

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

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

1a. Type of work: ☐ DRILL ☐ REENTER 1b. Type of Well: ☐ Oil Well ☐ Gas Well ☐ Other 1c. Type of Completion: ☐ Hydraulic Fracturing ☐ Single Zone ☐ Multiple Zone		5. Lease Serial No. 6. If Indian, Allottee or Tribe Name 7. If Unit or CA Agreement, Name and No. 8. Lease Name and Well No. [300545]
2. Name of Operator [162683]		9. API Well No. 30-025-49106
3a. Address	3b. Phone No. (include area code)	10. Field and Pool, or Exploratory [98092]
4. Location of Well (Report location clearly and in accordance with any State requirements. *) At surface At proposed prod. zone		11. Sec., T. R. M. or Blk. and Survey or Area
14. Distance in miles and direction from nearest town or post office*		12. County or Parish 13. State
15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any)	16. No of acres in lease	17. Spacing Unit dedicated to this well
18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft.	19. Proposed Depth	20. BLM/BIA Bond No. in file
21. Elevations (Show whether DF, KDB, RT, GL, etc.)	22. Approximate date work will start*	23. Estimated duration
24. Attachments		

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

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

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

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

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

GCP Rec 05/11/2021

SL

(Continued on page 2)



Approval Date: 05/11/2021

KZ

06/25/2021

*(Instructions on page 2)

INSTRUCTIONS

GENERAL: This form is designed for submitting proposals to perform certain well operations, as indicated on Federal and Indian lands and leases for action by appropriate Federal agencies, pursuant to applicable Federal laws and regulations. Any necessary special instructions concerning the use of this form and the number of copies to be submitted, particularly with regard to local, area, or regional procedures and practices, either are shown below or will be issued by, or may be obtained from local Federal offices.

ITEM I: If the proposal is to redrill to the same reservoir at a different subsurface location or to a new reservoir, use this form with appropriate notations. Consult applicable Federal regulations concerning subsequent work proposals or reports on the well.

ITEM 4: Locations on Federal or Indian land should be described in accordance with Federal requirements. Consult local Federal offices for specific instructions.

ITEM 14: Needed only when location of well cannot readily be found by road from the land or lease description. A plat, or plats, separate or on the reverse side, showing the roads to, and the surveyed location of, the well, and any other required information, should be furnished when required by Federal agency offices.

ITEMS 15 AND 18: If well is to be, or has been directionally drilled, give distances for subsurface location of hole in any present or objective productive zone.

ITEM 22: Consult applicable Federal regulations, or appropriate officials, concerning approval of the proposal before operations are started.

ITEM 24: If the proposal will involve hydraulic fracturing operations, you must comply with 43 CFR 3162.3-3, including providing information about the protection of usable water. Operators should provide the best available information about all formations containing water and their depths. This information could include data and interpretation of resistivity logs run on nearby wells. Information may also be obtained from state or tribal regulatory agencies and from local BLM offices.

NOTICES

The Privacy Act of 1974 and regulation in 43 CFR 2.48(d) provide that you be furnished the following information in connection with information required by this application.

AUTHORITY: 30 U.S.C. 181 et seq., 25 U.S.C. 396; 43 CFR 3160

PRINCIPAL PURPOSES: The information will be used to: (1) process and evaluate your application for a permit to drill a new oil, gas, or service well or to reenter a plugged and abandoned well; and (2) document, for administrative use, information for the management, disposal and use of National Resource Lands and resources including (a) analyzing your proposal to discover and extract the Federal or Indian resources encountered; (b) reviewing procedures and equipment and the projected impact on the land involved; and (c) evaluating the effects of the proposed operation on the surface and subsurface water and other environmental impacts.

ROUTINE USE: Information from the record and/or the record will be transferred to appropriate Federal, State, and local or foreign agencies, when relevant to civil, criminal or regulatory investigations or prosecution, in connection with congressional inquiries and for regulatory responsibilities.

EFFECT OF NOT PROVIDING INFORMATION: Filing of this application and disclosure of the information is mandatory only if you elect to initiate a drilling or reentry operation on an oil and gas lease.

The Paperwork Reduction Act of 1995 requires us to inform you that:

The BLM connects this information to an evaluation of the technical, safety, and environmental factors involved with drilling for oil and/or gas on Federal and Indian oil and gas leases. This information will be used to analyze and approve applications. Response to this request is mandatory only if the operator elects to initiate drilling or reentry operations on an oil and gas lease. The BLM would like you to know that you do not have to respond to this or any other Federal agency-sponsored information collection unless it displays a currently valid OMB control number.

BURDEN HOURS STATEMENT: Public reporting burden for this form is estimated to average 8 hours per response, including the time for reviewing instructions, gathering and maintaining data, and completing and reviewing the form. Direct comments regarding the burden estimate or any other aspect of this form to U.S. Department of the Interior, Bureau of Land Management (1004-0137), Bureau Information Connection Clearance Officer (WO-630), 1849 C Street, N.W., Mail Stop 401 LS, Washington, D.C. 20240.

Additional Operator Remarks

Location of Well

1. SHL: NENE / 448 FNL / 870 FEL / TWSP: 25S / RANGE: 33E / SECTION: 33 / LAT: 32.13899 / LONG: -103.571561 (TVD: 0 feet, MD: 0 feet)
PPP: NENE / 5279 FSL / 336 FEL / TWSP: 26S / RANGE: 33E / SECTION: 4 / LAT: 32.079775 / LONG: -103.587822 (TVD: 12291 feet, MD: 16895 feet)
PPP: SENW / 1320 FSL / 330 FEL / TWSP: 26S / RANGE: 33E / SECTION: 4 / LAT: 32.068892 / LONG: -103.571142 (TVD: 12282 feet, MD: 20854 feet)
BHL: SESE / 100 FSL / 750 FEL / TWSP: 26S / RANGE: 33E / SECTION: 4 / LAT: 32.065537 / LONG: -103.571137 (TVD: 12280 feet, MD: 22074 feet)

BLM Point of Contact

Name: Priscilla Perez

Title: Legal Instruments Examiner

Phone: 5752345934

Email: pperez@blm.gov

Review and Appeal Rights

A person contesting a decision shall request a State Director review. This request must be filed within 20 working days of receipt of the Notice with the appropriate State Director (see 43 CFR 3165.3). The State Director review decision may be appealed to the Interior Board of Land Appeals, 801 North Quincy Street, Suite 300, Arlington, VA 22203 (see 43 CFR 3165.4). Contact the above listed Bureau of Land Management office for further information.

CONFIDENTIAL

District I
1625 N. Freach Dr., Hobbs, NM 88240
Phone: (505) 393-6161 Fax: (505) 393-0720
District II
811 S. First St., Artesia, NM 88210
Phone: (505) 748-1283 Fax: (505) 748-9720
District III
1000 Rio Brazos Road, Aztec, NM 87410
Phone: (505) 334-6178 Fax: (505) 334-6170
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505
Phone: (505) 476-3460 Fax: (505) 476-3462

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

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

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

30-025-49106	98092	WC-025 G-09 S2433361; UPPER WOLECAMP
Property Code 300545	Property Name RED HILLS UNIT	Well Number 74H
GRID No. 162683	Operator Name CIMAREX ENERGY CO. OF COLORADO	Elevation 3341.8'

"Surface Location

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
A	33	25S	33E		448	NORTH	870	EAST	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
P	4	26S	33E		100	SOUTH	750	EAST	LEA

" Dedicated Acres	" Joint or Infill	" Consolidation Code	" 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.

" NOTE:

- Distances referenced on plat to section lines are perpendicular.
- Basis of Bearing is a Transverse Mercator Projection with a Central Meridian of W103°53'00"

NAD 83 (SURFACE HOLE LOCATION)
LATITUDE = 32°05'34.96" (32.093045°)
LONGITUDE = 103°34'17.62" (103.571561°)
NAD 83 (SURFACE HOLE LOCATION)
LATITUDE = 32°05'34.51" (32.092920°)
LONGITUDE = 103°34'15.93" (103.571090°)
STATE PLANE NAD 83 (N.M. EAST)
N: 398419.78' E: 777242.26'
STATE PLANE NAD 83 (N.M. EAST)
N: 398362.18' E: 736055.74'

NAD 83 (LP/FTP)
LATITUDE = 32°05'34.96" (32.093044°)
LONGITUDE = 103°34'16.23" (103.571174°)
NAD 83 (LP/FTP)
LATITUDE = 32°05'34.51" (32.092919°)
LONGITUDE = 103°34'14.53" (103.570704°)
STATE PLANE NAD 83 (N.M. EAST)
N: 398420.35' E: 777361.95'
STATE PLANE NAD 83 (N.M. EAST)
N: 398362.74' E: 736175.43'

NAD 83 (BHL/LTP)
LATITUDE = 32°05'55.93" (32.096553°)
LONGITUDE = 103°34'16.09" (103.571137°)
NAD 83 (BHL/LTP)
LATITUDE = 32°05'55.48" (32.096412°)
LONGITUDE = 103°34'14.41" (103.570669°)
STATE PLANE NAD 83 (N.M. EAST)
N: 398413.85' E: 777444.02'
STATE PLANE NAD 83 (N.M. EAST)
N: 398356.50' E: 736257.02'

LINE TABLE

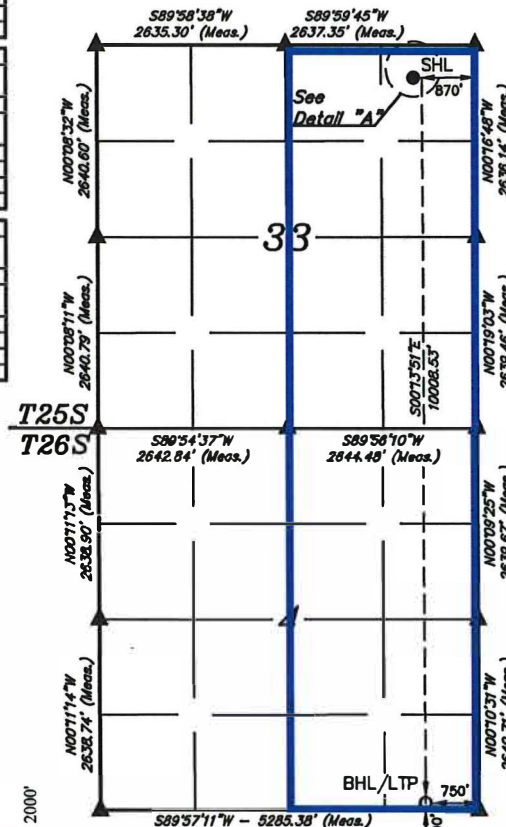
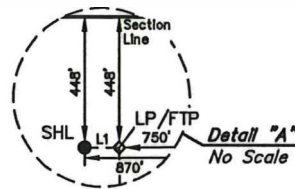
LINE	DIRECTION	LENGTH
L1	N89°58'08"E	119.72'



SCALE

DRAWN BY: R.J. 03-20-18
REV: 1 08-08-19 C.IVIE (LATERAL CHANGE)

- = SURFACE HOLE LOCATION
- = BOTTOM HOLE LOCATION/LAST TAKE POINT
- ▲ = SECTION CORNER LOCATED
- ◇ = LANDING POINT/FIRST TAKE POINT



"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.

Signature: Hope Knauls Date: 05/29/19

Printed Name: Hope Knauls

E-mail Address: hknauls@cimarex

E-mail Address: hknauls@cimarex

"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.

May 05, 2017

Date of Survey
Signature and Seal of Professional Surveyor:



Certificate Number:

District I
1625 N. French Dr., Hobbs, NM 88240
District II
811 S. First St., Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
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: 10/25/2019

☒ Original Operator & OGRID No.: Cimarex Energy Co of Colorado- 162683
☐ 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
Red Hills Unit 74H	Pending 30-025-49106	A; 33-25S-33E	448'FNL & 870' FEL	4000		

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 Enlink and will be connected to Enlink low/high pressure gathering system located in Lea County, New Mexico. It will require (no additional feet) of pipeline to connect the facility to low/high pressure gathering system. Cimarex provides (periodically) to Enlink a drilling, completion and estimated first production date for wells that are scheduled to be drilled in the foreseeable future. In addition, Cimarex and Enlink have periodic conference calls to discuss changes to drilling and completion schedules. Gas from these wells will be processed at EnLink Lobo Processing Plant located in Sec 30, BLk 29 Loving Co, TX. 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 Enlink system at that time. Based on current information, it is Cimarex'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

Cimarex Energy Co., Red Hills Unit 74H

1. Geological Formations

TVD of target 12,280

Pilot Hole TD N/A

MD at TD 22,074

Deepest expected fresh water

Formation	Depth (TVD) from KB	Water/Mineral Bearing/Target Zone	Hazards
Rustler	926	Usable Water	
Top Salt	1260	N/A	
Base Salt	4652	N/A	
Lamar	4888	N/A	
Bell Canyon	4932	N/A	
Cherry Canyon	6017	N/A	
Brushy Canyon	7490	Hydrocarbons	
Bone Spring	9039	Hydrocarbons	
Upper Avalon Sand	9356	Hydrocarbons	
1st Bone Spring	10036	Hydrocarbons	
2nd Bone Spring	10564	Hydrocarbons	
3rd Bone Spring	11017	Hydrocarbons	
Wolfcamp	12210	Hydrocarbons	

2. Casing Program

Hole Size	Casing Depth From	Casing Depth To	Setting Depth TVD	Casing Size	Weight (lb/ft)	Grade	Conn.	SF Collapse	SF Burst	SF Tension
14 3/4	0	976	976	10-3/4"	40.50	J-55	BT&C	3.54	7.01	15.91
9 7/8	0	12440	12251	7-5/8"	29.70	L-80	BT&C	2.50	1.20	1.82
6 3/4	0	11747	11747	5-1/2"	20.00	L-80	LT&C	1.16	1.20	1.88
6 3/4	11747	22075	12280	5"	18.00	P-110	BT&C	1.69	1.71	60.45
BLM Minimum Safety Factor								1.125	1	1.6 Dry 1.8 Wet

TVD was used on all calculations.

