

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. [326032]	
2. Name of Operator [162683]		9. API Well No. 30-025-49123	
3a. Address		3b. Phone No. (include area code)	
4. Location of Well (Report location clearly and in accordance with any State requirements. *) At surface At proposed prod. zone		10. Field and Pool, or Exploratory [98092] 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)	
Title		Date	
Approved by (Signature)		Name (Printed/Typed)	
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 05/13/2021

SL

(Continued on page 2)



Approval Date: 05/11/2021

 KZ
 06/30/2021

*(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 a new 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: NENW / 390 FNL / 2245 FEL / TWSP: 25S / RANGE: 33E / SECTION: 32 / LAT: 32.093243 / LONG: -103.593026 (TVD: 0 feet, MD: 0 feet)
PPP: NWNE / 0 FNL / 1605 FEL / TWSP: 26S / RANGE: 32E / SECTION: 5 / LAT: 32.079797 / LONG: -103.590958 (TVD: 12276 feet, MD: 16980 feet)
PPP: SWNE / 1320 FNL / 1605 FEL / TWSP: 26S / RANGE: 33E / SECTION: 5 / LAT: 32.076167 / LONG: -103.590958 (TVD: 12273 feet, MD: 18301 feet)
PPP: NWNE / 390 FNL / 1605 FEL / TWSP: 25S / RANGE: 32E / SECTION: 32 / LAT: 32.093241 / LONG: -103.59069 (TVD: 12125 feet, MD: 12207 feet)
BHL: SWSE / 100 FSL / 1605 FEL / TWSP: 25S / RANGE: 33E / SECTION: 5 / LAT: 32.065566 / LONG: -103.590955 (TVD: 12265 feet, MD: 22159 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. French Dr., Hobbs, NM 88420
Phone: (575) 393-6161 Fax: (575) 393-0720

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

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

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

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

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

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

¹ API Number 30-025-49123		² Pool Code 98092	³ Pool Name WC-025 G-09 S253236I;UPR WOLF CAMP	
⁴ Property Code 326032	⁵ Property Name RED HILLS 32-5 FED COM		⁶ Well Number 169H	
⁷ OGRID No. 162683	⁸ Operator Name CIMAREX ENERGY CO. OF COLORADO		⁹ Elevation 3409.9'	

¹⁰ Surface Location

UL or lot no. B	Section 32	Township 25S	Range 33E	Lot Idn	Feet from the 390	North/South line NORTH	Feet from the 2245	East/West line EAST	County LEA
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¹¹ Bottom Hole Location If Different From Surface

UL or lot no. O	Section 5	Township 26S	Range 33E	Lot Idn	Feet from the 100	North/South line SOUTH	Feet from the 1605	East/West line EAST	County LEA
¹² Dedicated Acres 640		¹³ Joint or Infill		¹⁴ Consolidation Code		¹⁵ Order No.			

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

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NAD 83 (SURFACE HOLE LOCATION)
LATITUDE = 32°05'35.67" (32.093243°)
LONGITUDE = 103°35'34.89" (103.593026°)

NAD 27 (SURFACE HOLE LOCATION)
LATITUDE = 32°05'35.23" (32.093118°)
LONGITUDE = 103°35'33.20" (103.592555°)

STATE PLANE NAD 83 (N.M. EAST)
N: 398445.48' E: 770594.09'

STATE PLANE NAD 27 (N.M. EAST)
N: 398387.85' E: 729407.64'

NAD 83 (LP/FTP)
LATITUDE = 32°05'35.67" (32.093241°)
LONGITUDE = 103°35'27.46" (103.590960°)

NAD 27 (LP/FTP)
LATITUDE = 32°05'35.22" (32.093116°)
LONGITUDE = 103°35'25.76" (103.590489°)

STATE PLANE NAD 83 (N.M. EAST)
N: 398449.13' E: 771233.97'

STATE PLANE NAD 27 (N.M. EAST)
N: 398391.50' E: 730047.51'

NAD 83 (BHL/LTP)
LATITUDE = 32°03'56.04" (32.065566°)
LONGITUDE = 103°35'27.44" (103.590955°)

NAD 27 (BHL/LTP)
LATITUDE = 32°03'55.59" (32.065441°)
LONGITUDE = 103°35'25.75" (103.590486°)

STATE PLANE NAD 83 (N.M. EAST)
N: 388381.42' E: 771304.76'

STATE PLANE NAD 27 (N.M. EAST)
N: 388324.05' E: 730117.83'

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LINE TABLE

LINE	DIRECTION	LENGTH
L1	S89°54'44"W	2445.70'
L2	S89°53'20"W	5390.67'
L3	N89°54'44"E	6400.00'

1605'

100'

BHL/LTP

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"

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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 an undivided 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.

Amithy Crawford 5/12/21

Signature Date

Amithy Crawford

Printed Name

acrawford@cimarex.com

E-mail Address

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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 01, 2018

Date of Survey

Signature and Seal of Professional Surveyor:

PAUL BUCHELE
NEW MEXICO
23782
08-08-19
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: 9/19/2019

☒ Original Operator & OGRID No.: Cimarex Energy Co- 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 32-5 Fed Com 169H	Pending	32-25S-33E	390'FNL & 2245' FEL	7000		
	30-025-49123					

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 Loving County, Texas. 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 Processing Plant located in Sec 4 Blk C-27, Loving County, Texas. 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 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

1. Geological Formations

TVD of target 12,265

Pilot Hole TD N/A

MD at TD 22,159

Deepest expected fresh water

Formation	Depth (TVD) from KB	Water/Mineral Bearing/Target Zone	Hazards
Rustler	934	Usable Water	
Top Salt	1394	N/A	
Base Salt	4651	N/A	
Lamar	4892	N/A	
Bell Canyon	4929	N/A	
Cherry Canyon	6001	Hydrocarbons	
Brushy Canyon	7537	Hydrocarbons	
Bone Spring	9039	Hydrocarbons	
Upper Avalon shale	9356	Hydrocarbons	
Bone Spring 1st	10036	Hydrocarbons	
Bone Spring 2nd	10223	Hydrocarbons	
Bone Spring 3rd	11017	Hydrocarbons	
Wolfcamp	12125	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	984	984	10-3/4"	40.50	J-55	BT&C	3.51	6.95	15.78
9 7/8	0	12440	12236	7-5/8"	29.70	L-80	BT&C	2.50	1.20	1.83
6 3/4	0	11815	11815	5-1/2"	20.00	L-80	LT&C	1.15	1.20	1.88
6 3/4	11815	22159	12265	5"	18.00	P-110	BT&C	1.69	1.71	71.60
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 32-5 Federal Com 169H

	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

3. Cementing Program

Casing	# Sk	Wt. lb/gal	Yld ft ³ /sack	H ₂ O gal/sk	500# Comp. Strength (hours)	Slurry Description
Surface	332	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	831	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 +/- 4,892'.

Casing String	TOC	% Excess
Surface	0	42
Intermediate Stage 1	4892	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	5M
			Blind Ram		
			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?

5. Mud Program

Depth	Type	Weight (ppg)	Viscosity	Water Loss
0' to 984'	FW Spud Mud	8.30 - 8.80	30-32	N/C
984' to 12440'	Brine Diesel Emulsion	8.50 - 9.00	30-35	N/C
12440' to 22159'	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	7972 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 32-5 Fed Com #169H Rev0 RM 04Sept19 Anti-Collision Summary Report

Analysis Date-24hr Time: September 04, 2019 - 16:36
Client: Cimarex Energy
Field: NM Lea County (NAD 83)
Structure: Cimarex Red Hills 32-5 Fed Com #169H
Slot: New Slot
Well: Red Hills 32-5 Fed Com #169H
Borehole: Red Hills 32-5 Fed Com #169H
Scan MD Range: 0.00ft ~ 22158.52ft

Analysis Method: 3D Least Distance
Reference Trajectory: Cimarex Red Hills 32-5 Fed Com #169H Rev0 RM 04Sept19 (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: Restricted within 63169.02 ft
 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 #2H
 (Offset) Gas Inc Only 0ft-15005ft (Def Survey)

													Fail Major
5902.28	32.81	5900.30	5869.47	N/A		MAS = 10.00 (m)	0.00	0.00					Surface
5902.07	32.81	5900.07	5869.26	232022.04		MAS = 10.00 (m)	26.00	26.00					MinPt-O-SF
5901.98	32.81	5899.92	5869.17	76130.62		MAS = 10.00 (m)	60.00	60.00					MinPts
5901.98	32.81	5883.25	5869.17	352.23		MAS = 10.00 (m)	610.00	610.00					MinPts
5901.47	36.93	5876.19	5864.53	253.16		OSF1.50	800.00	800.00					MinPt-CtCt
5897.18	69.01	5850.51	5828.17	131.92		OSF1.50	1390.00	1390.00					MinPt-CtCt
5894.98	111.82	5819.77	5783.16	80.48		OSF1.50	2210.00	2210.00					MinPt-CtCt
5897.04	117.80	5817.85	5779.24	76.34		OSF1.50	2430.00	2430.00					MINPT-O-EOU
5889.75	154.71	5785.95	5735.04	57.83		OSF1.50	3110.00	3106.22					MinPt-CtCt
5890.22	156.18	5785.44	5734.04	57.28		OSF1.50	3200.00	3195.49					MINPT-O-EOU
5887.32	170.93	5772.71	5716.39	52.26		OSF1.50	3430.00	3423.63					MinPt-CtCt
5884.87	185.61	5760.47	5699.26	48.06		OSF1.50	3700.00	3691.44					MinPt-CtCt
5882.07	207.81	5742.87	5674.26	42.85		OSF1.50	4130.00	4117.96					MinPt-CtCt
5882.33	208.55	5742.64	5673.78	42.70		OSF1.50	4190.00	4177.47					MINPT-O-EOU
5882.64	208.91	5742.70	5673.73	42.63		OSF1.50	4220.00	4207.23					MinPt-O-ADP
5877.64	231.64	5722.55	5646.00	38.38		OSF1.50	4580.00	4564.31					MinPt-CtCt
5877.98	232.67	5722.20	5645.31	38.21		OSF1.50	4650.00	4633.75					MINPT-O-EOU
5878.45	233.24	5722.29	5645.21	38.12		OSF1.50	4690.00	4673.42					MinPt-O-ADP
5876.49	247.18	5711.04	5629.31	35.94		OSF1.50	4870.00	4851.97					MinPt-CtCt
5870.89	267.30	5692.02	5603.59	33.18		OSF1.50	5260.00	5238.81					MinPt-CtCt
5866.59	289.27	5673.08	5577.32	30.62		OSF1.50	5670.00	5645.49					MinPt-CtCt
5861.72	365.31	5617.51	5496.41	24.19		OSF1.50	7130.00	7093.66					MinPt-CtCt
5867.37	383.12	5611.30	5484.25	23.08		OSF1.50	7600.00	7560.35					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		
5860.13	437.06	5568.09	5423.07	20.20		OSF1.50	8500.00	8460.17				MinPt-CtCt	
5862.07	443.24	5565.91	5418.82	19.92		OSF1.50	8720.00	8680.17				MINPT-O-EOU	
5864.54	446.25	5566.39	5418.30	19.79		OSF1.50	8830.00	8790.17				MinPt-O-ADP	
5863.91	473.34	5547.69	5390.57	18.65		OSF1.50	9200.00	9160.17				MinPt-CtCt	
5864.35	474.76	5547.19	5389.59	18.60		OSF1.50	9290.00	9250.17				MINPT-O-EOU	
5864.87	475.36	5547.30	5389.50	18.58		OSF1.50	9330.00	9290.17				MinPt-O-ADP	
5870.26	516.68	5525.15	5353.58	17.10		OSF1.50	10060.00	10020.17				MinPt-CtCt	
2098.53	638.01	1670.33	1460.53	4.98		OSF1.50	15870.00	12278.46	OSF<5.00			Enter Alert	
638.98	641.41	207.72	-2.43	1.49		OSF1.50	17330.00	12275.34		OSF<1.50		Enter Minor	
429.22	641.97	-2.51	-212.74	0.99		OSF1.50	17540.00	12274.89			OSF<1.00	Enter Major	
25.73	646.71	-406.90	-620.98	0.05		OSF1.50	17960.00	12273.99				MinPts	
24.30	643.96	-405.67	-619.66	0.05		OSF1.50	17970.00	12273.97				MinPt-CtCt	
422.08	632.83	-0.47	-210.75	1.00		OSF1.50	18390.00	12273.07			OSF>1.00	Exit Major	
631.82	633.05	209.13	-1.23	1.50		OSF1.50	18600.00	12272.62				Exit Minor	
2101.33	634.33	1677.79	1467.00	4.98		OSF1.50	20070.00	12269.47	OSF>5.00			Exit Alert	
4189.56	635.86	3765.00	3553.70	9.91		OSF1.50	22158.52	12265.00				TD	

Cimarex Red Hills Unit #4
(Offset) Gas Blind 0ft-17675ft
(Def Survey)

Fail Major

4671.96	32.81	4669.98	4639.15	N/A	MAS = 10.00 (m)	0.00	0.00					Surface	
4671.76	32.81	4669.76	4638.95	209850.63	MAS = 10.00 (m)	26.00	26.00					MinPt-O-SF	
4671.70	725.62	4187.30	3946.08	9.68	OSF1.50	2400.00	2400.00					MinPt-CtCt	
4763.39	1430.81	3808.86	3332.58	5.00	OSF1.50	4660.00	4643.67	OSF<5.00				Enter Alert	
3831.38	3833.93	1274.24	-2.55	1.50	OSF1.50	13340.00	12283.88		OSF<1.50			Enter Minor	
2556.80	3833.73	-0.41	-1276.93	1.00	OSF1.50	15130.00	12280.05			OSF<1.00		Enter Major	
2152.80	3831.15	-401.96	-1678.36	0.84	OSF1.50	16510.00	12277.09					MinPts	
2552.08	3830.24	-2.07	-1278.16	1.00	OSF1.50	17880.00	12274.16			OSF>1.00		Exit Major	
3824.13	3828.68	1271.02	-4.55	1.50	OSF1.50	19670.00	12270.33		OSF>1.50			Exit Minor	
6045.42	3826.76	3493.59	2218.66	2.37	OSF1.50	22158.52	12265.00					TD	

Cimarex Red Hills 32-5 Fed
Com #170H Rev0 RM
04Sept19 (Non-Def Plan)

Fail Minor

19.99	16.25	18.70	3.74	N/A	MAS = 4.95 (m)	0.00	0.00	CtCt<=15m<15.00				Enter Alert	
19.99	16.25	18.70	3.74	N/A	MAS = 4.95 (m)	26.00	26.00					WRP	
19.99	20.02	6.22	-0.03	1.50	OSF1.50	2050.00	2050.00		OSF<1.50			Enter Minor	
19.99	23.32	4.02	-3.32	1.27	OSF1.50	2400.00	2400.00					MinPt-CtCt	
20.01	23.39	3.99	-3.38	1.27	OSF1.50	2410.00	2410.00					MINPT-O-EOU	
20.06	23.46	3.99	-3.40	1.27	OSF1.50	2420.00	2420.00					MinPts	
23.92	24.28	7.30	-0.36	1.48	OSF1.50	2550.00	2549.93		OSF>1.50			Exit Minor	
89.70	27.84	70.71	61.86	4.99	OSF1.50	3680.00	3671.60	OSF>5.00				Exit Alert	
424.93	83.37	368.92	341.56	7.74	OSF1.50	11820.00	11780.17					MinPts	
424.93	78.71	372.03	346.22	8.21	OSF1.50	12500.00	12250.54					MinPt-CtCt	
424.93	128.42	338.89	296.52	5.00	OSF1.50	15890.00	12278.42	OSF<5.00				Enter Alert	
424.94	315.36	214.27	109.58	2.02	OSF1.50	22158.52	12265.00					MinPts	

Cimarex Red Hills 32-5 Fed
Com #171H Rev0 RM
04Sept19 (Non-Def Plan)

Warning Alert

39.99	32.39	38.01	7.60	N/A	MAS = 9.87 (m)	0.00	0.00	CtCt<=15m<15.00				Enter Alert	
39.99	32.39	38.01	7.60	N/A	MAS = 9.87 (m)	26.00	26.00					WRP	
39.99	32.39	23.33	7.60	2.59	MAS = 9.87 (m)	2400.00	2400.00					MinPts	
40.01	32.39	23.30	7.62	2.58	MAS = 9.87 (m)	2410.00	2410.00					MINPT-O-EOU	
40.27	32.39	23.42	7.88	2.57	MAS = 9.87 (m)	2440.00	2440.00					MinPt-O-SF	
85.44	32.39	66.68	53.05	4.97	MAS = 9.87 (m)	2940.00	2937.60	OSF>5.00				Exit Alert	

