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

5. Lease Serial No.

6. If Indian, Allotee or Tribe Name

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

7. If Unit or CA Agreement, Name and No.

8. Lease Name and Well No.

2. Name of Operator

9. API Well No.
30 015 48240

3a. Address	3b. Phone No. *(include area code)*	10. Field and Pool, or Exploratory

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.

APPROVED WITH CONDITIONS

(Continued on page 2)

*(Instructions on page 2)

Approval Date: 04/16/2021

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
AMENDED SHL

WELL LOCATION AND ACREAGE DEDICATION PLAT

[1] API Number	[2] Pool Code	[3] Pool Name
30 015 48240	98220	PUPRLE SAGE; WOLFCAMP

[4] Property Code	[5] Property Name	[6] Well Number
300698	SHOWNUFF 18-19 FEDERAL COM WCB	2H

[7] OGRID No.	[8] Operator Name	[9] Elevation
372137	CHISHOLM ENERGY OPERATING, LLC	3698.5

[10] Surface Location

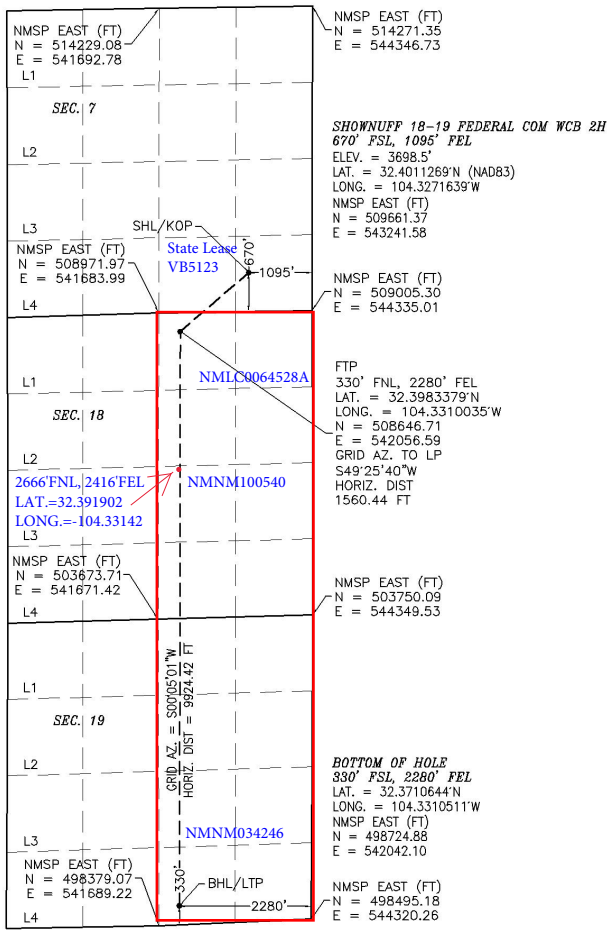
UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
P	7	22 S	26 E		670	SOUTH	1095	EAST	EDDY

[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
O	19	22 S	26 E		330	SOUTH	2280	EAST	EDDY

[12] Dedicated Acres	[13] Joint or Infill	[14] Consolidation Code	[15] Order No.
640			

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 10/25/19
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.

OCTOBER 3, 2019
Date of Survey

Signature and Seal of Professional Surveyor:

Certificate Number: FILIMON F. JARAMILLO, PLS 12797

Intent [X] As Drilled [ ]

API #

Operator Name:	Property Name:	Well Number
CHISHOLM ENERGY OPERATING, LLC	**SHOWNUFF 18-19 FEDERAL COM WCB**	**2H**

Kick Off Point (KOP)

UL	Section	Township	Range	Lot	Feet	From N/S	Feet	From E/W	County
P	**7**	**22S**	**26E**		**670**	**SOUTH**	**1095**	**EAST**	**EDDY**

Latitude	Longitude	NAD
32.4011269	**104.3271639**	**83**

First Take Point (FTP)

UL	Section	Township	Range	Lot	Feet	From N/S	Feet	From E/W	County
B	**18**	**22S**	**26E**		**330**	**NORTH**	**2280**	**EAST**	**EDDY**

Latitude	Longitude	NAD
32.3983379	**104.3310035**	**83**

Last Take Point (LTP)

UL	Section	Township	Range	Lot	Feet	From N/S	Feet	From E/W	County
O	**19**	**22S**	**26E**		**330**	**SOUTH**	**2280**	**EAST**	**EDDY**

Latitude	Longitude	NAD
32.3710644	**104.3310511**	**83**

Is this well the defining well for the Horizontal Spacing Unit? [YES]

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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District IV
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: 02/19/2019

☒ 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, recomplete 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
SHOWNUFF 18-19 FED COM WCB 2H	015-	UL-P, SECT. 7, 22S, 26E	670 FSL 1020 FEL	1900	FLARED	PIPELINE IN PLACE; FLARE 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 LUCID and will be connected to LUCID low/high pressure gathering system located in _EDDY___ County, New Mexico. It will require FLOWLINES to connect the facility to low/high pressure gathering system. Chisholm Energy Operating, LLC provides (periodically) to LUCID 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 LUCID have periodic conference calls to discuss changes to drilling and completion schedules. Gas from these wells will be processed at RED HILLS Processing Plant located in Sec.__13_, Twn._24S_, Rng._33E__, __EDDY___ 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 LUCID 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: SHOWNUFF 18-19 FED COM WCB **Well Number:** 2H

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_20190219081850.pdf

BOP Diagram Attachment:

5m_BOP_Diagram_2_20191028114701.pdf

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	420	0	420			420	J-55	48	ST&C	3.68	11.8	BUOY	24.99	BUOY	42.94
2	INTERMEDIATE	12.25	9.625	NEW	API	N	0	7900	0	7900			7900	N-80	40	BUTT	2.43	1.51	BUOY	3.61	BUOY	3.38
3	PRODUCTION	8.75	5.5	NEW	API	N	0	19928	0	9411			19928	P-110	20	BUTT	1.97	2.25	BUOY	4.3	BUOY	4.13

Casing Attachments

Casing ID: 1 **String Type:** SURFACE

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

Casing_Calculator___Shownuff_18_19_Fed_Com_WCB_2H_20190219082432.xlsx

Casing Program: **Shownuff 18-19 Fed Com WCB 2H**

Open Hole Size (Inches)	Casing Depth; From (ft)	Casing Setting Depth (ft) MD	Casing Setting Depth (ft) TVD	Casing Size (inches)	Casing Weight (lb/ft)	Casing Grade	Thread	Condition	Anticipated Mud Weight (ppg)	Burst (psi)	Burst SF (1.125)	Collapse (psi)	Collapse SF (1.125)	Pipe Body Tension (klbs)	Joint Tension (klbs)	Air Weight (lbs)	Bouyant Weight (lbs)	Pipe Body Tension SF (1.8)	Joint Tension SF (1.8)
Surface																			
17.5"	0'	1,200'	1,200'	13 3/8"	48.0	J-55	STC	New	9.2	2370	4.13	740	1.29	744,000	433,000	57,600	49,502	15.03	8.75
Intermediate																			
12.25"	0'	7,900'	7,900'	9 5/8"	40	N-80	BTC	New	9.3	5750	1.51	3090	2.43	916,000	979,000	316,000	271,092	3.38	3.61
Production																			
8.75"	0'	19,928'	9,411'	5 1/2"	20	P-110	BTC	New	11.5	12640	2.25	11080	1.97	641,000	667,000	188,220	155,143	4.13	4.30

Casing Design Criteria and Casing Loading Assumptions:

Surface

Tension	A 1.8 design factor with effects of buoyancy with a fluid equal to a mud weight of:	9.2	ppg
Collapse	A 1.125 design factor with full internal evacuation and collapse force equal to a mud gradient of:	9.2	ppg
Burst	A 1.125 design factor with full external evacuation and burst force equal to a mud gradient of:	9.2	ppg

Intermediate

Tension	A 1.8 design factor with effects of buoyancy with a fluid equal to a mud weight of:	9.3	ppg
Collapse	A 1.125 design factor with 1/3 TVD internal evacuation and collapse force equal to a mud gradient of:	9.3	ppg
Burst	A 1.125 design factor with full external evacuation and burst force equal to a mud gradient of:	9.3	ppg

Production

Tension	A 1.8 design factor with effects of buoyancy with a fluid equal to a mud weight of:	11.5	ppg
Collapse	A 1.125 design factor with full internal evacuation and collapse force equal to a mud gradient of:	11.5	ppg
Burst	A 1.125 design factor with full external evacuation and burst force equal to a mud gradient of:	11.5	ppg

Operator Name: CHISHOLM ENERGY OPERATING LLC

Well Name: SHOWNUFF 18-19 FED COM WCB **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___Shownuff_18_19_Fed_Com_WCB_2H_20190219082414.xlsx

Casing ID: 3 **String Type:** PRODUCTION

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

Casing_Calculator___Shownuff_18_19_Fed_Com_WCB_2H_20190219082424.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	420	435	1.35	14.8	587	100	Class C Premium Plus	Cellophane Flakes
INTERMEDIATE	Lead		0	2100	465	3.78	11.5	1758	200	CLASS C	Sodium Metasilicate, Defoamer, KCL, Kol-Seal, Cellophane Flakes, ROF SealCheck
INTERMEDIATE	Tail		2100	2600	350	1.35	14.8	473	200	CLASS C	N/A