All casing strings will be tested in accordance with Onshore Oil and Gas Order #2 III.B.1.h

Request Variance for 5-1/2" x 7-5/8" annular clearance. The portion that does not meet clearance will not be cemented

Cimarex Energy Co., Red Hills Unit 74H

	Y or N
Is casing new? If used, attach certification as required in Onshore Order #1	Y
Does casing meet API specifications? If no, attach casing specification sheet.	Y
Is premium or uncommon casing planned? If yes attach casing specification sheet.	N
Does the above casing design meet or exceed BLM's minimum standards? If not provide justification (loading assumptions, casing design criteria).	Y
Will the intermediate pipe be kept at a minimum 1/3 fluid filled to avoid approaching the collapse pressure rating of the casing?	Y
Is well located within Capitan Reef?	N
If yes, does production casing cement tie back a minimum of 50' above the Reef?	N
Is well within the designated 4 string boundary.	N
Is well located in SOPA but not in R-111-P?	N
If yes, are the first 2 strings cemented to surface and 3rd string cement tied back 500' into previous casing?	N
Is well located in R-111-P and SOPA?	N
If yes, are the first three strings cemented to surface?	N
Is 2nd string set 100' to 600' below the base of salt?	N
Is well located in high Cave/Karst?	N
If yes, are there two strings cemented to surface?	N
(For 2 string wells) If yes, is there a contingency casing if lost circulation occurs?	N
Is well located in critical Cave/Karst?	N
If yes, are there three strings cemented to surface?	N
Is AC Report included?	N

Cimarex Energy Co., Red Hills Unit 74H

3. Cementing Program

Casing	# Sk	Wt. lb/gal	Yld ft ³ /sack	H ₂ O gal/sk	500# Comp. Strength (hours)	Slurry Description
Surface	328	13.50	1.72	9.15	15.5	Lead: Class C + Bentonite
	156	14.80	1.34	6.32	9.5	Tail: Class C + LCM
Intermediate Stage 1	580	10.30	3.64	22.18		Lead: Tuned Light + LCM
	198	14.80	1.36	6.57	9.5	Tail: Class C + Retarder
Intermediate Stage 2	793	12.90	1.88	9.65	12	Lead: 35:65 (Poz:C) + Salt + Bentonite
Production	830	14.20	1.30	5.86	14:30	Tail: 50:50 (Poz:H) + Salt + Bentonite + Fluid Loss + Dispersant + SMS

DV tool with possible annular casing packer as needed is proposed at a depth of +/- 4,890'.

Casing String	TOC	% Excess
Surface	0	42
Intermediate Stage 1	4890	47
Intermediate Stage 2	0	40
Production	12240	25

Cimarex request the ability to perform casing integrity tests after plug bump of cement job.

4. Pressure Control Equipment

A variance is requested for the use of a diverter on the surface casing. See attached for schematic.					
BOP installed and tested before drilling which hole?	Size	Min Required WP	Type		Tested To
9 7/8	13 5/8	5M	Annular	X	50% of working pressure
			Blind Ram		5M
			Pipe Ram	X	
			Double Ram	X	
			Other		
6 3/4	13 5/8	10M	Annular	X	50% of working pressure
			Blind Ram		10M
			Pipe Ram	X	
			Double Ram	X	
			Other		

BOP/BOPE will be tested by an independent service company to 250 psi low and the high pressure indicated above per Onshore Order 2 requirements. The System may be upgraded to a higher pressure but still tested to the working pressure listed in the table above. If the system is upgraded all the components installed will be functional and tested.

Pipe rams will be operationally checked each 24 hour period. Blind rams will be operationally checked on each trip out of the hole. These checks will be noted on the daily tour sheets. Other accessories to the BOP equipment will include a Kelly cock and floor safety valve (inside BOP) and choke lines and choke manifold. See attached schematics.

X	Formation integrity test will be performed per Onshore Order #2. On Exploratory wells or 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. Will be tested in accordance with Onshore Oil and Gas Order #2 III.B.1.i.
X	A variance is requested for the use of a flexible choke line from the BOP to Choke Manifold. See attached for specs and hydrostatic test chart.
N	Are anchors required by manufacturer?

Cimarex Energy Co., Red Hills Unit 74H

5. Mud Program

Depth	Type	Weight (ppg)	Viscosity	Water Loss
0' to 976'	FW Spud Mud	8.30 - 8.80	30-32	N/C
976' to 12440'	Brine Diesel Emulsion	8.50 - 9.00	30-35	N/C
12440' to 22075'	Oil Based Mud	12.00 - 12.50	50-70	N/C

Sufficient mud materials to maintain mud properties and meet minimum lost circulation and weight increase requirements will be kept on location at all times.

The Brine Emulsion is completely saturated brine fluid that ties diesel into itself to lower the weight of the fluid. The drilling fluid is completely salt saturated.

What will be used to monitor the loss or gain of fluid?	PVT/Pason/Visual Monitoring
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6. Logging and Testing Procedures

Logging, Coring and Testing	
	Will run GR/CNL from TD to surface (horizontal well – vertical portion of hole). Stated logs run will be in the Completion Report and submitted to the BLM.
	No logs are planned based on well control or offset log information.
	Drill stem test?
	Coring?

Additional Logs Planned	Interval
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7. Drilling Conditions

Condition	
BH Pressure at deepest TVD	7982 psi
Abnormal Temperature	No

Hydrogen Sulfide (H₂S) monitors will be installed prior to drilling out the surface shoe. If H₂S is detected in concentrations greater than 100 ppm, the operator will comply with the provisions of Onshore Oil and Gas Order #6. If Hydrogen Sulfide is encountered, measured values and formations will be provided to the BLM.

X	H ₂ S is present
X	H ₂ S plan is attached

8. Other Facets of Operation**9. Wellhead**

A multi-bowl wellhead system will be utilized.

After running the 10-3/4" surface casing, a 13 5/8" BOP/BOPE system with a minimum working pressure of 10000 psi will be installed on the wellhead system and will be pressure tested to 250 psi low followed by a 10000 psi test. Annular will be tested to 50% of working pressure. The pressure test will be repeated at least every 30 days, as per Onshore Order No. 2.

The multi-bowl wellhead will be installed by vendor's representative. A copy of the installation instructions has been sent to the BLM field office.

The wellhead will be installed by a third-party welder while being monitored by the wellhead vendor representative.

All BOP equipment will be tested utilizing a conventional test plug. Not a cup or J-packer type.

A solid steel body pack-off will be utilized after running and cementing the intermediate casing. After installation the pack-off and lower flange will be pressure tested to 10000 psi.

All casing strings will be tested as per Onshore Order No.2 to at least 0.22 psi/ft or 1,500 whichever is greater and not to exceed 70% of casing burst.

If well conditions dictate conventional slips will be set and BOPE will be tested to appropriate pressures based on permitted pressure requirements.



Cimarex Red Hills Unit #74H Rev0 RM 11Sept19 Proposal Geodetic Report (Non-Def Plan)



Report Date: September 11, 2019 - 05:26 PM
Client: Cimarex Energy
Field: NM Lea County (NAD 83)
Structure / Slot: Cimarex Red Hills Unit #74H / New Slot
Well: Red Hills Unit #74H
Borehole: Red Hills Unit #74H
UWI / API#: Unknown / Unknown
Survey Name: Cimarex Red Hills Unit #74H Rev0 RM 11Sept19
Survey Date: September 11, 2019
Tort / AHD / DDI / ERD Ratio: 98.333 ° / 10035.259 ft / 6.248 / 0.816
Coordinate Reference System: NAD83 New Mexico State Plane, Eastern Zone, US Feet
Location Lat / Long: N 32° 5' 34.96176", W 103° 34' 17.61780"
Location Grid N/E Y/X: N 398419.780 ftUS, E 777242.259 ftUS
CRS Grid Convergence Angle: 0.4047 °
Grid Scale Factor: 0.99997283
Version / Patch: 2.10.782.0

Survey / DLS Computation: Minimum Curvature / Lubinski
Vertical Section Azimuth: 179.529 ° (Grid North)
Vertical Section Origin: 0.000 ft, 0.000 ft
TVD Reference Datum: RKB
TVD Reference Elevation: 3367.800 ft above MSL
Seabed / Ground Elevation: 3341.800 ft above MSL
Magnetic Declination: 6.613 °
Total Gravity Field Strength: 998.4377mgn (9.80665 Based)
Gravity Model: GARM
Total Magnetic Field Strength: 47724.264 nT
Magnetic Dip Angle: 59.691 °
Declination Date: September 11, 2019
Magnetic Declination Model: HDGM 2019
North Reference: Grid North
Grid Convergence Used: 0.4047 °
Total Corr Mag North->Grid North: 6.2086 °
Local Coord Referenced To: Well Head

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (°/100ft)	Northing (ftUS)	Easting (ftUS)	Latitude (N/S ° ' ")	Longitude (E/W ° ' ")
SHL [448' FNL, 870' FEL]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	N/A	398419.78	777242.26	N 32 5 34.96 W 103 34 17.62	
	100.00	0.00	144.63	100.00	0.00	0.00	0.00	0.00	398419.78	777242.26	N 32 5 34.96 W 103 34 17.62	
	200.00	0.00	144.63	200.00	0.00	0.00	0.00	0.00	398419.78	777242.26	N 32 5 34.96 W 103 34 17.62	
	300.00	0.00	144.63	300.00	0.00	0.00	0.00	0.00	398419.78	777242.26	N 32 5 34.96 W 103 34 17.62	
	400.00	0.00	144.63	400.00	0.00	0.00	0.00	0.00	398419.78	777242.26	N 32 5 34.96 W 103 34 17.62	
	500.00	0.00	144.63	500.00	0.00	0.00	0.00	0.00	398419.78	777242.26	N 32 5 34.96 W 103 34 17.62	
	600.00	0.00	144.63	600.00	0.00	0.00	0.00	0.00	398419.78	777242.26	N 32 5 34.96 W 103 34 17.62	
	700.00	0.00	144.63	700.00	0.00	0.00	0.00	0.00	398419.78	777242.26	N 32 5 34.96 W 103 34 17.62	
	800.00	0.00	144.63	800.00	0.00	0.00	0.00	0.00	398419.78	777242.26	N 32 5 34.96 W 103 34 17.62	
	900.00	0.00	144.63	900.00	0.00	0.00	0.00	0.00	398419.78	777242.26	N 32 5 34.96 W 103 34 17.62	
Rustler	926.00	0.00	144.63	926.00	0.00	0.00	0.00	0.00	398419.78	777242.26	N 32 5 34.96 W 103 34 17.62	
	1000.00	0.00	144.63	1000.00	0.00	0.00	0.00	0.00	398419.78	777242.26	N 32 5 34.96 W 103 34 17.62	
	1100.00	0.00	144.63	1100.00	0.00	0.00	0.00	0.00	398419.78	777242.26	N 32 5 34.96 W 103 34 17.62	
	1200.00	0.00	144.63	1200.00	0.00	0.00	0.00	0.00	398419.78	777242.26	N 32 5 34.96 W 103 34 17.62	
Top of Salt	1260.00	0.00	144.63	1260.00	0.00	0.00	0.00	0.00	398419.78	777242.26	N 32 5 34.96 W 103 34 17.62	
	1300.00	0.00	144.63	1300.00	0.00	0.00	0.00	0.00	398419.78	777242.26	N 32 5 34.96 W 103 34 17.62	
	1400.00	0.00	144.63	1400.00	0.00	0.00	0.00	0.00	398419.78	777242.26	N 32 5 34.96 W 103 34 17.62	
	1500.00	0.00	144.63	1500.00	0.00	0.00	0.00	0.00	398419.78	777242.26	N 32 5 34.96 W 103 34 17.62	
	1600.00	0.00	144.63	1600.00	0.00	0.00	0.00	0.00	398419.78	777242.26	N 32 5 34.96 W 103 34 17.62	
	1700.00	0.00	144.63	1700.00	0.00	0.00	0.00	0.00	398419.78	777242.26	N 32 5 34.96 W 103 34 17.62	
	1800.00	0.00	144.63	1800.00	0.00	0.00	0.00	0.00	398419.78	777242.26	N 32 5 34.96 W 103 34 17.62	
	1900.00	0.00	144.63	1900.00	0.00	0.00	0.00	0.00	398419.78	777242.26	N 32 5 34.96 W 103 34 17.62	
	2000.00	0.00	144.63	2000.00	0.00	0.00	0.00	0.00	398419.78	777242.26	N 32 5 34.96 W 103 34 17.62	
	2100.00	0.00	144.63	2100.00	0.00	0.00	0.00	0.00	398419.78	777242.26	N 32 5 34.96 W 103 34 17.62	
	2200.00	0.00	144.63	2200.00	0.00	0.00	0.00	0.00	398419.78	777242.26	N 32 5 34.96 W 103 34 17.62	
	2300.00	0.00	144.63	2300.00	0.00	0.00	0.00	0.00	398419.78	777242.26	N 32 5 34.96 W 103 34 17.62	
	2400.00	0.00	144.63	2400.00	0.00	0.00	0.00	0.00	398419.78	777242.26	N 32 5 34.96 W 103 34 17.62	
	2500.00	0.00	144.63	2500.00	0.00	0.00	0.00	0.00	398419.78	777242.26	N 32 5 34.96 W 103 34 17.62	