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		
	680.05	96.27	615.21	583.78	10.79	OSF1.50	11740.00	11700.17				MinPts	
	848.82	91.98	786.84	756.84	14.11	OSF1.50	12460.00	12241.28				MinPt-O-SF	
	849.88	91.06	788.52	758.82	14.28	OSF1.50	12820.00	12285.00				MinPt-CtCt	
	849.88	256.54	678.20	593.35	5.00	OSF1.50	20260.00	12269.07	OSF<5.00			Enter Alert	
	849.88	314.94	639.26	534.94	4.06	OSF1.50	22158.52	12265.00				MinPts	
Cimarex Red Hills 32-5 Fed Com #199H Rev0 RM 04Sept19 (Non-Def Plan)													
	1836.49	32.81	1834.51	1803.68	N/A	MAS = 10.00 (m)	0.00	0.00				Surface	Warning Alert
	1836.41	32.81	1834.42	1803.60	185514.42	MAS = 10.00 (m)	10.00	10.00				MinPt-O-SF	
	1836.38	32.81	1834.40	1803.57	N/A	MAS = 10.00 (m)	20.00	20.00				MINPT-O-EOU	
	1836.38	32.81	1834.40	1803.57	N/A	MAS = 10.00 (m)	26.00	26.00				WRP	
	432.13	60.79	390.29	371.34	11.30	OSF1.50	8440.00	8400.17				MinPt-O-SF	
	431.41	80.23	376.61	351.18	8.41	OSF1.50	11900.00	11859.72				MinPt-O-SF	
	425.04	77.10	372.32	347.95	8.64	OSF1.50	12430.00	12233.56				MinPt-O-ADP	
	424.98	77.03	372.31	347.95	8.64	OSF1.50	12450.00	12238.79				MINPT-O-EOU	
	424.95	76.88	372.37	348.06	8.66	OSF1.50	12500.00	12250.54				MinPt-CtCt	
	425.44	130.54	337.09	294.90	4.99	OSF1.50	15860.00	12278.49	OSF<5.00			Enter Alert	
	425.43	320.31	210.57	105.12	2.00	OSF1.50	22158.52	12265.00				MinPts	
Cimarex Red Hills Unit #1 (Offset) Gas Inc Only Off-21321ft (Def Survey)													
	4546.75	32.81	4544.77	4513.94	N/A	MAS = 10.00 (m)	0.00	0.00				Surface	Warning Alert
	4546.72	32.81	4544.73	4513.91	N/A	MAS = 10.00 (m)	10.00	10.00				MinPt-O-SF	
	4546.70	32.81	4544.72	4513.90	N/A	MAS = 10.00 (m)	20.00	20.00				MINPT-O-EOU	
	4546.70	32.81	4544.72	4513.90	N/A	MAS = 10.00 (m)	26.00	26.00				WRP	
	4546.70	32.81	4544.01	4513.89	6339.82	MAS = 10.00 (m)	90.00	90.00				MinPts	
	4546.49	32.81	4530.77	4513.68	330.66	MAS = 10.00 (m)	470.00	470.00				MinPts	
	4546.65	32.81	4530.60	4513.84	323.05	MAS = 10.00 (m)	510.00	510.00				MINPT-O-EOU	
	4545.66	34.43	4522.04	4511.23	210.05	OSF1.50	690.00	690.00				MinPt-CtCt	
	4545.90	35.25	4521.74	4510.65	204.84	OSF1.50	750.00	750.00				MINPT-O-EOU	
	4545.67	41.43	4517.39	4504.24	172.76	OSF1.50	830.00	830.00				MinPt-CtCt	
	4546.63	44.19	4516.51	4502.45	161.52	OSF1.50	950.00	950.00				MINPT-O-EOU	
	4546.41	56.55	4508.05	4489.86	124.91	OSF1.50	1120.00	1120.00				MinPt-CtCt	
	4547.12	58.66	4507.35	4488.46	120.28	OSF1.50	1220.00	1220.00				MINPT-O-EOU	
	4546.68	70.80	4498.81	4475.87	99.05	OSF1.50	1390.00	1390.00				MinPt-CtCt	
	4546.46	92.15	4484.36	4454.30	75.59	OSF1.50	1800.00	1800.00				MinPt-CtCt	
	4546.07	120.34	4465.18	4425.73	57.59	OSF1.50	2340.00	2340.00				MinPt-CtCt	
	4545.25	145.46	4447.62	4399.79	47.50	OSF1.50	2820.00	2818.57				MinPt-CtCt	
	4546.57	165.85	4435.34	4380.72	41.60	OSF1.50	3210.00	3205.41				MinPt-CtCt	
	4546.85	167.24	4434.70	4379.61	41.25	OSF1.50	3280.00	3274.84				MINPT-O-EOU	
	4547.20	167.68	4434.76	4379.52	41.15	OSF1.50	3310.00	3304.60				MinPt-O-ADP	
	4547.39	175.70	4429.60	4371.70	39.25	OSF1.50	3400.00	3393.87				MinPt-CtCt	
	4549.47	181.47	4427.84	4368.01	38.00	OSF1.50	3600.00	3592.25				MINPT-O-EOU	
	4550.36	195.41	4419.43	4354.95	35.27	OSF1.50	3780.00	3770.79				MinPt-CtCt	
	4550.44	196.02	4419.10	4354.42	35.16	OSF1.50	3810.00	3800.55				MINPT-O-EOU	
	4550.57	196.17	4419.13	4354.40	35.14	OSF1.50	3830.00	3820.39				MinPt-O-ADP	
	4550.92	208.07	4411.55	4342.85	33.11	OSF1.50	4020.00	4008.85				MinPt-CtCt	
	4551.40	209.41	4411.13	4341.99	32.90	OSF1.50	4100.00	4088.20				MINPT-O-EOU	
	4552.00	210.11	4411.26	4341.88	32.79	OSF1.50	4140.00	4127.88				MinPt-O-ADP	
	4552.46	222.81	4403.26	4329.64	30.91	OSF1.50	4300.00	4286.58				MinPt-CtCt	
	4552.84	224.43	4402.56	4328.41	30.69	OSF1.50	4380.00	4365.93				MINPT-O-EOU	
	4553.22	224.91	4402.63	4328.32	30.62	OSF1.50	4410.00	4395.69				MinPt-O-ADP	
	4553.65	242.66	4391.22	4310.99	28.37	OSF1.50	4680.00	4663.50				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		
4590.14	460.94	4282.19	4129.20	15.00		OSF1.50	8940.00	8900.17				MinPt-CtCt	
4590.70	526.95	4238.75	4063.76	13.11		OSF1.50	10210.00	10170.17				MinPt-CtCt	
4592.06	589.70	4198.27	4002.36	11.71		OSF1.50	11420.00	11380.17				MinPt-CtCt	
2128.49	643.51	1697.47	1484.98	4.99		OSF1.50	14620.00	12281.14	OSF<5.00			Enter Alert	
676.67	641.55	248.31	35.12	1.58		OSF1.50	16640.00	12276.82				MinPts	
2103.12	634.34	1679.57	1468.78	4.98		OSF1.50	18630.00	12272.56	OSF>5.00			Exit Alert	
5561.03	633.36	5138.13	4927.67	13.21		OSF1.50	22158.52	12265.00				TD	

Cimarex Red Hills 32-5 Fed
Com #198H Rev0 RM
04Sept19 (Non-Def Plan)

Warning Alert

1856.47	32.81	1854.49	1823.66	N/A		MAS = 10.00 (m)	0.00	0.00				Surface	
1856.39	32.81	1854.40	1823.58	193292.90		MAS = 10.00 (m)	10.00	10.00				MinPt-O-SF	
1856.36	32.81	1854.38	1823.55	N/A		MAS = 10.00 (m)	20.00	20.00				MINPT-O-EOU	
1856.36	32.81	1854.38	1823.55	N/A		MAS = 10.00 (m)	26.00	26.00				WRP	
853.60	54.16	816.40	799.44	25.07		OSF1.50	7780.00	7740.18				MinPt-O-SF	
853.44	82.67	797.23	770.77	16.06		OSF1.50	11840.00	11800.16				MinPt-O-SF	
853.16	82.44	797.10	770.72	16.11		OSF1.50	11900.00	11859.72				MinPt-O-ADP	
851.41	80.50	796.64	770.91	16.48		OSF1.50	12150.00	12083.32				MinPt-O-ADP	
850.91	79.99	796.48	770.91	16.58		OSF1.50	12220.00	12133.27				MinPt-O-ADP	
850.13	79.09	796.31	771.04	16.76		OSF1.50	12360.00	12209.20				MINPT-O-EOU	
849.88	78.35	796.55	771.53	16.92		OSF1.50	12500.00	12250.54				MinPt-CtCt	
850.12	257.42	677.40	592.70	5.00		OSF1.50	20270.00	12269.04	OSF<5.00			Enter Alert	
850.11	316.49	638.02	533.62	4.06		OSF1.50	22158.52	12265.00				MinPts	

Cimarex Red Hills SWD #1
(Offset) Inc Only Off-19000ft
(Def Survey)

Warning Alert

6645.56	32.81	6643.58	6612.75	N/A		MAS = 10.00 (m)	0.00	0.00				Surface	
6645.32	32.81	6643.30	6612.51	196456.10		MAS = 10.00 (m)	26.00	26.00				MinPt-O-SF	
6645.13	32.81	6643.01	6612.33	47424.71		MAS = 10.00 (m)	80.00	80.00				MinPts	
6648.25	88.23	6588.77	6560.01	115.58		OSF1.50	1770.00	1770.00				MinPt-CtCt	
6534.24	285.89	6342.96	6248.36	34.53		OSF1.50	5740.00	5714.92				MinPt-CtCt	
6496.64	374.89	6246.00	6121.75	26.13		OSF1.50	7460.00	7421.00				MinPt-CtCt	
6489.86	435.17	6199.03	6054.70	22.47		OSF1.50	8490.00	8450.17				MinPt-CtCt	
6488.42	517.21	6142.90	5971.21	18.89		OSF1.50	10070.00	10030.17				MinPt-CtCt	
6479.35	601.17	6077.84	5878.18	16.22		OSF1.50	11670.00	11630.17				MinPt-CtCt	
2109.12	640.44	1679.11	1468.68	4.99		OSF1.50	16730.00	12276.62	OSF<5.00			Enter Alert	
1180.58	648.56	747.23	532.02	2.74		OSF1.50	18470.00	12272.90				MINPT-O-EOU	
1180.55	648.56	747.24	532.00	2.74		OSF1.50	18480.00	12272.88				MinPts	
1180.61	648.55	747.33	532.06	2.74		OSF1.50	18490.00	12272.85				MinPt-O-SF	
2137.52	644.88	1706.94	1492.64	4.98		OSF1.50	20260.00	12269.07	OSF>5.00			Exit Alert	
3865.07	641.47	3436.76	3223.60	9.06		OSF1.50	22158.52	12265.00				TD	

Cimarex Red Hills Unit #3H
(Offset) Gas Inc Only Off-
17597ft (Def Survey)

Warning Alert

8216.87	32.81	8214.89	8184.06	N/A		MAS = 10.00 (m)	0.00	0.00				Surface	
8216.74	32.81	8214.75	8183.93	552727.21		MAS = 10.00 (m)	26.00	26.00				WRP	
8216.70	32.81	8213.03	8183.89	4866.44		MAS = 10.00 (m)	180.00	180.00				MinPts	
8213.72	43.98	8183.75	8169.75	293.29		OSF1.50	890.00	890.00				MinPt-CtCt	
8214.47	46.20	8183.02	8168.28	278.60		OSF1.50	1020.00	1020.00				MINPT-O-EOU	
8215.32	47.22	8183.19	8168.11	272.33		OSF1.50	1080.00	1080.00				MinPt-O-ADP	
8208.06	85.65	8150.30	8122.41	147.12		OSF1.50	1660.00	1660.00				MinPt-CtCt	
8208.38	86.63	8149.97	8121.75	145.42		OSF1.50	1740.00	1740.00				MINPT-O-EOU	
8208.89	87.24	8150.07	8121.65	144.39		OSF1.50	1790.00	1790.00				MinPt-O-ADP	

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		
8213.23	138.38	8120.31	8074.85	90.30		OSF1.50	2670.00	2669.60				MinPt-CtCt	
8216.27	146.27	8118.10	8070.00	85.39		OSF1.50	2950.00	2947.51				MINPT-O-EOU	
8220.31	151.09	8118.93	8069.22	82.68		OSF1.50	3120.00	3116.14				MinPt-O-ADP	
8227.98	192.31	8099.12	8035.67	64.83		OSF1.50	3680.00	3671.60				MinPt-CtCt	
8232.59	205.42	8094.99	8027.18	60.69		OSF1.50	4100.00	4088.20				MINPT-O-EOU	
8238.12	212.07	8096.08	8026.06	58.80		OSF1.50	4310.00	4296.50				MinPt-O-ADP	
8245.45	261.42	8070.51	7984.03	47.66		OSF1.50	4990.00	4970.99				MinPt-CtCt	
8247.74	269.08	8067.70	7978.67	46.31		OSF1.50	5270.00	5248.73				MINPT-O-EOU	
8250.19	272.02	8068.18	7978.17	45.82		OSF1.50	5390.00	5367.75				MinPt-O-ADP	
8276.89	339.70	8049.76	7937.19	36.75		OSF1.50	6470.00	6439.01				MinPt-CtCt	
8282.10	360.92	8040.82	7921.17	34.60		OSF1.50	7030.00	6994.47				MINPT-O-EOU	
8285.29	364.69	8041.50	7920.59	34.26		OSF1.50	7170.00	7133.34				MinPt-O-ADP	
8292.76	453.48	7989.78	7839.28	27.54		OSF1.50	8840.00	8800.17				MinPt-CtCt	
8293.71	456.30	7988.85	7837.41	27.38		OSF1.50	9000.00	8960.17				MINPT-O-EOU	
8294.73	457.52	7989.06	7837.21	27.31		OSF1.50	9070.00	9030.17				MinPt-O-ADP	
8295.63	537.10	7936.90	7758.52	23.25		OSF1.50	10450.00	10410.17				MinPt-CtCt	
8299.80	549.64	7932.71	7750.16	22.73		OSF1.50	10870.00	10830.17				MINPT-O-EOU	
8304.74	555.58	7933.70	7749.16	22.50		OSF1.50	11070.00	11030.17				MinPt-O-ADP	
2139.20	649.96	1702.70	1489.24	4.99		OSF1.50	18700.00	12272.41	OSF<5.00			Enter Alert	
1478.05	657.14	1039.29	820.91	3.38		OSF1.50	20250.00	12269.09				MinPts	
1478.11	657.17	1039.33	820.94	3.38		OSF1.50	20260.00	12269.07				MinPt-O-SF	
2151.37	647.43	1719.09	1503.95	5.00		OSF1.50	21810.00	12265.75	OSF>5.00			Exit Alert	
2416.48	645.32	1985.61	1771.16	5.63		OSF1.50	22158.52	12265.00				TD	

Neil H Wills Continental State
#1 (Offset) Plugged Blind Off-
5020ft (Def Survey)

Warning Alert

3318.72	32.81	3316.74	3285.91	N/A	MAS = 10.00 (m)	0.00	0.00					Surface	
3318.45	32.81	3316.44	3285.64	115993.69	MAS = 10.00 (m)	26.00	26.00					MinPt-O-SF	
3279.12	985.63	2621.37	2293.49	5.00	OSF1.50	3230.00	3225.25	OSF<5.00				Enter Alert	
3171.97	1567.23	2126.45	1604.74	3.04	OSF1.50	5180.00	5159.45					MinPt-O-SF	
3171.35	1566.78	2126.12	1604.57	3.04	OSF1.50	5210.00	5189.21					MinPt-O-ADP	
3171.20	1566.60	2126.10	1604.60	3.04	OSF1.50	5220.00	5199.13					MINPT-O-EOU	
3170.93	1565.72	2126.41	1605.21	3.04	OSF1.50	5260.00	5238.81					MinPt-CtCt	
3991.16	1202.29	3188.98	2788.87	4.99	OSF1.50	7680.00	7640.21	OSF>5.00				Exit Alert	
7347.79	311.93	7139.18	7035.87	35.55	OSF1.50	13930.00	12282.62					MinPt-O-ADP	
7268.64	222.73	7119.50	7045.91	49.38	OSF1.50	15010.00	12280.31					MinPt-CtCt	
7282.83	247.40	7117.24	7035.43	44.50	OSF1.50	15460.00	12279.34					MINPT-O-EOU	
7358.17	337.56	7132.48	7020.62	32.88	OSF1.50	16150.00	12277.87					MinPt-O-ADP	
10142.98	1119.42	9396.04	9023.56	13.61	OSF1.50	22080.00	12265.17					MinPt-O-SF	
10197.90	1125.41	9446.96	9072.48	13.61	OSF1.50	22158.52	12265.00					TD	

Cimarex Red Hills 32-5
Federal Com 155H Rev1 RM
09Aug19 (Def Plan)

Pass

659.28	32.81	657.30	626.47	N/A	MAS = 10.00 (m)	0.00	0.00					Surface	
659.28	32.81	657.30	626.47	N/A	MAS = 10.00 (m)	26.00	26.00					WRP	
659.28	32.81	642.62	626.47	44.76	MAS = 10.00 (m)	2400.00	2400.00					MinPts	
659.30	32.81	642.59	626.49	44.61	MAS = 10.00 (m)	2410.00	2410.00					MINPT-O-EOU	
1276.14	64.49	1232.49	1211.65	30.57	OSF1.50	7438.84	7400.00					MinPt-O-SF	
1283.26	64.84	1239.37	1218.42	30.57	OSF1.50	7500.00	7460.74					MinPt-O-SF	
1299.31	96.92	1234.04	1202.40	20.50	OSF1.50	11830.00	11790.17					MinPt-O-SF	
1299.27	96.88	1234.02	1202.39	20.51	OSF1.50	11840.00	11800.16					MinPt-O-ADP	
1284.59	92.56	1222.23	1192.03	21.24	OSF1.50	12390.00	12220.81					MinPt-O-ADP	
1284.49	92.44	1222.21	1192.05	21.27	OSF1.50	12410.00	12227.58					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		
	1284.44	92.28	1222.27	1192.17	21.30	OSF1.50	12439.83	12236.20				MinPt-CtCt	
	1285.47	315.24	1074.65	970.23	6.15	OSF1.50	22158.52	12265.00				MinPts	

Cimarex Red Hills 32-5
Federal Com 156H Rev1 RM
09Aug09 (Def Plan)

Pass

679.27	32.81	677.29	646.47	N/A	MAS = 10.00 (m)	0.00	0.00	Surface
679.27	32.81	677.29	646.47	N/A	MAS = 10.00 (m)	26.00	26.00	WRP
679.27	32.81	668.26	646.47	75.01	MAS = 10.00 (m)	1500.00	1500.00	MinPts
679.33	32.81	668.22	646.52	74.24	MAS = 10.00 (m)	1520.00	1520.00	MINPT-O-EOU
766.53	32.81	751.07	733.72	56.73	MAS = 10.00 (m)	2500.00	2499.98	MinPt-O-SF
1132.03	32.81	1110.62	1099.23	58.14	MAS = 10.00 (m)	4130.00	4117.96	MinPt-O-SF
1569.39	55.62	1531.65	1513.77	43.83	OSF1.50	7500.00	7460.74	MinPt-O-SF
1585.32	72.64	1536.23	1512.68	33.61	OSF1.50	10220.00	10180.17	MinPt-O-SF
1584.37	72.29	1535.52	1512.08	33.76	OSF1.50	10380.00	10340.17	MinPts
1584.36	72.28	1535.52	1512.09	33.76	OSF1.50	10390.00	10350.17	MinPt-CtCt
2298.94	310.07	2091.57	1988.87	11.18	OSF1.50	22158.52	12265.00	MinPts

Cimarex Red Hills 32-5
Federal Com 157H Rev0 RM
03Oct18 (Non-Def Plan)

Pass

699.28	32.81	697.30	666.47	N/A	MAS = 10.00 (m)	0.00	0.00	Surface
699.28	32.81	697.30	666.47	N/A	MAS = 10.00 (m)	26.00	26.00	WRP
699.28	32.81	688.27	666.47	77.22	MAS = 10.00 (m)	1500.00	1500.00	MinPts
699.33	32.81	688.23	666.52	76.47	MAS = 10.00 (m)	1520.00	1520.00	MINPT-O-EOU
791.47	32.81	776.41	758.66	60.38	MAS = 10.00 (m)	2500.00	2499.98	MinPt-O-SF
1958.79	58.24	1919.31	1900.55	52.17	OSF1.50	7438.84	7400.00	MinPt-O-SF
2020.29	59.07	1980.25	1961.22	53.03	OSF1.50	7780.00	7740.18	MinPt-O-SF
2024.73	78.80	1971.53	1945.93	39.50	OSF1.50	11900.00	11859.72	MinPts
2098.21	319.73	1884.40	1778.48	9.90	OSF1.50	22158.52	12265.00	MinPts

Cimarex Red Hills 32-5 Fed
Com #158H Rev0 RM
29Aug19 (Non-Def Plan)

