

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

Form C-101
August 1, 2011

Permit 274125

APPLICATION FOR PERMIT TO DRILL, RE-ENTER, DEEPEN, PLUGBACK, OR ADD A ZONE

1. Operator Name and Address CHISHOLM ENERGY OPERATING, LLC 801 Cherry Street Fort Worth, TX 76102		2. OGRID Number 372137
4. Property Code 321290		3. API Number 30-025-46536
5. Property Name GRAMA RIDGE EAST 34 STATE COM 2BS		6. Well No. 007H

7. Surface Location

UL - Lot D	Section 34	Township 21S	Range 34E	Lot Idn D	Feet From 155	N/S Line N	Feet From 910	E/W Line W	County Lea
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8. Proposed Bottom Hole Location

UL - Lot N	Section 34	Township 21S	Range 34E	Lot Idn N	Feet From 100	N/S Line S	Feet From 1980	E/W Line W	County Lea
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9. Pool Information

GRAMA RIDGE;BONE SPRING, NE	28435
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Additional Well Information

11. Work Type New Well	12. Well Type OIL	13. Cable/Rotary	14. Lease Type State	15. Ground Level Elevation 3712
16. Multiple N	17. Proposed Depth 15287	18. Formation 2nd Bone Spring Sand	19. Contractor	20. Spud Date 1/15/2019
Depth to Ground water		Distance from nearest fresh water well		Distance to nearest surface water

☒ We will be using a closed-loop system in lieu of lined pits

21. Proposed Casing and Cement Program

Type	Hole Size	Casing Size	Casing Weight/ft	Setting Depth	Sacks of Cement	Estimated TOC
Surf	17.5	13.375	54.5	1800	1425	0
Int1	12.25	9.625	40	5700	2085	0
Prod	8.75	5.5	20	15287	1425	4500

Casing/Cement Program: Additional Comments

DV TOOL SET @ 3900'; INTERMEDIATE CMNT WILL BE A 2 STAGE JOB
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22. Proposed Blowout Prevention Program

Type	Working Pressure	Test Pressure	Manufacturer
Annular	2500	2500	CAMERON
Double Ram	5000	5000	CAMERON
Pipe	5000	5000	CAMERON

23. I hereby certify that the information given above is true and complete to the best of my knowledge and belief.
I further certify I have complied with 19.15.14.9 (A) NMAC ☒ and/or 19.15.14.9 (B) NMAC ☒ if applicable.

OIL CONSERVATION DIVISION

Signature:

Printed Name: Electronically filed by Jennifer Elrod	Approved By: Paul F Kautz
Title: Sr. Regulatory Tech	Title: Geologist
Email Address: jelrod@chisholmenergy.com	Approved Date: 11/25/2019
Date: 11/19/2019	Phone: 817-953-3728
Conditions of Approval Attached	

Expiration Date: 11/25/2021

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DISTRICT IV

1226 S. St. Francis Dr., Santa Fe, NM 87505
Phone (505) 476-3480 Fax: (505) 476-3482State of New Mexico
Energy, Minerals and Natural Resources Department

OIL CONSERVATION DIVISION

1226 South St. Francis Dr.
Santa Fe, New Mexico 87505

Form C-102

Revised August 1, 2011

Submit one copy to appropriate
District Office

WELL LOCATION AND ACREAGE DEDICATION PLAT

☐ AMENDED REPORT

API Number	Pool Code 28435	Pool Name GRAMA RIDGE; BONE SPRING, NE
Property Code	Property Name GRAMA RIDGE EAST 34 2BS STATE COM	Well Number 7H
OGRID No. 372137	Operator Name CHISHOLM ENERGY OPERATING, LLC	Elevation 3715'

Surface Location

UL or lot No.	Section	Township	Range	Lot Idn	FEET from the	North/South line	FEET from the	East/West line	County
D	34	21 S	34 E		155	NORTH	910	WEST	LEA

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
N	34	21 S	34 E		100	SOUTH	1980	WEST	LEA

Dedicated Acres	Joint or Infill	Consolidation Code	Order No.
160			

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

N: 525857.8
E: 808809.9
(NAD 83)

910' 155' 1071.6' L.P./F.T.P.

N: 525883.7
E: 811449.7
(NAD 83)

SURFACE LOCATION
Lat - N 32.442242°
Long - W 103.463359°
NMSPCE- N 525711.8
E 809721.1
(NAD-83)

LANDING POINT/
FIRST TAKE POINT
100' FNL & 1980' FWL
Lat - N 32.442398°
Long - W 103.459891°
NMSPCE- N 525777.2
E 810790.7
(NAD-83)

N: 523215.0
E: 808832.6
(NAD 83)

5087.3' 100' L.T.P. B.H.

N: 520568.2
E: 808855.9
(NAD 83)

1980'

N: 520597.5
E: 811496.6
(NAD 83)

N: 520626.5
E: 814136.3
(NAD 83)

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 11/19/19
Signature Date
JENNIFER ELROD
Printed Name
jelrod@chisholmenergy.com
Email Address

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 Surveyed
Signature & Seal of Professional Surveyor
Certificate Gary L. Jones 7977
BASIC SURVEYS
0' 1000' 2000' 3000' 4000'
SCALE: 1" = 2000'
WO Num.: 34941

Intent ☐ As Drilled ☐API #

Operator Name:	Property Name:	Well Number
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Kick Off Point (KOP)

UL	Section	Township	Range	Lot	Feet	From N/S	Feet	From E/W	County
Latitude					Longitude				NAD

First Take Point (FTP)

UL	Section	Township	Range	Lot	Feet	From N/S	Feet	From E/W	County
Latitude					Longitude				NAD

Last Take Point (LTP)

UL	Section	Township	Range	Lot	Feet	From N/S	Feet	From E/W	County
Latitude					Longitude				NAD

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
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KZ 06/29/2018

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GAS CAPTURE PLAN

Date: 11/25/2019

☒ Original

Operator & OGRID No.: [372137] CHISHOLM ENERGY OPERATING, LLC

☐ 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
GRAMA RIDGE EAST 34 STATE COM 2BS #007H	30-025-46536	D-34-21S-34E	0155N 0910W	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 3BEAR FIELD SERVICES, LLC and will be connected to 3BEAR FIELD SERVICES, LLC Low Pressure gathering system located in Lea County, New Mexico. It will require 50' of pipeline to connect the facility to Low Pressure gathering system. CHISHOLM ENERGY OPERATING, LLC provides (periodically) to 3BEAR FIELD SERVICES, 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 3BEAR FIELD SERVICES, LLC have periodic conference calls to discuss changes to drilling and completion schedules. Gas from these wells will be processed at 3BEAR FIELD SERVICES, LLC 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 3BEAR FIELD SERVICES, LLC system at that time. Based on current information, it is CHISHOLM ENERGY OPERATING, LLC's 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

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Form APD Comments

Permit 274125

PERMIT COMMENTS

Operator Name and Address: CHISHOLM ENERGY OPERATING, LLC [372137] 801 Cherry Street Fort Worth, TX 76102	API Number: 30-025-46536
	Well: GRAMA RIDGE EAST 34 STATE COM 2BS #007H

Created By	Comment	Comment Date
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Form APD Conditions

Permit 274125

PERMIT CONDITIONS OF APPROVAL

Operator Name and Address: CHISHOLM ENERGY OPERATING, LLC [372137] 801 Cherry Street Fort Worth, TX 76102	API Number: 30-025-46536
	Well: GRAMA RIDGE EAST 34 STATE COM 2BS #007H

OCD Reviewer	Condition
pkautz	Will require a directional survey with the C-104
pkautz	1) SURFACE & INTERMEDIATE CASING - Cement must circulate to surface -- 2) PRODUCTION CASING - Cement must tie back into intermediate casing --
pkautz	If cement does not circulate to surface, must run temperature survey or other log to determine top of cement
pkautz	Surface casing must be set 25' below top of Rustler Anhydrite in order to seal off protectable water
pkautz	1)- The Operator is to notify NMOC by sundry (Form C-103) within ten (10) days of the well being spud 2)- Drilling Sundries Form C-103 (Casing and Cement test are to be submitted within 10 days 3)- Completion Reports & Logs are to be submitted within 45 days 4)- Deviation / Directional Drill Survey are to be filed with or prior to C-104
pkautz	It is the operator's responsibility to monitor cancellation dates of approved APDs. APD's are good for 2 years and may be extended for one year. Only one 1 year extension will be granted if submitted by C-103 before expiration date. After expiration date or after a 1 year extension must submit new APD. If an APD expires and if site construction has occurred, site remediation is required.
pkautz	Stage Tool 1) Must notify OCD Hobbs Office prior to running Stage Tool at 5753703186 2) If using Stage Tool on Surface casing, Stage Tool must be set greater than 350' from surface and a minimum of 200 feet above surface shoe. 3) When using a Stage Tool on Intermediate or Production Casing Stage must be a minimum of 50 feet below previous casing shoe.