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (°/100ft)	Northing (ftUS)	Easting (ftUS)	Latitude (N/S ° ' ")		Longitude (E/W ° ' ")	
	2600.00	0.00	144.63	2600.00	0.00	0.00	0.00	0.00	398419.78	777242.26	N	32	5	34.96 W 103 34 17.62
	2700.00	0.00	144.63	2700.00	0.00	0.00	0.00	0.00	398419.78	777242.26	N	32	5	34.96 W 103 34 17.62
	2800.00	0.00	144.63	2800.00	0.00	0.00	0.00	0.00	398419.78	777242.26	N	32	5	34.96 W 103 34 17.62
	2900.00	0.00	144.63	2900.00	0.00	0.00	0.00	0.00	398419.78	777242.26	N	32	5	34.96 W 103 34 17.62
	3000.00	0.00	144.63	3000.00	0.00	0.00	0.00	0.00	398419.78	777242.26	N	32	5	34.96 W 103 34 17.62
	3100.00	0.00	144.63	3100.00	0.00	0.00	0.00	0.00	398419.78	777242.26	N	32	5	34.96 W 103 34 17.62
	3200.00	0.00	144.63	3200.00	0.00	0.00	0.00	0.00	398419.78	777242.26	N	32	5	34.96 W 103 34 17.62
	3300.00	0.00	144.63	3300.00	0.00	0.00	0.00	0.00	398419.78	777242.26	N	32	5	34.96 W 103 34 17.62
	3400.00	0.00	144.63	3400.00	0.00	0.00	0.00	0.00	398419.78	777242.26	N	32	5	34.96 W 103 34 17.62
	3500.00	0.00	144.63	3500.00	0.00	0.00	0.00	0.00	398419.78	777242.26	N	32	5	34.96 W 103 34 17.62
	3600.00	0.00	144.63	3600.00	0.00	0.00	0.00	0.00	398419.78	777242.26	N	32	5	34.96 W 103 34 17.62
	3700.00	0.00	144.63	3700.00	0.00	0.00	0.00	0.00	398419.78	777242.26	N	32	5	34.96 W 103 34 17.62
	3800.00	0.00	144.63	3800.00	0.00	0.00	0.00	0.00	398419.78	777242.26	N	32	5	34.96 W 103 34 17.62
	3900.00	0.00	144.63	3900.00	0.00	0.00	0.00	0.00	398419.78	777242.26	N	32	5	34.96 W 103 34 17.62
	4000.00	0.00	144.63	4000.00	0.00	0.00	0.00	0.00	398419.78	777242.26	N	32	5	34.96 W 103 34 17.62
	4100.00	0.00	144.63	4100.00	0.00	0.00	0.00	0.00	398419.78	777242.26	N	32	5	34.96 W 103 34 17.62
	4200.00	0.00	144.63	4200.00	0.00	0.00	0.00	0.00	398419.78	777242.26	N	32	5	34.96 W 103 34 17.62
	4300.00	0.00	144.63	4300.00	0.00	0.00	0.00	0.00	398419.78	777242.26	N	32	5	34.96 W 103 34 17.62
	4400.00	0.00	144.63	4400.00	0.00	0.00	0.00	0.00	398419.78	777242.26	N	32	5	34.96 W 103 34 17.62
	4500.00	0.00	144.63	4500.00	0.00	0.00	0.00	0.00	398419.78	777242.26	N	32	5	34.96 W 103 34 17.62
	4600.00	0.00	144.63	4600.00	0.00	0.00	0.00	0.00	398419.78	777242.26	N	32	5	34.96 W 103 34 17.62
Base of Salt	4652.00	0.00	144.63	4652.00	0.00	0.00	0.00	0.00	398419.78	777242.26	N	32	5	34.96 W 103 34 17.62
	4700.00	0.00	144.63	4700.00	0.00	0.00	0.00	0.00	398419.78	777242.26	N	32	5	34.96 W 103 34 17.62
Lamar	4800.00	0.00	144.63	4800.00	0.00	0.00	0.00	0.00	398419.78	777242.26	N	32	5	34.96 W 103 34 17.62
	4888.00	0.00	144.63	4888.00	0.00	0.00	0.00	0.00	398419.78	777242.26	N	32	5	34.96 W 103 34 17.62
	4900.00	0.00	144.63	4900.00	0.00	0.00	0.00	0.00	398419.78	777242.26	N	32	5	34.96 W 103 34 17.62
Bell Canyon	4932.00	0.00	144.63	4932.00	0.00	0.00	0.00	0.00	398419.78	777242.26	N	32	5	34.96 W 103 34 17.62
	5000.00	0.00	144.63	5000.00	0.00	0.00	0.00	0.00	398419.78	777242.26	N	32	5	34.96 W 103 34 17.62
	5100.00	0.00	144.63	5100.00	0.00	0.00	0.00	0.00	398419.78	777242.26	N	32	5	34.96 W 103 34 17.62
	5200.00	0.00	144.63	5200.00	0.00	0.00	0.00	0.00	398419.78	777242.26	N	32	5	34.96 W 103 34 17.62
	5300.00	0.00	144.63	5300.00	0.00	0.00	0.00	0.00	398419.78	777242.26	N	32	5	34.96 W 103 34 17.62
	5400.00	0.00	144.63	5400.00	0.00	0.00	0.00	0.00	398419.78	777242.26	N	32	5	34.96 W 103 34 17.62
	5500.00	0.00	144.63	5500.00	0.00	0.00	0.00	0.00	398419.78	777242.26	N	32	5	34.96 W 103 34 17.62
	5600.00	0.00	144.63	5600.00	0.00	0.00	0.00	0.00	398419.78	777242.26	N	32	5	34.96 W 103 34 17.62
	5700.00	0.00	144.63	5700.00	0.00	0.00	0.00	0.00	398419.78	777242.26	N	32	5	34.96 W 103 34 17.62
	5800.00	0.00	144.63	5800.00	0.00	0.00	0.00	0.00	398419.78	777242.26	N	32	5	34.96 W 103 34 17.62
	5900.00	0.00	144.63	5900.00	0.00	0.00	0.00	0.00	398419.78	777242.26	N	32	5	34.96 W 103 34 17.62
	6000.00	0.00	144.63	6000.00	0.00	0.00	0.00	0.00	398419.78	777242.26	N	32	5	34.96 W 103 34 17.62
Cherry Canyon	6017.00	0.00	144.63	6017.00	0.00	0.00	0.00	0.00	398419.78	777242.26	N	32	5	34.96 W 103 34 17.62
	6100.00	0.00	144.63	6100.00	0.00	0.00	0.00	0.00	398419.78	777242.26	N	32	5	34.96 W 103 34 17.62
	6200.00	0.00	144.63	6200.00	0.00	0.00	0.00	0.00	398419.78	777242.26	N	32	5	34.96 W 103 34 17.62
	6300.00	0.00	144.63	6300.00	0.00	0.00	0.00	0.00	398419.78	777242.26	N	32	5	34.96 W 103 34 17.62
	6400.00	0.00	144.63	6400.00	0.00	0.00	0.00	0.00	398419.78	777242.26	N	32	5	34.96 W 103 34 17.62
	6500.00	0.00	144.63	6500.00	0.00	0.00	0.00	0.00	398419.78	777242.26	N	32	5	34.96 W 103 34 17.62
	6600.00	0.00	144.63	6600.00	0.00	0.00	0.00	0.00	398419.78	777242.26	N	32	5	34.96 W 103 34 17.62
	6700.00	0.00	144.63	6700.00	0.00	0.00	0.00	0.00	398419.78	777242.26	N	32	5	34.96 W 103 34 17.62
	6800.00	0.00	144.63	6800.00	0.00	0.00	0.00	0.00	398419.78	777242.26	N	32	5	34.96 W 103 34 17.62
	6900.00	0.00	144.63	6900.00	0.00	0.00	0.00	0.00	398419.78	777242.26	N	32	5	34.96 W 103 34 17.62
	7000.00	0.00	144.63	7000.00	0.00	0.00	0.00	0.00	398419.78	777242.26	N	32	5	34.96 W 103 34 17.62
	7100.00	0.00	144.63	7100.00	0.00	0.00	0.00	0.00	398419.78	777242.26	N	32	5	34.96 W 103 34 17.62
	7200.00	0.00	144.63	7200.00	0.00	0.00	0.00	0.00	398419.78	777242.26	N	32	5	34.96 W 103 34 17.62
	7300.00	0.00	144.63	7300.00	0.00	0.00	0.00	0.00	398419.78	777242.26	N	32	5	34.96 W 103 34 17.62
	7400.00	0.00	144.63	7400.00	0.00	0.00	0.00	0.00	398419.78	777242.26	N	32	5	34.96 W 103 34 17.62
Brushy Canyon	7490.00	0.00	144.63	7490.00	0.00	0.00	0.00	0.00	398419.78	777242.26	N	32	5	34.96 W 103 34 17.62
	7500.00	0.00	144.63	7500.00	0.00	0.00	0.00	0.00	398419.78	777242.26	N	32	5	34.96 W 103 34 17.62
	7600.00	0.00	144.63	7600.00	0.00	0.00	0.00	0.00	398419.78	777242.26	N	32	5	34.96 W 103 34 17.62
	7700.00	0.00	144.63	7700.00	0.00	0.00	0.00	0.00	398419.78	777242.26	N	32	5	34.96 W 103 34 17.62
	7800.00	0.00	144.63	7800.00	0.00	0.00	0.00	0.00	398419.78	777242.26	N	32	5	34.96 W 103 34 17.62
	7900.00	0.00	144.63	7900.00	0.00	0.00	0.00	0.00	398419.78	777242.26	N	32	5	34.96 W 103 34 17.62

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (°/100ft)	Northing (ftUS)	Easting (ftUS)	Latitude (N/S ° ' ")		Longitude (E/W ° ' ")	
	8000.00	0.00	144.63	8000.00	0.00	0.00	0.00	0.00	398419.78	777242.26	N 32	5 34.96 W	103 34 17.62	
	8100.00	0.00	144.63	8100.00	0.00	0.00	0.00	0.00	398419.78	777242.26	N 32	5 34.96 W	103 34 17.62	
	8200.00	0.00	144.63	8200.00	0.00	0.00	0.00	0.00	398419.78	777242.26	N 32	5 34.96 W	103 34 17.62	
	8300.00	0.00	144.63	8300.00	0.00	0.00	0.00	0.00	398419.78	777242.26	N 32	5 34.96 W	103 34 17.62	
	8400.00	0.00	144.63	8400.00	0.00	0.00	0.00	0.00	398419.78	777242.26	N 32	5 34.96 W	103 34 17.62	
	8500.00	0.00	144.63	8500.00	0.00	0.00	0.00	0.00	398419.78	777242.26	N 32	5 34.96 W	103 34 17.62	
	8600.00	0.00	144.63	8600.00	0.00	0.00	0.00	0.00	398419.78	777242.26	N 32	5 34.96 W	103 34 17.62	
	8700.00	0.00	144.63	8700.00	0.00	0.00	0.00	0.00	398419.78	777242.26	N 32	5 34.96 W	103 34 17.62	
	8800.00	0.00	144.63	8800.00	0.00	0.00	0.00	0.00	398419.78	777242.26	N 32	5 34.96 W	103 34 17.62	
	8900.00	0.00	144.63	8900.00	0.00	0.00	0.00	0.00	398419.78	777242.26	N 32	5 34.96 W	103 34 17.62	
	9000.00	0.00	144.63	9000.00	0.00	0.00	0.00	0.00	398419.78	777242.26	N 32	5 34.96 W	103 34 17.62	
Bone Spring	9039.00	0.00	144.63	9039.00	0.00	0.00	0.00	0.00	398419.78	777242.26	N 32	5 34.96 W	103 34 17.62	
Leonard Shale	9094.00	0.00	144.63	9094.00	0.00	0.00	0.00	0.00	398419.78	777242.26	N 32	5 34.96 W	103 34 17.62	
	9100.00	0.00	144.63	9100.00	0.00	0.00	0.00	0.00	398419.78	777242.26	N 32	5 34.96 W	103 34 17.62	
	9200.00	0.00	144.63	9200.00	0.00	0.00	0.00	0.00	398419.78	777242.26	N 32	5 34.96 W	103 34 17.62	
	9300.00	0.00	144.63	9300.00	0.00	0.00	0.00	0.00	398419.78	777242.26	N 32	5 34.96 W	103 34 17.62	
Avalon Shale	9356.00	0.00	144.63	9356.00	0.00	0.00	0.00	0.00	398419.78	777242.26	N 32	5 34.96 W	103 34 17.62	
	9400.00	0.00	144.63	9400.00	0.00	0.00	0.00	0.00	398419.78	777242.26	N 32	5 34.96 W	103 34 17.62	
	9500.00	0.00	144.63	9500.00	0.00	0.00	0.00	0.00	398419.78	777242.26	N 32	5 34.96 W	103 34 17.62	
	9600.00	0.00	144.63	9600.00	0.00	0.00	0.00	0.00	398419.78	777242.26	N 32	5 34.96 W	103 34 17.62	
	9700.00	0.00	144.63	9700.00	0.00	0.00	0.00	0.00	398419.78	777242.26	N 32	5 34.96 W	103 34 17.62	
Lower Avalon	9731.00	0.00	144.63	9731.00	0.00	0.00	0.00	0.00	398419.78	777242.26	N 32	5 34.96 W	103 34 17.62	
Shale														
	9800.00	0.00	144.63	9800.00	0.00	0.00	0.00	0.00	398419.78	777242.26	N 32	5 34.96 W	103 34 17.62	
	9900.00	0.00	144.63	9900.00	0.00	0.00	0.00	0.00	398419.78	777242.26	N 32	5 34.96 W	103 34 17.62	
	10000.00	0.00	144.63	10000.00	0.00	0.00	0.00	0.00	398419.78	777242.26	N 32	5 34.96 W	103 34 17.62	
1st Bone Spring	10036.00	0.00	144.63	10036.00	0.00	0.00	0.00	0.00	398419.78	777242.26	N 32	5 34.96 W	103 34 17.62	
Sand														
	10100.00	0.00	144.63	10100.00	0.00	0.00	0.00	0.00	398419.78	777242.26	N 32	5 34.96 W	103 34 17.62	
	10200.00	0.00	144.63	10200.00	0.00	0.00	0.00	0.00	398419.78	777242.26	N 32	5 34.96 W	103 34 17.62	
2nd Bone	10223.00	0.00	144.63	10223.00	0.00	0.00	0.00	0.00	398419.78	777242.26	N 32	5 34.96 W	103 34 17.62	
Spring Carb														
	10300.00	0.00	144.63	10300.00	0.00	0.00	0.00	0.00	398419.78	777242.26	N 32	5 34.96 W	103 34 17.62	
	10400.00	0.00	144.63	10400.00	0.00	0.00	0.00	0.00	398419.78	777242.26	N 32	5 34.96 W	103 34 17.62	
	10500.00	0.00	144.63	10500.00	0.00	0.00	0.00	0.00	398419.78	777242.26	N 32	5 34.96 W	103 34 17.62	
2nd Bone	10564.00	0.00	144.63	10564.00	0.00	0.00	0.00	0.00	398419.78	777242.26	N 32	5 34.96 W	103 34 17.62	
Spring Sand														
	10600.00	0.00	144.63	10600.00	0.00	0.00	0.00	0.00	398419.78	777242.26	N 32	5 34.96 W	103 34 17.62	
	10700.00	0.00	144.63	10700.00	0.00	0.00	0.00	0.00	398419.78	777242.26	N 32	5 34.96 W	103 34 17.62	
	10800.00	0.00	144.63	10800.00	0.00	0.00	0.00	0.00	398419.78	777242.26	N 32	5 34.96 W	103 34 17.62	
	10900.00	0.00	144.63	10900.00	0.00	0.00	0.00	0.00	398419.78	777242.26	N 32	5 34.96 W	103 34 17.62	
	11000.00	0.00	144.63	11000.00	0.00	0.00	0.00	0.00	398419.78	777242.26	N 32	5 34.96 W	103 34 17.62	
3rd Bone	11017.00	0.00	144.63	11017.00	0.00	0.00	0.00	0.00	398419.78	777242.26	N 32	5 34.96 W	103 34 17.62	
Spring Carb														
	11100.00	0.00	144.63	11100.00	0.00	0.00	0.00	0.00	398419.78	777242.26	N 32	5 34.96 W	103 34 17.62	
	11200.00	0.00	144.63	11200.00	0.00	0.00	0.00	0.00	398419.78	777242.26	N 32	5 34.96 W	103 34 17.62	
	11300.00	0.00	144.63	11300.00	0.00	0.00	0.00	0.00	398419.78	777242.26	N 32	5 34.96 W	103 34 17.62	
	11400.00	0.00	144.63	11400.00	0.00	0.00	0.00	0.00	398419.78	777242.26	N 32	5 34.96 W	103 34 17.62	
	11500.00	0.00	144.63	11500.00	0.00	0.00	0.00	0.00	398419.78	777242.26	N 32	5 34.96 W	103 34 17.62	
	11600.00	0.00	144.63	11600.00	0.00	0.00	0.00	0.00	398419.78	777242.26	N 32	5 34.96 W	103 34 17.62	
3rd Bone	11682.00	0.00	144.63	11682.00	0.00	0.00	0.00	0.00	398419.78	777242.26	N 32	5 34.96 W	103 34 17.62	
Spring Sand														
	11700.00	0.00	144.63	11700.00	0.00	0.00	0.00	0.00	398419.78	777242.26	N 32	5 34.96 W	103 34 17.62	
KOP - Build	11747.05	0.00	144.63	11747.05	0.00	0.00	0.00	0.00	398419.78	777242.26	N 32	5 34.96 W	103 34 17.62	
12"/100' DLS														
	11800.00	6.35	144.63	11799.89	2.41	-2.39	1.70	12.00	398417.39	777243.96	N 32	5 34.94 W	103 34 17.60	
	11900.00	18.35	144.63	11897.40	19.92	-19.81	14.06	12.00	398399.97	777256.32	N 32	5 34.76 W	103 34 17.46	
	12000.00	30.35	144.63	11988.33	53.68	-53.37	37.89	12.00	398366.41	777280.14	N 32	5 34.43 W	103 34 17.18	