Pass

741.71	32.81	739.73	708.90	N/A	MAS = 10.00 (m)	0.00	0.00	Surface
741.71	32.81	739.73	708.90	N/A	MAS = 10.00 (m)	26.00	26.00	WRP
741.71	32.81	725.05	708.90	50.38	MAS = 10.00 (m)	2400.00	2400.00	MinPts
741.73	32.81	725.02	708.92	50.22	MAS = 10.00 (m)	2410.00	2410.00	MINPT-O-EOU
795.89	32.81	776.86	763.08	46.57	MAS = 10.00 (m)	3010.00	3007.03	MinPt-O-SF
2043.15	55.97	2005.18	1987.18	56.71	OSF1.50	7438.84	7400.00	MinPt-O-SF
2110.34	56.62	2071.93	2053.72	57.88	OSF1.50	7710.00	7670.19	MinPt-O-SF
2121.36	81.52	2066.35	2039.84	39.97	OSF1.50	11820.00	11780.17	MinPt-O-SF
2121.28	81.50	2066.29	2039.78	39.97	OSF1.50	11850.00	11810.14	MinPt-O-ADP
2120.90	81.12	2066.17	2039.79	40.16	OSF1.50	11900.00	11859.72	MinPt-O-ADP
2112.76	77.05	2060.74	2035.71	42.18	OSF1.50	12410.00	12227.58	MinPt-O-ADP
2112.51	76.75	2060.69	2035.77	42.34	OSF1.50	12520.00	12254.77	MinPt-O-ADP
2112.36	76.63	2060.61	2035.72	42.40	OSF1.50	12720.00	12281.87	MinPt-CtCt
2113.35	318.90	1900.09	1794.45	9.99	OSF1.50	22158.52	12265.00	MinPts

Cimarex Red Hills 32-5 Fed
Com #159H Rev0 RM
03Sept19 (Non-Def Plan)

Pass

761.65	32.81	759.67	728.84	N/A	MAS = 10.00 (m)	0.00	0.00	Surface
761.65	32.81	759.67	728.84	N/A	MAS = 10.00 (m)	26.00	26.00	WRP
761.65	32.81	744.99	728.84	51.74	MAS = 10.00 (m)	2400.00	2400.00	MinPts
761.67	32.81	744.96	728.86	51.57	MAS = 10.00 (m)	2410.00	2410.00	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		
	789.23	32.81	771.03	756.42	48.51	MAS = 10.00 (m)	2800.00	2798.73				MinPt-O-SF	
	2122.29	55.85	2084.40	2066.44	59.03	OSF1.50	7438.84	7400.00				MinPt-O-SF	
	2415.31	65.05	2371.28	2350.26	57.40	OSF1.50	8970.00	8930.17				MinPt-O-SF	
	2421.96	80.89	2367.37	2341.07	46.00	OSF1.50	11814.83	11775.00				MinPt-O-SF	
	2421.95	80.88	2367.37	2341.07	46.00	OSF1.50	11830.00	11790.17				MinPt-O-ADP	
	2421.93	80.86	2367.37	2341.07	46.02	OSF1.50	11840.00	11800.16				MINPT-O-EOU	
	2421.58	80.44	2367.30	2341.14	46.26	OSF1.50	11900.00	11859.72				MinPt-O-ADP	
	2414.63	76.89	2362.71	2337.74	48.31	OSF1.50	12420.00	12230.67				MinPt-O-ADP	
	2414.31	76.82	2362.44	2337.49	48.35	OSF1.50	12720.00	12281.87				MinPt-CtCt	
	2415.30	320.98	2200.66	2094.32	11.35	OSF1.50	22158.52	12265.00				MinPts	

Cimarex Red Hills 32-5 Fed
Com #160H Rev0 RM
03Sept19 (Non-Def Plan)

Pass

781.58	32.81	779.60	748.77	N/A	MAS = 10.00 (m)	0.00	0.00	Surface
781.58	32.81	779.60	748.77	N/A	MAS = 10.00 (m)	26.00	26.00	WRP
781.58	32.81	765.54	748.77	55.47	MAS = 10.00 (m)	2300.00	2300.00	MinPts
781.63	32.81	765.50	748.82	55.12	MAS = 10.00 (m)	2320.00	2320.00	MINPT-O-EOU
787.87	32.81	771.22	755.06	53.58	MAS = 10.00 (m)	2490.00	2489.99	MinPt-O-SF
2507.58	56.64	2469.16	2450.94	68.76	OSF1.50	7438.84	7400.00	MinPt-O-SF
3243.94	79.49	3190.29	3164.45	62.74	OSF1.50	10380.00	10340.17	MinPt-O-SF
3244.75	84.93	3187.47	3159.82	58.64	OSF1.50	11814.83	11775.00	MinPts
3244.75	84.93	3187.47	3159.82	58.64	OSF1.50	11820.00	11780.17	MinPt-O-SF
3244.20	82.51	3188.53	3161.69	60.39	OSF1.50	12630.00	12273.10	MinPt-CtCt
3245.20	325.43	3027.58	2919.77	15.04	OSF1.50	22158.52	12265.00	MinPts

Cimarex Red Hills 32-5 Fed
Com #197H Rev0 RM
04Sept19 (Non-Def Plan)

Pass

1876.43	32.81	1874.45	1843.62	N/A	MAS = 10.00 (m)	0.00	0.00	Surface
1876.35	32.81	1874.37	1843.55	228892.02	MAS = 10.00 (m)	10.00	10.00	MinPt-O-SF
1876.33	32.81	1874.35	1843.53	N/A	MAS = 10.00 (m)	26.00	26.00	WRP
1237.08	97.75	1170.97	1139.33	19.51	OSF1.50	11840.00	11800.16	MinPts
1237.10	97.75	1170.98	1139.35	19.51	OSF1.50	11850.00	11810.14	MinPt-O-SF
1274.82	92.91	1211.97	1181.91	21.16	OSF1.50	12540.00	12258.72	MinPt-CtCt
1274.95	314.58	1064.32	960.38	6.12	OSF1.50	22158.52	12265.00	MinPts

Cimarex Red Hills 32-5 Fed
Com #128H Rev0 RM
29Aug19 (Non-Def Plan)

Pass

2554.05	32.81	2552.07	2521.24	N/A	MAS = 10.00 (m)	0.00	0.00	Surface
2554.01	32.81	2552.03	2521.20	N/A	MAS = 10.00 (m)	10.00	10.00	MinPts
2554.01	32.81	2552.03	2521.20	N/A	MAS = 10.00 (m)	26.00	26.00	WRP
2554.01	32.81	2537.39	2521.20	174.27	MAS = 10.00 (m)	2400.00	2400.00	MinPts
2554.03	32.81	2537.36	2521.22	173.71	MAS = 10.00 (m)	2410.00	2410.00	MINPT-O-EOU
2556.52	32.81	2539.22	2523.71	166.78	MAS = 10.00 (m)	2530.00	2529.96	MinPt-O-SF
2552.39	32.81	2535.01	2519.59	165.60	MAS = 10.00 (m)	2690.00	2689.50	MinPts
2924.09	53.92	2887.48	2870.17	84.39	OSF1.50	7500.00	7460.74	MinPt-O-SF
2940.17	83.72	2883.69	2856.45	53.92	OSF1.50	11830.00	11790.17	MinPts
2941.26	316.16	2729.83	2625.10	14.03	OSF1.50	22158.52	12265.00	MinPts

Cimarex Red Hills 32-5 Fed
Com #129H Rev0 RM
29Aug19 (Non-Def Plan)

Pass

2574.05	32.81	2572.07	2541.24	N/A	MAS = 10.00 (m)	0.00	0.00	Surface
2574.01	32.81	2572.03	2541.21	N/A	MAS = 10.00 (m)	10.00	10.00	MinPt-O-SF

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		
2574.01	32.81	2572.03	2541.20	N/A		MAS = 10.00 (m)	26.00	26.00				WRP	
2574.01	32.81	2557.39	2541.20	175.64		MAS = 10.00 (m)	2400.00	2400.00				MinPts	
2574.03	32.81	2557.36	2541.22	175.07		MAS = 10.00 (m)	2410.00	2410.00				MINPT-O-EOU	
3273.67	55.65	3235.91	3218.02	91.43		OSF1.50	6980.00	6944.88				MinPt-O-SF	
3339.61	59.53	3299.26	3280.08	87.00		OSF1.50	7500.00	7460.74				MinPt-O-SF	
3355.69	90.92	3294.42	3264.77	56.56		OSF1.50	11830.00	11790.17				MinPts	
3354.22	84.85	3296.99	3269.37	60.67		OSF1.50	12780.00	12284.58				MinPt-CtCt	
3355.21	315.86	3143.98	3039.35	16.02		OSF1.50	22158.52	12265.00				MinPts	

Rector Oil Maechtel Permit #1
(Offset) Plugged Oil Blind Off-
5006ft (Def Survey)

Pass

10181.45	32.81	10180.16	10148.64	N/A		MAS = 10.00 (m)	0.00	0.00				Surface	
10181.12	32.81	10179.78	10148.31	196979.54		MAS = 10.00 (m)	26.00	26.00				MinPt-O-SF	
10180.46	695.71	9716.22	9484.75	21.99		OSF1.50	2400.00	2400.00				MinPt-CtCt	
10271.66	1559.40	9231.64	8712.27	9.89		OSF1.50	5170.00	5149.54				MinPts	
10029.50	1098.86	9296.49	8930.63	13.71		OSF1.50	15690.00	12278.85				MinPt-O-SF	
7856.47	692.70	7394.24	7163.77	17.04		OSF1.50	21920.00	12265.51				MinPt-CtCt	
7856.60	693.11	7394.10	7163.49	17.03		OSF1.50	21970.00	12265.40				MINPT-O-EOU	
7856.94	693.52	7394.16	7163.42	17.02		OSF1.50	22010.00	12265.32				MinPt-O-ADP	
7859.96	695.70	7395.73	7164.26	16.98		OSF1.50	22158.52	12265.00				MinPt-O-SF	



Cimarex Red Hills 32-5 Fed Com #169H Rev0 RM 04Sept19 Proposal

Geodetic Report

(Non-Def Plan)



Report Date: September 04, 2019 - 04:35 PM
Client: Cimarex Energy
Field: NM Lea County (NAD 83)
Structure / Slot: Cimarex Red Hills 32-5 Fed Com #169H / New Slot
Well: Red Hills 32-5 Fed Com #169H
Borehole: Red Hills 32-5 Fed Com #169H
UWI / API#: Unknown / Unknown
Survey Name: Cimarex Red Hills 32-5 Fed Com #169H Rev0 RM 04Sept19
Survey Date: September 03, 2019
Tort / AHD / DDI / ERD Ratio: 104.717 ° / 10708.349 ft / 6.306 / 0.872
Coordinate Reference System: NAD83 New Mexico State Plane, Eastern Zone, US Feet
Location Lat / Long: N 32° 5' 35.67426", W 103° 35' 34.89480"
Location Grid N/E Y/X: N 398445.480 ftUS, E 770594.090 ftUS
CRS Grid Convergence Angle: 0.3933 °
Grid Scale Factor: 0.99996929
Version / Patch: 2.10.782.0

Survey / DLS Computation: Minimum Curvature / Lubinski
Vertical Section Azimuth: 179.598 ° (Grid North)
Vertical Section Origin: 0.000 ft, 0.000 ft
TVD Reference Datum: RKB
TVD Reference Elevation: 3435.900 ft above MSL
Seabed / Ground Elevation: 3409.900 ft above MSL
Magnetic Declination: 6.621 °
Total Gravity Field Strength: 998.4288mgn (9.80665 Based)
Gravity Model: GARM
Total Magnetic Field Strength: 47728.211 nT
Magnetic Dip Angle: 59.690 °
Declination Date: September 03, 2019
Magnetic Declination Model: HDGM 2019
North Reference: Grid North
Grid Convergence Used: 0.3933 °
Total Corr Mag North->Grid North: 6.2274 °
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 [390' FNL, 2245' FEL]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	N/A	398445.48	770594.09	N 32 5 35.67 W 103 35 34.89	
	100.00	0.00	89.67	100.00	0.00	0.00	0.00	0.00	398445.48	770594.09	N 32 5 35.67 W 103 35 34.89	
	200.00	0.00	89.67	200.00	0.00	0.00	0.00	0.00	398445.48	770594.09	N 32 5 35.67 W 103 35 34.89	
	300.00	0.00	89.67	300.00	0.00	0.00	0.00	0.00	398445.48	770594.09	N 32 5 35.67 W 103 35 34.89	
	400.00	0.00	89.67	400.00	0.00	0.00	0.00	0.00	398445.48	770594.09	N 32 5 35.67 W 103 35 34.89	
	500.00	0.00	89.67	500.00	0.00	0.00	0.00	0.00	398445.48	770594.09	N 32 5 35.67 W 103 35 34.89	
	600.00	0.00	89.67	600.00	0.00	0.00	0.00	0.00	398445.48	770594.09	N 32 5 35.67 W 103 35 34.89	
	700.00	0.00	89.67	700.00	0.00	0.00	0.00	0.00	398445.48	770594.09	N 32 5 35.67 W 103 35 34.89	
	800.00	0.00	89.67	800.00	0.00	0.00	0.00	0.00	398445.48	770594.09	N 32 5 35.67 W 103 35 34.89	
	900.00	0.00	89.67	900.00	0.00	0.00	0.00	0.00	398445.48	770594.09	N 32 5 35.67 W 103 35 34.89	
Rustler	934.00	0.00	89.67	934.00	0.00	0.00	0.00	0.00	398445.48	770594.09	N 32 5 35.67 W 103 35 34.89	
	1000.00	0.00	89.67	1000.00	0.00	0.00	0.00	0.00	398445.48	770594.09	N 32 5 35.67 W 103 35 34.89	
	1100.00	0.00	89.67	1100.00	0.00	0.00	0.00	0.00	398445.48	770594.09	N 32 5 35.67 W 103 35 34.89	
	1200.00	0.00	89.67	1200.00	0.00	0.00	0.00	0.00	398445.48	770594.09	N 32 5 35.67 W 103 35 34.89	
	1300.00	0.00	89.67	1300.00	0.00	0.00	0.00	0.00	398445.48	770594.09	N 32 5 35.67 W 103 35 34.89	
Top of Salt	1349.00	0.00	89.67	1349.00	0.00	0.00	0.00	0.00	398445.48	770594.09	N 32 5 35.67 W 103 35 34.89	
	1400.00	0.00	89.67	1400.00	0.00	0.00	0.00	0.00	398445.48	770594.09	N 32 5 35.67 W 103 35 34.89	
	1500.00	0.00	89.67	1500.00	0.00	0.00	0.00	0.00	398445.48	770594.09	N 32 5 35.67 W 103 35 34.89	
	1600.00	0.00	89.67	1600.00	0.00	0.00	0.00	0.00	398445.48	770594.09	N 32 5 35.67 W 103 35 34.89	
	1700.00	0.00	89.67	1700.00	0.00	0.00	0.00	0.00	398445.48	770594.09	N 32 5 35.67 W 103 35 34.89	
	1800.00	0.00	89.67	1800.00	0.00	0.00	0.00	0.00	398445.48	770594.09	N 32 5 35.67 W 103 35 34.89	
	1900.00	0.00	89.67	1900.00	0.00	0.00	0.00	0.00	398445.48	770594.09	N 32 5 35.67 W 103 35 34.89	
	2000.00	0.00	89.67	2000.00	0.00	0.00	0.00	0.00	398445.48	770594.09	N 32 5 35.67 W 103 35 34.89	
	2100.00	0.00	89.67	2100.00	0.00	0.00	0.00	0.00	398445.48	770594.09	N 32 5 35.67 W 103 35 34.89	
	2200.00	0.00	89.67	2200.00	0.00	0.00	0.00	0.00	398445.48	770594.09	N 32 5 35.67 W 103 35 34.89	
	2300.00	0.00	89.67	2300.00	0.00	0.00	0.00	0.00	398445.48	770594.09	N 32 5 35.67 W 103 35 34.89	
Nudge 2°/100' DLS	2400.00	0.00	89.67	2400.00	0.00	0.00	0.00	0.00	398445.48	770594.09	N 32 5 35.67 W 103 35 34.89	

