

Form 3160-3
(June 2015)FORM APPROVED
OMB No. 1004-0137
Expires: January 31, 2018

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
APPLICATION FOR PERMIT TO DRILL OR REENTER

1a. Type of work: ☐ DRILL ☐ REENTER 1b. Type of Well: ☐ Oil Well ☐ Gas Well ☐ Other 1c. Type of Completion: ☐ Hydraulic Fracturing ☐ Single Zone ☐ Multiple Zone		5. Lease Serial No. 6. If Indian, Allottee or Tribe Name 7. If Unit or CA Agreement, Name and No. 8. Lease Name and Well No. [322271]
2. Name of Operator [372137]		9. API Well No. 30-025-48708
3a. Address	3b. Phone No. (include area code)	10. Field and Pool, or Exploratory [8146]
4. Location of Well (Report location clearly and in accordance with any State requirements. *) At surface At proposed prod. zone		11. Sec., T. R. M. or Blk. and Survey or Area
14. Distance in miles and direction from nearest town or post office*		12. County or Parish 13. State
15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any)	16. No of acres in lease	17. Spacing Unit dedicated to this well
18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft.	19. Proposed Depth	20. BLM/BIA Bond No. in file
21. Elevations (Show whether DF, KDB, RT, GL, etc.)	22. Approximate date work will start*	23. Estimated duration
24. Attachments		

The following, completed in accordance with the requirements of Onshore Oil and Gas Order No. 1, and the Hydraulic Fracturing rule per 43 CFR 3162.3-3 (as applicable)

- | | |
|---|---|
| 1. Well plat certified by a registered surveyor.
2. A Drilling Plan.
3. A Surface Use Plan (if the location is on National Forest System Lands, the SUPO must be filed with the appropriate Forest Service Office). | 4. Bond to cover the operations unless covered by an existing bond on file (see Item 20 above).
5. Operator certification.
6. Such other site specific information and/or plans as may be requested by the BLM. |
|---|---|

25. Signature	Name (Printed/Typed)	Date
Title		
Approved by (Signature)	Name (Printed/Typed)	Date
Title		
Office		

Application approval does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.
 Conditions of approval, if any, are attached.

Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

GCP Rec 04/14/2021

SL

(Continued on page 2)



Approval Date: 11/23/2020

 KZ
 04/26/2021

*(Instructions on page 2)

District I
1625 N. French Dr., Hobbs, NM 88240
Phone: (575) 393-6161 Fax: (575) 393-0720

District II
811 S. First St., Artesia, NM 88210
Phone: (575) 748-1283 Fax: (575) 748-9720

District III
1000 Rio Brazos Road, Aztec, NM 87410
Phone: (505) 334-6178 Fax: (505) 334-6170

District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505
Phone: (505) 476-3460 Fax: (505) 476-3462

State of New Mexico
Energy, Minerals & Natural Resources Department
OIL CONSERVATION DIVISION
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-102
Revised August 1, 2011
Submit one copy to appropriate
District Office
☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

¹ API Number 30-025-48708	² Pool Code 8146	³ Pool Name BUFFALO; BONE SPRING; SOUTHEAST
⁴ Property Code 322271	⁵ Property Name BUFFALO 12-1 2BS FED COM	⁶ Well Number 2H
⁷ OGRID No. 372137	⁸ Operator Name CHISHOLM ENERGY OPERATING, LLC	⁹ Elevation 3711.8

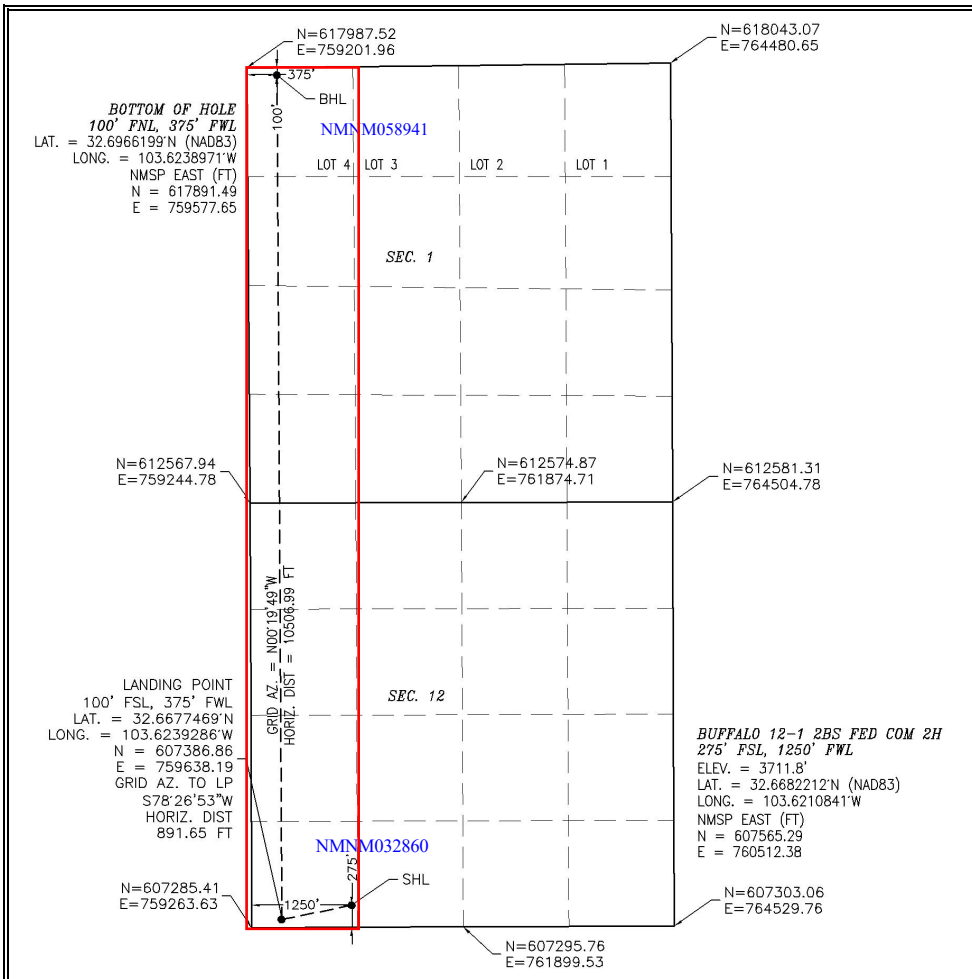
¹⁰ Surface Location

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
M	12	19 S	33 E		275	SOUTH	1250	WEST	LEA

¹¹ Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
4	1	19 S	33 E		100	NORTH	375	WEST	LEA
¹² Dedicated Acres 324.54	¹³ Joint or Infill	¹⁴ Consolidation Code	¹⁵ Order No.						

No allowable will be assigned to this completion until all interests have been consolidated or a non-standard unit has been approved by the division.

¹⁷ OPERATOR CERTIFICATION

I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom hole location or has a right to drill this well at this location pursuant to a contract with an owner of such a mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.

Jennifer Elrod 11/25/2019
Signature Date

JENNIFER ELROD

Printed Name

JELROD@CHISHOLMENERGY.COM

E-mail Address

¹⁸ SURVEYOR CERTIFICATION

I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief.

NOVEMBER 8, 2019

Date of Survey

Signature and Seal of Professional Surveyor

Certificate Number: KERNON J. JARAMILLO, PLS 12797

SURVEY NO. 5715D

Intent ☐ As Drilled ☐

API #		
Operator Name: CHISHOLM ENERGY OPERATING, LLC	Property Name: BUFFALO 12-1 2BS FED COM	Well Number 2H

Kick Off Point (KOP)

UL M	Section 12	Township 19S	Range 33E	Lot	Feet 275	From N/S SOUTH	Feet 1250	From E/W WEST	County LEA
Latitude 32.6682212					Longitude 103.6210841				NAD 83

First Take Point (FTP)

UL M	Section 12	Township 19S	Range 33E	Lot	Feet 100	From N/S SOUTH	Feet 375	From E/W WEST	County LEA
Latitude 32.6677469					Longitude 103.6239286				NAD 83

Last Take Point (LTP)

UL	Section 1	Township 19S	Range 33E	Lot 4	Feet 100	From N/S NORTH	Feet 375	From E/W WEST	County LEA
Latitude 32.6966199					Longitude 103.6238971				NAD 83

Is this well the defining well for the Horizontal Spacing Unit? ☐Is this well an infill well? ☐

If infill is yes please provide API if available, Operator Name and well number for Defining well for Horizontal Spacing Unit.

API #		
Operator Name:	Property Name:	Well Number

KZ 06/29/2018

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1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy, Minerals and Natural Resources Department
Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

Submit Original
to Appropriate
District Office

GAS CAPTURE PLAN

Date: 11/25/2019

☒ Original Operator & OGRID No.: CHISHOLM ENERGY OPERATING, LLC 372137
☐ Amended - Reason for Amendment: _____

This Gas Capture Plan outlines actions to be taken by the Operator to reduce well/production facility flaring/venting for new completion (new drill, recomple to new zone, re-frac) activity.

Note: Form C-129 must be submitted and approved prior to exceeding 60 days allowed by Rule (Subsection A of 19.15.18.12 NMAC).

Well(s)/Production Facility – Name of facility

The well(s) that will be located at the production facility are shown in the table below.

Well Name	API	Well Location (ULSTR)	Footages	Expected MCF/D	Flared or Vented	Comments
BUFFALO 12-1 2BS FED COM 2H	30-025- 30-025-48708	M-12-19S-33E	275 FSL 1250 FWL	1200	FLARED	FLARED ONLY WHEN NEEDED

Gathering System and Pipeline Notification

Well(s) will be connected to a production facility after flowback operations are complete, if gas transporter system is in place. The gas produced from production facility is dedicated to 3 Bear Delaware Operating-NM. LLC and will be connected to 3 Bear Delaware Operating-NM. LLC low/high pressure gathering system located in LEA County, New Mexico. It will require Flowlines to connect the facility to low/high pressure gathering system. Chisholm Energy Operating, LLC provides (periodically) to 3 Bear Delaware Operating-NM. LLC a drilling, completion and estimated first production date for wells that are scheduled to be drilled in the foreseeable future. In addition, Chisholm Energy Operating, LLC and 3 Bear Delaware Operating-NM. LLC have periodic conference calls to discuss changes to drilling and completion schedules. Gas from these wells will be processed at 3 Bear Delaware Operating-NM. LLC Libby Gas Processing Plant located in Sec. 26, Twn. 20S, Rng. 34e, LEA County, New Mexico. The actual flow of the gas will be based on compression operating parameters and gathering system pressures.

Flowback Strategy

After the fracture treatment/completion operations, well(s) will be produced to temporary production tanks and gas will be flared or vented. During flowback, the fluids and sand content will be monitored. When the produced fluids contain minimal sand, the wells will be turned to production facilities. Gas sales should start as soon as the wells start flowing through the production facilities, unless there are operational issues on 3 Bear Delaware Operating-NM. LLC system at that time. Based on current information, it is Chisholm Energy Operating, LLC belief the system can take this gas upon completion of the well(s).

Safety requirements during cleanout operations from the use of underbalanced air cleanout systems may necessitate that sand and non-pipeline quality gas be vented and/or flared rather than sold on a temporary basis.

Alternatives to Reduce Flaring

Below are alternatives considered from a conceptual standpoint to reduce the amount of gas flared.

- Power Generation – On lease
 - Only a portion of gas is consumed operating the generator, remainder of gas will be flared
- Compressed Natural Gas – On lease
 - Gas flared would be minimal, but might be uneconomical to operate when gas volume declines
- NGL Removal – On lease
 - Plants are expensive, residue gas is still flared, and uneconomical to operate when gas volume declines

Operator Name: CHISHOLM ENERGY OPERATING LLC**Well Name:** BUFFALO 12-1 2BS FED COM**Well Number:** 2H**Section 3 - Casing**

Casing ID	String Type	Hole Size	Csg Size	Condition	Standard	Tapered String	Top Set MD	Bottom Set MD	Top Set TVD	Bottom Set TVD	Top Set MSL	Bottom Set MSL	Calculated casing length MD	Grade	Weight	Joint Type	Collapse SF	Burst SF	Joint SF Type	Joint SF	Body SF Type	Body SF
1	SURFACE	17.5	13.375	NEW	API	N	0	1585	0	1585	3712	2127	1585	J-55	54.5	BUTT	1.6	3.86	DRY	10.42	DRY	9.78
2	INTERMEDIATE	12.25	9.625	NEW	API	N	0	5300	0	5300	3728	-1588	5300	J-55	40	LT&C	1.83	1.41	DRY	2.45	DRY	2.97
3	PRODUCTION	8.75	5.5	NEW	API	N	0	19993	0	9459	3728	-5747	19993	P-110	20	BUTT	2.37	2.71	DRY	3.53	DRY	3.39

Casing Attachments**Casing ID:** 1 **String Type:** SURFACE**Inspection Document:****Spec Document:****Tapered String Spec:****Casing Design Assumptions and Worksheet(s):**

Casing_Calculator___Buffalo_12_1_Fed_Com_2BS_2H_20191204095137.xlsx

Operator Name: CHISHOLM ENERGY OPERATING LLC**Well Name:** BUFFALO 12-1 2BS FED COM**Well Number:** 2H**Casing Attachments****Casing ID:** 2 **String Type:** INTERMEDIATE**Inspection Document:****Spec Document:****Tapered String Spec:****Casing Design Assumptions and Worksheet(s):**

Casing_Calculator___Buffalo_12_1_Fed_Com_2BS_2H_20191204095218.xlsx

Casing ID: 3 **String Type:** PRODUCTION**Inspection Document:****Spec Document:****Tapered String Spec:****Casing Design Assumptions and Worksheet(s):**

Casing_Calculator___Buffalo_12_1_Fed_Com_2BS_2H_20191204095302.xlsx

Section 4 - Cement

String Type	Lead/Tail	Stage Tool Depth	Top MD	Bottom MD	Quantity(sx)	Yield	Density	Cu Ft	Excess%	Cement type	Additives
SURFACE	Lead		0	1150	795	2	12.8	1598	100	Class C	Sodium Metasilicate, Defoamer, KCL
SURFACE	Tail		1150	1585	485	1.33	14.8	645	100	Class C	none
INTERMEDIATE	Lead		0	4800	1490	2.37	11.5	3531	200	Class C	Sodium Metasilicate, Defoamer, KCL, Kol-Seal, Cellophane Flakes, ROF SealCheck
INTERMEDIATE	Tail		4800	5300	380	1.08	14.8	410	200	Class C	Fluid Loss, Dispercent, Retarder

Operator Name: CHISHOLM ENERGY OPERATING LLC**Well Name:** BUFFALO 12-1 2BS FED COM**Well Number:** 2H

String Type	Lead/Tail	Stage Tool Depth	Top MD	Bottom MD	Quantity(sx)	Yield	Density	Cu Ft	Excess%	Cement type	Additives
PRODUCTION	Lead		4300	9000	555	2.62	11.3	1454	10	Class H	Bentonite, Compressive Strength Enhancer, Silica Fume Alternative, Fluid Loss, Defoamer, Sodium Metasilicate, Retarder
PRODUCTION	Tail		9000	1999 3	1475	1.82	13.2	2685	10	Class H	Fluid Loss, Suspension Agent, Retarder, Defoamer, Dispersant