Operator Name: CHISHOLM ENERGY OPERATING LLC

Well Name: SHOWNUFF 18-19 FED COM WCB **Well Number:** 2H

String Type	Lead/Tail	Stage Tool Depth	Top MD	Bottom MD	Quantity(sx)	Yield	Density	Cu Ft	Excess%	Cement type	Additives
INTERMEDIATE	Lead	2600	2600	7000	730	3.78	11.5	2759	100	Class C Premium Plus	Sodium Metasilicate, Defoamer, KCL, Kol-Seal, Cellophane Flakes, ROF SealCheck
INTERMEDIATE	Tail		7000	7900	420	1.35	14.8	567	100	Class C Premium Plus	NA
PRODUCTION	Lead		0	8700	780	2.93	11.3	2285	10	Liteweight	Fluid Loss, Expanding Agent, Retarder, Defoamer, Dispersant, Extender, Viscosifier
PRODUCTION	Tail		8700	19928	2360	1.2	14.5	2832	10	Class H Premium	Extender, Fluid Loss, 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: PVT, Pason/CanRig, Visual Monitoring

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	420	WATER-BASED MUD	8.5	9.2							38-40 VIS 8-10 PV 8-10 YP
420	7900	OTHER : DIESEL/BRINE EMULSION	8.7	8.9							28-32 VIS 1-3 PV 1-3 YP

Operator Name: CHISHOLM ENERGY OPERATING LLC

Well Name: SHOWNUFF 18-19 FED COM WCB **Well Number:** 2H

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
7900	19928	OIL-BASED MUD	10	11							25-30 PV, 12-18 YP, 600-900 ES

Section 6 - Test, Logging, Coring

List of production tests including testing procedures, equipment and safety measures:

N/A

List of open and cased hole logs run in the well:

CBL,DS,GR,MWD

Coring operation description for the well:

N/A

Section 7 - Pressure

Anticipated Bottom Hole Pressure: 5383 **Anticipated Surface Pressure:** 3305.1

Anticipated Bottom Hole Temperature(F): 160

Anticipated abnormal pressures, temperatures, or potential geologic hazards? NO

Describe:

Contingency Plans geoharzards description:

Contingency Plans geohazards attachment:

Hydrogen Sulfide drilling operations plan required? YES

Hydrogen sulfide drilling operations plan:

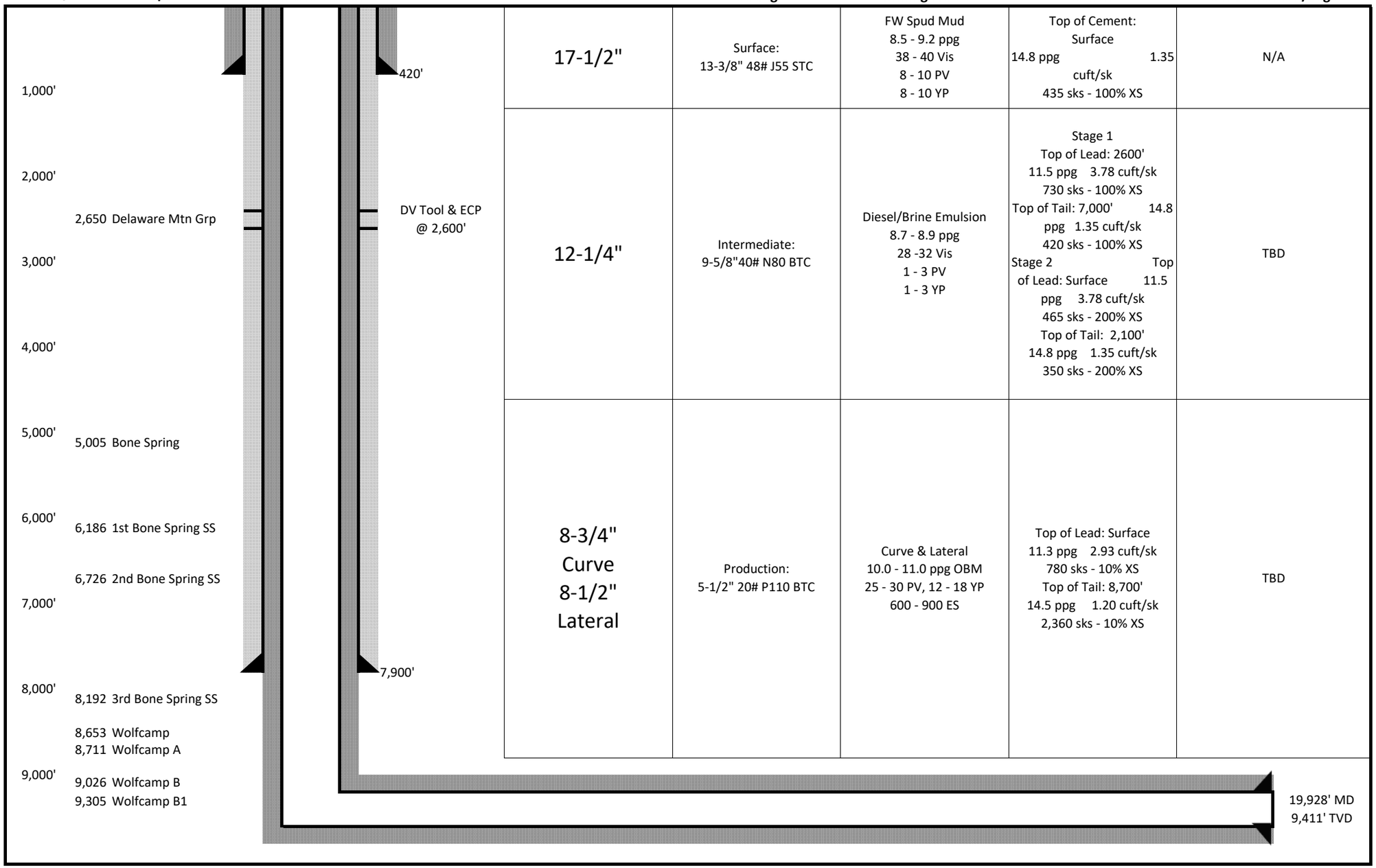
Eddy_County_H2S_plan_20190219084025.pdf

NEW TECH GLOBAL
An Oil and Gas Consulting and Engineering Firm

Shownuff 18-19 Fed Com WCB 2H

API # 30-015-xxxxx

Revised: 11/07/2018



Hole Size	Casing	Drilling Fluids	Cement	OH Evaluation/Logs
17-1/2"	Surface: 13-3/8" 48# J55 STC	FW Spud Mud 8.5 - 9.2 ppg 38 - 40 Vis 8 - 10 PV 8 - 10 YP	Top of Cement: Surface 14.8 ppg 1.35 cuft/sk 435 sks - 100% XS	N/A
12-1/4"	Intermediate: 9-5/8"40# N80 BTC	Diesel/Brine Emulsion 8.7 - 8.9 ppg 28 -32 Vis 1 - 3 PV 1 - 3 YP	Stage 1 Top of Lead: 2600' 11.5 ppg 3.78 cuft/sk 730 sks - 100% XS Top of Tail: 7,000' 14.8 ppg 1.35 cuft/sk 420 sks - 100% XS Stage 2 Top of Lead: Surface 11.5 ppg 3.78 cuft/sk 465 sks - 200% XS Top of Tail: 2,100' 14.8 ppg 1.35 cuft/sk 350 sks - 200% XS	TBD
8-3/4" Curve 8-1/2" Lateral	Production: 5-1/2" 20# P110 BTC	Curve & Lateral 10.0 - 11.0 ppg OBM 25 - 30 PV, 12 - 18 YP 600 - 900 ES	Top of Lead: Surface 11.3 ppg 2.93 cuft/sk 780 sks - 10% XS Top of Tail: 8,700' 14.5 ppg 1.20 cuft/sk 2,360 sks - 10% XS	TBD

CHISHOLM ENERGY

Chisholm Energy

Lea Co, NM
Shownuff 18-19 Fed Com
WCB #2H

WCB #2H

Plan: Design #1

Standard Planning Report

05 November, 2018

gyrodata

CHISHOLM ENERGY

Chisholm Energy
Lea Co, NM
Shownuff 18-19 Fed Com
WCB #2H
WCB #2H
Plan: Design #1 (WCB #2H/WCB #2H)
GE=3700'+KB=31' @ 3731.00usft

gyrodata

WELLBORE TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Shape
WCB #2H - LTP	9410.81	-10937.49	-1274.44	498724.88	542042.10	Point
WCB #2H - FTP	9445.45	-1015.66	-1257.95	508646.71	542058.59	Point

PROJECT DETAILS: Lea Co, NM

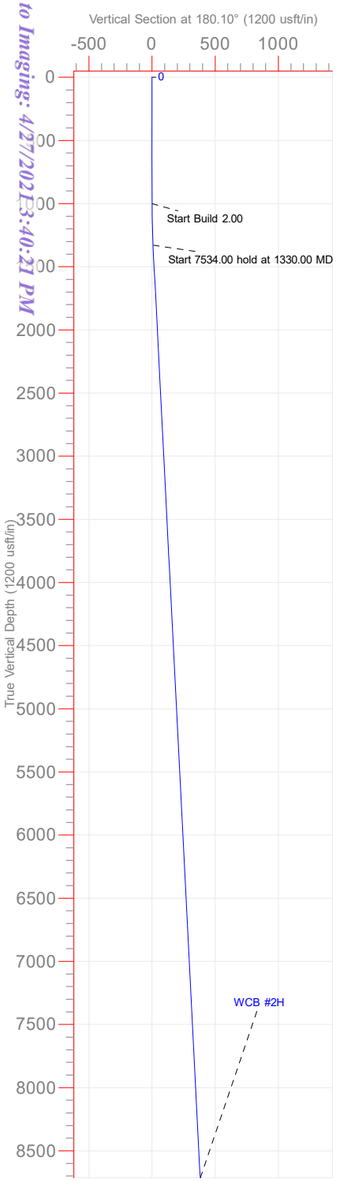
Geodetic System: US State Plane 1983
Datum: North American Datum 1983
Ellipsoid: GRS 1980
Zone: New Mexico Eastern Zone
North Reference: Grid
System Datum: Mean Sea Level
To convert a Magnetic Direction to a Grid Direction, Add 7.33°
To convert a Magnetic Direction to a True Direction, Add 7.33° East
To convert a True Direction to a Grid Direction, Subtract 0.00°

