 N	105° 3' 21.867 W
7,413.00	0.62	171.69	7,412.16	-21.11	-37.37	1,300,237.97	3,060,989.30	47° 43' 53.6475 N	105° 3' 21.862 W
7,508.00	0.48	179.91	7,507.15	-22.02	-37.29	1,300,237.07	3,060,989.43	47° 43' 53.6385 N	105° 3' 21.861 W
7,603.00	0.62	183.99	7,602.15	-22.93	-37.33	1,300,236.16	3,060,989.45	47° 43' 53.6295 N	105° 3' 21.861 W
7,698.00	0.62	177.10	7,697.14	-23.96	-37.34	1,300,235.13	3,060,989.49	47° 43' 53.6194 N	105° 3' 21.861 W
7,793.00	0.48	182.28	7,792.14	-24.87	-37.33	1,300,234.22	3,060,989.56	47° 43' 53.6104 N	105° 3' 21.861 W
7,888.00	0.62	179.51	7,887.13	-25.78	-37.34	1,300,233.31	3,060,989.60	47° 43' 53.6014 N	105° 3' 21.861 W
7,983.00	0.62	187.82	7,982.13	-26.80	-37.40	1,300,232.29	3,060,989.59	47° 43' 53.5913 N	105° 3' 21.862 W
8,077.00	0.40	173.71	8,076.12	-27.63	-37.44	1,300,231.46	3,060,989.60	47° 43' 53.5831 N	105° 3' 21.863 W
8,173.00	0.48	184.48	8,172.12	-28.37	-37.43	1,300,230.72	3,060,989.65	47° 43' 53.5759 N	105° 3' 21.863 W
8,268.00	0.48	193.35	8,267.12	-29.15	-37.55	1,300,229.93	3,060,989.57	47° 43' 53.5681 N	105° 3' 21.865 W

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Design:	Surveys	**Database:**	Well Planning Conroe

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
8,363.00	0.40	182.45	8,362.11	-29.87	-37.66	1,300,229.21	3,060,989.51	47° 43' 53.5610 N	105° 3' 21.866 W
8,458.00	0.31	215.23	8,457.11	-30.41	-37.82	1,300,228.66	3,060,989.38	47° 43' 53.5557 N	105° 3' 21.869 W
8,553.00	0.40	204.73	8,552.11	-30.92	-38.11	1,300,228.13	3,060,989.12	47° 43' 53.5506 N	105° 3' 21.873 W
8,648.00	0.31	245.86	8,647.11	-31.33	-38.48	1,300,227.71	3,060,988.77	47° 43' 53.5466 N	105° 3' 21.878 W
8,678.00	0.22	228.86	8,677.11	-31.40	-38.60	1,300,227.63	3,060,988.66	47° 43' 53.5459 N	105° 3' 21.880 W
8,710.00	0.31	266.34	8,709.11	-31.44	-38.73	1,300,227.58	3,060,988.53	47° 43' 53.5455 N	105° 3' 21.882 W
8,742.00	1.41	192.47	8,741.10	-31.83	-38.91	1,300,227.18	3,060,988.38	47° 43' 53.5416 N	105° 3' 21.884 W
8,773.00	6.42	181.57	8,772.02	-33.94	-39.04	1,300,225.07	3,060,988.37	47° 43' 53.5208 N	105° 3' 21.886 W
8,805.00	11.38	178.36	8,803.63	-38.89	-38.99	1,300,220.13	3,060,988.69	47° 43' 53.4720 N	105° 3' 21.886 W
8,836.00	14.81	176.43	8,833.82	-45.90	-38.66	1,300,213.15	3,060,989.42	47° 43' 53.4027 N	105° 3' 21.881 W
8,868.00	18.72	176.74	8,864.45	-55.11	-38.11	1,300,203.98	3,060,990.49	47° 43' 53.3117 N	105° 3' 21.873 W
8,900.00	22.28	175.95	8,894.42	-66.29	-37.39	1,300,192.86	3,060,991.84	47° 43' 53.2013 N	105° 3' 21.862 W
8,931.00	26.50	177.53	8,922.65	-79.07	-36.68	1,300,180.14	3,060,993.28	47° 43' 53.0752 N	105° 3' 21.852 W
8,963.00	31.11	179.55	8,950.68	-94.48	-36.31	1,300,164.78	3,060,994.52	47° 43' 52.9230 N	105° 3' 21.846 W
8,995.00	34.19	181.26	8,977.62	-111.74	-36.44	1,300,147.54	3,060,995.37	47° 43' 52.7526 N	105° 3' 21.848 W
9,027.00	36.91	180.34	9,003.66	-130.34	-36.69	1,300,128.95	3,060,996.17	47° 43' 52.5689 N	105° 3' 21.852 W
9,059.00	40.78	178.45	9,028.57	-150.41	-36.47	1,300,108.93	3,060,997.53	47° 43' 52.3708 N	105° 3' 21.849 W
9,090.00	42.41	177.53	9,051.76	-170.97	-35.74	1,300,088.44	3,060,999.42	47° 43' 52.1677 N	105° 3' 21.838 W
9,121.00	45.22	177.13	9,074.12	-192.41	-34.74	1,300,067.10	3,061,001.64	47° 43' 51.9561 N	105° 3' 21.823 W
9,153.00	50.32	176.56	9,095.62	-216.06	-33.43	1,300,043.56	3,061,004.29	47° 43' 51.7225 N	105° 3' 21.804 W
9,185.00	52.12	176.56	9,115.67	-240.96	-31.94	1,300,018.78	3,061,007.19	47° 43' 51.4767 N	105° 3' 21.782 W
9,216.00	54.10	177.75	9,134.27	-265.72	-30.71	1,299,994.13	3,061,009.82	47° 43' 51.2322 N	105° 3' 21.764 W
9,248.00	59.28	179.64	9,151.84	-292.44	-30.11	1,299,967.48	3,061,011.93	47° 43' 50.9683 N	105° 3' 21.756 W
9,280.00	62.09	180.65	9,167.51	-320.34	-30.19	1,299,939.63	3,061,013.44	47° 43' 50.6928 N	105° 3' 21.757 W
9,312.00	66.40	181.44	9,181.41	-349.15	-30.72	1,299,910.83	3,061,014.55	47° 43' 50.4084 N	105° 3' 21.765 W
9,343.00	71.89	181.04	9,192.44	-378.10	-31.34	1,299,881.89	3,061,015.56	47° 43' 50.1225 N	105° 3' 21.774 W
9,375.00	75.19	180.96	9,201.51	-408.78	-31.88	1,299,851.23	3,061,016.77	47° 43' 49.8195 N	105° 3' 21.782 W
9,407.00	79.58	181.04	9,208.50	-440.00	-32.42	1,299,820.04	3,061,018.00	47° 43' 49.5113 N	105° 3' 21.790 W
9,438.00	85.08	180.74	9,212.63	-470.71	-32.90	1,299,789.35	3,061,019.26	47° 43' 49.2081 N	105° 3' 21.796 W
9,450.00	87.10	180.25	9,213.45	-482.68	-33.00	1,299,777.40	3,061,019.84	47° 43' 49.0899 N	105° 3' 21.798 W
9,501.00	92.80	178.50	9,213.49	-533.65	-32.45	1,299,726.53	3,061,023.28	47° 43' 48.5866 N	105° 3' 21.790 W
9,564.00	92.40	178.50	9,210.64	-596.56	-30.80	1,299,663.82	3,061,028.50	47° 43' 47.9654 N	105° 3' 21.766 W
9,596.00	92.80	178.80	9,209.18	-628.52	-30.04	1,299,631.95	3,061,031.06	47° 43' 47.6498 N	105° 3' 21.755 W
9,627.00	92.00	178.70	9,207.89	-659.49	-29.37	1,299,601.08	3,061,033.49	47° 43' 47.3440 N	105° 3' 21.745 W
9,659.00	90.10	180.00	9,207.30	-691.48	-29.01	1,299,569.16	3,061,035.67	47° 43' 47.0282 N	105° 3' 21.740 W
9,722.00	91.40	179.50	9,206.48	-754.47	-28.73	1,299,506.28	3,061,039.51	47° 43' 46.4062 N	105° 3' 21.735 W
9,754.00	90.90	180.00	9,205.83	-786.46	-28.59	1,299,474.35	3,061,041.47	47° 43' 46.0903 N	105° 3' 21.733 W
9,817.00	88.80	180.30	9,206.00	-849.46	-28.76	1,299,411.44	3,061,044.87	47° 43' 45.4682 N	105° 3' 21.736 W
9,849.00	88.30	180.20	9,206.81	-881.45	-28.90	1,299,379.50	3,061,046.55	47° 43' 45.1524 N	105° 3' 21.738 W
9,880.00	89.30	180.30	9,207.46	-912.44	-29.03	1,299,348.55	3,061,048.17	47° 43' 44.8463 N	105° 3' 21.740 W
9,943.00	90.00	180.30	9,207.84	-975.44	-29.36	1,299,285.63	3,061,051.41	47° 43' 44.2243 N	105° 3' 21.745 W
10,006.00	88.70	180.30	9,208.56	-1,038.43	-29.69	1,299,222.72	3,061,054.66	47° 43' 43.6023 N	105° 3' 21.750 W
10,038.00	88.70	181.10	9,209.28	-1,070.42	-30.08	1,299,190.76	3,061,056.08	47° 43' 43.2864 N	105° 3' 21.755 W
10,083.00	89.00	181.30	9,210.19	-1,115.40	-31.02	1,299,145.80	3,061,057.69	47° 43' 42.8423 N	105° 3' 21.769 W
10,133.00	88.80	181.10	9,211.15	-1,165.38	-32.07	1,299,095.84	3,061,059.48	47° 43' 42.3487 N	105° 3' 21.784 W
10,227.00	89.00	181.50	9,212.95	-1,259.34	-34.20	1,299,001.91	3,061,062.68	47° 43' 41.4210 N	105° 3' 21.816 W
10,277.00	90.40	181.70	9,213.21	-1,309.32	-35.60	1,298,951.94	3,061,064.12	47° 43' 40.9275 N	105° 3' 21.836 W
10,322.00	90.40	181.30	9,212.90	-1,354.30	-36.78	1,298,906.96	3,061,065.49	47° 43' 40.4833 N	105° 3' 21.853 W
10,353.00	90.30	181.20	9,212.71	-1,385.29	-37.45	1,298,875.98	3,061,066.58	47° 43' 40.1773 N	105° 3' 21.863 W
10,385.00	90.80	181.10	9,212.40	-1,417.29	-38.10	1,298,844.00	3,061,067.75	47° 43' 39.8614 N	105° 3' 21.873 W
10,416.00	90.20	181.30	9,212.13	-1,448.28	-38.75	1,298,813.02	3,061,068.86	47° 43' 39.5554 N	105° 3' 21.882 W
10,511.00	90.10	181.50	9,211.88	-1,543.25	-41.07	1,298,718.07	3,061,071.93	47° 43' 38.6176 N	105° 3' 21.916 W
10,606.00	89.80	178.20	9,211.97	-1,638.24	-40.82	1,298,623.25	3,061,077.56	47° 43' 37.6797 N	105° 3' 21.912 W
10,700.00	89.90	179.80	9,212.21	-1,732.22	-39.18	1,298,529.51	3,061,084.53	47° 43' 36.7517 N	105° 3' 21.888 W
10,795.00	90.10	181.90	9,212.21	-1,827.20	-40.59	1,298,434.60	3,061,088.51	47° 43' 35.8138 N	105° 3' 21.909 W

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Continental RESOURCES

MS Energy Services

Survey Report - Geographic

MS Energy Services. WWW.MSENERGYSERVICES.COM

Company:	Continental Resources	**Local Co-ordinate Reference:**	Well 1-28H
Project:	Richland County, Montana (NAD83)	**TVD Reference:**	WELL @ 2502.00usft (H&P 257)
Site:	Collins	**MD Reference:**	WELL @ 2502.00usft (H&P 257)
Well:	1-28H	**North Reference:**	True
Wellbore:	Wellbore #1	**Survey Calculation Method:**	Minimum Curvature
Design:	Surveys	**Database:**	Well Planning Conroe

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
10,890.00	89.90	179.80	9,212.21	-1,922.19	-42.00	1,298,339.69	3,061,092.49	47° 43' 34.8759 N	105° 3' 21.930 W
10,984.00	89.70	179.60	9,212.54	-2,016.18	-41.50	1,298,245.87	3,061,098.31	47° 43' 33.9477 N	105° 3' 21.922 W
11,079.00	89.40	178.10	9,213.29	-2,111.16	-39.60	1,298,151.16	3,061,105.60	47° 43' 33.0099 N	105° 3' 21.894 W
11,174.00	89.30	176.50	9,214.36	-2,206.04	-35.12	1,298,056.68	3,061,115.45	47° 43' 32.0730 N	105° 3' 21.829 W
11,268.00	89.70	178.70	9,215.18	-2,299.95	-31.19	1,297,963.15	3,061,124.70	47° 43' 31.1458 N	105° 3' 21.771 W
11,363.00	89.50	178.80	9,215.85	-2,394.93	-29.11	1,297,868.44	3,061,132.16	47° 43' 30.2079 N	105° 3' 21.741 W
11,458.00	90.00	179.60	9,216.26	-2,489.92	-27.79	1,297,773.68	3,061,138.87	47° 43' 29.2700 N	105° 3' 21.722 W
11,552.00	89.20	177.30	9,216.92	-2,583.87	-25.25	1,297,680.02	3,061,146.73	47° 43' 28.3423 N	105° 3' 21.684 W
11,647.00	90.10	182.00	9,217.50	-2,678.84	-24.67	1,297,585.24	3,061,152.70	47° 43' 27.4045 N	105° 3' 21.676 W
11,742.00	89.40	179.80	9,217.91	-2,773.82	-26.16	1,297,490.32	3,061,156.60	47° 43' 26.4667 N	105° 3' 21.698 W
11,836.00	89.70	179.40	9,218.65	-2,867.82	-25.50	1,297,396.52	3,061,162.58	47° 43' 25.5385 N	105° 3' 21.688 W
11,931.00	89.70	178.20	9,219.15	-2,962.79	-23.51	1,297,301.81	3,061,169.95	47° 43' 24.6007 N	105° 3' 21.659 W
12,026.00	90.30	177.40	9,219.15	-3,057.72	-19.87	1,297,207.24	3,061,178.98	47° 43' 23.6634 N	105° 3' 21.606 W
12,120.00	90.70	180.90	9,218.33	-3,151.69	-18.47	1,297,113.50	3,061,185.70	47° 43' 22.7355 N	105° 3' 21.585 W
12,215.00	89.00	176.90	9,218.58	-3,246.65	-16.65	1,297,018.79	3,061,192.90	47° 43' 21.7978 N	105° 3' 21.559 W
12,309.00	88.30	175.70	9,220.79	-3,340.43	-10.58	1,296,925.51	3,061,204.28	47° 43' 20.8719 N	105° 3' 21.470 W
12,404.00	88.90	180.80	9,223.11	-3,435.32	-7.68	1,296,830.93	3,061,212.55	47° 43' 19.9349 N	105° 3' 21.427 W
12,499.00	89.60	180.80	9,224.36	-3,530.31	-9.01	1,296,736.03	3,061,216.61	47° 43' 18.9970 N	105° 3' 21.447 W
12,593.00	89.50	181.00	9,225.10	-3,624.29	-10.49	1,296,642.11	3,061,220.47	47° 43' 18.0689 N	105° 3' 21.468 W
12,688.00	89.20	178.20	9,226.17	-3,719.27	-9.82	1,296,547.32	3,061,226.52	47° 43' 17.1311 N	105° 3' 21.459 W
12,783.00	89.20	177.20	9,227.50	-3,814.19	-6.01	1,296,452.78	3,061,235.71	47° 43' 16.1939 N	105° 3' 21.403 W
12,878.00	89.80	177.50	9,228.33	-3,909.08	-1.62	1,296,358.28	3,061,245.47	47° 43' 15.2569 N	105° 3' 21.339 W
12,972.00	90.10	180.40	9,228.41	-4,003.05	0.10	1,296,264.56	3,061,252.52	47° 43' 14.3289 N	105° 3' 21.314 W
13,067.00	91.30	182.50	9,227.25	-4,098.01	-2.30	1,296,169.62	3,061,255.51	47° 43' 13.3913 N	105° 3' 21.349 W
13,162.00	90.30	180.80	9,225.92	-4,192.96	-5.04	1,296,074.67	3,061,258.16	47° 43' 12.4538 N	105° 3' 21.389 W
13,257.00	89.90	178.50	9,225.76	-4,287.95	-4.46	1,295,979.87	3,061,264.13	47° 43' 11.5158 N	105° 3' 21.380 W
13,351.00	89.70	176.20	9,226.09	-4,381.84	-0.11	1,295,886.37	3,061,273.79	47° 43' 10.5887 N	105° 3' 21.317 W
13,446.00	90.50	179.60	9,225.92	-4,476.76	3.37	1,295,791.80	3,061,282.65	47° 43' 9.6515 N	105° 3' 21.266 W
13,541.00	90.00	174.30	9,225.51	-4,571.59	8.42	1,295,697.41	3,061,293.07	47° 43' 8.7151 N	105° 3' 21.192 W
13,636.00	90.40	173.50	9,225.17	-4,666.05	18.52	1,295,603.67	3,061,308.50	47° 43' 7.7823 N	105° 3' 21.044 W
13,667.00	89.70	172.30	9,225.15	-4,696.81	22.35	1,295,573.18	3,061,314.07	47° 43' 7.4786 N	105° 3' 20.988 W
13,720.00	89.70	172.30	9,225.42	-4,749.34	29.45	1,295,521.14	3,061,324.14	47° 43' 6.9600 N	105° 3' 20.884 W

Projection to TD-13720.00' MD

Survey Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates +N/-S (usft)	Local Coordinates +E/-W (usft)	Comment
1,518.00	1,517.97	0.05	6.65	Tie-In to Newsco MWD-1518.00' MD
13,720.00	9,225.42	-4,749.34	29.45	Projection to TD-13720.00' MD

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GEOLOGICAL REPORT

Continental
RESOURCES

Continental Resources, Inc.