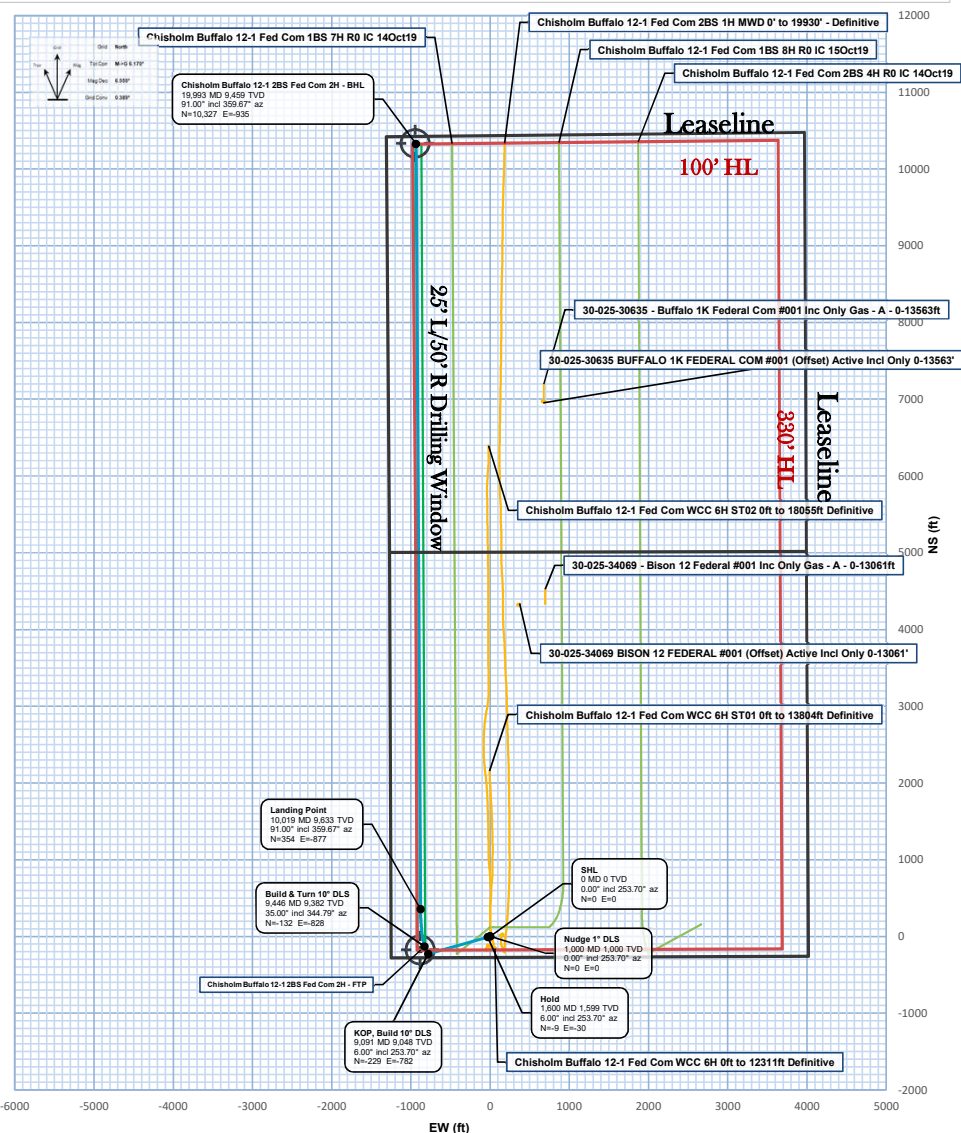
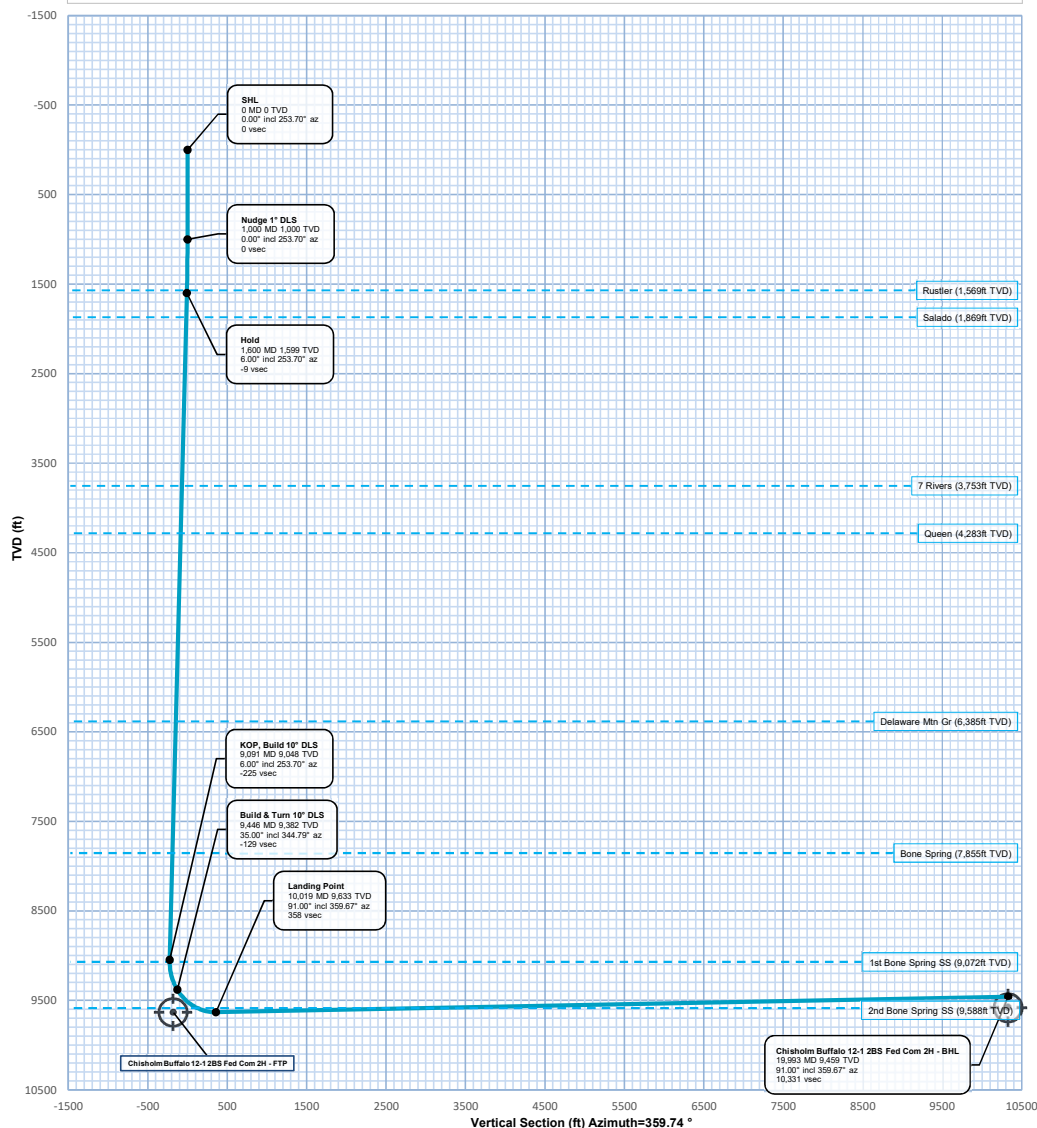
Section 5 - Circulating Medium

Mud System Type: Closed**Will an air or gas system be Used?** NO**Description of the equipment for the circulating system in accordance with Onshore Order #2:****Diagram of the equipment for the circulating system in accordance with Onshore Order #2:****Describe what will be on location to control well or mitigate other conditions:** Sufficient mud materials to maintain mud properties and meet minimum lost circulation and weight increase requirements will be kept on location at all times.**Describe the mud monitoring system utilized:** Pason PVT system will be in place throughout the well as well as visual checks

Circulating Medium Table

Top Depth	Bottom Depth	Mud Type	Min Weight (lbs/gal)	Max Weight (lbs/gal)	Density (lbs/cu ft)	Gel Strength (lbs/100 sqft)	PH	Viscosity (CP)	Salinity (ppm)	Filtration (cc)	Additional Characteristics
0	1585	SPUD MUD	8.5	9.2							38-40 VIS 8-10 PV 8-10 YP
5300	9459	OIL-BASED MUD	9.3	9.8							15-20 PV 8-12 YP
1585	5300	SALT SATURATED	9.8	10.2							28-32 VIS 1-3 PV 1-3 YP

BOREHOLE				WELL					FIELD				STRUCTURE							
Buffalo 12-1 2BS Fed Com 2H				Buffalo 12-1 2BS Fed Com 2H					NM Lea County (NAD 83)				Chisholm Buffalo 12-1 2BS Fed Com 2H							
Critical Point	MD (ft)	Incl (°)	Azim (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (deg/100ft)	GRAVITY & MAGNETICS PARAMETERS				SURFACE LOCATION		NAD83 New Mexico State Plane, Eastern Zone, US Feet					
SHL	0.00	0.00	253.70	0.00	0.00	0.00	0.00		Model	HDGM 2019 GARM	Dip	60.593°	Date	14-Oct-19	Lat	32°40'5.60"N	Northing	607,565.29 ftUS	Grid Conv	0.384°
Nudge 1" DLS	1,000.00	0.00	253.70	1,000.00	0.00	0.00	0.00	0.00												
13.375 in Casing	1,482.20	4.82	253.70	1,481.63	-5.60	-5.69	-19.46	1.00												
Hold	1,600.00	6.00	253.70	1,598.90	-8.67	-8.81	-30.13	1.00												
KOP, Build 10" DLS	9,090.58	6.00	253.70	9,048.45	-225.02	-228.57	-781.63	0.00												
Build & Turn 10" DLS	9,446.17	35.00	344.79	9,381.67	-128.51	-132.26	-827.71	10.00												
9.624999999999999 in Casing	9,457.60	36.09	345.38	9,390.98	-122.08	-125.84	-829.42	10.00												
Landing Point	10,019.35	91.00	359.67	9,632.73	358.14	354.16	-876.66	10.00												
Chisholm Buffalo 12-1 2BS Fed Com 2H - BHL	19,993.47	91.00	359.67	9,458.66	10,330.73	10,326.59	-934.77	0.00												
MISCELLANEOUS																				
Slot										TVD Reference RKB (3743.800 ft above MSL)										
Plan Chisholm Buffalo 12-1 2BS Fed Com 2H R0 IC 26Nov19										Seabed / Ground Elevation 3711.800 ft above MSL										



Comments	MD (N)	Incl (T)	Azim (T)	TVD (N)	TVOSS (N)	YSEC (N)	NS (N)	EW (N)	Northing (NAD83)	Eastings (NAD83)	Latitude (T)	Longitude (T)	OLS (Feet)	BR (Feet)	TR (Feet)
	15,708.00	91.00	258.67	9,463.78	5,719.99	10,037.31	10,031.17	-455.06	617,588.08	759,579.36	32.70	-103.62	0.00	0.00	0.00
	15,800.00	91.00	259.67	9,462.02	5,719.23	10,137.29	10,133.16	-453.84	617,699.06	759,576.76	32.70	-103.62	0.00	0.00	0.00
Chickadee Buffalo 12-1 28S Pad	15,900.00	91.00	259.67	9,458.29	5,714.46	10,237.27	10,233.14	-454.22	617,799.04	759,576.16	32.70	-103.62	0.00	0.00	0.00
	15,993.47	91.00	259.67	9,458.66	5,714.86	10,330.73	10,326.59	-454.77	617,891.49	759,577.65	32.70	-103.62	0.00	0.00	0.00
Survey Type: Def Plan															
Survey Error Model: Survey Program: ISCWSA0 3 - D 95 % Confidence 2.7935 sigma															
Description	Part	MD From (N)	MD To (N)	EOU From (N)	Hole Size (N)	Casing Diameter (Inch)	Expected Max Inclination Degree	Survey Tool Type	Borehole / Survey						
	1	0.000	1,000.000	1100.000	17.500			NAL MWD 1.0 DEG	Buffalo 12-1 28S Field Core 2H1						
	1	1,000.000	9,090.580	1100.000	12.250			NAL MWD 1.0 DEG	Buffalo 12-1 28S Field Core 2H1						
	1	9,090.580	10,019.350	1100.000	8.750			NAL MWD 1.0 DEG	Buffalo 12-1 28S Field Core 2H1						
	1	10,019.350	15,993.470	1100.000	8.500			NAL MWD 1.0 DEG	Buffalo 12-1 28S Field Core 2H1						

Schlumberger

Chisholm Buffalo 12-1 2BS Fed Com 2H RD IC 26Nov19 Proposal Geodetic

Report

Def Plan

Report Date: November 26, 2019 - 10:31 PM (UTC -0)
Client: Chisholm
Field: NM Lea County (NAD 83)
Structure / Slot: Chisholm Buffalo 12-1 2BS Fed Com 2H
Well: Buffalo 12-1 2BS Fed Com 2H
Borehole: Buffalo 12-1 2BS Fed Com 2H
UWI / AHP: Unknown / Unknown
Survey Name: Chisholm Buffalo 12-1 2BS Fed Com 2H RD IC 26Nov19
Survey Date: November 26, 2019
Test / AND / TOI / ERD Ratio: 98.777 / 113407 TOI / 6.389 / 1.192
Coordinate Reference System: NAD83 New Mexico State Plane, Eastern Zone, US Feet
Location Lat / Long: 32°40'5.9638"N, 103°37'15.9027"W
Location Grid N/E W/E: 1 N 607665.290 RUS, E 760521.380 RUS
Grid Scale Factor: 0.9998641
Version / Patch: 2019.3.0.2

Survey / DLS Computation: Minimum Curvature / Lubinski
Vertical Section Assum: 359-740 (GSD North)
Vertical Section Origin: 0.000 R, 0.000 R
TVD Reference Datum: RNN
TVD Reference Elevation: 3743.801 above MSL
Bench / Ground Elevation: 3711.801 above MSL
Magnetic Declination: 5.570°
Total Gravity Field Strength: 966.1107mg (0.8005 Gauss)
Gravity Model: GJARM
Total Magnetic Field Strength: 4845.319 nT
Magnetic Dip Angle: 60.800°
Declination Date: October 14, 2019
Magnetic Declination Model: HCSM2019
North Reference: Grid North
Grid Convergence Used: 0.3840°
Total Com Mag North-Grid: 6.1315°
Local Coord Reference To: Well Head