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (°/100ft)	Northing (ftUS)	Easting (ftUS)	Latitude (N/S ° ' ")	Longitude (E/W ° ' ")
Build & Turn 12°/100' DLS	12038.71	35.00	144.63	12020.91	70.82	-70.41	49.98	12.00	398349.37	777292.24	N 32 5 34.26 W 103 34 17.04	
	12100.00	40.26	153.07	12069.46	103.01	-102.44	69.15	12.00	398317.34	777311.41	N 32 5 33.94 W 103 34 16.82	
	12200.00	49.81	163.39	12140.14	168.87	-168.10	94.80	12.00	398251.69	777337.06	N 32 5 33.29 W 103 34 16.53	
	12300.00	60.05	171.06	12197.57	248.71	-247.79	112.52	12.00	398172.00	777354.78	N 32 5 32.50 W 103 34 16.33	
Wolfcamp	12325.98	62.78	172.78	12210.00	271.31	-270.37	115.72	12.00	398149.42	777357.98	N 32 5 32.28 W 103 34 16.29	
	12400.00	70.65	177.27	12239.25	339.03	-338.04	121.54	12.00	398081.75	777363.79	N 32 5 31.61 W 103 34 16.23	
Build 4°/100' DLS	12440.46	75.00	179.53	12251.20	377.66	-376.67	122.61	12.00	398043.12	777364.86	N 32 5 31.23 W 103 34 16.22	
	12500.00	77.38	179.53	12265.41	435.48	-434.48	123.08	4.00	397985.31	777365.34	N 32 5 30.65 W 103 34 16.22	
Wolfcamp Y Sand	12575.80	80.41	179.53	12280.00	509.85	-508.85	123.69	4.00	397910.95	777365.95	N 32 5 29.92 W 103 34 16.22	
	12600.00	81.38	179.53	12283.83	533.75	-532.75	123.89	4.00	397887.05	777366.15	N 32 5 29.68 W 103 34 16.22	
	12700.00	85.38	179.53	12295.35	633.06	-632.06	124.71	4.00	397787.74	777366.96	N 32 5 28.70 W 103 34 16.22	
	12800.00	89.38	179.53	12299.92	732.93	-731.93	125.53	4.00	397687.87	777367.78	N 32 5 27.71 W 103 34 16.22	
Wolfcamp Y SS Target	12812.39	89.88	179.53	12300.00	745.32	-744.31	125.63	4.00	397675.49	777367.88	N 32 5 27.59 W 103 34 16.22	
Wolfcamp Y SS Target	12818.54	90.12	179.53	12300.00	751.47	-750.46	125.68	4.00	397669.34	777367.94	N 32 5 27.53 W 103 34 16.22	
Landing Point	12818.56	90.12	179.53	12300.00	751.49	-750.48	125.68	4.00	397669.32	777367.94	N 32 5 27.53 W 103 34 16.22	
	12900.00	90.12	179.53	12299.82	832.93	-831.92	126.35	0.00	397587.88	777368.60	N 32 5 26.72 W 103 34 16.22	
	13000.00	90.12	179.53	12299.61	932.93	-931.92	127.17	0.00	397487.89	777369.43	N 32 5 25.73 W 103 34 16.22	
	13100.00	90.12	179.53	12299.39	1032.93	-1031.92	127.99	0.00	397387.89	777370.25	N 32 5 24.74 W 103 34 16.21	
	13200.00	90.12	179.53	12299.18	1132.93	-1131.91	128.82	0.00	397287.90	777371.07	N 32 5 23.75 W 103 34 16.21	
	13300.00	90.12	179.53	12298.96	1232.93	-1231.91	129.64	0.00	397187.91	777371.89	N 32 5 22.76 W 103 34 16.21	
	13400.00	90.12	179.53	12298.74	1332.93	-1331.91	130.46	0.00	397087.91	777372.71	N 32 5 21.77 W 103 34 16.21	
	13500.00	90.12	179.53	12298.53	1432.93	-1431.90	131.28	0.00	396987.92	777373.54	N 32 5 20.78 W 103 34 16.21	
	13600.00	90.12	179.53	12298.31	1532.93	-1531.90	132.10	0.00	396887.93	777374.36	N 32 5 19.79 W 103 34 16.21	
	13700.00	90.12	179.53	12298.10	1632.93	-1631.90	132.93	0.00	396787.93	777375.18	N 32 5 18.80 W 103 34 16.21	
	13800.00	90.12	179.53	12297.88	1732.93	-1731.89	133.75	0.00	396687.94	777376.00	N 32 5 17.82 W 103 34 16.21	
	13900.00	90.12	179.53	12297.66	1832.93	-1831.89	134.57	0.00	396587.95	777376.82	N 32 5 16.83 W 103 34 16.20	
	14000.00	90.12	179.53	12297.45	1932.93	-1931.88	135.39	0.00	396487.95	777377.65	N 32 5 15.84 W 103 34 16.20	
	14100.00	90.12	179.53	12297.23	2032.93	-2031.88	136.21	0.00	396387.96	777378.47	N 32 5 14.85 W 103 34 16.20	
	14200.00	90.12	179.53	12297.02	2132.93	-2131.88	137.04	0.00	396287.97	777379.29	N 32 5 13.86 W 103 34 16.20	
	14300.00	90.12	179.53	12296.80	2232.93	-2231.87	137.86	0.00	396187.97	777380.11	N 32 5 12.87 W 103 34 16.20	
	14400.00	90.12	179.53	12296.58	2332.93	-2331.87	138.68	0.00	396087.98	777380.93	N 32 5 11.88 W 103 34 16.20	
	14500.00	90.12	179.53	12296.37	2432.93	-2431.87	139.50	0.00	395987.98	777381.76	N 32 5 10.89 W 103 34 16.20	
	14600.00	90.12	179.53	12296.15	2532.93	-2531.86	140.32	0.00	395887.99	777382.58	N 32 5 9.90 W 103 34 16.19	
	14700.00	90.12	179.53	12295.93	2632.93	-2631.86	141.15	0.00	395788.00	777383.40	N 32 5 8.91 W 103 34 16.19	
	14800.00	90.12	179.53	12295.72	2732.93	-2731.86	141.97	0.00	395688.00	777384.22	N 32 5 7.92 W 103 34 16.19	
	14900.00	90.12	179.53	12295.50	2832.93	-2831.85	142.79	0.00	395588.01	777385.04	N 32 5 6.93 W 103 34 16.19	
	15000.00	90.12	179.53	12295.29	2932.93	-2931.85	143.61	0.00	395488.02	777385.87	N 32 5 5.94 W 103 34 16.19	
	15100.00	90.12	179.53	12295.07	3032.93	-3031.84	144.43	0.00	395388.02	777386.69	N 32 5 4.95 W 103 34 16.19	
	15200.00	90.12	179.53	12294.85	3132.93	-3131.84	145.26	0.00	395288.03	777387.51	N 32 5 3.96 W 103 34 16.19	
	15300.00	90.12	179.53	12294.64	3232.93	-3231.84	146.08	0.00	395188.04	777388.33	N 32 5 2.97 W 103 34 16.19	
	15400.00	90.12	179.53	12294.42	3332.93	-3331.83	146.90	0.00	395088.04	777389.15	N 32 5 1.98 W 103 34 16.18	
	15500.00	90.12	179.53	12294.21	3432.93	-3431.83	147.72	0.00	394988.05	777389.98	N 32 5 0.99 W 103 34 16.18	
	15600.00	90.12	179.53	12293.99	3532.93	-3531.83	148.54	0.00	394888.06	777390.80	N 32 5 0.00 W 103 34 16.18	
	15700.00	90.12	179.53	12293.77	3632.93	-3631.82	149.37	0.00	394788.06	777391.62	N 32 4 59.01 W 103 34 16.18	
	15800.00	90.12	179.53	12293.56	3732.93	-3731.82	150.19	0.00	394688.07	777392.44	N 32 4 58.02 W 103 34 16.18	
	15900.00	90.12	179.53	12293.34	3832.93	-3831.82	151.01	0.00	394588.08	777393.26	N 32 4 57.03 W 103 34 16.18	
	16000.00	90.12	179.53	12293.13	3932.93	-3931.81	151.83	0.00	394488.08	777394.09	N 32 4 56.05 W 103 34 16.18	
	16100.00	90.12	179.53	12292.91	4032.93	-4031.81	152.65	0.00	394388.09	777394.91	N 32 4 55.06 W 103 34 16.17	
	16200.00	90.12	179.53	12292.69	4132.93	-4131.80	153.48	0.00	394288.10	777395.73	N 32 4 54.07 W 103 34 16.17	
	16300.00	90.12	179.53	12292.48	4232.93	-4231.80	154.30	0.00	394188.10	777396.55	N 32 4 53.08 W 103 34 16.17	
	16400.00	90.12	179.53	12292.26	4332.93	-4331.80	155.12	0.00	394088.11	777397.37	N 32 4 52.09 W 103 34 16.17	
	16500.00	90.12	179.53	12292.05	4432.93	-4431.79	155.94	0.00	393988.12	777398.20	N 32 4 51.10 W 103 34 16.17	
	16600.00	90.12	179.53	12291.83	4532.93	-4531.79	156.76	0.00	393888.12	777399.02	N 32 4 50.11 W 103 34 16.17	
	16700.00	90.12	179.53	12291.61	4632.93	-4631.79	157.59	0.00	393788.13	777399.84	N 32 4 49.12 W 103 34 16.17	