Collins 1-28H
Sec.28 T23N R52E
Richland Co., MT

Prepared By: C. Jensen

NorAm

08323131

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SYNOPSIS

OPERATOR	Continental Resources, Inc.
WELL NAME	Collins 1-28H
SURFACE LOCATION	295' FNL & 1980' FWL 28-23N-52E
BOTTOM HOLE LOCATION	230' FSL & 2009' FWL 28-23N-52E
FIELD	Wildcat
COUNTY/STATE	Richland County, Montana
API NUMBER	25-083-231310000
NorAm FILE NUMBER	NR2619
ELEVATIONS	**G.L.** = 2476' **K.B.** = 2502'
SPUD DATE	March 31, 2013
T.D. DATE	April 12, 2013
DRILLING CONTRACTOR	H&P 257
HOLE SIZE	13" to 1540', 8.75" to 9498', 6" to 13720'
CASING SIZE & DEPTH	9.625" to 1540', 7" to 9498', 4" to 13720'
DRILLING MUD COMPANY	Marquis Alliance
DRILLING FLUID TYPE	Invert Mud
DIRECTIONAL COMPANY	MS Energy Services
WIRELINE LOGGING COMPANY	N/A
LOG RECORD	N/A
DRILLING SUPERVISION	Myles Shea, Chris Smith
GEOLOGICAL SUPERVISION	NorAm Wellsite Services, Chad Jensen
MUDLOGGING COMPANY	NorAm Wellsite Services
TOTAL DEPTH	13720'

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FORMATION TOPS (ft)

KB = 2502'

GL = 2476'

FORMATION	PROGNOSIS			SAMPLES			LOGS		
	MD	TVD	SS	MD	TVD	SS	MD	TVD	SS
Kibbey	7169	7169	-4667	7149	7148	-4646	N/A	N/A	N/A
Charles	7285	7285	-4783	7258	7257	-4755	N/A	N/A	N/A
Charles 1	7408	7408	-4906	7398	7397	-4895	N/A	N/A	N/A
Charles 2	7532	7532	-5030	NP	NP	NP	N/A	N/A	N/A
Charles 3	7778	7778	-5276	7771	7770	-5268	N/A	N/A	N/A
BLS	7814	7814	-5312	7805	7804	-5302	N/A	N/A	N/A
Mission C.	7981	7981	-5479	9780	7979	-5478	N/A	N/A	N/A
Lodgepole	8511	8511	-6009	8511	8510	-6008	N/A	N/A	N/A
Up. Bkkn.		9184	-6682	9395	9206	-6704	N/A	N/A	N/A

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DEVIATION SURVEY RECORD (Teledrift and Wireline Data)

Depth	Incl	Azim	TVD	VS	Coordinates		DLS
(ft)	(°)	(°)	(ft)	(ft)	N/S (ft)	E/W (ft)	(°/100')
1518	0.30	91.00	1517.97	-0.05	0.05	6.65	
1617	0.22	176.92	1616.97	0.14	-0.14	6.92	0.36
1712	0.70	220.91	1711.97	0.77	-0.77	6.55	0.59
1807	1.10	229.08	1806.95	1.80	-1.80	5.48	0.44
1902	1.10	226.30	1901.94	3.03	-3.03	4.13	0.06
1997	1.49	226.01	1996.91	4.52	-4.52	2.58	0.41
2093	1.71	235.81	2092.88	6.19	-6.19	0.50	0.36
2188	1.89	237.39	2187.83	7.83	-7.83	-1.99	0.20
2283	1.71	246.40	2282.78	9.24	-9.24	-4.61	0.35
2378	1.41	243.58	2377.75	10.33	-10.33	-6.96	0.33
2472	1.10	236.51	2471.72	11.34	-11.34	-8.74	0.37
2567	1.49	239.89	2566.70	12.46	-12.46	-10.57	0.42
2662	1.49	235.81	2661.67	13.78	-13.78	-12.66	0.11
2757	1.32	230.88	2756.64	15.16	-15.16	-14.53	0.22
2852	1.32	239.32	2851.61	16.41	-16.41	-16.32	0.20
2946	1.19	228.20	2945.59	17.61	-17.61	-17.98	0.29
3042	1.19	239.19	3041.57	18.79	-18.79	-19.58	0.24
3136	1.01	222.10	3135.55	19.90	-19.90	-20.97	0.40
3232	0.79	226.40	3231.54	20.99	-20.99	-22.02	0.24
3327	0.79	228.51	3326.53	21.87	-21.87	-22.99	0.03
3422	0.70	231.90	3421.52	22.66	-22.66	-23.93	0.11
3516	0.70	243.19	3515.52	23.28	-23.28	-24.90	0.15
3610	0.62	243.80	3609.51	23.76	-23.76	-25.87	0.09
3705	0.52	243.00	3704.51	24.18	-24.18	-26.71	0.11
3799	0.31	257.78	3798.50	24.43	-24.43	-27.34	0.25
3895	0.22	242.62	3894.50	24.57	-24.57	-27.76	0.12
3989	0.09	300.58	3988.50	24.62	-24.62	-27.98	0.20
4085	0.31	284.89	4084.50	24.51	-24.51	-28.30	0.23
4180	0.40	274.48	4179.50	24.42	-24.42	-28.88	0.12
4275	0.79	269.29	4274.49	24.40	-24.40	-29.86	0.41
4370	1.59	272.41	4369.47	24.35	-24.35	-31.83	0.84
4465	1.32	264.59	4464.44	24.40	-24.40	-34.24	0.35
4561	1.19	277.11	4560.42	24.38	-24.38	-36.33	0.32
4656	0.79	269.29	4655.40	24.27	-24.27	-37.96	0.44
4750	0.62	264.81	4749.40	24.32	-24.32	-39.12	0.19
4846	0.40	305.68	4845.39	24.17	-24.17	-39.91	0.43
4941	0.40	318.51	4940.39	23.73	-23.73	-40.40	0.09
5036	0.79	330.99	5035.39	22.91	-22.91	-40.93	0.43
5131	0.88	322.29	5130.38	21.76	-21.76	-41.70	0.16
5227	1.19	325.28	5226.36	20.36	-20.36	-42.72	0.33
5321	1.10	333.72	5320.34	18.75	-18.75	-43.67	0.20

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Depth	Incl	Azim	TVD	VS	Coordinates		DLS
(ft)	(°)	(°)	(ft)	(ft)	N/S (ft)	E/W (ft)	(°/100')
5416	1.10	331.91	5415.32	17.13	-17.13	-44.51	0.04
5512	0.88	338.68	5511.31	15.63	-15.63	-45.21	0.26
5607	1.01	347.91	5606.30	14.13	-14.13	-45.65	0.21
5703	1.01	350.90	5702.28	12.46	-12.46	-45.96	0.05
5797	0.88	8.52	5796.27	10.93	-10.93	-45.98	0.34
5893	0.70	29.40	5892.26	9.69	-9.69	-45.59	0.35
5987	0.48	37.39	5986.25	8.88	-8.88	-45.06	0.25
6083	0.40	56.51	6082.25	8.38	-8.38	-44.54	0.17
6178	0.40	78.22	6177.25	8.12	-8.12	-43.94	0.16
6273	0.31	127.22	6272.25	8.21	-8.21	-43.41	0.32
6368	0.70	144.88	6367.24	8.84	-8.84	-42.87	0.44
6463	0.70	150.90	6462.24	9.82	-9.82	-42.26	0.08
6557	0.62	162.91	6556.23	10.81	-10.81	-41.83	0.17
6653	0.88	166.42	6652.22	12.03	-12.03	-41.50	0.27
6748	1.10	153.50	6747.21	13.55	-13.55	-40.92	0.33
6843	0.88	158.51	6842.19	15.05	-15.05	-40.25	0.25
6938	0.79	151.61	6937.18	16.30	-16.30	-39.67	0.14
7033	0.62	141.76	7032.18	17.28	-17.28	-39.04	0.22
7128	0.70	153.10	7127.17	18.20	-18.20	-38.46	0.16
7224	0.62	166.02	7223.16	19.23	-19.23	-38.07	0.18
7319	0.62	149.89	7318.16	20.17	-20.17	-37.69	0.18
7413	0.62	171.69	7412.15	21.11	-21.11	-37.36	0.25
7508	0.48	179.91	7507.15	22.02	-22.02	-37.28	0.17
7603	0.62	183.99	7602.14	22.93	-22.93	-37.32	0.15
7698	0.62	177.10	7697.14	23.96	-23.96	-37.33	0.08
7793	0.48	182.28	7792.13	24.87	-24.87	-37.32	0.16
7888	0.62	179.51	7887.13	25.78	-25.78	-37.33	0.15
7983	0.62	187.82	7982.12	26.80	-26.80	-37.40	0.09
8077	0.40	173.71	8076.12	27.63	-27.63	-37.43	0.27
8173	0.48	184.48	8172.12	28.37	-28.37	-37.42	0.12
8268	0.48	193.35	8267.11	29.15	-29.15	-37.55	0.08
8363	0.40	182.45	8362.11	29.87	-29.87	-37.65	0.12
8458	0.31	215.23	8457.11	30.41	-30.41	-37.82	0.23
8553	0.40	204.73	8552.11	30.92	-30.92	-38.10	0.12
8648	0.31	245.86	8647.11	31.33	-31.33	-38.48	0.28
8678	0.22	228.86	8677.11	31.40	-31.40	-38.59	0.40
8710	0.31	266.34	8709.11	31.45	-31.45	-38.73	0.60
8742	1.41	192.47	8741.10	31.84	-31.84	-38.90	4.24
8773	6.42	181.57	8772.02	33.94	-33.94	-39.03	16.27
8805	11.38	178.36	8803.62	38.89	-38.89	-38.99	15.57
8836	14.81	176.43	8833.81	45.90	-45.90	-38.65	11.15
8868	18.72	176.74	8864.45	55.12	-55.12	-38.10	12.22

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Depth	Incl	Azim	TVD	VS	Coordinates		DLS
(ft)	(°)	(°)	(ft)	(ft)	N/S (ft)	E/W (ft)	(°/100')
8900	22.28	175.95	8894.42	66.30	-66.30	-37.38	11.16
8931	26.50	177.53	8922.64	79.07	-79.07	-36.67	13.77
8963	31.11	179.55	8950.68	94.48	-94.48	-36.30	14.72
8995	34.19	181.26	8977.62	111.74	-111.74	-36.43	10.05
9027	36.91	180.34	9003.65	130.34	-130.34	-36.68	8.66
9059	40.78	178.45	9028.57	150.41	-150.41	-36.46	12.65
9090	42.41	177.53	9051.75	170.97	-170.97	-35.73	5.61
9121	45.22	177.13	9074.12	192.41	-192.41	-34.73	9.11
9153	50.32	176.56	9095.62	216.06	-216.06	-33.42	15.99
9185	52.12	176.56	9115.66	240.96	-240.96	-31.93	5.62
9216	54.10	177.75	9134.27	265.72	-265.72	-30.70	7.09
9248	59.28	179.64	9151.84	292.45	-292.45	-30.11	16.92
9280	62.09	180.65	9167.51	320.34	-320.34	-30.18	9.20
9312	66.40	181.40	9181.41	349.15	-349.15	-30.70	13.63
9343	71.89	181.04	9192.44	378.11	-378.11	-31.31	17.74
9375	75.19	180.96	9201.51	408.78	-408.78	-31.85	10.32
9407	79.58	181.04	9208.49	440.00	-440.00	-32.39	13.72
9438	85.08	180.74	9212.63	470.71	-470.71	-32.87	17.77
9450	87.10	180.25	9213.45	482.68	-482.68	-32.97	17.32
9501	92.80	178.50	9213.49	533.65	-533.65	-32.44	11.69
9564	92.40	178.50	9210.63	596.57	-596.57	-30.79	0.63
9596	92.80	178.80	9209.18	628.52	-628.52	-30.04	1.56
9627	92.00	178.70	9207.88	659.49	-659.49	-29.36	2.60
9659	90.10	180.00	9207.30	691.48	-691.48	-29.00	7.19
9722	91.40	179.50	9206.47	754.47	-754.47	-28.72	2.21
9754	90.90	180.00	9205.83	786.46	-786.46	-28.58	2.21
9817	88.80	180.30	9206.00	849.46	-849.46	-28.75	3.37
9849	88.30	180.20	9206.80	881.45	-881.45	-28.89	1.59
9880	89.30	180.30	9207.45	912.44	-912.44	-29.02	3.24
9943	90.00	180.30	9207.84	975.44	-975.44	-29.35	1.11
10006	88.70	180.30	9208.55	1038.43	-1038.43	-29.68	2.06
10038	88.70	181.10	9209.28	1070.42	-1070.42	-30.07	2.50
10083	89.00	181.30	9210.18	1115.40	-1115.40	-31.02	0.80
10133	88.80	181.10	9211.14	1165.38	-1165.38	-32.06	0.57
10227	89.00	181.50	9212.95	1259.34	-1259.34	-34.20	0.48
10277	90.40	181.70	9213.21	1309.32	-1309.32	-35.59	2.83
10322	90.40	181.30	9212.89	1354.30	-1354.30	-36.77	0.89
10353	90.30	181.20	9212.71	1385.30	-1385.30	-37.45	0.46
10385	90.80	181.10	9212.40	1417.29	-1417.29	-38.09	1.59
10416	90.20	181.30	9212.13	1448.28	-1448.28	-38.74	2.04
10511	90.10	181.50	9211.88	1543.25	-1543.25	-41.06	0.24
10606	89.80	178.20	9211.96	1638.24	-1638.24	-40.81	3.49