Comments

MD	Incl	Azim	TVD	TVSS	VSEC	AHD	NS	EW	DeltaMD	DeltaTVD	DLS	BR	TR	GTF	MTF	TF	Northmg	Eastmg	Latitude	Longitude	Latitude	Longitude	Closure	Closure Azimuth	Directional Difficulty Index	Tortuosity
0.00	0.00	253.70	0.00	-3.743.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	HS	253.70	253.7M	707.565.29	706.512.38	40°5.596377"N	171°5.902725"W	32.67	-103.62	0.00	0.00	0.00	0.00
100.00	0.00	253.70	100.00	-3.643.80	0.00	0.00	0.00	0.00	100.00	100.00	0.00	0.00	0.00	HS	253.70	253.7M	707.565.29	706.512.38	40°5.596377"N	171°5.902725"W	32.67	-103.62	0.00	0.00	0.00	0.00
200.00	0.00	253.70	200.00	-3.543.80	0.00	0.00	0.00	0.00	100.00	100.00	0.00	0.00	0.00	HS	253.70	253.7M	707.565.29	706.512.38	40°5.596377"N	171°5.902725"W	32.67	-103.62	0.00	0.00	0.00	0.00
300.00	0.00	253.70	300.00	-3.443.80	0.00	0.00	0.00	0.00	100.00	100.00	0.00	0.00	0.00	HS	253.70	253.7M	707.565.29	706.512.38	40°5.596377"N	171°5.902725"W	32.67	-103.62	0.00	0.00	0.00	0.00
400.00	0.00	253.70	400.00	-3.343.80	0.00	0.00	0.00	0.00	100.00	100.00	0.00	0.00	0.00	HS	253.70	253.7M	707.565.29	706.512.38	40°5.596377"N	171°5.902725"W	32.67	-103.62	0.00	0.00	0.00	0.00
500.00	0.00	253.70	500.00	-3.243.80	0.00	0.00	0.00	0.00	100.00	100.00	0.00	0.00	0.00	HS	253.70	253.7M	707.565.29	706.512.38	40°5.596377"N	171°5.902725"W	32.67	-103.62	0.00	0.00	0.00	0.00
600.00	0.00	253.70	600.00	-3.143.80	0.00	0.00	0.00	0.00	100.00	100.00	0.00	0.00	0.00	HS	253.70	253.7M	707.565.29	706.512.38	40°5.596377"N	171°5.902725"W	32.67	-103.62	0.00	0.00	0.00	0.00
700.00	0.00	253.70	700.00	-3.043.80	0.00	0.00	0.00	0.00	100.00	100.00	0.00	0.00	0.00	HS	253.70	253.7M	707.565.29	706.512.38	40°5.596377"N	171°5.902725"W	32.67	-103.62	0.00	0.00	0.00	0.00
800.00	0.00	253.70	800.00	-2.943.80	0.00	0.00	0.00	0.00	100.00	100.00	0.00	0.00	0.00	HS	253.70	253.7M	707.565.29	706.512.38	40°5.596377"N	171°5.902725"W	32.67	-103.62	0.00	0.00	0.00	0.00
900.00	0.00	253.70	900.00	-2.843.80	0.00	0.00	0.00	0.00	100.00	100.00	0.00	0.00	0.00	HS	253.70	253.7M	707.565.29	706.512.38	40°5.596377"N	171°5.902725"W	32.67	-103.62	0.00	0.00	0.00	0.00
1000.00	0.00	253.70	1000.00	-2.743.80	0.00	0.00	0.00	0.00	100.00	100.00	0.00	0.00	0.00	HS	253.70	253.7M	707.565.29	706.512.38	40°5.596377"N	171°5.902725"W	32.67	-103.62	0.00	0.00	0.00	0.00
1.00	253.70	1.099.98	-2.643.81	-0.24	0.87	-0.24	-0.84	100.00	99.99	1.00	0.00	0.00	1.00	HS	253.70	253.7M	707.566.05	706.511.54	40°5.594899"N	171°5.912547"W	32.67	-103.62	0.87	253.70	0.00	1.00
1.10	253.70	1.199.98	-2.543.81	-0.96	3.39	-0.96	-3.39	100.00	99.99	1.00	0.00	0.00	1.00	HS	253.70	253.7M	707.564.31	706.508.03	40°5.586907"N	171°5.941990"W	32.67	-103.62	3.39	253.70	0.00	1.00
1.20	253.70	1.299.98	-2.443.94	-2.17	7.85	-2.17	-7.54	100.00	99.90	1.00	0.00	0.00	1.00	HS	253.70	253.7M	707.563.09	706.504.84	40°5.579072"N	171°5.910589"W	32.67	-103.62	7.85	253.70	1.37	3.00
1.30	253.70	1.399.98	-2.344.12	-3.86	13.46	-3.86	-13.40	100.00	99.81	1.00	0.00	0.00	1.00	HS	253.70	253.7M	707.561.37	706.498.98	40°5.568589"N	171°5.893747"W	32.67	-103.62	13.96	253.70	1.75	4.00
1.40	253.70	1.493.45	-2.244.27	-5.69	20.28	-5.69	-20.14	100.00	99.72	1.00	0.00	0.00	1.00	HS	253.70	253.7M	707.559.60	706.492.92	40°5.541355"N	171°6.130853"W	32.67	-103.62	20.28	253.70	1.99	4.82
1.50	253.70	1.499.37	-2.244.43	-6.07	21.89	-6.07	-21.80	100.00	99.73	1.00	0.00	0.00	1.00	HS	253.70	253.7M	707.559.17	706.491.45	40°5.537221"N	171°6.147995"W	32.67	-103.62	21.80	253.70	2.04	5.00
1.60	253.70	1.598.74	-2.175.97	-7.92	28.19	-7.94	-27.17	69.74	100.00	1.00	0.00	0.00	1.00	HS	253.70	253.7M	707.557.25	706.485.22	40°5.516582"N	171°6.221129"W	32.67	-103.62	28.20	253.70	2.21	5.70
1.70	253.70	1.698.90	-2.144.90	-8.67	31.39	-8.67	-30.10	100.00	99.45	0.00	0.00	0.00	1.00	HS	253.70	253.7M	707.556.48	706.482.26	40°5.511215"N	171°6.258518"W	32.67	-103.62	31.39	253.70	2.28	6.00
1.80	253.70	1.696.36	-2.045.44	-11.51	41.84	-11.74	-40.16	100.00	99.45	0.00	0.00	0.00	1.00	HS	253.70	253.7M	707.553.55	706.472.22	40°5.482894"N	171°6.373405"W	32.67	-103.62	41.84	253.70	2.40	6.00
1.90	253.70	1.797.81	-1.944.99	-14.44	48.89	-14.68	-46.19	100.00	99.45	0.00	0.00	0.00	1.00	HS	253.70	253.7M	707.550.61	706.462.19	40°5.454483"N	171°6.480989"W	32.67	-103.62	48.89	253.70	2.52	6.00
2.00	253.70	1.868.80	-1.875.00	-16.51	59.75	-16.77	-57.35	71.38	70.99	0.00	0.00	0.00	1.00	HS	253.70	253.7M	707.548.52	706.455.03	40°5.434428"N	171°6.574932"W	32.67	-103.62	59.75	253.70	2.56	6.00
2.10	253.70	1.897.26	-1.846.54	-17.34	62.75	-17.61	-60.22	28.62	28.46	0.00	0.00	0.00	1.00	HS	253.70	253.7M	707.547.68	706.452.16	40°5.426131"N	171°6.606898"W	32.67	-103.62	62.75	253.70	2.58	6.00
2.20	253.70	1.996.71	-1.747.19	-20.54	70.26	-20.54	-70.26	20.54	70.26	0.00	0.00	0.00	1.00	HS	253.70	253.7M	707.544.75	706.442.13	40°5.397770"N	171°6.726137"W	32.67	-103.62	70.26	253.70	2.64	6.00
2.30	253.70	2.096.16	-1.647.64	-23.11	83.65	-23.48	-80.29	100.00	99.45	0.00	0.00	0.00	1.00	HS	253.70	253.7M	707.541.81	706.432.09	40°5.369408"N	171°6.843761"W	32.67	-103.62	83.65	253.70	2.70	6.00
2.40	253.70	2.195.62	-1.548.18	-26.00	94.10	-26.41	-90.32	100.00	99.45	0.00	0.00	0.00	1.00	HS	253.70	253.7M	707.538.88	706.422.06	40°5.341047"N	171°6.961390"W	32.67	-103.62	94.10	253.70	2.76	6.00
2.50	253.70	2.295.07	-1.448.73	-28.95	104.56	-29.35	-100.35	100.00	99.45	0.00	0.00	0.00	1.00	HS	253.70	253.7M	707.535.95	706.412.03	40°5.312686"N	171°7.078939"W	32.67	-103.62	104.56	253.70	2.82	6.00
2.60	253.70	2.394.52	-1.349.28	-31.78	115.01	-32.28	-110.39	100.00	99.45	0.00	0.00	0.00	1.00	HS	253.70	253.7M	707.533.01	706.402.00	40°5.284324"N	171°7.196528"W	32.67	-103.62	115.01	253.70	2.84	6.00
2.70	253.70	2.493.97	-1.249.83	-34.67	125.46	-35.21	-120.42	100.00	99.45	0.00	0.00	0.00	1.00	HS	253.70	253.7M	707.530.08	706.391.96	40°5.255962"N	171°7.314117"W	32.67	-103.62	125.46	253.70	2.88	6.00
2.80	253.70	2.593.43	-1.150.37	-37.56	135.92	-38.15	-130.42	100.00	99.45	0.00	0.00	0.00	1.00	HS	253.70	253.7M	707.527.14	706.381.93	40°5.227601"N	171°7.431708"W	32.67	-103.62	135.92	253.70	2.93	6.00
2.90	253.70	2.692.88	-1.050.92	-40.44	146.37	-41.08	-140.49	100.00	99.45	0.00	0.00	0.00	1.00	HS	253.70	253.7M	707.524.21	706.371.90	40°5.199239"N	171°7.549295"W	32.67	-103.62	146.37	253.70	2.94	6.00
3.00	253.70	2.792.33	-95.17	-43.33	156.82	44.01	-150.52	100.00	99.45	0.00	0.00	0.00	1.00	HS	253.70	253.7M	707.521.28	706.361.87	40°5.170871"N	171°7.666884"W	32.67	-103.62	156.82	253.70	2.97	6.00
3.10	253.70	2.891.78	-85.02	-46.22	167.27	45.03	-160.43	100.00	99.45	0.00	0.00	0.00	1.00	HS	253.70	253.7M	707.519.34	706.351.84	40°5.142516"N	171°7.784477"W	32.67	-103.62	167.27	253.70	3.00	6.00
3.20	253.70	2.991.23	-75.52	-49.11	177.73	45.88	-170.58	100.00	99.45	0.00	0.00	0.00	1.00	HS	253.70	253.7M	707.515.41	706.341.80	40°5.114154"N	171°7.902061"W	32.67	-103.62	177.73	253.70	3.03	6.00
3.30	253.70	3.090.69	-65.11	-52.00	188.18	46.82	-180.62	100.00	99.45	0.00	0.00	0.00	1.00	HS	253.70	253.7M	707.512.48	706.331.77	40°5.085792"N	171°8.019655"W	32.67	-103.62	188.18	253.70	3.05	6.00
3.40	253.70	3.190.14	-55.13	-54.85	198.63	47.85	-191.07	100.00	99.45	0.00	0.00	0.00	1.00	HS	253.70	253.7M	707.509.54	706.321.74	40°5.057439"N	171°8.137228"W	32.67	-103.62	198.63	253.70	3.08	6.00
3.50	253.70	3.289.59	-45.21	-57.77	209.09	48.88	-200.68	100.00	99.45	0.00	0.00	0.00	1.00	HS	253.70	253.7M	707.506.61	706.312.71	40°5.029086"N	171°8.254801"W	32.67	-103.62	209.09	253.70	3.10	6.00
3.60	253.70	3.389.04	-35.16	-60.62	219.54	49.89	-210.45	100.00	99.45	0.00	0.00	0.00	1.00	HS	253.70	253.7M	707.503.68	706.302.68	40°4.999707"N	171°8.372416"W						

