

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

Lease Name:

Devin

Lease Type (Private/State/Federal):

Private

Application for Permit To:

Drill Deepen Re-enter
Oil Gas Other

Well Number:

4-13H

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

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Unit Name (if applicable):

OCT 10 2019

Surface Location of Well (quarter-quarter and footage measurements):

355' FNL, 1690' FEL; NWNE Sec 13-26N-53E

Objective Formation(s):

Middle Bakken **MONTANA BOARD OF OIL & GAS CONSERVATION • BILLINGS**

Township, Range, and Section:

Sec 13-26N-53E

Proposed Total Depth and Bottom-hole Location(s) if directional or horizontal well:

200' FSL, 627' FEL; SESE Sec 25-26N-53E
25441' MD, 9468' TVD

County:

Richland

Elevation (Indicate GL or KB):

2332' GL

Size and description of drilling/spacing unit and applicable order, if any:

Formation at total depth:

Anticipated Spud Date:

Unit Sec 13,24,25-T26N-R53E, 1920 acres; Spacing #98-2019 & ID

Middle Bakken

10/21/219

Hole Size	Casing Size	Weight / Foot	Grade (API)	Depth	Sacks of Cement	Type of Cement
20"	16"	94#	J-55	80'	48	Grout
13 1/2"	9 5/8"	40#	J-55	1300'	490	35/65 Pox/Class C, 3% CaCl, 12%
8 3/4"	7"	32#	P-110 IC	9948	797	35/65 Pox/Class G, 3% KCl, 5#/sk

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. Drilling fluids will be recycled and used on future wells. Cuttings will be solidified with fly ash and buried onsite in cuttings pit.

BOARD USE ONLY

Approved (date) OCT 24 2019

Permit Fee \$150.00

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

By [Signature]

Check Number 229492

Signed (Agent) [Signature]

Title Petroleum Engineer

Permit Expires APR 24 2020

Title Regulatory Compliance Specialist

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

API Number: 25 - 083 - 23375

Date 10/7/2019

Telephone Number (405) 234-9257

Samples Required: NONE X 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



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Client: Continental Resources, Inc
 Well: Pre-job Design Disclosure
 Basin/Field:
 State: Montana
 County/Parish: Richland County
 Case:
 Disclosure Type: Pre-Job
 Well Completed:
 Date Prepared: 8/16/2019 3:28 PM
 Report ID: RPT-62889

Fluid Name & Volume	Additive	Additive Description	Concentration	Volume
Slickwater, HCl 15% 10,579,712 Gal	A264A	Corrosion Inhibitor A264A	0.01 Gal / 1000 Gal	130.0 Gal
	B526 †	Non-Emulsifying Agent B526	0.5 Gal / 1000 Gal	5,239.0 Gal
	H015	Acid	2.5 Gal / 1000 Gal	26,000.0 Gal
	J475	Breaker	0.5 Lb / 1000 Gal	5,277.0 Lb
	J627	Friction Reducer J627	0.3 Gal / 1000 Gal	3,081.0 Gal
	J694	High Viscosity Friction Reducer J694	0.7 Gal / 1000 Gal	7,613.0 Gal
	L058	Iron Control Agent L058	0.01 Lb / 1000 Gal	130.0 Lb
	M300	Myacide GA 25	0.3 Gal / 1000 Gal	3,166.0 Gal
	S013	Fracturing Sand S013	varied concentrations	7,612,780.0 Lb
	S013-100	100 - Mesh Premium Sand S013	varied concentrations	1,903,200.0 Lb

The total volume listed in the tables above represents the summation of water and additives. Water is supplied by client.
 † Proprietary Technology