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Depth	Incl	Azim	TVD	VS	Coordinates		DLS
(ft)	(°)	(°)	(ft)	(ft)	N/S (ft)	E/W (ft)	(°/100')
10700	89.90	179.80	9212.21	1732.22	-1732.22	-39.17	1.71
10795	90.10	181.90	9212.21	1827.20	-1827.20	-40.58	2.22
10890	89.90	179.80	9212.21	1922.19	-1922.19	-41.99	2.22
10984	89.70	179.60	9212.54	2016.19	-2016.19	-41.50	0.30
11079	89.40	178.10	9213.28	2111.16	-2111.16	-39.59	1.61
11174	89.30	176.50	9214.36	2206.05	-2206.05	-35.11	1.69
11268	89.70	178.70	9215.18	2299.95	-2299.95	-31.18	2.38
11363	89.50	178.80	9215.84	2394.93	-2394.93	-29.11	0.24
11458	90.00	179.60	9216.26	2489.92	-2489.92	-27.78	0.99
11552	89.20	177.30	9216.91	2583.87	-2583.87	-25.24	2.59
11647	90.10	182.00	9217.50	2678.84	-2678.84	-24.66	5.04
11742	89.40	179.80	9217.91	2773.82	-2773.82	-26.15	2.43
11836	89.70	179.40	9218.65	2867.82	-2867.82	-25.49	0.53
11931	89.7	178.2	9219.15	2962.79	-2962.79	-23.50	1.26
12026	90.3	177.4	9219.15	3057.72	-3057.72	-19.86	1.05
12120	90.7	180.9	9218.32	3151.69	-3151.69	-18.46	3.75
12215	89.0	176.9	9218.57	3246.65	-3246.65	-16.64	4.57
12309	88.3	175.7	9220.79	3340.43	-3340.43	-10.58	1.48
12404	88.9	180.8	9223.11	3435.33	-3435.33	-7.68	5.40
12499	89.6	180.8	9224.35	3530.31	-3530.31	-9.00	0.74
12593	89.5	181.0	9225.09	3624.29	-3624.29	-10.48	0.24
12688	89.2	178.2	9226.17	3719.27	-3719.27	-9.82	2.96
12783	89.2	177.2	9227.50	3814.19	-3814.19	-6.00	1.05
12878	89.8	177.5	9228.33	3909.08	-3909.08	-1.61	0.71
12972	90.1	180.4	9228.41	4003.06	-4003.06	0.11	3.10
13067	91.3	182.5	9227.25	4098.01	-4098.01	-2.29	2.55
13162	90.3	180.8	9225.92	4192.96	-4192.96	-5.03	2.08
13257	89.9	178.5	9225.76	4287.95	-4287.95	-4.45	2.46
13351	89.7	176.2	9226.08	4381.84	-4381.84	-0.10	2.46
13446	90.5	179.6	9225.92	4476.76	-4476.76	3.38	3.68
13541	90.0	174.3	9225.50	4571.59	-4571.59	8.43	5.60
13636	90.4	173.5	9225.17	4666.05	-4666.05	18.53	0.94
13667	89.7	172.3	9225.14	4696.82	-4696.82	22.36	4.48
13720	89.7	172.3	9225.42	4749.34	-4749.34	29.46	0.00

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BIT RECORD

BIT #	TYPE	SIZE (IN)	IN (FT)	OUT (FT)	TOTAL (FT)	HOURS DRLG	WOB (K)	RPM	CONDITION I/O/D/L/B/G/O/R
1	SMITH MDSIZ616	8.75	1540	8705	7165	64	30	70	
2	SECURITY FXD55M	8.75	8705	9510	805	24.5	25	0	
3	SMITH MDSIZ	6	9510	13720	4210	110	30	45	

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DRILLING FLUID PARAMETERS

DATE	WT	VIS	PV	YP	O/W	PH	NaCL	Ca	% SOL
4/2/2013	10.0	40	17	7	79/21		80752	49000	10.4
4/3/2013	10.1	43	21	7	80/20		79104	48000	11.0
4/4/2013	10.2	43	20	7	81/19		80752	49000	13.0
4/5/2013	10.2	40	12	7	83/17		92288	56000	13.5
4/8/2013	11.0	59	28	11	82/18		93936	57000	16.4
4//9/2013	11.0	55	30	11	80/20		82400	50000	15.9
4/10/2013	11.0	60	26	11	78/22		74160	45000	14.2
4/11/2013	11.0	51	25	10	78/22		77456	47000	14.4

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DAILY DRILLING CHRONOLOGY

DATE (m/d/y)	DEPTH @ 24.00	PROGRESS (ft/24 hours)	BREAKDOWN 00:00 – 24:00	RIG ACTIVITY
4/1/2013				NorAm Wellsite Services Arrives on Location, Rig up
4/2/2013	6289'		06:00-16:30	Drill from 6773' to 7376'
			16:30-17:00	Directional Work, Troubleshoot Tool
			17:00-23:00	Drill to 7656'
			23:00-24:00	Re-log Gamma
4/3/2013	7656'	1367'	00:00-14:30	Drill to 8338'
			14:30-15:00	Directional Work, Trying to get Survey
			15:00-16:30	Drill to 8420'
			16:30-17:00	Lubricate Rig
			17:00-22:00	Drill to 8705'
			22:00-23:00	Condition and Circulate, Slow Pump Rates, Flow Check, Pump Dry Job
			23:00-24:00	TOOH
4/4/2013	8705'	1049'	00:00-04:00	TOOH
			04:00-06:00	Lay down, Pick up BHA
			06:00-07:00	Install Wear Bushing
			07:00-12:00	TIH
			12:00-15:30	Troubleshoot MWD Tool, Re-log 8300'-8705'
			15:30-16:00	Lubricate Rig
			16:00-24:00	Drill to 8906'
4/5/2013	8906'	201'	00:00-15:30	Drill to 9467'
			15:30-16:00	Lubricate Rig
			16:00-17:00	Drill to 9510'
			17:00-17:30	Directional Work
			17:30-19:00	Condition, Circulate Bottoms up, Flow Check, Pump Slug
			19:00-20:00	Short Trip to 8705'
			20:00-22:00	Condition and Circulate 2 Bottoms up, Flow Check, Pump Slug
			22:00-24:00	TOOH Laying down
4/6/2013	9510'	604'	00:00-07:00	TOOH Laying down
			07:00-08:00	Lay down BHA
			08:00-08:30	Pull Wear Bushing
			08:30-09:00	Clean Rig Floor
			09:00-09:30	Rig up Casing Equipment

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			09:30-18:30	Run Casing (9498')
			18:30-19:30	Condition and Circulate
			19:30-20:00	Rig up Cement Equipment
			20:00-23:00	Cement
			23:00-24:00	Rig down Cement Equipment, Washed out BOP and Choke Line
4/7/2013	9510'	0'	00:00-02:30	Install Pack off Tool
			02:30-04:30	Change out Saver Sub from 5" to 4"
			04:30-05:00	Clean Rig Floor
			05:00-07:00	Pick up BHA
			07:00-08:00	TIH to 2948'
			08:00-08:30	Test Casing at 1500 psi for 15 min
			08:30-09:30	TIH to 5220'
			09:30-13:00	TIH Picking up Singles
			13:00-14:00	Install Rotating Head
			14:00-14:30	TIH to 9271'
			14:30-16:00	Wash and Ream to 9429'
			16:00-16:30	Lubricate Rig
			16:30-17:00	Wash and Ream to 9510'
			17:00-18:00	Drill to 9520'
			18:00-18:30	FIT 958 psi / 15 min
			18:30-24:00	Drill to 9665'
4/8/2013	9665'	155'	00:00-17:30	Drill to 10280'
			17:30-18:00	Lubricate Rig
			18:00-24:00	Drill to 10534'
4/9/2013	10534'	869'	00:00-15:30	Drill to 11225'
			15:30-16:00	Lubricate Rig
			16:00-24:00	Drill to 11603'
4/10/2013	11603'	1069'	00:00-12:00	Drill to 12170'
			12:00-12:30	Rig Service
			12:30-24:00	Drill to 12586'
4/11/2013	12586'	983'	00:00-16:30	Drill to 13212'
			16:30-17:00	Rig Service
			17:00-24:00	Drill to 13494'
4/12/2013	13494'	908'	00:00-05:32	Drill to 13720' (TD)

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LITHOLOGY

Formation tops Sample Interval (in feet)	SAMPLE DESCRIPTION
7150-7180'	SILTSTONE: orange brown, red, soft, blocky to platy in part, calcareous; Anhydrite: red orange, white, soft to chalky; trace LIMESTONE
7180-7210'	SILTSTONE: orange brown, red, translucent, soft, blocky to platy in part, calcareous; Anhydrite: red orange, white, soft to chalky; trace LIMESTONE
7210-7240'	SILTSTONE: orange brown, red, translucent, soft, blocky to platy in part, calcareous; Anhydrite: red orange, white, soft to chalky; trace LIMESTONE
	Charles @ 7258' MD, 7257' TVD, -4755' Subsea
7240-7270'	SILTSTONE: orange brown, red, translucent, soft, blocky to platy in part, calcareous; Anhydrite: red orange, white, soft to chalky; SALT: clear, hard, crystalline
7270-7300'	SALT: clear, hard, crystalline
7300-7330'	SALT: clear, hard, crystalline
7330-7360'	SALT: translucent, clear, hard, crystalline
7360-7390'	LIMESTONE: light gray, gray brown, microcrystalline, slightly argillaceous, earthy texture; SALT: clear, translucent, euhedral, crystalline, hard; ANHYDRITE: milky white, light gray to brown, soft, amorphous
	Charles 1 @ 7398' MD, 7397' TVD, -4895' Subsea
7390-7420'	SALT: clear, translucent, euhedral, crystalline, hard; LIMESTONE: light gray, gray brown, microcrystalline, slightly argillaceous, earthy texture; ANHYDRITE: milky white, light gray to brown, soft, amorphous
7420-7450'	SALT: clear, translucent, euhedral, crystalline, hard; LIMESTONE: light gray, gray brown, microcrystalline, slightly argillaceous, earthy texture; ANHYDRITE: milky white, rounded brown, light gray to brown, soft, amorphous
7450-7480'	ANHYDRITE: milky white, buff to tan, soft, amorphous; SALT: clear, translucent, euhedral, crystalline, hard; LIMESTONE: light gray, gray brown, mottled in part, friable to firm, microcrystalline, slightly argillaceous, earthy texture

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Formation tops Sample Interval (in feet)	SAMPLE DESCRIPTION
7480-7510'	ANHYDRITE: milky white, buff to tan, soft, amorphous; SALT: clear, translucent, euhedral, crystalline, hard; LIMESTONE: light gray, gray brown, mottled in part, friable to firm, microcrystalline, slightly argillaceous, earthy texture
7510-7540'	SALT: translucent, clear, hard, crystalline
7540-7570'	SALT: translucent, clear, hard, crystalline
7570-7600'	LIMESTONE: light gray, gray brown, microcrystalline, slightly argillaceous, earthy texture; SALT: clear, translucent, euhedral, crystalline, hard; ANHYDRITE: milky white, soft, amorphous
7600-7630'	ANHYDRITE: milky white, soft, amorphous; LIMESTONE: light gray, gray brown, microcrystalline, slightly argillaceous, earthy texture, trace salt
7630-7660'	SALT: clear, translucent, euhedral, crystalline, hard; LIMESTONE: light gray, gray brown, microcrystalline, slightly argillaceous, earthy texture; ANHYDRITE: milky white, rounded brown, light gray to brown, soft, amorphous
7660-7690'	ANHYDRITE: milky white, soft, amorphous; SALT: clear, translucent, euhedral, crystalline, hard; LIMESTONE: light gray, gray brown, microcrystalline, slightly argillaceous, earthy texture
7690-7620'	LIMESTONE: light gray, gray brown, microcrystalline, slightly argillaceous, earthy texture; ANHYDRITE: milky white, soft, amorphous; SALT: clear, translucent, euhedral, crystalline, hard
7620-7650'	LIMESTONE: light gray, light gray brown, microcrystalline, friable to firm, slightly argillaceous, earthy texture; ANHYDRITE: milky white, soft, amorphous, trace Salt: clear, translucent, euhedral, crystalline, hard
	Charles 3 @ 7771' MD, 7770' TVD, -5268' Subsea
7650-7680'	ANHYDRITE: milky white, soft, amorphous, slightly calcareous; LIMESTONE: light gray, gray brown, microcrystalline, slightly argillaceous, earthy texture
	BLS @ 7805' MD, 7804' TVD, -5302' Subsea
7680-7810'	ANHYDRITE: milky white, soft, amorphous, calcareous; LIMESTONE: light gray, gray brown, microcrystalline, slightly argillaceous, earthy texture

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Formation tops Sample Interval (in feet)	SAMPLE DESCRIPTION
7810-7840'	ANHYDRITE: milky white, soft, amorphous, calcareous; LIMESTONE: light gray, gray brown, microcrystalline, slightly argillaceous, earthy texture; SALT: clear, translucent, euhedral, crystalline, hard
7840-7870'	LIMESTONE: light to dark gray brown, firm to hard, microcrystalline, slightly argillaceous, earthy texture, slightly silty, trace dead oil; ANHYDRITE: milky white, soft, amorphous, calcareous;
7870-7900'	LIMESTONE: light to dark gray, gray brown, tan, mottled in part, firm to hard, microcrystalline, slightly argillaceous, carbonaceous, earthy texture, trace dead oil; SILTSTONE: orange brown, red, soft, blocky to platy in part, calcareous; ANHYDRITE: milky white, soft, amorphous, calcareous
7900-7930'	LIMESTONE: light to dark gray, gray brown, tan, mottled in part, firm to hard, microcrystalline, slightly argillaceous, carbonaceous, earthy texture, trace dead oil; SILTSTONE: orange brown, red, soft, blocky to platy in part, calcareous; ANHYDRITE: milky white, soft, amorphous, calcareous
7930-7960'	LIMESTONE: light to dark gray, gray brown, mottled in part, firm to hard, microcrystalline, slightly argillaceous, slightly silty, trace dead oil
	Mission Canyon @ 7980' MD, 7979' TVD, -5477' Subsea
7960-7990'	LIMESTONE: light to dark gray, gray brown, mottled in part, firm to hard, microcrystalline, slightly argillaceous, slightly silty, trace dead oil
7990-8020'	LIMESTONE: light to dark gray, light to dark gray brown, firm to hard, microcrystalline, slightly argillaceous, slightly silty, trace dead oil
8020-8050'	LIMESTONE: medium to dark gray brown, medium to dark brown, trace tan, mottled in part, firm to moderately hard, micro to cryptocrystalline, slightly silty, slightly argillaceous, trace asphaltic stain, no florescence, flash cut
8050-8080'	LIMESTONE: medium to dark gray brown, medium to dark brown, trace tan, mottled in part, firm to moderately hard, micro to cryptocrystalline, slightly silty, slightly argillaceous, trace asphaltic stain, no florescence, flash cut
8080-8110'	LIMESTONE: light to dark gray, light to dark gray brown, mottled in part, firm to moderately hard, micro to cryptocrystalline, slightly silty, slightly argillaceous, trace asphaltic stain, no florescence, flash cut