Comments	MD	Incl	Azim	TVD	TVSS	VSEC	AHD	NS	EW	DeltaMD	DeltaTVD	OLS	BR	TR	GTF	MTF	TF	Northing	Easting	Latitude	Longitude	Latitude	Longitude	Closure	Closure	Directional	Tortuosity	ERD
KOP, Build 10' DLS	9.0000	6.00	253.70	8.95837	5.21457	-222.40	804.90	-225.91	-772.55	100.00	99.45	0.00	99.50	0.00	HS	253.70	253.70	759.738	-407.412359N	1726.957359W	32.67	-103.62	804.90	253.70	3.69	6.00	0.09	
	9.0000	5.99	253.69	8.94845	5.20436	-222.40	804.91	-225.91	-772.55	100.00	99.45	0.00	99.50	0.00	HS	253.70	253.70	759.738	-407.386700N	1726.957359W	32.67	-103.62	804.90	253.70	3.69	6.00	0.09	
	9.1000	5.92	262.76	9.05782	5.31402	-225.21	815.84	-226.76	-782.59	100.00	94.02	9.37	10.00	-1.08	96.06	90.559	276.16	276.160	759.72837	-407.384790N	1725.07504W	32.67	-103.62	815.34	253.71	3.75	6.34	0.09
1st Bone Spring SS	9.1146	6.07	276.15	9.07180	5.32800	-225.22	816.80	-226.78	-784.04	100.00	94.06	13.98	10.00	-0.87	96.46	77.212	322.85	322.859	759.72837	-407.384790N	1725.09205W	32.67	-103.62	816.74	253.73	3.84	6.95	0.09
	9.1166	6.07	272.85	9.15679	5.41239	-225.22	816.81	-226.78	-784.04	100.00	94.06	13.98	10.00	-0.87	96.46	77.212	322.85	322.859	759.72837	-407.384790N	1725.09205W	32.67	-103.62	816.74	253.73	3.84	6.95	0.09
	9.3000	20.47	337.44	9.25277	5.50837	-193.34	856.99	-197.00	-806.66	100.00	95.98	10.00	9.21	14.60	16.99	344.16	16.99	707.36830	-759.70575	-407.7360688N	1725.35415W	32.67	-103.62	838.37	256.28	4.37	26.94	0.09
	9.4000	30.47	344.16	9.34285	5.59995	-152.53	856.99	-156.26	-820.94	100.00	90.08	10.00	9.70	5.71	11.73	344.79	11.73	707.40736	-759.69157	-407.104711N	1725.51687W	32.67	-103.62	838.58	259.22	4.52	36.94	0.10
Build & Turn 10' DLS	9.4000	30.47	344.16	9.34285	5.59995	-152.53	856.99	-156.26	-820.94	100.00	90.08	10.00	9.70	5.71	11.73	344.79	11.73	707.40736	-759.69157	-407.104711N	1725.51687W	32.67	-103.62	838.58	259.22	4.52	36.94	0.10
9.624999999999999 in casing	9.4500	40.09	345.38	9.39038	5.64718	-122.08	838.51	-125.84	-829.42	114.30	9.30	10.00	9.54	5.18	17.278	347.37	17.278	707.43945	-759.68239	-407.4406288N	1725.61484W	32.67	-103.62	838.91	261.37	4.60	42.70	0.10
	9.4500	40.16	347.33	9.42433	5.68053	-96.02	837.92	-100.41	-835.57	114.40	33.35	10.00	9.59	4.60	15.748	340.83	15.748	707.46489	-759.67684	-407.4564028N	1725.61480W	32.67	-103.62	841.98	263.15	4.66	46.94	0.10
	9.4900	49.84	360.87	9.48436	5.78116	-27.13	840.83	-27.13	-840.83	100.00	96.03	13.29	9.61	3.51	13.29	360.87	13.29	759.66167	-407.453454N	1725.63341W	32.67	-103.62	846.51	267.91	4.77	66.94	0.11	
	9.7000	59.61	353.51	9.56265	5.80085	53.64	1.11007	49.74	-859.71	100.00	57.69	10.00	9.77	2.64	11.78	353.23	11.78	707.61503	-759.65270	-407.4455137N	1725.955445W	32.67	-103.62	861.15	273.31	4.88	66.94	0.12
	9.7784	67.73	367.67	9.65136	5.84440	123.73	1.18047	119.80	-866.58	78.74	35.15	10.00	9.81	1.19	10.938	356.66	10.938	707.68509	-759.64583	-407.4391475N	1726.03032W	32.67	-103.62	874.82	277.87	4.95	74.82	0.12
2nd Bone Spring SS	9.8000	69.42	355.66	9.69663	5.85163	143.61	1.20023	139.50	-868.15	21.26	7.83	10.00	9.83	2.02	10.775	357.56	10.775	707.70478	-759.64426	-407.433411N	1726.04713W	32.67	-103.62	879.28	279.13	4.97	75.94	0.13
	9.9000	79.25	359.36	9.62260	5.87880	239.46	1.29639	235.49	-873.80	100.00	26.97	10.00	9.83	1.89	10.268	359.33	10.268	707.80078	-759.63816	-407.984314N	1726.10659W	32.67	-103.62	904.98	285.08	5.06	86.94	0.13
	10.0135	91.00	359.33	9.63275	5.88833	358.14	1.41510	354.16	-876.49	100.00	10.14	10.00	9.84	1.77	10.078	359.67	10.078	707.91944	-759.63576	-409.158627N	1726.12085W	32.67	-103.62	938.26	290.91	5.15	95.94	0.14
	10.1000	91.00	359.67	9.63273	5.88833	358.14	1.41510	354.16	-876.49	100.00	10.14	10.00	9.84	1.77	10.078	359.67	10.078	707.91944	-759.63576	-409.158627N	1726.12085W	32.67	-103.62	938.26	290.91	5.15	95.94	0.14
	10.1000	91.00	359.67	9.63132	5.88752	438.78	1.49574	434.80	-877.13	80.65	-1.41	0.00	0.00	0.00	0.00	359.67	HS	608.00007	759.63529	-409.95656N	1726.12904W	32.67	-103.62	977.98	296.37	5.19	98.88	0.16
	10.1000	91.00	359.67	9.62958	5.88578	538.76	1.59573	534.78	-877.71	100.00	-1.75	0.00	0.00	0.00	0.00	359.67	HS	608.10005	759.63470	-407.945800N	1726.12804W	32.67	-103.62	1007.80	301.35	5.22	98.88	0.17
	10.1000	91.00	359.67	9.62703	5.88433	638.71	1.69571	634.73	-878.29	100.00	-1.75	0.00	0.00	0.00	0.00	359.67	HS	608.20003	759.63412	-407.93652N	1726.12704W	32.67	-103.62	1038.66	305.86	5.28	98.88	0.18
	10.4000	91.00	359.67	9.62609	5.88229	738.73	1.79570	734.75	-878.87	100.00	-1.75	0.00	0.00	0.00	0.00	359.67	HS	608.30001	759.63354	-407.924388N	1726.12603W	32.67	-103.62	1145.55	309.90	5.28	98.88	0.19
	10.5000	91.00	359.67	9.62434	5.88054	838.71	1.89568	834.73	-879.46	100.00	-1.75	0.00	0.00	0.00	0.00	359.67	HS	608.39999	759.63296	-407.9133681N	1726.12503W	32.67	-103.62	1212.53	313.51	5.31	98.88	0.20
	10.6000	91.00	359.67	9.62250	5.87880	938.70	1.99567	934.72	-880.04	100.00	-1.75	0.00	0.00	0.00	0.00	359.67	HS	608.49997	759.63238	-407.902751N	1726.12403W	32.67	-103.62	1289.81	316.73	5.34	98.88	0.21
	10.7000	91.00	359.67	9.62085	5.87705	1.03868	2.09565	1.03470	-880.62	100.00	-1.75	0.00	0.00	0.00	0.00	359.67	HS	608.59995	759.63179	-407.892289N	1726.12303W	32.67	-103.62	1358.67	319.60	5.36	98.88	0.22
	10.8000	91.00	359.67	9.61910	5.87530	1.13867	2.19564	1.13868	-881.20	100.00	-1.75	0.00	0.00	0.00	0.00	359.67	HS	608.69993	759.63121	-407.881562N	1726.12203W	32.67	-103.62	1436.67	322.17	5.38	98.88	0.23
	10.9000	91.00	359.67	9.61736	5.87355	1.23866	2.29562	1.23867	-881.79	100.00	-1.75	0.00	0.00	0.00	0.00	359.67	HS	608.79991	759.63063	-407.870765N	1726.12103W	32.67	-103.62	1512.72	324.47	5.41	98.88	0.24
	11.0000	91.00	359.67	9.61561	5.87181	1.33864	2.39561	1.33465	-882.37	100.00	-1.75	0.00	0.00	0.00	0.00	359.67	HS	608.89989	759.62995	-407.8600149N	1726.12004W	32.67	-103.62	1599.96	326.53	5.43	98.88	0.25
	11.1000	91.00	359.67	9.61387	5.87007	1.43863	2.49559	1.43864	-882.96	100.00	-1.75	0.00	0.00	0.00	0.00	359.67	HS	608.99987	759.62937	-407.8492648N	1726.11902W	32.67	-103.62	1684.57	328.69	5.45	98.88	0.26
	11.2000	91.00	359.67	9.61212	5.86832	1.53861	2.59557	1.53611	-883.53	100.00	-1.75	0.00	0.00	0.00	0.00	359.67	HS	608.99985	759.62879	-407.8385178N	1726.11803W	32.67	-103.62	1770.78	330.87	5.47	98.88	0.27
	11.3000	91.00	359.67	9.61038	5.86658	1.63859	2.69556	1.63460	-884.12	100.00	-1.75	0.00	0.00	0.00	0.00	359.67	HS	608.99182	759.62820	-407.828029N	1726.11701W	32.67	-103.62	1858.38	331.59	5.50	98.88	0.28
	11.4000	91.00	359.67	9.60863	5.86484	1.73857	2.79554	1.73458	-884.71	100.00	-1.75	0.00	0.00	0.00	0.00	359.67	HS	608.99180	759.62762	-407.8173237N	1726.11601W	32.67	-103.62	1946.97	332.31	5.52	98.88	0.29
	11.5000	91.00	359.67	9.60689	5.86310	1.83855	2.89553	1.83456	-885.29	100.00	-1.75	0.00	0.00	0.00	0.00	359.67	HS	608.99578	759.62704	-407.8066167N	1726.11500W	32.67	-103.62	2036.99	334.24	5.53	98.88	0.30
	11.6000	91.00	359.67	9.60514	5.86134	1.93855	2.99551	1.93455	-885.87	100.00	-1.75	0.00	0.00	0.00	0.00	359.67	HS	608.99176	759.62646	-407.7959023N	1726.11400W	32.67	-103.62	2127.73	335.40	5.55	98.88	0.31
	11.7000	91.00	359.67	9.60340	5.85959	2.03854	3.09549	2.03455	-886.45	100.00	-1.75	0.00	0.00	0.00	0.00	359.67	HS	608.99574	759.62588	-407.7852032N	1726.11300W	32.67	-103.62	2218.57	336.56	5.56	98.88	0.32
	11.8000	91.00	359.67	9.60165	5.85785	2.13852	3.19548	2.13453	-887.03	100.00	-1.75	0.00	0.00	0.00	0.00	359.67	HS	608.99672	759.62530	-407.774459N	1726.11200W	32.67	-103.62	2311.49	337.43	5.59	98.88	0.33
	11.9000	91.00	359.67	9.59991	5.85611	2.23850	3.29547	2.23450	-887.61	100.00	-1.75	0.00	0.00	0.00	0.00	359.67	HS	608.99770	759.62472	-407.763709N	1726.11099W	32.67	-103.62	2404.33	338.34	5.60	98.88	0.34
	12.0000	91.00	359.67	9.59816	5.85436	2.33849	3.39546	2.33451	-888.19	100.00	-1.75	0.00	0.00	0.00	0.00	359.67	HS	608.99968	759.62414	-407.752959N	1726.10999W	32.67	-103.62	2497.14	339.25	5.61	98.88	0.35
	12.1000	91.00	359.67	9.59642	5.85262	2.43847	3.49544	2.43446	-888.78	100.00	-1.75	0.00	0.00	0.00	0.00	359.67	HS	608.9996										

Comments	MD (ft)	Incl (°)	Azim (°)	TVD (ft)	TVDSS (ft)	VSEC (ft)	AHD (ft)	NS (ft)	EW (ft)	DeltaMD (ft)	DeltaTVD (ft)	DLS (°/100ft)	BR (°/100ft)	TR (°/100ft)	GTF (°)	MTF (°)	TF (°)	Northing (ftUS)	Easting (ftUS)	Latitude (° ° '")	Longitude (° ° '")	Latitude (°)	Longitude (°)	Closure (ft)	Closure Azimuth (°)	Directional Difficulty Index	Tortuosity (°)	ERD Ratio	
Survey Error Model: Survey Program:	ISCWSAD 3 - D 95 % Confidence 2.7955 sigma																												
Description	Part	MD From (ft)	MD To (ft)	EOU Freq (ft)	Hole Size (in)	Casing Diameter (in)	Expected Max Inclination (deg)	Survey Tool Type	Borehole / Survey																				
	1	0.000	1,000.000	1/100.000		17.500		NAL_MWD_1.0_DEG	Buffalo 12-1 2BS Fed Com 2H /																				
	1	1,000.000	9,090.580	1/100.000		12.250		NAL_MWD_1.0_DEG	Buffalo 12-1 2BS Fed Com 2H /																				
	1	9,090.580	10,019.350	1/100.000		8.750		NAL_MWD_1.0_DEG	Buffalo 12-1 2BS Fed Com 2H /																				
	1	10,019.350	19,993.470	1/100.000		8.500		NAL_MWD_1.0_DEG	Buffalo 12-1 2BS Fed Com 2H /																				

Schlumberger

Chisholm Buffalo 12-1 2BS Fed Com 2H R0 IC 26Nov19 Proposal Geodetic Report

CHISHOLM ENERGY

Report Date: November 26, 2019 - 10:32 PM (UTC-8)

Client: Chisholm

Field: NM Lee County (NAD 83)

Structure / Site: Chisholm Buffalo 12-1 2BS Fed Com 2H

Well: Buffalo 12-1 2BS Fed Com 2H

Borehole: Buffalo 12-1 2BS Fed Com 2H

UML / APPL: Unknown / Unknown

Survey Name: Chisholm Buffalo 12-1 2BS Fed Com 2H R0 IC 26Nov19

Survey Date: November 26, 2019

Test AND / EDO / BRD Ratio: 96.877 / 11.287 / 702.9 / 6.1289 / 1.382

Coordinate Reference System: NAD83 New Mexico State Plane, Eastern Zone, US Feet

Location Lat / Long: 32.46539827N, -107.071536027W

Location Grid NR Y/L: N 607500.290 RUS, E 759312.380 RUS

CRC Grid Convergence Angle: 0.2840°

Grid Scale Factor: 0.999994

Version / Patch: 2019.11.2

Survey / DLS Computation: Vertical Section Azimuth: 292.140 (CGSD North)

Vertical Section Origin: 0.000 N, 0.000 E

TYD Reference Elevation: 3142.800 ft above MSL

Survey / Ground Elevation: 3713.000 ft above MSL

Magnetic Declination: 6.570° (2019) (9.0000 Base)

Gravity Model: GRS96

Total Magnetic Field Strength: 484.48 uT

Magnetic Dip Angle: 65.382°

Declination Date: October 14, 2019

Magnetic Declination Model: IGS19 2019

North Reference: Grid North

Grid Convergence Model: 0.2840°

Total Com Mag North-Grid: 6.1289°

Local Coord Referenced To: Well Head

Comments

MD (ft)	Incl (°)	Asm (°)	TYD (ft)	TVSS (ft)	VSEC (ft)	NS (ft)	EW (ft)	Northing (ft)	Easting (ft)	Latitude (°)	Longitude (°)	DLS (ft)	BR (ft)	TR (ft)
0.00	253.70	0.00	-3.743.80	0.00	0.00	0.00	607.565.29	760.512.38	32.47	-103.62	0.00	0.00	0.00	
1.000.00	0.00	253.70	1.000.00	-2.743.80	0.00	0.00	607.565.29	760.512.38	32.47	-103.62	0.00	0.00	0.00	
1.000.00	0.00	253.70	1.000.00	-2.743.80	-6.67	-6.61	607.556.48	760.492.26	32.47	-103.62	1.00	1.00	0.00	
9.080.58	0.00	253.70	9.084.65	5.264.65	-225.52	-225.52	607.336.73	759.738.78	32.47	-103.62	0.00	0.00	0.00	
9.446.17	20.00	344.79	9.281.67	5.687.07	-128.51	-128.51	607.433.03	759.684.70	32.47	-103.62	10.00	6.71	20.66	
10.019.25	91.00	258.67	9.832.73	6.989.93	385.14	384.16	607.033.44	759.635.79	32.47	-103.62	10.00	9.84	1.84	
Chisholm Buffalo 12-1 2BS Fed Com	18.983.47	91.00	258.67	9.458.68	5.714.68	10.330.73	10.330.73	617.891.49	759.577.65	32.70	-103.62	0.00	0.00	0.00

Survey Type: Del Plan

Survey Error Model: ISCV50 3 - D 95 % Confidence 3.7855 sigma

Survey Program: Description

Part	MD From (ft)	MD To (ft)	EDU Freq (Hz)	Hole Size (in)	Casing Diameter (in)	Expected Max Inclination (deg)	Survey Tool Type	Borehole / Survey
1	0.000	1.000.000	10.000.000	17.500			NAL MWID 1.0 DEG	Buffalo 12-1 2BS Fed Com 2H
1	1.000.000	9.080.580	10.000.000	12.250			NAL MWID 1.0 DEG	Buffalo 12-1 2BS Fed Com 2H
1	9.080.580	10.019.350	10.000.000	8.750			NAL MWID 1.0 DEG	Buffalo 12-1 2BS Fed Com 2H
1	10.019.350	18.983.470	10.000.000	8.500			NAL MWID 1.0 DEG	Buffalo 12-1 2BS Fed Com 2H



Chisholm Buffalo 12-1 2BS Fed Com 2H R0 IC 26Nov19 Proposal Geodetic Report
Def Plan

Report Date: November 26, 2019 - 10:31 PM (UTC 0)
Client: Chisholm
Field: NM Lea County (NAD 83)
Structure / Slot: Chisholm Buffalo 12-1 2BS Fed Com 2H
Well: Buffalo 12-1 2BS Fed Com 2H
Borehole: Buffalo 12-1 2BS Fed Com 2H
UWI / API#: Unknown / Unknown
Survey Name: Chisholm Buffalo 12-1 2BS Fed Com 2H R0 IC 26Nov19
Survey Date: November 26, 2019
Tert / AND / DOI / ERD Ratio: 98.877 / 11387.702 R / 0.389 / 1.192
Coordinate Reference System: NAD83 New Mexico State Plane, Eastern Zone, US Feet
Location Lat / Long: 32°40'5.59638"N, 103°37'15.90273"W
Location Grid N/E Y/X: N 607665.290 RUS, E 760512.380 RUS
CRS Grid Convergence Angle: 0.3845°
Grid Scale Factor: 0.9999641
Version / Patch: 2019.3.0.2

Survey / DLS Computation: Minimum Curvature / Lubinski
Vertical Section Azimuth: 359.740 (GRID North)
Vertical Section Origin: 0.000 R, 0.000 R
YVD Reference Datum: RNB
YVD Reference Elevation: 3743.800 R above MSL
Seabed / Ground Elevation: 3711.800 R above MSL
Magnetic Declination: 5.576°
Total Gravity Field Strength: 986.1107mgn (9.80665 Based)
Gravity Model: GARM
Total Magnetic Field Strength: 48140.319 nT
Magnetic Dip Angle: 60.903°
Declination Date: October 14, 2019
Magnetic Declination Model: HDGM 2019
North Reference: Grid North
Grid Convergence Used: 0.3845°
Total Com Mag North-Grid: 6.1315°
Local Coord Referenced To: Well Head