JDC 7

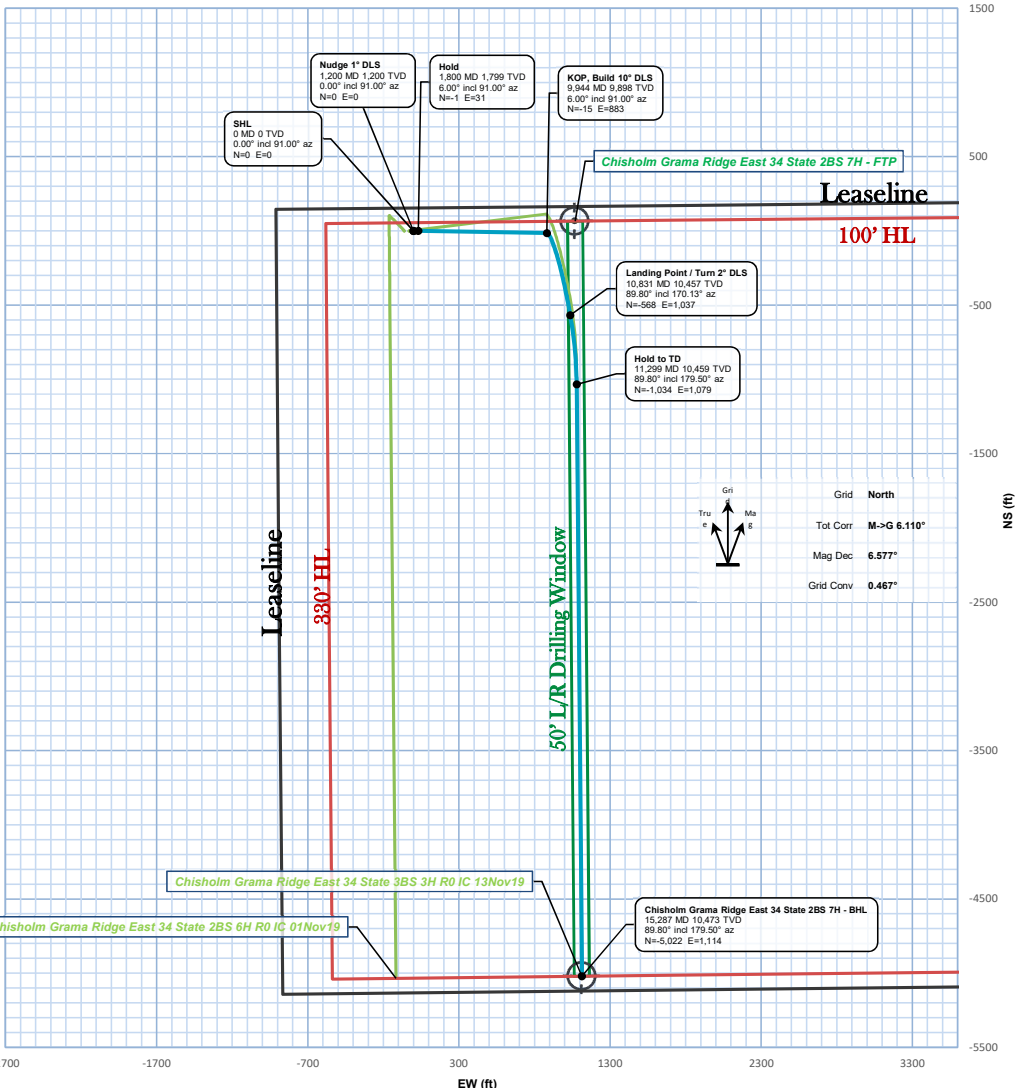
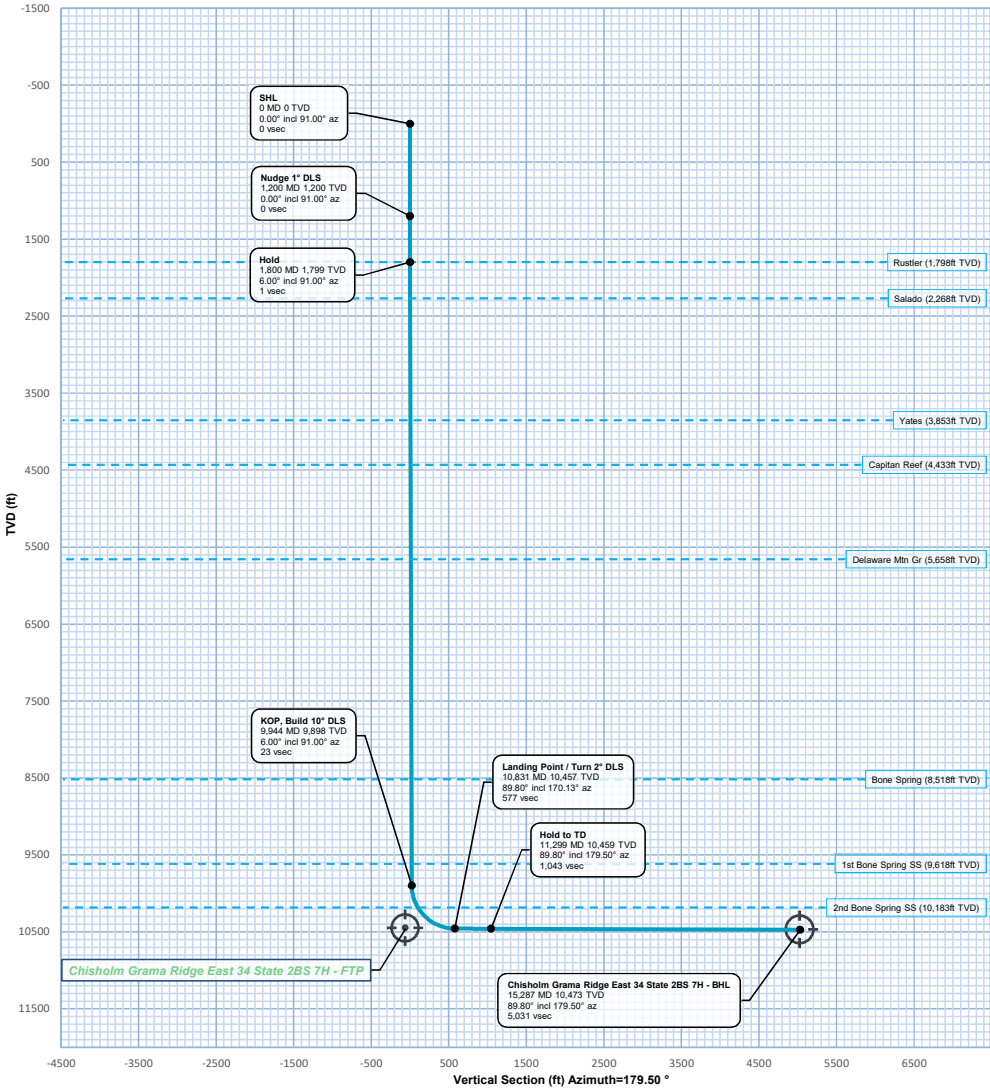
Rev1