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Formation tops Sample Interval (in feet)	SAMPLE DESCRIPTION
8110-8140'	LIMESTONE: light to dark gray, light to dark gray brown, mottled in part, firm to moderately hard, micro to cryptocrystalline, slightly silty, slightly argillaceous, trace asphaltic stain, no florescence, flash cut, trace ANHYDRITE
8140-8170'	LIMESTONE: light to dark gray, light to dark gray brown, mottled in part, firm to moderately hard, micro to cryptocrystalline, slightly silty, slightly argillaceous, trace asphaltic stain, no florescence, flash cut, trace ANHYDRITE
8170-8200'	LIMESTONE: medium to dark gray brown, light gray, medium to dark brown, mottled in part, firm to moderately hard, micro to cryptocrystalline, slightly silty, slightly argillaceous, trace asphaltic stain, no florescence, flash cut
8200-8230'	LIMESTONE: light to dark gray brown, light gray, medium to dark brown, mottled in part, firm to moderately hard, micro to cryptocrystalline, slightly silty, slightly argillaceous, trace asphaltic stain, no florescence, flash cut
8230-8260'	LIMESTONE: light to dark gray brown, light gray medium to dark brown, mottled in part, firm to moderately hard, micro to cryptocrystalline, slightly silty, slightly argillaceous, trace asphaltic stain, no florescence, flash cut
8260-8290'	LIMESTONE: light to dark gray brown, light gray, medium to dark brown, mottled in part, firm to moderately hard, micro to cryptocrystalline, slightly silty, slightly argillaceous, trace asphaltic stain, no florescence, flash cut
8290-8320'	LIMESTONE: light to dark gray brown, light gray, medium to dark brown, mottled in part, firm to moderately hard, micro to cryptocrystalline, slightly silty, slightly argillaceous, trace asphaltic stain, no florescence, flash cut
8320-8350'	LIMESTONE: light gray, light to dark gray brown, medium to dark brown, mottled in part, firm to moderately hard, micro to cryptocrystalline, slightly silty, slightly argillaceous, trace asphaltic stain, no florescence, flash cut
8350-8380'	LIMESTONE: light gray, light to dark gray brown, medium to dark brown, mottled in part, firm to moderately hard, micro to cryptocrystalline, slightly silty, slightly argillaceous, trace asphaltic stain, no florescence, flash cut
8380-8410'	LIMESTONE: light gray, light to dark gray brown, cream, medium to dark brown, mottled in part, firm to moderately hard, micro to cryptocrystalline, slightly silty, slightly argillaceous, trace asphaltic stain, no florescence, flash cut
8410-8440'	LIMESTONE: light gray, light to dark gray brown, cream, medium to dark brown, mottled in part, firm to moderately hard, micro to cryptocrystalline, slightly silty, slightly argillaceous, trace asphaltic stain, no florescence, flash cut

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Formation tops Sample Interval (in feet)	SAMPLE DESCRIPTION
8440-8470'	LIMESTONE: light gray, light to dark gray brown, mottled in part, firm to moderately hard, micro to cryptocrystalline, slightly silty, slightly argillaceous, trace asphaltic stain, no florescence, flash cut
8470-8500'	LIMESTONE: light gray, light to medium gray brown, mottled in part, firm to moderately hard, micro to cryptocrystalline, slightly argillaceous, trace asphaltic stain, no florescence, flash cut
	Lodgepole @ 8511' MD, 8510' TVD, -6008' Subsea
8500-8530'	LIMESTONE: medium gray, light to medium gray brown, mottled in part, firm to moderately hard, micro to cryptocrystalline, slightly argillaceous, trace asphaltic stain, no florescence, flash cut
8530-8560'	LIMESTONE: light to medium gray, light to medium gray brown, mottled in part, firm to moderately hard, micro to cryptocrystalline, slightly argillaceous, trace asphaltic stain, no florescence, flash cut
8560-8590'	LIMESTONE: light to medium gray, light to medium gray brown, mottled in part, firm to moderately hard, micro to cryptocrystalline, slightly argillaceous, trace asphaltic stain, no florescence, flash cut
8590-8620'	LIMESTONE: light to medium gray, light to medium gray brown, mottled in part, firm to moderately hard, micro to cryptocrystalline, slightly argillaceous, trace asphaltic stain, no florescence, flash cut
8620-8650'	LIMESTONE: light to medium gray, light to medium gray brown, mottled in part, firm to moderately hard, micro to cryptocrystalline, slightly argillaceous, slightly carbonaceous, no florescence, flash cut
8650-8680'	LIMESTONE: light to medium gray, light to medium gray brown, mottled in part, firm to moderately hard, micro to cryptocrystalline, slightly argillaceous, slightly carbonaceous, scattered dull yellow fill, flash blue white cut
8680-8701'	LIMESTONE: light to medium gray, light to medium gray brown, mottled in part, firm to moderately hard, micro to cryptocrystalline, slightly argillaceous, slightly carbonaceous, scattered dull yellow fill, blue white cut
8710-8980'	LIMESTONE: light to medium gray brown, light to medium gray, mottled in part, firm to moderately hard, micro to cryptocrystalline, slightly argillaceous, slightly carbonaceous, scattered dull yellow fill, slow blue white cut

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Formation tops Sample Interval (in feet)	SAMPLE DESCRIPTION
8980-9010'	LIMESTONE: light to medium brown, light to medium gray brown, trace off white, mottled in part, firm to moderately hard, micro to cryptocrystalline, slightly laminated, slightly carbonaceous, very scattered dull yellow fill, slow blue white cut
9010-9040'	LIMESTONE: light to medium brown, light to medium gray brown, mottled in part, firm to moderately hard, micro to cryptocrystalline, slightly laminated, slightly carbonaceous, very scattered dull yellow fill, slow blue white cut
9040-9070'	LIMESTONE: light to medium brown, light to medium gray brown, mottled in part, firm to moderately hard, micro to cryptocrystalline, slightly laminated, slightly carbonaceous, very scattered dull yellow fill, slow blue white cut
9070-9100'	LIMESTONE: medium to dark gray, medium to dark gray brown, firm to moderately hard, micro to cryptocrystalline, laminated in part, slightly carbonaceous, no florescence, flash cut
9100-9130'	LIMESTONE: medium to dark gray, medium to dark gray brown, firm to moderately hard, micro to cryptocrystalline, laminated in part, slightly carbonaceous, no florescence, flash cut
9130-9160'	LIMESTONE: dark gray, dark gray brown, firm to hard, micro to cryptocrystalline, laminated in part, slightly carbonaceous, argillaceous, no florescence, flash cut
9160-9190'	LIMESTONE: dark gray brown, dark gray, moderately hard to very hard, micro to cryptocrystalline, laminated in part, slightly carbonaceous, argillaceous, no florescence, flash cut
9190-9220'	LIMESTONE: dark gray brown, dark gray, moderately hard to very hard, micro to cryptocrystalline, laminated in part, slightly carbonaceous, argillaceous, no florescence, flash cut
9220-9250'	LIMESTONE: dark gray brown, dark gray, firm to hard, microcrystalline, slightly carbonaceous, argillaceous, no florescence, flash cut
9250-9280'	LIMESTONE: dark gray brown, dark gray, firm to hard, microcrystalline, slightly carbonaceous, argillaceous, no florescence, flash cut
9280-9310'	LIMESTONE: medium to dark gray brown, medium to dark gray, firm to hard, microcrystalline, slightly carbonaceous, argillaceous, no florescence, flash cut

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Formation tops Sample Interval (in feet)	SAMPLE DESCRIPTION
9310-9340'	LIMESTONE: medium to dark gray brown, medium to dark gray, firm to hard, microcrystalline, slightly carbonaceous, argillaceous, no florescence, flash cut
9340-9370'	LIMESTONE: medium to dark gray brown, medium to dark gray, firm to hard, microcrystalline, slightly carbonaceous, argillaceous, silty, no florescence, flash cut

Upper Bakken @ 9395' MD, 9206' TVD, -6704' Subsea

9370-9400'	LIMESTONE: predominantly tan, light to medium gray brown, medium to dark gray, light brown in part, mottled, friable to firm, moderately hard, microcrystalline, silty, very argillaceous, earthy texture, no florescence, flash cut

Three Forks @ 9400' MD, 9207' TVD, -6705' Subsea

9400-9430'	LIMESTONE: light to medium gray brown, medium to dark gray, mottled, friable to firm, moderately hard, microcrystalline, silty, very argillaceous, earthy texture, trace pry, no florescence, slow blue to white streaming cut; SHALE: black, hard, brittle in part, sub blocky, sub platy in part
9430-9460'	DOLOMITE: light to medium gray, cream, mottled, trace grain hue, gray grain, firm to hard, microcrystalline, silty, argillaceous, trace pry
9460-9490'	DOLOMITE: light to medium gray, cream, mottled, trace grain hue, gray grain, firm to hard, microcrystalline, silty, argillaceous, trace pry
9490-9510'	DOLOMITE: light to medium gray, dark gray, cream, mottled, trace grain hue, gray grain, firm to hard, microcrystalline, silty, argillaceous, trace pry
9610-9640'	LIMESTONE: predominantly tan to off white, light brown, trace medium to dark gray, mottled, friable to firm, moderately hard, microcrystalline, slightly silty, argillaceous; SHALE: black, firm to brittle, hard, sub platy to sub blocky, carbonaceous, yellow florescence, flash dull yellow blue white cut
9640-9670'	LIMESTONE: predominantly tan to off white, light brown, trace medium to dark gray, mottled, friable to firm, moderately hard, microcrystalline, slightly silty, argillaceous, trace Shale, yellow florescence, flash dull yellow blue white cut
9670-9700'	LIMESTONE: predominantly tan to off white, light brown, trace medium to dark gray, mottled, friable to firm, moderately hard, microcrystalline, slightly silty, argillaceous, yellow florescence, slow dull yellow green blue white cut

Formation tops Sample Interval (in feet)	SAMPLE DESCRIPTION
9700-9730'	LIMESTONE: predominantly tan to off white, light brown, trace medium to dark gray, mottled, friable to firm, moderately hard, microcrystalline, slightly silty, slightly carbonaceous, argillaceous, yellow florescence, slow dull yellow green blue white cut
9730-9760'	LIMESTONE: tan to off white, light to medium brown, trace medium gray brown, mottled, friable to firm, moderately hard, microcrystalline, slightly silty, slightly argillaceous, yellow florescence, slow yellow green blue white cut
9760-9790'	LIMESTONE: tan to off white, light to medium brown, trace medium gray brown, mottled, friable to firm, moderately hard, microcrystalline, slightly silty, slightly argillaceous, yellow florescence, slow yellow green blue white cut
9790-9820'	LIMESTONE: tan to off white, light to medium brown, trace medium gray brown, mottled, friable to firm, moderately hard, microcrystalline, silty, slightly argillaceous, yellow florescence, slow yellow green blue white cut
9820-9850'	LIMESTONE: light to medium gray brown, tan to off white, light to medium brown, mottled, friable to firm, moderately hard, microcrystalline, silty, slightly argillaceous, yellow florescence, slow yellow green blue white cut
9850-9880'	LIMESTONE: light to medium brown, light to medium gray, tan to cream, mottled, friable to firm, moderately hard, microcrystalline, silty, slightly argillaceous, spotty yellow florescence, flash yellow cut
9880-9910'	LIMESTONE: light to medium brown, light to medium gray, tan, cream, mottled, friable to firm, moderately hard, microcrystalline, silty, slightly argillaceous, spotty yellow florescence, flash yellow cut
9100-9940'	LIMESTONE: light to medium brown, tan, cream, light to medium gray, mottled, friable to firm, moderately hard, microcrystalline, silty, slightly argillaceous, spotty yellow florescence, flash yellow cut
9940-9470'	LIMESTONE: light to medium brown, tan, cream, light to medium gray, mottled, friable to firm, moderately hard, microcrystalline, silty, slightly argillaceous, spotty yellow florescence, flash yellow cut
9970-10000'	LIMESTONE: light to medium brown, light to medium gray brown, tan, cream, mottled, friable to firm, moderately hard, microcrystalline, silty, slightly argillaceous, spotty yellow florescence, flash yellow cut

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Formation tops Sample Interval (in feet)	SAMPLE DESCRIPTION
10000-10030'	LIMESTONE: tan, cream, light to medium brown, light to medium gray brown, mottled, friable to firm, moderately hard, microcrystalline, silty, slightly argillaceous, spotty yellow florescence, flash yellow cut
10030-10060'	LIMESTONE: tan, cream, light to medium brown, light to medium gray brown, mottled, friable to firm, moderately hard, microcrystalline, silty, slightly argillaceous, spotty yellow florescence, flash yellow cut
10060-10090'	LIMESTONE: light to medium brown, tan, cream, light to medium gray brown, mottled, friable to firm, moderately hard, microcrystalline, silty, slightly argillaceous, no florescence, flash yellow cut
10090-10120'	LIMESTONE: light to medium brown, tan, cream, light to medium gray brown, mottled, friable to firm, moderately hard, microcrystalline, silty, slightly argillaceous, no florescence, flash yellow cut
10120-10150'	LIMESTONE: light to medium brown, tan, cream, light to medium gray brown, mottled, friable to firm, moderately hard, microcrystalline, silty, slightly argillaceous, no florescence, flash yellow cut; SHALE: black, firm, sub blocky to sub platy
10150-10180'	LIMESTONE: light to medium brown, tan, cream, light to medium gray brown, mottled, friable to firm, moderately hard, microcrystalline, silty, slightly argillaceous, no florescence, flash yellow cut; SHALE: black, firm, sub blocky to sub platy
10180-10210'	DOLOMITE: light to medium brown, tan, cream, light to medium gray brown, mottled, friable to firm, moderately hard, microcrystalline, silty, slightly argillaceous, no florescence, flash yellow cut; SHALE: black, firm, sub blocky to sub platy
10210-10240'	DOLOMITE: light to medium brown, tan, cream, light to medium gray brown, mottled, friable to firm, moderately hard, microcrystalline, silty, slightly argillaceous, no florescence, flash yellow cut; trace Shale
10240-10270'	DOLOMITE: light to medium brown, tan, cream, light to medium gray brown, mottled, friable to firm, moderately hard, microcrystalline, silty, slightly argillaceous, no florescence, flash yellow cut; trace Shale
10270-10300'	DOLOMITE: light to medium brown, cream, light to medium gray brown, mottled, friable to firm, moderately hard, microcrystalline, silty, slightly argillaceous, no florescence, dull yellow blue white cut; trace Shale, calcareous

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Formation tops Sample Interval (in feet)	SAMPLE DESCRIPTION
10300-10330'	DOLOMITE: light to medium gray brown, light to medium brown, cream, mottled, friable to firm, moderately hard, microcrystalline, silty, slightly argillaceous, no florescence, dull yellow blue white cut
10330-10360'	DOLOMITE: medium to dark gray brown, medium brown, light to medium gray, cream, mottled, friable to firm, moderately hard, microcrystalline, silty, slightly argillaceous, no florescence, dull yellow blue white cut
10360-10390'	DOLOMITE: medium to dark gray brown, medium brown, light to medium gray, cream, mottled, friable to firm, moderately hard, microcrystalline, silty, slightly argillaceous, no florescence, dull yellow blue white cut
10390-10420'	DOLOMITE: medium to dark gray, medium to dark gray brown, mottled, friable to firm, moderately hard, microcrystalline, silty, slightly argillaceous; SHALE: black, firm to brittle, hard, carbonaceous, no florescence, dull yellow green blue white cut
10420-10450'	SHALE: black, firm to brittle, hard, carbonaceous; DOLOMITE: medium to dark gray, medium to dark gray brown, mottled, friable to firm; trace LIMESTONE: light to medium brown, tan, cream, no florescence, slow yellow green cut
10450-10480'	SHALE: black, firm to brittle, hard, sub platy to sub blocky, carbonaceous, trace Limestone, no florescence, slow yellow green cut
10480-10510'	SHALE: black, firm to brittle, hard, sub platy to sub blocky, carbonaceous, trace Limestone, no florescence, slow yellow green cut
10510-10690'	SHALE: black, firm to brittle, hard, sub platy to sub blocky, carbonaceous, no florescence, slow yellow green cut
10690-10720'	SHALE: black, firm to brittle, hard, sub platy to sub blocky, carbonaceous, calcareous, no florescence, slow yellow green cut; trace DOLOMITE LIMESTONE
10720-10750'	SHALE: black, firm to brittle, hard, sub platy to sub blocky, carbonaceous, calcareous, no florescence, slow yellow green cut
10750-10780'	SHALE: black, firm to brittle, hard, sub platy to sub blocky, carbonaceous, calcareous, no florescence, slow yellow green cut
10780-10810'	SHALE: black, firm to brittle, hard, sub platy to sub blocky, slightly carbonaceous in part, calcareous, no florescence, slow yellow green cut