Comments	MD (ft)	Incl (°)	Azim (°)	TYD (ft)	TYDSS (ft)	VSEC (ft)	AHD (ft)	NS (ft)	EW (ft)	DeltaMD (ft)	DeltaTYD (ft)	DLS (°(1000))	BR (°(1000))	TR (°(1000))	GTF (°)	MTF (°)	TF (°)	Northing (RUS)	Easting (RUS)	Latitude (°-'")	Longitude (°-'")	Latitude (°)	Longitude (°)	Closure (ft)	Closure Azimuth (°)	Directional Difficulty Index	Tortuosity (°)	ERD Ratio
SHL	0.00	0.00	253.70	0.00	-3.743.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	HS	253.70	253.7M	607.565.29	760.512.38	40°5.596377'N	171°15.902725'W	32.67	-103.62	0.00	0.00	0.00	0.00	0.00
Nudge 1" DLS	1,000.00	0.00	253.70	1,000.00	-2.743.80	0.00	0.00	0.00	0.00	1,000.00	1,000.00	0.00	0.00	0.00	HS	253.70	253.7M	607.565.29	760.512.38	40°5.596377'N	171°15.902725'W	32.67	-103.62	0.00	0.00	0.00	0.00	0.00
13.375 in Casino	1,482.20	4.82	253.70	1,481.63	-2.262.17	-5.60	20.28	-5.69	-19.46	482.20	481.63	1.00	1.00	0.00	HS	253.70	253.7M	607.559.60	760.492.92	40°5.541355'N	171°16.130853'W	32.67	-103.62	20.28	253.70	1.99	4.82	0.01
Rustler	1,569.74	5.70	253.70	1,569.80	-2.175.00	-7.82	28.30	-7.84	-87.54	87.54	87.17	1.00	1.00	0.00	HS	253.70	253.7M	607.557.35	760.485.22	40°5.519552'N	171°16.221139'W	32.67	-103.62	28.30	253.70	2.21	5.70	0.02
Hold	1,600.00	6.00	253.70	1,598.90	-2.144.90	-8.67	31.39	-8.81	-30.13	30.26	30.10	1.00	1.00	0.00	HS	253.70	253.7M	607.556.48	760.482.26	40°5.511215'N	171°16.255816'W	32.67	-103.62	31.39	253.70	2.28	6.00	0.02
Salado	1,871.38	6.00	253.70	1,869.80	-1.875.00	-16.51	59.75	-16.77	-57.35	271.38	269.80	0.00	0.00	0.00	HS	253.70	253.7M	607.548.52	760.455.03	40°5.434248'N	171°16.514932'W	32.67	-103.62	59.75	253.70	2.56	6.00	0.03
7 Rivers	3,765.76	6.00	253.70	3,752.80	9.00	-71.22	257.77	-72.35	-247.41	1,894.38	1,894.00	0.00	0.00	0.00	HS	253.70	253.7M	607.492.95	760.264.98	40°4.896970'N	171°18.802509'W	32.67	-103.62	257.77	253.70	3.19	6.00	0.07
Queen	4,298.68	6.00	253.70	4,282.80	539.00	-86.62	313.48	-87.98	-300.88	532.92	530.00	0.00	0.00	0.00	HS	253.70	253.7M	607.477.31	760.211.52	40°4.745823'N	171°19.429162'W	32.67	-103.62	313.48	253.70	3.28	6.00	0.07
Delaware Mtn Gr	6,412.26	6.00	253.70	6,394.80	2,641.00	-147.66	534.41	-149.99	-512.82	2,113.58	2,102.00	0.00	0.00	0.00	HS	253.70	253.7M	607.415.31	759.999.47	40°4.146399'N	172°1.914484'W	32.67	-103.62	534.41	253.70	3.51	6.00	0.08
Bone Spring	7,890.36	6.00	253.70	7,854.80	4,111.00	-190.35	688.91	-193.35	-661.22	1,478.10	1,470.00	0.00	0.00	0.00	HS	253.70	253.7M	607.371.94	759.851.19	40°3.727125'N	172°3.652549'W	32.67	-103.62	688.91	253.70	3.62	6.00	0.09
KOP, Build 10' DLS	9,090.58	6.00	253.70	9,048.45	5,304.65	-225.02	814.37	-228.57	-781.63	1,200.23	1,193.65	0.00	0.00	0.00	99.55R	276.16	276.16M	607.336.73	759.730.78	40°3.386700'N	172°5.063899'W	32.67	-103.62	814.37	253.70	3.69	6.00	0.09
1st Bone Spring SS	9,114.06	6.07	276.16	9,071.80	5,320.00	-225.22	816.80	-228.78	-784.04	23.47	23.35	10.00	0.29	95.70	77.21R	344.79	344.79M	607.336.52	759.728.37	40°3.384771'N	172°5.092097'W	32.67	-103.62	816.74	253.73	3.84	6.35	0.09
Build & Turn 10' DLS	9,446.17	35.00	344.79	9,361.67	5,637.87	-128.51	925.11	-132.26	-827.71	332.11	309.87	10.00	8.71	20.66	17.76R	345.38	17.76R	607.433.03	759.684.70	40°4.342569'N	172°5.595345'W	32.67	-103.62	838.21	260.92	4.59	41.56	0.10
9.624999999999999 in Casino	9,457.60	36.09	345.38	9,390.98	5,647.18	-122.08	931.75	-125.84	-829.42	11.43	9.30	10.00	9.54	5.18	17.27R	355.23	17.27R	607.439.45	759.682.99	40°4.406228'N	172°5.614846'W	32.67	-103.62	838.91	261.37	4.60	42.70	0.10
2nd Bone Spring SS	9,778.74	67.33	355.23	9,587.80	5,844.00	123.73	1,180.47	119.80	-866.58	321.14	196.82	10.00	8.73	3.07	10.39R	359.67	10.39R	607.685.09	759.645.83	40°6.639145'N	172°6.030329'W	32.67	-103.62	874.82	277.87	4.95	74.82	0.12
Landing Point	10,019.35	91.00	359.67	9,632.73	5,888.93	358.14	1,415.10	354.16	-876.66	240.60	44.93	10.00	9.84	1.84	HS	359.67	HS	607.919.44	759.635.76	40°9.158623'N	172°6.129854'W	32.67	-103.62	945.49	292.00	5.16	98.88	0.15
2nd Bone Spring SS	12,593.72	91.00	359.67	9,587.80	5,844.00	2,932.12	3,989.09	2,928.10	-891.65	2,574.37	-44.93	0.00	0.00	0.00	HS	359.67	HS	610.493.28	759.620.76	40°734.626735'N	172°6.104035'W	32.68	-103.62	3,060.85	343.06	5.71	98.88	0.42
Chisholm Buffalo 12-1 2BS Fed	19,993.47	91.00	359.67	9,458.66	5,714.86	10,330.73	11,387.70	10,326.59	-934.77	7,399.74	-129.14	0.00	0.00	0.00	HS			617.891.49	759.577.65	41°47.831749'N	172°6.029584'W	32.70	-103.62	10,368.81	354.83	6.37	98.88	1.20

Survey Type: Def Plan

Survey Error Model: ISCWSAO 3 - D 95 % Confidence 2.7995 sigma
Survey Program:

Description	Part	MD From (ft)	MD To (ft)	EOU Freq (ft)	Hole Size (in)	Casing Diameter (in)	Expected Max Inclination (deg)	Survey Tool Type	Borehole / Survey
	1	0.000	1,000.000	1/100.000	17.500			NAL_MWD_1_0_DEG	Buffalo 12-1 2BS Fed Com 2H /
	1	1,000.000	9,090.580	1/100.000	12.250			NAL_MWD_1_0_DEG	Buffalo 12-1 2BS Fed Com 2H /
	1	9,090.580	10,019.350	1/100.000	8.750			NAL_MWD_1_0_DEG	Buffalo 12-1 2BS Fed Com 2H /
	1	10,019.350	19,993.470	1/100.000	8.500			NAL_MWD_1_0_DEG	Buffalo 12-1 2BS Fed Com 2H /

PECOS DISTRICT DRILLING CONDITIONS OF APPROVAL

OPERATOR'S NAME:	CHISHOLM ENERGY OPERATING LLC
LEASE NO.:	NMNM032860
WELL NAME & NO.:	BUFFALO 12-1 2BS FED COM 2H
SURFACE HOLE FOOTAGE:	275'/S & 1250/W
BOTTOM HOLE FOOTAGE:	100'/N & 375'/W
LOCATION:	Section 12, T.19 S., R.33 E., NMPM
COUNTY:	Lea County, New Mexico

COA

H2S	☒ Yes	☐ No	
Potash	☒ None	☐ Secretary	☐ R-111-P
Cave/Karst Potential	☒ Low	☐ Medium	☐ High
Cave/Karst Potential	☐ Critical		
Variance	☐ None	☒ Flex Hose	☐ Other
Wellhead	☐ Conventional	☐ Multibowl	☒ Both
Other	☐ 4 String Area	☒ Capitan Reef	☐ WIPP
Other	☒ Fluid Filled	☐ Cement Squeeze	☐ Pilot Hole
Special Requirements	☐ Water Disposal	☒ COM	☐ Unit

A. HYDROGEN SULFIDE

A Hydrogen Sulfide (H2S) Drilling Plan shall be activated 500 feet prior to drilling into the Seven Rivers formation. As a result, the Hydrogen Sulfide area must meet Onshore Order 6 requirements, which includes equipment and personnel/public protection items. If Hydrogen Sulfide is encountered, please provide measured values and formations to the BLM.

B. CASING

Casing Design:

1. The 13-3/8 inch surface casing shall be set at approximately **1599** feet (a minimum of **25 feet (Lea County)** into the Rustler Anhydrite and above the salt) and cemented to the surface.
 - a. If cement does not circulate to the surface, the appropriate BLM office shall be notified and a temperature survey utilizing an electronic type temperature survey with surface log readout will be used or a cement bond log shall be run to verify the top of the cement. Temperature survey will be run a minimum of six hours after pumping cement and ideally between 8-10 hours after

- completing the cement job.
- b. Wait on cement (WOC) time for a primary cement job will be a minimum of **24 hours in the Potash Area** or 500 pounds compressive strength, whichever is greater. (This is to include the lead cement)
 - c. Wait on cement (WOC) time for a remedial job will be a minimum of 4 hours after bringing cement to surface or 500 pounds compressive strength, whichever is greater.
 - d. If cement falls back, remedial cementing will be done prior to drilling out that string.

Intermediate casing must be kept fluid filled to meet BLM minimum collapse requirement.

2. The 9-5/8 inch intermediate casing shall be set at approximately 5300 feet. The minimum required fill of cement behind the 9-5/8 inch intermediate casing is:
 - Cement to surface. If cement does not circulate see B.1.a, c-d above.
 - ❖ In Capitan Reef Areas if cement does not circulate to surface on the first two casing strings, the cement on the 3rd casing string must come to surface.
 - ❖ **Special Capitan Reef requirements.** If lost circulation (50% or greater) occurs below the Base of the Salt, the operator shall do the following:
(Use this for 3 string wells in the Capitan Reef, if 4 string well ensure FW based mud used across the capitan interval)
 - Switch to fresh water mud to protect the Capitan Reef and use fresh water mud until setting the intermediate casing. The appropriate BLM office is to be notified for a PET to witness the switch to fresh water.
 - Daily drilling reports from the Base of the Salt to the setting of the intermediate casing are to be submitted to the BLM CFO engineering staff via e-mail by 0800 hours each morning. Any lost circulation encountered is to be recorded on these drilling reports. The daily drilling report should show mud volume per shift/tour. Failure to submit these reports will result in an Incidence of Non-Compliance being issued for failure to comply with the Conditions of Approval. If not already planned, the operator shall run a caliper survey for the intermediate well bore and submit to the appropriate BLM office.
3. The minimum required fill of cement behind the 5-1/2 inch production casing is:
 - Cement to surface. If cement does not circulate see B.1.a, c-d above.
Excess cement calculates to -15%, additional cement might be required.

C. PRESSURE CONTROL

1. Variance approved to use flex line from BOP to choke manifold. Manufacturer's specification to be readily available. No external damage to flex line. Flex line to be installed as straight as possible (no hard bends).'
- 2.

Option 1:

- a. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be **2000 (2M)** psi.
- b. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the intermediate casing shoe shall be **3000 (3M)** psi.

Option 2:

1. Operator has proposed a multi-bowl wellhead assembly. This assembly will only be tested when installed on the surface casing. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be **5000 (5M)** psi.
 - a. Wellhead shall be installed by manufacturer's representatives, submit documentation with subsequent sundry.
 - b. If the welding is performed by a third party, the manufacturer's representative shall monitor the temperature to verify that it does not exceed the maximum temperature of the seal.
 - c. Manufacturer representative shall install the test plug for the initial BOP test.
 - d. If the cement does not circulate and one inch operations would have been possible with a standard wellhead, the well head shall be cut off, cementing operations performed and another wellhead installed.
 - e. Whenever any seal subject to test pressure is broken, all the tests in OOGO2.III.A.2.i must be followed.

D. SPECIAL REQUIREMENT (S)

Communitization Agreement

- The operator will submit a Communitization Agreement to the Carlsbad Field Office, 620 E Greene St. Carlsbad, New Mexico 88220, at least 90 days before the anticipated date of first production from a well subject to a spacing order issued by the New Mexico Oil Conservation Division. The Communitization Agreement will include the signatures of all working interest owners in all Federal and Indian leases

subject to the Communitization Agreement (i.e., operating rights owners and lessees of record), or certification that the operator has obtained the written signatures of all such owners and will make those signatures available to the BLM immediately upon request.

- If the operator does not comply with this condition of approval, the BLM may take enforcement actions that include, but are not limited to, those specified in 43 CFR 3163.1.
- In addition, the well sign shall include the surface and bottom hole lease numbers. When the Communitization Agreement number is known, it shall also be on the sign.

GENERAL REQUIREMENTS

The BLM is to be notified in advance for a representative to witness:

- a. Spudding well (minimum of 24 hours)
- b. Setting and/or Cementing of all casing strings (minimum of 4 hours)
- c. BOPE tests (minimum of 4 hours)

☒ Eddy County

Call the Carlsbad Field Office, 620 East Greene St., Carlsbad, NM 88220,
(575) 361-2822

☒ Lea County

Call the Hobbs Field Station, 414 West Taylor, Hobbs NM 88240, (575)
393-3612

1. Unless the production casing has been run and cemented or the well has been properly plugged, the drilling rig shall not be removed from over the hole without prior approval.
 - a. In the event the operator has proposed to drill multiple wells utilizing a skid/walking rig. Operator shall secure the wellbore on the current well, after installing and testing the wellhead, by installing a blind flange of like pressure rating to the wellhead and a pressure gauge that can be monitored while drilling is performed on the other well(s).
 - b. When the operator proposes to set surface casing with Spudder Rig
 - Notify the BLM when moving in and removing the Spudder Rig.
 - Notify the BLM when moving in the 2nd Rig. Rig to be moved in within 90 days of notification that Spudder Rig has left the location.
 - BOP/BOPE test to be conducted per Onshore Oil and Gas Order No. 2 as soon as 2nd Rig is rigged up on well.

2. Floor controls are required for 3M or Greater systems. These controls will be on the rig floor, unobstructed, readily accessible to the driller and will be operational at all times during drilling and/or completion activities. Rig floor is defined as the area immediately around the rotary table; the area immediately above the substructure on which the draw works are located, this does not include the dog house or stairway area.
3. The record of the drilling rate along with the GR/N well log run from TD to surface (horizontal well – vertical portion of hole) shall be submitted to the BLM office as well as all other logs run on the borehole 30 days from completion. If available, a digital copy of the logs is to be submitted in addition to the paper copies. The Rustler top and top and bottom of Salt are to be recorded on the Completion Report.

A. CASING

1. Changes to the approved APD casing program need prior approval if the items substituted are of lesser grade or different casing size or are Non-API. The Operator can exchange the components of the proposal with that of superior strength (i.e. changing from J-55 to N-80, or from 36# to 40#). Changes to the approved cement program need prior approval if the altered cement plan has less volume or strength or if the changes are substantial (i.e. Multistage tool, ECP, etc.). The initial wellhead installed on the well will remain on the well with spools used as needed.
2. Wait on cement (WOC) for Potash Areas: After cementing but before commencing any tests, the casing string shall stand cemented under pressure until both of the following conditions have been met: 1) cement reaches a minimum compressive strength of 500 psi for all cement blends, 2) until cement has been in place at least 24 hours. WOC time will be recorded in the driller's log. The casing integrity test can be done (prior to the cement setting up) immediately after bumping the plug.
3. Wait on cement (WOC) for Water Basin: After cementing but before commencing any tests, the casing string shall stand cemented under pressure until both of the following conditions have been met: 1) cement reaches a minimum compressive strength of 500 psi at the shoe, 2) until cement has been in place at least 8 hours. WOC time will be recorded in the driller's log. See individual casing strings for details regarding lead cement slurry requirements. The casing integrity test can be done (prior to the cement setting up) immediately after bumping the plug.
4. Provide compressive strengths including hours to reach required 500 pounds compressive strength prior to cementing each casing string. Have well specific cement details onsite prior to pumping the cement for each casing string.
5. No pea gravel permitted for remedial or fall back remedial without prior authorization from the BLM engineer.