BOREHOLE				WELL				FIELD		STRUCTURE	
Grama Ridge East 34 State 2BS 7H				Grama Ridge East 34 State 2BS 7H				NM Lea County (NAD 83)		Chisholm Grama Ridge East 34 State 2BS 7H	

Critical Point	MD (ft)	Incl (°)	Azim (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (deg/100ft)
SHL	0.00	0.00	91.00	0.00	0.00	0.00	0.00	
Nudge 1" DLS	1,200.00	0.00	91.00	1,200.00	0.00	0.00	0.00	0.00
Hold	1,800.00	6.00	91.00	1,798.90	0.82	-0.55	31.38	1.00
13.375 in Casing	2,412.00	6.00	91.00	2,407.55	2.50	-1.66	95.34	0.00
9.625 in Casing	9,512.00	6.00	91.00	9,488.66	21.92	-14.62	837.38	0.00
KOP, Build 10" DLS	9,944.00	6.00	91.00	9,898.29	23.11	-15.40	882.53	0.00
Landing Point / Turn 2" DLS	10,830.72	89.80	170.13	10,457.00	578.99	-567.97	1,036.99	10.00
Hold to TD	11,299.25	89.80	179.50	10,458.64	1,043.44	-1,034.06	1,079.27	2.00
Chisholm Grama Ridge East 34 State 2BS 7H - BHL	15,287.92	89.80	179.50	10,472.56	5,031.08	-5,021.56	1,113.91	0.00

GRAVITY & MAGNETICS PARAMETERS				SURFACE LOCATION		NAD83 New Mexico State Plane, Eastern Zone, US Feet					
Model	HDGM 2019 GARM	Dip	60.254°	Date	13-Nov-19	Lat	32°26'32.07"N	Northing	525,711.60 fTUS	Grid Conv	0.467°
MagDec	6.577°	FS	47,989.119nT	Gravity FS	998.474mgm (9.80665 Based)	Lon	103°27'48.09"W	Easting	809,721.00 fTUS	Scale Fact	0.99999158
MISCELLANEOUS											
Slot						TVD Reference					
Plan						RKB (3744.000 ft above MSL)					
Chisholm Grama Ridge East 34 State 2BS 7H R1 IC 13Nov19						Seabed / Ground Elevation					
						3712.000 ft above MSL					





Chisholm Grama Ridge East 34 State ZBS 7H R1 IC 13Nov19 Proposal
Geodetic Report

		Def Plan																											
Report Date:	November 13, 2019 - 06:11 PM (UTC 0)														Survey / DLS Computation:														
Client:	Chisholm														Minimum Curvature / Lubinski														
Field:	NM Lea County (NAD 83)														Vertical Section Azimuth:														
Structure / Shot:	Chisholm Grama Ridge East 34 State 285 7H														Vertical Section Origin:														
Well:	Grama Ridge East 34 State 285 7H														TVD Reference Datum:														
Borehole:	Grama Ridge East 34 State 285 7H														RKB														
UWI / API#:	Unknown / Unknown														3744.00 ft above MSL														
Survey Name:	Chisholm Grama Ridge East 34 State 285 7H R1 IC 13Nov19														Seabed / Ground Elevation:														
Survey Date:	November 13, 2019														2712.00 ft above MSL														
Tort / AHD / DGI / ERD Ratio:	104.042° / 5918.208 ft / 5.954 / 5.955														Magnetic Declination:														
Coordinate Reference System:	NAD83 New Mexico State Plane, Eastern Zone, US Feet														6.577°														
Location Lat / Long:	32°26'32.06951"N, 102°27'48.09381"W														Total Gravity Field Strength:														
Location Grid NE WK:	N 525711.603 HUS, E 809720.998 HUS														986.475mgn (9.80665 Gauss)														
CRS Grid Convergence Angle:	0.4667°														Gravity Model:														
Grid Scale Factor:	0.99999158														GARM														
Version / Patch:	2019.3.0.2														47989.119 nT														
															Total Magnetic Field Strength:														
															60.254°														
															Magnetic Dip Angle:														
															Declination Date:														
															November 13, 2019														
															Magnetic Declination Model:														
															HGM 2019														
															North Reference:														
															Grid North														
															Grid Convergence Used:														
															0.4667°														
															Total Com Map North-Grid														
															6.1101°														
															Local Coord Referenced To:														
															Well Head														
Comments	MD (ft)	Incl (°)	Azim (°)	TVD (ft)	TVDS (ft)	VSEC (ft)	AHD (ft)	NS (ft)	EW (ft)	DeltaMD (ft)	DeltaTVD (ft)	DLS (°/100ft)	BR (°/100ft)	TR (°/100ft)	GTF (°)	MTF (°)	TF (°)	Northing (ft)	Easting (ft)	Latitude (°)	Longitude (°)	Latitude (°)	Longitude (°)	Closure (ft)	Closure Azimuth (°)	Directional Difficulty Index	Tortuosity (°)	ERD Ratio	
SHL	0.00	0.00	91.00	0.00	-3,744.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	HS	91.00	91M	525,711.60	809,721.00	26°32.069511°N	7°48.093811°W	32.44	-103.46	-103.46	0.00	0.00	0.00		
Nudge 1" DLS	1,200.00	0.00	91.00	1,200.00	-2,544.00	0.00	0.00	0.00	0.00	1,200.00	1,200.00	0.00	0.00	0.00	HS	91.00	91M	525,711.60	809,721.00	26°32.069511°N	7°48.093811°W	32.44	-103.46	-103.46	0.00	0.00	0.00		
Rustler	1,799.09	5.99	91.00	1,798.00	-1,946.00	0.82	31.29	-0.55	31.29	599.09	598.00	1.00	1.00	0.00	HS	91.00	91M	525,711.06	809,752.38	26°32.061580°N	7°47.728793°W	32.44	-103.46	-103.46	31.29	91.00	2.27	5.99	0.02
Hold	1,800.00	6.00	91.00	1,798.90	-1,945.10	0.82	31.39	-0.55	31.38	0.91	0.90	1.00	1.00	0.00	HS	91.00	91M	525,711.06	809,752.38	26°32.061561°N	7°47.727686°W	32.44	-103.46	-103.46	31.39	91.00	2.28	6.00	0.02
Salado	2,271.68	6.00	91.00	2,268.00	-1,476.00	2.11	80.69	-1.41	80.68	471.68	469.10	0.00	0.00	0.00	HS	91.00	91M	525,710.19	809,801.88	26°32.048073°N	7°47.152564°W	32.44	-103.46	-103.46	80.69	91.00	2.69	6.00	0.04
13.375 in Casing	2,412.00	6.00	91.00	2,407.55	-1,236.45	2.50	95.36	-1.66	95.34	140.32	139.55	0.00	0.00	0.00	HS	91.00	91M	525,709.84	809,816.34	26°32.045359°N	7°46.981472°W	32.44	-103.46	-103.46	95.36	91.00	2.76	6.00	0.04
Yates	3,865.41	6.00	91.00	3,853.00	109.00	6.47	247.28	-4.32	247.24	1,453.41	1,445.45	0.00	0.00	0.00	HS	91.00	91M	525,707.29	809,968.24	26°32.006873°N	7°45.209323°W	32.44	-103.46	-103.46	247.28	91.00	3.17	6.00	0.06
Crestair Reef	4,448.61	6.00	91.00	4,433.00	689.00	8.07	308.24	-5.38	308.19	583.19	580.00	0.00	0.00	0.00	HS	91.00	91M	525,706.22	810,028.19	26°31.991429°N	7°44.698232°W	32.44	-103.46	-103.46	308.24	91.00	3.27	6.00	0.07
Delaware Reef	5,680.35	6.00	91.00	5,658.00	1,914.00	11.44	436.99	-7.63	436.93	1,231.75	1,225.00	0.00	0.00	0.00	HS	91.00	91M	525,703.98	810,157.92	26°31.958805°N	7°42.996358°W	32.44	-103.46	-103.46	436.99	91.00	3.42	6.00	0.08
Bone Spring	8,556.11	6.00	91.00	8,518.00	4,774.00	19.31	737.59	-12.87	737.48	2,875.75	2,860.00	0.00	0.00	0.00	HS	91.00	91M	525,698.73	810,458.47	26°31.882619°N	7°39.489945°W	32.44	-103.46	-103.46	737.59	91.00	3.65	6.00	0.09
9.625 in Casing	9,512.00	6.00	91.00	9,468.66	5,724.66	21.52	837.51	-14.62	837.38	955.89	950.66	0.00	0.00	0.00	HS	91.00	91M	525,696.99	810,558.37	26°31.857289°N	7°38.324423°W	32.44	-103.46	-103.46	837.51	91.00	3.70	6.00	0.09
1st Bone Spring SS	9,662.17	6.00	91.00	9,618.00	5,874.00	22.33	853.21	-14.89	853.08	150.17	149.34	0.00	0.00	0.00	HS	91.00	91M	525,696.71	810,574.07	26°31.853309°N	7°38.141325°W	32.44	-103.46	-103.46	853.21	91.00	3.71	6.00	0.09
KOP, Built 10" DLS	9,944.00	6.00	91.00	9,898.29	6,154.29	23.11	882.67	-15.40	882.53	281.83	280.29	0.00	0.00	0.00	79.21R	160.56	160.56M	525,696.20	810,603.52	26°31.845841°N	7°37.797886°W	32.44	-103.46	-103.46	882.67	91.00	3.73	6.00	0.09
2nd Bone Spring SS	10,245.53	31.78	160.56	10,193.00	6,439.00	100.40	973.11	-22.33	925.71	301.53	294.71	10.00	8.55	23.07	11.24R	170.13	11.24R	525,619.28	810,646.70	26°31.081224°N	7°37.301161°W	32.44	-103.46	-103.46	930.31	95.70	4.55	36.15	0.10
Landing Point / Turn 2" DLS	10,830.72	89.80	170.13	10,457.00	6,713.00	576.99	1,462.03	-567.97	1,038.99	585.19	274.00	10.00	9.92	1.64	90R	179.50	90R	525,143.64	810,757.98	26°26.366049°N	7°36.048185°W	32.44	-103.46	-103.46	1,182.34	118.71	5.16	94.67	0.14
Hold to TD	11,299.25	89.80	179.50	10,458.64	6,714.64	1,043.44	1,930.56	-1,034.06	1,075.27	488.53	1.64	2.00	0.00	0.00	HS	179.50	HS	524,677.55	810,800.25	26°21.750885°N	7°35.599341°W	32.44	-103.46	-103.46	1,494.69	133.77	5.34	104.04	0.18
Chisholm Grama Ridge East 34	15,296.52	89.80	179.50	10,472.56	6,728.56	5,031.08	5,918.21	-5,021.56	1,113.54	3,987.67	13.82	0.00	0.00	0.00	HS	179.50	HS	520,690.10	810,834.90	25°42.293885°N	7°35.575527°W	32.43	-103.46	-103.46	5,143.82	167.49	5.95	104.04	0.57