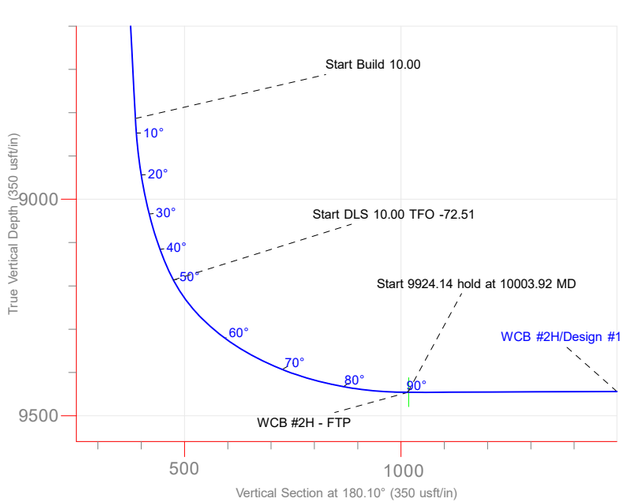
SECTION DETAILS

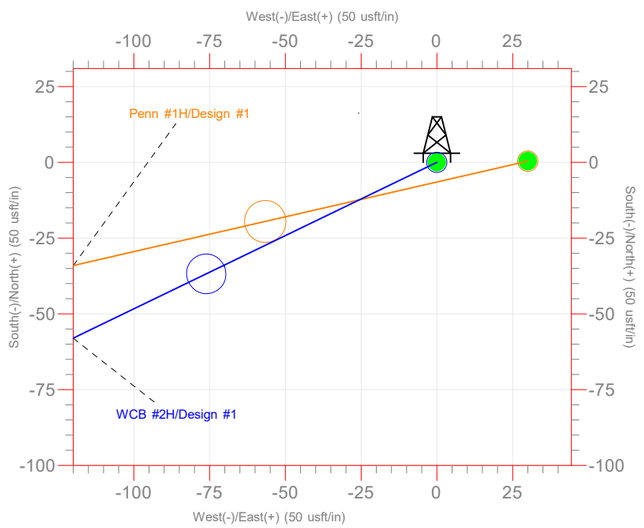
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	1000.00	0.00	0.00	1000.00	0.00	0.00	0.00	0.00	0.00	
3	1330.00	6.60	244.20	1329.27	-8.26	-17.09	2.00	244.20	8.29	
4	8864.00	6.60	244.20	8813.34	-385.15	-796.71	0.00	0.00	386.54	
5	9298.00	50.00	244.20	9186.40	-472.57	-977.56	10.00	0.00	474.28	
6	10003.92	90.20	180.10	9445.70	-1013.42	-1257.98	10.00	-72.51	1015.62	
7	19928.06	90.20	180.10	9410.81	-10937.49	-1274.44	0.00	0.00	10939.70	WCB #2H - LTP

FORMATION TOP DETAILS

TVDPath	MDPath	Formation
650.00	650.00	Delaware Mtn Gr
5005.00	5030.25	Bone Spring
6186.00	6219.13	1st Bone Spring SS
6726.00	6762.73	2nd Bone Spring SS
8192.00	8238.51	3rd Bone Spring SS
8653.00	8702.59	Wolfcamp
8700.00	8749.90	Wolfcamp A
9026.00	9088.84	Wolfcamp B
9305.00	9499.13	Wolfcamp B1



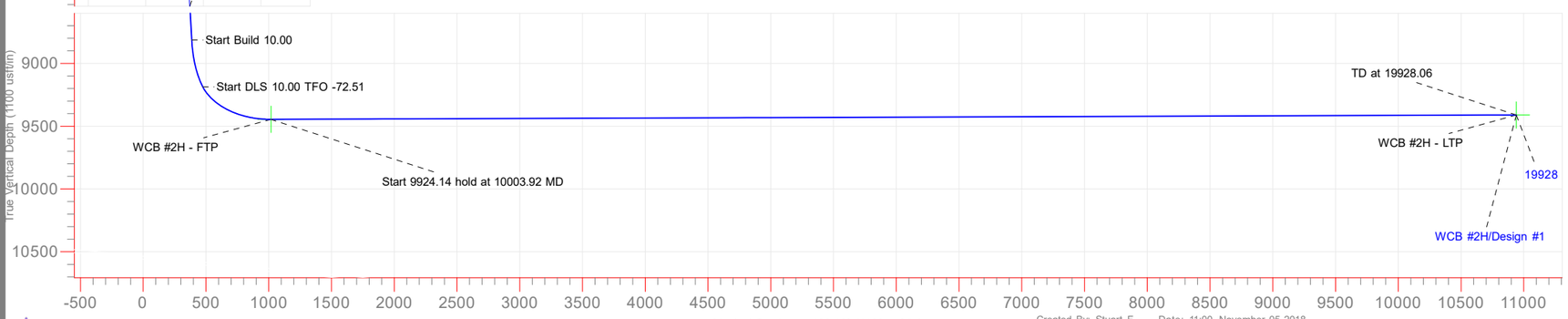


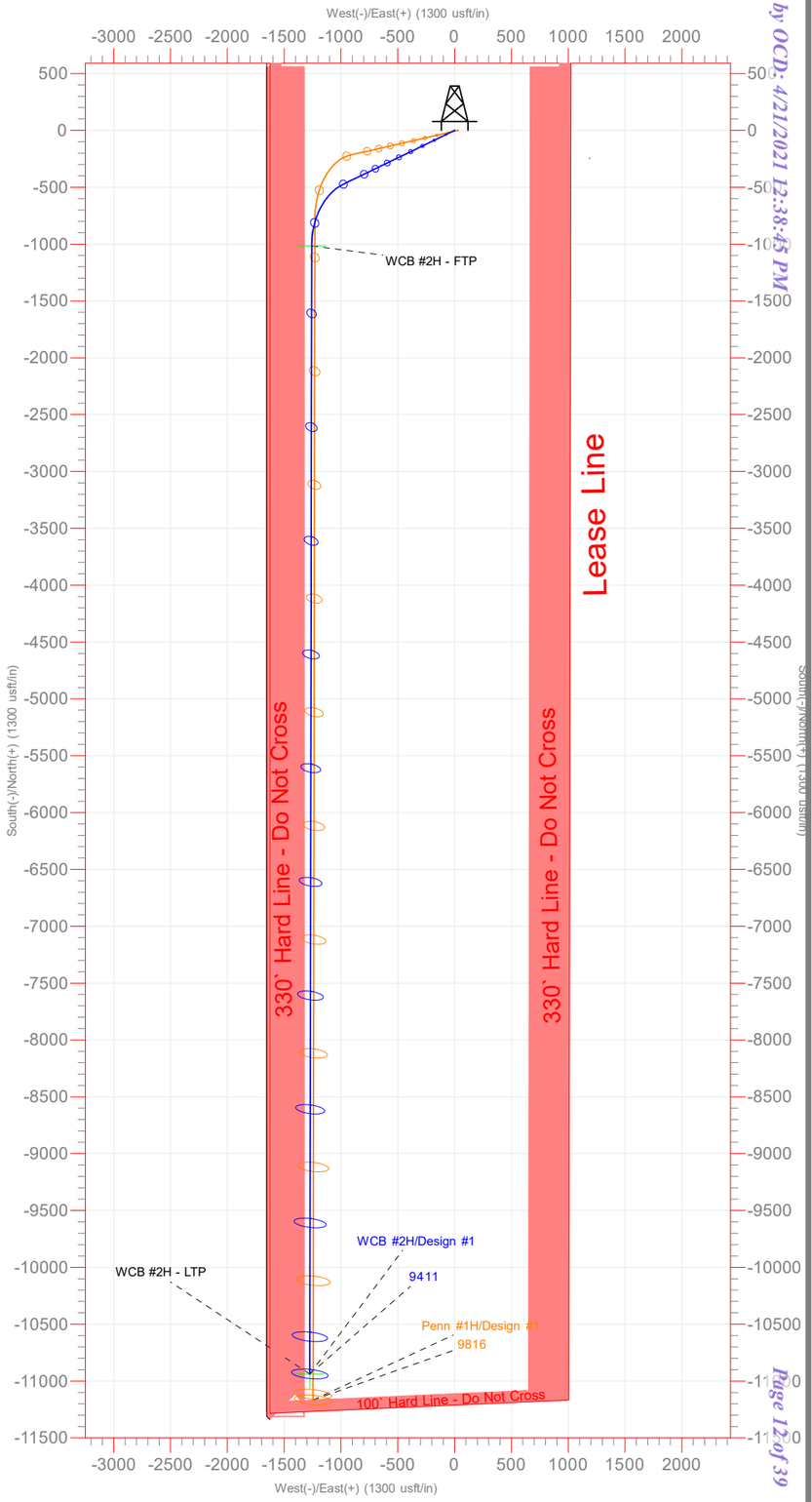


Azimuths to Grid North
True North: 0.00°
Magnetic North: 7.33°

Magnetic Field
Strength: 47944.9snT
Dip Angle: 60.08°
Date: 11/5/2018
Model: HDGM

Notice: Section Lines and Hardlines are estimates only and are subject to customer approval





Created By: Stuart F. Date: 11:00, November 05 2018

CHISHOLM ENERGY

Planning Report

gyrodata

Database:	Gyrodata NWDB	**Local Co-ordinate Reference:**	Well WCB #2H
Company:	Chisholm Energy	**TVD Reference:**	GE=3700'+KB=31' @ 3731.00usft
Project:	Lea Co, NM	**MD Reference:**	GE=3700'+KB=31' @ 3731.00usft
Site:	Shownuff 18-19 Fed Com	**North Reference:**	Grid
Well:	WCB #2H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	WCB #2H		
Design:	Design #1		