6. On that portion of any well approved for a 5M BOPE system or greater, a pressure integrity test of each casing shoe shall be performed. Formation at the shoe shall be tested to a minimum of the mud weight equivalent anticipated to control the formation pressure to the next casing depth or at total depth of the well. This test shall be performed before drilling more than 20 feet of new hole.
7. If hardband drill pipe is rotated inside casing, returns will be monitored for metal. If metal is found in samples, drill pipe will be pulled and rubber protectors which have a larger diameter than the tool joints of the drill pipe will be installed prior to continuing drilling operations.
8. Whenever a casing string is cemented in the R-111-P potash area, the NMOCD requirements shall be followed.

B. PRESSURE CONTROL

1. All blowout preventer (BOP) and related equipment (BOPE) shall comply with well control requirements as described in Onshore Oil and Gas Order No. 2 and API RP 53 Sec. 17.
2. If a variance is approved for a flexible hose to be installed from the BOP to the choke manifold, the following requirements apply: The flex line must meet the requirements of API 16C. Check condition of flexible line from BOP to choke manifold, replace if exterior is damaged or if line fails test. Line to be as straight as possible with no hard bends and is to be anchored according to Manufacturer's requirements. The flexible hose can be exchanged with a hose of equal size and equal or greater pressure rating. Anchor requirements, specification sheet and hydrostatic pressure test certification matching the hose in service, to be onsite for review. These documents shall be posted in the company man's trailer and on the rig floor.
3. 5M or higher system requires an HCR valve, remote kill line and annular to match. The remote kill line is to be installed prior to testing the system and tested to stack pressure.
4. If the operator has proposed a multi-bowl wellhead assembly in the APD. The following requirements must be met:
 - a. Wellhead shall be installed by manufacturer's representatives, submit documentation with subsequent sundry.
 - b. If the welding is performed by a third party, the manufacturer's representative shall monitor the temperature to verify that it does not exceed the maximum temperature of the seal.
 - c. Manufacturer representative shall install the test plug for the initial BOP test.
 - d. Whenever any seal subject to test pressure is broken, all the tests in OOGO2.III.A.2.i must be followed.

- e. If the cement does not circulate and one inch operations would have been possible with a standard wellhead, the well head shall be cut off, cementing operations performed and another wellhead installed.
5. The appropriate BLM office shall be notified a minimum of 4 hours in advance for a representative to witness the tests.
- a. In a water basin, for all casing strings utilizing slips, these are to be set as soon as the crew and rig are ready and any fallback cement remediation has been done. The casing cut-off and BOP installation can be initiated four hours after installing the slips, which will be approximately six hours after bumping the plug. For those casing strings not using slips, the minimum wait time before cut-off is eight hours after bumping the plug. BOP/BOPE testing can begin after cut-off or once cement reaches 500 psi compressive strength (including lead when specified), whichever is greater. However, if the float does not hold, cut-off cannot be initiated until cement reaches 500 psi compressive strength (including lead when specified).
 - b. In potash areas, for all casing strings utilizing slips, these are to be set as soon as the crew and rig are ready and any fallback cement remediation has been done. For all casing strings, casing cut-off and BOP installation can be initiated at twelve hours after bumping the plug. However, **no tests** shall commence until the cement has had a minimum of 24 hours setup time, except the casing pressure test can be initiated immediately after bumping the plug (only applies to single stage cement jobs).
 - c. The tests shall be done by an independent service company utilizing a test plug not a cup or J-packer. The operator also has the option of utilizing an independent tester to test without a plug (i.e. against the casing) pursuant to Onshore Order 2 with the pressure not to exceed 70% of the burst rating for the casing. Any test against the casing must meet the WOC time for water basin (8 hours) or potash (24 hours) or 500 pounds compressive strength, whichever is greater, prior to initiating the test (see casing segment as lead cement may be critical item).
 - d. The test shall be run on a 5000 psi chart for a 2-3M BOP/BOP, on a 10000 psi chart for a 5M BOP/BOPE and on a 15000 psi chart for a 10M BOP/BOPE. If a linear chart is used, it shall be a one hour chart. A circular chart shall have a maximum 2 hour clock. If a twelve hour or twenty-four hour chart is used, tester shall make a notation that it is run with a two hour clock.
 - e. The results of the test shall be reported to the appropriate BLM office.
 - f. All tests are required to be recorded on a calibrated test chart. A copy of the BOP/BOPE test chart and a copy of independent service company test will be submitted to the appropriate BLM office.

- g. The BOP/BOPE test shall include a low pressure test from 250 to 300 psi. The test will be held for a minimum of 10 minutes if test is done with a test plug and 30 minutes without a test plug. This test shall be performed prior to the test at full stack pressure.
- h. BOP/BOPE must be tested by an independent service company within 500 feet of the top of the Wolfcamp formation if the time between the setting of the intermediate casing and reaching this depth exceeds 20 days. This test does not exclude the test prior to drilling out the casing shoe as per Onshore Order No. 2.

C. DRILLING MUD

Mud system monitoring equipment, with derrick floor indicators and visual and audio alarms, shall be operating before drilling into the Wolfcamp formation, and shall be used until production casing is run and cemented.

D. WASTE MATERIAL AND FLUIDS

All waste (i.e. drilling fluids, trash, salts, chemicals, sewage, gray water, etc.) created as a result of drilling operations and completion operations shall be safely contained and disposed of properly at a waste disposal facility. No waste material or fluid shall be disposed of on the well location or surrounding area.

Porto-johns and trash containers will be on-location during fracturing operations or any other crew-intensive operations.

OTA11102020

**PECOS DISTRICT
SURFACE USE
CONDITIONS OF APPROVAL**

Chisholm Energy Operating LLC

Project Name: BUFFALO 12-1 2BS FED COM 2H

Lease Serial Number: NMNM032860

Lea County, NM

BUFFALO 12-1 2BS FED COM 2H

Surface Hole Location: 275 FSL / 1250 FWL, Section 12, T. 19 S, R. 33 E

Bottom Hole Location: 100 FNL / 375 FWL, Section 1, T. 19 S, R. 32 E

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Standard Conditions of Approval (COA) apply to this APD. If any deviations to these standards exist or special COAs are required, the section with the deviation or requirement will be checked below.

- ☐ **General Provisions**
- ☐ **Permit Expiration**
- ☐ **Archaeology, Paleontology, and Historical Sites**
- ☐ **Noxious Weeds**
- ☒ **Special Requirements**
 - Watershed
 - Lesser Prairie-Chicken Timing Stipulations
 - Ground-level Abandoned Well Marker
 - Cultural
- ☐ **Construction**
 - Notification
 - Topsoil
 - Closed Loop System
 - Federal Mineral Material Pits
 - Well Pads
 - Roads
- ☐ **Road Section Diagram**
- ☐ **Production (Post Drilling)**
 - Well Structures & Facilities
- ☐ **Interim Reclamation**
- ☐ **Final Abandonment & Reclamation**

I. GENERAL PROVISIONS

The approval of the Application For Permit To Drill (APD) is in compliance with all applicable laws and regulations: 43 Code of Federal Regulations 3160, the lease terms, Onshore Oil and Gas Orders, Notices To Lessees, New Mexico Oil Conservation Division (NMOCD) Rules, National Historical Preservation Act As Amended, and instructions and orders of the Authorized Officer. Any request for a variance shall be submitted to the Authorized Officer on Form 3160-5, Sundry Notices and Report on Wells.

II. PERMIT EXPIRATION

If the permit terminates prior to drilling and drilling cannot be commenced within 60 days after expiration, an operator is required to submit Form 3160-5, Sundry Notices and Reports on Wells, requesting surface reclamation requirements for any surface disturbance. However, if the operator will be able to initiate drilling within 60 days after the expiration of the permit, the operator must have set the conductor pipe in order to allow for an extension of 60 days beyond the expiration date of the APD. (Filing of a Sundry Notice is required for this 60 day extension.)

III. ARCHAEOLOGICAL, PALEONTOLOGY & HISTORICAL SITES

Any cultural and/or paleontological resource discovered by the operator or by any person working on the operator's behalf shall immediately report such findings to the Authorized Officer. The operator is fully accountable for the actions of their contractors and subcontractors. The operator shall suspend all operations in the immediate area of such discovery until written authorization to proceed is issued by the Authorized Officer. An evaluation of the discovery shall be made by the Authorized Officer to determine the appropriate actions that shall be required to prevent the loss of significant cultural or scientific values of the discovery. The operator shall be held responsible for the cost of the proper mitigation measures that the Authorized Officer assesses after consultation with the operator on the evaluation and decisions of the discovery. Any unauthorized collection or disturbance of cultural or paleontological resources may result in a shutdown order by the Authorized Officer.

IV. NOXIOUS WEEDS

The operator shall be held responsible if noxious weeds become established within the areas of operations. Weed control shall be required on the disturbed land where noxious weeds exist, which includes the roads, pads, associated pipeline corridor, and adjacent land affected by the establishment of weeds due to this action. The operator shall consult with the Authorized Officer for

acceptable weed control methods, which include following EPA and BLM requirements and policies.

V. SPECIAL REQUIREMENT(S)

Watershed

Surface disturbance will not be allowed (within x feet of drainage; or describe pad restriction).

The entire well pad will be bermed to prevent oil, salt, and other chemical contaminants from leaving the well pad. Topsoil shall not be used to construct the berm. No water flow from the uphill side(s) of the pad shall be allowed to enter the well pad. The berm shall be maintained through the life of the well and after interim reclamation has been completed.

Any water erosion that may occur due to the construction of the well pad during the life of the well will be quickly corrected and proper measures will be taken to prevent future erosion.

Stockpiling of topsoil is required. The top soil shall be stockpiled in an appropriate location to prevent loss of soil due to water or wind erosion and not used for berming or erosion control.

Timing Limitation Stipulation / Condition of Approval for lesser prairie-chicken:

Oil and gas activities including 3-D geophysical exploration, and drilling will not be allowed in lesser prairie-chicken habitat during the period from March 1st through June 15th annually. During that period, other activities that produce noise or involve human activity, such as the maintenance of oil and gas facilities, pipeline, road, and well pad construction, will be allowed except between 3:00 am and 9:00 am. The 3:00 am to 9:00 am restriction will not apply to normal, around-the-clock operations, such as venting, flaring, or pumping, which do not require a human presence during this period. Additionally, no new drilling will be allowed within up to 200 meters of leks known at the time of permitting. Normal vehicle use on existing roads will not be restricted. Exhaust noise from pump jack engines must be muffled or otherwise controlled so as not to exceed 75 db measured at 30 feet from the source of the noise.

Timing Limitation Exceptions:

The Carlsbad Field Office will publish an annual map of where the LPC timing and noise stipulations and conditions of approval (Limitations) will apply for the identified year (between March 1 and June 15) based on the latest survey information. The LPC Timing Area map will identify areas which are Habitat Areas (HA), Isolated Population Area (IPA), and Primary Population Area (PPA). The LPC Timing Area map will also have an area in red crosshatch. The red crosshatch area is the only area where an operator is required to submit a request for exception to the LPC Limitations. If an operator is operating outside the red crosshatch area, the LPC Limitations do not apply for that year and an exception to LPC Limitations is not required.

Ground-level Abandoned Well Marker to avoid raptor perching: Upon the plugging and subsequent abandonment of the well, the well marker will be installed at ground level on a plate containing the pertinent information for the plugged well. For more installation details, contact the Carlsbad Field Office at 575-234-5972.

VI. CONSTRUCTION

A. NOTIFICATION

The BLM shall administer compliance and monitor construction of the access road and well pad. Notify the Carlsbad Field Office at (575) 234-5909 at least 3 working days prior to commencing construction of the access road and/or well pad.

When construction operations are being conducted on this well, the operator shall have the approved APD and Conditions of Approval (COA) on the well site and they shall be made available upon request by the Authorized Officer.

B. TOPSOIL

The operator shall strip the top portion of the soil (root zone) from the entire well pad area and stockpile the topsoil along the edge of the well pad as depicted in the APD. The root zone is typically six (6) inches in depth. All the stockpiled topsoil will be redistributed over the interim reclamation areas. Topsoil shall not be used for berming the pad or facilities. For final reclamation, the topsoil shall be spread over the entire pad area for seeding preparation.

Other subsoil (below six inches) stockpiles must be completely segregated from the topsoil stockpile. Large rocks or subsoil clods (not evident in the surrounding terrain) must be buried within the approved area for interim and final reclamation.

C. CLOSED LOOP SYSTEM

Tanks are required for drilling operations: No Pits.

The operator shall properly dispose of drilling contents at an authorized disposal site.

D. FEDERAL MINERAL MATERIALS PIT

Payment shall be made to the BLM prior to removal of any federal mineral materials. Call the Carlsbad Field Office at (575) 234-5972.

E. WELL PAD SURFACING

Surfacing of the well pad is not required.

If the operator elects to surface the well pad, the surfacing material may be required to be removed at the time of reclamation. The well pad shall be constructed in a manner which creates the smallest possible surface disturbance, consistent with safety and operational needs.

F. EXCLOSURE FENCING (CELLARS & PITS)**Exclosure Fencing**

The operator will install and maintain exclosure fencing for all open well cellars to prevent access to public, livestock, and large forms of wildlife before and after drilling operations until the pit is free of fluids and the operator initiates backfilling. (For examples of exclosure fencing design, refer to BLM's Oil and Gas Gold Book, Exclosure Fence Illustrations, Figure 1, Page 18.)

G. ON LEASE ACCESS ROADS**Road Width**

The access road shall have a driving surface that creates the smallest possible surface disturbance and does not exceed fourteen (14) feet in width. The maximum width of surface disturbance, when constructing the access road, shall not exceed twenty-five (25) feet.

Surfacing

Surfacing material is not required on the new access road driving surface. If the operator elects to surface the new access road or pad, the surfacing material may be required to be removed at the time of reclamation.

Where possible, no improvements should be made on the unsurfaced access road other than to remove vegetation as necessary, road irregularities, safety issues, or to fill low areas that may sustain standing water.

The Authorized Officer reserves the right to require surfacing of any portion of the access road at any time deemed necessary. Surfacing may be required in the event the road deteriorates, erodes, road traffic increases, or it is determined to be beneficial for future field development. The surfacing depth and type of material will be determined at the time of notification.

Crowning

Crowning shall be done on the access road driving surface. The road crown shall have a grade of approximately 2% (i.e., a 1" crown on a 14' wide road). The road shall conform to Figure 1; cross section and plans for typical road construction.

Ditching

Ditching shall be required on both sides of the road.

Turnouts

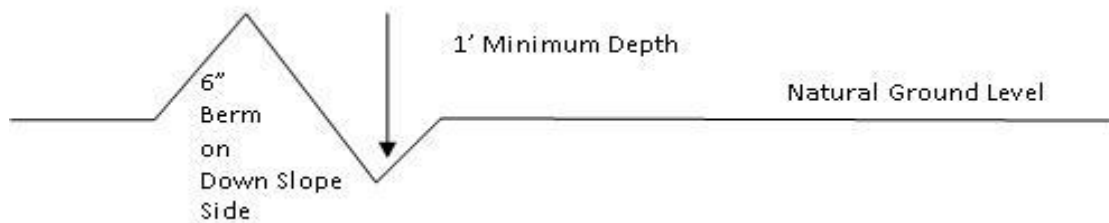
Vehicle turnouts shall be constructed on the road. Turnouts shall be intervisible with interval spacing distance less than 1000 feet. Turnouts shall conform to Figure 1; cross section and plans for typical road construction.