CAS Number	Chemical Name	Mass Fraction
-	Water (Including Mix Water Supplied by Client)*	~ 90 %
14808-60-7	Quartz, Crystalline Silica	~ 10 %
7647-01-0	Hydrochloric acid	< 0.1 %
53845-65-1	2-Propenoic acid, sodium salt (1:1), polymer with 2-propenamide and sodium 2-methyl-2-[(1-oxo-2-propen-1-yl)amino]-1-propanesulfonate (1:1)	< 0.1 %
64742-47-8	Distillates, petroleum, hydrotreated light	< 0.1 %
111-30-8	Glutaraldehyde	< 0.01 %
26100-47-0	Acrylamide/ammonium acrylate copolymer	< 0.01 %
67-63-0	Isopropyl alcohol	< 0.01 %
12125-02-9	Ammonium chloride	< 0.01 %
7727-54-0	Diammonium peroxodisulphate	< 0.01 %
CAS # Not Available	Polymer of fatty acid	< 0.01 %
78330-21-9	Alcohols, C11-14-Iso, C13-rich, ethoxylated	< 0.01 %
9005-65-6	Sorbitan monooleate, ethoxylated	< 0.01 %
1338-43-8	Sorbitan, mono-(9Z)-9-octadecenoate	< 0.01 %
25038-72-6	Vinylidene chloride/methylacrylate copolymer	< 0.001 %
9004-96-0	Ethoxylated oleic acid	< 0.001 %
67-56-1	Methanol	< 0.001 %
7783-18-8	Ammonium thiosulfate	< 0.001 %
61723-83-9	Sorbitol Tetraoleate	< 0.001 %
68002-97-1	Alcohols, C10-16, ethoxylated	< 0.001 %
224635-63-6	Reaction product of: acetophenone, formaldehyde, cyclohexylamine, methanol and acetic acid	< 0.001 %
540-72-7	Sodium thiocyanate	< 0.001 %
10604-69-0	2-Propenoic acid, ammonium salt	< 0.001 %
1310-73-2	Sodium hydroxide	< 0.001 %
6381-77-7	Sodium erythorbate	< 0.001 %
68439-50-9	Alcohols, C12-C14, ethoxylated	< 0.001 %
84133-50-6	C14 alpha olefin ethoxylate	< 0.001 %
68551-12-2	Alcohols, C12-C16, ethoxylated	< 0.001 %
104-55-2	Cinnamaldehyde	< 0.001 %
68439-46-3	Alcohol, C9-C11, Ethoxylated	< 0.0001 %
79-06-1	2-Propenamid (impurity)	< 0.0001 %
14807-96-6	Magnesium silicate hydrate (talc)	< 0.0001 %
64-19-7	Acetic acid (impurity)	< 0.0001 %
98-86-2	Acetophenone	< 0.0001 %
61791-26-2	Amines, tallow alkyl, ethoxylated	< 0.0001 %
9002-84-0	poly(tetrafluoroethylene)	< 0.0001 %
50-00-0	Formaldehyde (impurity)	< 0.0001 %
Total		100%

* The evaluation of attached document is performed based on the composition of the identified products to the extent that such compositional information was known to GRC-Chemicals as of the date of the document was produced. Any new updates will not be reflected in this document.



Client: Continental Resources, Inc
Well: Pre-job Design Disclosure
Basin/Field:
State: Montana
County/Parish: Richland County
Case:
Disclosure Type: Pre-Job
Well Completed:
Date Prepared: 8/16/2019 3:24 PM
Report ID: RPT-62888

** Mix water is supplied by the client. OneStim has performed no analysis of the water and cannot provide a breakdown of components that may have been added to the water by third-parties.*

** The evaluation of attached document is performed based on the composition of the identified products to the extent that such compositional information was known to GRC-Chemicals as of the date of the document was produced. Any new updates will not be reflected in this document.*

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Proposal # 127242

Stimulation

Company	CONTINENTAL RESOURCES INC
Well Name	Well 1
Surface Location	
UWI Number	
Formation	
Objective	Stimulation in Middle Bakken
Service From District	Williston
Date	8/15/2019
Primary Contact	Tito Abiseid

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Schlumberger

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Pumping Schedule

3 Mile Stages 1-54

Stage:

1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,33,34,35,36,37,38,39,40,41,42,43,44,45,46,47,48,49,50,51,52

Clean Fluid Totals	
HCl 15%	500 gal
Slick Water	118,506 gal
HVFR 1.5gpt	45,000 gal
HVFR 2.0 gpt	39,450 gal

Proppant Totals	
White Sand 100M	36,600.0 lbm
White Sand 40/70	146,400.0 lbm

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Bottom Hole Pumping Schedule												
Stage	Fluid Type	Clean Fluid Vol	Cum Clean Fluid	Prop Type	B.H. Prop Conc	Prop Per Stage	Cum Prop Amt	Stage Slurry Vol	Cum Slurry Vol	Pump Time	Clean Rate	Slurry Rate
		gal	gal		PPA	lbm	lbm	bbl	bbl	h	bbl/min	bbl/min
Acid	HCl 15%	500	500		0.0	0.0	0.0	11.9	11.9	0.04	5.0	5.0
Pad	Slick Water	8,000	8,500		0.0	0.0	0.0	190.5	202.4	0.11	30.0	30.0
0.25 PPA 100M	Slick Water	10,000	18,500	White Sand 100M	0.3	2,500.0	2,500.0	240.8	443.2	0.05	79.1	80.0
0.50 PPA 100M	Slick Water	10,000	28,500	White Sand 100M	0.5	5,000.0	7,500.0	243.5	686.6	0.05	78.2	80.0
1.00 PPA 100M	Slick Water	4,700	33,200	White Sand 100M	1.0	4,700.0	12,200.0	117.0	803.6	0.02	76.5	80.0
1.50 PPA 4070	HVFR 1.5gpt	15,000	48,200	White Sand 40/70	1.5	22,500.0	34,700.0	381.6	1,185.3	0.08	74.9	80.0
2.00 PPA 4070	HVFR 2.0 gpt	13,150	61,350	White Sand 40/70	2.0	26,300.0	61,000.0	341.7	1,527.0	0.07	73.3	80.0
Spacer	Slick Water	2,100	63,450		0.0	0.0	61,000.0	50.0	1,577.0	0.01	80.0	80.0
Diverter	Slick Water	2,100	65,550		0.0	0.0	61,000.0	50.0	1,627.0	0.01	80.0	80.0
Sweep	Slick Water	12,500	78,050		0.0	0.0	61,000.0	297.6	1,924.6	0.06	80.0	80.0
0.50 PPA 100M	Slick Water	10,000	88,050	White Sand 100M	0.5	5,000.0	66,000.0	243.5	2,168.1	0.05	78.2	80.0
1.00 PPA 100M	Slick Water	7,200	95,250	White Sand 100M	1.0	7,200.0	73,200.0	179.2	2,347.3	0.04	76.5	80.0
1.50 PPA 4070	HVFR 1.5gpt	15,000	110,250	White Sand 40/70	1.5	22,500.0	95,700.0	381.6	2,728.9	0.08	74.9	80.0
2.00 PPA 4070	HVFR 2.0 gpt	13,150	123,400	White Sand 40/70	2.0	26,300.0	122,000.0	341.7	3,070.7	0.07	73.3	80.0
Spacer	Slick Water	2,100	125,500		0.0	0.0	122,000.0	50.0	3,120.7	0.01	80.0	80.0
Diverter	Slick Water	2,100	127,600		0.0	0.0	122,000.0	50.0	3,170.7	0.01	80.0	80.0
Sweep	Slick Water	12,500	140,100		0.0	0.0	122,000.0	297.6	3,468.3	0.06	80.0	80.0
0.50 PPA 100M	Slick Water	10,000	150,100	White Sand 100M	0.5	5,000.0	127,000.0	243.5	3,711.7	0.05	78.2	80.0
1.00 PPA	Slick Water	7,200	157,300	White Sand 100M	1.0	7,200.0	134,200.0	179.2	3,890.9	0.04	76.5	80.0