Project Lea Co, NM

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

Site Shownuff 18-19 Fed Com

Site Position:		**Northing:**	509,662.78 usft	**Latitude:**	32° 24' 4.070702 N
From:	Map	**Easting:**	543,346.55 usft	**Longitude:**	104° 19' 36.565600 W
Position Uncertainty:	0.00 usft	**Slot Radius:**	13.20 in	**Grid Convergence:**	0.00 °

Well WCB #2H

Well Position	**+N/-S**	-0.41 usft	**Northing:**	509,662.37 usft	**Latitude:**	32° 24' 4.066663 N
	+E/-W	-30.01 usft	**Easting:**	543,316.54 usft	**Longitude:**	104° 19' 36.915649 W
Position Uncertainty		0.00 usft	**Wellhead Elevation:**		**Ground Level:**	3,700.00 usft

Wellbore WCB #2H

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM	11/5/2018	7.33	60.08	47,944.90000000

Design Design #1

Audit Notes:

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

Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.00	0.00	0.00	180.10

Plan Survey Tool Program **Date** 11/5/2018

	Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks
1	0.00	19,928.06	Design #1 (WCB #2H)	MWD+HRGM	
				OWSG MWD + HRGM	

Plan Sections

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,000.00	0.00	0.00	1,000.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,330.00	6.60	244.20	1,329.27	-8.26	-17.09	2.00	2.00	0.00	244.20	
8,864.00	6.60	244.20	8,813.34	-385.15	-796.71	0.00	0.00	0.00	0.00	
9,298.00	50.00	244.20	9,186.40	-472.57	-977.56	10.00	10.00	0.00	0.00	
10,003.92	90.20	180.10	9,445.70	-1,013.42	-1,257.98	10.00	5.69	-9.08	-72.51	
19,928.06	90.20	180.10	9,410.81	-10,937.49	-1,274.44	0.00	0.00	0.00	0.00	WCB #2H - LTP

CHISHOLM ENERGY

Planning Report

gyrodata

Database:	Gyrodata NWDB	**Local Co-ordinate Reference:**	Well WCB #2H
Company:	Chisholm Energy	**TVD Reference:**	GE=3700'+KB=31' @ 3731.00usft
Project:	Lea Co, NM	**MD Reference:**	GE=3700'+KB=31' @ 3731.00usft
Site:	Shownuff 18-19 Fed Com	**North Reference:**	Grid
Well:	WCB #2H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	WCB #2H		
Design:	Design #1		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	0.00
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00
600.00	0.00	0.00	600.00	0.00	0.00	0.00	0.00	0.00	0.00
700.00	0.00	0.00	700.00	0.00	0.00	0.00	0.00	0.00	0.00
800.00	0.00	0.00	800.00	0.00	0.00	0.00	0.00	0.00	0.00
900.00	0.00	0.00	900.00	0.00	0.00	0.00	0.00	0.00	0.00
1,000.00	0.00	0.00	1,000.00	0.00	0.00	0.00	0.00	0.00	0.00
1,100.00	2.00	244.20	1,099.98	-0.76	-1.57	0.76	2.00	2.00	0.00
1,200.00	4.00	244.20	1,199.84	-3.04	-6.28	3.05	2.00	2.00	0.00
1,300.00	6.00	244.20	1,299.45	-6.83	-14.13	6.86	2.00	2.00	0.00
1,330.00	6.60	244.20	1,329.27	-8.26	-17.09	8.29	2.00	2.00	0.00
1,400.00	6.60	244.20	1,398.81	-11.76	-24.34	11.81	0.00	0.00	0.00
1,500.00	6.60	244.20	1,498.14	-16.77	-34.68	16.83	0.00	0.00	0.00
1,600.00	6.60	244.20	1,597.48	-21.77	-45.03	21.85	0.00	0.00	0.00
1,700.00	6.60	244.20	1,696.82	-26.77	-55.38	26.87	0.00	0.00	0.00
1,800.00	6.60	244.20	1,796.16	-31.77	-65.73	31.89	0.00	0.00	0.00
1,900.00	6.60	244.20	1,895.49	-36.78	-76.08	36.91	0.00	0.00	0.00
2,000.00	6.60	244.20	1,994.83	-41.78	-86.42	41.93	0.00	0.00	0.00
2,100.00	6.60	244.20	2,094.17	-46.78	-96.77	46.95	0.00	0.00	0.00
2,200.00	6.60	244.20	2,193.51	-51.78	-107.12	51.97	0.00	0.00	0.00
2,300.00	6.60	244.20	2,292.84	-56.79	-117.47	56.99	0.00	0.00	0.00
2,400.00	6.60	244.20	2,392.18	-61.79	-127.82	62.01	0.00	0.00	0.00
2,500.00	6.60	244.20	2,491.52	-66.79	-138.16	67.03	0.00	0.00	0.00
2,600.00	6.60	244.20	2,590.85	-71.79	-148.51	72.05	0.00	0.00	0.00
2,700.00	6.60	244.20	2,690.19	-76.80	-158.86	77.07	0.00	0.00	0.00
2,800.00	6.60	244.20	2,789.53	-81.80	-169.21	82.09	0.00	0.00	0.00
2,900.00	6.60	244.20	2,888.87	-86.80	-179.56	87.11	0.00	0.00	0.00
3,000.00	6.60	244.20	2,988.20	-91.80	-189.90	92.13	0.00	0.00	0.00
3,100.00	6.60	244.20	3,087.54	-96.81	-200.25	97.16	0.00	0.00	0.00
3,200.00	6.60	244.20	3,186.88	-101.81	-210.60	102.18	0.00	0.00	0.00
3,300.00	6.60	244.20	3,286.22	-106.81	-220.95	107.20	0.00	0.00	0.00
3,400.00	6.60	244.20	3,385.55	-111.81	-231.30	112.22	0.00	0.00	0.00
3,500.00	6.60	244.20	3,484.89	-116.82	-241.64	117.24	0.00	0.00	0.00
3,600.00	6.60	244.20	3,584.23	-121.82	-251.99	122.26	0.00	0.00	0.00
3,700.00	6.60	244.20	3,683.56	-126.82	-262.34	127.28	0.00	0.00	0.00
3,800.00	6.60	244.20	3,782.90	-131.82	-272.69	132.30	0.00	0.00	0.00
3,900.00	6.60	244.20	3,882.24	-136.83	-283.04	137.32	0.00	0.00	0.00
4,000.00	6.60	244.20	3,981.58	-141.83	-293.38	142.34	0.00	0.00	0.00
4,100.00	6.60	244.20	4,080.91	-146.83	-303.73	147.36	0.00	0.00	0.00
4,200.00	6.60	244.20	4,180.25	-151.83	-314.08	152.38	0.00	0.00	0.00
4,300.00	6.60	244.20	4,279.59	-156.84	-324.43	157.40	0.00	0.00	0.00
4,400.00	6.60	244.20	4,378.93	-161.84	-334.78	162.42	0.00	0.00	0.00
4,500.00	6.60	244.20	4,478.26	-166.84	-345.12	167.44	0.00	0.00	0.00
4,600.00	6.60	244.20	4,577.60	-171.84	-355.47	172.46	0.00	0.00	0.00
4,700.00	6.60	244.20	4,676.94	-176.84	-365.82	177.48	0.00	0.00	0.00
4,800.00	6.60	244.20	4,776.27	-181.85	-376.17	182.50	0.00	0.00	0.00
4,900.00	6.60	244.20	4,875.61	-186.85	-386.52	187.52	0.00	0.00	0.00
5,000.00	6.60	244.20	4,974.95	-191.85	-396.87	192.54	0.00	0.00	0.00
5,100.00	6.60	244.20	5,074.29	-196.85	-407.21	197.56	0.00	0.00	0.00
5,200.00	6.60	244.20	5,173.62	-201.86	-417.56	202.59	0.00	0.00	0.00