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 ° ' ")
Hold Nudge	2500.00	2.00	89.67	2499.98	0.00	0.01	1.75	2.00	398445.49	770595.84	N 32 5 35.67 W	103 35 34.87
	2600.00	4.00	89.67	2599.84	0.01	0.04	6.98	2.00	398445.52	770601.07	N 32 5 35.67 W	103 35 34.81
	2700.00	6.00	89.67	2699.45	0.02	0.09	15.69	2.00	398445.57	770609.78	N 32 5 35.67 W	103 35 34.71
	2764.85	7.30	89.67	2763.86	0.03	0.13	23.20	2.00	398445.61	770617.29	N 32 5 35.67 W	103 35 34.63
	2800.00	7.30	89.67	2798.73	0.04	0.16	27.67	0.00	398445.64	770621.75	N 32 5 35.67 W	103 35 34.57
	2900.00	7.30	89.67	2897.92	0.05	0.23	40.37	0.00	398445.71	770634.46	N 32 5 35.67 W	103 35 34.43
	3000.00	7.30	89.67	2997.11	0.07	0.30	53.07	0.00	398445.78	770647.16	N 32 5 35.67 W	103 35 34.28
	3100.00	7.30	89.67	3096.30	0.09	0.38	65.77	0.00	398445.86	770659.86	N 32 5 35.67 W	103 35 34.13
	3200.00	7.30	89.67	3195.49	0.10	0.45	78.47	0.00	398445.93	770672.56	N 32 5 35.67 W	103 35 33.98
	3300.00	7.30	89.67	3294.68	0.12	0.52	91.17	0.00	398446.00	770685.26	N 32 5 35.67 W	103 35 33.84
	3400.00	7.30	89.67	3393.87	0.14	0.59	103.87	0.00	398446.07	770697.96	N 32 5 35.67 W	103 35 33.69
	3500.00	7.30	89.67	3493.06	0.15	0.67	116.57	0.00	398446.15	770710.66	N 32 5 35.67 W	103 35 33.54
	3600.00	7.30	89.67	3592.25	0.17	0.74	129.27	0.00	398446.22	770723.36	N 32 5 35.67 W	103 35 33.39
	3700.00	7.30	89.67	3691.44	0.19	0.81	141.98	0.00	398446.29	770736.06	N 32 5 35.67 W	103 35 33.24
	3800.00	7.30	89.67	3790.63	0.20	0.88	154.68	0.00	398446.36	770748.76	N 32 5 35.67 W	103 35 33.10
	3900.00	7.30	89.67	3889.82	0.22	0.96	167.38	0.00	398446.44	770761.46	N 32 5 35.67 W	103 35 32.95
	4000.00	7.30	89.67	3989.01	0.24	1.03	180.08	0.00	398446.51	770774.16	N 32 5 35.67 W	103 35 32.80
	4100.00	7.30	89.67	4088.20	0.25	1.10	192.78	0.00	398446.58	770786.86	N 32 5 35.67 W	103 35 32.65
	4200.00	7.30	89.67	4187.39	0.27	1.17	205.48	0.00	398446.65	770799.56	N 32 5 35.67 W	103 35 32.51
	4300.00	7.30	89.67	4286.58	0.29	1.25	218.18	0.00	398446.73	770812.26	N 32 5 35.67 W	103 35 32.36
Base of Salt	4400.00	7.30	89.67	4385.77	0.30	1.32	230.88	0.00	398446.80	770824.97	N 32 5 35.67 W	103 35 32.21
	4500.00	7.30	89.67	4484.96	0.32	1.39	243.58	0.00	398446.87	770837.67	N 32 5 35.67 W	103 35 32.06
	4600.00	7.30	89.67	4584.15	0.34	1.46	256.28	0.00	398446.94	770850.37	N 32 5 35.67 W	103 35 31.92
	4667.39	7.30	89.67	4651.00	0.35	1.51	264.84	0.00	398446.99	770858.93	N 32 5 35.67 W	103 35 31.82
	4700.00	7.30	89.67	4683.34	0.35	1.54	268.99	0.00	398447.02	770863.07	N 32 5 35.67 W	103 35 31.77
	4800.00	7.30	89.67	4782.53	0.37	1.61	281.69	0.00	398447.09	770875.77	N 32 5 35.67 W	103 35 31.62
	4900.00	7.30	89.67	4881.72	0.39	1.68	294.39	0.00	398447.16	770888.47	N 32 5 35.67 W	103 35 31.47
	4910.36	7.30	89.67	4892.00	0.39	1.69	295.70	0.00	398447.17	770889.78	N 32 5 35.67 W	103 35 31.46
	4947.66	7.30	89.67	4929.00	0.39	1.71	300.44	0.00	398447.19	770894.52	N 32 5 35.67 W	103 35 31.40
	5000.00	7.30	89.67	4980.91	0.40	1.75	307.09	0.00	398447.23	770901.17	N 32 5 35.67 W	103 35 31.33
Lamar Bell Canyon	5100.00	7.30	89.67	5080.10	0.42	1.83	319.79	0.00	398447.31	770913.87	N 32 5 35.67 W	103 35 31.18
	5200.00	7.30	89.67	5179.29	0.44	1.90	332.49	0.00	398447.38	770926.57	N 32 5 35.67 W	103 35 31.03
	5300.00	7.30	89.67	5278.48	0.45	1.97	345.19	0.00	398447.45	770939.27	N 32 5 35.67 W	103 35 30.88
	5400.00	7.30	89.67	5377.67	0.47	2.04	357.89	0.00	398447.52	770951.97	N 32 5 35.67 W	103 35 30.73
	5500.00	7.30	89.67	5476.86	0.49	2.12	370.59	0.00	398447.60	770964.67	N 32 5 35.67 W	103 35 30.59
	5600.00	7.30	89.67	5576.05	0.50	2.19	383.30	0.00	398447.67	770977.37	N 32 5 35.67 W	103 35 30.44
	5700.00	7.30	89.67	5675.24	0.52	2.26	396.00	0.00	398447.74	770990.07	N 32 5 35.67 W	103 35 30.29
	5800.00	7.30	89.67	5774.43	0.53	2.33	408.70	0.00	398447.81	771002.77	N 32 5 35.67 W	103 35 30.14
	5900.00	7.30	89.67	5873.62	0.55	2.41	421.40	0.00	398447.88	771015.47	N 32 5 35.67 W	103 35 30.00
	6000.00	7.30	89.67	5972.81	0.57	2.48	434.10	0.00	398447.96	771028.18	N 32 5 35.67 W	103 35 29.85
Cherry Canyon	6028.42	7.30	89.67	6001.00	0.57	2.50	437.71	0.00	398447.98	771031.78	N 32 5 35.67 W	103 35 29.81
	6100.00	7.30	89.67	6072.00	0.58	2.55	446.80	0.00	398448.03	771040.88	N 32 5 35.67 W	103 35 29.70
	6200.00	7.30	89.67	6171.19	0.60	2.62	459.50	0.00	398448.10	771053.58	N 32 5 35.67 W	103 35 29.55
	6300.00	7.30	89.67	6270.38	0.62	2.69	472.20	0.00	398448.17	771066.28	N 32 5 35.67 W	103 35 29.41
	6400.00	7.30	89.67	6369.57	0.63	2.77	484.90	0.00	398448.25	771078.98	N 32 5 35.67 W	103 35 29.26
	6500.00	7.30	89.67	6468.76	0.65	2.84	497.60	0.00	398448.32	771091.68	N 32 5 35.67 W	103 35 29.11
	6600.00	7.30	89.67	6567.95	0.67	2.91	510.31	0.00	398448.39	771104.38	N 32 5 35.67 W	103 35 28.96
	6700.00	7.30	89.67	6667.14	0.68	2.98	523.01	0.00	398448.46	771117.08	N 32 5 35.67 W	103 35 28.82
	6800.00	7.30	89.67	6766.33	0.70	3.06	535.71	0.00	398448.54	771129.78	N 32 5 35.67 W	103 35 28.67
	6900.00	7.30	89.67	6865.52	0.72	3.13	548.41	0.00	398448.61	771142.48	N 32 5 35.67 W	103 35 28.52
Drop to Vertical 2°/100' DLS	7000.00	7.30	89.67	6964.71	0.73	3.20	561.11	0.00	398448.68	771155.18	N 32 5 35.67 W	103 35 28.37
	7100.00	7.30	89.67	7063.90	0.75	3.27	573.81	0.00	398448.75	771167.88	N 32 5 35.67 W	103 35 28.22
	7200.00	7.30	89.67	7163.09	0.77	3.35	586.51	0.00	398448.83	771180.58	N 32 5 35.67 W	103 35 28.08
	7300.00	7.30	89.67	7262.28	0.78	3.42	599.21	0.00	398448.90	771193.28	N 32 5 35.67 W	103 35 27.93
	7400.00	7.30	89.67	7361.47	0.80	3.49	611.91	0.00	398448.97	771205.98	N 32 5 35.67 W	103 35 27.78
	7438.84	7.30	89.67	7400.00	0.81	3.52	616.85	0.00	398449.00	771210.92	N 32 5 35.67 W	103 35 27.72
	7500.00	6.07	89.67	7460.74	0.82	3.56	623.97	2.00	398449.04	771218.04	N 32 5 35.67 W	103 35 27.64
	7576.59	4.54	89.67	7537.00	0.83	3.60	631.05	2.00	398449.08	771225.12	N 32 5 35.67 W	103 35 27.56
Brusy Canyon												

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 ° ' ")
	7600.00	4.07	89.67	7560.35	0.83	3.61	632.81	2.00	398449.09	771226.88	N 32 5 35.67 W	103 35 27.54
	7700.00	2.07	89.67	7660.20	0.84	3.64	638.17	2.00	398449.12	771232.24	N 32 5 35.67 W	103 35 27.48
	7800.00	0.07	89.67	7760.17	0.84	3.65	640.05	2.00	398449.13	771234.12	N 32 5 35.67 W	103 35 27.45
Hold Vertical	7803.69	0.00	89.67	7763.86	0.84	3.65	640.05	2.00	398449.13	771234.12	N 32 5 35.67 W	103 35 27.45
	7900.00	0.00	89.67	7860.17	0.84	3.65	640.05	0.00	398449.13	771234.12	N 32 5 35.67 W	103 35 27.45
	8000.00	0.00	89.67	7960.17	0.84	3.65	640.05	0.00	398449.13	771234.12	N 32 5 35.67 W	103 35 27.45
	8100.00	0.00	89.67	8060.17	0.84	3.65	640.05	0.00	398449.13	771234.12	N 32 5 35.67 W	103 35 27.45
	8200.00	0.00	89.67	8160.17	0.84	3.65	640.05	0.00	398449.13	771234.12	N 32 5 35.67 W	103 35 27.45
	8300.00	0.00	89.67	8260.17	0.84	3.65	640.05	0.00	398449.13	771234.12	N 32 5 35.67 W	103 35 27.45
	8400.00	0.00	89.67	8360.17	0.84	3.65	640.05	0.00	398449.13	771234.12	N 32 5 35.67 W	103 35 27.45
	8500.00	0.00	89.67	8460.17	0.84	3.65	640.05	0.00	398449.13	771234.12	N 32 5 35.67 W	103 35 27.45
	8600.00	0.00	89.67	8560.17	0.84	3.65	640.05	0.00	398449.13	771234.12	N 32 5 35.67 W	103 35 27.45
	8700.00	0.00	89.67	8660.17	0.84	3.65	640.05	0.00	398449.13	771234.12	N 32 5 35.67 W	103 35 27.45
	8800.00	0.00	89.67	8760.17	0.84	3.65	640.05	0.00	398449.13	771234.12	N 32 5 35.67 W	103 35 27.45
	8900.00	0.00	89.67	8860.17	0.84	3.65	640.05	0.00	398449.13	771234.12	N 32 5 35.67 W	103 35 27.45
	9000.00	0.00	89.67	8960.17	0.84	3.65	640.05	0.00	398449.13	771234.12	N 32 5 35.67 W	103 35 27.45
Bone Spring	9078.83	0.00	89.67	9039.00	0.84	3.65	640.05	0.00	398449.13	771234.12	N 32 5 35.67 W	103 35 27.45
	9100.00	0.00	89.67	9060.17	0.84	3.65	640.05	0.00	398449.13	771234.12	N 32 5 35.67 W	103 35 27.45
Leonard Shale	9133.83	0.00	89.67	9094.00	0.84	3.65	640.05	0.00	398449.13	771234.12	N 32 5 35.67 W	103 35 27.45
	9200.00	0.00	89.67	9160.17	0.84	3.65	640.05	0.00	398449.13	771234.12	N 32 5 35.67 W	103 35 27.45
	9300.00	0.00	89.67	9260.17	0.84	3.65	640.05	0.00	398449.13	771234.12	N 32 5 35.67 W	103 35 27.45
Avalon Shale	9395.83	0.00	89.67	9356.00	0.84	3.65	640.05	0.00	398449.13	771234.12	N 32 5 35.67 W	103 35 27.45
	9400.00	0.00	89.67	9360.17	0.84	3.65	640.05	0.00	398449.13	771234.12	N 32 5 35.67 W	103 35 27.45
	9500.00	0.00	89.67	9460.17	0.84	3.65	640.05	0.00	398449.13	771234.12	N 32 5 35.67 W	103 35 27.45
	9600.00	0.00	89.67	9560.17	0.84	3.65	640.05	0.00	398449.13	771234.12	N 32 5 35.67 W	103 35 27.45
	9700.00	0.00	89.67	9660.17	0.84	3.65	640.05	0.00	398449.13	771234.12	N 32 5 35.67 W	103 35 27.45
Lower Avalon Shale	9770.83	0.00	89.67	9731.00	0.84	3.65	640.05	0.00	398449.13	771234.12	N 32 5 35.67 W	103 35 27.45
	9800.00	0.00	89.67	9760.17	0.84	3.65	640.05	0.00	398449.13	771234.12	N 32 5 35.67 W	103 35 27.45
	9900.00	0.00	89.67	9860.17	0.84	3.65	640.05	0.00	398449.13	771234.12	N 32 5 35.67 W	103 35 27.45
	10000.00	0.00	89.67	9960.17	0.84	3.65	640.05	0.00	398449.13	771234.12	N 32 5 35.67 W	103 35 27.45
1st Bone Spring Sand	10075.83	0.00	89.67	10036.00	0.84	3.65	640.05	0.00	398449.13	771234.12	N 32 5 35.67 W	103 35 27.45
	10100.00	0.00	89.67	10060.17	0.84	3.65	640.05	0.00	398449.13	771234.12	N 32 5 35.67 W	103 35 27.45
	10200.00	0.00	89.67	10160.17	0.84	3.65	640.05	0.00	398449.13	771234.12	N 32 5 35.67 W	103 35 27.45
2nd Bone Spring Carb	10262.83	0.00	89.67	10223.00	0.84	3.65	640.05	0.00	398449.13	771234.12	N 32 5 35.67 W	103 35 27.45
	10300.00	0.00	89.67	10260.17	0.84	3.65	640.05	0.00	398449.13	771234.12	N 32 5 35.67 W	103 35 27.45
	10400.00	0.00	89.67	10360.17	0.84	3.65	640.05	0.00	398449.13	771234.12	N 32 5 35.67 W	103 35 27.45
	10500.00	0.00	89.67	10460.17	0.84	3.65	640.05	0.00	398449.13	771234.12	N 32 5 35.67 W	103 35 27.45
	10600.00	0.00	89.67	10560.17	0.84	3.65	640.05	0.00	398449.13	771234.12	N 32 5 35.67 W	103 35 27.45
2nd Bone Spring Sand	10603.83	0.00	89.67	10564.00	0.84	3.65	640.05	0.00	398449.13	771234.12	N 32 5 35.67 W	103 35 27.45
	10700.00	0.00	89.67	10660.17	0.84	3.65	640.05	0.00	398449.13	771234.12	N 32 5 35.67 W	103 35 27.45
	10800.00	0.00	89.67	10760.17	0.84	3.65	640.05	0.00	398449.13	771234.12	N 32 5 35.67 W	103 35 27.45
	10900.00	0.00	89.67	10860.17	0.84	3.65	640.05	0.00	398449.13	771234.12	N 32 5 35.67 W	103 35 27.45
	11000.00	0.00	89.67	10960.17	0.84	3.65	640.05	0.00	398449.13	771234.12	N 32 5 35.67 W	103 35 27.45
3rd Bone Spring Carb	11056.83	0.00	89.67	11017.00	0.84	3.65	640.05	0.00	398449.13	771234.12	N 32 5 35.67 W	103 35 27.45
	11100.00	0.00	89.67	11060.17	0.84	3.65	640.05	0.00	398449.13	771234.12	N 32 5 35.67 W	103 35 27.45
	11200.00	0.00	89.67	11160.17	0.84	3.65	640.05	0.00	398449.13	771234.12	N 32 5 35.67 W	103 35 27.45
	11300.00	0.00	89.67	11260.17	0.84	3.65	640.05	0.00	398449.13	771234.12	N 32 5 35.67 W	103 35 27.45
	11400.00	0.00	89.67	11360.17	0.84	3.65	640.05	0.00	398449.13	771234.12	N 32 5 35.67 W	103 35 27.45
	11500.00	0.00	89.67	11460.17	0.84	3.65	640.05	0.00	398449.13	771234.12	N 32 5 35.67 W	103 35 27.45
	11600.00	0.00	89.67	11560.17	0.84	3.65	640.05	0.00	398449.13	771234.12	N 32 5 35.67 W	103 35 27.45
	11700.00	0.00	89.67	11660.17	0.84	3.65	640.05	0.00	398449.13	771234.12	N 32 5 35.67 W	103 35 27.45
3rd Bone Spring Sand	11721.83	0.00	89.67	11682.00	0.84	3.65	640.05	0.00	398449.13	771234.12	N 32 5 35.67 W	103 35 27.45
	11800.00	0.00	89.67	11760.17	0.84	3.65	640.05	0.00	398449.13	771234.12	N 32 5 35.67 W	103 35 27.45

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 ° ' ")
KOP - Build 12°/100' DLS	11814.83	0.00	89.67	11775.00	0.84	3.65	640.05	0.00	398449.13	771234.12	N 32	5 35.67 W 103 35 27.45
	11900.00	10.22	179.60	11859.72	8.41	-3.92	640.10	12.00	398441.56	771234.17	N 32	5 35.59 W 103 35 27.45
	12000.00	22.22	179.60	11955.57	36.30	-31.81	640.30	12.00	398413.67	771234.37	N 32	5 35.32 W 103 35 27.45
	12100.00	34.22	179.60	12043.52	83.50	-79.01	640.63	12.00	398366.48	771234.70	N 32	5 34.85 W 103 35 27.45
	12200.00	46.22	179.60	12119.74	147.95	-143.46	641.08	12.00	398302.02	771235.15	N 32	5 34.21 W 103 35 27.45
Wolfcamp	12207.67	47.14	179.60	12125.00	153.54	-149.04	641.12	12.00	398296.44	771235.19	N 32	5 34.16 W 103 35 27.45
	12300.00	58.22	179.60	12180.89	226.85	-222.35	641.63	12.00	398223.14	771235.70	N 32	5 33.43 W 103 35 27.45
	12400.00	70.22	179.60	12224.30	316.73	-312.23	642.27	12.00	398133.26	771236.33	N 32	5 32.54 W 103 35 27.45
Build 4°/100' DLS	12439.83	75.00	179.60	12236.20	354.73	-350.23	642.53	12.00	398095.27	771236.60	N 32	5 32.17 W 103 35 27.45
	12500.00	77.41	179.60	12250.54	413.16	-408.66	642.94	4.00	398036.83	771237.01	N 32	5 31.59 W 103 35 27.45
Wolfcamp Y Sand	12521.13	78.25	179.60	12255.00	433.82	-429.32	643.09	4.00	398016.18	771237.16	N 32	5 31.38 W 103 35 27.45
	12600.00	81.41	179.60	12268.92	511.44	-506.93	643.63	4.00	397938.56	771237.70	N 32	5 30.61 W 103 35 27.45
	12700.00	85.41	179.60	12280.40	610.75	-606.25	644.33	4.00	397839.25	771238.40	N 32	5 29.63 W 103 35 27.45
	12800.00	89.41	179.60	12284.93	710.63	-706.12	645.03	4.00	397739.38	771239.10	N 32	5 28.64 W 103 35 27.45
Wolfcamp Y SS Target	12811.77	89.88	179.60	12285.00	722.40	-717.89	645.11	4.00	397727.62	771239.18	N 32	5 28.53 W 103 35 27.45
Wolfcamp Y SS Target	12817.89	90.12	179.60	12285.00	728.52	-724.01	645.15	4.00	397721.49	771239.22	N 32	5 28.47 W 103 35 27.45
Landing Point	12900.00	90.12	179.60	12284.82	810.63	-806.12	645.73	0.00	397639.39	771239.80	N 32	5 27.65 W 103 35 27.45
	13000.00	90.12	179.60	12284.61	910.63	-906.12	646.43	0.00	397539.39	771240.50	N 32	5 26.66 W 103 35 27.45
	13100.00	90.12	179.60	12284.40	1010.63	-1006.12	647.13	0.00	397439.40	771241.20	N 32	5 25.67 W 103 35 27.45
	13200.00	90.12	179.60	12284.18	1110.63	-1106.11	647.84	0.00	397339.40	771241.90	N 32	5 24.69 W 103 35 27.45
	13300.00	90.12	179.60	12283.97	1210.63	-1206.11	648.54	0.00	397239.41	771242.61	N 32	5 23.70 W 103 35 27.45
	13400.00	90.12	179.60	12283.75	1310.63	-1306.11	649.24	0.00	397139.42	771243.31	N 32	5 22.71 W 103 35 27.45
	13500.00	90.12	179.60	12283.54	1410.63	-1406.10	649.94	0.00	397039.42	771244.01	N 32	5 21.72 W 103 35 27.45
	13600.00	90.12	179.60	12283.33	1510.63	-1506.10	650.64	0.00	396939.43	771244.71	N 32	5 20.73 W 103 35 27.45
	13700.00	90.12	179.60	12283.11	1610.63	-1606.10	651.34	0.00	396839.43	771245.41	N 32	5 19.74 W 103 35 27.45
	13800.00	90.12	179.60	12282.90	1710.63	-1706.10	652.05	0.00	396739.44	771246.11	N 32	5 18.75 W 103 35 27.45
	13900.00	90.12	179.60	12282.68	1810.63	-1806.09	652.75	0.00	396639.45	771246.82	N 32	5 17.76 W 103 35 27.45
	14000.00	90.12	179.60	12282.47	1910.63	-1906.09	653.45	0.00	396539.45	771247.52	N 32	5 16.77 W 103 35 27.45
	14100.00	90.12	179.60	12282.25	2010.63	-2006.09	654.15	0.00	396439.46	771248.22	N 32	5 15.78 W 103 35 27.45
	14200.00	90.12	179.60	12282.04	2110.63	-2106.09	654.85	0.00	396339.46	771248.92	N 32	5 14.79 W 103 35 27.45
	14300.00	90.12	179.60	12281.83	2210.63	-2206.08	655.55	0.00	396239.47	771249.62	N 32	5 13.80 W 103 35 27.45
	14400.00	90.12	179.60	12281.61	2310.63	-2306.08	656.26	0.00	396139.48	771250.32	N 32	5 12.81 W 103 35 27.45
	14500.00	90.12	179.60	12281.40	2410.63	-2406.08	656.96	0.00	396039.48	771251.03	N 32	5 11.82 W 103 35 27.45
	14600.00	90.12	179.60	12281.18	2510.63	-2506.07	657.66	0.00	395939.49	771251.73	N 32	5 10.83 W 103 35 27.45
	14700.00	90.12	179.60	12280.97	2610.63	-2606.07	658.36	0.00	395839.49	771252.43	N 32	5 9.84 W 103 35 27.45
	14800.00	90.12	179.60	12280.76	2710.63	-2706.07	659.06	0.00	395739.50	771253.13	N 32	5 8.85 W 103 35 27.45
	14900.00	90.12	179.60	12280.54	2810.63	-2806.07	659.76	0.00	395639.51	771253.83	N 32	5 7.86 W 103 35 27.45
	15000.00	90.12	179.60	12280.33	2910.63	-2906.06	660.47	0.00	395539.51	771254.53	N 32	5 6.87 W 103 35 27.45
	15100.00	90.12	179.60	12280.11	3010.63	-3006.06	661.17	0.00	395439.52	771255.24	N 32	5 5.88 W 103 35 27.45
	15200.00	90.12	179.60	12279.90	3110.63	-3106.06	661.87	0.00	395339.52	771255.94	N 32	5 4.89 W 103 35 27.45
	15300.00	90.12	179.60	12279.69	3210.63	-3206.06	662.57	0.00	395239.53	771256.64	N 32	5 3.90 W 103 35 27.45
	15400.00	90.12	179.60	12279.47	3310.63	-3306.05	663.27	0.00	395139.53	771257.34	N 32	5 2.92 W 103 35 27.45
	15500.00	90.12	179.60	12279.26	3410.63	-3406.05	663.97	0.00	395039.54	771258.04	N 32	5 1.93 W 103 35 27.45
	15600.00	90.12	179.60	12279.04	3510.63	-3506.05	664.68	0.00	394939.55	771258.74	N 32	5 0.94 W 103 35 27.45
	15700.00	90.12	179.60	12278.83	3610.62	-3606.05	665.38	0.00	394839.55	771259.45	N 32	4 59.95 W 103 35 27.45
	15800.00	90.12	179.60	12278.61	3710.62	-3706.04	666.08	0.00	394739.56	771260.15	N 32	4 58.96 W 103 35 27.45
	15900.00	90.12	179.60	12278.40	3810.62	-3806.04	666.78	0.00	394639.56	771260.85	N 32	4 57.97 W 103 35 27.45
	16000.00	90.12	179.60	12278.19	3910.62	-3906.04	667.48	0.00	394539.57	771261.55	N 32	4 56.98 W 103 35 27.45
	16100.00	90.12	179.60	12277.97	4010.62	-4006.03	668.18	0.00	394439.58	771262.25	N 32	4 55.99 W 103 35 27.45
	16200.00	90.12	179.60	12277.76	4110.62	-4106.03	668.89	0.00	394339.58	771262.95	N 32	4 55.00 W 103 35 27.45
	16300.00	90.12	179.60	12277.54	4210.62	-4206.03	669.59	0.00	394239.59	771263.65	N 32	4 54.01 W 103 35 27.45
	16400.00	90.12	179.60	12277.33	4310.62	-4306.03	670.29	0.00	394139.59	771264.36	N 32	4 53.02 W 103 35 27.45
	16500.00	90.12	179.60	12277.12	4410.62	-4406.02	670.99	0.00	394039.60	771265.06	N 32	4 52.03 W 103 35 27.45