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Formation tops Sample Interval (in feet)	SAMPLE DESCRIPTION
10810-10840'	SHALE: black, firm to brittle, hard, sub platy to sub blocky, calcareous, no florescence, slow yellow green cut
10840-10870'	SHALE: black, firm to brittle, hard, sub platy to sub blocky, calcareous, no florescence, slow yellow green cut
10870-10900'	SHALE: black, firm to brittle, hard, sub platy to sub blocky, carbonaceous in part, calcareous, no florescence, slow yellow green cut
10900-11230'	SHALE: black, firm to brittle, hard, sub platy to sub blocky, calcareous, no florescence, slow yellow green cut
11230-11470'	SHALE: black, firm to brittle, hard, sub platy to sub blocky, slightly calcareous, trace limestone, no florescence, slow yellow green cut
11470-11500'	SHALE: black to very dark brown, firm to brittle, hard, sub platy to sub blocky, slightly calcareous, trace dolomite, no florescence, slow yellow green cut
11500-11920'	SHALE: black to very dark brown, firm to brittle, hard, sub platy to sub blocky, trace dolomite, no florescence, slow yellow green cut
11920-12310'	SHALE: black, firm to brittle, hard, sub platy to sub blocky, trace dolomite, no florescence, slow yellow green cut
12310-12340'	DOLOMITE: dark gray brown, medium to dark gray, friable to firm, microcrystalline, silty, very argillaceous; SHALE: black, firm to brittle, hard, sub platy to sub blocky, no florescence, slow yellow green cut
12340-12370'	SHALE: black, firm to brittle, hard, sub platy to sub blocky; DOLOMITE: dark gray brown, medium to dark gray, friable to firm, microcrystalline, silty, very argillaceous, no florescence, slow yellow green cut
12370-12400'	SHALE: black, firm to brittle, hard, sub platy to sub blocky, trace limestone, no florescence, slow yellow green cut
12400-12430'	SHALE: black, firm to brittle, hard, sub platy to sub blocky, trace limestone, no florescence, slow yellow green cut
12430-12460'	SHALE: black, firm to brittle, hard, sub platy to sub blocky, trace limestone, no florescence, slow yellow green cut
12460-12610'	SHALE: black, firm to brittle, hard, sub platy to sub blocky, no florescence, slow yellow green cut

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Formation tops Sample Interval (in feet)	SAMPLE DESCRIPTION
12610-12640'	SHALE: black, firm to brittle, hard, sub platy to sub blocky, slightly calcareous, trace limestone, no florescence, slow yellow green cut
12640-12670'	SHALE: black, firm to brittle, hard, sub platy to sub blocky, slightly calcareous, trace limestone, no florescence, slow yellow green cut
12670-12700'	SHALE: black, firm to brittle, hard, sub platy to sub blocky, slightly calcareous, trace limestone, no florescence, slow yellow green cut
12700-12730'	SHALE: black, firm to brittle, hard, sub platy to sub blocky, no florescence, slow streaming yellow green cut
12730-12760'	SHALE: black, firm to brittle, hard, sub platy to sub blocky, no florescence, slow streaming yellow green cut
12760-12790'	SHALE: black, firm to brittle, hard, sub platy to sub blocky, no florescence, slow streaming yellow green cut
12790-12820'	SHALE: black, firm to brittle, hard, sub platy to sub blocky, no florescence, slow streaming yellow green cut; trace Dolomite
12820-13720'	SHALE: black, firm to brittle, hard, sub platy to sub blocky, no florescence, slow streaming yellow green cut

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GEOLOGICAL SUMMARY & CONCLUSIONS

Continental Resources, Inc. drilled the Collins 1-28H as a single horizontal lateral upper shale test targeting the Mississippian Upper Bakken formation in Richland County, Montana. The surface hole location is in the Northeast one-quarter of the Northwest one-quarter of Section 28, Township 23 North, Range 52 East (295' FNL, 1980' FWL). The well then traverses South to a final bottom hole location approximately 200 feet from the South section line and 1980 feet from the West section line of section 28.

Continental Resources began drilling operations using H&P rig 257 on March 31, 2013. Nine and five eights inch diameter surface casing was cemented in place at 1540' prior to the arrival of H&P 257. NorAm Wellsite Services began geological supervision at 7150' MD at 12:06 hours on April 2, 2013. Lagged total gas, calibrated to a one percent Methane in air standard, and chromatography data were monitored and recorded using a Continental Laboratories total gas detector MP #2300 and chromatograph Varian #627 AGD 14. Geosteering and borehole guidance were accomplished with the aid of lagged total gas data, lagged geological samples, an NOV EDR Workstation, and gamma ray logging coupled with directional drilling survey data. MS Energy provided the Directional Drilling (DD) and Measurement While Drilling (MWD) Services.

In drilling the curve, the objective was to land the bit approximately 6' below where the Upper Bakken Shale was expected. It was unknown whether or not the Upper Bakken would be there based on its absence in well data to the West and Southwest. The expectation for the Upper Bakken unit thickness was 0' to 3'. If the Shale was not there, plans were in place to drill the Scallion formation immediately above. Towards the end of the build, the Shale was found to be approximately 1' thick. The horizontal objective then proceeded as an upper Shale test. The 7" diameter intermediate casing was installed and cemented in place at 9498' MD, 9213' TVD (**826' FNL & 1948' FWL**) on April 6, 2013. The well path then proceeded along a general 180-degree South azimuth.

After drilling out of 7" casing, the bit was steered up to meet the upper Shale. Based on isopach data, formation was expected to dip up slightly. It was discovered to be dipping down at 89.4 degrees and the bit went through the 1' upper Shale and into the Scallion. Attempts to re-enter the upper Shale were failing due to deflections from denser horizons within the lower Scallion formation. A plan to punch through the lower Scallion at a higher angle and access the upper Shale from the Three Forks formation was successful. The bit entered the upper Shale at approximately 10400' MD where it remained bound for the remainder of the well. Overall, the Upper Bakken dipped down to the South, averaging about 89.7 degrees.

The Upper Bakken in the area consists of a black to very dark brown, sub blocky, slightly calcareous, carbonaceous Shale. It has no florescence and displays a slow moderately faint yellow green streaming cut. Background gas averaged 145 units.

Immediately above the Upper Bakken is the 12' Scallion formation characterized by a tan to light gray brown, microcrystalline Limestone that grades to more cryptocrystalline in the lower portion. It also displays a slow moderately faint yellow green streaming cut. Background gas of the lower Scallion averaged 200 units.

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GEOLOGICAL SUMMARY & CONCLUSIONS (CONT.)

Immediately below the Upper Bakken is the Three Forks formation. It is a medium gray to gray green, microcrystalline Dolomite with small stringers of dark gray Shale and trace amounts of pyrite. Visual solvent cut is weak in the Three Forks in this part of the basin. Background gas averaged 98 units in the upper Three Forks.

A total depth of 13720' feet was reached at 06:32 hours CST on April 12, 2013. NorAm Wellsite Services was released following the wiper trip.

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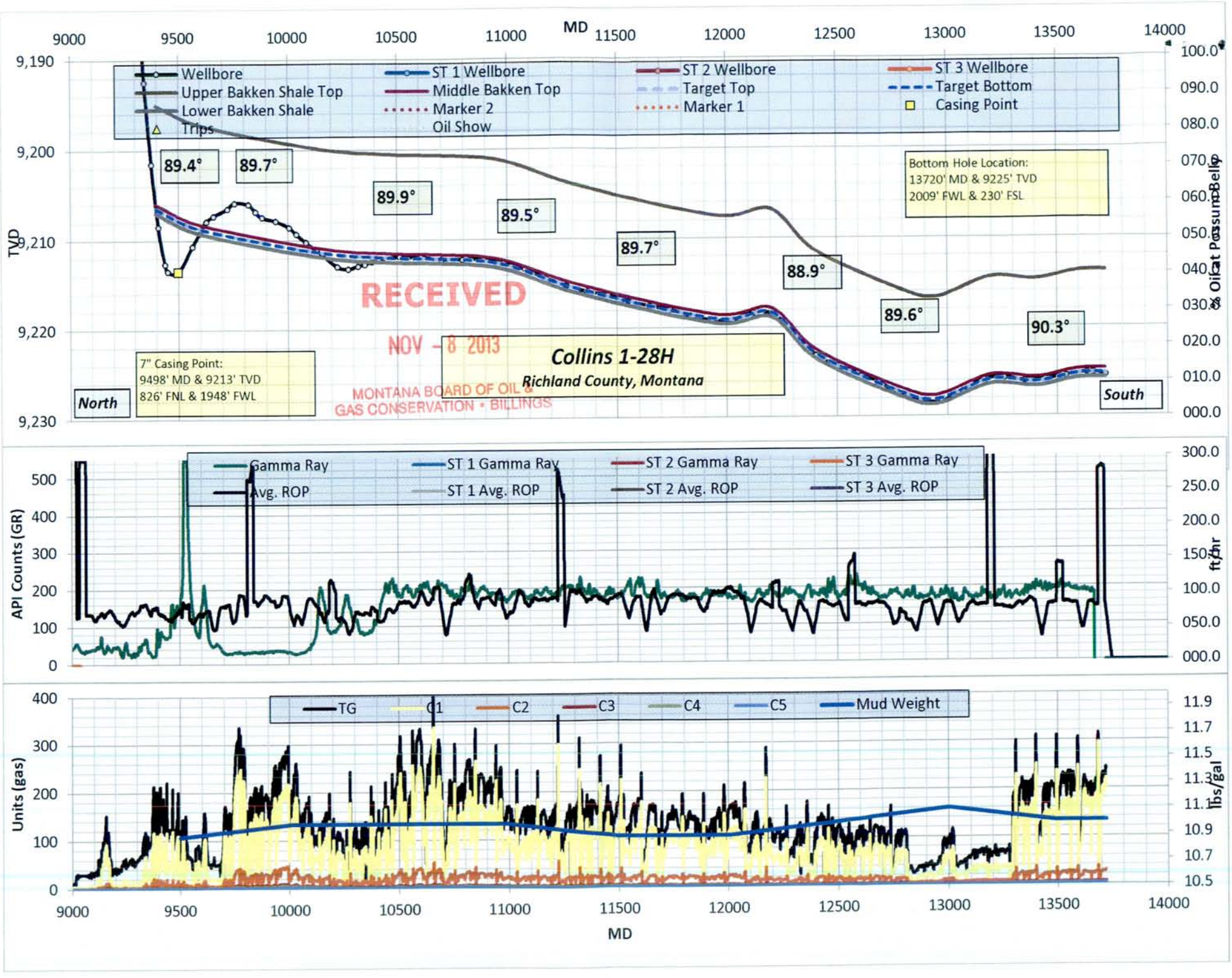

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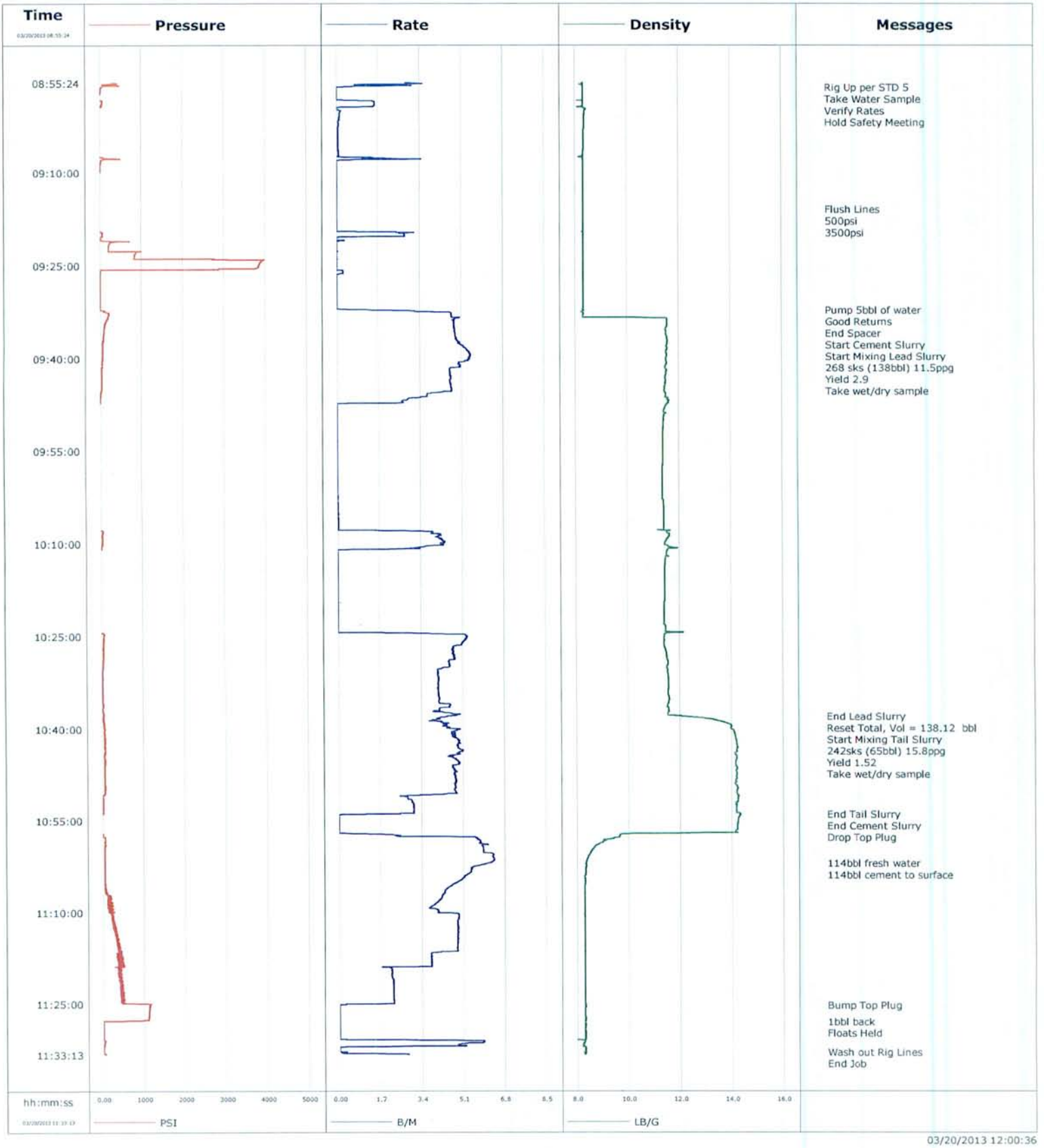
Cementing Job Report

CemCAT v1.5

Well	Collins 1-28H	**Client**	Continental
Field	Wildcat Richland	**SIR No.**	952530
Engineer	Ariel Petros-Good	**Job Type**	9 5/8 Surface
Country	United States	**Job Date**	03-20-2013