CHISHOLM ENERGY

Planning Report

gyrodata

Database:	Gyrodata NWDB	**Local Co-ordinate Reference:**	Well WCB #2H
Company:	Chisholm Energy	**TVD Reference:**	GE=3700'+KB=31' @ 3731.00usft
Project:	Lea Co, NM	**MD Reference:**	GE=3700'+KB=31' @ 3731.00usft
Site:	Shownuff 18-19 Fed Com	**North Reference:**	Grid
Well:	WCB #2H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	WCB #2H		
Design:	Design #1		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
5,300.00	6.60	244.20	5,272.96	-206.86	-427.91	207.61	0.00	0.00	0.00
5,400.00	6.60	244.20	5,372.30	-211.86	-438.26	212.63	0.00	0.00	0.00
5,500.00	6.60	244.20	5,471.64	-216.86	-448.61	217.65	0.00	0.00	0.00
5,600.00	6.60	244.20	5,570.97	-221.87	-458.95	222.67	0.00	0.00	0.00
5,700.00	6.60	244.20	5,670.31	-226.87	-469.30	227.69	0.00	0.00	0.00
5,800.00	6.60	244.20	5,769.65	-231.87	-479.65	232.71	0.00	0.00	0.00
5,900.00	6.60	244.20	5,868.98	-236.87	-490.00	237.73	0.00	0.00	0.00
6,000.00	6.60	244.20	5,968.32	-241.88	-500.35	242.75	0.00	0.00	0.00
6,100.00	6.60	244.20	6,067.66	-246.88	-510.69	247.77	0.00	0.00	0.00
6,200.00	6.60	244.20	6,167.00	-251.88	-521.04	252.79	0.00	0.00	0.00
6,300.00	6.60	244.20	6,266.33	-256.88	-531.39	257.81	0.00	0.00	0.00
6,400.00	6.60	244.20	6,365.67	-261.89	-541.74	262.83	0.00	0.00	0.00
6,500.00	6.60	244.20	6,465.01	-266.89	-552.09	267.85	0.00	0.00	0.00
6,600.00	6.60	244.20	6,564.35	-271.89	-562.43	272.87	0.00	0.00	0.00
6,700.00	6.60	244.20	6,663.68	-276.89	-572.78	277.89	0.00	0.00	0.00
6,800.00	6.60	244.20	6,763.02	-281.90	-583.13	282.91	0.00	0.00	0.00
6,900.00	6.60	244.20	6,862.36	-286.90	-593.48	287.93	0.00	0.00	0.00
7,000.00	6.60	244.20	6,961.69	-291.90	-603.83	292.95	0.00	0.00	0.00
7,100.00	6.60	244.20	7,061.03	-296.90	-614.17	297.97	0.00	0.00	0.00
7,200.00	6.60	244.20	7,160.37	-301.91	-624.52	302.99	0.00	0.00	0.00
7,300.00	6.60	244.20	7,259.71	-306.91	-634.87	308.02	0.00	0.00	0.00
7,400.00	6.60	244.20	7,359.04	-311.91	-645.22	313.04	0.00	0.00	0.00
7,500.00	6.60	244.20	7,458.38	-316.91	-655.57	318.06	0.00	0.00	0.00
7,600.00	6.60	244.20	7,557.72	-321.92	-665.91	323.08	0.00	0.00	0.00
7,700.00	6.60	244.20	7,657.06	-326.92	-676.26	328.10	0.00	0.00	0.00
7,800.00	6.60	244.20	7,756.39	-331.92	-686.61	333.12	0.00	0.00	0.00
7,900.00	6.60	244.20	7,855.73	-336.92	-696.96	338.14	0.00	0.00	0.00
8,000.00	6.60	244.20	7,955.07	-341.92	-707.31	343.16	0.00	0.00	0.00
8,100.00	6.60	244.20	8,054.40	-346.93	-717.65	348.18	0.00	0.00	0.00
8,200.00	6.60	244.20	8,153.74	-351.93	-728.00	353.20	0.00	0.00	0.00
8,300.00	6.60	244.20	8,253.08	-356.93	-738.35	358.22	0.00	0.00	0.00
8,400.00	6.60	244.20	8,352.42	-361.93	-748.70	363.24	0.00	0.00	0.00
8,500.00	6.60	244.20	8,451.75	-366.94	-759.05	368.26	0.00	0.00	0.00
8,600.00	6.60	244.20	8,551.09	-371.94	-769.39	373.28	0.00	0.00	0.00
8,700.00	6.60	244.20	8,650.43	-376.94	-779.74	378.30	0.00	0.00	0.00
8,800.00	6.60	244.20	8,749.77	-381.94	-790.09	383.32	0.00	0.00	0.00
8,864.00	6.60	244.20	8,813.34	-385.15	-796.71	386.54	0.00	0.00	0.00
8,900.00	10.20	244.20	8,848.95	-387.43	-801.45	388.83	10.00	10.00	0.00
8,950.00	15.20	244.20	8,897.71	-392.22	-811.34	393.63	10.00	10.00	0.00
9,000.00	20.20	244.20	8,945.33	-398.83	-825.02	400.27	10.00	10.00	0.00
9,050.00	25.20	244.20	8,991.44	-407.23	-842.39	408.70	10.00	10.00	0.00
9,100.00	30.20	244.20	9,035.70	-417.34	-863.31	418.84	10.00	10.00	0.00
9,150.00	35.20	244.20	9,077.76	-429.09	-887.62	430.64	10.00	10.00	0.00
9,200.00	40.20	244.20	9,117.31	-442.40	-915.14	443.99	10.00	10.00	0.00
9,250.00	45.20	244.20	9,154.04	-457.15	-945.66	458.80	10.00	10.00	0.00
9,298.00	50.00	244.20	9,186.40	-472.57	-977.56	474.28	10.00	10.00	0.00
9,300.00	50.06	243.95	9,187.68	-473.24	-978.94	474.95	10.00	3.02	-12.44
9,350.00	51.74	237.88	9,219.23	-492.11	-1,012.81	493.87	10.00	3.35	-12.14
9,400.00	53.71	232.10	9,249.53	-514.94	-1,045.35	516.76	10.00	3.95	-11.55
9,450.00	55.95	226.63	9,278.35	-541.55	-1,076.33	543.43	10.00	4.47	-10.94
9,500.00	58.41	221.46	9,305.46	-571.76	-1,105.51	573.69	10.00	4.93	-10.35
9,550.00	61.08	216.56	9,330.66	-605.32	-1,132.66	607.29	10.00	5.33	-9.80
9,600.00	63.91	211.91	9,353.75	-641.98	-1,157.57	644.00	10.00	5.67	-9.29
9,650.00	66.89	207.49	9,374.58	-681.46	-1,180.07	683.52	10.00	5.95	-8.84

CHISHOLM ENERGY

Planning Report

gyrodata

Database:	Gyrodata NWDB	**Local Co-ordinate Reference:**	Well WCB #2H
Company:	Chisholm Energy	**TVD Reference:**	GE=3700'+KB=31' @ 3731.00usft
Project:	Lea Co, NM	**MD Reference:**	GE=3700'+KB=31' @ 3731.00usft
Site:	Shownuff 18-19 Fed Com	**North Reference:**	Grid
Well:	WCB #2H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	WCB #2H		
Design:	Design #1		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
9,700.00	69.98	203.26	9,392.96	-723.46	-1,199.97	725.56	10.00	6.18	-8.45
9,750.00	73.17	199.20	9,408.77	-767.67	-1,217.13	769.79	10.00	6.38	-8.12
9,800.00	76.43	195.28	9,421.88	-813.74	-1,231.41	815.89	10.00	6.53	-7.85
9,850.00	79.76	191.46	9,432.20	-861.32	-1,242.71	863.49	10.00	6.65	-7.63
9,900.00	83.13	187.72	9,439.64	-910.06	-1,250.94	912.24	10.00	6.74	-7.47
9,950.00	86.52	184.04	9,444.16	-959.58	-1,256.04	961.77	10.00	6.79	-7.37
10,003.92	90.20	180.10	9,445.70	-1,013.42	-1,257.98	1,015.62	10.00	6.82	-7.31
10,006.16	90.20	180.10	9,445.69	-1,015.66	-1,257.98	1,017.85	0.00	0.00	0.00
WCB #2H - FTP									
10,100.00	90.20	180.10	9,445.36	-1,109.50	-1,258.14	1,111.69	0.00	0.00	0.00
10,200.00	90.20	180.10	9,445.01	-1,209.50	-1,258.31	1,211.69	0.00	0.00	0.00
10,300.00	90.20	180.10	9,444.66	-1,309.50	-1,258.47	1,311.69	0.00	0.00	0.00
10,400.00	90.20	180.10	9,444.30	-1,409.50	-1,258.64	1,411.69	0.00	0.00	0.00
10,500.00	90.20	180.10	9,443.95	-1,509.50	-1,258.80	1,511.69	0.00	0.00	0.00
10,600.00	90.20	180.10	9,443.60	-1,609.50	-1,258.97	1,611.69	0.00	0.00	0.00
10,700.00	90.20	180.10	9,443.25	-1,709.50	-1,259.13	1,711.69	0.00	0.00	0.00
10,800.00	90.20	180.10	9,442.90	-1,809.50	-1,259.30	1,811.69	0.00	0.00	0.00
10,900.00	90.20	180.10	9,442.55	-1,909.49	-1,259.47	1,911.69	0.00	0.00	0.00
11,000.00	90.20	180.10	9,442.20	-2,009.49	-1,259.63	2,011.69	0.00	0.00	0.00
11,100.00	90.20	180.10	9,441.84	-2,109.49	-1,259.80	2,111.69	0.00	0.00	0.00
11,200.00	90.20	180.10	9,441.49	-2,209.49	-1,259.96	2,211.69	0.00	0.00	0.00
11,300.00	90.20	180.10	9,441.14	-2,309.49	-1,260.13	2,311.69	0.00	0.00	0.00
11,400.00	90.20	180.10	9,440.79	-2,409.49	-1,260.30	2,411.69	0.00	0.00	0.00
11,500.00	90.20	180.10	9,440.44	-2,509.49	-1,260.46	2,511.69	0.00	0.00	0.00
11,600.00	90.20	180.10	9,440.09	-2,609.49	-1,260.63	2,611.69	0.00	0.00	0.00
11,700.00	90.20	180.10	9,439.73	-2,709.49	-1,260.79	2,711.68	0.00	0.00	0.00
11,800.00	90.20	180.10	9,439.38	-2,809.49	-1,260.96	2,811.68	0.00	0.00	0.00
11,900.00	90.20	180.10	9,439.03	-2,909.49	-1,261.12	2,911.68	0.00	0.00	0.00
12,000.00	90.20	180.10	9,438.68	-3,009.49	-1,261.29	3,011.68	0.00	0.00	0.00
12,100.00	90.20	180.10	9,438.33	-3,109.49	-1,261.46	3,111.68	0.00	0.00	0.00
12,200.00	90.20	180.10	9,437.98	-3,209.48	-1,261.62	3,211.68	0.00	0.00	0.00
12,300.00	90.20	180.10	9,437.63	-3,309.48	-1,261.79	3,311.68	0.00	0.00	0.00
12,400.00	90.20	180.10	9,437.27	-3,409.48	-1,261.95	3,411.68	0.00	0.00	0.00
12,500.00	90.20	180.10	9,436.92	-3,509.48	-1,262.12	3,511.68	0.00	0.00	0.00
12,600.00	90.20	180.10	9,436.57	-3,609.48	-1,262.29	3,611.68	0.00	0.00	0.00
12,700.00	90.20	180.10	9,436.22	-3,709.48	-1,262.45	3,711.68	0.00	0.00	0.00
12,800.00	90.20	180.10	9,435.87	-3,809.48	-1,262.62	3,811.68	0.00	0.00	0.00
12,900.00	90.20	180.10	9,435.52	-3,909.48	-1,262.78	3,911.68	0.00	0.00	0.00
13,000.00	90.20	180.10	9,435.16	-4,009.48	-1,262.95	4,011.68	0.00	0.00	0.00
13,100.00	90.20	180.10	9,434.81	-4,109.48	-1,263.12	4,111.68	0.00	0.00	0.00
13,200.00	90.20	180.10	9,434.46	-4,209.48	-1,263.28	4,211.68	0.00	0.00	0.00
13,300.00	90.20	180.10	9,434.11	-4,309.48	-1,263.45	4,311.67	0.00	0.00	0.00
13,400.00	90.20	180.10	9,433.76	-4,409.48	-1,263.61	4,411.67	0.00	0.00	0.00
13,500.00	90.20	180.10	9,433.41	-4,509.47	-1,263.78	4,511.67	0.00	0.00	0.00
13,600.00	90.20	180.10	9,433.06	-4,609.47	-1,263.94	4,611.67	0.00	0.00	0.00
13,700.00	90.20	180.10	9,432.70	-4,709.47	-1,264.11	4,711.67	0.00	0.00	0.00
13,800.00	90.20	180.10	9,432.35	-4,809.47	-1,264.28	4,811.67	0.00	0.00	0.00
13,900.00	90.20	180.10	9,432.00	-4,909.47	-1,264.44	4,911.67	0.00	0.00	0.00
14,000.00	90.20	180.10	9,431.65	-5,009.47	-1,264.61	5,011.67	0.00	0.00	0.00
14,100.00	90.20	180.10	9,431.30	-5,109.47	-1,264.77	5,111.67	0.00	0.00	0.00
14,200.00	90.20	180.10	9,430.95	-5,209.47	-1,264.94	5,211.67	0.00	0.00	0.00
14,300.00	90.20	180.10	9,430.59	-5,309.47	-1,265.11	5,311.67	0.00	0.00	0.00
14,400.00	90.20	180.10	9,430.24	-5,409.47	-1,265.27	5,411.67	0.00	0.00	0.00