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 ° ' ")
Private Leaseline Crossing	16600.00	90.12	179.60	12276.90	4510.62	-4506.02	671.69	0.00	393939.61	771265.76	N 32 4 51.04 W	103 35 27.45
	16700.00	90.12	179.60	12276.69	4610.62	-4606.02	672.39	0.00	393839.61	771266.46	N 32 4 50.05 W	103 35 27.45
	16800.00	90.12	179.60	12276.47	4710.62	-4706.02	673.10	0.00	393739.62	771267.16	N 32 4 49.06 W	103 35 27.45
	16900.00	90.12	179.60	12276.26	4810.62	-4806.01	673.80	0.00	393639.62	771267.86	N 32 4 48.07 W	103 35 27.45
	16980.70	90.12	179.60	12276.09	4891.32	-4886.71	674.36	0.00	393558.93	771268.43	N 32 4 47.27 W	103 35 27.45
	17000.00	90.12	179.60	12276.05	4910.62	-4906.01	674.50	0.00	393539.63	771268.57	N 32 4 47.08 W	103 35 27.45
	17100.00	90.12	179.60	12275.83	5010.62	-5006.01	675.20	0.00	393439.64	771269.27	N 32 4 46.09 W	103 35 27.45
	17200.00	90.12	179.60	12275.62	5110.62	-5106.00	675.90	0.00	393339.64	771269.97	N 32 4 45.10 W	103 35 27.45
	17300.00	90.12	179.60	12275.40	5210.62	-5206.00	676.60	0.00	393239.65	771270.67	N 32 4 44.11 W	103 35 27.45
	17400.00	90.12	179.60	12275.19	5310.62	-5306.00	677.30	0.00	393139.65	771271.37	N 32 4 43.12 W	103 35 27.45
	17500.00	90.12	179.60	12274.97	5410.62	-5406.00	678.01	0.00	393039.66	771272.07	N 32 4 42.14 W	103 35 27.45
	17600.00	90.12	179.60	12274.76	5510.62	-5505.99	678.71	0.00	392939.67	771272.78	N 32 4 41.15 W	103 35 27.45
	17700.00	90.12	179.60	12274.55	5610.62	-5605.99	679.41	0.00	392839.67	771273.48	N 32 4 40.16 W	103 35 27.45
	17800.00	90.12	179.60	12274.33	5710.62	-5705.99	680.11	0.00	392739.68	771274.18	N 32 4 39.17 W	103 35 27.45
	17900.00	90.12	179.60	12274.12	5810.62	-5805.99	680.81	0.00	392639.68	771274.88	N 32 4 38.18 W	103 35 27.45
	18000.00	90.12	179.60	12273.90	5910.62	-5905.98	681.51	0.00	392539.69	771275.58	N 32 4 37.19 W	103 35 27.45
	18100.00	90.12	179.60	12273.69	6010.62	-6005.98	682.22	0.00	392439.70	771276.28	N 32 4 36.20 W	103 35 27.45
	18200.00	90.12	179.60	12273.48	6110.62	-6105.98	682.92	0.00	392339.70	771276.99	N 32 4 35.21 W	103 35 27.45
	18300.00	90.12	179.60	12273.26	6210.62	-6205.98	683.62	0.00	392239.71	771277.69	N 32 4 34.22 W	103 35 27.45
Private - NMNM0106040 4 Crossing	18301.80	90.12	179.60	12273.26	6212.42	-6207.78	683.63	0.00	392237.91	771277.70	N 32 4 34.20 W	103 35 27.45
NMNM0106040 4 - NMNM0160973 Crossing	18400.00	90.12	179.60	12273.05	6310.62	-6305.97	684.32	0.00	392139.71	771278.39	N 32 4 33.23 W	103 35 27.44
	18500.00	90.12	179.60	12272.83	6410.62	-6405.97	685.02	0.00	392039.72	771279.09	N 32 4 32.24 W	103 35 27.44
	18600.00	90.12	179.60	12272.62	6510.62	-6505.97	685.72	0.00	391939.73	771279.79	N 32 4 31.25 W	103 35 27.44
	18700.00	90.12	179.60	12272.41	6610.62	-6605.96	686.43	0.00	391839.73	771280.49	N 32 4 30.26 W	103 35 27.44
	18800.00	90.12	179.60	12272.19	6710.62	-6705.96	687.13	0.00	391739.74	771281.20	N 32 4 29.27 W	103 35 27.44
	18900.00	90.12	179.60	12271.98	6810.62	-6805.96	687.83	0.00	391639.74	771281.90	N 32 4 28.28 W	103 35 27.44
	19000.00	90.12	179.60	12271.76	6910.62	-6905.96	688.53	0.00	391539.75	771282.60	N 32 4 27.29 W	103 35 27.44
	19100.00	90.12	179.60	12271.55	7010.62	-7005.95	689.23	0.00	391439.76	771283.30	N 32 4 26.30 W	103 35 27.44
	19200.00	90.12	179.60	12271.33	7110.62	-7105.95	689.93	0.00	391339.76	771284.00	N 32 4 25.31 W	103 35 27.44
	19300.00	90.12	179.60	12271.12	7210.62	-7205.95	690.64	0.00	391239.77	771284.70	N 32 4 24.32 W	103 35 27.44
	19400.00	90.12	179.60	12270.91	7310.62	-7305.95	691.34	0.00	391139.77	771285.41	N 32 4 23.33 W	103 35 27.44
	19500.00	90.12	179.60	12270.69	7410.62	-7405.94	692.04	0.00	391039.78	771286.11	N 32 4 22.34 W	103 35 27.44
	19600.00	90.12	179.60	12270.48	7510.62	-7505.94	692.74	0.00	390939.79	771286.81	N 32 4 21.35 W	103 35 27.44
	19623.00	90.12	179.60	12270.43	7533.62	-7528.94	692.90	0.00	390916.79	771286.97	N 32 4 21.13 W	103 35 27.44
	19700.00	90.12	179.60	12270.26	7610.62	-7605.94	693.44	0.00	390839.79	771287.51	N 32 4 20.37 W	103 35 27.44
	19800.00	90.12	179.60	12270.05	7710.62	-7705.93	694.14	0.00	390739.80	771288.21	N 32 4 19.38 W	103 35 27.44
	19900.00	90.12	179.60	12269.84	7810.62	-7805.93	694.85	0.00	390639.80	771288.91	N 32 4 18.39 W	103 35 27.44
	20000.00	90.12	179.60	12269.62	7910.61	-7905.93	695.55	0.00	390539.81	771289.62	N 32 4 17.40 W	103 35 27.44
	20100.00	90.12	179.60	12269.41	8010.61	-8005.93	696.25	0.00	390439.82	771290.32	N 32 4 16.41 W	103 35 27.44
	20200.00	90.12	179.60	12269.19	8110.61	-8105.92	696.95	0.00	390339.82	771291.02	N 32 4 15.42 W	103 35 27.44
	20300.00	90.12	179.60	12268.98	8210.61	-8205.92	697.65	0.00	390239.83	771291.72	N 32 4 14.43 W	103 35 27.44
	20400.00	90.12	179.60	12268.77	8310.61	-8305.92	698.35	0.00	390139.83	771292.42	N 32 4 13.44 W	103 35 27.44
	20500.00	90.12	179.60	12268.55	8410.61	-8405.92	699.06	0.00	390039.84	771293.12	N 32 4 12.45 W	103 35 27.44
	20600.00	90.12	179.60	12268.34	8510.61	-8505.91	699.76	0.00	389939.84	771293.82	N 32 4 11.46 W	103 35 27.44
	20700.00	90.12	179.60	12268.12	8610.61	-8605.91	700.46	0.00	389839.85	771294.53	N 32 4 10.47 W	103 35 27.44
	20800.00	90.12	179.60	12267.91	8710.61	-8705.91	701.16	0.00	389739.86	771295.23	N 32 4 9.48 W	103 35 27.44
	20900.00	90.12	179.60	12267.69	8810.61	-8805.91	701.86	0.00	389639.86	771295.93	N 32 4 8.49 W	103 35 27.44
	21000.00	90.12	179.60	12267.48	8910.61	-8905.90	702.56	0.00	389539.87	771296.63	N 32 4 7.50 W	103 35 27.44
	21100.00	90.12	179.60	12267.27	9010.61	-9005.90	703.27	0.00	389439.87	771297.33	N 32 4 6.51 W	103 35 27.44
	21200.00	90.12	179.60	12267.05	9110.61	-9105.90	703.97	0.00	389339.88	771298.03	N 32 4 5.52 W	103 35 27.44
	21300.00	90.12	179.60	12266.84	9210.61	-9205.89	704.67	0.00	389239.89	771298.74	N 32 4 4.53 W	103 35 27.44
	21400.00	90.12	179.60	12266.62	9310.61	-9305.89	705.37	0.00	389139.89	771299.44	N 32 4 3.54 W	103 35 27.44

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 ° ' ")	
	21500.00	90.12	179.60	12266.41	9410.61	-9405.89	706.07	0.00	389039.90	771300.14	N 32 4	2.55 W	103 35 27.44	
	21600.00	90.12	179.60	12266.20	9510.61	-9505.89	706.77	0.00	388939.90	771300.84	N 32 4	1.56 W	103 35 27.44	
	21700.00	90.12	179.60	12265.98	9610.61	-9605.88	707.48	0.00	388839.91	771301.54	N 32 4	0.57 W	103 35 27.44	
	21800.00	90.12	179.60	12265.77	9710.61	-9705.88	708.18	0.00	388739.92	771302.24	N 32 3	59.59 W	103 35 27.44	
	21900.00	90.12	179.60	12265.55	9810.61	-9805.88	708.88	0.00	388639.92	771302.95	N 32 3	58.60 W	103 35 27.44	
	22000.00	90.12	179.60	12265.34	9910.61	-9905.88	709.58	0.00	388539.93	771303.65	N 32 3	57.61 W	103 35 27.44	
	22100.00	90.12	179.60	12265.13	10010.61	-10005.87	710.28	0.00	388439.93	771304.35	N 32 3	56.62 W	103 35 27.44	
Cimarex Red Hills 32-5 Fed Com #169H - PBHL [100' FSL, 1605' FEL]	22158.52	90.12	179.60	12265.00	10069.13	-10064.39	710.69	0.00	388381.42	771304.76	N 32 3	56.04 W	103 35 27.44	

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	17.500	13.375		NAL_MWD_IFR1+MS-Depth Only	Red Hills 32-5 Fed Com #169H / Cimarex Red Hills 32-5 Fed Com #169H Rev0 RM 04Sept19
	1	26.000	22158.518	1/100.000	17.500	13.375		NAL_MWD_IFR1+MS	Red Hills 32-5 Fed Com #169H / Cimarex Red Hills 32-5 Fed Com



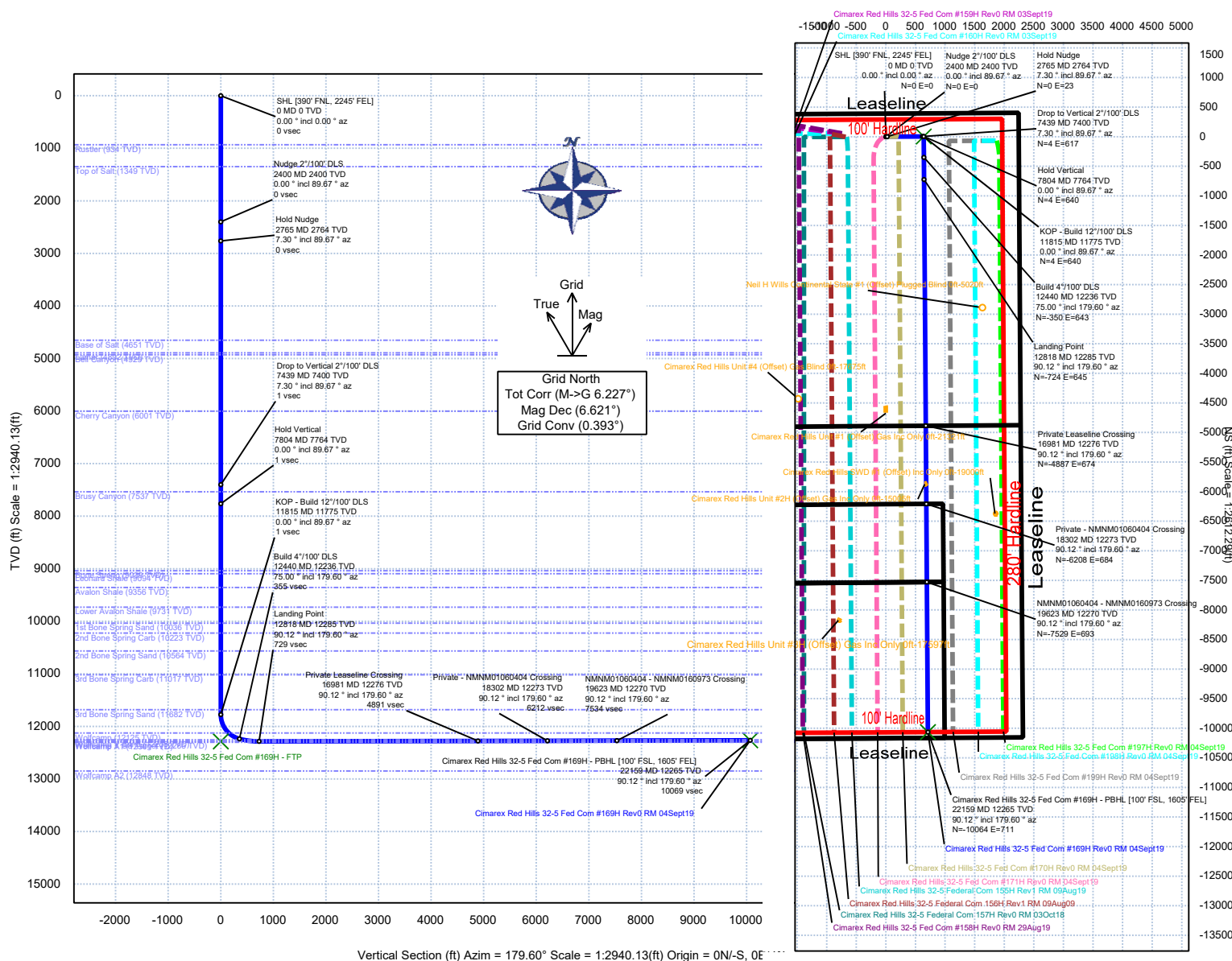
Cimarex Energy

Rev 0



Borehole: Red Hills 32-5 Fed Com #169H				Well: Red Hills 32-5 Fed Com #169H				Field: NM Lea County (NAD 83)				Structure: Cimarex Red Hills 32-5 Fed Com #169H											
Gravity & Magnetic Parameters								Surface Location NAD83 New Mexico State Plane, Eastern Zone, US Feet								Miscellaneous							
Model: HDGM 2019		Dip: 59.69°		Date: 03-Sep-2019				Lat: N 32 5 35.67		Northing: 398445.48RUS		Grid Conv: 0.3933°		Slot: New Slot		TVD Ref: RKB(3435.9ft above MSL)							
MagDec: 6.621°		FS: 47728.211nT		Gravity FS: 998.429mgm (9.80665 Based)				Lon: W 103 35 34.89		Easting: 770594.09RUS		Scale Fact: 0.9996929		Plan: Cimarex Red Hills 32-5 Fed Com #169H Rev0 RM 04Sept19									

EW (ft) Scale = 1:2612.29(ft)



Vertical Section (ft) Azim = 179.60° Scale = 1:2940.13(ft) Origin = 0N/-S, 0E/...