Schlumberger Cementing Qa/Qc Density Report

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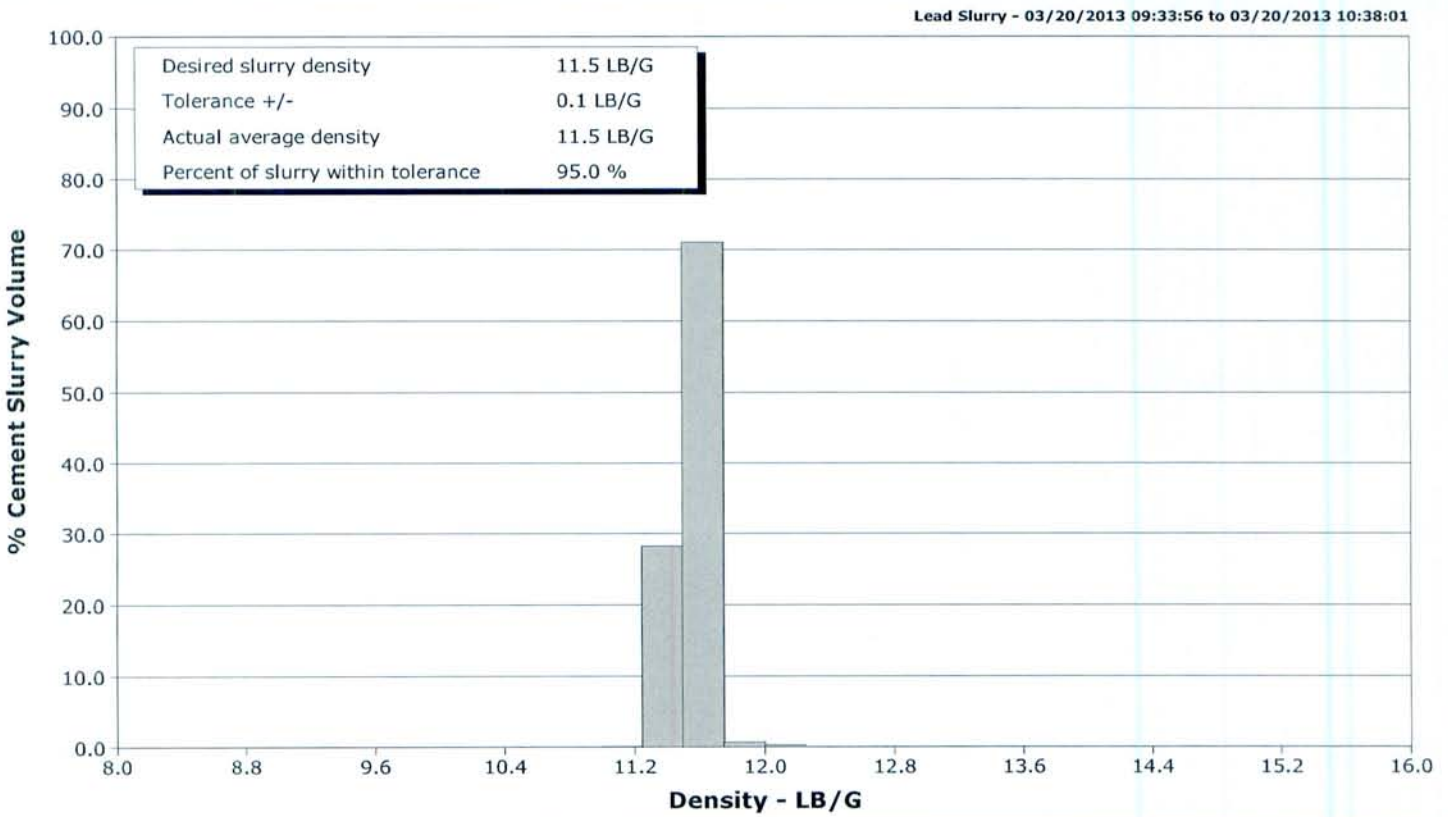
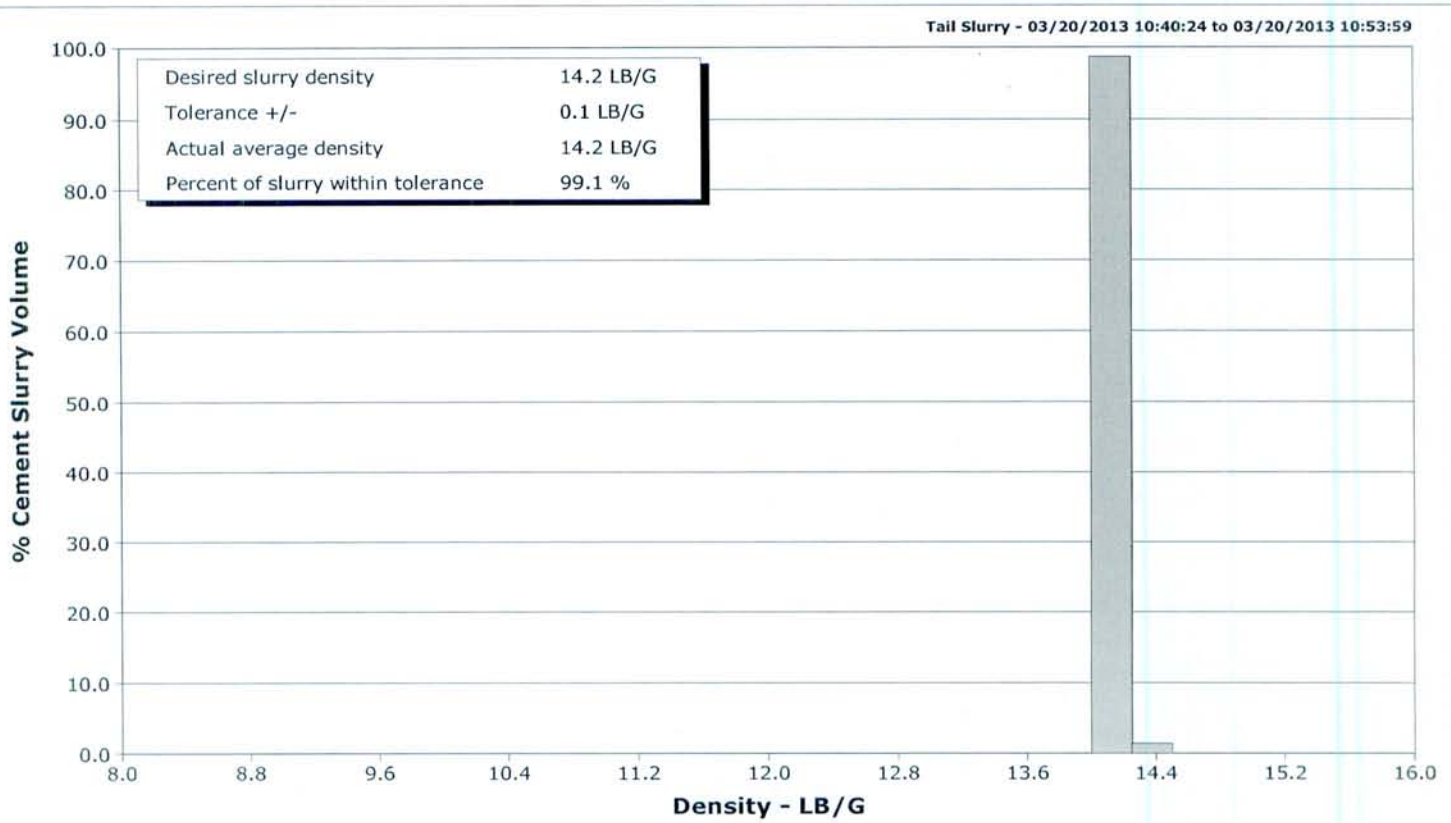
Well	Collins 1-28H	**Client**	Continental
Field	Wildcat Richland	**SIR No.**	952530
Engineer	Ariel Petros-Good	**Job Type**	9 5/8 Surface
Country	United States	**Job Date**	03-20-2013





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Schlumberger Cementing Service Report

Customer	Job Number
Continental	952530

Well	Location (legal)	Schlumberger Location	Job Start
Collins 1-28H 1 28H		Williston	Mar/20/2013

Field	Formation Name/Type	Deviation	Bit Size	Well MD	Well TVD
Wildcat Richland	Shale	deg	13.5 in	1519.0 ft	1519.0 ft

County	State/Province	BHP	BHST	BHCT	Pore Press. Gradient
Richland	Montana	psi	104 degF	85 degF	lb/gal
Well Master 0631452778	**API/UWI** 25083231310000				

Rig Name	Drilled For	Service Via
White Mountain 750	Oil	Land

Offshore Zone	Well Class	Well Type
	New	Development

Drilling Fluid Type	Max. Density	Plastic Viscosity
	lb/gal	cP

Service Line	Job Type
Cementing	9 5/8 Surface

Max. Allowed Tub. Press	Max. Allowed Ann. Press	WH Connection
psi	psi	Single Cement head

Casing/Liner

Depth, ft	Size, in	Weight, lb/ft	Grade	Thread
80.0	16.0	65.0	N/A	N/A
1519.0	9.6	36.0	K55	8RD

Tubing/Drill Pipe

T/D	Depth, ft	Size, in	Weight, lb/ft	Grade	Thread

Perforations/Open Hole

Top, ft	Bottom, ft	shot/ft	No. of Shots	Total Interval
ft	ft			ft
ft	ft			Diameter
ft	ft			in

Service Instructions

9 5/8 Surface
Pump 5bbl Water
Pump 268sks (137bbl) 11.5ppg Yield of 2.9
Pump 242sks (65bbl) 14.2ppg Yield of 1.52
Displace with fresh water 114bbl

Treat Down	Displacement	Packer Type	Packer Depth
Casing	114.0 bbl		ft

Tubing Vol.	Casing Vol.	Annular Vol.	Openhole Vol.
bbl	117.0 bbl	136.0 bbl	276.0 bbl

Casing/Tubing Secured	[x]	1 Hole Vol. Circulated prior to Cement	[x]
Lift Pressure	752 psi		
Pipe Rotated	[ ]	Pipe Reciprocated	[ ]
No. Centralizers	Top Plugs 1	Bottom Plugs	
Cement Head Type	Single		

Job Scheduled For	Arrived on Location	Leave Location
Mar/20/2013 07:00	Mar/20/2013 07:00	Mar/20/2013

Casing Tools		Squeeze Job	
Shoe Type	Float	Squeeze Type	
Shoe Depth	1519.0 ft	Tool Type	
Stage Tool Type		Tool Depth	ft
Stage Tool Depth	ft	Tail Pipe Size	in
Collar Type	Float	Tail Pipe Depth	ft
Collar Depth	1471.0 ft	Sqz. Total Vol.	bbl

Date	Time 24-hr clock	Treating Pressure PSI	Flow Rate B/M	Density LB/G	Volume BBL	Message
03/20/2013	08:55:24	305	2.4	8.31	1.4	Stopped Acquisition
03/20/2013	08:56:07	46	0.4	8.34	2.9	Rig Up per STD 5
03/20/2013	08:56:08	43	0.2	8.34	2.9	Take Water Sample
03/20/2013	08:56:09	43	0.2	8.34	2.9	Hold Safety Meeting
03/20/2013	08:57:04	5	0.0	8.33	2.9	
03/20/2013	08:58:44	51	1.6	8.33	3.5	
03/20/2013	09:00:24	-9	0.1	8.38	4.6	
03/20/2013	09:02:04	-9	0.1	8.37	4.8	
03/20/2013	09:03:44	-9	0.1	8.36	4.9	
03/20/2013	09:05:24	-10	0.1	8.35	5.0	
03/20/2013	09:07:04	-10	0.1	8.34	5.2	
03/20/2013	09:08:44	10	0.0	8.33	0.0	
03/20/2013	09:10:24	-1	0.0	8.33	0.0	
03/20/2013	09:12:04	-4	0.0	8.33	0.0	
03/20/2013	09:13:44	-3	0.0	8.33	0.0	
03/20/2013	09:15:24	-3	0.0	8.33	0.0	
03/20/2013	09:15:59	-3	0.0	8.33	0.0	Flush Lines
03/20/2013	09:16:06	-5	0.0	8.33	0.0	500psi
03/20/2013	09:16:07	-5	0.0	8.32	0.0	3500psi
03/20/2013	09:17:04	-5	0.0	8.33	0.0	
03/20/2013	09:18:44	-5	0.0	8.33	0.0	

Well	Field	Job Start	Customer	Job Number
Collins 1-28H 1 28H	Wildcat Richland	Mar/20/2013	Continental	952530

Date	Time 24-hr clock	Treating Pressure PSI	Flow Rate B/M	Density LB/G	Volume BBL	Message
03/20/2013	09:22:04	208	0.0	8.33	2.2	
03/20/2013	09:23:44	833	0.0	8.33	2.2	
03/20/2013	09:25:24	3838	0.0	8.33	2.2	
03/20/2013	09:27:04	5	0.0	8.33	2.3	
03/20/2013	09:28:44	3	0.0	8.33	2.3	
03/20/2013	09:30:24	5	0.0	8.33	2.3	
03/20/2013	09:32:04	4	0.2	8.33	2.3	
03/20/2013	09:32:12	14	1.0	8.33	2.4	Pump 5bbl of water
03/20/2013	09:32:13	22	1.2	8.32	2.4	Good Returns
03/20/2013	09:33:35	193	4.8	11.54	8.2	End Spacer
03/20/2013	09:33:38	178	4.8	11.55	8.5	Start Cement Slurry
03/20/2013	09:33:44	174	4.8	11.55	9.0	
03/20/2013	09:33:56	154	4.8	11.56	9.9	Start Mixing Lead Slurry
03/20/2013	09:34:04	136	4.8	11.55	10.6	268 sks (138bbl) 11.5ppg
03/20/2013	09:34:05	137	4.8	11.55	10.6	Yield 2.9
03/20/2013	09:34:06	137	4.8	11.55	10.7	Take wet/dry sample
03/20/2013	09:35:24	103	4.8	11.50	17.0	
03/20/2013	09:37:04	73	4.9	11.56	25.0	
03/20/2013	09:38:44	69	5.3	11.53	33.6	
03/20/2013	09:40:24	60	5.4	11.51	42.6	
03/20/2013	09:42:04	43	4.6	11.54	50.8	
03/20/2013	09:43:44	42	4.6	11.49	58.5	
03/20/2013	09:45:24	39	4.7	11.44	66.3	
03/20/2013	09:47:04	4	2.6	11.60	72.1	
03/20/2013	09:48:44	-17	0.0	11.42	72.9	
03/20/2013	09:50:24	-17	0.0	11.41	72.9	
03/20/2013	09:52:04	-17	0.0	11.39	72.9	
03/20/2013	09:53:44	-18	0.0	11.38	72.9	
03/20/2013	09:55:24	-17	0.0	11.38	72.9	
03/20/2013	09:57:04	-16	0.0	11.37	72.9	
03/20/2013	09:58:44	-16	0.0	11.37	72.9	
03/20/2013	10:00:24	-15	0.0	11.36	72.9	
03/20/2013	10:02:04	-15	0.0	11.36	72.9	
03/20/2013	10:03:44	-16	0.0	11.41	72.9	
03/20/2013	10:05:24	-14	0.0	11.42	73.0	
03/20/2013	10:07:04	-13	0.0	11.41	73.0	
03/20/2013	10:08:44	38	4.2	11.61	76.2	
03/20/2013	10:10:24	23	3.7	11.55	83.3	
03/20/2013	10:12:04	-13	0.0	11.50	85.1	
03/20/2013	10:13:44	-13	0.0	11.44	85.1	
03/20/2013	10:15:24	-14	0.0	11.44	85.1	
03/20/2013	10:17:04	-13	0.0	11.43	85.1	
03/20/2013	10:18:44	-14	0.0	11.43	85.1	
03/20/2013	10:20:24	-13	0.0	11.43	85.1	
03/20/2013	10:22:04	-13	0.0	11.42	85.1	
03/20/2013	10:23:44	-12	0.0	11.47	85.1	
03/20/2013	10:25:24	64	5.3	11.40	89.4	
03/20/2013	10:27:04	53	4.7	11.45	97.8	
03/20/2013	10:28:44	50	4.8	11.52	105.6	
03/20/2013	10:30:24	33	4.1	11.53	113.2	
03/20/2013	10:32:04	33	4.1	11.56	120.0	
03/20/2013	10:33:44	34	4.1	11.56	126.8	
03/20/2013	10:35:24	33	4.1	11.59	133.7	
03/20/2013	10:37:04	27	4.2	11.57	140.8	

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Well	Field	Job Start	Customer	Job Number
Collins 1-28H 1 28H	Wildcat Richland	Mar/20/2013	Continental	952530