Survey Type: Def Plan

Survey Error Model: ISCHSAO 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	1,200.000	1/100.000	17.500			NAL MWD 1.0 DEG	Grama Ridge East 34 State 285
	1	1,200.000	9,944.000	1/100.000	12.250			NAL_MWD_1.0_DEG	Grama Ridge East 34 State 285
	1	9,944.000	10,830.720	1/100.000	8.750			NAL_MWD_1.0_DEG	Grama Ridge East 34 State 285
	1	10,830.720	15,296.920	1/100.000	8.500			NAL MWD 1.0 DEG	Grama Ridge East 34 State 285



Survey / DLS Computation:	Minimum Curvature / Lubinski
Vertical Section Azimuth:	179.500 (GSD North)
Vertical Section Origin:	0.000 N, 0.000 E
TVF Reference Elevation:	3744.000 N above MSL
TVF Reference Elevation:	3744.000 N above MSL
Seabed / Ground Elevation:	6.577
Magnetic Declination:	986.4735ang (3.90955 Basead)
Total Gravity Field Strength:	
Gravity Model:	GR09N
Total Magnetic Field Strength:	47669.129 nT
Magnetic Dip Angle:	62.254°
Declination Date:	November 13, 2019
Magnetic Declination Model:	HOGAN 2019
North Reference:	Grid North
Grid Convergence Used:	0.662°
Grid Convergence Model:	1.011°

Survey / DLS Computation:	Minimum Curvature / Lubinski
Vertical Section Azimuth:	179.500 (GSD North)
Vertical Section Origin:	0.000 N, 0.000 E
TVF Reference Elevation:	3744.000 N above MSL
TVF Reference Elevation:	3744.000 N above MSL
Seabed / Ground Elevation:	6.577
Magnetic Declination:	986.4735ang (3.90955 Basead)
Total Gravity Field Strength:	
Gravity Model:	GMR09
Total Magnetic Field Strength:	47669.129 nT
Magnetic Dip Angle:	62.254°
Declination Date:	November 13, 2019
Magnetic Declination Model:	HOGAN 2019
North Reference:	Grid North
Grid Convergence Used:	0.662°
Grid Convergence Model:	1.011°

Survey Model	Data Plan									
Survey Error Model	GSWAG 3 - G: 95 % Confidence 2 7935 signs									
Survey Program:										
Description		Part	MO From (%)	MO To (%)	EDU From (%)	Hold Size	Count Estimator	Expected Max Interference	Survey Tool Type	Reschedule / Survey
		1	0.000	1,200.000	1,000.000	17,500		N/A_MWD_1_0 DEG		Grass Ridge East 34 State 285
		1	1,200.000	9,844.000	1,000.000	12,250		N/A_MWD_1_0 DEG		Grass Ridge East 34 State 285
		1	9,844.000	10,830.720	1,000.000	8,750		N/A_MWD_1_0 DEG		Grass Ridge East 34 State 285
		1	10,830.720	15,768.435	1,000.000	8,500		N/A_MWD_1_0 DEG		Grass Ridge East 34 State 285

Schlumberger-Private



Chisholm Grama Ridge East 34 State 2BS 7H R1 IC 13Nov19 Proposal

Geodetic Report

Def Plan

Report Date: November 13, 2019 - 06:11 PM (UTC 0)
Client: Chisholm
Field: NM Lea County (NAD 83)
Structure / Shot: Chisholm Grama Ridge East 34 State 2BS 7H
Well: Grama Ridge East 34 State 2BS 7H
Borehole: Grama Ridge East 34 State 2BS 7H
UWI / API#: Unknown / Unknown
Survey Name: Chisholm Grama Ridge East 34 State 2BS 7H R1 IC 13Nov19
Survey Date: November 13, 2019
Tort / AHD / DGI / ERD Ratio: 104.042 / 6931.208 / 6.954 / 0.965
Coordinate Reference System: NAD83 New Mexico State Plane, Eastern Zone, US Feet
Location Lat / Long: 32°02'30.06951"N, 107°27'48.09381"W
Location Grid NE VK: N 46571.603 HUS, E 809720.908 HUS
CRS Grid Convergence Angle: 0.99999158
Grid Scale Factor: 0.99999158
Version / Patch: 2018.5.0.2