Critical Point	MD	INCL	AZIM	TVD	VSEC	N(+)/S(-)	E(+)/W(-)	DLS
SHL [390° FNL, 2245° FEL]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rustler	934.00	0.00	89.67	934.00	0.00	0.00	0.00	0.00
Top of Salt	1349.00	0.00	89.67	1349.00	0.00	0.00	0.00	0.00
Nudge 2°/100' DLS	2400.00	0.00	89.67	2400.00	0.00	0.00	0.00	0.00
Hold Nudge	2764.85	7.30	89.67	2763.86	0.03	0.13	23.20	0.00
Base of Salt	4667.39	7.30	89.67	4651.00	0.35	1.51	264.84	0.00
Lamar	4910.36	7.30	89.67	4892.00	0.39	1.69	295.70	0.00
Bell Canyon	4947.66	7.30	89.67	4929.00	0.39	1.71	300.44	0.00
Cherry Canyon	6028.42	7.30	89.67	6001.00	0.57	2.50	437.71	0.00
Drop to Vertical 2°/100' DLS	7438.64	7.30	89.67	7400.00	0.81	3.52	616.85	0.00
Brushy Canyon	7576.59	4.54	89.67	7537.00	0.83	3.60	631.05	2.00
Hold Vertical	7803.69	0.00	89.67	7763.86	0.84	3.65	640.05	2.00
Bone Spring	9078.83	0.00	89.67	9039.00	0.84	3.65	640.05	0.00
Leonard Shale	9133.83	0.00	89.67	9094.00	0.84	3.65	640.05	0.00
Avalon Shale	9395.83	0.00	89.67	9356.00	0.84	3.65	640.05	0.00
Lower Avalon Shale	9770.83	0.00	89.67	9731.00	0.84	3.65	640.05	0.00
1st Bone Spring Sand	10075.83	0.00	89.67	10036.00	0.84	3.65	640.05	0.00
2nd Bone Spring Carb	10262.83	0.00	89.67	10223.00	0.84	3.65	640.05	0.00
2nd Bone Spring Sand	10603.83	0.00	89.67	10564.00	0.84	3.65	640.05	0.00
3rd Bone Spring Carb	11056.83	0.00	89.67	11017.00	0.84	3.65	640.05	0.00
3rd Bone Spring Sand	11721.83	0.00	89.67	11682.00	0.84	3.65	640.05	0.00
KOP - Build 12°/100' DLS	11814.83	0.00	89.67	11775.00	0.84	3.65	640.05	0.00
Wolfcamp	12207.67	47.14	179.60	12125.00	153.54	-149.04	641.12	12.00
Build 4°/100' DLS	12439.83	75.00	179.60	12236.00	354.73	-350.23	642.53	12.00
Wolfcamp Y Sand	12521.13	78.25	179.60	12255.00	433.82	-429.32	643.09	4.00
Wolfcamp Y SS Target	12811.77	89.88	179.60	12285.00	722.40	-717.89	645.11	4.00
Wolfcamp Y SS Target	12817.89	90.12	179.60	12285.00	728.52	-724.01	645.15	4.00
Landing Point	12817.89	90.12	179.60	12285.00	728.52	-724.01	645.15	4.00
Private Lease Crossing	16980.70	90.12	179.60	12276.00	4891.32	-4886.71	674.36	0.00
Private - NMNM01060404 Crossing	18301.80	90.12	179.60	12273.26	6212.42	-6207.78	683.63	0.00
NMNM01060404 - NMNM0160973 Crossing	19623.00	90.12	179.60	12270.43	7533.62	-7528.94	692.90	0.00
Cimarex Red Hills 32-5 Fed Com #169H - PBHL [100° FSL, 1605° FEL]	22158.52	90.12	179.60	12265.00	10069.13	-10064.39	710.69	0.00
Wolfcamp A2	NA	NA	NA	12848.00	NA	NA	NA	NA
Wolfcamp A1	NA	NA	NA	12301.00	NA	NA	NA	NA

PECOS DISTRICT DRILLING CONDITIONS OF APPROVAL

OPERATOR'S NAME:	Cimarex
LEASE NO.:	NMNM016040A
LOCATION:	Section 32, T.25 S., R.33 E., NMPM
COUNTY:	Lea County, New Mexico

WELL NAME & NO.:	Red Hills 32-5 Fed Com 169H
SURFACE HOLE FOOTAGE:	390'/N & 2245'/E
BOTTOM HOLE FOOTAGE:	100'/S & 1605'/E

COA

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

A. HYDROGEN SULFIDE

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

B. CASING

1. The **10-3/4** inch surface casing shall be set at approximately **1000** feet (a minimum of **25 feet (Lea County)** into the Rustler Anhydrite and above the salt) and cemented to the surface.
 - a. If cement does not circulate to the surface, the appropriate BLM office shall be notified and a temperature survey utilizing an electronic type temperature survey with surface log readout will be used or a cement bond log shall be run to verify the top of the cement. Temperature survey will be run a minimum of six hours after pumping cement and ideally between 8-10 hours after completing the cement job.
 - b. Wait on cement (WOC) time for a primary cement job will be a minimum of **8**

hours or 500 pounds compressive strength, whichever is greater. (This is to include the lead cement)

- c. Wait on cement (WOC) time for a remedial job will be a minimum of 4 hours after bringing cement to surface or 500 pounds compressive strength, whichever is greater.
- d. If cement falls back, remedial cementing will be done prior to drilling out that string.

Intermediate casing must be kept 1/3rd fluid filled to meet BLM minimum collapse requirement.

2. The minimum required fill of cement behind the 7-5/8 inch intermediate casing is:
 - Cement to surface. If cement does not circulate see B.1.a, c-d above.

Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry due to cave/karst or potash.

3. The minimum required fill of cement behind the 5-1/2 inch production casing is:
 - Cement should tie-back at least **200 feet** into previous casing string. Operator shall provide method of verification.

C. PRESSURE CONTROL

1. **Variance approved to use flex line from BOP to choke manifold. Manufacturer's specification to be readily available. No external damage to flex line. Flex line to be installed as straight as possible (no hard bends).**
2. Operator has proposed a multi-bowl wellhead assembly. This assembly will only be tested when installed on the surface casing. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be **10,000 (10M) psi. Variance is approved to use a 5000 (5M) Annular which shall be tested to 5000 (5M) psi.**
 - a. Wellhead shall be installed by manufacturer's representatives, submit documentation with subsequent sundry.
 - b. If the welding is performed by a third party, the manufacturer's representative shall monitor the temperature to verify that it does not exceed the maximum temperature of the seal.
 - c. Manufacturer representative shall install the test plug for the initial BOP test.
 - d. If the cement does not circulate and one inch operations would have been possible with a standard wellhead, the well head shall be cut off, cementing operations performed and another wellhead installed.
 - e. Whenever any seal subject to test pressure is broken, all the tests in OOGO2.III.A.2.i must be followed.

D. SPECIAL REQUIREMENT (S)**Communitization Agreement**

- The operator will submit a Communitization Agreement to the Santa Fe Office, 301 Dinosaur Trail Santa Fe, New Mexico 87508, at least 90 days before the anticipated date of first production from a well subject to a spacing order issued by the New Mexico Oil Conservation Division. The Communitization Agreement will include the signatures of all working interest owners in all Federal and Indian leases subject to the Communitization Agreement (i.e., operating rights owners and lessees of record), or certification that the operator has obtained the written signatures of all such owners and will make those signatures available to the BLM immediately upon request.
- If the operator does not comply with this condition of approval, the BLM may take enforcement actions that include, but are not limited to, those specified in 43 CFR 3163.1.
- In addition, the well sign shall include the surface and bottom hole lease numbers. When the Communitization Agreement number is known, it shall also be on the sign.

GENERAL REQUIREMENTS

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

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

☒ Eddy County

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

☒ Lea County

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

1. Unless the production casing has been run and cemented or the well has been properly plugged, the drilling rig shall not be removed from over the hole without prior approval.
 - a. In the event the operator has proposed to drill multiple wells utilizing a skid/walking rig. Operator shall secure the wellbore on the current well, after installing and testing the wellhead, by installing a blind flange of like pressure rating to the wellhead and a pressure gauge that can be monitored while drilling is performed on the other well(s).

- b. When the operator proposes to set surface casing with Spudder Rig
 - Notify the BLM when moving in and removing the Spudder Rig.
 - Notify the BLM when moving in the 2nd Rig. Rig to be moved in within 90 days of notification that Spudder Rig has left the location.
 - BOP/BOPE test to be conducted per Onshore Oil and Gas Order No. 2 as soon as 2nd Rig is rigged up on well.
2. Floor controls are required for 3M or Greater systems. These controls will be on the rig floor, unobstructed, readily accessible to the driller and will be operational at all times during drilling and/or completion activities. Rig floor is defined as the area immediately around the rotary table; the area immediately above the substructure on which the draw works are located, this does not include the dog house or stairway area.
3. The record of the drilling rate along with the GR/N well log run from TD to surface (horizontal well – vertical portion of hole) shall be submitted to the BLM office as well as all other logs run on the borehole 30 days from completion. If available, a digital copy of the logs is to be submitted in addition to the paper copies. The Rustler top and top and bottom of Salt are to be recorded on the Completion Report.

A. CASING

1. Changes to the approved APD casing program need prior approval if the items substituted are of lesser grade or different casing size or are Non-API. The Operator can exchange the components of the proposal with that of superior strength (i.e. changing from J-55 to N-80, or from 36# to 40#). Changes to the approved cement program need prior approval if the altered cement plan has less volume or strength or if the changes are substantial (i.e. Multistage tool, ECP, etc.). The initial wellhead installed on the well will remain on the well with spools used as needed.
2. Wait on cement (WOC) for Potash Areas: After cementing but before commencing any tests, the casing string shall stand cemented under pressure until both of the following conditions have been met: 1) cement reaches a minimum compressive strength of 500 psi for all cement blends, 2) until cement has been in place at least 24 hours. WOC time will be recorded in the driller's log. The casing integrity test can be done (prior to the cement setting up) immediately after bumping the plug.
3. Wait on cement (WOC) for Water Basin: After cementing but before commencing any tests, the casing string shall stand cemented under pressure until both of the following conditions have been met: 1) cement reaches a minimum compressive strength of 500 psi at the shoe, 2) until cement has been in place at least 8 hours. WOC time will be recorded in the driller's log. See individual casing strings for details regarding lead cement slurry requirements. The casing integrity test can be done (prior to the cement setting up) immediately after bumping the plug.

4. Provide compressive strengths including hours to reach required 500 pounds compressive strength prior to cementing each casing string. Have well specific cement details onsite prior to pumping the cement for each casing string.
5. No pea gravel permitted for remedial or fall back remedial without prior authorization from the BLM engineer.
6. On that portion of any well approved for a 5M BOPE system or greater, a pressure integrity test of each casing shoe shall be performed. Formation at the shoe shall be tested to a minimum of the mud weight equivalent anticipated to control the formation pressure to the next casing depth or at total depth of the well. This test shall be performed before drilling more than 20 feet of new hole.
7. If hardband drill pipe is rotated inside casing, returns will be monitored for metal. If metal is found in samples, drill pipe will be pulled and rubber protectors which have a larger diameter than the tool joints of the drill pipe will be installed prior to continuing drilling operations.
8. Whenever a casing string is cemented in the R-111-P potash area, the NMOCD requirements shall be followed.

B. PRESSURE CONTROL

1. All blowout preventer (BOP) and related equipment (BOPE) shall comply with well control requirements as described in Onshore Oil and Gas Order No. 2 and API RP 53 Sec. 17.
2. If a variance is approved for a flexible hose to be installed from the BOP to the choke manifold, the following requirements apply: The flex line must meet the requirements of API 16C. Check condition of flexible line from BOP to choke manifold, replace if exterior is damaged or if line fails test. Line to be as straight as possible with no hard bends and is to be anchored according to Manufacturer's requirements. The flexible hose can be exchanged with a hose of equal size and equal or greater pressure rating. Anchor requirements, specification sheet and hydrostatic pressure test certification matching the hose in service, to be onsite for review. These documents shall be posted in the company man's trailer and on the rig floor.
3. 5M or higher system requires an HCR valve, remote kill line and annular to match. The remote kill line is to be installed prior to testing the system and tested to stack pressure.
4. If the operator has proposed a multi-bowl wellhead assembly in the APD. The following requirements must be met:
 - a. Wellhead shall be installed by manufacturer's representatives, submit documentation with subsequent sundry.

- b. If the welding is performed by a third party, the manufacturer's representative shall monitor the temperature to verify that it does not exceed the maximum temperature of the seal.
 - c. Manufacturer representative shall install the test plug for the initial BOP test.
 - d. Whenever any seal subject to test pressure is broken, all the tests in OOGO2.III.A.2.i must be followed.
 - e. If the cement does not circulate and one inch operations would have been possible with a standard wellhead, the well head shall be cut off, cementing operations performed and another wellhead installed.
- 5. The appropriate BLM office shall be notified a minimum of 4 hours in advance for a representative to witness the tests.
 - a. In a water basin, for all casing strings utilizing slips, these are to be set as soon as the crew and rig are ready and any fallback cement remediation has been done. The casing cut-off and BOP installation can be initiated four hours after installing the slips, which will be approximately six hours after bumping the plug. For those casing strings not using slips, the minimum wait time before cut-off is eight hours after bumping the plug. BOP/BOPE testing can begin after cut-off or once cement reaches 500 psi compressive strength (including lead when specified), whichever is greater. However, if the float does not hold, cut-off cannot be initiated until cement reaches 500 psi compressive strength (including lead when specified).
 - b. In potash areas, for all casing strings utilizing slips, these are to be set as soon as the crew and rig are ready and any fallback cement remediation has been done. For all casing strings, casing cut-off and BOP installation can be initiated at twelve hours after bumping the plug. However, **no tests** shall commence until the cement has had a minimum of 24 hours setup time, except the casing pressure test can be initiated immediately after bumping the plug (only applies to single stage cement jobs).
 - c. The tests shall be done by an independent service company utilizing a test plug not a cup or J-packer. The operator also has the option of utilizing an independent tester to test without a plug (i.e. against the casing) pursuant to Onshore Order 2 with the pressure not to exceed 70% of the burst rating for the casing. Any test against the casing must meet the WOC time for water basin (8 hours) or potash (24 hours) or 500 pounds compressive strength, whichever is greater, prior to initiating the test (see casing segment as lead cement may be critical item).
 - d. The test shall be run on a 5000 psi chart for a 2-3M BOP/BOP, on a 10000 psi chart for a 5M BOP/BOPE and on a 15000 psi chart for a 10M BOP/BOPE. If a linear chart is used, it shall be a one hour chart. A circular chart shall

have a maximum 2 hour clock. If a twelve hour or twenty-four hour chart is used, tester shall make a notation that it is run with a two hour clock.

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

C. DRILLING MUD

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

D. WASTE MATERIAL AND FLUIDS

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

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

ZS050421

**PECOS DISTRICT
SURFACE USE
CONDITIONS OF APPROVAL**

OPERATOR'S NAME:	Cimarex
LEASE NO.:	NMNM0106040A
COUNTY:	Lea

Due to a majority fee-free situation, the following mitigation measures are only required for portions of the project residing in Sec. 29 and 28, T. 25 S., R. 33 E.

Wells:

Well Pad 1

Red Hills 32-5 Fed Com 127H

Surface Hole Location: 390' FNL & 510' FWL, Section 32, T. 25 S., R. 33 E.

Bottom Hole Location: TBD

Red Hills 32-5 Fed Com 128H

Surface Hole Location: 330' FNL & 430' FWL, Section 32, T. 25 S., R. 33 E.

Bottom Hole Location: 330' FSL & 440' FWL, Section 5, T. 26 S, R 33 E.

Red Hills 32-5 Fed Com 129H

Surface Hole Location: 330' FNL & 410' FWL, Section 32, T. 25 S., R. 33 E.

Bottom Hole Location: 330' FSL & 440' FWL, Section 5, T. 26 S, R 33 E.

Red Hills 32-5 Fed Com 130H

Surface Hole Location: 390' FNL & 490' FWL, Section 32, T. 25 S., R. 33 E.

Bottom Hole Location: TBD

Red Hills 32-5 Fed Com 131H

Surface Hole Location: 390' FNL & 470' FWL, Section 32, T. 25 S., R. 33 E.

Bottom Hole Location: TBD

Red Hills 32-5 Fed Com 132H

Surface Hole Location: 330' FNL & 390' FWL, Section 32, T. 25 S., R. 33 E.

Bottom Hole Location: TBD

Red Hills 32-5 Fed Com 133H

Surface Hole Location: 330' FNL & 370' FWL, Section 32, T. 25 S., R. 33 E.

Bottom Hole Location: TBD

Red Hills 32-5 Fed Com 134H

Surface Hole Location: 270' FNL & 510' FWL, Section 32, T. 25 S., R. 33 E.

Bottom Hole Location: TBD

Red Hills 32-5 Fed Com 135H

Surface Hole Location: 270' FNL & 490' FWL, Section 32, T. 25 S., R. 33 E.

Bottom Hole Location: TBD

Red Hills 32-5 Fed Com 136H

Surface Hole Location: 270' FNL & 470' FWL, Section 32, T. 25 S., R. 33 E.

Bottom Hole Location: TBD

Red Hills 32-5 Fed Com 137H
Surface Hole Location: 210' FNL & 430' FWL, Section 32, T. 25 S., R. 33 E.
Bottom Hole Location: TBD

Red Hills 32-5 Fed Com 138H
Surface Hole Location: 210' FNL & 410' FWL, Section 32, T. 25 S., R. 33 E.
Bottom Hole Location: TBD

Red Hills 32-5 Fed Com 139H
Surface Hole Location: 210' FNL & 390' FWL, Section 32, T. 25 S., R. 33 E.
Bottom Hole Location: TBD

Red Hills 32-5 Fed Com 140H
Surface Hole Location: 210' FNL & 370' FWL, Section 32, T. 25 S., R. 33 E.
Bottom Hole Location: TBD

Well Pad 2

Red Hills 32-5 Fed Com 155H
Surface Hole Location: 390' FNL & 2385' FWL, Section 32, T. 25 S., R. 33 E.
Bottom Hole Location: TBD

Red Hills 32-5 Fed Com 156H
Surface Hole Location: 390' FNL & 2365' FWL, Section 32, T. 25 S., R. 33 E.
Bottom Hole Location: TBD

Red Hills 32-5 Fed Com 157H
Surface Hole Location: 330' FNL & 2325' FWL, Section 32, T. 25 S., R. 33 E.
Bottom Hole Location: TBD

Red Hills 32-5 Fed Com 158H
Surface Hole Location: 330' FNL & 2305' FWL, Section 32, T. 25 S., R. 33 E.
Bottom Hole Location: 100' FSL & 2305' FWL, Section 5, T. 26 S, R 33 E.

