

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

NM OIL CONSERVATION

ARTESIA DISTRICT

FORM APPROVED
OMB NO. 1004-0137
Expires: January 31, 2018

SUNDRY NOTICES AND REPORTS ON WELLS
Do not use this form for proposals to drill or to re-enter an abandoned well. Use form 3160-3 (APD) for such proposals.

DEC 02 2016

RECEIVED

SUBMIT IN TRIPLICATE - Other instructions on page 2

5. Lease Serial No. NMNM130859
6. If Indian, Allottee or Tribe Name
7. If Unit or CA/Agreement, Name and/or No.
8. Well Name and No. HACKBERRY 26 FEDERAL COM 1H
9. API Well No. 30-015-43856-00-X1
10. Field and Pool or Exploratory Area WILDCAT
11. County or Parish, State EDDY COUNTY, NM

1. Type of Well ☒ Oil Well ☐ Gas Well ☐ Other	
2. Name of Operator CIMAREX ENERGY COMPANY OF CO Contact: ARICKA EASTERLING E-Mail: aeasterling@cimarex.com	
3a. Address 202 S CHEYENNE AVE SUITE 1000 TULSA, OK 74103.4346	3b. Phone No. (include area code) Ph: 918-560-7060
4. Location of Well (Footage, Sec., T., R., M., or Survey Description) Sec 26 T19S R30E NENE 915FNL 1069FEL	

12. CHECK THE APPROPRIATE BOX(ES) TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

TYPE OF SUBMISSION	TYPE OF ACTION				
☒ Notice of Intent	☐ Acidize	☐ Deepen	☐ Production (Start/Resume)	☐ Water Shut-Off	
☐ Subsequent Report	☐ Alter Casing	☐ Hydraulic Fracturing	☐ Reclamation	☐ Well Integrity	
☐ Final Abandonment Notice	☐ Casing Repair	☐ New Construction	☐ Recomplete	☒ Other	
	☐ Change Plans	☐ Plug and Abandon	☐ Temporarily Abandon	Change to Original A	
	☐ Convert to Injection	☐ Plug Back	☐ Water Disposal	PD	

13. Describe Proposed or Completed Operation: Clearly state all pertinent details, including estimated starting date of any proposed work and approximate duration thereof. If the proposal is to deepen directionally or recompleat horizontally, give subsurface locations and measured and true vertical depths of all pertinent markers and zones. Attach the Bond under which the work will be performed or provide the Bond No. on file with BLM/BIA. Required subsequent reports must be filed within 30 days following completion of the involved operations. If the operation results in a multiple completion or recompleat in a new interval, a Form 3160-4 must be filed once testing has been completed. Final Abandonment Notices must be filed only after all requirements, including reclamation, have been completed and the operator has determined that the site is ready for final inspection.

Cimarex respectfully request approval to change the original drilling plan for the above referenced well. Cimarex proposes to change the BHL there by changing the directional plan. No additional surface disturbance is required.

Approved:
BHL: 680 FNL & 380 FWL Sec. 27-19S-30E
Proposed
BHL: 660 FNL & 990 FEL Sec. 28-19S-30E

Please also change the casing design as indicated below:
Surface:
Hole size: 17-1/2"
Csg size: 13-3/8

**SEE ATTACHED FOR
CONDITIONS OF APPROVAL**

Submit amended C102 to NMOC D

14. I hereby certify that the foregoing is true and correct. Electronic Submission #358835 verified by the BLM Well Information System For CIMAREX ENERGY COMPANY OF CO, sent to the Carlsbad Committed to AFMSS for processing by CHARLES NIMMER on 11/30/2016 (17CN0042SE)	
Name (Printed/Typed) ARICKA EASTERLING	Title REGULATORY ANALYST
Signature (Electronic Submission)	Date 11/22/2016

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved By <u>CHARLES NIMMER</u>	Title <u>PETROLEUM ENGINEER</u>	Date <u>11/30/2016</u>
Conditions of approval, if any, are attached. Approval of this notice 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.		
Office Carlsbad		

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.

(Instructions on page 2)

**** BLM REVISED ** BLM REVISED ** BLM REVISED ** BLM REVISED ** BLM REVISED ****

Additional data for EC transaction #358835 that would not fit on the form

32. Additional remarks, continued

Weight: 54.5
Grade: J-55
Conn: ST&C
Set Depth: 1930'

Intermediate:
Hole size: 12-1/4"
Csg size: 9-5/8"
Weight: 36
Grade: L-80
Conn: BT&C
Set Depth: 3475'

Production
Hole size: 8-3/4"
Csg size: 5-1/2"
Weight: 17
Grade: L-80
Conn: LT&C / BT&C
Set Depth: 18803'

Please see the attached drilling plan for changes to cement design and other wellbore changes.