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (°/100ft)	Northing (ftUS)	Easting (ftUS)	Latitude (N/S ° ' ")	Longitude (E/W ° ' ")
NMNM0005792	16800.00	90.12	179.53	12291.40	4732.93	-4731.78	158.41	0.00	393688.13	777400.66	N 32 4 48.13	W 103 34 16.17
- NMNM089425 Crossing	16895.20	90.12	179.53	12291.19	4828.13	-4826.98	159.19	0.00	393592.94	777401.45	N 32 4 47.19	W 103 34 16.16
	16900.00	90.12	179.53	12291.18	4832.93	-4831.78	159.23	0.00	393588.14	777401.48	N 32 4 47.14	W 103 34 16.16
	17000.00	90.12	179.53	12290.96	4932.92	-4931.78	160.05	0.00	393488.15	777402.31	N 32 4 46.15	W 103 34 16.16
	17100.00	90.12	179.53	12290.75	5032.92	-5031.77	160.87	0.00	393388.15	777403.13	N 32 4 45.16	W 103 34 16.16
	17200.00	90.12	179.53	12290.53	5132.92	-5131.77	161.70	0.00	393288.16	777403.95	N 32 4 44.17	W 103 34 16.16
	17300.00	90.12	179.53	12290.32	5232.92	-5231.76	162.52	0.00	393188.17	777404.77	N 32 4 43.18	W 103 34 16.16
	17400.00	90.12	179.53	12290.10	5332.92	-5331.76	163.34	0.00	393088.17	777405.59	N 32 4 42.19	W 103 34 16.16
	17500.00	90.12	179.53	12289.88	5432.92	-5431.76	164.16	0.00	392988.18	777406.42	N 32 4 41.20	W 103 34 16.16
	17600.00	90.12	179.53	12289.67	5532.92	-5531.75	164.99	0.00	392888.19	777407.24	N 32 4 40.21	W 103 34 16.15
	17700.00	90.12	179.53	12289.45	5632.92	-5631.75	165.81	0.00	392788.19	777408.06	N 32 4 39.22	W 103 34 16.15
	17800.00	90.12	179.53	12289.24	5732.92	-5731.75	166.63	0.00	392688.20	777408.88	N 32 4 38.23	W 103 34 16.15
	17900.00	90.12	179.53	12289.02	5832.92	-5831.74	167.45	0.00	392588.21	777409.70	N 32 4 37.24	W 103 34 16.15
	18000.00	90.12	179.53	12288.80	5932.92	-5931.74	168.27	0.00	392488.21	777410.53	N 32 4 36.25	W 103 34 16.15
	18100.00	90.12	179.53	12288.59	6032.92	-6031.74	169.10	0.00	392388.22	777411.35	N 32 4 35.27	W 103 34 16.15
	18200.00	90.12	179.53	12288.37	6132.92	-6131.73	169.92	0.00	392288.23	777412.17	N 32 4 34.28	W 103 34 16.15
	18300.00	90.12	179.53	12288.16	6232.92	-6231.73	170.74	0.00	392188.23	777412.99	N 32 4 33.29	W 103 34 16.15
	18400.00	90.12	179.53	12287.94	6332.92	-6331.73	171.56	0.00	392088.24	777413.81	N 32 4 32.30	W 103 34 16.14
	18500.00	90.12	179.53	12287.72	6432.92	-6431.72	172.38	0.00	391988.25	777414.64	N 32 4 31.31	W 103 34 16.14
	18600.00	90.12	179.53	12287.51	6532.92	-6531.72	173.21	0.00	391888.25	777415.46	N 32 4 30.32	W 103 34 16.14
	18700.00	90.12	179.53	12287.29	6632.92	-6631.71	174.03	0.00	391788.26	777416.28	N 32 4 29.33	W 103 34 16.14
	18800.00	90.12	179.53	12287.08	6732.92	-6731.71	174.85	0.00	391688.27	777417.10	N 32 4 28.34	W 103 34 16.14
	18900.00	90.12	179.53	12286.86	6832.92	-6831.71	175.67	0.00	391588.27	777417.92	N 32 4 27.35	W 103 34 16.14
	19000.00	90.12	179.53	12286.64	6932.92	-6931.70	176.49	0.00	391488.28	777418.75	N 32 4 26.36	W 103 34 16.14
	19100.00	90.12	179.53	12286.43	7032.92	-7031.70	177.32	0.00	391388.29	777419.57	N 32 4 25.37	W 103 34 16.13
	19200.00	90.12	179.53	12286.21	7132.92	-7131.70	178.14	0.00	391288.29	777420.39	N 32 4 24.38	W 103 34 16.13
	19300.00	90.12	179.53	12286.00	7232.92	-7231.69	178.96	0.00	391188.30	777421.21	N 32 4 23.39	W 103 34 16.13
	19400.00	90.12	179.53	12285.78	7332.92	-7331.69	179.78	0.00	391088.30	777422.03	N 32 4 22.40	W 103 34 16.13
	19500.00	90.12	179.53	12285.56	7432.92	-7431.69	180.60	0.00	390988.31	777422.86	N 32 4 21.41	W 103 34 16.13
	19600.00	90.12	179.53	12285.35	7532.92	-7531.68	181.43	0.00	390888.32	777423.68	N 32 4 20.42	W 103 34 16.13
	19700.00	90.12	179.53	12285.13	7632.92	-7631.68	182.25	0.00	390788.32	777424.50	N 32 4 19.43	W 103 34 16.13
	19800.00	90.12	179.53	12284.91	7732.92	-7731.67	183.07	0.00	390688.33	777425.32	N 32 4 18.44	W 103 34 16.12
	19900.00	90.12	179.53	12284.70	7832.92	-7831.67	183.89	0.00	390588.34	777426.14	N 32 4 17.45	W 103 34 16.12
	20000.00	90.12	179.53	12284.48	7932.92	-7931.67	184.71	0.00	390488.34	777426.97	N 32 4 16.46	W 103 34 16.12
	20100.00	90.12	179.53	12284.27	8032.92	-8031.66	185.54	0.00	390388.35	777427.79	N 32 4 15.47	W 103 34 16.12
	20200.00	90.12	179.53	12284.05	8132.92	-8131.66	186.36	0.00	390288.36	777428.61	N 32 4 14.48	W 103 34 16.12
	20300.00	90.12	179.53	12283.83	8232.92	-8231.66	187.18	0.00	390188.36	777429.43	N 32 4 13.50	W 103 34 16.12
	20400.00	90.12	179.53	12283.62	8332.92	-8331.65	188.00	0.00	390088.37	777430.25	N 32 4 12.51	W 103 34 16.12
	20500.00	90.12	179.53	12283.40	8432.92	-8431.65	188.82	0.00	389988.38	777431.08	N 32 4 11.52	W 103 34 16.12
	20600.00	90.12	179.53	12283.19	8532.92	-8531.65	189.65	0.00	389888.38	777431.90	N 32 4 10.53	W 103 34 16.11
	20700.00	90.12	179.53	12282.97	8632.92	-8631.64	190.47	0.00	389788.39	777432.72	N 32 4 9.54	W 103 34 16.11
	20800.00	90.12	179.53	12282.75	8732.92	-8731.64	191.29	0.00	389688.40	777433.54	N 32 4 8.55	W 103 34 16.11
NMNM089425 - NMNM000127 H Crossing	20854.60	90.12	179.53	12282.64	8787.52	-8786.24	191.74	0.00	389633.80	777433.99	N 32 4 8.01	W 103 34 16.11
	20900.00	90.12	179.53	12282.54	8832.92	-8831.63	192.11	0.00	389588.40	777434.36	N 32 4 7.56	W 103 34 16.11
	21000.00	90.12	179.53	12282.32	8932.92	-8931.63	192.93	0.00	389488.41	777435.19	N 32 4 6.57	W 103 34 16.11
	21100.00	90.12	179.53	12282.11	9032.92	-9031.63	193.76	0.00	389388.42	777436.01	N 32 4 5.58	W 103 34 16.11
	21200.00	90.12	179.53	12281.89	9132.92	-9131.62	194.58	0.00	389288.42	777436.83	N 32 4 4.59	W 103 34 16.11
	21300.00	90.12	179.53	12281.67	9232.91	-9231.62	195.40	0.00	389188.43	777437.65	N 32 4 3.60	W 103 34 16.10
	21400.00	90.12	179.53	12281.46	9332.91	-9331.62	196.22	0.00	389088.44	777438.47	N 32 4 2.61	W 103 34 16.10
	21500.00	90.12	179.53	12281.24	9432.91	-9431.61	197.04	0.00	388988.44	777439.30	N 32 4 1.62	W 103 34 16.10
	21600.00	90.12	179.53	12281.03	9532.91	-9531.61	197.87	0.00	388888.45	777440.12	N 32 4 0.63	W 103 34 16.10
	21700.00	90.12	179.53	12280.81	9632.91	-9631.61	198.69	0.00	388788.45	777440.94	N 32 3 59.64	W 103 34 16.10
	21800.00	90.12	179.53	12280.59	9732.91	-9731.60	199.51	0.00	388688.46	777441.76	N 32 3 58.65	W 103 34 16.10
	21900.00	90.12	179.53	12280.38	9832.91	-9831.60	200.33	0.00	388588.47	777442.58	N 32 3 57.66	W 103 34 16.10
	22000.00	90.12	179.53	12280.16	9932.91	-9931.60	201.15	0.00	388488.47	777443.41	N 32 3 56.67	W 103 34 16.10

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (°/100ft)	Northing (ftUS)	Easting (ftUS)	Latitude (N/S ° ' ")	Longitude (E/W ° ' ")
Wolfcamp Y Sand Cimarex Red Hills Unit #74H - PBHL [100' FSL, 750' FEL]	22074.63	90.12	179.53	12280.00	10007.54	-10006.22	201.77	0.00	388413.85	777444.02	N 32 3 55.93 W 103 34 16.09	

Survey Type: Non-Def Plan

Survey Error Model: ISCWSA Rev 0 *** 3-D 95.000% Confidence 2.7955 sigma
Survey Program:

Description	Part	MD From (ft)	MD To (ft)	EOU Freq (ft)	Hole Size (in)	Casing Diameter (in)	Expected Max Inclination (deg)	Survey Tool Type	Borehole / Survey
	1	0.000	26.000	1/100.000	30.000	30.000		NAL_MWD_IFR1+MS-Depth Only	Red Hills Unit #74H / Cimarex Red Hills Unit #74H Rev0 RM 11Sept19
	1	26.000	22074.629	1/100.000	30.000	30.000		NAL_MWD_IFR1+MS	Red Hills Unit #74H / Cimarex Red Hills Unit #74H Rev0 RM



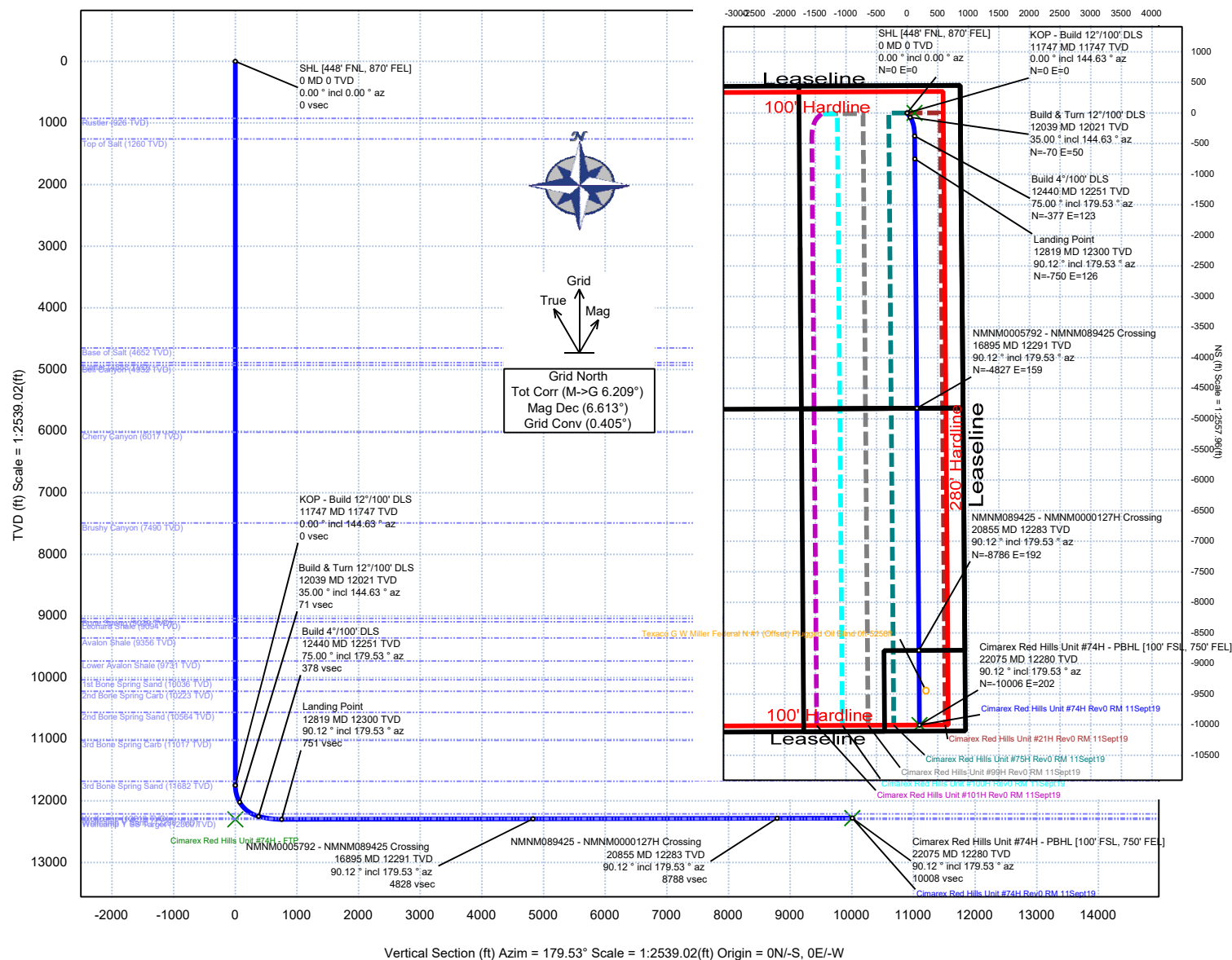
Cimarex Energy

Rev 0



Borehole: Red Hills Unit #74H	Well: Red Hills Unit #74H	Field: NM Lea County (NAD 83)	Structure: Cimarex Red Hills Unit #74H
Gravity & Magnetic Parameters			
Model: HDGM 2019	Dip: 59.691°	Date: 11-Sep-2019	
MagDec: 6.613°	FS: 47724.264nT	Gravity FS: 998.438mgn (9.80665 Based)	
Surface Location NAD83 New Mexico State Plane, Eastern Zone, US Feet			
Lat: N 32 5 34.96	Northing: 398419.78ftUS	Grid Conv: 0.4047°	
Lon: W 103 34 17.62	Easting: 777242.26ftUS	Scale Fact: 0.99997283	
Miscellaneous			
Slot: New Slot	TVD Ref: RKB(3367.8ft above MSL)		
Plan: Cimarex Red Hills Unit #74H Rev0 RM 11Sept19			

EW (ft) Scale = 1:2557.96(ft)



Critical Point	MD	INCL	AZIM	TVD	VSEC	N(+)S(-)	E(+)W(-)	DLS
SHL [448' FNL, 870° FEL]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Rustler	926.00	0.00	144.63	926.00	0.00	0.00	0.00	0.00
Top of Salt	1260.00	0.00	144.63	1260.00	0.00	0.00	0.00	0.00
Base of Salt	4652.00	0.00	144.63	4652.00	0.00	0.00	0.00	0.00
Lamar	4888.00	0.00	144.63	4888.00	0.00	0.00	0.00	0.00
Bell Canyon	4932.00	0.00	144.63	4932.00	0.00	0.00	0.00	0.00
Cherry Canyon	6017.00	0.00	144.63	6017.00	0.00	0.00	0.00	0.00
Brushy Canyon	7490.00	0.00	144.63	7490.00	0.00	0.00	0.00	0.00
Bone Spring	9039.00	0.00	144.63	9039.00	0.00	0.00	0.00	0.00
Leonard Shale	9094.00	0.00	144.63	9094.00	0.00	0.00	0.00	0.00
Avalon Shale	9356.00	0.00	144.63	9356.00	0.00	0.00	0.00	0.00
Lower Avalon Shale	9731.00	0.00	144.63	9731.00	0.00	0.00	0.00	0.00
1st Bone Spring Sand	10036.00	0.00	144.63	10036.00	0.00	0.00	0.00	0.00
2nd Bone Spring Carb	10223.00	0.00	144.63	10223.00	0.00	0.00	0.00	0.00
2nd Bone Spring Sand	10564.00	0.00	144.63	10564.00	0.00	0.00	0.00	0.00
3rd Bone Spring Carb	11017.00	0.00	144.63	11017.00	0.00	0.00	0.00	0.00
3rd Bone Spring Sand	11682.00	0.00	144.63	11682.00	0.00	0.00	0.00	0.00
KOP - Build 12°/100' DLS	11747.05	0.00	144.63	11747.05	0.00	0.00	0.00	0.00
Build & Turn 12°/100' DLS	12038.71	35.00	144.63	12020.91	70.82	-70.41	49.98	12.00
Wolfcamp	12325.98	62.78	172.78	12210.00	271.31	-270.37	115.72	12.00
Build 4°/100' DLS	12440.46	75.00	179.53	12251.20	377.86	-376.67	122.61	12.00
Wolfcamp Y Sand	12575.80	80.41	179.53	12280.00	509.85	-508.85	123.69	4.00
Wolfcamp Y SS Target	12812.39	89.88	179.53	12300.00	745.32	-744.31	125.63	4.00
Wolfcamp Y SS Target	12818.54	90.12	179.53	12300.00	751.47	-750.46	125.68	4.00
Landing Point	12818.56	90.12	179.53	12300.00	751.49	-750.48	125.68	4.00
NMNM0005792 - NMNM089425 Crossing	16895.20	90.12	179.53	12291.19	4828.13	-4826.98	159.19	0.00
NMNM089425 - NMNM0000127H Crossing	20854.60	90.12	179.53	12282.64	8787.52	-8786.24	191.74	0.00
Wolfcamp Y Sand	22074.63	90.12	179.53	12280.00	10007.54	-10006.22	201.77	0.00
Cimarex Red Hills Unit #74H - PBHL [100' FSL, 750° FEL]	22074.63	90.12	179.53	12280.00	10007.54	-10006.22	201.77	0.00
Wolfcamp A1	NaN			12302.00				
Wolfcamp A2	NaN			12848.00				



Cimarex Red Hills Unit #74H Rev0 RM 11Sept19 Anti-Collision Summary Report

Analysis Date-24hr Time: September 11, 2019 - 17:26
Client: Cimarex Energy
Field: NM Lea County (NAD 83)
Structure: Cimarex Red Hills Unit #74H
Slot: New Slot
Well: Red Hills Unit #74H
Borehole: Red Hills Unit #74H
Scan MD Range: 0.00ft ~ 22074.63ft

Analysis Method: 3D Least Distance
Reference Trajectory: Cimarex Red Hills Unit #74H Rev0 RM 11Sept19 (Non-Def Plan)
Depth Interval: Every 10.00 Measured Depth (ft)
Rule Set: NAL Procedure: D&M AntiCollision Standard S002
Min Pts: All local minima indicated.
Version / Patch: 2.10.782.0
Database \ Project: US1153APP452.dir.slb.com\drilling-NM Lea County 2.10

Trajectory Error Model: ISCWSA0 3-D 95.000% Confidence 2.7955 sigma, for subject well. For offset wells, error model version is specified with each well respectively.