Drainage

Drainage control systems shall be constructed on the entire length of road (e.g. ditches, sidehill outslowing and insloping, lead-off ditches, culvert installation, and low water crossings).

A typical lead-off ditch has a minimum depth of 1 foot below and a berm of 6 inches above natural ground level. The berm shall be on the down-slope side of the lead-off ditch.

Cross Section of a Typical Lead-off Ditch



All lead-off ditches shall be graded to drain water with a 1 percent minimum to 3 percent maximum ditch slope. The spacing interval are variable for lead-off ditches and shall be determined according to the formula for spacing intervals of lead-off ditches, but may be amended depending upon existing soil types and centerline road slope (in %);

Formula for Spacing Interval of Lead-off Ditches

Example - On a 4% road slope that is 400 feet long, the water flow shall drain water into a lead-off ditch. Spacing interval shall be determined by the following formula:

$$400 \text{ foot road with } 4\% \text{ road slope: } \frac{400'}{4\%} + 100' = 200' \text{ lead-off ditch interval}$$

Cattle guards

An appropriately sized cattle guard sufficient to carry out the project shall be installed and maintained at fence/road crossings. Any existing cattle guards on the access road route shall be repaired or replaced if they are damaged or have deteriorated beyond practical use. The operator shall be responsible for the

condition of the existing cattle guards that are in place and are utilized during lease operations.

Fence Requirement

Where entry is granted across a fence line, the fence shall be braced and tied off on both sides of the passageway prior to cutting. The operator shall notify the private surface landowner or the grazing allotment holder prior to crossing any fences.

Public Access

Public access on this road shall not be restricted by the operator without specific written approval granted by the Authorized Officer.

Construction Steps

1. Salvage topsoil
2. Construct road

3. Redistribute topsoil
4. Revegetate slopes

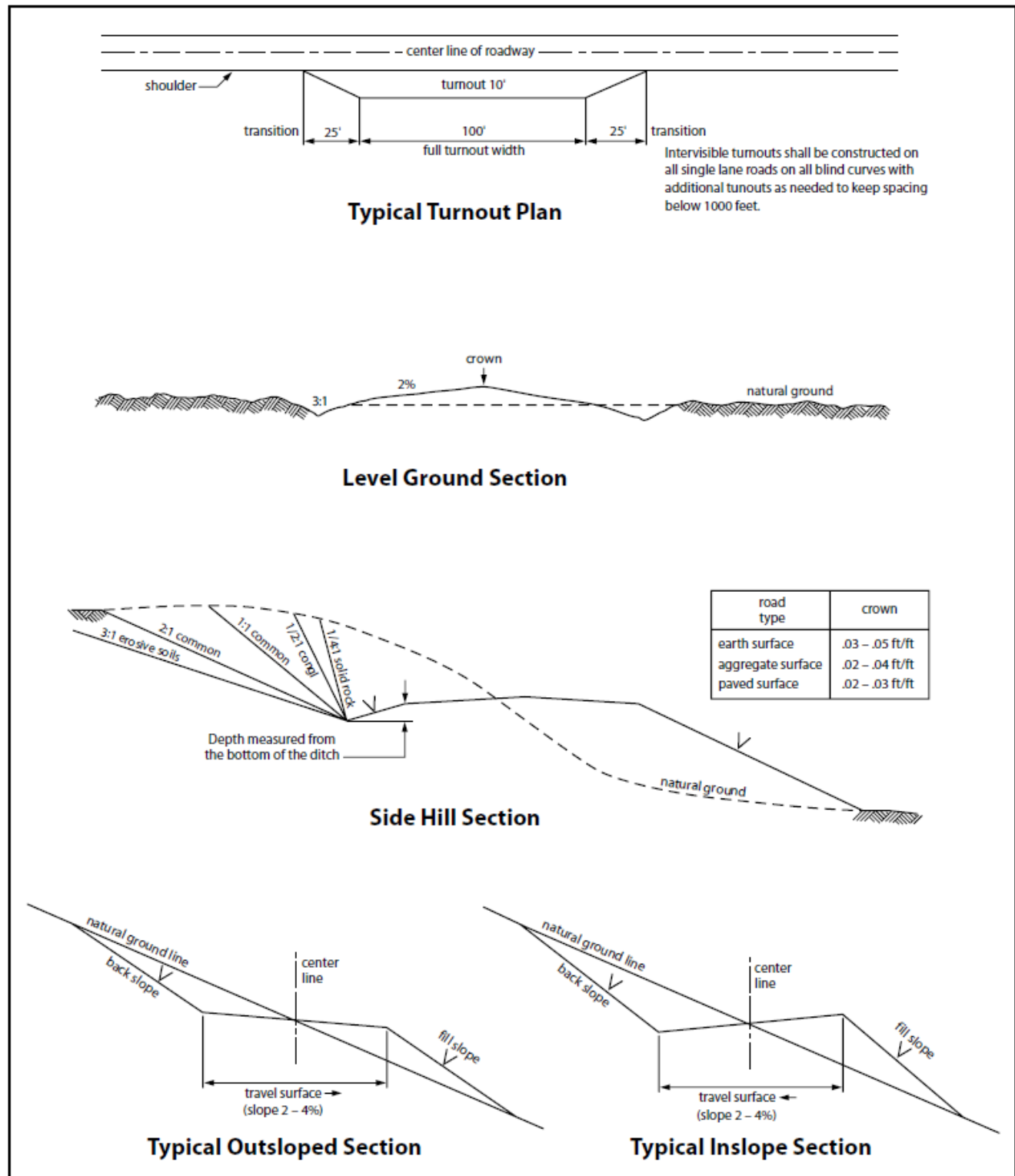


Figure 1. Cross-sections and plans for typical road sections representative of BLM resource or FS local and higher-class roads. without specific written approval granted by the Authorized Officer.

VII. PRODUCTION (POST DRILLING)

A. WELL STRUCTURES & FACILITIES

Placement of Production Facilities

Production facilities should be placed on the well pad to allow for maximum interim recontouring and revegetation of the well location.

Exclosure Netting (Open-top Tanks)

Immediately following active drilling or completion operations, the operator will take actions necessary to prevent wildlife and livestock access, including avian wildlife, to all open-topped tanks that contain or have the potential to contain salinity sufficient to cause harm to wildlife or livestock, hydrocarbons, or Resource Conservation and Recovery Act of 1976-exempt hazardous substances. At a minimum, the operator will net, screen, or cover open-topped tanks to exclude wildlife and livestock and prevent mortality. If the operator uses netting, the operator will cover and secure the open portion of the tank to prevent wildlife entry. The operator will net, screen, or cover the tanks until the operator removes the tanks from the location or the tanks no longer contain substances that could be harmful to wildlife or livestock. Use a maximum netting mesh size of 1 ½ inches. The netting must not be in contact with fluids and must not have holes or gaps.

Chemical and Fuel Secondary Containment and Exclosure Screening

The operator will prevent all hazardous, poisonous, flammable, and toxic substances from coming into contact with soil and water. At a minimum, the operator will install and maintain an impervious secondary containment system for any tank or barrel containing hazardous, poisonous, flammable, or toxic substances sufficient to contain the contents of the tank or barrel and any drips, leaks, and anticipated precipitation. The operator will dispose of fluids within the containment system that do not meet applicable state or U. S. Environmental Protection Agency livestock water standards in accordance with state law; the operator must not drain the fluids to the soil or ground. The operator will design, construct, and maintain all secondary containment systems to prevent wildlife and livestock exposure to harmful substances. At a minimum, the operator will install effective wildlife and livestock exclosure systems such as fencing, netting, expanded metal mesh, lids, and grate covers. Use a maximum netting mesh size of 1 ½ inches.

Open-Vent Exhaust Stack Exclosures

The operator will construct, modify, equip, and maintain all open-vent exhaust stacks on production equipment to prevent birds and bats from entering, and to discourage perching, roosting, and nesting. (*Recommended exclosure structures on open-vent exhaust stacks are in the shape of a cone.*) Production

equipment includes, but may not be limited to, tanks, heater-treaters, separators, dehydrators, flare stacks, in-line units, and compressor mufflers.

Containment Structures

Proposed production facilities such as storage tanks and other vessels will have a secondary containment structure that is constructed to hold the capacity of 1.5 times the largest tank, plus freeboard to account for precipitation, unless more stringent protective requirements are deemed necessary.

Painting Requirement

All above-ground structures including meter housing that are not subject to safety requirements shall be painted a flat non-reflective paint color, **Shale Green** from the BLM Standard Environmental Color Chart (CC-001: June 2008).

VIII. INTERIM RECLAMATION

During the life of the development, all disturbed areas not needed for active support of production operations should undergo interim reclamation in order to minimize the environmental impacts of development on other resources and uses.

Within six (6) months of well completion, operators should work with BLM surface management specialists (Jim Amos: 575-234-5909) to devise the best strategies to reduce the size of the location. Interim reclamation should allow for remedial well operations, as well as safe and efficient removal of oil and gas.

During reclamation, the removal of caliche is important to increasing the success of revegetating the site. Removed caliche that is free of contaminants may be used for road repairs, fire walls or for building other roads and locations. In order to operate the well or complete workover operations, it may be necessary to drive, park and operate on restored interim vegetation within the previously disturbed area. Disturbing revegetated areas for production or workover operations will be allowed. If there is significant disturbance and loss of vegetation, the area will need to be revegetated. Communicate with the appropriate BLM office for any exceptions/exemptions if needed.

All disturbed areas after they have been satisfactorily prepared need to be reseeded with the seed mixture provided below.

Upon completion of interim reclamation, the operator shall submit a Sundry Notices and Reports on Wells, Subsequent Report of Reclamation (Form 3160-5).

IX. FINAL ABANDONMENT & RECLAMATION

At final abandonment, well locations, production facilities, and access roads must undergo "final" reclamation so that the character and productivity of the land are restored.

Earthwork for final reclamation must be completed within six (6) months of well plugging. All pads, pits, facility locations and roads must be reclaimed to a satisfactory revegetated, safe, and stable condition, unless an agreement is made with the landowner or BLM to keep the road and/or pad intact.

After all disturbed areas have been satisfactorily prepared, these areas need to be revegetated with the seed mixture provided below. Seeding should be accomplished by drilling on the contour whenever practical or by other approved methods. Seeding may need to be repeated until revegetation is successful, as determined by the BLM.

Operators shall contact a BLM surface protection specialist prior to surface abandonment operations for site specific objectives (Jim Amos: 575-234-5909).

Ground-level Abandoned Well Marker to avoid raptor perching: Upon the plugging and subsequent abandonment of the well, the well marker will be installed at ground level on a plate containing the pertinent information for the plugged well.

Seed Mixture for LPC Sand/Shinnery Sites

Holder shall seed all disturbed areas with the seed mixture listed below. The seed mixture shall be planted in the amounts specified in pounds of pure live seed (PLS)* per acre. There shall be no primary or secondary noxious weeds in the seed mixture. Seed will be tested and the viability testing of seed shall be done in accordance with State law(s) and within nine (9) months prior to purchase. Commercial seed shall be either certified or registered seed. The seed container shall be tagged in accordance with State law(s) and available for inspection by the Authorized Officer.

Seed will be planted using a drill equipped with a depth regulator to ensure proper depth of planting where drilling is possible. The seed mixture will be evenly and uniformly planted over the disturbed area (smaller/heavier seeds have a tendency to drop the bottom of the drill and are planted first). Holder shall take appropriate measures to ensure this does not occur. Where drilling is not possible, seed will be broadcast and the area shall be raked or chained to cover the seed. When broadcasting the seed, the pounds per acre are to be doubled. Seeding shall be repeated until a satisfactory stand is established as determined by the Authorized Officer. Evaluation of growth may not be made before completion of at least one full growing season after seeding.

Species to be planted in pounds of pure live seed* per acre:

<u>Species</u>	<u>lb/acre</u>
Plains Bristlegrass	5lbs/A
Sand Bluestem	5lbs/A
Little Bluestem	3lbs/A
Big Bluestem	6lbs/A
Plains Coreopsis	2lbs/A
Sand Dropseed	1lbs/A

*Pounds of pure live seed:

Pounds of seed x percent purity x percent germination = pounds pure live seed

Chisholm Energy Operating, LLC

801 Cherry St., Suite 1200-Unit 20

Fort Worth, TX 76102

H2S Contingency Plan

Lea County, NM

Escape

Crews shall escape upwind of escaping gas in the event of an emergency release of gas. Escape can be facilitated from the location entrance road. Crew should then block entrance to the location from the lease road so as not to allow anyone traversing into a hazardous area. The blockade should be at a safe distance outside of the ROE. There are NO homes or buildings in or near the ROE.

Assumed 100 ppm ROE = 3000'
100 ppm H₂S concentration shall trigger activation of this plan

Emergency Procedures

In the event of a release of gas containing H₂S, the first responder(s) must:

- « Isolate the area and prevent entry by other persons into the 100 ppm ROE.
- « Evacuate any public places encompassed by the 100 ppm ROE.
- « Be equipped with H₂S monitors and air packs in order to control the release.
- « Use the "buddy system" to ensure no injuries occur during the response.
- « Take precautions to avoid personal injury during this operation.
- « Contact operator and/or local officials to aid in operation. See list of phone numbers attached.
- « Have received training
 - in the: Detection of
 - H₂S, and
 - Measures for protection against the gas,
 - Equipment used for protection and emergency response.

Ignition of Gas Source

Should control of the well be considered lost and ignition considered, take care to protect against exposure to Sulfur Dioxide (SO₂). Intentional ignition must be coordinated with the NMOCD and local officials. Additionally, the NM State Police may become involved. NM State Police shall be the Incident Command on scene of any major release. Take care to protect downwind whenever there is an ignition of the gas.

Characteristics of H₂S and SO₂

Common Name	Chemical Formula	Specific Gravity	Threshold Limit	Hazardous Limit	Lethal Concentration
Hydrogen Sulfide	H ₂ S	1.189 Air=1	10 ppm	100 ppm/hr	600 ppm
Sulfur Dioxide	SO ₂	2.21 Air=1	2 ppm	N/A	1000 ppm

Contacting Authorities

Chisholm Energy Operating personnel must liaise with local and state agencies to ensure a proper response to a major release. Additionally, the OCD must be notified of the release as soon as possible but no later than 4 hours. Agencies will ask for information such as type and volume of release, wind direction, location of release, etc. Be prepared with all information available including directions to site. The following call list of essential and potential responders has been prepared for use during a release. Chisholm Energy Operating, LLC response must be in coordination with the State of New Mexico's "Hazardous Materials Emergency Response Plan" (HMERP).

Hydrogen Sulfide Drilling Operations Plan

1. All Company and Contract personnel admitted on location must be trained by a qualified H2S safety instructor to the following:
 - A. Characteristics of H2S
 - B. Physical effects and hazards
 - C. Principal and operation of H2S detectors, warning system and briefing areas.
 - D. Evacuation procedure, routes and first aid.
 - E. Proper use of safety equipment & life support systems
 - F. Essential personnel meeting Medical Evaluation criteria will receive additional training on the proper use of 30-minute pressure demand air packs.
2. H2S Detection and Alarm Systems:
 - a. H2S sensors/detectors to be located on the drilling rig floor, in the base of the sub structure/cellar area, on the mud pits in the shale shaker area. Additional H2S detectors may be placed as deemed necessary.
 - b. An audio alarm system will be installed on the derrick floor and in the top doghouse.
3. Windsock and/or wind streamers:
 - a. Windsock at mudpit area should be high enough to be visible.
 - b. Windsock on the rig floor and/ or top doghouse should be high enough to be visible.
4. Condition Flags and Signs
 - a. Warning sign on access road to location.
 - b. Flags to be displayed on sign at entrance to location. Green flag indicates normal safe condition. Yellow flag indicates potential pressure and danger. Red flag indicates danger (H2S present in dangerous concentration). Only H2S trained and certified personnel

admitted to location.