Bottom Hole Pumping Schedule

Stage	Fluid Type	Clean Fluid Vol gal	Cum Clean Fluid gal	Prop Type	B.H. Prop Conc PPA	Prop Per Stage lbm	Cum Prop Amt lbm	Stage Slurry Vol bbl	Cum Slurry Vol bbl	Pump Time h	Clean Rate bbl/min	Slurry Rate bbl/min
100M												
1.50 PPA 4070	HVFR 1.5gpt	15,000	172,300	White Sand 40/70	1.5	22,500.0	156,700.0	381.6	4,272.6	0.08	74.9	80.0
2.00 PPA 4070	HVFR 2.0 gpt	13,150	185,450	White Sand 40/70	2.0	26,300.0	183,000.0	341.7	4,614.3	0.07	73.3	80.0
PreFlush	Slick Water	1,500	186,950		0.0	0.0	183,000.0	35.7	4,650.0	0.01	80.0	80.0
Flush	Slick Water	16,506	203,456		0.0	0.0	183,000.0	393.0	5,043.0	0.08	80.0	80.0
Totals:		203,456				183,000.0		5,043.0		1.15		

Pad 8,000 gal
 Frac 143,550 gal
 Pad% 5.3 %

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Material Summary

Fluid Summary			
Fluid Description		Additives	
HCl 15%	A264A	Corrosion Inhibitor	5.00 Gal/mGal
	B526	Non-Emulsifying Agent B526	2.00 Gal/mGal
	L058	Iron Control/Reducing	5.000 lb/mGal
Slick Water	B526	Non-Emulsifier	0.50 Gal/mGal
	J475	Breaker Encapsulated	0.500 lb/mGal
	J627	Friction Reducer	0.50 Gal/mGal
	M300	Biocide	0.30 Gal/mGal
HVFR 1.5gpt	B526	Non-Emulsifier	0.50 Gal/mGal
	J475	Breaker Encapsulated	0.500 lb/mGal
	J694	Non SLB Liquid Additive J694	1.50 Gal/mGal
	M300	Biocide	0.30 Gal/mGal
HVFR 2.0 gpt	B526	Non-Emulsifier	0.50 Gal/mGal
	J475	Breaker Encapsulated	0.500 lb/mGal
	J694	Non SLB Liquid Additive J694	2.00 Gal/mGal
	M300	Biocide	0.30 Gal/mGal