Date	Time 24-hr clock	Treating Pressure PSI	Flow Rate B/M	Density LB/G	Volume BBL	Message
03/20/2013	10:38:07	34	4.4	12.34	145.5	Reset Total, Vol = 138.12 bbl
03/20/2013	10:38:44	27	3.8	13.48	148.1	
03/20/2013	10:40:24	65	4.8	14.09	155.5	Start Mixing Tail Slurry
03/20/2013	10:40:37	53	4.7	14.10	156.5	242sks (65bbl) 15.8ppg
03/20/2013	10:40:38	63	4.6	14.10	156.6	Yield 1.52
03/20/2013	10:40:40	70	4.6	14.11	156.8	Take wet/dry sample
03/20/2013	10:42:04	72	4.9	14.18	163.5	
03/20/2013	10:43:44	73	5.1	14.20	171.7	
03/20/2013	10:45:24	74	4.9	14.16	179.7	
03/20/2013	10:47:04	71	4.8	14.18	187.7	
03/20/2013	10:48:44	68	4.8	14.16	195.7	
03/20/2013	10:50:24	72	4.8	14.21	203.7	
03/20/2013	10:52:04	23	3.0	14.23	209.3	
03/20/2013	10:53:44	23	3.1	14.19	214.4	
03/20/2013	10:53:59	-11	1.1	14.34	215.1	End Tail Slurry
03/20/2013	10:54:01	-10	0.7	14.34	215.1	End Cement Slurry
03/20/2013	10:54:05	-9	0.1	14.34	215.2	Drop Top Plug
03/20/2013	10:55:24	-7	0.0	14.23	215.2	
03/20/2013	10:57:04	-7	0.0	14.21	215.2	
03/20/2013	10:58:44	61	5.8	8.92	222.3	
03/20/2013	11:00:24	54	6.3	8.52	232.2	
03/20/2013	11:01:58	56	6.1	8.36	242.1	114bbl fresh water
03/20/2013	11:02:00	56	6.1	8.36	242.3	114bbl cement to surface
03/20/2013	11:02:04	55	6.0	8.36	242.7	
03/20/2013	11:03:44	54	5.3	8.34	251.9	
03/20/2013	11:05:24	58	4.7	8.31	260.2	
03/20/2013	11:07:04	166	4.3	8.32	267.6	
03/20/2013	11:08:44	134	3.9	8.32	274.5	
03/20/2013	11:10:24	215	4.9	8.31	281.3	
03/20/2013	11:12:04	278	4.8	8.32	289.4	
03/20/2013	11:13:44	305	4.9	8.32	297.5	
03/20/2013	11:15:24	367	4.9	8.32	305.6	
03/20/2013	11:17:04	410	3.8	8.32	313.1	
03/20/2013	11:18:44	480	3.8	8.32	319.4	
03/20/2013	11:20:24	372	2.1	8.32	323.3	
03/20/2013	11:22:04	422	2.2	8.32	326.9	
03/20/2013	11:23:44	486	2.2	8.32	330.6	
03/20/2013	11:25:13	1128	0.0	8.32	333.6	Bump Top Plug
03/20/2013	11:25:24	1124	0.0	8.32	333.6	
03/20/2013	11:27:04	1108	0.0	8.32	333.6	
03/20/2013	11:27:56	10	0.0	8.32	333.6	1bbl back
03/20/2013	11:27:57	9	0.0	8.32	333.6	Floats Held
03/20/2013	11:28:44	5	0.0	8.32	333.6	
03/20/2013	11:30:24	2	0.0	8.32	333.6	
03/20/2013	11:32:04	0	0.1	8.32	339.2	
03/20/2013	11:32:52	4	0.2	8.25	339.2	Wash out Rig Lines

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Well	Field	Job Start	Customer	Job Number
Collins 1-28H 1 28H	Wildcat Richland	Mar/20/2013	Continental	952530

Post Job Summary

Average Pump Rates, bbl/min				Volume of Fluid Injected, bbl			
Slurry	N2	Mud	Maximum Rate	Total Slurry	Mud	Spacer	N2
3.6			6.4	344.2	0.0	11.4	

Treating Pressure Summary, psi					Breakdown Fluid		
Maximum	Final	Average	Bump Plug to	Breakdown	Type	Volume	Density
3986	9	205	1000			bbl	lb/gal

Avg. N2 Percent	Designed Slurry Volume	Displacement	Mix Water Temp	Cement Circulated to Surface?	Volume
%	204.0 bbl	118.5 bbl	80 degF	[x]	114.0 bbl
				Washed Thru Perfs [ ]	To ft

Customer or Authorized Representative	Schlumberger Supervisor	Circulation Lost	Job Completed
Sonney Honrud	Ariel Petros-Good	-	[x] -

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Schlumberger Cementing Job Report

CemCAT v1.5

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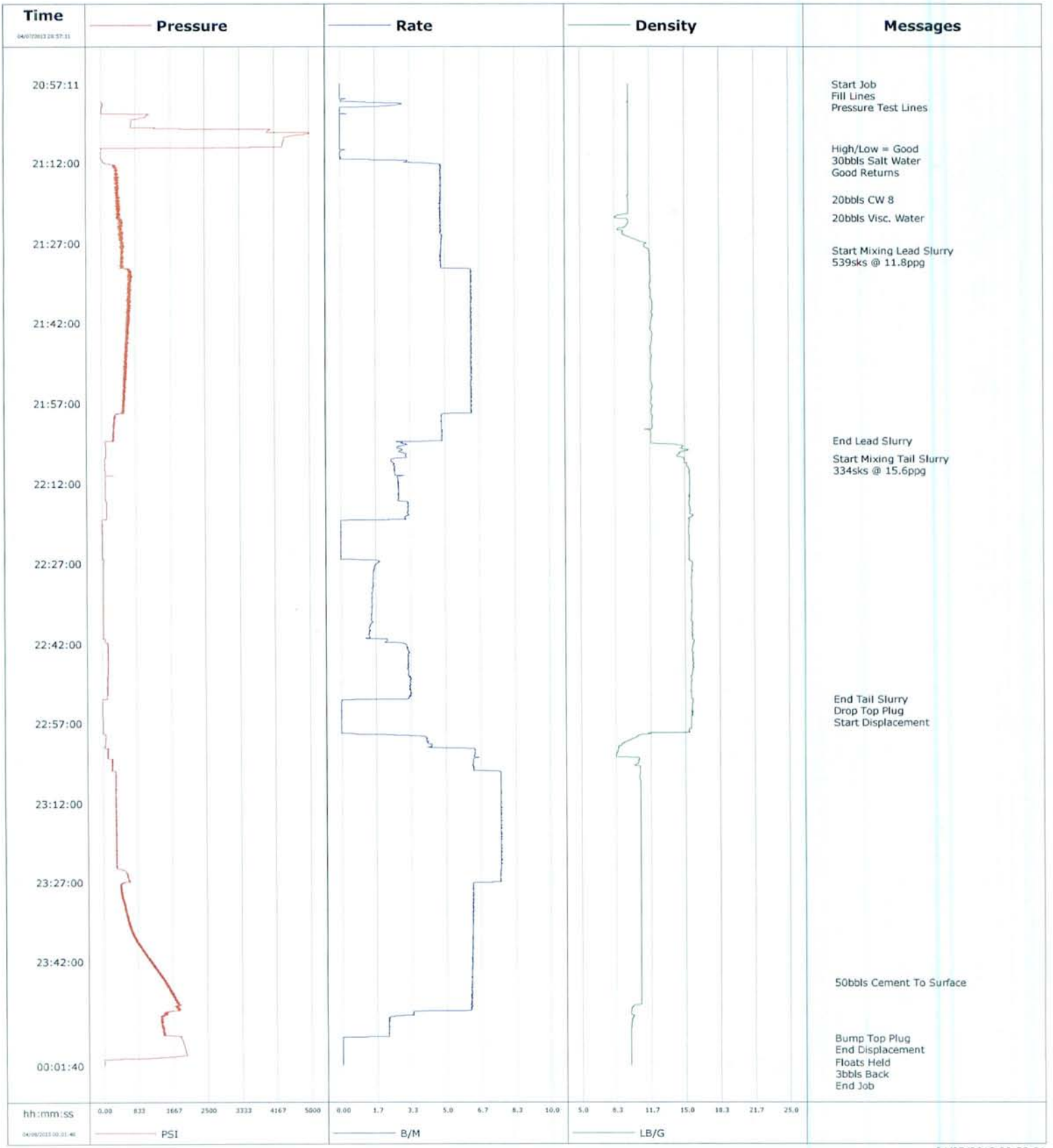
Well	Collins 1-28H	**Client**	Continental
Field	Wildcat	**SIR No.**	953860
Engineer	TJ Seifert	**Job Type**	7" Intermediate
Country	United States	**Job Date**	04-06-2013



Schlumberger Cementing Qa/Qc Density Report

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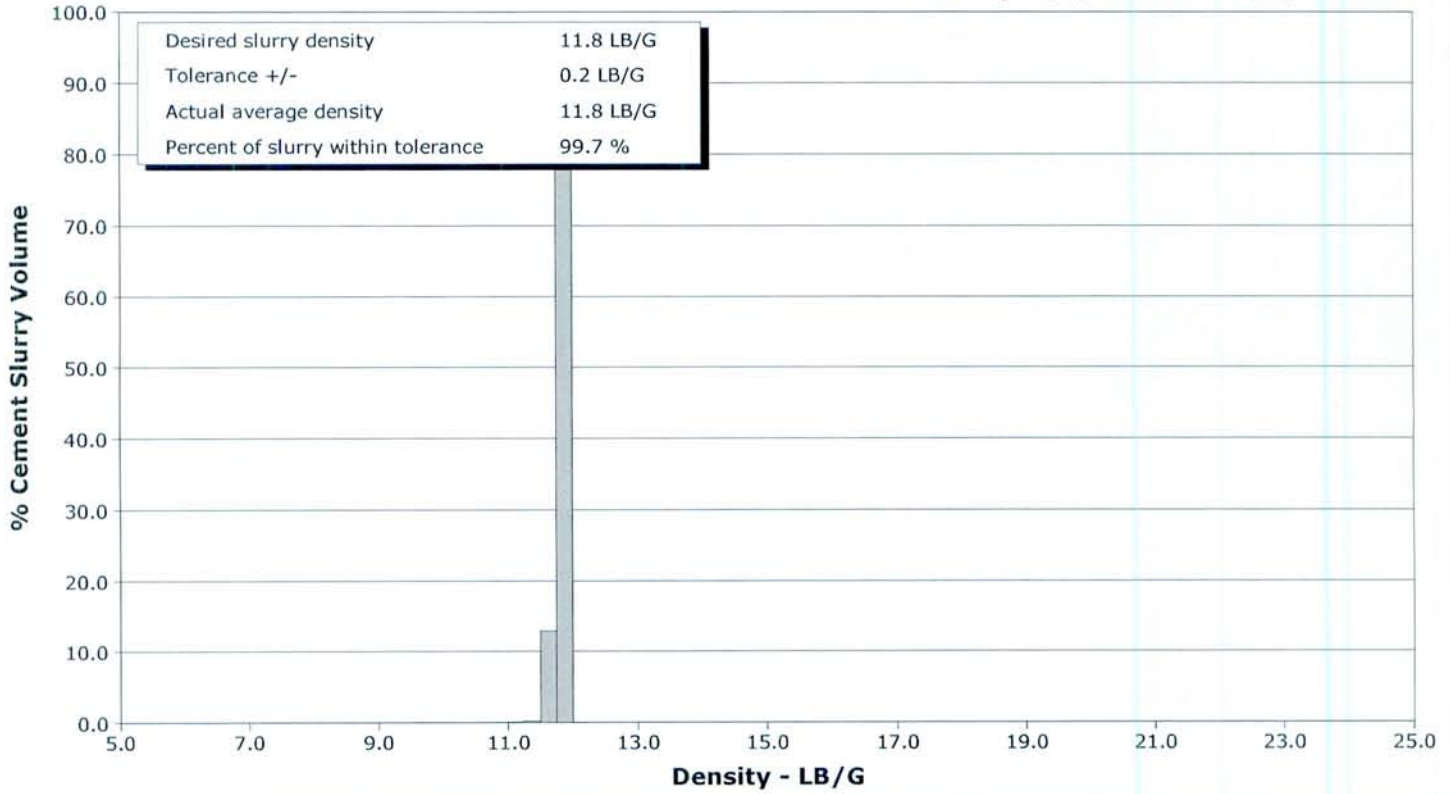
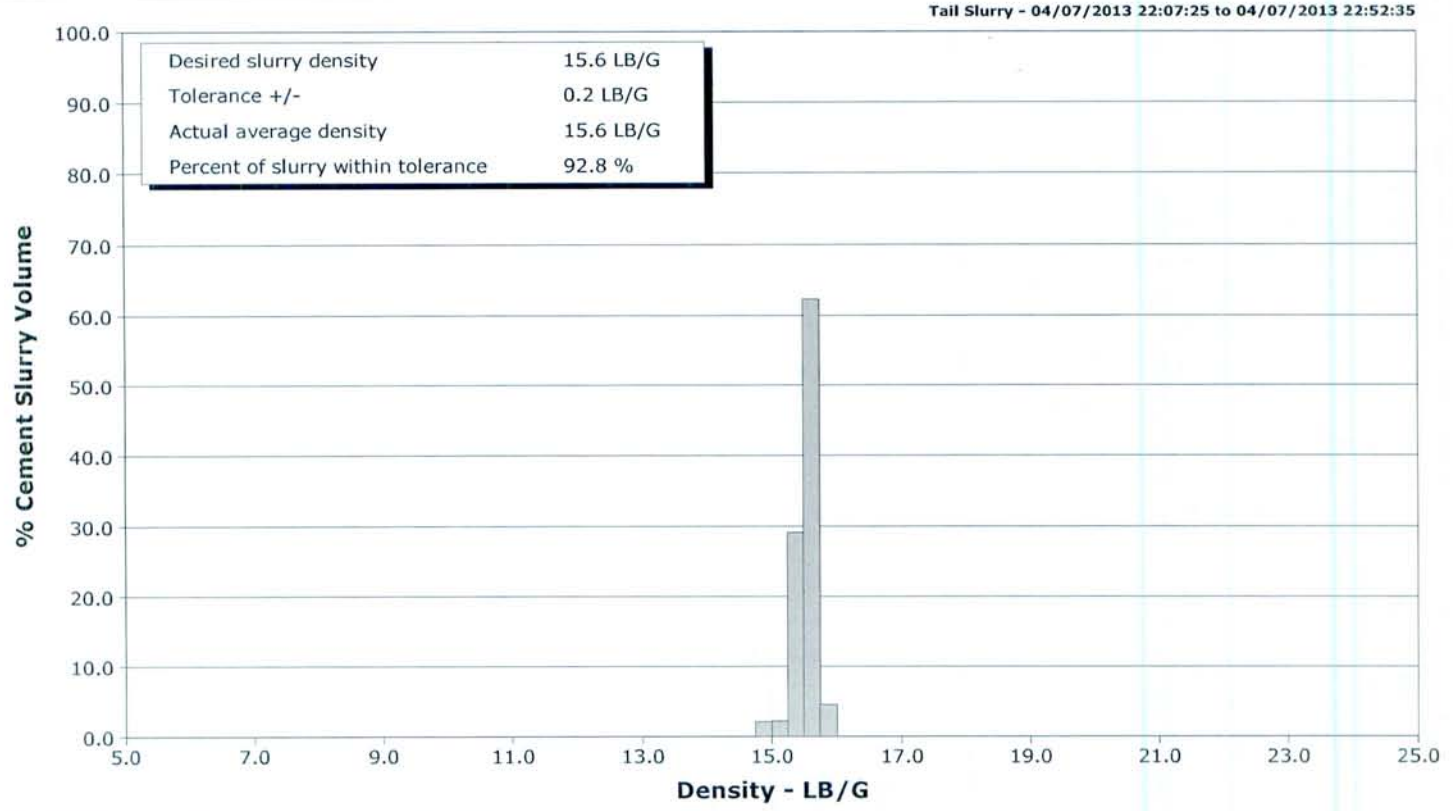
Well	Collins 1-28H	**Client**	Continental
Field	Wildcat	**SIR No.**	953860
Engineer	TJ Seifert	**Job Type**	7" Intermediate
Country	United States	**Job Date**	04-06-2013

Lead Slurry - 04/07/2013 21:28:21 to 04/07/2013 22:04:05



Tail Slurry - 04/07/2013 22:07:25 to 04/07/2013 22:52:35



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Schlumberger Cementing Service Report

Customer	Continental
Job Number	953860
Well	Collins 1-28H
Location (legal)	
Schlumberger Location	
Job Start	Apr/06/2013
Field	Wildcat
Formation Name/Type	Shale
Deviation	90 deg
Bit Size	8.8 in
Well MD	9499.0 ft
Well TVD	9499.0 ft
County	Richland
State/Provinc	North Dakota
BHP	psi
BHST	227 degF
BHCT	183 degF
Pore Press. Gradient	lb/gal
Well Master	0631452778
API/UWI	25083231310000
Rig Name	H&P 257
Drilled For	Oil & Gas
Service Via	Land
Offshore Zone	
Well Class	New
Well Type	Development
Drilling Fluid Type	
Max. Density	lb/gal
Plastic Viscosity	cP
Service Line	Cementing
Job Type	7" Intermediate
Max. Allowed Tub. Press	5000 psi
Max. Allowed Ann. Press	5000 psi
WH Connection	Single Cement head