Red Hills 32-5 Fed Com 159H
Surface Hole Location: 330' FNL & 2285' FWL, Section 32, T. 25 S., R. 33 E.
Bottom Hole Location: 100' FSL & 2310' FWL, Section 5, T. 26 S, R 33 E.

Red Hills 32-5 Fed Com 160H
Surface Hole Location: 330' FNL & 2265' FWL, Section 32, T. 25 S., R. 33 E.
Bottom Hole Location: 100' FSL & 440' FWL, Section 5, T. 26 S, R 33 E.

Red Hills 32-5 Fed Com 161H
Surface Hole Location: 330' FNL & 2245' FWL, Section 32, T. 25 S., R. 33 E.
Bottom Hole Location: TBD

Red Hills 32-5 Fed Com 162H
Surface Hole Location: 270' FNL & 2385' FWL, Section 32, T. 25 S., R. 33 E.
Bottom Hole Location: TBD

Red Hills 32-5 Fed Com 163H
Surface Hole Location: 270' FNL & 2365' FWL, Section 32, T. 25 S., R. 33 E.
Bottom Hole Location: TBD

Red Hills 32-5 Fed Com 164H
Surface Hole Location: 270' FNL & 2345' FWL, Section 32, T. 25 S., R. 33 E.
Bottom Hole Location: TBD

Red Hills 32-5 Fed Com 165H
Surface Hole Location: 210' FNL & 2305' FWL, Section 32, T. 25 S., R. 33 E.
Bottom Hole Location: TBD

Red Hills 32-5 Fed Com 166H
Surface Hole Location: 210' FNL & 2285' FWL, Section 32, T. 25 S., R. 33 E.
Bottom Hole Location: TBD

Red Hills 32-5 Fed Com 167H
Surface Hole Location: 210' FNL & 2265' FWL, Section 32, T. 25 S., R. 33 E.
Bottom Hole Location: TBD

Red Hills 32-5 Fed Com 168H
Surface Hole Location: 210' FNL & 2245' FWL, Section 32, T. 25 S., R. 33 E.
Bottom Hole Location: TBD

Well Pad 3

Red Hills 32-5 Fed Com 169H
Surface Hole Location: 390' FNL & 2245' FEL, Section 32, T. 25 S., R. 33 E.
Bottom Hole Location: 100' FSL & 1605' FEL, Section 5, T. 26 S, R 33 E.

Red Hills 32-5 Fed Com 170H
Surface Hole Location: 390' FNL & 2265' FEL, Section 32, T. 25 S., R. 33 E.
Bottom Hole Location: 100' FSL & 2030' FEL, Section 5, T. 26 S, R 33 E.

Red Hills 32-5 Fed Com 171H
Surface Hole Location: 390' FNL & 2285' FEL, Section 32, T. 25 S., R. 33 E.
Bottom Hole Location: 100' FSL & 2455' FEL, Section 5, T. 26 S, R 33 E.

Red Hills 32-5 Fed Com 172H
Surface Hole Location: 330' FNL & 2325' FEL, Section 32, T. 25 S., R. 33 E.
Bottom Hole Location: TBD

Red Hills 32-5 Fed Com 173H
Surface Hole Location: 330' FNL & 2345' FEL, Section 32, T. 25 S., R. 33 E.
Bottom Hole Location: TBD

Red Hills 32-5 Fed Com 174H
Surface Hole Location: 330' FNL & 2365' FEL, Section 32, T. 25 S., R. 33 E.
Bottom Hole Location: TBD

Red Hills 32-5 Fed Com 175H
Surface Hole Location: 330' FNL & 2385' FEL, Section 32, T. 25 S., R. 33 E.
Bottom Hole Location: TBD

Red Hills 32-5 Fed Com 176H
Surface Hole Location: 270' FNL & 2245' FEL, Section 32, T. 25 S., R. 33 E.
Bottom Hole Location: TBD

Red Hills 32-5 Fed Com 177H
Surface Hole Location: 270' FNL & 2265' FEL, Section 32, T. 25 S., R. 33 E.
Bottom Hole Location: TBD

Red Hills 32-5 Fed Com 178H
Surface Hole Location: 270' FNL & 2285' FEL, Section 32, T. 25 S., R. 33 E.
Bottom Hole Location: TBD

Red Hills 32-5 Fed Com 179H
Surface Hole Location: 210' FNL & 2325' FEL, Section 32, T. 25 S., R. 33 E.
Bottom Hole Location: TBD

Red Hills 32-5 Fed Com 180H
Surface Hole Location: 210' FNL & 2345' FEL, Section 32, T. 25 S., R. 33 E.
Bottom Hole Location: TBD

Red Hills 32-5 Fed Com 181H
Surface Hole Location: 210' FNL & 2365' FEL, Section 32, T. 25 S., R. 33 E.
Bottom Hole Location: TBD

Red Hills 32-5 Fed Com 182H
Surface Hole Location: 210' FNL & 2385' FEL, Section 32, T. 25 S., R. 33 E.
Bottom Hole Location: TBD

TABLE OF CONTENTS

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

- ☐ **General Provisions**
- ☐ **Permit Expiration**
- ☐ **Archaeology, Paleontology, and Historical Sites**
- ☐ **Noxious Weeds**
- ☒ **Special Requirements**
 - Cave/Karst
 - Range
 - Lesser Prairie Chicken
 - VRM IV
- ☐ **Construction**
 - Notification
 - Roads
- ☐ **Road Section Diagram**

I. GENERAL PROVISIONS

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

II. PERMIT EXPIRATION

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

III. ARCHAEOLOGICAL, PALEONTOLOGY & HISTORICAL SITES

Any cultural resource (historic or prehistoric site or object) discovered by the holder, or any person working on the holder's behalf, on public or Federal land shall be immediately reported to the Authorized Officer. The holder shall suspend all operations in the immediate area of such discovery until written authorization to proceed is issued by the Authorized Officer. An evaluation of the discovery will be made by the Authorized Officer to determine appropriate actions to prevent the loss of significant cultural or scientific values. The holder will be responsible for the cost of evaluation and any decision as to the proper mitigation measures will be made by the Authorized Officer after consulting with the holder.

OR

If the entire project is covered under the Permian Basin Programmatic Agreement (cultural resources only):

The proponent has contributed funds commensurate to the undertaking into an account for offsite mitigation. Participation in the PA serves as mitigation for the effects of this project on cultural resources. If any human skeletal remains, funerary objects, sacred objects, or objects of cultural patrimony are discovered at any time during construction, all construction activities shall halt and the BLM will be notified as soon as possible within 24 hours. Work shall not resume until a Notice to Proceed is issued by the BLM. See information below discussing NAGPRA.

If the proposed project is split between a Class III inventory and a Permian Basin Programmatic Agreement contribution, the portion of the project covered under Class III inventory should default to the first paragraph stipulations.

The holder is hereby obligated to comply with procedures established in the Native American Graves Protection and Repatriation Act (NAGPRA) to protect such cultural items as human remains, associated funerary objects, sacred objects, and objects of cultural patrimony discovered inadvertently during the course of project implementation. In the event that any of the cultural items listed above are discovered during the course of project work, the proponent shall immediately halt the disturbance and contact the BLM within 24 hours for instructions. The proponent or initiator of any project shall be held responsible for protecting, evaluating, reporting, excavating, treating, and disposing of these cultural items according to the procedures established by the BLM in consultation with Indian Tribes."

Any paleontological resource (historic or prehistoric site or object) discovered by the holder, or any person working on the holder's behalf, on public or Federal land shall be immediately reported to the Authorized Officer. The holder shall suspend all operations in the immediate area of such discovery until written authorization to proceed is issued by the Authorized Officer. An evaluation of the discovery will be made by the Authorized Officer to determine appropriate actions to prevent the loss of significant cultural or scientific values. The holder will be responsible for the cost of evaluation and any decision as to the proper mitigation measures will be made by the Authorized Officer after consulting with the holder.

IV. NOXIOUS WEEDS

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

SPECIAL REQUIREMENT(S)

Range:

Cattleguards

Where a permanent cattlegaurd is approved, an appropriately sized cattleguard(s) sufficient to carry out the project shall be installed and maintained at fence crossing(s). Any existing cattleguard(s) on the access road shall be repaired or replaced if they are damaged or have deteriorated beyond practical use. The operator shall be responsible for the condition of the existing cattleguard(s) that are in place and are utilized during lease operations. A gate shall be constructed on one side of the cattleguard and fastened securely to H-braces.

Fence Requirement

Where entry granted across a fence line, the fence must be braced and tied off on both sides of the passageway prior to cutting. Once the work is completed, the fence will be restored to its prior condition, or better. The operator shall notify the private surface landowner or the grazing allotment holder prior to crossing any fence(s).

Lesser Prairie Chicken:

Timing Limitation Stipulation/Condition of Approval for Lesser Prairie-Chicken:

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

Timing Limitation Exceptions:

The Carlsbad Field Office will publish an annual map of where the LPC timing and noise stipulations and conditions of approval (Limitations) will apply for the identified year (between March 1 and June 15) based on the latest survey information. The LPC Timing Area map will identify areas which are Habitat Areas (HA), Isolated Population Area (IPA), and Primary Population Area (PPA). The LPC Timing Area map will also have an area in red crosshatch. The red crosshatch area is the only area where an operator is required to submit a request for exception to the LPC Limitations. If an

operator is operating outside the red crosshatch area, the LPC Limitations do not apply for that year and an exception to LPC Limitations is not required.

Ground-level Abandoned Well Marker to avoid raptor perching:

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

VRM IV:

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

V. CONSTRUCTION

A. NOTIFICATION

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

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

B. ON LEASE ACCESS ROADS

Road Width

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

Surfacing

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

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

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

Crowning

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

Ditching

Ditching shall be required on both sides of the road.

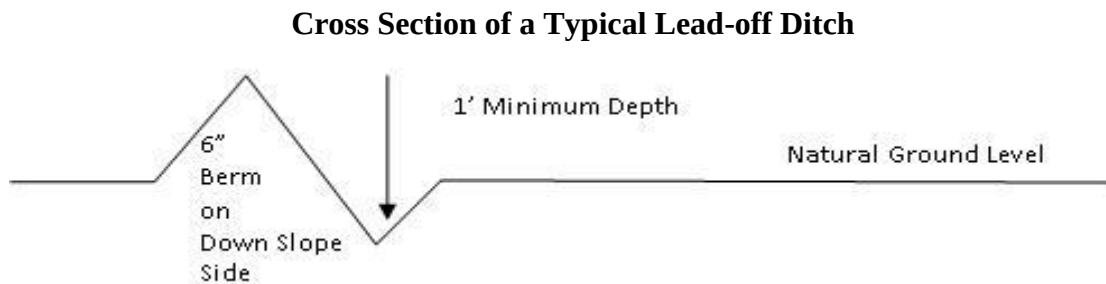
Turnouts

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

Drainage

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

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



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

Formula for Spacing Interval of Lead-off Ditches

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

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

Cattle guards

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

Fence Requirement

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

Public Access

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

Construction Steps

1. Salvage topsoil
2. Construct road

3. Redistribute topsoil
4. Revegetate slopes

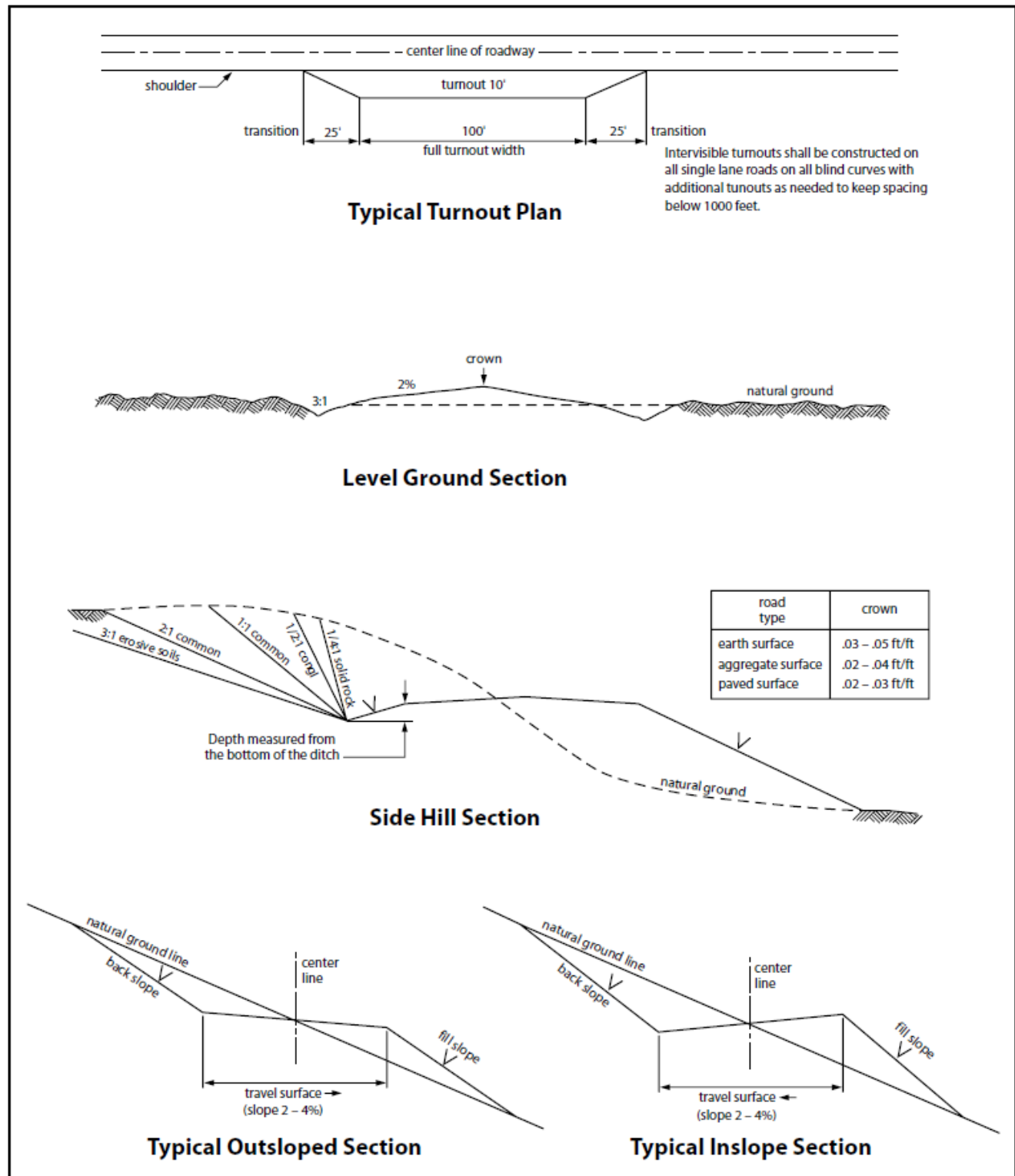


Figure 1. Cross-sections and plans for typical road sections representative of BLM resource or FS local and higher-class roads.

VI. INTERIM RECLAMATION

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

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

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

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

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

VII. FINAL ABANDONMENT & RECLAMATION

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

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

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

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

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

Seed Mixture 2, for Sandy Sites

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

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

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

Species

	<u>lb/acre</u>
Sand dropseed (<i>Sporobolus cryptandrus</i>)	1.0
Sand love grass (<i>Eragrostis trichodes</i>)	1.0
Plains bristlegrass (<i>Setaria macrostachya</i>)	2.0

*Pounds of pure live seed:

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

Seed Mixture 3, for Shallow Sites

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

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

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

<u>Species</u>	<u>lb/acre</u>
Plains Bristlegrass (<i>Setaria macrostachya</i>)	1.0
Green Sprangletop (<i>Leptochloa dubia</i>)	2.0
Sideoats Grama (<i>Bouteloua curtipendula</i>)	5.0

*Pounds of pure live seed:

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

Red Hills 32-5 Fed Com #169H

Cimarex Energy Co.

UL: B, Sec. 32, 25S, 33E

Lea Co., NM

- 1 All Company and Contract personnel admitted on location must be trained by a qualified H₂S safety instructor to the following:
 - A. Characteristics of H₂S
 - B. Physical effects and hazards
 - C. Principal and operation of H₂S detectors, warning system and briefing areas.
 - D. Evacuation procedure, routes and first aid.
 - E. Proper use of safety equipment & life support systems
 - F. Essential personnel meeting Medical Evaluation criteria will receive additional training on the proper use of 30 minute pressure demand air packs.

H₂S Detection and Alarm Systems:

 - A. H₂S sensors/detectors to be located on the drilling rig floor, in the base of the sub structure/cellar area, on the mud pits in the shale shaker area. Additional H₂S detectors may be placed as deemed necessary.
 - B. An audio alarm system will be installed on the derrick floor and in the top doghouse.
- 3 Windsock and/or wind streamers:
 - A. Windsock at mudpit area should be high enough to be visible.
 - B. Windsock on the rig floor and / or top doghouse should be high enough to be visible.
- 4 Condition Flags and Signs
 - A. Warning sign on access road to location.
 - B. Flags to be displayed on sign at entrance to location. Green flag indicates normal safe condition. Yellow flag indicates potential pressure and danger. Red flag indicates danger (H₂S present in dangerous concentration). Only H₂S trained and certified personnel admitted to location.
- 5 Well control equipment:
 - A. See exhibit "E-1"
- 6 Communication:
 - A. While working under masks chalkboards will be used for communication.
 - B. Hand signals will be used where chalk board is inappropriate.
 - C. Two way radio will be used to communicate off location in case of emergency help is required. In most cases cellular telephones will be available at most drilling foreman's trailer or living quarters.
- 7 Drillstem Testing:

No DSTs or cores are planned at this time.
- 8 Drilling contractor supervisor will be required to be familiar with the effects H₂S has on tubular goods and other mechanical equipment.
- 9 If H₂S is encountered, mud system will be altered if necessary to maintain control of formation. A mud gas separator will be brought into service along with H₂S scavengers if necessary.

H₂S Contingency Plan
Red Hills 32-5 Fed Com #169H
Cimarex Energy Co. UL: B, Sec. 32, 25S, 33E
Lea Co., NM

Emergency Procedures

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

- « Isolate the area and prevent entry by other persons into the 100 ppm ROE.
- « Evacuate any public places encompassed by the 100 ppm ROE.
- « Be equipped with H₂S monitors and air packs in order to control the release.
- « Use the "buddy system" to ensure no injuries occur during the 432-620-1975
- « Take precautions to avoid personal injury during this operation.
- « Contact operator and/or local officials to aid in operation. See list of phone numbers attached.
- « Have received training in the:
 - Detection of H₂S, and
 - Measures for protection against the gas,
 - Equipment used for protection and emergency response.

Ignition of Gas Source

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

Characteristics of H₂S and SO₂

Please see attached International Chemical Safety Cards.