Totals By Stage					
Stage	Fluids	Clean Fluid Volume	Proppants	Proppant Mass	Pump Time
1	HCl 15%	500 gal	White Sand 100M	36,600.0 lbm	1.15 h
	Slick Water	118,506 gal	White Sand 40/70	146,400.0 lbm	
	HVFR 1.5gpt	45,000 gal			
	HVFR 2.0 gpt	39,450 gal			
2	HCl 15%	500 gal	White Sand 100M	36,600.0 lbm	1.15 h
	Slick Water	118,506 gal	White Sand 40/70	146,400.0 lbm	
	HVFR 1.5gpt	45,000 gal			
	HVFR 2.0 gpt	39,450 gal			
3	HCl 15%	500 gal	White Sand 100M	36,600.0 lbm	1.15 h
	Slick Water	118,506 gal	White Sand 40/70	146,400.0 lbm	
	HVFR 1.5gpt	45,000 gal			
	HVFR 2.0 gpt	39,450 gal			
4	HCl 15%	500 gal	White Sand 100M	36,600.0 lbm	1.15 h
	Slick Water	118,506 gal	White Sand 40/70	146,400.0 lbm	
	HVFR 1.5gpt	45,000 gal			
	HVFR 2.0 gpt	39,450 gal			
5	HCl 15%	500 gal	White Sand 100M	36,600.0 lbm	1.15 h
	Slick Water	118,506 gal	White Sand 40/70	146,400.0 lbm	
	HVFR 1.5gpt	45,000 gal			
	HVFR 2.0 gpt	39,450 gal			
6	HCl 15%	500 gal	White Sand 100M	36,600.0 lbm	1.15 h
	Slick Water	118,506 gal	White Sand 40/70	146,400.0 lbm	
	HVFR 1.5gpt	45,000 gal			
	HVFR 2.0 gpt	39,450 gal			
7	HCl 15%	500 gal	White Sand 100M	36,600.0 lbm	1.15 h
	Slick Water	118,506 gal	White Sand 40/70	146,400.0 lbm	
	HVFR 1.5gpt	45,000 gal			
	HVFR 2.0 gpt	39,450 gal			
8	HCl 15%	500 gal	White Sand 100M	36,600.0 lbm	1.15 h
	Slick Water	118,506 gal	White Sand 40/70	146,400.0 lbm	
	HVFR 1.5gpt	45,000 gal			
	HVFR 2.0 gpt	39,450 gal			
9	HCl 15%	500 gal	White Sand 100M	36,600.0 lbm	1.15 h
	Slick Water	118,506 gal	White Sand 40/70	146,400.0 lbm	
	HVFR 1.5gpt	45,000 gal			
	HVFR 2.0 gpt	39,450 gal			
10	HCl 15%	500 gal	White Sand 100M	36,600.0 lbm	1.15 h
	Slick Water	118,506 gal	White Sand 40/70	146,400.0 lbm	
	HVFR 1.5gpt	45,000 gal			
	HVFR 2.0 gpt	39,450 gal			
11	HCl 15%	500 gal	White Sand 100M	36,600.0 lbm	1.15 h



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Totals By Stage					
Stage	Fluids	Clean Fluid Volume	Proppants	Proppant Mass	Pump Time
	Slick Water	118,506 gal	White Sand 40/70	146,400.0 lbm	
	HVFR 1.5gpt	45,000 gal			
	HVFR 2.0 gpt	39,450 gal			
12	HCl 15%	500 gal	White Sand 100M	36,600.0 lbm	1.15 h
	Slick Water	118,506 gal	White Sand 40/70	146,400.0 lbm	
	HVFR 1.5gpt	45,000 gal			
13	HVFR 2.0 gpt	39,450 gal			
	HCl 15%	500 gal	White Sand 100M	36,600.0 lbm	1.15 h
	Slick Water	118,506 gal	White Sand 40/70	146,400.0 lbm	
14	HVFR 1.5gpt	45,000 gal			
	HVFR 2.0 gpt	39,450 gal			
	HCl 15%	500 gal	White Sand 100M	36,600.0 lbm	1.15 h
15	Slick Water	118,506 gal	White Sand 40/70	146,400.0 lbm	
	HVFR 1.5gpt	45,000 gal			
	HVFR 2.0 gpt	39,450 gal			
16	HCl 15%	500 gal	White Sand 100M	36,600.0 lbm	1.15 h
	Slick Water	118,506 gal	White Sand 40/70	146,400.0 lbm	
	HVFR 1.5gpt	45,000 gal			
17	HVFR 2.0 gpt	39,450 gal			
	HCl 15%	500 gal	White Sand 100M	36,600.0 lbm	1.15 h
	Slick Water	118,506 gal	White Sand 40/70	146,400.0 lbm	
18	HVFR 1.5gpt	45,000 gal			
	HVFR 2.0 gpt	39,450 gal			
	HCl 15%	500 gal	White Sand 100M	36,600.0 lbm	1.15 h
19	Slick Water	118,506 gal	White Sand 40/70	146,400.0 lbm	
	HVFR 1.5gpt	45,000 gal			
	HVFR 2.0 gpt	39,450 gal			
20	HCl 15%	500 gal	White Sand 100M	36,600.0 lbm	1.15 h
	Slick Water	118,506 gal	White Sand 40/70	146,400.0 lbm	
	HVFR 1.5gpt	45,000 gal			
21	HVFR 2.0 gpt	39,450 gal			
	HCl 15%	500 gal	White Sand 100M	36,600.0 lbm	1.15 h
	Slick Water	118,506 gal	White Sand 40/70	146,400.0 lbm	
22	HVFR 1.5gpt	45,000 gal			
	HVFR 2.0 gpt	39,450 gal			
	HCl 15%	500 gal	White Sand 100M	36,600.0 lbm	1.15 h
23	Slick Water	118,506 gal	White Sand 40/70	146,400.0 lbm	
	HVFR 1.5gpt	45,000 gal			
	HVFR 2.0 gpt	39,450 gal			
24	HCl 15%	500 gal	White Sand 100M	36,600.0 lbm	1.15 h
	Slick Water	118,506 gal	White Sand 40/70	146,400.0 lbm	
	HVFR 1.5gpt	45,000 gal			
25	HVFR 2.0 gpt	39,450 gal			
	HCl 15%	500 gal	White Sand 100M	36,600.0 lbm	1.15 h
	Slick Water	118,506 gal	White Sand 40/70	146,400.0 lbm	
26	HVFR 1.5gpt	45,000 gal			
	HVFR 2.0 gpt	39,450 gal			
	HCl 15%	500 gal	White Sand 100M	36,600.0 lbm	1.15 h