1. Geological Formations*See COA*

TVD of target 8,550

Pilot Hole TD N/A

MD at TD 18,803

Deepest expected fresh water

Formation	Depth (TVD) from KB	Water/Mineral Bearing/Target Zone	Hazards
Rustler	270	N/A	
Top of Salt	580	N/A	
Base of Salt	1650	N/A	
Yates	1700	N/A	
Seven Rivers	1910	N/A	
Delaware Sands	3500	N/A	
Cherry Canyon	3870	N/A	
Brushy Canyon	4795	N/A	
Bone Spring	6240	Hydrocarbons	
1st BSS	7600	Hydrocarbons	
2nd BSS	8400	Hydrocarbons	
2nd Bone Spring SS	8550	Hydrocarbons	
3rd Carb	8800	N/A	
Wolfcamp	9850	Hydrocarbons	

2. Casing Program

Hole Size	Casing Depth From	Casing Depth To	Casing Size	Weight (lb/ft)	Grade	Conn.	SF Collapse	SF Burst	SF Tension
26	0	350 300	20"	94.00	J-55	BT&C	3.79	15.37	49.72
17 1/2	0	1930	13-3/8"	54.50	J-55	ST&C	1.86	2.70	4.89
12 1/4	0	3475	9-5/8"	36.00	J-55	LT&C	1.27	2.21	3.62
8 3/4	0	8016	5-1/2"	17.00	L-80	LT&C	1.64	2.02	2.33
8 3/4	8016	18803	5-1/2"	17.00	L-80	BT&C	1.54	1.89	43.73
BLM Minimum Safety Factor							1.125	1	1.6 Dry 1.8 Wet

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

	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?	N
Is well located within Capitan Reef?	Y
If yes, does production casing cement tie back a minimum of 50' above the Reef?	Y
Is well within the designated 4 string boundary.	Y
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?	Y
If yes, are the first three strings cemented to surface?	Y
Is 2nd string set 100' to 600' below the base of salt?	Y
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

3. Cementing Program

see COA

Casing	# Sks	Wt. lb/gal	Yld ft ³ /sack	H ₂ O gal/sk	500# Comp. Strength (hours)	Slurry Description
Surface	422	14.80	1.34	9.15	9.5	Tail: Class C + LCM
Intermediate	853	12.90	1.88	9.65	12	Lead: 35:65 (Poz:C) + Salt + Bentonite
	251	14.80	1.34	6.32	9.5	Tail: Class C + LCM
Intermediate 2 - Stage #2	442	12.90	1.88	9.65	12	Lead: 35:65 (Poz:C) + Salt + Bentonite
						DV/ECP Tool 2080'
Intermediate 2 - Stage #1	175	12.90	1.88	9.65	12	Lead: 35:65 (Poz:C) + Salt + Bentonite
	204	14.80	1.34	6.32	9.5	Tail: Class C + LCM
Production	634	10.80	2.35	9.60	17:43	Lead: Tuned Light I Class H
	2307	14.20	1.30	5.86	14:30	Tail: 50:50 (Poz:H) + Salt + Bentonite + Fluid Loss + Dispersant + SMS

DV tool depth(s) will be adjusted based on hole conditions and cement volumes will be adjusted proportionally. DV tool will be set a minimum of 50 feet below previous casing and a minimum of 200 feet above current shoe. Lab reports with the 500 psi compressive strength time for the cement will be onsite for review.

Casing String	TOC	% Excess
Surface	0	25
Intermediate	0	44
Intermediate 2 - Stage #1	2080	37
Production	2020 3275	13

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
17 1/2	21	2M	Annular	X	50% of working pressure
			Blind Ram		2M
			Pipe Ram		
			Double Ram		
			Other		
12 1/4	13 5/8	2M	Annular	X	50% of working pressure
			Blind Ram		2M
			Pipe Ram		
			Double Ram	X	
			Other		
8 3/4	13 5/8	3M	Annular	X	50% of working pressure
			Blind Ram	X	3M
			Pipe Ram		
			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.

	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 300'	FW Spud Mud	8.30 - 8.80	28	N/C
300' to 1930'	Brine Water	9.60 - 10.10	30-32	N/C
1930' to 3475'	Fresh Water	8.30 - 8.80	28	N/C
3475' to 18803'	FW/Cut Brine	8.70 - 9.20	30-32	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.

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	
X	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	4090 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.