Offset Trajectories Summary

Offset Selection Criteria

Wellhead distance scan: Not performed!
 Selection filters: Definitive Surveys - Definitive Plans - Definitive surveys exclude definitive plans
 - All Non-Def Surveys when no Def-Survey is set in a borehole - All Non-Def Plans when no Def-Plan is set in a borehole

Offset Trajectory	Separation			Allow Dev. (ft)	Sep. Fact.	Controlling Rule	Reference Trajectory		Risk Level			Alert	Status
	Ct-Ct (ft)	MAS (ft)	EOU (ft)				MD (ft)	TVD (ft)	Alert	Minor	Major		

Results highlighted: Sep-Factor separation <= 1.50 ft

Cimarex Red Hills Unit #21H
 Rev0 RM 11Sept19 (Non-Def Plan)

Fail Minor

20.01	16.50	17.51	3.50	N/A	MAS = 5.03 (m)	0.00	0.00	CtCt<=15m<15.00				Enter Alert	
20.00	16.50	17.50	3.50	N/A	MAS = 5.03 (m)	26.00	26.00					WRP	
20.00	20.00	5.83	0.00	1.50	OSF1.50	1920.00	1920.00		OSF<1.50			Enter Minor	
20.00	25.47	2.19	-5.47	1.14	OSF1.50	2500.00	2500.00					MinPt-CtCt	
20.02	25.54	2.16	-5.52	1.14	OSF1.50	2510.00	2510.00					MINPT-O-EOU	
20.07	25.61	2.16	-5.54	1.14	OSF1.50	2520.00	2520.00					MinPts	
26.23	26.59	7.67	-0.36	1.48	OSF1.50	2690.00	2690.00		OSF>1.50			Exit Minor	
92.53	29.70	71.90	62.83	4.97	OSF1.50	3250.00	3250.00	OSF>5.00				Exit Alert	
420.42	93.79	357.06	326.63	6.87	OSF1.50	12410.00	12242.47					MinPt-O-SF	
419.98	93.63	356.73	326.35	6.87	OSF1.50	12440.00	12251.08					MinPts	
419.94	92.32	357.56	327.62	6.97	OSF1.50	12818.56	12300.00					MinPt-CtCt	
419.94	127.80	333.91	292.15	5.00	OSF1.50	15620.00	12293.95	OSF<5.00				Enter Alert	
419.95	312.56	210.74	107.39	2.02	OSF1.50	22074.63	12280.00					MinPts	

Cimarex Red Hills Unit #75H
 Rev0 RM 11Sept19 (Non-Def Plan)

Fail Minor

20.04	16.53	17.54	3.51	N/A	MAS = 5.04 (m)	0.00	0.00	CtCt<=15m<15.00				Enter Alert	
20.04	16.53	17.54	3.51	78940.60	MAS = 5.04 (m)	26.00	26.00					WRP	
20.04	20.10	5.81	-0.06	1.49	OSF1.50	1930.00	1930.00		OSF<1.50			Enter Minor	
20.04	28.21	0.40	-8.17	1.02	OSF1.50	2790.00	2790.00					MinPt-CtCt	
20.06	28.37	0.31	-8.31	1.02	OSF1.50	2810.00	2810.00					MinPts	
20.11	28.44	0.32	-8.33	1.02	OSF1.50	2820.00	2820.00					MinPt-O-ADP	
29.20	29.58	8.65	-0.38	1.48	OSF1.50	3030.00	3030.00		OSF>1.50			Exit Minor	
109.91	34.79	85.88	75.12	4.99	OSF1.50	3900.00	3900.00	OSF>5.00				Exit Alert	
300.43	91.88	238.34	208.54	5.00	OSF1.50	10810.00	10810.00	OSF<5.00				Enter Alert	
300.43	100.40	232.66	200.03	4.56	OSF1.50	11750.00	11750.00					MinPts	

Offset Trajectory	Separation			Allow Dev. (ft)	Sep. Fact.	Controlling Rule	Reference Trajectory		Risk Level			Alert	Status
	Ct-Ct (ft)	MAS (ft)	EOU (ft)				MD (ft)	TVD (ft)		Minor	Major		
300.53	100.45	232.73	200.08	4.56		OSF1.50	11760.00	11760.00				MinPt-O-SF	
324.88	99.66	257.61	225.23	4.98		OSF1.50	11950.00	11943.94	OSF>5.00			Exit Alert	
419.93	94.29	356.24	325.64	6.82		OSF1.50	12800.00	12299.92				MinPt-CtCt	
419.93	127.91	333.82	292.02	4.99		OSF1.50	15620.00	12293.95	OSF<5.00			Enter Alert	
419.94	311.40	211.50	108.53	2.03		OSF1.50	22074.63	12280.00				MinPts	

Cimarex Red Hills Unit #99H
Rev0 RM 11Sept19 (Non-Def
Plan)

Warning Alert

1360.14	32.81	1357.64	1327.33	N/A		MAS = 10.00 (m)	0.00	0.00				Surface	
1360.14	32.81	1357.61	1327.33	55549.52		MAS = 10.00 (m)	26.00	26.00				WRP	
720.39	98.11	653.85	622.28	11.35		OSF1.50	11747.05	11747.05				MinPt-CtCt	
720.39	98.12	653.85	622.28	11.35		OSF1.50	11750.00	11750.00				MinPts	
720.70	98.18	654.12	622.52	11.35		OSF1.50	11770.00	11769.99				MinPt-O-SF	
839.95	254.13	669.52	585.83	5.00		OSF1.50	20120.00	12284.22	OSF<5.00			Enter Alert	
839.95	314.05	629.57	525.90	4.04		OSF1.50	22070.00	12280.01				MinPt-CtCt	
839.96	314.10	629.54	525.86	4.04		OSF1.50	22074.63	12280.00				MinPts	

Cimarex Red Hills Unit #100H
Rev0 RM 11Sept19 (Non-Def
Plan)

Pass

1380.13	32.81	1377.63	1347.32	N/A		MAS = 10.00 (m)	0.00	0.00				Surface	
1380.13	32.81	1377.60	1347.32	52545.93		MAS = 10.00 (m)	26.00	26.00				WRP	
1140.31	102.10	1071.32	1038.21	17.18		OSF1.50	11747.05	11747.05				MinPt-CtCt	
1140.31	102.11	1071.32	1038.20	17.18		OSF1.50	11750.00	11750.00				MinPts	
1140.96	102.23	1071.88	1038.72	17.16		OSF1.50	11780.00	11779.97				MinPt-O-SF	
1259.88	310.91	1051.77	948.96	6.12		OSF1.50	22074.63	12280.00				MinPts	

Cimarex Red Hills Unit #101H
Rev0 RM 11Sept19 (Non-Def
Plan)

Pass

1400.13	32.81	1397.63	1367.32	N/A		MAS = 10.00 (m)	0.00	0.00				Surface	
1400.13	32.81	1397.60	1367.32	53764.43		MAS = 10.00 (m)	26.00	26.00				WRP	
1400.13	112.25	1324.46	1287.88	19.10		OSF1.50	11700.00	11700.00				MinPt-CtCt	
1400.13	112.33	1324.41	1287.80	19.09		OSF1.50	11710.00	11710.00				MINPT-O-EOU	
1400.17	112.38	1324.41	1287.78	19.08		OSF1.50	11720.00	11720.00				MinPt-O-ADP	
1400.50	112.50	1324.67	1288.00	19.06		OSF1.50	11747.05	11747.05				MinPt-O-SF	
1679.80	309.57	1472.59	1370.23	8.19		OSF1.50	22060.00	12280.03				MinPt-CtCt	
1679.81	309.93	1472.36	1369.88	8.18		OSF1.50	22074.63	12280.00				MinPts	

Cimarex Red Hills Unit #5H
(Offset) Gyro 0ft-12608ft (Def
Survey)

Pass

3862.18	32.81	3859.68	3829.37	N/A		MAS = 10.00 (m)	0.00	0.00				MinPts	
3862.22	32.81	3859.67	3829.42	69799.19		MAS = 10.00 (m)	26.00	26.00				MINPT-O-EOU	
3864.58	32.81	3858.71	3831.78	1144.47		MAS = 10.00 (m)	630.00	630.00				MINPT-O-EOU	
3865.45	32.81	3858.80	3832.64	930.11		MAS = 10.00 (m)	780.00	780.00				MINPT-O-EOU	
3866.79	32.81	3858.71	3833.98	692.09		MAS = 10.00 (m)	1080.00	1080.00				MINPT-O-EOU	
3870.01	32.81	3857.44	3837.20	384.02		MAS = 10.00 (m)	2010.00	2010.00				MinPts	
3870.00	32.81	3857.17	3837.19	374.23		MAS = 10.00 (m)	2080.00	2080.00				MinPts	
3870.07	32.81	3856.46	3837.26	348.11		MAS = 10.00 (m)	2260.00	2260.00				MinPts	
3870.06	32.81	3856.32	3837.25	344.20		MAS = 10.00 (m)	2300.00	2300.00				MinPts	
3870.06	32.81	3856.21	3837.25	340.72		MAS = 10.00 (m)	2330.00	2330.00				MinPts	
3827.94	38.86	3801.20	3789.09	157.87		OSF1.50	5480.00	5480.00				MinPt-CtCt	
3828.92	41.95	3800.12	3786.97	145.50		OSF1.50	5960.00	5960.00				MINPT-O-EOU	
3829.42	42.73	3800.10	3786.69	142.69		OSF1.50	6080.00	6080.00				MINPT-O-EOU	

Offset Trajectory	Separation			Allow Dev. (ft)	Sep. Fact.	Controlling Rule	Reference Trajectory		Risk Level			Alert	Status
	Ct-Ct (ft)	MAS (ft)	EOU (ft)				MD (ft)	TVD (ft)	Alert	Minor	Major		
3830.93	44.75		3800.26	3786.18	135.91	OSF1.50	6390.00	6390.00				MINPT-O-EOU	
3832.70	46.94		3800.58	3785.76	129.30	OSF1.50	6720.00	6720.00				MINPT-O-EOU	
3833.66	48.01		3800.82	3785.65	126.27	OSF1.50	6880.00	6880.00				MinPt-O-ADP	
3860.66	63.96		3817.18	3796.70	94.16	OSF1.50	9160.00	9160.00				MINPT-O-EOU	
3860.77	64.10		3817.21	3796.68	93.96	OSF1.50	9180.00	9180.00				MinPt-O-ADP	
3862.40	66.08		3817.52	3796.33	91.07	OSF1.50	9450.00	9450.00				MINPT-O-EOU	
3862.32	67.90		3816.22	3794.42	88.53	OSF1.50	9720.00	9720.00				MinPt-CtCt	
3857.07	71.28		3808.72	3785.79	84.06	OSF1.50	10270.00	10270.00				MinPt-CtCt	
3857.21	71.68		3808.59	3785.53	83.58	OSF1.50	10330.00	10330.00				MINPT-O-EOU	
3857.90	72.46		3808.76	3785.44	82.66	OSF1.50	10440.00	10440.00				MinPt-O-ADP	
3853.00	77.74		3800.34	3775.26	76.77	OSF1.50	11240.00	11240.00				MinPt-CtCt	
3853.22	78.72		3799.90	3774.50	75.78	OSF1.50	11390.00	11390.00				MINPT-O-EOU	
3850.20	81.25		3795.10	3768.95	73.54	OSF1.50	11780.00	11779.97				MinPts	
3850.20	81.24		3795.11	3768.95	73.54	OSF1.50	11790.00	11789.94				MinPt-CtCt	
3834.04	76.86		3781.95	3757.17	77.33	OSF1.50	12480.00	12260.90				MinPt-O-SF	
3808.98	76.42		3757.18	3732.57	77.31	OSF1.50	12590.00	12282.30				MinPt-O-SF	
3717.57	75.77		3666.23	3641.80	76.05	OSF1.50	13420.00	12298.70				MinPt-CtCt	
3717.59	75.80		3666.22	3641.79	76.02	OSF1.50	13430.00	12298.68				MinPts	
4117.40	88.54		4057.54	4028.86	71.74	OSF1.50	15190.00	12294.88				MinPt-O-SF	
4134.75	88.91		4074.65	4045.84	71.73	OSF1.50	15230.00	12294.79				MinPt-O-SF	
9418.51	115.70		9340.54	9302.81	124.78	OSF1.50	22074.63	12280.00				TD	

Cimarex Red Hills Unit #16H
MWD Final (Surcon Corrected)
(Def Survey)