Totals By Stage					
Stage	Fluids	Clean Fluid Volume	Proppants	Proppant Mass	Pump Time
27	HCl 15%	500 gal	White Sand 100M	36,600.0 lbm	1.15 h
	Slick Water	118,506 gal	White Sand 40/70	146,400.0 lbm	
	HVFR 1.5gpt	45,000 gal			
	HVFR 2.0 gpt	39,450 gal			
28	HCl 15%	500 gal	White Sand 100M	36,600.0 lbm	1.15 h
	Slick Water	118,506 gal	White Sand 40/70	146,400.0 lbm	
	HVFR 1.5gpt	45,000 gal			
	HVFR 2.0 gpt	39,450 gal			
29	HCl 15%	500 gal	White Sand 100M	36,600.0 lbm	1.15 h
	Slick Water	118,506 gal	White Sand 40/70	146,400.0 lbm	
	HVFR 1.5gpt	45,000 gal			
	HVFR 2.0 gpt	39,450 gal			
30	HCl 15%	500 gal	White Sand 100M	36,600.0 lbm	1.15 h
	Slick Water	118,506 gal	White Sand 40/70	146,400.0 lbm	
	HVFR 1.5gpt	45,000 gal			
	HVFR 2.0 gpt	39,450 gal			
31	HCl 15%	500 gal	White Sand 100M	36,600.0 lbm	1.15 h
	Slick Water	118,506 gal	White Sand 40/70	146,400.0 lbm	
	HVFR 1.5gpt	45,000 gal			
	HVFR 2.0 gpt	39,450 gal			
32	HCl 15%	500 gal	White Sand 100M	36,600.0 lbm	1.15 h
	Slick Water	118,506 gal	White Sand 40/70	146,400.0 lbm	
	HVFR 1.5gpt	45,000 gal			
	HVFR 2.0 gpt	39,450 gal			
33	HCl 15%	500 gal	White Sand 100M	36,600.0 lbm	1.15 h
	Slick Water	118,506 gal	White Sand 40/70	146,400.0 lbm	
	HVFR 1.5gpt	45,000 gal			
	HVFR 2.0 gpt	39,450 gal			
34	HCl 15%	500 gal	White Sand 100M	36,600.0 lbm	1.15 h
	Slick Water	118,506 gal	White Sand 40/70	146,400.0 lbm	
	HVFR 1.5gpt	45,000 gal			
	HVFR 2.0 gpt	39,450 gal			
35	HCl 15%	500 gal	White Sand 100M	36,600.0 lbm	1.15 h
	Slick Water	118,506 gal	White Sand 40/70	146,400.0 lbm	
	HVFR 1.5gpt	45,000 gal			
	HVFR 2.0 gpt	39,450 gal			
36	HCl 15%	500 gal	White Sand 100M	36,600.0 lbm	1.15 h
	Slick Water	118,506 gal	White Sand 40/70	146,400.0 lbm	
	HVFR 1.5gpt	45,000 gal			
	HVFR 2.0 gpt	39,450 gal			
37	HCl 15%	500 gal	White Sand 100M	36,600.0 lbm	1.15 h
	Slick Water	118,506 gal	White Sand 40/70	146,400.0 lbm	
	HVFR 1.5gpt	45,000 gal			
	HVFR 2.0 gpt	39,450 gal			
38	HCl 15%	500 gal	White Sand 100M	36,600.0 lbm	1.15 h
	Slick Water	118,506 gal	White Sand 40/70	146,400.0 lbm	
	HVFR 1.5gpt	45,000 gal			
	HVFR 2.0 gpt	39,450 gal			
39	HCl 15%	500 gal	White Sand 100M	36,600.0 lbm	1.15 h
	Slick Water	118,506 gal	White Sand 40/70	146,400.0 lbm	
	HVFR 1.5gpt	45,000 gal			
	HVFR 2.0 gpt	39,450 gal			
40	HCl 15%	500 gal	White Sand 100M	36,600.0 lbm	1.15 h
	Slick Water	118,506 gal	White Sand 40/70	146,400.0 lbm	
	HVFR 1.5gpt	45,000 gal			
	HVFR 2.0 gpt	39,450 gal			
41	HCl 15%	500 gal	White Sand 100M	36,600.0 lbm	1.15 h
	Slick Water	118,506 gal	White Sand 40/70	146,400.0 lbm	
	HVFR 1.5gpt	45,000 gal			
	HVFR 2.0 gpt	39,450 gal			
42	HCl 15%	500 gal	White Sand 100M	36,600.0 lbm	1.15 h
	Slick Water	118,506 gal	White Sand 40/70	146,400.0 lbm	
	HVFR 1.5gpt	45,000 gal			