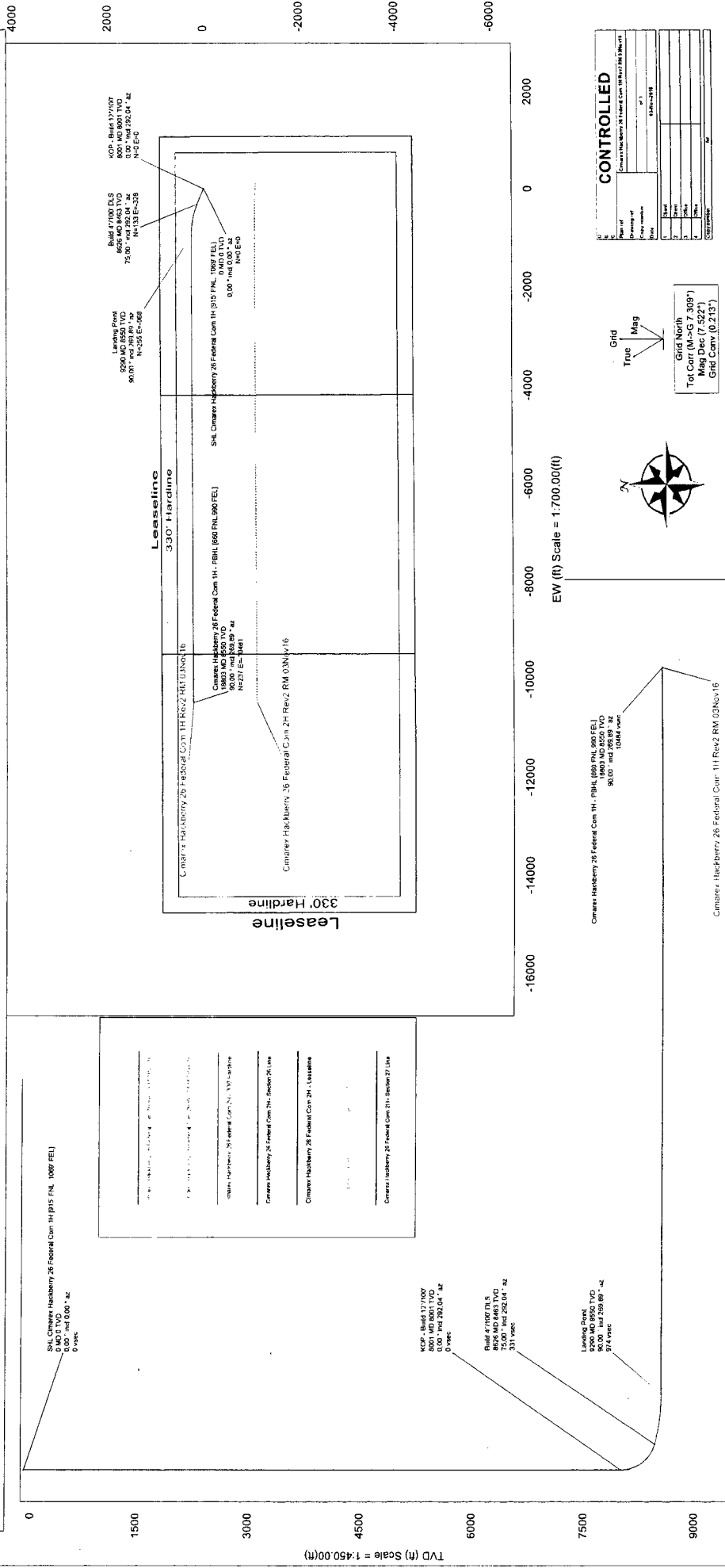
X	H ₂ S is present
X	H ₂ S plan is attached

8. Other Facets of Operation

Borehole:	Original Borehole	Well:	Hackberry 26 Federal Com 1H	Field:	NM Eddy County (NAD 83)	Structure:	Cimarex Hackberry 26 Federal Com 1H
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Gravity & Magnetic Parameters	Model: HCOM 2016	Dip: 60.540°	Date: 03-Nov-2016	Surface Location	NAD83 New Mexico State Plane, Eastern Zone, US Feet	Merch Bureau	Cimarex Hackberry 26
Magnetic: 7.522°	PS: 48376.87mT	Grav: 986.51mgals (B 80655 Based)	Grav: 986.51mgals	Lat: N 32.38 8.14	North: 88388.4mUS	Grid Cont: 0.2134°	Cimarex Hackberry 26
				Long: W 103.66 15.27	East: 88316.16mUS	Scale Fact: 0.9992609	Cimarex Hackberry 26 Federal Com 1H Rev 2 RM 03Nov16

Critical Point	MD	INCL	AZIM	TVD	VSEC	N(+)/S(-)	E(+)/W(-)	DLS
SHL Cimarex Hackberry 26 Federal Com 1H (915 FNL, 1069 FEL)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
KOP - Build 127100'	8001.36	0.00	292.04	8001.39	0.00	0.00	0.00	9.00
Build 47100' DLS	8823.38	75.00	292.04	8462.59	330.34	132.80	-328.03	12.00
Landing Point	9299.77	90.00	269.89	8550.00	973.67	254.59	-986.17	4.00
Cimarex Hackberry 26 Federal Com 1H - PBHL (860 FNL 990 FEL)	18802.61	90.00	269.89	8550.00	10483.67	236.88	-10481.00	0.00



Cimarex Hackberry 26 Federal Com 1H Rev2 RM 03Nov16 Proposal

Geodetic Report

(Non-Def Plan)



Report Date: November 03, 2016 - 02:41 PM
Client: Cimarex
Field: NM Eddy County (NAD 83)
Structure / Slot: Cimarex Hackberry 26 Federal Com 1H / Cimarex Hackberry 26 Federal Com 1H
Well: Hackberry 26 Federal Com 1H
Borehole: Original Borehole
UWI / API#: Unknown / Unknown
Survey Name: Cimarex Hackberry 26 Federal Com 1H Rev2 RM 03Nov16
Survey Date: November 02, 2015
Tort / AHD / DDI / ERD Ratio: 101.535' / 10522.402 ft / 6.371' / 1.231
Coordinate Reference System: NAD83 New Mexico State Plane, Eastern Zone, US Feet
Location Lat / Long: N 32° 38' 9.83603" W 103° 56' 15.26576"
Location Grid N/E Y/X: N 595358.440 ftUS, E 663164.160 ftUS
CRS Grid Convergence Angle: 0.2134 °
Grid Scale Factor: 0.99992609
Version / Patch: 2.10.254.0

Survey / DLS Computation: Minimum Curvature / Lubinski
Vertical Section Azimuth: 271.295 ° (Grid North)
Vertical Section Origin: 0.000 ft, 0.000 ft
TVD Reference Datum: RKB
TVD Reference Elevation: 3295.900 ft above MSL
Seabed / Ground Elevation: 3270.900 ft above MSL
Magnetic Declination: 7.522 °
Total Gravity Field Strength: 998.5159mgm (9.80665 Based)
Gravity Model: GARM
Total Magnetic Field Strength: 48378.879 nT
Magnetic Dip Angle: 60.549 °
Declination Date: November 03, 2016
Magnetic Declination Model: HDGM 2015
North Reference: Grid North
Grid Convergence Used: 0.2134 °
Total Corr Mag North->Grid North: 7.3090 °
Local Coord Referenced To: Structure Reference Point