Pass

3819.48	32.81	3816.95	3786.67	126623.15	MAS = 10.00 (m)	0.00	0.00	Surface
3819.45	32.81	3816.86	3786.64	41026.22	MAS = 10.00 (m)	26.00	26.00	WRP
3803.34	32.81	3795.42	3770.53	700.90	MAS = 10.00 (m)	1260.00	1260.00	MinPts
3804.06	32.81	3794.57	3771.25	544.02	MAS = 10.00 (m)	1610.00	1610.00	MINPT-O-EOU
3805.12	32.81	3794.81	3772.32	486.52	MAS = 10.00 (m)	1800.00	1800.00	MINPT-O-EOU
3811.82	32.81	3798.12	3779.01	340.09	MAS = 10.00 (m)	2560.00	2560.00	MINPT-O-EOU
3802.96	32.81	3785.28	3770.15	250.45	MAS = 10.00 (m)	3470.00	3470.00	MinPts
3803.14	32.81	3785.12	3770.34	244.96	MAS = 10.00 (m)	3550.00	3550.00	MINPT-O-EOU
3803.56	32.81	3785.00	3770.75	236.82	MAS = 10.00 (m)	3670.00	3670.00	MINPT-O-EOU
3802.46	32.81	3782.50	3769.65	217.74	MAS = 10.00 (m)	3980.00	3980.00	MinPts
3802.55	32.81	3782.42	3769.74	215.56	MAS = 10.00 (m)	4020.00	4020.00	MINPT-O-EOU
3802.65	32.81	3780.72	3769.84	195.66	MAS = 10.00 (m)	4420.00	4420.00	MinPts
3802.72	32.81	3780.66	3769.91	194.36	MAS = 10.00 (m)	4450.00	4450.00	MINPT-O-EOU
3799.30	36.23	3774.30	3763.06	168.89	OSF1.50	5100.00	5100.00	MinPt-CtCt
3799.41	36.55	3774.21	3762.86	167.34	OSF1.50	5150.00	5150.00	MINPT-O-EOU
3799.52	36.67	3774.23	3762.85	166.74	OSF1.50	5170.00	5170.00	MinPt-O-ADP
3993.01	65.56	3948.47	3927.46	94.93	OSF1.50	9720.00	9720.00	MinPt-O-SF
4090.10	67.31	4044.40	4022.79	94.60	OSF1.50	10090.00	10090.00	MinPt-O-SF
4151.57	68.55	4105.03	4083.02	94.23	OSF1.50	10300.00	10300.00	MinPt-O-SF
4269.86	70.29	4222.16	4199.57	94.42	OSF1.50	10660.00	10660.00	MinPt-O-SF
5150.10	69.74	5102.77	5080.36	114.83	OSF1.50	13300.00	12298.96	MinPt-CtCt
5150.34	70.46	5102.53	5079.88	113.63	OSF1.50	13380.00	12298.79	MINPT-O-EOU
5149.71	72.64	5100.45	5077.07	110.08	OSF1.50	13540.00	12298.44	MinPt-CtCt
5137.49	92.18	5075.20	5045.31	85.89	OSF1.50	14620.00	12296.11	MinPt-CtCt
5137.85	97.33	5072.13	5040.52	81.23	OSF1.50	14850.00	12295.61	MinPt-CtCt
5134.66	107.72	5062.02	5026.95	73.16	OSF1.50	15290.00	12294.66	MinPt-CtCt
5135.10	109.06	5061.56	5026.03	72.25	OSF1.50	15370.00	12294.49	MINPT-O-EOU
5135.79	109.91	5061.68	5025.88	71.69	OSF1.50	15420.00	12294.38	MinPt-O-ADP
5143.29	115.99	5065.13	5027.30	67.95	OSF1.50	15680.00	12293.82	MinPts
5149.81	123.59	5066.58	5026.22	63.76	OSF1.50	15960.00	12293.21	MINPT-O-EOU

Offset Trajectory	Separation			Allow Dev. (ft)	Sep. Fact.	Controlling Rule	Reference Trajectory		Risk Level			Alert	Status
	Ct-Ct (ft)	MAS (ft)	EOU (ft)				MD (ft)	TVD (ft)	Alert	Minor	Major		
5144.89	138.21	5051.92	5006.68	56.84		OSF1.50	16480.00	12292.09				MinPt-CtCt	
5147.92	151.10	5046.35	4996.82	51.94		OSF1.50	16990.00	12290.99				MINPT-O-EOU	
5148.93	152.33	5046.55	4996.61	51.52		OSF1.50	17050.00	12290.86				MinPt-O-ADP	
5152.11	155.53	5047.59	4996.58	50.48		OSF1.50	17180.00	12290.58				MinPt-O-ADP	
5153.23	171.86	5037.82	4981.37	45.62		OSF1.50	17700.00	12289.45				MinPt-CtCt	
5153.34	175.16	5035.74	4978.18	44.75		OSF1.50	17820.00	12289.19				MinPt-CtCt	
5154.39	178.17	5034.77	4976.22	43.99		OSF1.50	17960.00	12288.89				MINPT-O-EOU	
5156.75	180.94	5035.29	4975.81	43.33		OSF1.50	18080.00	12288.63				MinPt-O-ADP	
5149.99	199.91	5015.88	4950.08	39.11		OSF1.50	18690.00	12287.31				MinPt-CtCt	
5150.57	201.61	5015.33	4948.96	38.78		OSF1.50	18780.00	12287.12				MINPT-O-EOU	
5151.21	202.36	5015.47	4948.86	38.64		OSF1.50	18820.00	12287.03				MinPt-O-ADP	
5157.24	211.35	5015.51	4945.89	37.02		OSF1.50	19120.00	12286.38				MINPT-O-EOU	
5158.07	212.33	5015.69	4945.74	36.86		OSF1.50	19170.00	12286.28				MinPt-O-ADP	
5165.78	218.29	5019.42	4947.49	35.89		OSF1.50	19390.00	12285.80				MINPT-O-EOU	
5167.29	220.14	5019.70	4947.15	35.60		OSF1.50	19450.00	12285.67				MinPt-O-ADP	
5171.21	239.45	5010.74	4931.76	32.72		OSF1.50	20060.00	12284.35				MinPt-CtCt	
5170.62	245.56	5006.08	4925.06	31.89		OSF1.50	20270.00	12283.90				MinPt-CtCt	
5171.35	247.58	5005.46	4923.76	31.64		OSF1.50	20370.00	12283.68				MINPT-O-EOU	
5128.97	272.27	4946.63	4856.70	28.50		OSF1.50	21180.00	12281.93				MinPt-CtCt	
5129.64	274.34	4945.92	4855.30	28.29		OSF1.50	21280.00	12281.72				MINPT-O-EOU	
5130.66	275.56	4946.12	4855.10	28.17		OSF1.50	21340.00	12281.59				MinPt-O-ADP	
5142.22	283.63	4952.30	4858.59	27.42		OSF1.50	21640.00	12280.94				MinPts	
5166.02	294.38	4968.94	4871.64	26.54		OSF1.50	22074.63	12280.00				MinPt-O-SF	

Cimarex Red Hills Unit #17H
MWD Final(Surcon Corrected)
(Def Survey)

Pass

3839.44	32.81	3836.92	3806.63	198207.78	MAS = 10.00 (m)	0.00	0.00					MinPts	
3839.45	32.81	3836.87	3806.64	51204.48	MAS = 10.00 (m)	26.00	26.00					WRP	
3840.38	32.81	3835.93	3807.57	1969.27	MAS = 10.00 (m)	470.00	470.00					MINPT-O-EOU	
3849.46	32.81	3835.65	3816.65	340.05	MAS = 10.00 (m)	2540.00	2540.00					MinPts	
3849.53	32.81	3835.59	3816.72	336.31	MAS = 10.00 (m)	2570.00	2570.00					MINPT-O-EOU	
3987.59	48.90	3954.15	3938.68	128.82	OSF1.50	6990.00	6990.00					MinPt-CtCt	
3988.20	50.47	3953.72	3937.73	124.63	OSF1.50	7210.00	7210.00					MINPT-O-EOU	
3988.96	51.39	3953.86	3937.56	122.31	OSF1.50	7340.00	7340.00					MinPt-O-ADP	
3988.59	61.90	3946.49	3926.69	100.66	OSF1.50	8890.00	8890.00					MinPt-CtCt	
3989.11	63.31	3946.07	3925.80	98.33	OSF1.50	9100.00	9100.00					MINPT-O-EOU	
3979.67	70.76	3931.66	3908.91	87.40	OSF1.50	10250.00	10250.00					MinPt-CtCt	
3980.05	71.83	3931.33	3908.22	86.06	OSF1.50	10400.00	10400.00					MINPT-O-EOU	
3982.55	74.90	3931.78	3907.65	82.46	OSF1.50	10860.00	10860.00					MinPt-O-ADP	
3989.52	80.66	3934.92	3908.86	76.52	OSF1.50	11750.00	11750.00					MinPts	
3990.52	80.70	3935.88	3909.82	76.50	OSF1.50	11800.00	11799.89					MinPt-O-SF	
4049.44	79.48	3995.62	3969.96	78.86	OSF1.50	12080.00	12054.00					MinPt-O-SF	
4085.41	78.60	4032.17	4006.81	80.48	OSF1.50	12270.00	12181.90					MinPt-O-SF	
4093.00	77.74	4040.33	4015.25	81.54	OSF1.50	12540.00	12273.60					MinPts	
4092.98	77.69	4040.35	4015.29	81.60	OSF1.50	12560.00	12277.28					MinPt-CtCt	
4121.66	78.68	4068.38	4042.98	81.11	OSF1.50	13120.00	12299.35					MinPts	
4112.35	82.18	4056.73	4030.17	77.37	OSF1.50	13560.00	12298.40					MinPt-CtCt	
4112.39	82.29	4056.69	4030.10	77.26	OSF1.50	13580.00	12298.35					MINPT-O-EOU	
4112.49	82.41	4056.71	4030.08	77.15	OSF1.50	13600.00	12298.31					MinPt-O-ADP	
4114.58	85.52	4056.73	4029.06	74.30	OSF1.50	13850.00	12297.77					MINPT-O-EOU	
4116.26	88.52	4056.41	4027.74	71.73	OSF1.50	14050.00	12297.34					MINPT-O-EOU	
4119.64	98.78	4052.95	4020.86	64.14	OSF1.50	14630.00	12296.09					MinPt-CtCt	
4122.39	107.74	4049.72	4014.64	58.72	OSF1.50	15090.00	12295.09					MinPt-CtCt	
4123.13	117.02	4044.28	4006.11	53.97	OSF1.50	15510.00	12294.18					MinPt-CtCt	

Offset Trajectory	Separation			Allow Dev. (ft)	Sep. Fact.	Controlling Rule	Reference Trajectory		Risk Level			Alert	Status
	Ct-Ct (ft)	MAS (ft)	EOU (ft)				MD (ft)	TVD (ft)	Alert	Minor	Major		
4115.17	126.03	4030.31	3989.14	49.94		OSF1.50	15900.00	12293.34				MinPt-CtCt	
4115.53	127.41	4029.76	3988.12	49.39		OSF1.50	15980.00	12293.17				MINPT-O-EOU	
4115.92	127.88	4029.83	3988.03	49.21		OSF1.50	16010.00	12293.10				MinPt-O-ADP	
4125.76	140.63	4031.17	3985.12	44.77		OSF1.50	16480.00	12292.09				MinPt-CtCt	
4126.51	142.98	4030.36	3983.53	44.03		OSF1.50	16600.00	12291.83				MINPT-O-EOU	
4127.50	144.16	4030.57	3983.35	43.68		OSF1.50	16660.00	12291.70				MinPt-O-ADP	
4129.51	146.26	4031.17	3983.25	43.06		OSF1.50	16750.00	12291.51				MinPt-O-ADP	
4133.69	150.72	4032.38	3982.97	41.81		OSF1.50	16920.00	12291.14				MinPt-O-ADP	
4132.65	177.81	4013.28	3954.84	35.34		OSF1.50	17880.00	12289.06				MinPt-CtCt	
4133.37	180.33	4012.31	3953.04	34.84		OSF1.50	18000.00	12288.80				MINPT-O-EOU	
4134.22	181.33	4012.50	3952.88	34.66		OSF1.50	18050.00	12288.70				MinPt-O-ADP	
4139.74	186.94	4014.28	3952.80	33.65		OSF1.50	18240.00	12288.29				MINPT-O-EOU	
4140.39	187.73	4014.41	3952.66	33.51		OSF1.50	18280.00	12288.20				MinPt-O-ADP	
4137.69	213.24	3994.70	3924.45	29.43		OSF1.50	19150.00	12286.32				MinPt-CtCt	
4148.25	250.87	3980.17	3897.38	25.04		OSF1.50	20460.00	12283.49				MinPt-CtCt	
4149.06	253.50	3979.23	3895.56	24.78		OSF1.50	20580.00	12283.23				MINPT-O-EOU	
4149.44	257.77	3976.76	3891.67	24.37		OSF1.50	20700.00	12282.97				MinPt-CtCt	
4148.72	268.26	3969.04	3880.46	23.40		OSF1.50	21060.00	12282.19				MinPt-CtCt	
4152.32	286.57	3960.44	3865.75	21.91		OSF1.50	21690.00	12280.83				MinPt-CtCt	
4153.53	291.01	3958.69	3862.52	21.58		OSF1.50	21860.00	12280.46				MINPT-O-EOU	
4153.79	291.32	3958.74	3862.47	21.56		OSF1.50	21880.00	12280.42				MinPt-O-ADP	
4161.29	293.98	3964.47	3867.32	21.40		OSF1.50	22074.63	12280.00				MinPt-O-SF	

Texaco G W Miller Federal N
#1 (Offset) Plugged Oil Blind
0ft-5258ft (Def Survey)

Pass

9448.76	32.81	9446.26	9415.95	N/A	MAS = 10.00 (m)	0.00	0.00	Surface
9448.73	32.81	9446.23	9415.92	N/A	MAS = 10.00 (m)	10.00	10.00	MinPt-O-SF
9448.72	32.81	9446.22	9415.91	N/A	MAS = 10.00 (m)	26.00	26.00	WRP
9448.72	1638.15	8355.78	7810.57	8.66	OSF1.50	5280.00	5280.00	MinPt-CtCt
9448.72	1639.97	8354.57	7808.74	8.65	OSF1.50	5290.00	5290.00	MinPts
9888.46	1158.61	9115.22	8729.85	12.83	OSF1.50	14540.00	12296.28	MinPt-O-SF
7108.48	337.80	6882.45	6770.69	31.79	OSF1.50	20270.00	12283.90	MinPt-O-ADP
6996.26	209.21	6855.95	6787.05	50.75	OSF1.50	21530.00	12281.18	MinPt-CtCt
7017.57	257.70	6844.94	6759.87	41.23	OSF1.50	22074.63	12280.00	MinPts



- CIMAREX ENERGY CO.**

NE 1/4 NE 1/4, SECTION 33, T25S, R33E, N.M.P.M.
LEA COUNTY, NEW MEXICO

SURVEYED BY	C.J., A.H.	05-05-17	SCALE
DRAWN BY	R.J.	03-20-18	1" = 80'