OCT 10 2019

MONTANA BOARD OF OIL & GAS CONSERVATION • BILLINGS

Totals By Stage					
Stage	Fluids	Clean Fluid Volume	Proppants	Proppant Mass	Pump Time
43	HVFR 2.0 gpt	39,450 gal			1.15 h
	HCl 15%	500 gal	White Sand 100M	36,600.0 lbm	
	Slick Water	118,506 gal	White Sand 40/70	146,400.0 lbm	
	HVFR 1.5gpt	45,000 gal			
44	HVFR 2.0 gpt	39,450 gal			1.15 h
	HCl 15%	500 gal	White Sand 100M	36,600.0 lbm	
	Slick Water	118,506 gal	White Sand 40/70	146,400.0 lbm	
	HVFR 1.5gpt	45,000 gal			
45	HVFR 2.0 gpt	39,450 gal			1.15 h
	HCl 15%	500 gal	White Sand 100M	36,600.0 lbm	
	Slick Water	118,506 gal	White Sand 40/70	146,400.0 lbm	
	HVFR 1.5gpt	45,000 gal			
46	HVFR 2.0 gpt	39,450 gal			1.15 h
	HCl 15%	500 gal	White Sand 100M	36,600.0 lbm	
	Slick Water	118,506 gal	White Sand 40/70	146,400.0 lbm	
	HVFR 1.5gpt	45,000 gal			
47	HVFR 2.0 gpt	39,450 gal			1.15 h
	HCl 15%	500 gal	White Sand 100M	36,600.0 lbm	
	Slick Water	118,506 gal	White Sand 40/70	146,400.0 lbm	
	HVFR 1.5gpt	45,000 gal			
48	HVFR 2.0 gpt	39,450 gal			1.15 h
	HCl 15%	500 gal	White Sand 100M	36,600.0 lbm	
	Slick Water	118,506 gal	White Sand 40/70	146,400.0 lbm	
	HVFR 1.5gpt	45,000 gal			
49	HVFR 2.0 gpt	39,450 gal			1.15 h
	HCl 15%	500 gal	White Sand 100M	36,600.0 lbm	
	Slick Water	118,506 gal	White Sand 40/70	146,400.0 lbm	
	HVFR 1.5gpt	45,000 gal			
50	HVFR 2.0 gpt	39,450 gal			1.15 h
	HCl 15%	500 gal	White Sand 100M	36,600.0 lbm	
	Slick Water	118,506 gal	White Sand 40/70	146,400.0 lbm	
	HVFR 1.5gpt	45,000 gal			
51	HVFR 2.0 gpt	39,450 gal			1.15 h
	HCl 15%	500 gal	White Sand 100M	36,600.0 lbm	
	Slick Water	118,506 gal	White Sand 40/70	146,400.0 lbm	
	HVFR 1.5gpt	45,000 gal			
52	HVFR 2.0 gpt	39,450 gal			1.15 h
	Slick Water	118,506 gal	White Sand 100M	36,600.0 lbm	
	HVFR 1.5gpt	45,000 gal	White Sand 40/70	146,400.0 lbm	