Contacting Authorities

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

H₂S Contingency Plan Emergency Contacts**Red Hills 32-5 Fed Com #169H**

Cimarex Energy Co.

UL: B, Sec. 32, 25S, 33E

Lea Co., NM

Company Office

Cimarex Energy Co. of Colorado	800-969-4789
Co. Office and After-Hours Menu	

Key Personnel

Name	Title	Office	Mobile
Larry Seigrist	Drilling Manager	432-620-1934	580-243-8485
Charlie Pritchard	Drilling Superintendent	432-620-1975	432-238-7084
Roy Shirley	Construction Superintendent		432-634-2136

Artesia

Ambulance	911
State Police	575-746-2703
City Police	575-746-2703
Sheriff's Office	575-746-9888
Fire Department	575-746-2701
Local Emergency Planning Committee	575-746-2122
New Mexico Oil Conservation Division	575-748-1283

Carlsbad

Ambulance	911
State Police	575-885-3137
City Police	575-885-2111
Sheriff's Office	575-887-7551
Fire Department	575-887-3798
Local Emergency Planning Committee	575-887-6544
US Bureau of Land Management	575-887-6544

Santa Fe

New Mexico Emergency Response Commission (Santa Fe)	505-476-9600
New Mexico Emergency Response Commission (Santa Fe) 24 Hrs	505-827-9126
New Mexico State Emergency Operations Center	505-476-9635

National

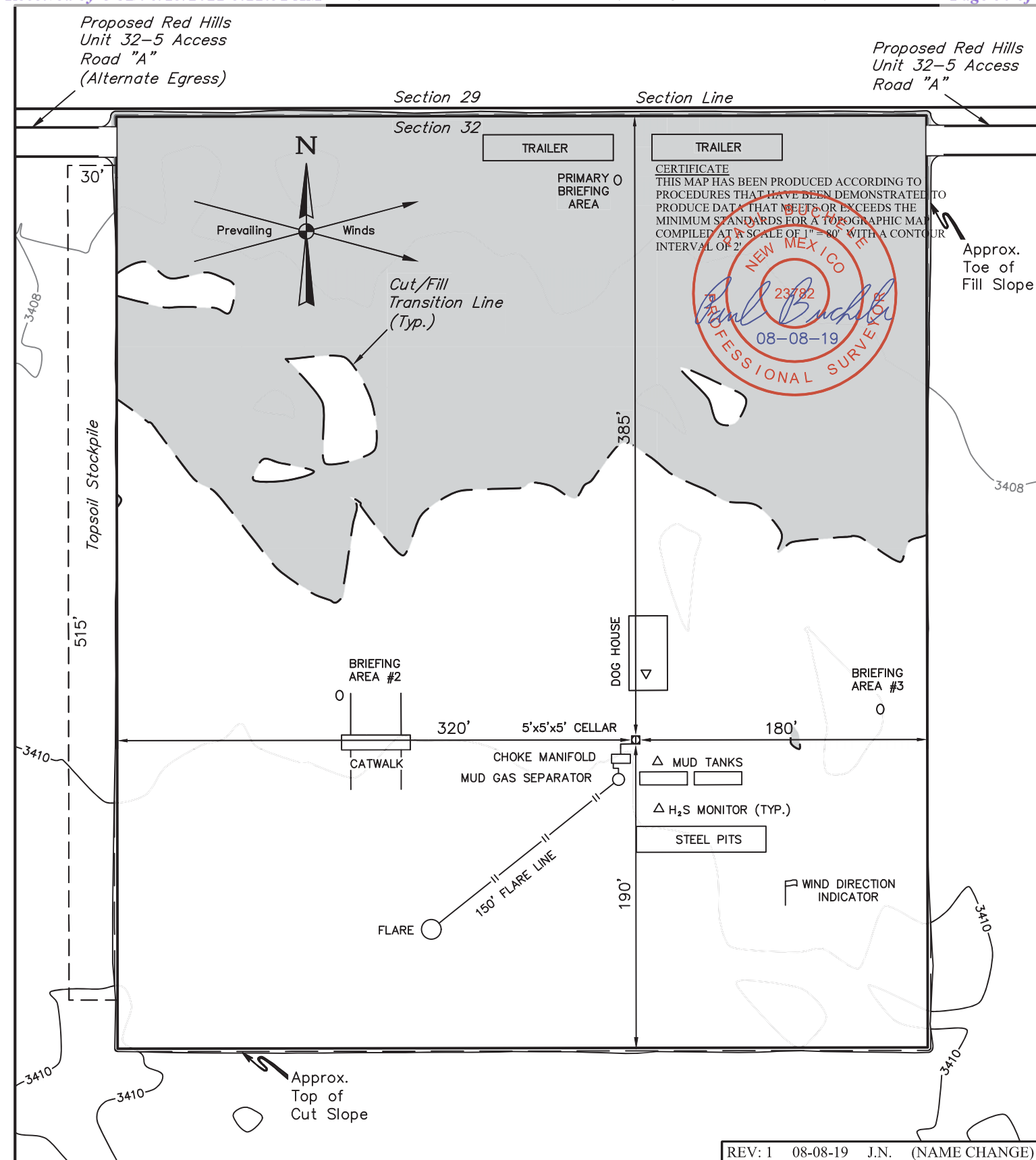
National Emergency Response Center (Washington, D.C.)	800-424-8802
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Medical

Flight for Life - 4000 24th St.; Lubbock, TX	806-743-9911
Aerocare - R3, Box 49F; Lubbock, TX	806-747-8923
Med Flight Air Amb - 2301 Yale Blvd S.E., #D3; Albuquerque, NM	505-842-4433
SB Air Med Service - 2505 Clark Carr Loop S.E.; Albuquerque, NM	505-842-4949

Other

Boots & Coots IWC	800-256-9688	or	281-931-8884
Cudd Pressure Control	432-699-0139	or	432-563-3356
Halliburton	575-746-2757		
B.J. Services	575-746-3569		



NOTES:

- Contours shown at 2' intervals.

CIMAREX ENERGY CO.

RED HILLS 32-5 FED COM 169H
390' FNL 2245' FEL
NW 1/4 NE 1/4, SECTION 32, T25S, R33E, N.M.P.M.
LEA COUNTY, NEW MEXICO

SURVEYED BY	J.J., C.H.	05-01-18	SCALE
DRAWN BY	R.J.	05-07-18	1" = 80'
Typical Rig and Closed Loop			



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

Cimarex Energy Co., Red Hills 32-5 Federal Com 169H

1. Geological Formations

TVD of target 12,265

Pilot Hole TD N/A

MD at TD 22,159

Deepest expected fresh water

Formation	Depth (TVD) from KB	Water/Mineral Bearing/Target Zone	Hazards
Rustler	934	Usable Water	
Top Salt	1394	N/A	
Base Salt	4651	N/A	
Lamar	4892	N/A	
Bell Canyon	4929	N/A	
Cherry Canyon	6001	Hydrocarbons	
Brushy Canyon	7537	Hydrocarbons	
Bone Spring	9039	Hydrocarbons	
Upper Avalon shale	9356	Hydrocarbons	
Bone Spring 1st	10036	Hydrocarbons	
Bone Spring 2nd	10223	Hydrocarbons	
Bone Spring 3rd	11017	Hydrocarbons	
Wolfcamp	12125	Hydrocarbons	

Drilling 6" hole below 7"
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

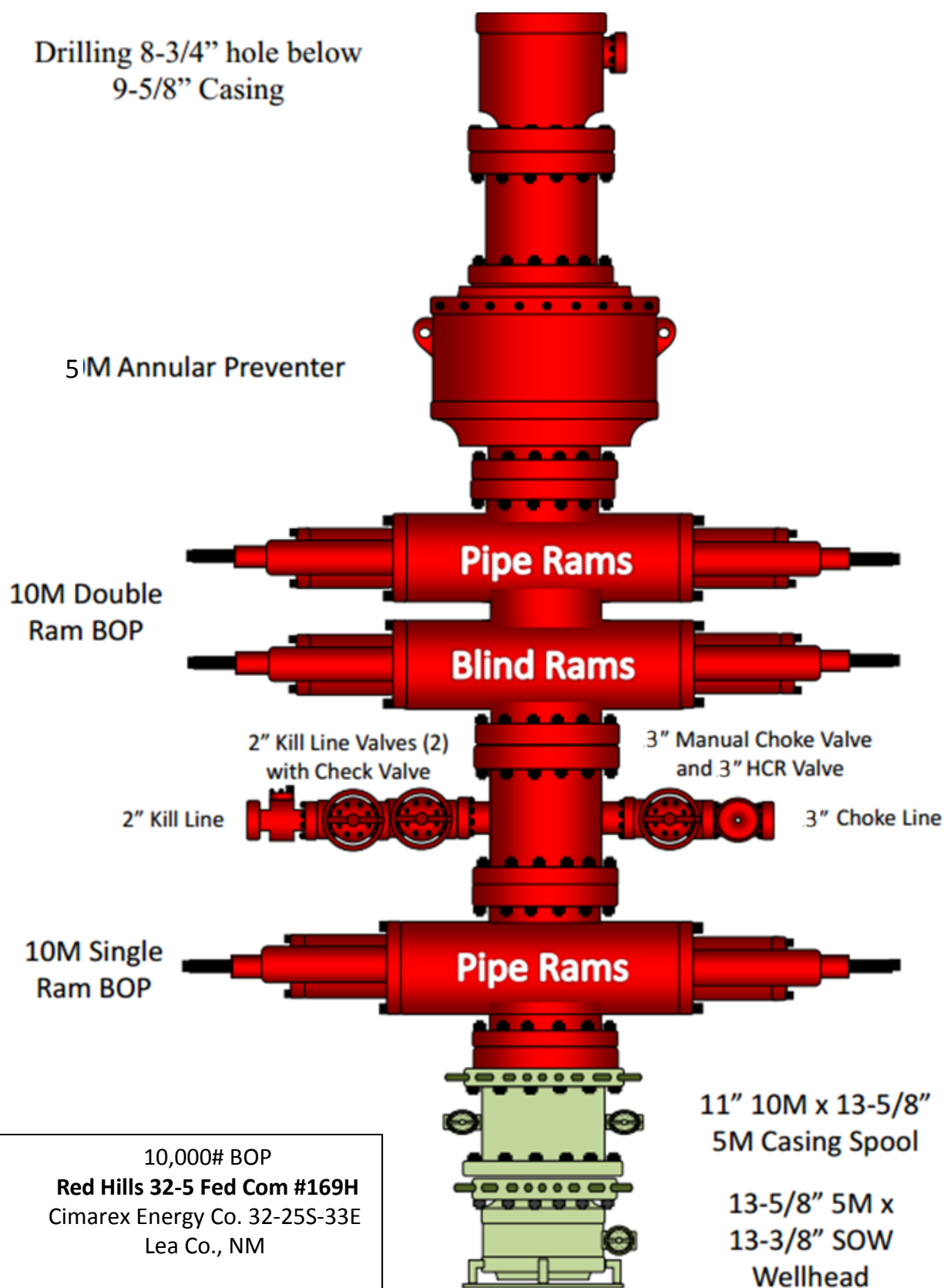
Wellhead
Assembly

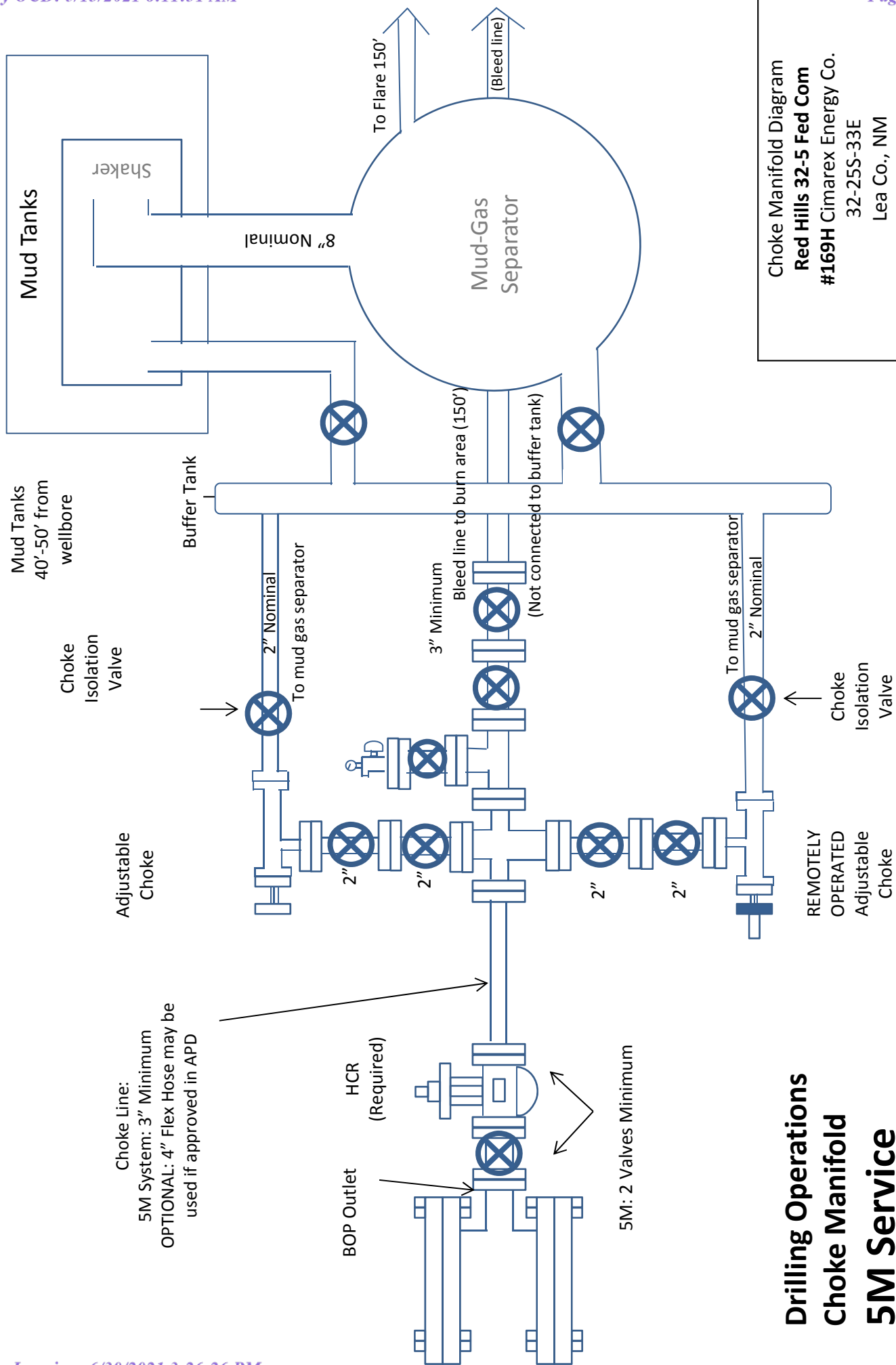
13-5/8" 3000 psi x 11" 5000 psi
Wellhead Assembly

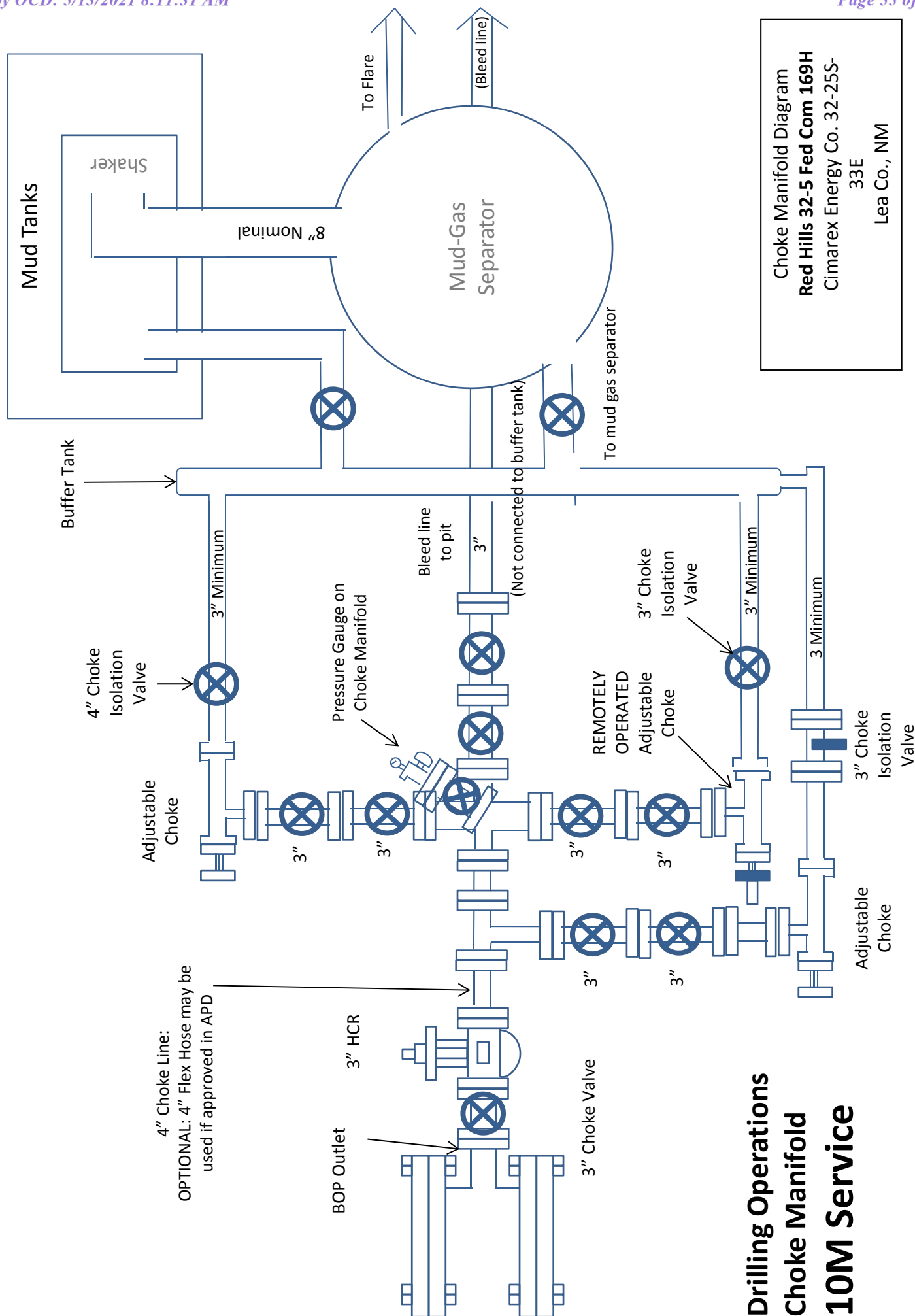
13-5/8" 3000# psi x 13-3/8" SOW Casing Head

5000# BOP

Red Hills 32-5 Fed Com #169H
Cimarex Energy Co. 32-25S-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 28036

CONDITIONS

Operator: CIMAREX ENERGY CO. OF COLORADO 600 N. Marienfeld Street Midland, TX 79701	OGRID: 162683
	Action Number: 28036
	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	6/30/2021
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	6/30/2021