Survey / DLS Computation: 179.500 (DGI) / Lubinski
Vertical Section Origin: 0.000 R, 0.000 S
TYD Reference Datum: R/R
TYD Reference Elevation: 7144.000 ft above MSL
Seabed / Ground Elevation: 3712.000 ft above MSL
Magnetic Declination: 6.577°
Total Gravity Field Strength: 986.473mg (0.80665 Gauss)
Gravity Model: GARM
Total Magnetic Field Strength: 47969.119 nT
North Reference: HCGM 1919
Declination Date: November 13, 2019
Magnetic Declination Model: HCGM 1919
Grid Convergence Used: 0.4607°
Total Com Mag North-Grid: 6.1101°
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 (ft)	MTF (ft)	TF (ft)	Northmg (ft)	Eastmg (ft)	Latitude (° °')	Longitude (° °')	Latitude (°)	Longitude (°)	Closure (ft)	Closure Azimuth (°)	Directional Difficulty Index	Tortuosity (°)	ERD Ratio
SHL	0.00	0.00	91.00	0.00	-3.744.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	HS	91.00	91M	525,711.60	809,721.00	26°32.069511°N	74°48.093811°W	32.44	-103.46	0.00	0.00	0.00	0.00	0.00
	100.00	0.00	91.00	100.00	-3.644.00	0.00	0.00	0.00	0.00	100.00	100.00	0.00	0.00	0.00	HS	91.00	91M	525,711.60	809,721.00	26°32.069511°N	74°48.093811°W	32.44	-103.46	0.00	0.00	0.00	0.00	0.00
	200.00	0.00	91.00	200.00	-3.544.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	HS	91.00	91M	525,711.60	809,721.00	26°32.069511°N	74°48.093811°W	32.44	-103.46	0.00	0.00	0.00	0.00	0.00
	300.00	0.00	91.00	300.00	-3.444.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	HS	91.00	91M	525,711.60	809,721.00	26°32.069511°N	74°48.093811°W	32.44	-103.46	0.00	0.00	0.00	0.00	0.00
	400.00	0.00	91.00	400.00	-3.344.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	HS	91.00	91M	525,711.60	809,721.00	26°32.069511°N	74°48.093811°W	32.44	-103.46	0.00	0.00	0.00	0.00	0.00
	500.00	0.00	91.00	500.00	-3.244.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	HS	91.00	91M	525,711.60	809,721.00	26°32.069511°N	74°48.093811°W	32.44	-103.46	0.00	0.00	0.00	0.00	0.00
	600.00	0.00	91.00	600.00	-3.144.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	HS	91.00	91M	525,711.60	809,721.00	26°32.069511°N	74°48.093811°W	32.44	-103.46	0.00	0.00	0.00	0.00	0.00
	700.00	0.00	91.00	700.00	-3.044.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	HS	91.00	91M	525,711.60	809,721.00	26°32.069511°N	74°48.093811°W	32.44	-103.46	0.00	0.00	0.00	0.00	0.00
	800.00	0.00	91.00	800.00	-2.944.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	HS	91.00	91M	525,711.60	809,721.00	26°32.069511°N	74°48.093811°W	32.44	-103.46	0.00	0.00	0.00	0.00	0.00
	900.00	0.00	91.00	900.00	-2.844.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	HS	91.00	91M	525,711.60	809,721.00	26°32.069511°N	74°48.093811°W	32.44	-103.46	0.00	0.00	0.00	0.00	0.00
Nudge 1" DLS	1,000.00	0.00	91.00	1,000.00	-2.744.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	HS	91.00	91M	525,711.60	809,721.00	26°32.069511°N	74°48.093811°W	32.44	-103.46	0.00	0.00	0.00	0.00	0.00
	1,100.00	0.00	91.00	1,100.00	-2.644.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	HS	91.00	91M	525,711.60	809,721.00	26°32.069511°N	74°48.093811°W	32.44	-103.46	0.00	0.00	0.00	0.00	0.00
	1,200.00	0.00	91.00	1,200.00	-2.544.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	HS	91.00	91M	525,711.60	809,721.00	26°32.069511°N	74°48.093811°W	32.44	-103.46	0.00	0.00	0.00	0.00	0.00
	1,300.00	0.00	91.00	1,299.99	-2.444.01	0.02	0.87	-0.02	0.87	100.00	99.99	1.00	1.00	0.00	HS	91.00	91M	525,711.59	809,721.00	26°32.069509°N	74°48.093821°W	32.44	-103.46	0.87	91.00	0.00	1.00	0.00
	1,400.00	2.00	91.00	1,299.97	-2.344.03	0.04	3.49	-0.04	3.49	100.00	99.96	1.00	1.00	0.00	HS	91.00	91M	525,711.47	809,724.49	26°32.068271°N	74°48.093821°W	32.44	-103.46	3.49	91.00	0.00	1.00	0.00
	1,500.00	3.00	91.00	1,499.96	-2.244.14	0.21	7.85	-0.14	7.85	100.00	99.99	1.00	1.00	0.00	HS	91.00	91M	525,711.47	809,728.95	26°32.067521°N	74°48.093821°W	32.44	-103.46	7.85	91.00	1.37	3.00	0.01
	1,600.00	4.00	91.00	1,599.98	-2.144.32	0.37	13.96	-0.24	13.96	100.00	99.81	1.00	1.00	0.00	HS	91.00	91M	525,711.36	809,745.95	26°32.065976°N	74°47.931000°W	32.44	-103.46	13.96	91.00	1.75	4.00	0.01
	1,700.00	5.00	91.00	1,699.97	-2.044.63	0.57	21.80	-0.38	21.80	100.00	99.99	1.00	1.00	0.00	HS	91.00	91M	525,711.06	809,752.29	26°32.061961°N	74°47.728730°W	32.44	-103.46	21.80	91.00	2.24	5.00	0.01
	1,799.99	5.99	91.00	1,798.00	-1.946.00	0.82	31.29	-0.55	31.29	99.99	99.83	1.00	1.00	0.00	HS	91.00	91M	525,711.06	809,762.83	26°32.059811°N	74°47.728730°W	32.44	-103.46	31.29	91.00	2.57	5.99	0.02
	1,800.00	6.00	91.00	1,798.98	-1.945.10	0.82	31.30	-0.55	31.30	99.99	99.81	1.00	1.00	0.00	HS	91.00	91M	525,711.06	809,762.83	26°32.059811°N	74°47.727698°W	32.44	-103.46	31.30	91.00	2.58	6.00	0.02
Rustler Hold	1,900.00	6.00	91.00	1,898.96	-1.845.04	1.10	41.83	-0.73	41.83	100.00	99.45	0.00	0.00	0.00	HS	91.00	91M	525,710.69	809,773.28	26°32.056261°N	74°47.727698°W	32.44	-103.46	41.84	91.00	2.40	6.00	0.02
	2,000.00	6.00	91.00	1,997.81	-1.746.19	1.37	52.29	-0.91	52.28	100.00	99.45	0.00	0.00	0.00	HS	91.00	91M	525,710.69	809,773.28	26°32.056261°N	74°47.483021°W	32.44	-103.46	52.29	91.00	2.50	6.03	0.03
	2,100.00	6.00	91.00	2,097.26	-1.646.74	1.64	62.75	-1.10	62.74	100.00	99.45	0.00	0.00	0.00	HS	91.00	91M	525,710.51	809,783.73	26°32.053611°N	74°47.361894°W	32.44	-103.46	62.75	91.00	2.58	6.00	0.03
	2,200.00	6.00	91.00	2,196.71	-1.547.29	1.92	73.20	-1.28	73.19	100.00	99.45	0.00	0.00	0.00	HS	91.00	91M	525,710.33	809,794.18	26°32.050971°N	74°47.239964°W	32.44	-103.46	73.20	91.00	2.64	6.00	0.03
	2,271.68	0.00	91.00	2,266.68	-1.476.80	2.10	80.69	-1.41	80.68	71.68	71.29	0.00	0.00	0.00	HS	91.00	91M	525,710.19	809,801.86	26°32.048071°N	74°47.152594°W	32.44	-103.46	80.69	91.00	2.69	6.00	0.04
	2,300.00	6.00	91.00	2,296.16	-1.447.84	2.19	83.65	-1.46	83.64	28.32	28.16	0.00	0.00	0.00	HS	91.00	91M	525,710.14	809,804.84	26°32.045021°N	74°47.118034°W	32.44	-103.46	83.65	91.00	2.70	6.00	0.04
	2,400.00	6.00	91.00	2,395.62	-1.348.38	2.46	94.10	-1.64	94.09	100.00	99.45	0.00	0.00	0.00	HS	91.00	91M	525,709.96	809,810.95	26°32.043261°N	74°46.996101°W	32.44	-103.46	94.10	91.00	2.75	6.00	0.04
	2,412.00	0.00	91.00	2,407.55	-1.248.95	2.59	95.36	-1.66	95.34	12.00	11.93	0.00	0.00	0.00	HS	91.00	91M	525,709.94	809,816.34	26°32.043258°N	74°46.981471°W	32.44	-103.46	95.36	91.00	2.76	6.00	0.04
	2,500.00	6.00	91.00	2,495.07	-1.248.93	2.74	104.56	-1.82	104.55	100.00	99.45	0.00	0.00	0.00	HS	91.00	91M	525,709.78	809,825.95	26°32.043021°N	74°46.981471°W	32.44	-103.46	104.56	91.00	2.80	6.00	0.04
	2,600.00	6.00	91.00	2,594.52	-1.149.58	3.01	115.01	-2.01	114.99	100.00	99.45	0.00	0.00	0.00	HS	91.00	91M	525,709.60	809,839.99	26°32.040300°N	74°46.752341°W	32.44	-103.46	115.01	91.00	2.84	6.00	0.04
13.375 in Caserio	2,700.00	6.00	91.00	2,693.97	-1.050.03	3.28	125.46	-2.19	125.44	100.00	99.45	0.00	0.00	0.00	HS	91.00	91M	525,709.41	809,848.44	26°32.037371°N	74°46.600312°W	32.44	-103.46	125.46	91.00	2.88	6.00	0.05
	2,800.00	6.00	91.00	2,793.43	-0.950.57	3.57	135.89	-2.37	135.89	100.00	99.45	0.00	0.00	0.00	HS	91.00	91M	525,709.23	809,858.99	26°32.033851°N	74°46.503832°W	32.44	-103.46	135.92	91.00	2.91	6.00	0.05
	2,900.00	6.00	91.00	2,892.88	-0.851.12	3.83	146.37	-2.55	146.35	100.00	99.45	0.00	0.00	0.00	HS	91.00	91M	525,709.05	809,873.28	26°32.032471°N	74°46.384541°W	32.44	-103.46	146.37	91.00	2.94	6.00	0.05
	3,000.00	6.00	91.00	2,992.33	-0.751.67	4.11	156.82	-2.74	156.80	100.00	99.45	0.00	0.00	0.00	HS	91.00	91M	525,708.87	809,877.79	26°32.029237°N	74°46.245421°W	32.44	-103.46	156.82	91.00	2.97	6.00	0.05
	3,100.00	6.00	91.00	3,091.78	-0.652.22	4.38	167.27	-2.92	167.25	100.00	99.45	0.00	0.00	0.00	HS	91.00	91M	525,708.68	809,888.25	26°32.027411°N	74°46.142591°W	32.44	-103.46	167.27	91.00	3.00	6.00	0.05
	3,200.00	6.00	91.00	3,191.23	-0.552.77	4.65	177.73	-3.10	177.70	100.00	99.45	0.00	0.00	0.00	HS	91.00	91M	525,708.50	809,898.70	26°32.025491°N	74°46.026601°W	32.44	-103.46	177.73	91.00	3.03	6.00	0.05
	3,300.00	6.00	91.00	3,290.69	-0.453.31	4.93	188.18	-3.28	188.15	100.00	99.45	0.00	0.00	0.00	HS</													