Casing/Liner

Depth, ft	Size, in	Weight, lb/ft	Grade	Thread
9499.0	7.0	29.0	P110	8RD
0.0	0.0	0.0		

Tubing/Drill Pipe

T/D	Depth, ft	Size, in	Weight, lb/ft	Grade	Thread

Perforations/Open Hole

Top, ft	Bottom, ft	shot/ft	No. of Shots	Total Interval
ft	ft			ft
ft	ft			Diameter
ft	ft			in

Service Instructions

30bbls Salt Water
20bbls CW 8
20bbls Visc. Water
228bbls Lead @ 11.8ppg
98bbls Tail @ 15.6ppg
Displace 355bbls Invert

Treat Down	Displacement	Packer Type	Packer Depth
Casing	355.0 bbl		ft
Tubing Vol.	Casing Vol.	Annular Vol.	Openhole Vol.
bbl	357.0 bbl	259.0 bbl	214.0 bbl

Casing/Tubing Secured	X	1 Hole Vol. Circulated prior to Cement	X
Lift Pressure	1700 psi		
Pipe Rotated	☐	Pipe Reciprocated	☐
No. Centralizers		Top Plugs	1
Bottom Plugs			
Cement Head Type	Single		
Job Scheduled For	Apr/06/2013 15:00	Arrived on Location	Apr/06/2013 15:00
Leave Location	Apr/07/2013 01:00		

Casing Tools		Squeeze Job	
Shoe Type	Guide	Squeeze Type	
Shoe Depth	9499.0 ft	Tool Type	
Stage Tool Type		Tool Depth	ft
Stage Tool Depth	ft	Tail Pipe Size	in
Collar Type	Float	Tail Pipe Depth	ft
Collar Depth	9457.0 ft	Sqz. Total Vol.	bbl

Date	Time 24-hr clock	CPF1_PRESS PSI	CPF1_TTL_RATE B/M	CPF1_DOWNHOLE_DENSIT LB/G	CPF1_REAR_TRPLX_PRES PSI	Message
04/07/2013	20:57:11	-9	0.0	9.65	-3	Stopped Acquisition
04/07/2013	20:57:13	-9	0.0	9.65	-3	Start Job
04/07/2013	20:57:14	-9	0.0	9.65	-3	Fill Lines
04/07/2013	20:59:33	-8	0.0	9.65	-3	Pressure Test Lines
04/07/2013	21:00:32	1	0.1	9.65	7	
04/07/2013	21:03:53	844	0.0	9.66	855	
04/07/2013	21:07:14	4494	0.0	9.66	4475	
04/07/2013	21:09:29	27	0.0	9.66	7	High/Low = Good
04/07/2013	21:09:30	27	0.0	9.66	7	30bbls Salt Water
04/07/2013	21:10:35	1	0.0	9.66	-7	
04/07/2013	21:13:56	387	4.8	9.66	348	
04/07/2013	21:17:17	360	4.8	9.66	338	
04/07/2013	21:18:55	441	4.8	9.62	376	20bbls CW 8
04/07/2013	21:20:38	403	4.8	9.64	408	
04/07/2013	21:22:19	475	4.8	8.34	447	20bbls Visc. Water
04/07/2013	21:23:59	494	4.8	9.36	485	
04/07/2013	21:27:20	558	4.8	11.22	540	
04/07/2013	21:28:21	534	4.8	11.64	519	Start Mixing Lead Slurry
04/07/2013	21:28:22	510	4.8	11.65	502	539sks @ 11.8ppg
04/07/2013	21:30:41	518	4.8	11.73	469	
04/07/2013	21:34:02	708	6.3	11.76	690	

Well	Field	Job Start	Customer	Job Number
Collins 1-28H	Wildcat	Apr/06/2013	Continental	953860

Date	Time 24-hr clock	CPF1_PRESS PSI	CPF1_TTL_RATE B/M	CPF1_DOWNHOLE_DENSIT LB/G	CPF1_REAR_TRPLX_PRES PSI	Message
04/07/2013	21:40:44	673	6.3	11.95	595	
04/07/2013	21:44:05	665	6.3	11.90	559	
04/07/2013	21:47:26	643	6.3	11.81	587	
04/07/2013	21:50:47	599	6.3	11.79	510	
04/07/2013	21:54:08	574	6.3	11.91	539	
04/07/2013	21:57:29	578	6.3	11.87	517	
04/07/2013	22:00:50	309	4.9	11.90	278	
04/07/2013	22:04:05	210	4.4	11.77	126	End Lead Slurry
04/07/2013	22:04:11	96	2.7	11.77	71	
04/07/2013	22:07:25	84	2.5	14.98	54	Start Mixing Tail Slurry
04/07/2013	22:07:26	86	2.5	14.98	53	334sks @ 15.6ppg
04/07/2013	22:07:32	87	2.5	14.93	54	
04/07/2013	22:10:53	106	2.7	15.44	68	
04/07/2013	22:14:14	104	2.8	15.43	63	
04/07/2013	22:17:35	125	3.2	15.47	82	
04/07/2013	22:20:56	11	0.0	15.37	-17	
04/07/2013	22:24:17	13	0.0	15.41	-17	
04/07/2013	22:27:38	45	1.6	15.68	15	
04/07/2013	22:30:59	41	1.6	15.61	11	
04/07/2013	22:34:20	40	1.5	15.62	11	
04/07/2013	22:37:41	37	1.4	15.56	9	
04/07/2013	22:41:02	23	1.3	15.70	-11	
04/07/2013	22:44:23	147	3.2	15.68	87	
04/07/2013	22:47:44	142	3.2	15.66	89	
04/07/2013	22:51:05	136	3.3	15.52	86	
04/07/2013	22:52:35	12	1.9	15.60	-18	End Tail Slurry
04/07/2013	22:52:41	8	0.2	15.70	-14	Drop Top Plug
04/07/2013	22:52:42	8	0.1	15.70	-14	Start Displacement
04/07/2013	22:54:26	6	0.0	15.64	-19	
04/07/2013	22:57:47	16	0.0	15.55	-18	
04/07/2013	23:01:08	76	4.3	8.90	34	
04/07/2013	23:04:29	241	6.3	10.49	215	
04/07/2013	23:07:50	316	7.6	10.66	275	
04/07/2013	23:11:11	324	7.6	10.70	278	
04/07/2013	23:14:32	317	7.6	10.71	293	
04/07/2013	23:17:53	334	7.6	10.71	276	
04/07/2013	23:21:14	331	7.6	10.71	284	
04/07/2013	23:24:35	455	7.6	10.71	423	
04/07/2013	23:27:56	446	6.3	10.71	375	
04/07/2013	23:31:17	519	6.3	10.71	449	
04/07/2013	23:34:38	639	6.3	10.71	541	
04/07/2013	23:37:59	794	6.2	10.71	743	
04/07/2013	23:41:20	1087	6.2	10.71	1017	
04/07/2013	23:44:41	1354	6.2	10.71	1339	
04/07/2013	23:45:59	1476	6.2	10.71	1418	50bbls Cement To Surface
04/07/2013	23:48:02	1619	6.2	10.71	1559	
04/07/2013	23:51:23	1591	3.8	9.71	1508	
04/07/2013	23:54:44	1432	2.2	9.71	1347	
04/07/2013	23:56:28	1859	0.0	9.69	1816	Bump Top Plug
04/07/2013	23:56:29	1860	0.0	9.69	1817	End Displacement
04/07/2013	23:58:05	1934	0.0	9.69	1887	
04/08/2013	00:01:02	0	0.0	9.68	-47	Floats Held
04/08/2013	00:01:03	0	0.0	9.67	-47	3bbls Back
04/08/2013	00:01:26	1	0.0	9.67	-44	

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Well	Field	Job Start	Customer	Job Number
Collins 1-28H	Wildcat	Apr/06/2013	Continental	953860

Post Job Summary

Average Pump Rates, bbl/min				Volume of Fluid Injected, bbl			
Slurry	N2	Mud	Maximum Rate	Total Slurry	Mud	Spacer	N2
4.7			7.7	326.0	0.0	70.0	

Treating Pressure Summary, psi					Breakdown Fluid		
Maximum	Final	Average	Bump Plug to	Breakdown	Type	Volume	Density
5122	1	541	1800			bbl	lb/gal

Avg. N2 Percent	Designed Slurry Volume	Displacement	Mix Water Temp	Cement Circulated to Surface?	Volume
%	0.0 bbl	355.0 bbl	81 degF	[x]	50.0 bbl
				Washed Thru Perfs [ ]	To ft

Customer or Authorized Representative	Schlumberger Supervisor	Circulation Lost	Job Completed
Miles Shea	TJ Seifert	-	- [x]

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PIONEER
PENKOTA
PIONEER ENERGY SERVICES

PIONEER WIRELINE SERVICES, LLC
8508 DERRICK AVENUE
WILLISTON, ND 58801
PHONE: (701) 572-1087

2564 SIMS STREET
DICKINSON, ND 58601
PHONE: (701) 483-7613

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MAY 13 2013
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JOB TICKET
3-23235

Engineer: Schmidt / Pehrson
Operators: Weston / Pehrson
083-23131 (Sp)
Legal Description: 23N-52E-28

Charge to Invoice Address: Continental Resources
City:
Lease and Well no.: Collins 1-28H
Field:
County: Richland
Unit #: 46
State: MT

Invoice No.: 3-23235
Invoice Date:
Client Order No.:
Date Job Performed: 4-20-13
Operating Base:

Client accepts all terms and conditions of the sale and service, including those provided on the back of this job ticket.

Client — Date

Pioneer Representative — Date: 4-20-13

AFE Number

PO Number

vendor
cost element (category)
cost center (w... DC02386 ... fix
description: PPK test
lease name: Collins 1-28H
field approval
manager approval
DOC #

PRODUCT CODE	DESCRIPTION	PRICE	AMOUNT
10000	Rig up Crane Service Charge	2	2.55 00
10010	Crane Rental	2	800 00
10020	HSE		550 00
15001	Retrieve PPK @ 8650	2	335 50
15002	Operation Charge	2	335 50
10050	210 Round trip Crane		892 50
10050	210 Round trip logger		892 50
1100	Pack off		800 00
	Sub total	12	806 00
	Less discount —	3	201 50
		9	604 50
	TOTAL	9	604 50

Date 4-15-2013 (406)652-4400

PIONEER

Pioneer Wireline Services, LLC
7069 Niehenke Ave.
Billings, Montana 59101

TICKET # 5 - 24325 LEASE/LOCATION Collins 1-28H

STATE Montana COUNTY Richland LEGAL 28-23N-52E

ELEVATION 2476 KB ELEVATION 2501 DRILLER TD _____ FIELD Richland West

PIONEER PERSONNEL Zinda / Griffith / Huestis UNIT # 34

COMPANY Continental Resources BY X

ADDRESS _____

Pioneer Wireline Services is requested to perform the following services according to the terms printed on the reverse of this order.

ITEM		AMOUNT
	SERVICE CHARGE:	
	SERVICE CHARGE:	
Mileage	Logging unit _____ @ _____ per mile	
	Pickup _____ @ _____ per mile	
	Mast/crane _____ @ _____ per mile	
Service	40 Arm Caliper	
Depth 12211	Depth 8810'	
Oper. 12212	Operation 8810'	
Service	CBL / Gamma / CCL	
Depth 12101	Depth 8810'	
Oper. 12102	Operations 8810'	
Service 10000	Service Charge	
Depth 10020	HSE	
Oper. 10050	Mileage	
11001	Line Wiper	
Service		
Depth		
Oper.	Agreed on Price #	
Service		
Depth		
Oper.		
Service		
Depth		
Oper.		
Service		
Depth		
Oper.		

INFORMATION

Casing	Lb/Ft	From	To
9 5/8	36	Surface	1540
7	26/29/32	Surface	9496

Fluid Invert Level (surf) _____

Pioneer measurements are from (check One):

KB X GL _____ Prev. Logs _____

CWS TD 8810 Driller TD _____

Plug model _____ Size _____ Depth _____

Packer _____ Size _____ Depth _____

PERFORATIONS

Intervals	SPF	Total #

TOTAL PERFORATIONS: _____

FE #: DL02386

Remarks: _____

EQUIPMENT, RENTALS, PERSONNEL

MATERIALS

vendor#	
cost element (category)	170
cost center (well/AFE#)	DL02386
description	CCL + CBL
lease name	Collins 1-28H
field approval	
manager approval	
DOC #	

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REMIT TO: PIONEER WIRELINE SERVICES, LLC
PO BOX 202567
Dallas, TX 75320-2567
(303) 655--0299

Sub total
Other
TOTAL CHARGES
Sales Tax
TOTAL CHARGES

Client Rep: Chris Smith

Pioneer Rep: _____ (Signature)

KH 4-15-13

GO WIRELINE LLC

P.O. BOX 1343
WILLISTON, ND 58801
PHONE: (701) 572-0886

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R-C 5-11-13

SP

JOB TICKET
2286

Engineers: Fuhrmann
Operators: Chuck, Greg P, Kellan B
Legal Description: 23N, 52E, 28

Charge to: Continental
Invoice Address:
City: 25-083-23131
Lease and Well No.: Collins 1-28H
Field:
County: Richland
Truck No.: 75
State: MT

Invoice No.:
Invoice Date:
Customer's Order No.:
Date Job Performed: 5-10-13
Operating Base: Williston

CONDITIONS OF THIS CONTRACT

Go Wireline, LLC ("Go Wireline") is requested to provide services, goods, and equipment pursuant to the following terms and conditions:

The undersigned ("Customer") agrees to pay Go Wireline for the services and/or materials ordered in this contract. Should any account not be paid within the term fixed by the invoice, interest will be charged at the rate of 1.5% per month from the date of invoice.

The work shall be performed by Go Wireline as an independent contractor. It is understood and agreed that Go Wireline does not guarantee the results of its service and shall not be liable for injury to persons or to property of Customer and/or well owners unless caused by Go Wireline's willful negligence, including but not limited to, subsurface damage and surface damage arising from subsurface damage. Customer and/or well owner shall be responsible for and indemnify Go Wireline against any liability for reservoir loss or damage or personal property damage arising from a well blowout, unless such loss or damage is caused by Go Wireline's willful negligence. Customer and/or well owner will pay for the actual cost of replacing or repairing the well service equipment or any part thereof, if same should be lost or damaged while Should any of Go Wireline's instruments, tools or equipment be lost or destroyed in performance under this contract, Customer agrees to use all reasonable diligence and facilities available to recover the same, and Customer agrees to reimburse Go Wireline for the reasonable value of any instrument, tools or other personal property that cannot be recovered within sixty (60) days, or for the cost of repairing any damage to items recovered.

Customer agrees that it, its employees or contractors shall make all depth measurements, which Customer or its employees will supervise.

Customer certifies that it is the owner of the well on which the work herein ordered is to be done or that it has the full right and authority to order such work done on said wells; and that the well in which the work is to be done by Go Wireline is in proper and suitable condition for performance of said work.

Customer further agrees that the terms and conditions set forth in this contract constitute the entire agreement and that no employee of Customer is authorized to alter its terms. I have read and understand the terms of this agreement and represent that I am authorized to sign the same as agent of Customer.

Agent

PRODUCT CODE	DESCRIPTION	AMOUNT
	Ran Junk Basket 13.77 gauge to 8850	$1400.00
	Set Weatherford Packer @ 8730	$2444.40
	Less 10%	-384.44
	Service Charge	$1650.00
	5K PSI control	$4200.00
	Crane Service	$2400.00
	#10 setting tool	$750.00
	#10 Slow Burn	$550.00
	#10 Firing Head	$250.00
	210 miles x2	$1890.00
	HSE Charge	$300
	AFE DL02386	$15,449.96
	TOTAL	