Job Totals				
Fluids	Clean Fluid Volume	Proppants	Proppant Mass	Pump Time
HCl 15%	26,000 gal	White Sand 100M	1,903,199.5 lbm	60.01 h
Slick Water	6,162,312 gal	White Sand 40/70	7,612,797.9 lbm	
HVFR 1.5gpt	2,340,000 gal			
HVFR 2.0 gpt	2,051,400 gal			



Load Out Summary

Loadouts		
Fluid/Material Type	Code	Loadout Quantity
Corrosion Inhibitor	A264A	130.0 gal
Non-Emulsifying Agent B526	B526	5,328.9 gal
Breaker Encapsulated	J475	5,276.9 lbm
Friction Reducer	J627	3,081.2 gal
Non SLB Liquid Additive J694	J694	7,612.8 gal
Iron Control/Reducing	L058	130.0 lbm
Biocide	M300	3,166.1 gal
White Sand 100M	S013-100	1,903,199.5 lbm
White Sand 40/70	S013-4070	7,612,797.9 lbm

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MONTANA BOARD OF OIL &
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Jones, Benjamin

From: Bob Sandbo <Bob.Sandbo@clr.com>
Sent: Tuesday, October 22, 2019 2:18 PM
To: Jones, Benjamin
Subject: [EXTERNAL] RE: [Ext] FW: Devin/Tolksdorf Chemical Disclosure

Ben,

The completion engineer said the pressure would be ~7200 psi. Let me know if you need anything else.

Thank you,

Bob Sandbo
Regulatory Compliance Supervisor

Continental Resources, Inc.
20 N. Broadway
OKC, OK 73102
P: 405-234-9020
F: 405-774-5297
C: 405-708-0691
robert.sandbo@clr.com [clr.com]
www.clr.com [clr.com]

Mailing
P.O. Box 268870
OKC, OK 73126

From: Jones, Benjamin <BJones@mt.gov>
Sent: Monday, October 21, 2019 3:21 PM
To: Bob Sandbo <Bob.Sandbo@clr.com>
Subject: {EXTERNAL}- RE: [Ext] FW: Devin/Tolksdorf Chemical Disclosure

External email – beware of links and attachments

I guess one thing I am still not seeing for the frac is the anticipated treating pressure. Could you please let me know what that is when you get a chance?

Thanks,

Ben

From: Bob Sandbo <Bob.Sandbo@clr.com>
Sent: Monday, October 21, 2019 11:25 AM
To: Jones, Benjamin <BJones@mt.gov>
Subject: [EXTERNAL] FW: [Ext] FW: Devin/Tolksdorf Chemical Disclosure

Ben,