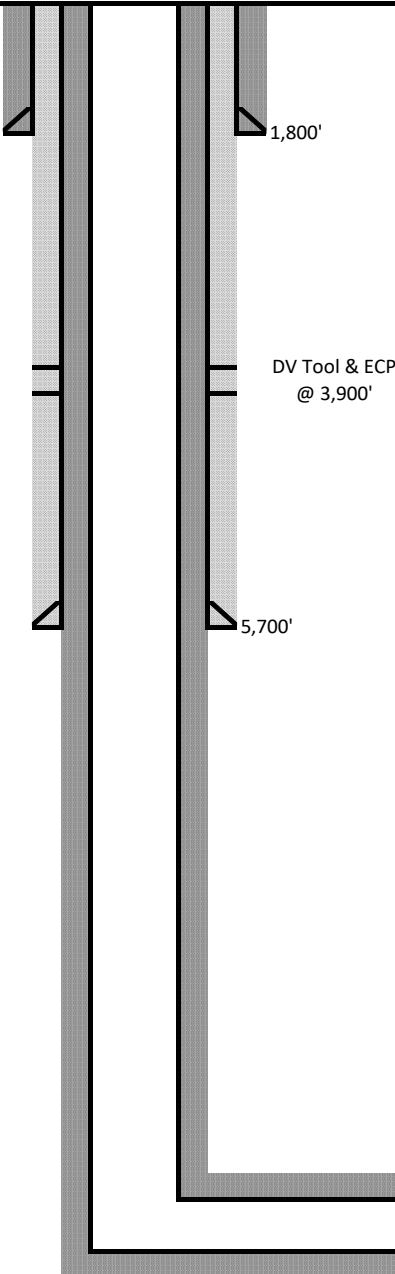
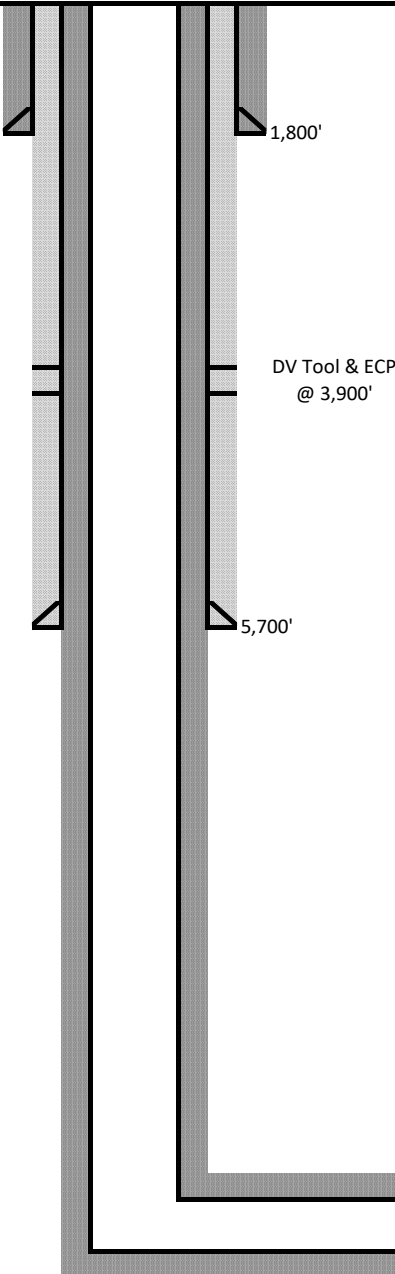
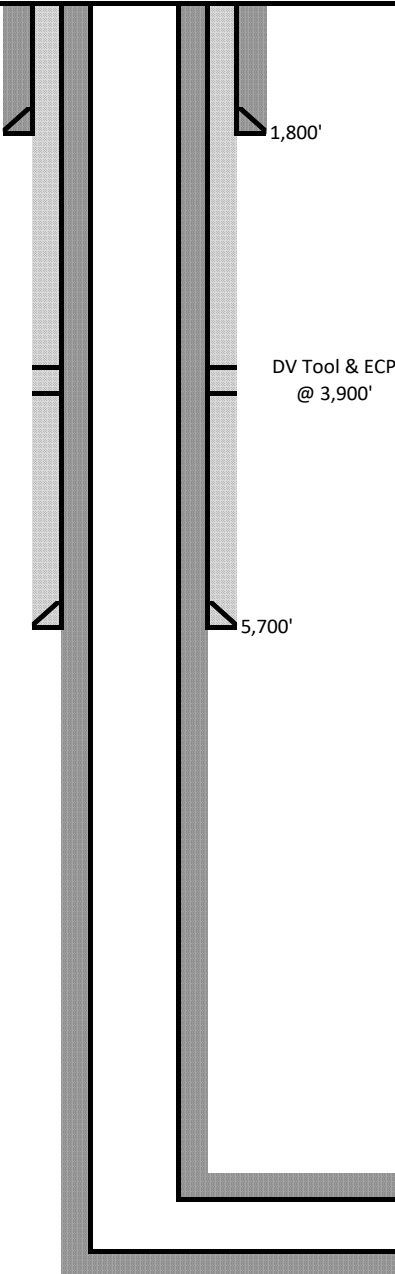
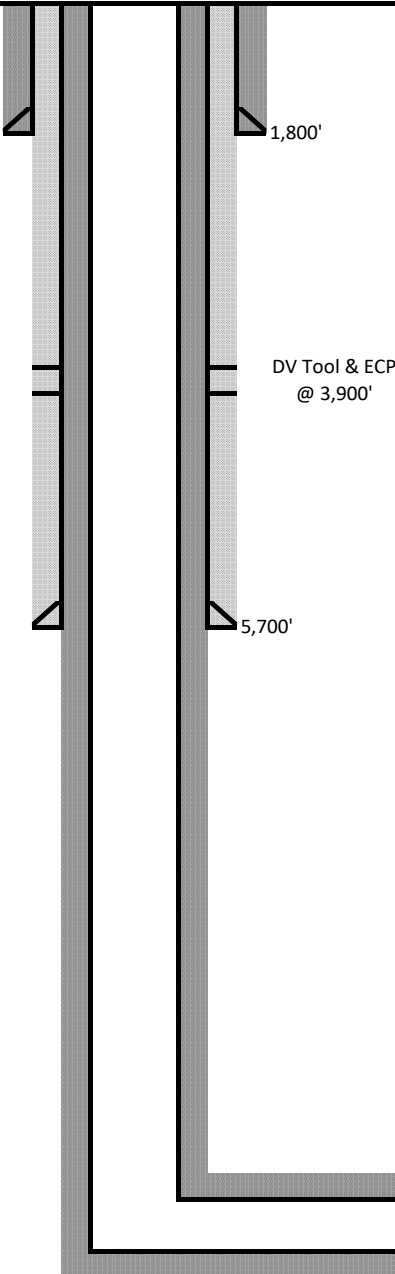
Comments	MD (ft)	Incl (°)	Adm (ft)	TVD (ft)	TVDSS (ft)	VSEC (ft)	AHD (ft)	NS (ft)	EW (ft)	DeltaMD (ft)	DeltaTVD (ft)	DLS (ft/100ft)	BSR (ft/100ft)	TR (ft/100ft)	GTF (°)	MTF (°)	TF (°)	Northing (ftUS)	Easting (ftUS)	Latitude (°)	Longitude (°)	Latitude (°)	Longitude (°)	Closure (ft)	Closure Azimuth (°)	Directional Difficulty Index	Tortuosity (%)	ERD Ratio
9.625 in Casing	9.000.00	6.00	91.00	8.959.46	5.215.46	20.52	783.99	-13.68	783.87	100.00	99.45	0.00	0.00	0.00	HS	91.00	91M	525.697.92	810.504.86 26.31.870857N	77.38.948705W	32.44	-103.46	783.99	91.00	3.67	6.00	0.09	
	9.100.00	6.00	91.00	9.058.91	5.314.91	20.80	794.45	-13.86	794.32	100.00	99.45	0.00	0.00	0.00	HS	91.00	91M	525.697.74	810.515.31 26.31.868207N	77.38.926775W	32.44	-103.46	794.45	91.00	3.69	6.00	0.09	
	9.200.00	6.00	91.00	9.158.37	5.414.37	21.07	804.90	-14.05	804.78	100.00	99.45	0.00	0.00	0.00	HS	91.00	91M	525.697.56	810.525.76 26.31.865521N	77.38.704845W	32.44	-103.46	804.90	91.00	3.69	6.00	0.09	
	9.300.00	6.00	91.00	9.257.82	5.513.82	21.34	815.35	-14.23	815.23	100.00	99.45	0.00	0.00	0.00	HS	91.00	91M	525.697.37	810.536.22 26.31.862907N	77.38.582914W	32.44	-103.46	815.35	91.00	3.69	6.00	0.09	
	9.400.00	6.00	91.00	9.357.27	5.613.27	21.62	825.80	-14.43	825.68	100.00	99.45	0.00	0.00	0.00	HS	91.00	91M	525.697.19	810.546.67 26.31.860257N	77.38.460944W	32.44	-103.46	825.80	91.00	3.70	6.00	0.09	
	9.500.00	6.00	91.00	9.456.72	5.712.72	21.89	836.26	-14.69	836.13	100.00	99.45	0.00	0.00	0.00	HS	91.00	91M	525.697.01	810.557.12 26.31.857507N	77.38.339544W	32.44	-103.46	836.26	91.00	3.70	6.00	0.09	
	9.612.00	6.00	91.00	9.468.66	5.724.66	21.92	837.51	-14.62	837.38	12.00	11.93	0.00	0.00	0.00	HS	91.00	91M	525.696.99	810.558.17 26.31.857289N	77.38.324423W	32.44	-103.46	837.51	91.00	3.70	6.00	0.09	
	9.630.00	6.00	91.00	9.556.17	5.812.17	22.16	846.71	-14.78	846.58	88.00	87.52	0.00	0.00	0.00	HS	91.00	91M	525.696.83	810.567.07 26.31.854957N	77.38.211724W	32.44	-103.46	846.71	91.00	3.71	6.00	0.09	
	9.662.17	6.00	91.00	9.618.00	5.874.00	22.33	853.21	-14.89	853.08	62.17	61.83	0.00	0.00	0.00	HS	91.00	91M	525.696.71	810.577.07 26.31.853309N	77.38.141325W	32.44	-103.46	853.21	91.00	3.71	6.00	0.09	
	9.700.00	6.00	91.00	9.655.63	5.911.63	22.44	857.16	-14.96	857.03	37.83	37.63	0.00	0.00	0.00	HS	91.00	91M	525.696.64	810.578.22 26.31.852307N	77.38.095184W	32.44	-103.46	857.16	91.00	3.71	6.00	0.09	
1st Bone Sporing SS	9.800.00	6.00	91.00	9.755.08	6.011.08	22.71	867.61	-15.14	867.48	100.00	99.45	0.00	0.00	0.00	HS	91.00	91M	525.696.46	810.588.22 26.31.849857N	77.37.973254W	32.44	-103.46	867.61	91.00	3.72	6.00	0.09	
	9.900.00	6.00	91.00	9.854.53	6.110.53	22.99	878.07	-15.32	877.93	100.00	99.45	0.00	0.00	0.00	HS	91.00	91M	525.696.28	810.598.92 26.31.847007N	77.37.851333W	32.44	-103.46	878.07	91.00	3.72	6.00	0.09	
	9.944.00	6.00	91.00	9.898.29	6.154.29	23.11	882.67	-15.40	882.53	44.00	43.76	0.00	0.00	0.00	HS	91.00	91M	525.696.20	810.603.92 26.31.845841N	77.37.797860W	32.44	-103.46	882.67	91.00	3.73	6.00	0.09	
	10.000.00	8.93	129.11	9.953.84	6.209.84	25.96	899.69	-18.20	898.84	56.00	55.25	0.00	0.00	0.00	HS	129.11M	129.11M	525.695.40	810.609.38 26.31.817599N	77.37.724370W	32.44	-103.46	899.69	91.00	4.17	11.60	0.09	
	10.100.00	17.71	151.29	10.051.11	6.307.11	23.31	912.46	-36.48	902.20	100.00	97.27	10.00	8.77	22.18	19.73M	158.63	19.73M	525.675.12	810.623.19 26.31.635675N	77.37.501757W	32.44	-103.46	902.44	91.00	3.20	21.60	0.09	
	10.200.00	27.32	158.63	10.143.40	6.399.40	79.29	950.67	-71.28	917.91	100.00	92.29	10.00	9.62	7.34	12.93M	160.56	12.93M	525.640.32	810.639.40 26.31.290079N	77.37.390152W	32.44	-103.46	920.68	94.44	4.48	31.60	0.09	