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 Cimarex Hackberry 26 Federal Com 1H [915' FNL, 1069' FEL]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	N/A	595358.44	663164.16	N 32 38 9.84	W 103 56 15.27
	100.00	0.00	292.04	100.00	0.00	0.00	0.00	0.00	595358.44	663164.16	N 32 38 9.84	W 103 56 15.27
	200.00	0.00	292.04	200.00	0.00	0.00	0.00	0.00	595358.44	663164.16	N 32 38 9.84	W 103 56 15.27
	300.00	0.00	292.04	300.00	0.00	0.00	0.00	0.00	595358.44	663164.16	N 32 38 9.84	W 103 56 15.27
	400.00	0.00	292.04	400.00	0.00	0.00	0.00	0.00	595358.44	663164.16	N 32 38 9.84	W 103 56 15.27
	500.00	0.00	292.04	500.00	0.00	0.00	0.00	0.00	595358.44	663164.16	N 32 38 9.84	W 103 56 15.27
	600.00	0.00	292.04	600.00	0.00	0.00	0.00	0.00	595358.44	663164.16	N 32 38 9.84	W 103 56 15.27
	700.00	0.00	292.04	700.00	0.00	0.00	0.00	0.00	595358.44	663164.16	N 32 38 9.84	W 103 56 15.27
	800.00	0.00	292.04	800.00	0.00	0.00	0.00	0.00	595358.44	663164.16	N 32 38 9.84	W 103 56 15.27
	900.00	0.00	292.04	900.00	0.00	0.00	0.00	0.00	595358.44	663164.16	N 32 38 9.84	W 103 56 15.27
	1000.00	0.00	292.04	1000.00	0.00	0.00	0.00	0.00	595358.44	663164.16	N 32 38 9.84	W 103 56 15.27
	1100.00	0.00	292.04	1100.00	0.00	0.00	0.00	0.00	595358.44	663164.16	N 32 38 9.84	W 103 56 15.27
	1200.00	0.00	292.04	1200.00	0.00	0.00	0.00	0.00	595358.44	663164.16	N 32 38 9.84	W 103 56 15.27
	1300.00	0.00	292.04	1300.00	0.00	0.00	0.00	0.00	595358.44	663164.16	N 32 38 9.84	W 103 56 15.27
	1400.00	0.00	292.04	1400.00	0.00	0.00	0.00	0.00	595358.44	663164.16	N 32 38 9.84	W 103 56 15.27
	1500.00	0.00	292.04	1500.00	0.00	0.00	0.00	0.00	595358.44	663164.16	N 32 38 9.84	W 103 56 15.27
	1600.00	0.00	292.04	1600.00	0.00	0.00	0.00	0.00	595358.44	663164.16	N 32 38 9.84	W 103 56 15.27
	1700.00	0.00	292.04	1700.00	0.00	0.00	0.00	0.00	595358.44	663164.16	N 32 38 9.84	W 103 56 15.27
	1800.00	0.00	292.04	1800.00	0.00	0.00	0.00	0.00	595358.44	663164.16	N 32 38 9.84	W 103 56 15.27
	1900.00	0.00	292.04	1900.00	0.00	0.00	0.00	0.00	595358.44	663164.16	N 32 38 9.84	W 103 56 15.27
	2000.00	0.00	292.04	2000.00	0.00	0.00	0.00	0.00	595358.44	663164.16	N 32 38 9.84	W 103 56 15.27
	2100.00	0.00	292.04	2100.00	0.00	0.00	0.00	0.00	595358.44	663164.16	N 32 38 9.84	W 103 56 15.27
	2200.00	0.00	292.04	2200.00	0.00	0.00	0.00	0.00	595358.44	663164.16	N 32 38 9.84	W 103 56 15.27