CHISHOLM ENERGY

Planning Report

gyrodata

Database:	Gyrodata NWDB	**Local Co-ordinate Reference:**	Well WCB #2H
Company:	Chisholm Energy	**TVD Reference:**	GE=3700'+KB=31' @ 3731.00usft
Project:	Lea Co, NM	**MD Reference:**	GE=3700'+KB=31' @ 3731.00usft
Site:	Shownuff 18-19 Fed Com	**North Reference:**	Grid
Well:	WCB #2H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	WCB #2H		
Design:	Design #1		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
14,500.00	90.20	180.10	9,429.89	-5,509.47	-1,265.44	5,511.67	0.00	0.00	0.00
14,600.00	90.20	180.10	9,429.54	-5,609.47	-1,265.60	5,611.67	0.00	0.00	0.00
14,700.00	90.20	180.10	9,429.19	-5,709.47	-1,265.77	5,711.67	0.00	0.00	0.00
14,800.00	90.20	180.10	9,428.84	-5,809.47	-1,265.93	5,811.67	0.00	0.00	0.00
14,900.00	90.20	180.10	9,428.49	-5,909.46	-1,266.10	5,911.67	0.00	0.00	0.00
15,000.00	90.20	180.10	9,428.13	-6,009.46	-1,266.27	6,011.66	0.00	0.00	0.00
15,100.00	90.20	180.10	9,427.78	-6,109.46	-1,266.43	6,111.66	0.00	0.00	0.00
15,200.00	90.20	180.10	9,427.43	-6,209.46	-1,266.60	6,211.66	0.00	0.00	0.00
15,300.00	90.20	180.10	9,427.08	-6,309.46	-1,266.76	6,311.66	0.00	0.00	0.00
15,400.00	90.20	180.10	9,426.73	-6,409.46	-1,266.93	6,411.66	0.00	0.00	0.00
15,500.00	90.20	180.10	9,426.38	-6,509.46	-1,267.10	6,511.66	0.00	0.00	0.00
15,600.00	90.20	180.10	9,426.02	-6,609.46	-1,267.26	6,611.66	0.00	0.00	0.00
15,700.00	90.20	180.10	9,425.67	-6,709.46	-1,267.43	6,711.66	0.00	0.00	0.00
15,800.00	90.20	180.10	9,425.32	-6,809.46	-1,267.59	6,811.66	0.00	0.00	0.00
15,900.00	90.20	180.10	9,424.97	-6,909.46	-1,267.76	6,911.66	0.00	0.00	0.00
16,000.00	90.20	180.10	9,424.62	-7,009.46	-1,267.93	7,011.66	0.00	0.00	0.00
16,100.00	90.20	180.10	9,424.27	-7,109.46	-1,268.09	7,111.66	0.00	0.00	0.00
16,200.00	90.20	180.10	9,423.92	-7,209.45	-1,268.26	7,211.66	0.00	0.00	0.00
16,300.00	90.20	180.10	9,423.56	-7,309.45	-1,268.42	7,311.66	0.00	0.00	0.00
16,400.00	90.20	180.10	9,423.21	-7,409.45	-1,268.59	7,411.66	0.00	0.00	0.00
16,500.00	90.20	180.10	9,422.86	-7,509.45	-1,268.75	7,511.66	0.00	0.00	0.00
16,600.00	90.20	180.10	9,422.51	-7,609.45	-1,268.92	7,611.65	0.00	0.00	0.00
16,700.00	90.20	180.10	9,422.16	-7,709.45	-1,269.09	7,711.65	0.00	0.00	0.00
16,800.00	90.20	180.10	9,421.81	-7,809.45	-1,269.25	7,811.65	0.00	0.00	0.00
16,900.00	90.20	180.10	9,421.45	-7,909.45	-1,269.42	7,911.65	0.00	0.00	0.00
17,000.00	90.20	180.10	9,421.10	-8,009.45	-1,269.58	8,011.65	0.00	0.00	0.00
17,100.00	90.20	180.10	9,420.75	-8,109.45	-1,269.75	8,111.65	0.00	0.00	0.00
17,200.00	90.20	180.10	9,420.40	-8,209.45	-1,269.92	8,211.65	0.00	0.00	0.00
17,300.00	90.20	180.10	9,420.05	-8,309.45	-1,270.08	8,311.65	0.00	0.00	0.00
17,400.00	90.20	180.10	9,419.70	-8,409.45	-1,270.25	8,411.65	0.00	0.00	0.00
17,500.00	90.20	180.10	9,419.35	-8,509.44	-1,270.41	8,511.65	0.00	0.00	0.00
17,600.00	90.20	180.10	9,418.99	-8,609.44	-1,270.58	8,611.65	0.00	0.00	0.00
17,700.00	90.20	180.10	9,418.64	-8,709.44	-1,270.74	8,711.65	0.00	0.00	0.00
17,800.00	90.20	180.10	9,418.29	-8,809.44	-1,270.91	8,811.65	0.00	0.00	0.00
17,900.00	90.20	180.10	9,417.94	-8,909.44	-1,271.08	8,911.65	0.00	0.00	0.00
18,000.00	90.20	180.10	9,417.59	-9,009.44	-1,271.24	9,011.65	0.00	0.00	0.00
18,100.00	90.20	180.10	9,417.24	-9,109.44	-1,271.41	9,111.65	0.00	0.00	0.00
18,200.00	90.20	180.10	9,416.88	-9,209.44	-1,271.57	9,211.64	0.00	0.00	0.00
18,300.00	90.20	180.10	9,416.53	-9,309.44	-1,271.74	9,311.64	0.00	0.00	0.00
18,400.00	90.20	180.10	9,416.18	-9,409.44	-1,271.91	9,411.64	0.00	0.00	0.00
18,500.00	90.20	180.10	9,415.83	-9,509.44	-1,272.07	9,511.64	0.00	0.00	0.00
18,600.00	90.20	180.10	9,415.48	-9,609.44	-1,272.24	9,611.64	0.00	0.00	0.00
18,700.00	90.20	180.10	9,415.13	-9,709.44	-1,272.40	9,711.64	0.00	0.00	0.00
18,800.00	90.20	180.10	9,414.78	-9,809.43	-1,272.57	9,811.64	0.00	0.00	0.00
18,900.00	90.20	180.10	9,414.42	-9,909.43	-1,272.73	9,911.64	0.00	0.00	0.00
19,000.00	90.20	180.10	9,414.07	-10,009.43	-1,272.90	10,011.64	0.00	0.00	0.00
19,100.00	90.20	180.10	9,413.72	-10,109.43	-1,273.07	10,111.64	0.00	0.00	0.00
19,200.00	90.20	180.10	9,413.37	-10,209.43	-1,273.23	10,211.64	0.00	0.00	0.00
19,300.00	90.20	180.10	9,413.02	-10,309.43	-1,273.40	10,311.64	0.00	0.00	0.00
19,400.00	90.20	180.10	9,412.67	-10,409.43	-1,273.56	10,411.64	0.00	0.00	0.00
19,500.00	90.20	180.10	9,412.32	-10,509.43	-1,273.73	10,511.64	0.00	0.00	0.00
19,600.00	90.20	180.10	9,411.96	-10,609.43	-1,273.90	10,611.64	0.00	0.00	0.00
19,700.00	90.20	180.10	9,411.61	-10,709.43	-1,274.06	10,711.64	0.00	0.00	0.00
19,800.00	90.20	180.10	9,411.26	-10,809.43	-1,274.23	10,811.63	0.00	0.00	0.00