	10.245.53	31.78	160.56	10.183.00	6.459.00	100.40	973.11	-92.33	925.71	45.53	39.60	0.00	8.78	4.24	11.24M	162.32	11.24M	525.619.38	810.646.97 26.31.081247N	77.37.301161W	32.44	-103.46	930.31	95.70	4.55	36.15	0.09	
	10.300.00	37.13	162.32	10.227.90	6.483.90	129.70	1003.92	-121.54	935.49	54.47	44.40	10.00	9.83	3.23	9.79M	164.63	9.79M	525.590.07	810.656.48 26.30.791426N	77.37.188986W	32.44	-103.46	943.35	97.40	4.62	41.60	0.09	
	10.400.00	47.01	164.63	10.302.04	6.558.04	159.05	1070.83	-185.72	954.40	100.00	74.14	10.00	9.88	2.31	8.07M	166.30	8.07M	525.525.98	810.675.39 26.30.154612N	77.36.979373W	32.44	-103.46	972.30	101.01	4.75	51.80	0.10	
	10.500.00	56.93	166.30	10.393.58	6.619.58	270.38	1148.50	-261.89	970.33	100.00	61.53	10.00	9.81	1.67	7.04M	167.62	7.04M	525.448.72	810.695.06 26.29.398601N	77.36.753141W	32.44	-103.46	1008.66	105.05	4.86	61.60	0.11	
KOP, Build 10' DLS	10.600.00	66.86	167.62	10.410.63	6.666.63	356.38	1237.59	-347.72	993.90	100.00	47.06	10.00	9.93	1.33	6.41M	168.76	6.41M	525.363.89	810.714.89 26.28.548737N	77.35.529954W	32.44	-103.46	1052.97	109.28	4.96	71.60	0.12	
	10.700.00	76.80	168.76	10.441.78	6.697.78	449.44	1322.49	-440.61	1013.29	100.00	31.15	10.00	9.94	1.14	6.05M	169.82	6.05M	525.271.00	810.734.27 26.27.638074N	77.36.112593W	32.44	-103.46	1104.94	113.50	5.05	81.60	0.13	
	10.800.00	86.74	169.82	10.456.08	6.712.08	546.72	1431.33	-537.74	1031.64	100.00	14.29	10.00	9.95	1.05	5.9M	170.13	5.9M	525.173.87	810.752.83 26.26.665887N	77.36.107682W	32.44	-103.46	1163.38	117.53	5.13	91.60	0.14	
	10.830.72	89.80	170.13	10.457.00	6.713.00	576.99	1462.03	-567.97	1036.99	30.72	0.93	10.00	9.95	1.03	90.02M	171.52	90.02M	525.143.64	810.757.98 26.26.366497N	77.36.048185W	32.44	-103.46	1182.34	118.71	5.16	94.60	0.14	
	10.900.00	89.80	171.52	10.457.25	6.713.25	645.48	1531.32	-636.36	1040.04	69.28	0.24	2.00	0.00	2.00	90.01M	173.52	90.01M	525.075.35	810.769.02 26.25.688419N	77.35.935895W	32.44	-103.46	1226.11	121.27	5.19	96.06	0.15	
	11.000.00	89.80	173.52	10.457.60	6.713.60	744.74	1631.32	-735.50	1061.06	100.00	0.35	2.00	0.00	2.00	90M	175.52	90M	524.976.11	810.782.04 26.24.706400N	77.35.783323W	32.44	-103.46	1291.05	124.73	5.23	98.06	0.16	
	11.100.00	89.80	175.52	10.457.95	6.713.95	844.35	1731.31	-835.04	1070.61	100.00	0.35	2.00	0.00	2.00	90M	177.52	90M	524.876.57	810.791.07 26.23.720763N	77.35.681343W	32.44	-103.46	1357.76	127.95	5.26	100.06	0.17	
	11.200.00	89.80	177.52	10.458.30	6.714.30	944.21	1831.31	-934.86	1078.69	100.00	0.35	2.00	0.00	2.00	89.99M	179.50	89.99M	524.776.76	810.797.07 26.22.732770N	77.35.619907W	32.44	-103.46	1425.90	130.97	5.30	102.06	0.18	
	11.299.25	89.80	179.50	10.458.64	6.714.64	1030.56	1930.56	-1034.06	1079.27	95.25	0.35	2.00	0.00	2.00	HS	179.50	HS	524.677.55	810.800.25 26.21.750885N	77.35.599341W	32.44	-103.46	1449.69	133.77	5.34	104.04	0.18	
	11.300.00	89.80	179.50	10.458.64	6.714.64	1044.19	1931.31	-1034.81	1079.27	0.75	0.00	0.00	0.00	0.00	HS	179.50	HS	524.676.80	810.800.21 26.21.743439N	77.35.599337W	32.44	-103.46	1495.21	133.80	5.34	104.04	0.18	
Landino Point / Tum 2' DLS	11.400.00	89.80	179.50	10.458.99	6.714.99	1144.19	2031.31	-1134.81	1080.14	0.35	0.00	0.00	0.00	0.00	HS	179.50	HS	524.576.81	810.801.13 26.20.753969N	77.35.598741W	32.44	-103.46	1566.68	136.41	5.36	104.04	0.19	
	11.500.00	89.80	179.50	10.459.34	6.715.34	1244.19	2131.31	-1234.80	1081.01	100.00	0.35	0.00	0.00	0.00	HS	179.50	HS	524.476.81	810.802.02 26.19.764491N	77.35.598145W	32.44	-103.46	1641.13	138.80	5.39	104.04	0.20	
	11.600.00	89.80	179.50	10.459.69	6.715.69	1344.19	2231.31	-1334.80	1081.88	100.00	0.35	0.00	0.00	0.00	HS	179.50	HS	524.376.82	810.802.87 26.18.779317N	77.35.597949W	32.44	-103.46	1718.18	140.97	5.41	104.04	0.21	
	11.700.00	89.80	179.50	10.460.04	6.716.04	1444.19	2331.31	-1434.79	1082.75	100.00	0.35	0.00	0.00	0.00	HS	179.50	HS	524.276.82	810.803.74 26.17.785437N	77.35.596652W	32.44	-103.46	1797.49	142.96	5.43	104.04	0.22	
	11.800.00																											