5. Well control equipment:

- a. See exhibit BOP and Choke Diagrams

6. Communication:

- a. While working under masks chalkboards will be used for communication.
- b. Hand signals will be used where chalk board is inappropriate.
- c. Two-way radio will be used to communicate off location in case of emergency help is required. In most cases, cellular telephones will be available at most drilling foreman's trailer or living quarters.

7. Drill stem Testing:

No DSTs are planned at this time.

- 8. Drilling contractor supervisor will be required to be familiar with the effects H₂S has on tubular goods and other mechanical equipment.
- 9. If H₂S is encountered, mud system will be altered if necessary to maintain control of formation. A mud gas separator will be brought into service along with H₂S scavengers if necessary.

Emergency Assistance Telephone List

Chisholm Energy Holdings, LLC

Chisholm Energy Operating, LLC

Vice President of Operations-Brad Grandstaff

Office: (817)953-6063

Office: (817)953-3150

Cell: (972)977-9221

Drilling Superintendent-Russell Simons

Cell: (830)285-7501

Production Superintendent-Paul Martinez

Cell: (325)206-1722

Public Safety:		911 or	
Lea County Sheriff's Department	Number:	(575)396-3611	
Lea County Emergency Management-Lorenzo Velasquez	Number:	(575)391-2983	
Lea County Fire Marshal			
Lorenzo Velasquez, Director	Number:	(575)391-2983	
Jeff Broom, Deputy Fire Marshal	Number:	(575)391-2988	
Fire Department:			
Knowles Fire Department	Number:	(505)392-2810	
City of Hobbs Fire Department	Number:	(505)397-9308	
Jal Volunteer Fire Department	Number:	(505)395-2221	
Lovington Fire Department	Number:	(575)396-2359	
Maljamar Fire Department	Number:	(505)676-4100	
Tatum Volunteer Fire Department	Number:	(505)398-3473	
Eunice Fire Department	Number:	(575)394-3258	
Hospital: Lea Regional Medical Center	Number:	(575)492-5000	
AirMed: Medevac	Number:	(888)303-9112	
Dept. of Public Safety	Number:	(505)827-9000	
New Mexico OCD-Dist. 1-Hobbs-	Office	Number:	(575)393-6161
	Emergency	Number:	(575)370-3186
Lea County Road Department	Number:	(575)391-2940	
NMDOT	Number:	(505)827-5100	

Chisholm Energy Operating, LLC plans to operate a Closed Loop System.

Additional Operator Remarks

Location of Well

0. SHL: SWSW / 275 FSL / 1250 FWL / TWSP: 19S / RANGE: 33E / SECTION: 12 / LAT: 32.6682212 / LONG: -103.6210841 (TVD: 0 feet, MD: 0 feet)

PPP: SWSW / 100 FSL / 375 FWL / TWSP: 19S / RANGE: 33E / SECTION: 12 / LAT: 32.6677469 / LONG: -103.6239286 (TVD: 9633 feet, MD: 10019 feet)

BHL: NWNW / 100 FNL / 375 FWL / TWSP: 19S / RANGE: 33E / SECTION: 1 / LAT: 32.6966199 / LONG: -103.6238971 (TVD: 9459 feet, MD: 19993 feet)

BLM Point of Contact

Name: Deborah Ham

Title: Legal Landlaw Examiner

Phone: (575) 234-5965

Email: dham@blm.gov



U.S. Department of the Interior
BUREAU OF LAND MANAGEMENT

Drilling Plan Data Report

04/13/2021

APD ID: 10400051601

Submission Date: 12/04/2019

Highlighted data
reflects the most
recent changes

Operator Name: CHISHOLM ENERGY OPERATING LLC

Well Name: BUFFALO 12-1 2BS FED COM

Well Number: 2H

[Show Final Text](#)

Well Type: OIL WELL

Well Work Type: Drill

Section 1 - Geologic Formations

Formation ID	Formation Name	Elevation	True Vertical Depth	Measured Depth	Lithologies	Mineral Resources	Producing Formation
596786	RUSTLER	3712	0	0	ANHYDRITE	USEABLE WATER	N
596787	SALADO	1842	1870	1870	SALT	NONE	N
596789	SEVEN RIVERS	-41	3753	3753	ANHYDRITE, DOLOMITE	NATURAL GAS, OIL	N
596788	QUEEN	-571	4283	4283	DOLOMITE, LIMESTONE, SANDSTONE	NATURAL GAS, OIL	N
596790	DELAWARE	-2673	6385	6385	SANDSTONE, SHALE, SILTSTONE	NATURAL GAS, OIL	N
596791	BONE SPRING	-4143	7855	7855	LIMESTONE, SHALE	NATURAL GAS, OIL	N
596792	BONE SPRING 1ST	-5360	9072	9072	SANDSTONE, SHALE, SILTSTONE	NATURAL GAS, OIL	N
596793	BONE SPRING 2ND	-5876	9588	9588	SANDSTONE, SHALE, SILTSTONE	NATURAL GAS, OIL	Y

Section 2 - Blowout Prevention

Pressure Rating (PSI): 5M

Rating Depth: 12000

Equipment: Rotating Head, remote kill line, mud-gas separator

Requesting Variance? YES

Variance request: WE PROPOSE UTILIZING A CACTUS SPEED HEAD MULTI-BOWL WELLHEAD FOR THIS WELL. PLEASE SEE ATTACHED DIAGRAM AND PRESSURE TESTING STATEMENT. ALSO WE REQUEST TO USE A FLEX CHOKE HOSE; PLEASE SEE ATTACHMENT.

Testing Procedure: PER ONSHORE ORDER #2- BOP testing procedure -N/U the rig's BOP. Use 3rd party testers to perform the following: -Test the pipe rams, blind rams, floor valves (IBOP and/or upper Kelly valve), choke lines and manifold to 250 psi/5,000 psi with a test plug and a test pump. -Test the Hyrdil annular to 250 psi/2,500 psi with same as above.

Choke Diagram Attachment:

5M_Choke_Manifold_Diagram_20180117142450.pdf

BOP Diagram Attachment:

5m_BOP_Diagram_2_20191125114456.pdf

Patriot Drilling, LLC

RIG NO. 5

Annular Preventer

13-3/8 5,000 PSI WP

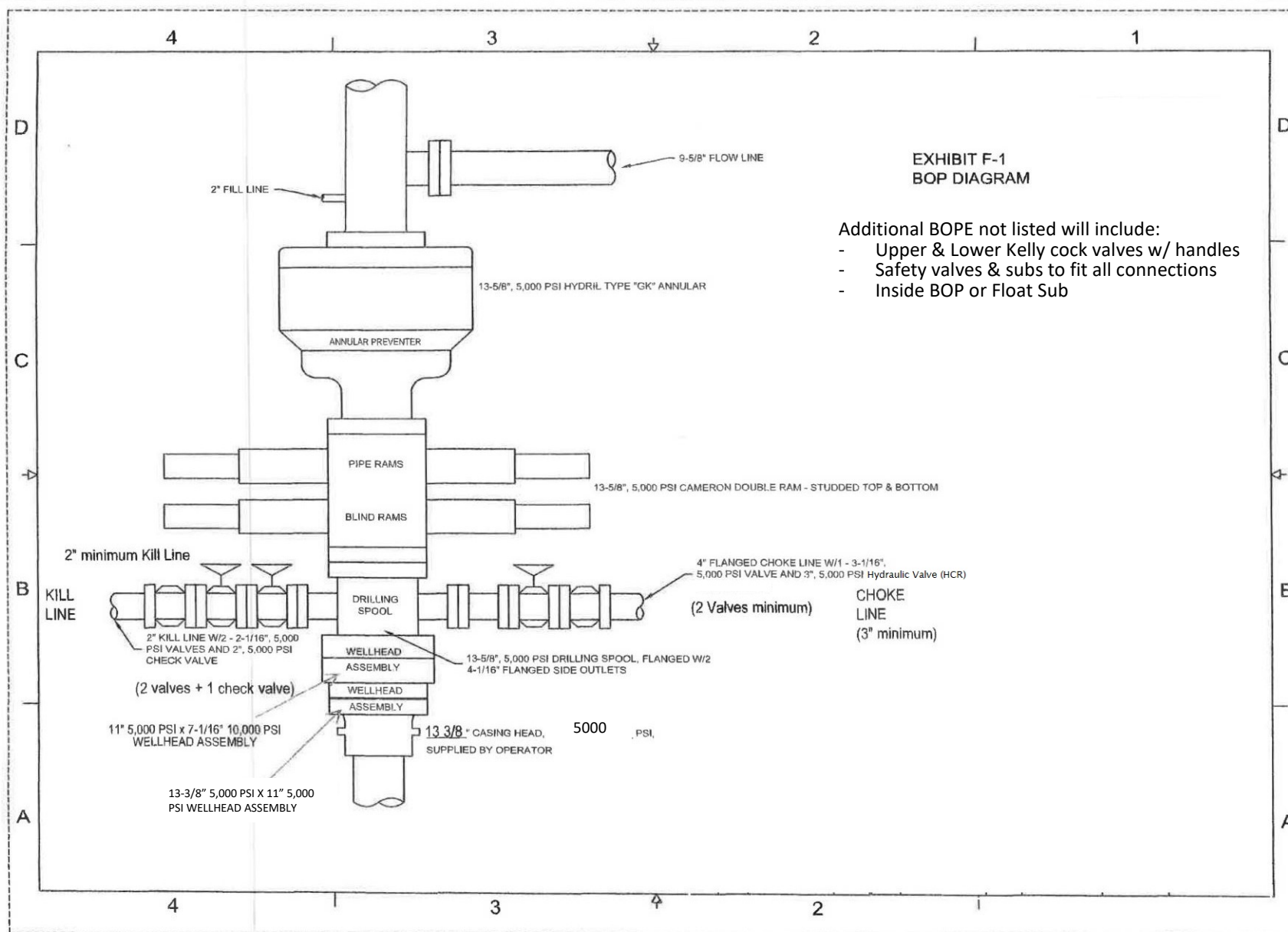
Ram Preventers

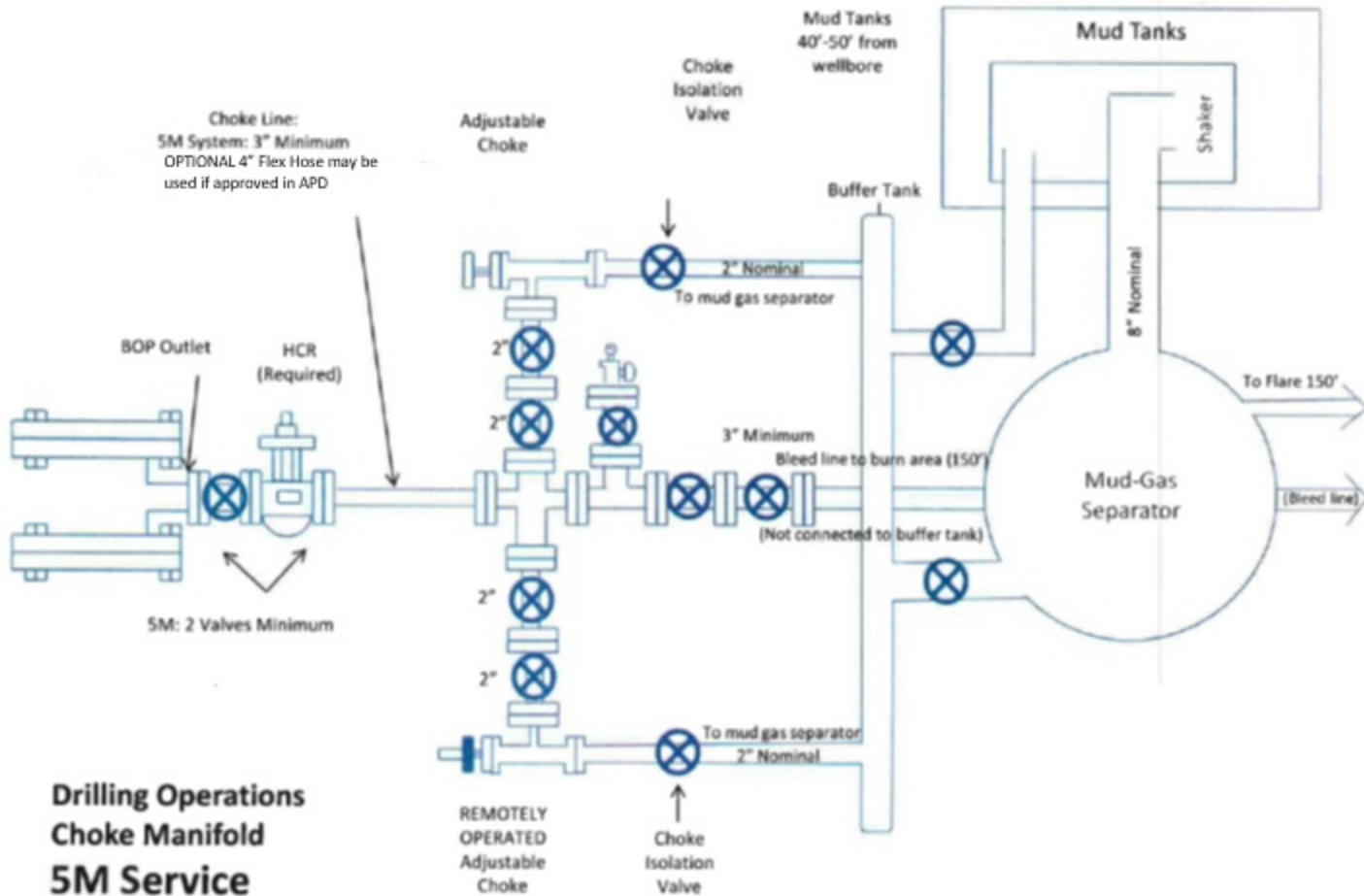
13-3/8" 5,000 PSI WP Double Ram

13-3/8" 5,000 PSI WP Single Ram

Test the pipe rams, blind rams, floor valves (IBOP and/or upper Kelly valve), choke lines and manifold to 250 psi/5,000 psi with a test plug and a test pump.

Test the annular to 250 psi/2,500 psi with same as above.





District I
1625 N. French Dr., Hobbs, NM 88240
Phone:(575) 393-6161 Fax:(575) 393-0720
District II
811 S. First St., Artesia, NM 88210
Phone:(575) 748-1283 Fax:(575) 748-9720
District III
1000 Rio Brazos Rd., Aztec, NM 87410
Phone:(505) 334-6178 Fax:(505) 334-6170
District IV
1220 S. St Francis Dr., Santa Fe, NM 87505
Phone:(505) 476-3470 Fax:(505) 476-3462

State of New Mexico
Energy, Minerals and Natural Resources
Oil Conservation Division
1220 S. St Francis Dr.
Santa Fe, NM 87505

CONDITIONS

Action 23995

CONDITIONS OF APPROVAL

Operator:		CHISHOLM ENERGY OPERATING, LLC			801 Cherry Street	Fort Worth, TX76102	OGRID:	372137	Action Number:	23995	Action Type:	FORM 3160-3
OCD Reviewer	Condition											
pkautz	Will require a File As Drilled C-102 and a Directional Survey with the C-104											
pkautz	Once the well is spud, to prevent ground water contamination through whole or partial conduits from the surface, the operator shall drill without interruption through the fresh water zone or zones and shall immediately set in cement the water protection string											