CHISHOLM ENERGY

Planning Report

gyrodata

Database:	Gyrodata NWDB	**Local Co-ordinate Reference:**	Well WCB #2H
Company:	Chisholm Energy	**TVD Reference:**	GE=3700'+KB=31' @ 3731.00usft
Project:	Lea Co, NM	**MD Reference:**	GE=3700'+KB=31' @ 3731.00usft
Site:	Shownuff 18-19 Fed Com	**North Reference:**	Grid
Well:	WCB #2H	**Survey Calculation Method:**	Minimum Curvature
Wellbore:	WCB #2H		
Design:	Design #1		

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
19,900.00	90.20	180.10	9,410.91	-10,909.43	-1,274.39	10,911.63	0.00	0.00	0.00
19,928.06	90.20	180.10	9,410.81	-10,937.49	-1,274.44	10,939.70	0.00	0.00	0.00
WCB #2H - LTP									

Design Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
WCB #2H - LTP - plan hits target center - Point	0.00	0.00	9,410.81	-10,937.49	-1,274.44	498,724.88	542,042.10	32° 22' 15.831846 N	104° 19' 51.783973 W
WCB #2H - FTP - plan misses target center by 0.24usft at 10006.16usft MD (9445.69 TVD, -1015.66 N, -1257.98 E) - Point	0.00	0.00	9,445.45	-1,015.66	-1,257.95	508,646.71	542,058.59	32° 23' 54.016415 N	104° 19' 51.589163 W

PECOS DISTRICT
DRILLING CONDITIONS OF APPROVAL

OPERATOR'S NAME:	**CHISHOLM ENERGY OPERATING LLC**
LEASE NO.:	**NMLC0064528A**
WELL NAME & NO.:	**SHOWNUFF 18-19 FED COM WCC 2H**
SURFACE HOLE FOOTAGE:	670'/S & 1065'/E
BOTTOM HOLE FOOTAGE	330'/S & 2280'/E
LOCATION:	Section 7, T.22 S., R.26 E., NMPM
COUNTY:	Eddy 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

Hydrogen Sulfide (H2S) monitors shall be installed prior to drilling out the surface shoe. If H2S is detected in concentrations greater than 100 ppm, the Hydrogen Sulfide area shall meet Onshore Order 6 requirements, which includes equipment and personnel/public protection items. If Hydrogen Sulfide is encountered, provide measured values and formations to the BLM.

B. CASING

1. The **13-3/8** inch surface casing shall be set at approximately **420 feet** (a minimum of 70 feet (Eddy 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 **8**

Approval Date: 04/16/2021

hours 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.

2. The **9-5/8** inch intermediate casing shall be set at approximately **7900 feet**. The minimum required fill of cement behind the **9-5/8** inch intermediate casing is:

Option 1 (Single Stage):

- Cement to surface. If cement does not circulate see B.1.a, c-d above. **Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry due to cave/karst or potash.**

Option 2:

Operator has proposed a DV tool, the depth may be adjusted as long as the cement is changed proportionally. The DV tool may be cancelled if cement circulates to surface on the first stage.

a. First stage to DV tool: Cement to circulate. If cement does not circulate off the DV tool, contact the appropriate BLM office before proceeding with second stage cement job.

b. Second stage above DV tool:

- Cement to surface. If cement does not circulate, contact the appropriate BLM office.
  Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry due to cave/karst or potash.

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

❖ In High Cave/Karst 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.

❖ 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.

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❖ **Special Capitan Reef requirements.** If lost circulation (50% or greater) occurs below the Base of the Salt, the operator shall do the following:

- 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:

Option 1 (Single Stage):

- Cement should tie-back at least **50 feet** on top of Capitan Reef top **or 200 feet** into the previous casing, whichever is greater. If cement does not circulate see B.1.a, c-d above.
  Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry due to cave/karst, potash or capitan reef.

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. **BOP REQUIREMENTS**

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 **3000 (3M)** psi.

b. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the intermediate casing shoe shall be **5000 (5M)** psi.

Option 2:

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 Santa Fe Office, 301 Dinosaur Trail Santa Fe, New Mexico 87508, 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.

Approval Date: 04/16/2021

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 intergrity 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 intergrity 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.

Approval Date: 04/16/2021

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.

RI01312021

Chisholm Energy Operating, LLC

801 Cherry St., Suite 1200-Unit 20

Fort Worth, TX 76102

H2S Contingency Plan

Eddy 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 (S02). 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 SO,

Common Name	Chemical Formula	Specific Gravity	Threshold Limit	Hazardous Limit	Lethal Concentration
Hydrogen Sulfide	H2S	1.189 Air=1	10 ppm	100 ppm/hr	600 ppm

Sulfur Dioxide	SO2	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 sit e. 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 play 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 H25 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	Office:	(817)953-6063
Vice President of Operations-Brad Grandstaff	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**
Eddy County Sheriff's Department		Number:	(575)887-7551
Eddy County Emergency Management		Number:	(575)628-5450
Lea County Fire Service		Number:	(575)628-5450
Fire Department:			
Artesia Fire Department		Number:	(575)746-5060
Sun Country Volunteer Fire Department		Number:	(505)484-3599
Riverside Volunteer Fire Department		Number:	(505)365-7900
Cottonwood Volunteer Fire Department		Number:	(505)748-7344
Atoka Fire Department		Number:	(505)746-9562
Queen Volunteer Fire Department		Number:	(505)981-2498
Joel Volunteer Fire Department		Number:	(505)885-4966
Otis Fire Rescue		Number:	(575)236-6113
La Huerta Volunteer Fire Department		Number:	(505)887-6353
Carlsbad Fire Department		Number:	(575)885-3125
Hope Volunteer Fire Department		Number:	(505)484-3351
Loco Hills Fire Department		Number:	(505)677-2349
Loving Fire Department		Number:	(505)745-3600
White's City Fire Department		Number:	(505)785-2219
Hospital:			
Artesia General Hospital		Number:	(575)748-3333
Carlsbad Medical Center		Number:	(575)887-4100
AirMed: Medevac		Number:	(888)303-9112
Dept. of Public Safety		Number:	(505)827-9000
New Mexico OCD-Dist. 2-Artesia	Office	Number:	(575)748-1283
	Emergency	Number:	(575)626-0830
Eddy County Road Department-South		Number:	(575)885-4835
Eddy County Road Department-North		Number:	(575)746-9540
NMDOT		Number:	(505)827-5100

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

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

Drilling Plan Data Report
04/19/2021

APD ID: 10400036151
Submission Date: 02/19/2019
Operator Name: CHISHOLM ENERGY OPERATING LLC
Well Name: SHOWNUFF 18-19 FED COM WCB
Well Number: 2H
Well Type: CONVENTIONAL GAS WELL
Well Work Type: Drill

Highlighted data reflects the most recent changes

Show Final Text

Section 1 - Geologic Formations

Formation ID	Formation Name	Elevation	True Vertical Depth	Measured Depth	Lithologies	Mineral Resources	Producing Formation
340548	RUSTLER	3700	0	0	SANDSTONE, SHALE, SILTSTONE	NONE	N
340550	CAPITAN REEF	3049	651	651	LIMESTONE	NONE	N
340551	LAMAR	1399	2301	2301	LIMESTONE	NATURAL GAS, OIL	N
340552	DELAWARE	1042	2658	2658	SANDSTONE, SHALE, SILTSTONE	NATURAL GAS, OIL	N
340553	BONE SPRING	-1305	5005	5005	LIMESTONE, SHALE	NATURAL GAS, OIL	N
400280	BONE SPRING 1ST	-2486	6186	6186	SANDSTONE, SHALE, SILTSTONE	NATURAL GAS, OIL	N
400299	BONE SPRING 2ND	-3026	6726	6726	SANDSTONE, SHALE, SILTSTONE	NATURAL GAS, OIL	N
400309	BONE SPRING 3RD	-4492	8192	8192	SANDSTONE, SHALE, SILTSTONE	NATURAL GAS, OIL	N
400310	WOLFCAMP	-4953	8653	8653	LIMESTONE, SHALE, SILTSTONE	NATURAL GAS, OIL	Y
573557	WOLFCAMP	-5011	8711	8711	LIMESTONE, SHALE, SILTSTONE	NATURAL GAS, OIL	N
573571	WOLFCAMP	-5326	9026	9026	LIMESTONE	NATURAL GAS, OIL	N
573577	WOLFCAMP	-5605	9305	9305	LIMESTONE, SHALE, SILTSTONE	NATURAL GAS, OIL	Y

Section 2 - Blowout Prevention

Pressure Rating (PSI): 5M
Rating Depth: 12500

Equipment: Rotating head, Mud Gas Separator, Flare Line, Remote Kill Line

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: As 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

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.