Grama Ridge East 34 State 2BS 7H

API # 30-025-xxxxx

Updated: 11/15/2019

TVD ft-RKB		Geological Tops	Wellbore Sketch		Hole Size	Casing	Drilling Fluids	Cement	OH Evaluation/Logs
2,000	1,795	Rustler		1,800'	17-1/2"	Surface: 13-3/8" 54.5# J55 BTC	FW Spud Mud 8.4 - 9.4 ppg 32 - 34 Vis	Top of Lead: Surface 12.8 ppg 2.01 cuft/sk 900 sks - 100% XS Top of Tail: 1,300' 14.8 ppg 1.33 cuft/sk 525 sks - 100% XS	
3,000	2,265	Salado							
4,000	3,850	Yates				12-1/4"	Intermediate: 9-5/8" 40# J55 LTC	Brine 10.0 ppg 28 Vis	Stage 1 Top of Lead: 3,900' 11.5 ppg 2.43 cuft/sk 340 sks - 100% XS Top of Tail: 5,200' 14.8 ppg 1.33 cuft/sk 235 sks - 100% XS Stage 2 Top of Lead: Surface 11.5 ppg 2.43 cuft/sk 1,510 sks - 200% XS
5,000	4,430	Capitan Reef		5,700'	8-3/4" 8-1/2" Lateral	Production: 5-1/2" 20# P110 BTC	Curve & Lateral OBM 8.9 - 9.1 ppg 50 - 70 Vis 75/25 OWR	Scavenger: Surface 10.5 ppg 2.01 cuft/sk 625 sks - 10% XS Top of Lead: 4,500' 11.3 ppg 2.62 cuft/sk 545 sks - 10% XS Top of Tail: 9,600' 13.2 ppg 1.82 cuft/sk 880 sks - 10% XS	
6,000	5,655	Delaware Mtn Grp							
7,000									
8,000	8,515	Bone Spring							
9,000	9,615	1st Bone Sprg SS							
10,000	10,180	2nd Bone Sprg SS							
11,000	11,055	3rd Bone Sprg SS							15,287' MD 10,473' TVD