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'	8001.39	0.00	292.04	8001.39	0.00	0.00	0.00	0.00	595358.44	663164.16	N 32 38 9.84	W 103 56 15.27
	8100.00	11.83	292.04	8099.30	9.49	3.81	-9.41	12.00	595362.25	663154.76	N 32 38 9.87	W 103 56 15.38
	8200.00	23.83	292.04	8194.32	38.08	15.26	-37.74	12.00	595373.72	663126.42	N 32 38 9.99	W 103 56 15.71
	8300.00	35.83	292.04	8280.91	84.51	33.91	-83.77	12.00	595392.35	663080.40	N 32 38 10.17	W 103 56 16.24
	8400.00	47.83	292.04	8355.28	146.77	58.89	-145.48	12.00	595417.33	663018.69	N 32 38 10.42	W 103 56 16.96
	8500.00	59.83	292.04	8414.19	222.13	89.13	-220.17	12.00	595447.57	662944.01	N 32 38 10.73	W 103 56 17.84
	8600.00	71.83	292.04	8455.05	307.29	123.31	-304.59	12.00	595481.74	662859.60	N 32 38 11.07	W 103 56 18.82
	8626.39	75.00	292.04	8462.59	330.94	132.80	-328.03	12.00	595491.23	662836.16	N 32 38 11.16	W 103 56 19.10
	8700.00	76.59	289.49	8480.65	398.22	158.09	-394.75	4.00	595516.51	662769.44	N 32 38 11.41	W 103 56 19.87
	8800.00	78.80	286.07	8501.96	491.89	187.90	-487.77	4.00	595546.33	662676.43	N 32 38 11.71	W 103 56 20.96
	8900.00	81.04	282.71	8519.47	587.77	212.35	-583.12	4.00	595570.77	662581.09	N 32 38 11.96	W 103 56 22.08
	9000.00	83.32	279.38	8533.08	685.38	231.32	-680.33	4.00	595589.74	662483.88	N 32 38 12.15	W 103 56 23.21
Landing Point	9100.00	85.61	276.09	8542.73	784.27	244.71	-778.94	4.00	595603.13	662385.28	N 32 38 12.29	W 103 56 24.36
	9200.00	87.92	272.82	8548.37	883.94	252.47	-878.46	4.00	595610.89	662285.77	N 32 38 12.37	W 103 56 25.53
	9289.77	90.00	269.89	8550.00	973.67	254.59	-968.17	4.00	595613.01	662196.06	N 32 38 12.39	W 103 56 26.58
	9300.00	90.00	269.89	8550.00	983.91	254.57	-978.40	0.00	595612.99	662185.83	N 32 38 12.39	W 103 56 26.70
	9400.00	90.00	269.89	8550.00	1083.88	254.39	-1078.40	0.00	595612.81	662085.84	N 32 38 12.39	W 103 56 27.87
	9500.00	90.00	269.89	8550.00	1183.85	254.20	-1178.40	0.00	595612.62	661985.85	N 32 38 12.39	W 103 56 29.03
	9600.00	90.00	269.89	8550.00	1283.82	254.01	-1278.40	0.00	595612.43	661885.85	N 32 38 12.40	W 103 56 30.20
	9700.00	90.00	269.89	8550.00	1383.79	253.83	-1378.40	0.00	595612.25	661785.86	N 32 38 12.40	W 103 56 31.37
	9800.00	90.00	269.89	8550.00	1483.76	253.64	-1478.40	0.00	595612.06	661685.87	N 32 38 12.40	W 103 56 32.54
	9900.00	90.00	269.89	8550.00	1583.73	253.45	-1578.40	0.00	595611.88	661585.88	N 32 38 12.40	W 103 56 33.71
	10000.00	90.00	269.89	8550.00	1683.70	253.27	-1678.40	0.00	595611.69	661485.89	N 32 38 12.40	W 103 56 34.88
	10100.00	90.00	269.89	8550.00	1783.67	253.08	-1778.40	0.00	595611.50	661385.89	N 32 38 12.41	W 103 56 36.05
	10200.00	90.00	269.89	8550.00	1883.64	252.90	-1878.40	0.00	595611.32	661285.90	N 32 38 12.41	W 103 56 37.22
	10300.00	90.00	269.89	8550.00	1983.61	252.71	-1978.40	0.00	595611.13	661185.91	N 32 38 12.41	W 103 56 38.39
	10400.00	90.00	269.89	8550.00	2083.58	252.52	-2078.40	0.00	595610.94	661085.92	N 32 38 12.41	W 103 56 39.56
	10500.00	90.00	269.89	8550.00	2183.55	252.34	-2178.40	0.00	595610.76	660985.92	N 32 38 12.41	W 103 56 40.73