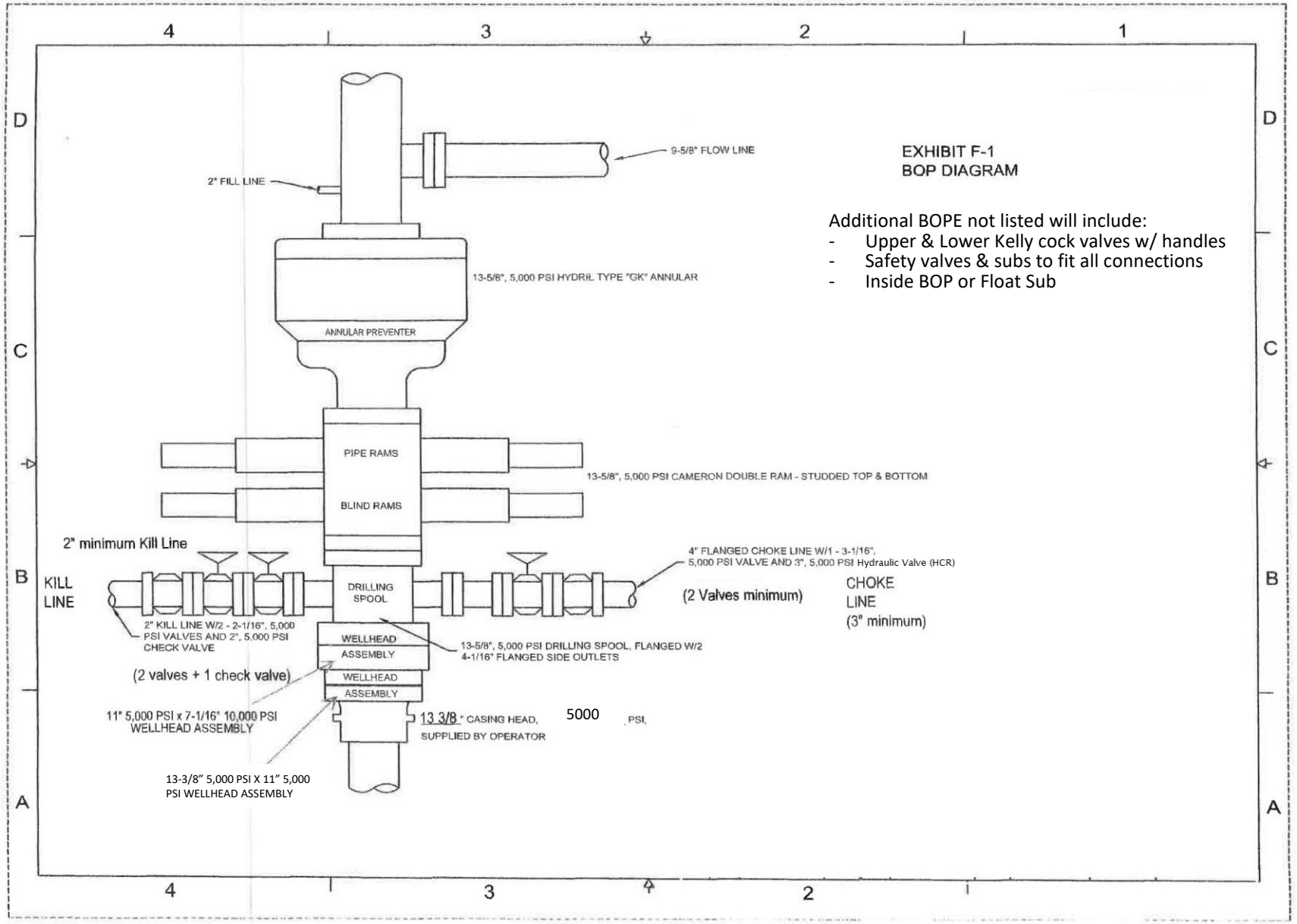
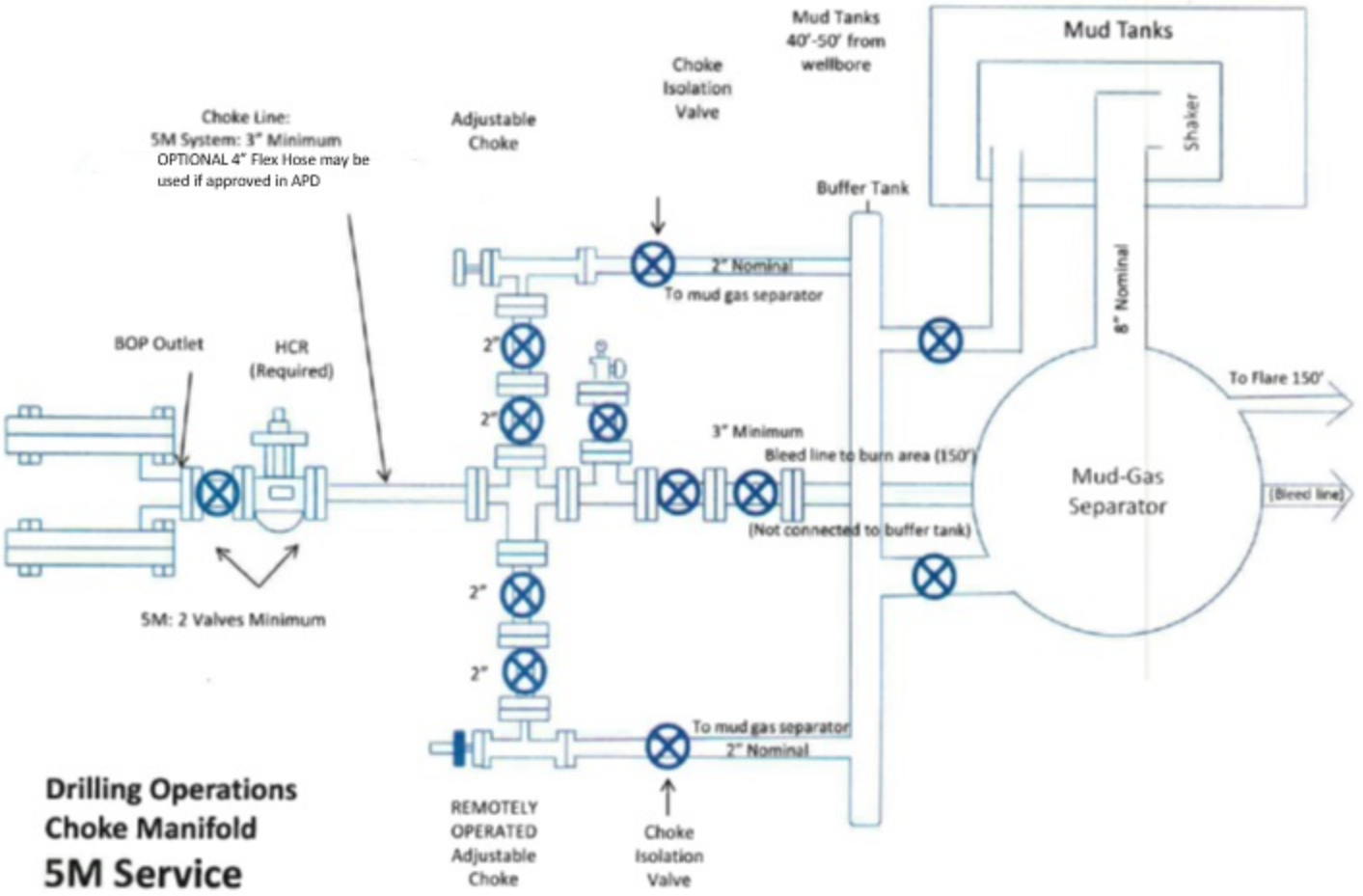


EXHIBIT F-1
BOP DIAGRAM
Additional BOPE not listed will include:
- Upper & Lower Kelly cock valves w/ handles
- Safety valves & subs to fit all connections
- Inside BOP or Float Sub
9-5/8" FLOW LINE
2" FILL LINE
13-5/8", 5,000 PSI HYDRIL TYPE "GK" ANNULAR
ANNULAR PREVENTER
PIPE RAMS
BLIND RAMS
13-5/8", 5,000 PSI CAMERON DOUBLE RAM - STUDDED TOP & BOTTOM
2" minimum Kill Line
KILL LINE
4" FLANGED CHOKE LINE W/1 - 3-1/16", 5,000 PSI VALVE AND 3", 5,000 PSI Hydraulic Valve (HCR)
(2 Valves minimum)
CHOKE LINE
(3" minimum)
DRILLING SPOOL
2" KILL LINE W/2 - 2-1/16", 5,000 PSI VALVES AND 2", 5,000 PSI CHECK VALVE
(2 valves + 1 check valve)
WELLHEAD ASSEMBLY
WELLHEAD ASSEMBLY
13-5/8", 5,000 PSI DRILLING SPOOL, FLANGED W/2 4-1/16" FLANGED SIDE OUTLETS
11" 5,000 PSI x 7-1/16" 10,000 PSI WELLHEAD ASSEMBLY
13 3/8" CASING HEAD, SUPPLIED BY OPERATOR
5000
PSI
13-3/8" 5,000 PSI X 11" 5,000 PSI WELLHEAD ASSEMBLY


Mud Tanks
40'-50' from wellbore
Choke Isolation Valve
Mud Tanks
Shaker
Choke Line:
5M System: 3" Minimum
OPTIONAL 4" Flex Hose may be used if approved in APD
Adjustable Choke
Buffer Tank
2" Nominal
To mud gas separator
8" Nominal
BOP Outlet
HCR (Required)
2"
2"
3" Minimum
Bleed line to burn area (150')
(Not connected to buffer tank)
To Flare 150'
Mud-Gas Separator
(Bleed line)
2"
2"
5M: 2 Valves Minimum
To mud gas separator
2" Nominal
REMOTELY OPERATED Adjustable Choke
Choke Isolation Valve
Drilling Operations
Choke Manifold
5M Service

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

COMMENTS

Action 24976

COMMENTS

Operator:			OGRID:	Action Number:	Action Type:
CHISHOLM ENERGY OPERATING, LLC	801 Cherry Street	Fort Worth, TX76102	372137	24976	FORM 3160-3

Created By	Comment	Comment Date
kpickford	KP GEO Review 4/22/2021	04/23/2021

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

CONDITIONS

Action 24976

CONDITIONS OF APPROVAL

Operator:			OGRID:	Action Number:	Action Type:
CHISHOLM ENERGY OPERATING, LLC	801 Cherry Street	Fort Worth, TX76102	372137	24976	FORM 3160-3

OCD Reviewer	Condition
kpickford	Notify OCD 24 hours prior to casing & cement
kpickford	Will require a File As Drilled C-102 and a Directional Survey with the C-104
kpickford	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
kpickford	Cement is required to circulate on both surface and intermediate1 strings of casing
kpickford	Oil base muds are not to be used until fresh water zones are cased and cemented providing isolation from the oil or diesel. This includes synthetic oils. Oil based mud, drilling fluids and solids must be contained in a steel closed loop system