Typical Rig Layout and Closed Loop Equipment Diagram

Typical Rig Layout and Closed Loop Equipment Diagram



UELS, LLC
Corporate Office * 85 South 200 East
Vernal, UT 84078 * (435) 789-1017

Cimarex Energy Co., Red Hills Unit 74H

1. Geological Formations

TVD of target 12,280

Pilot Hole TD N/A

MD at TD 22,074

Deepest expected fresh water

Formation	Depth (TVD) from KB	Water/Mineral Bearing/Target Zone	Hazards
Rustler	926	Usable Water	
Top Salt	1260	N/A	
Base Salt	4652	N/A	
Lamar	4888	N/A	
Bell Canyon	4932	N/A	
Cherry Canyon	6017	N/A	
Brushy Canyon	7490	Hydrocarbons	
Bone Spring	9039	Hydrocarbons	
Upper Avalon Sand	9356	Hydrocarbons	
1st Bone Spring	10036	Hydrocarbons	
2nd Bone Spring	10564	Hydrocarbons	
3rd Bone Spring	11017	Hydrocarbons	
Wolfcamp	12210	Hydrocarbons	

Drilling 9-7/8" hole below
10-3/4" Casing

Fill Line

Flowline

5000# (5M)
BOP

Annular Preventer

SRR & A

Pipe Rams

Blind Rams

2" Minimum Kill Line

Kill Line

Drilling
Spool

3" minimum choke line

Choke Line

2 Valves Minimum
(HCR Required)

2 Valves and a check valve

Wellhead
Assembly

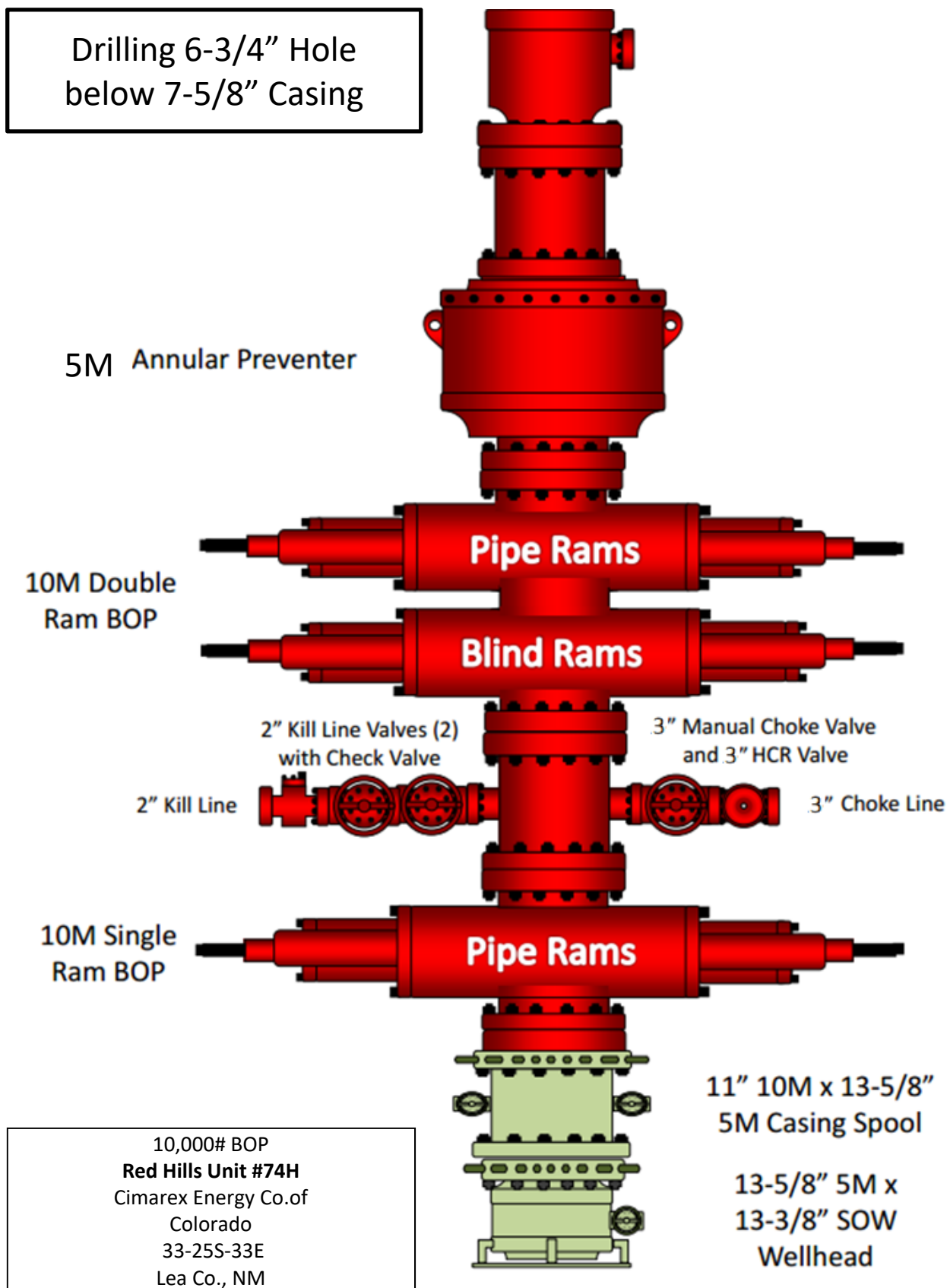
11" 5000 psi x 7-1/16" 10,000 psi
Wellhead Assembly

Wellhead
Assembly

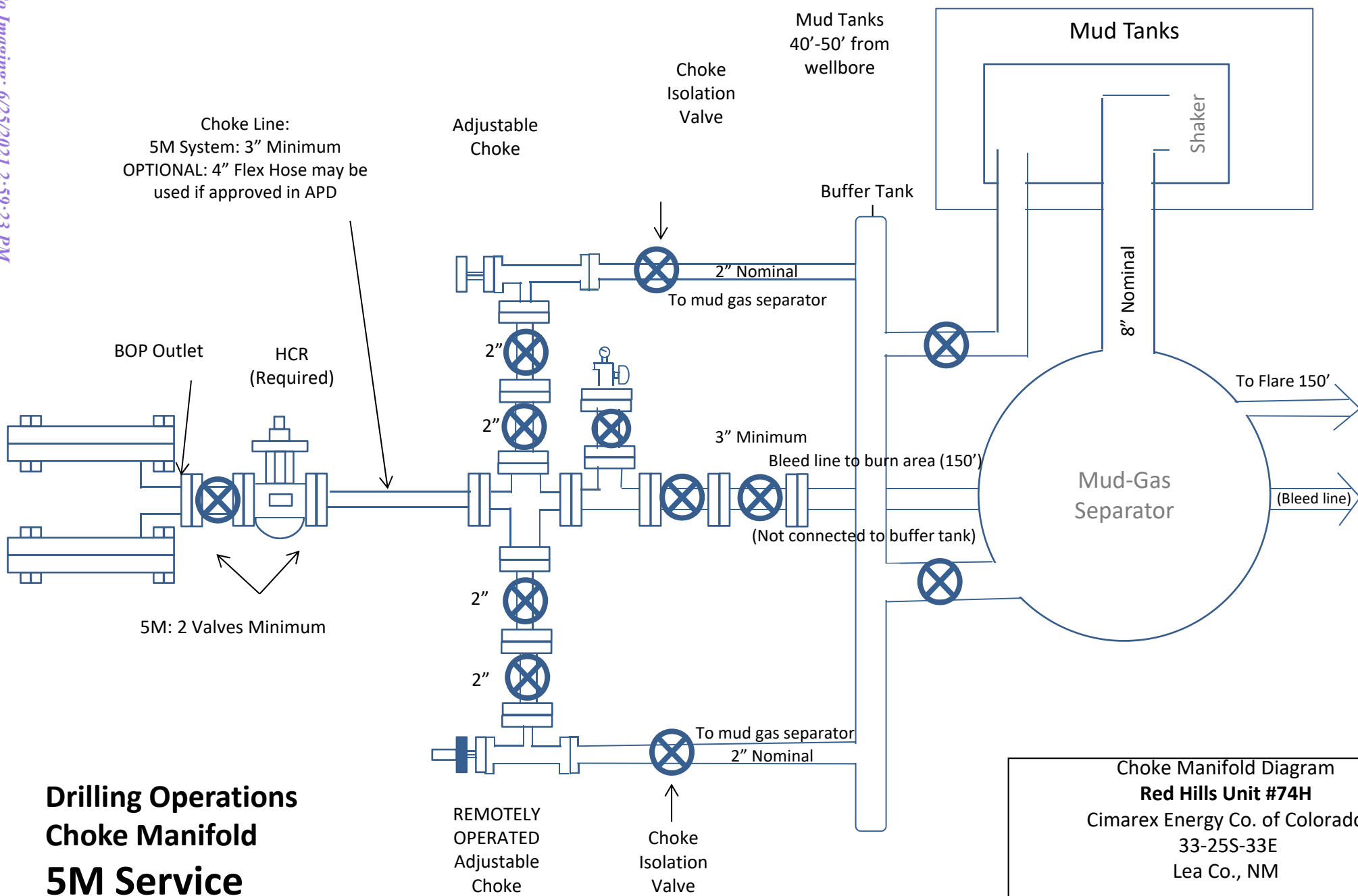
13-5/8" 3000 psi x 11" 5000 psi
Wellhead Assembly

13-5/8" 3000# psi x 13-3/8" SOW Casing Head

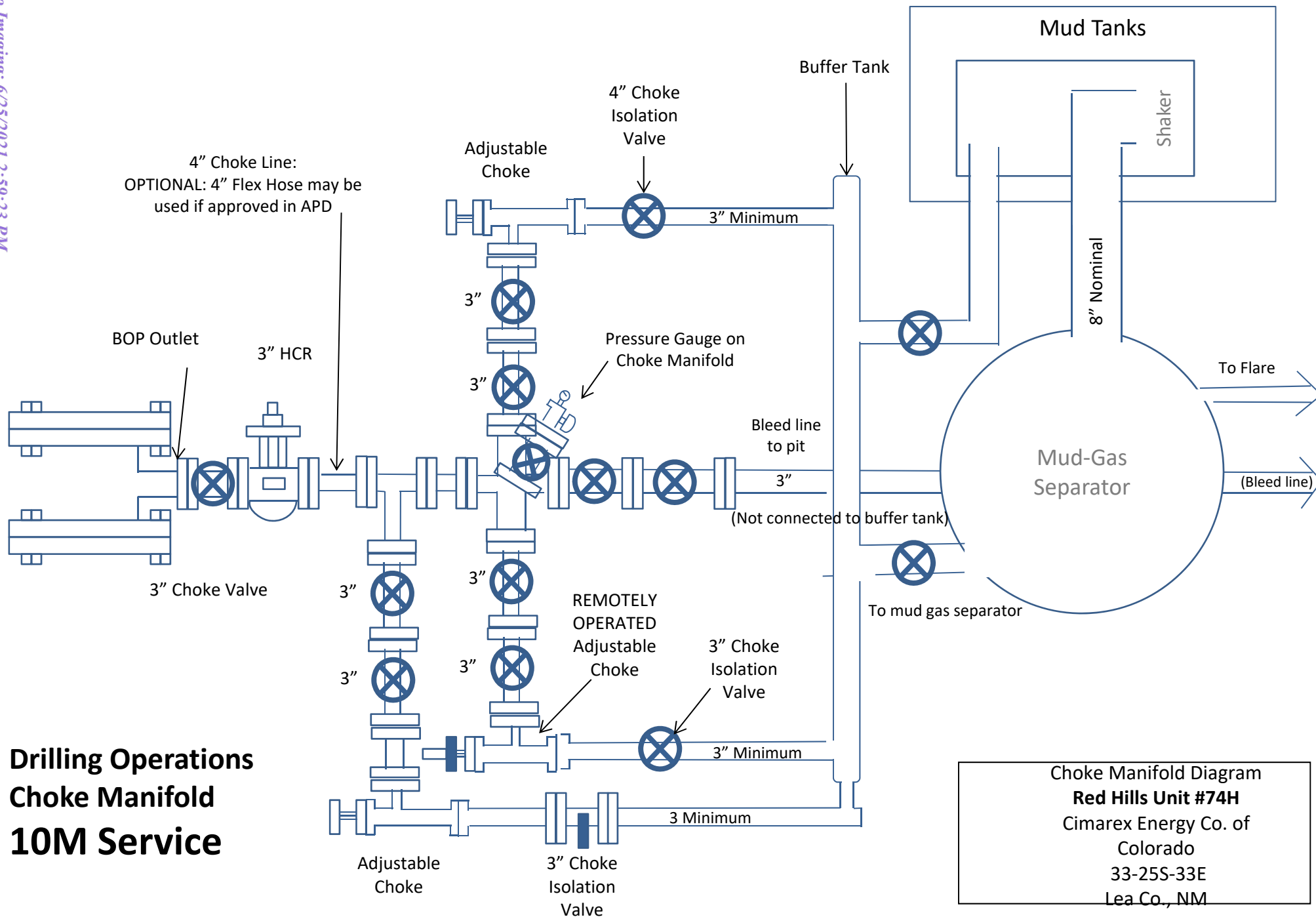
5000# BOP
Red Hills Unit #74H
Cimarex Energy Co. of
Colorado
33-25S-33E
Lea Co., NM



Choke Line:
5M System: 3" Minimum
OPTIONAL: 4" Flex Hose may be
used if approved in APD



4" Choke Line:
OPTIONAL: 4" Flex Hose may be
used if approved in APD



Drilling Operations Choke Manifold 10M Service

Choke Manifold Diagram
Red Hills Unit #74H
Cimarex Energy Co. of
Colorado
33-25S-33E
Lea Co., NM

District I

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

District II

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

District III

1000 Rio Brazos Rd., Aztec, NM 87410
Phone:(505) 334-6178 Fax:(505) 334-6170

District IV

1220 S. St Francis Dr., Santa Fe, NM 87505
Phone:(505) 476-3470 Fax:(505) 476-3462

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

CONDITIONS

Action 27823

CONDITIONS

Operator: CIMAREX ENERGY CO. OF COLORADO 600 N. Marienfeld Street Midland, TX 79701	OGRID: 162683
	Action Number: 27823
	Action Type: [C-101] BLM - Federal/Indian Land Lease (Form 3160-3)

CONDITIONS

Created By	Condition	Condition Date
pkautz	Will require a File As Drilled C-102 and a Directional Survey with the C-104	6/25/2021
pkautz	Once the well is spud, to prevent ground water contamination through whole or partial conduits from the surface, the operator shall drill without interruption through the fresh water zone or zones and shall immediately set in cement the water protection string	6/25/2021