	10600.00	90.00	269.89	8550.00	2283.52	252.15	-2278.40	0.00	595610.57	660885.93	N 32 38 12.41	W 103 56 41.90
	10700.00	90.00	269.89	8550.00	2383.49	251.96	-2378.40	0.00	595610.39	660785.94	N 32 38 12.42	W 103 56 43.07
	10800.00	90.00	269.89	8550.00	2483.46	251.78	-2478.40	0.00	595610.20	660685.95	N 32 38 12.42	W 103 56 44.24
	10900.00	90.00	269.89	8550.00	2583.43	251.59	-2578.40	0.00	595610.01	660585.95	N 32 38 12.42	W 103 56 45.41
	11000.00	90.00	269.89	8550.00	2683.40	251.41	-2678.40	0.00	595609.83	660485.96	N 32 38 12.42	W 103 56 46.58
	11100.00	90.00	269.89	8550.00	2783.37	251.22	-2778.40	0.00	595609.64	660385.97	N 32 38 12.42	W 103 56 47.74
	11200.00	90.00	269.89	8550.00	2883.34	251.03	-2878.40	0.00	595609.45	660285.98	N 32 38 12.42	W 103 56 48.91
	11300.00	90.00	269.89	8550.00	2983.31	250.85	-2978.40	0.00	595609.27	660185.99	N 32 38 12.43	W 103 56 50.08
	11400.00	90.00	269.89	8550.00	3083.28	250.66	-3078.40	0.00	595609.08	660085.99	N 32 38 12.43	W 103 56 51.25
	11500.00	90.00	269.89	8550.00	3183.25	250.48	-3178.40	0.00	595608.90	659986.00	N 32 38 12.43	W 103 56 52.42
	11600.00	90.00	269.89	8550.00	3283.22	250.29	-3278.40	0.00	595608.71	659886.01	N 32 38 12.43	W 103 56 53.59
	11700.00	90.00	269.89	8550.00	3383.19	250.10	-3378.40	0.00	595608.52	659786.02	N 32 38 12.43	W 103 56 54.76
	11800.00	90.00	269.89	8550.00	3483.16	249.92	-3478.40	0.00	595608.34	659686.02	N 32 38 12.43	W 103 56 55.93
	11900.00	90.00	269.89	8550.00	3583.13	249.73	-3578.40	0.00	595608.15	659586.03	N 32 38 12.44	W 103 56 57.10
	12000.00	90.00	269.89	8550.00	3683.10	249.54	-3678.40	0.00	595607.97	659486.04	N 32 38 12.44	W 103 56 58.27
	12100.00	90.00	269.89	8550.00	3783.07	249.36	-3778.40	0.00	595607.78	659386.05	N 32 38 12.44	W 103 56 59.44
	12200.00	90.00	269.89	8550.00	3883.04	249.17	-3878.40	0.00	595607.59	659286.06	N 32 38 12.44	W 103 57 0.61
	12300.00	90.00	269.89	8550.00	3983.01	248.99	-3978.40	0.00	595607.41	659186.06	N 32 38 12.45	W 103 57 1.78
	12400.00	90.00	269.89	8550.00	4082.98	248.80	-4078.40	0.00	595607.22	659086.07	N 32 38 12.45	W 103 57 2.95
	12500.00	90.00	269.89	8550.00	4182.95	248.61	-4178.40	0.00	595607.03	658986.08	N 32 38 12.45	W 103 57 4.12
	12600.00	90.00	269.89	8550.00	4282.92	248.43	-4278.40	0.00	595606.85	658886.09	N 32 38 12.45	W 103 57 5.29
	12700.00	90.00	269.89	8550.00	4382.89	248.24	-4378.40	0.00	595606.66	658786.09	N 32 38 12.45	W 103 57 6.45
	12800.00	90.00	269.89	8550.00	4482.86	248.05	-4478.40	0.00	595606.48	658686.10	N 32 38 12.45	W 103 57 7.62
	12900.00	90.00	269.89	8550.00	4582.83	247.87	-4578.40	0.00	595606.29	658586.11	N 32 38 12.45	W 103 57 8.79
	13000.00	90.00	269.89	8550.00	4682.80	247.68	-4678.40	0.00	595606.10	658486.12	N 32 38 12.46	W 103 57 9.96
	13100.00	90.00	269.89	8550.00	4782.77	247.50	-4778.40	0.00	595605.92	658386.13	N 32 38 12.46	W 103 57 11.13
	13200.00	90.00	269.89	8550.00	4882.74	247.31	-4878.40	0.00	595605.73	658286.13	N 32 38 12.46	W 103 57 12.30
	13300.00	90.00	269.89	8550.00	4982.71	247.12	-4978.40	0.00	595605.55	658186.14	N 32 38 12.46	W 103 57 13.47
	13400.00	90.00	269.89	8550.00	5082.68	246.94	-5078.40	0.00	595605.36	658086.15	N 32 38 12.46	W 103 57 14.64

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 ° ' ")
	13500.00	90.00	269.89	8550.00	5182.63	246.75	-5178.40	0.00	595605.17	657986.16	N 32 38 12.46 W 103 57 15.81	
	13600.00	90.00	269.89	8550.00	5282.62	246.57	-5278.40	0.00	595604.99	657986.16	N 32 38 12.47 W 103 57 16.98	
	13700.00	90.00	269.89	8550.00	5382.59	246.38	-5378.40	0.00	595604.80	657786.17	N 32 38 12.47 W 103 57 18.15	
	13800.00	90.00	269.89	8550.00	5482.56	246.19	-5478.40	0.00	595604.61	657686.18	N 32 38 12.47 W 103 57 19.32	
	13900.00	90.00	269.89	8550.00	5582.53	246.01	-5578.40	0.00	595604.43	657586.19	N 32 38 12.47 W 103 57 20.49	
	14000.00	90.00	269.89	8550.00	5682.50	245.82	-5678.40	0.00	595604.24	657486.20	N 32 38 12.47 W 103 57 21.66	
	14100.00	90.00	269.89	8550.00	5782.47	245.63	-5778.40	0.00	595604.06	657386.20	N 32 38 12.47 W 103 57 22.83	
	14200.00	90.00	269.89	8550.00	5882.44	245.45	-5878.40	0.00	595603.87	657286.21	N 32 38 12.48 W 103 57 24.00	
	14300.00	90.00	269.89	8550.00	5982.41	245.26	-5978.39	0.00	595603.68	657186.22	N 32 38 12.48 W 103 57 25.16	
	14400.00	90.00	269.89	8550.00	6082.38	245.08	-6078.39	0.00	595603.50	657086.23	N 32 38 12.48 W 103 57 26.33	
	14500.00	90.00	269.89	8550.00	6182.35	244.89	-6178.39	0.00	595603.31	656986.23	N 32 38 12.48 W 103 57 27.50	
	14600.00	90.00	269.89	8550.00	6282.32	244.70	-6278.39	0.00	595603.12	656886.24	N 32 38 12.48 W 103 57 28.67	
	14700.00	90.00	269.89	8550.00	6382.29	244.52	-6378.39	0.00	595602.94	656786.25	N 32 38 12.48 W 103 57 29.84	
	14800.00	90.00	269.89	8550.00	6482.26	244.33	-6478.39	0.00	595602.75	656686.26	N 32 38 12.49 W 103 57 31.01	
	14900.00	90.00	269.89	8550.00	6582.23	244.14	-6578.39	0.00	595602.57	656586.27	N 32 38 12.49 W 103 57 32.18	
	15000.00	90.00	269.89	8550.00	6682.20	243.96	-6678.39	0.00	595602.38	656486.27	N 32 38 12.49 W 103 57 33.35	
	15100.00	90.00	269.89	8550.00	6782.17	243.77	-6778.39	0.00	595602.19	656386.28	N 32 38 12.49 W 103 57 34.52	
	15200.00	90.00	269.89	8550.00	6882.14	243.59	-6878.39	0.00	595602.01	656286.29	N 32 38 12.49 W 103 57 35.69	
	15300.00	90.00	269.89	8550.00	6982.11	243.40	-6978.39	0.00	595601.82	656186.30	N 32 38 12.49 W 103 57 36.86	
	15400.00	90.00	269.89	8550.00	7082.08	243.21	-7078.39	0.00	595601.64	656086.30	N 32 38 12.50 W 103 57 38.03	
	15500.00	90.00	269.89	8550.00	7182.05	243.03	-7178.39	0.00	595601.45	655986.31	N 32 38 12.50 W 103 57 39.20	
	15600.00	90.00	269.89	8550.00	7282.02	242.84	-7278.39	0.00	595601.26	655886.32	N 32 38 12.50 W 103 57 40.37	
	15700.00	90.00	269.89	8550.00	7381.99	242.66	-7378.39	0.00	595601.08	655786.33	N 32 38 12.50 W 103 57 41.54	
	15800.00	90.00	269.89	8550.00	7481.96	242.47	-7478.39	0.00	595600.89	655686.34	N 32 38 12.50 W 103 57 42.71	
	15900.00	90.00	269.89	8550.00	7581.93	242.28	-7578.39	0.00	595600.70	655586.34	N 32 38 12.50 W 103 57 43.87	
	16000.00	90.00	269.89	8550.00	7681.90	242.10	-7678.39	0.00	595600.52	655486.35	N 32 38 12.51 W 103 57 45.04	
	16100.00	90.00	269.89	8550.00	7781.87	241.91	-7778.39	0.00	595600.33	655386.36	N 32 38 12.51 W 103 57 46.21	
	16200.00	90.00	269.89	8550.00	7881.84	241.72	-7878.39	0.00	595600.15	655286.37	N 32 38 12.51 W 103 57 47.38	
	16300.00	90.00	269.89	8550.00	7981.81	241.54	-7978.39	0.00	595599.96	655186.37	N 32 38 12.51 W 103 57 48.55	
	16400.00	90.00	269.89	8550.00	8081.78	241.35	-8078.39	0.00	595599.77	655086.38	N 32 38 12.51 W 103 57 49.72	
	16500.00	90.00	269.89	8550.00	8181.75	241.17	-8178.39	0.00	595599.59	654986.39	N 32 38 12.51 W 103 57 50.89	
	16600.00	90.00	269.89	8550.00	8281.72	240.98	-8278.39	0.00	595599.40	654886.40	N 32 38 12.52 W 103 57 52.06	
	16700.00	90.00	269.89	8550.00	8381.69	240.79	-8378.39	0.00	595599.21	654786.41	N 32 38 12.52 W 103 57 53.23	
	16800.00	90.00	269.89	8550.00	8481.66	240.61	-8478.39	0.00	595599.03	654686.41	N 32 38 12.52 W 103 57 54.40	
	16900.00	90.00	269.89	8550.00	8581.63	240.42	-8578.39	0.00	595598.84	654586.42	N 32 38 12.52 W 103 57 55.57	
	17000.00	90.00	269.89	8550.00	8681.60	240.23	-8678.39	0.00	595598.66	654486.43	N 32 38 12.52 W 103 57 56.74	
	17100.00	90.00	269.89	8550.00	8781.57	240.05	-8778.39	0.00	595598.47	654386.44	N 32 38 12.52 W 103 57 57.91	
	17200.00	90.00	269.89	8550.00	8881.54	239.86	-8878.39	0.00	595598.28	654286.44	N 32 38 12.52 W 103 57 59.08	
	17300.00	90.00	269.89	8550.00	8981.51	239.68	-8978.39	0.00	595598.10	654186.45	N 32 38 12.53 W 103 58 0.25	
	17400.00	90.00	269.89	8550.00	9081.48	239.49	-9078.39	0.00	595597.91	654086.46	N 32 38 12.53 W 103 58 1.42	
	17500.00	90.00	269.89	8550.00	9181.45	239.30	-9178.39	0.00	595597.73	653986.47	N 32 38 12.53 W 103 58 2.59	
	17600.00	90.00	269.89	8550.00	9281.42	239.12	-9278.39	0.00	595597.54	653886.48	N 32 38 12.53 W 103 58 3.75	
	17700.00	90.00	269.89	8550.00	9381.39	238.93	-9378.39	0.00	595597.35	653786.48	N 32 38 12.53 W 103 58 4.92	
	17800.00	90.00	269.89	8550.00	9481.36	238.74	-9478.39	0.00	595597.17	653686.49	N 32 38 12.53 W 103 58 6.09	
	17900.00	90.00	269.89	8550.00	9581.33	238.56	-9578.39	0.00	595596.98	653586.50	N 32 38 12.54 W 103 58 7.26	
	18000.00	90.00	269.89	8550.00	9681.30	238.37	-9678.39	0.00	595596.79	653486.51	N 32 38 12.54 W 103 58 8.43	
	18100.00	90.00	269.89	8550.00	9781.27	238.19	-9778.39	0.00	595596.61	653386.51	N 32 38 12.54 W 103 58 9.60	
	18200.00	90.00	269.89	8550.00	9881.24	238.00	-9878.39	0.00	595596.42	653286.52	N 32 38 12.54 W 103 58 10.77	
	18300.00	90.00	269.89	8550.00	9981.21	237.81	-9978.39	0.00	595596.24	653186.53	N 32 38 12.54 W 103 58 11.94	
	18400.00	90.00	269.89	8550.00	10081.18	237.63	-10078.39	0.00	595596.05	653086.54	N 32 38 12.54 W 103 58 13.11	
	18500.00	90.00	269.89	8550.00	10181.15	237.44	-10178.39	0.00	595595.86	652986.55	N 32 38 12.54 W 103 58 14.28	
	18600.00	90.00	269.89	8550.00	10281.12	237.26	-10278.39	0.00	595595.68	652886.55	N 32 38 12.55 W 103 58 15.45	
	18700.00	90.00	269.89	8550.00	10381.09	237.07	-10378.39	0.00	595595.49	652786.56	N 32 38 12.55 W 103 58 16.62	
	18800.00	90.00	269.89	8550.00	10481.06	236.88	-10478.39	0.00	595595.30	652686.57	N 32 38 12.55 W 103 58 17.79	
Cimarex												
Hackberry 26												
Federal Com 1H	18802.61	90.00	269.89	8550.00	10483.67	236.88	-10481.00	0.00	595595.30	652683.96	N 32 38 12.55 W 103 58 17.82	
- PBHL [660												
FNL,990 FEL]												

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 ° ' ")
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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	25.000	1/100.000	30.000	30.000	NAL_MWD_PLUS_0.5_DEG- Depth Only		Original Borehole / Cimarex Hackberry 26 Federal Com 1H
	1	25.000	18802.609	1/100.000	30.000	30.000	NAL_MWD_PLUS_0.5_DEG		Rev2 RM 03Nov16 Original Borehole / Cimarex Hackberry 26 Federal Com 1H

DEC 02 2016

**PECOS DISTRICT
CONDITIONS OF APPROVAL****RECEIVED**

OPERATOR'S NAME:	Cimarex Energy Co.
LEASE NO.:	NM130859
WELL NAME & NO.:	1H-Hackberry 26 Federal Com
SURFACE HOLE FOOTAGE:	915'/N & 1069'/E
BOTTOM HOLE FOOTAGE	680'/N & 380'/W
LOCATION:	Section 26, T.19 S., R.30 E., NMPM
COUNTY:	Eddy County, New Mexico

TABLE OF CONTENTS

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

- ☒ **Special Requirements**
 - Communitization Agreement
- ☒ **Drilling**
 - Cement Requirements
 - R-111-P Potash
 - Capitan Reef
 - Logging Requirements
 - Waste Material and Fluids

I. SPECIAL REQUIREMENT(S)

Communitization Agreement

- The operator will submit a Communitization Agreement to the Carlsbad Field Office, 620 E Greene St. Carlsbad, New Mexico 88220, at least 90 days before the anticipated date of first production from a well subject to a spacing order issued by the New Mexico Oil Conservation Division. The Communitization Agreement will include the signatures of all working interest owners in all Federal and Indian leases subject to the Communitization Agreement (i.e., operating rights owners and lessees of record), or certification that the operator has obtained the written signatures of all such owners and will make those signatures available to the BLM immediately upon request.
- If the operator does not comply with this condition of approval, the BLM may take enforcement actions that include, but are not limited to, those specified in 43 CFR 3163.1.
- In addition, the well sign shall include the surface and bottom hole lease numbers. When the Communitization Agreement number is known, it shall also be on the sign.

II. DRILLING

A. DRILLING OPERATIONS 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

1. **Hydrogen Sulfide (H₂S) monitors shall be installed prior to drilling out the surface shoe. If H₂S is detected in concentrations greater than 100 ppm, the Hydrogen Sulfide area shall meet Onshore Order 6 requirements, which includes equipment and personnel/public protection items. If Hydrogen Sulfide is encountered, provide measured values and formations to the BLM.**
2. 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. **If the drilling rig is removed without approval – an Incident of Non-Compliance will be written and will be a “Major” violation.**
3. 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 is located, this does not include the dog house or stairway area.
4. **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.**

B. CASING

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.

Centralizers required on surface casing per Onshore Order 2.III.B.1.f.

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.

No pea gravel permitted for remedial or fall back remedial without prior authorization from the BLM engineer.

HIGH CAVE/KARST – A MINIMUM OF TWO CASING STRINGS CEMENTED TO SURFACE IS REQUIRED IN HIGH CAVE/KARST AREAS. THE CEMENT MUST BE IN A SOLID SHEATH. THEREFORE, ONE INCH OPERATIONS ARE NOT SUFFICIENT TO PROTECT CAVE KARST RESOURCES. A CASING DESIGN THAT HAS A ONE INCH JOB PERFORMED DOES NOT COUNT AS A SOLID SHEATH.

ON A THREE STRING DESIGN; IF THE PRIMARY CEMENT JOB ON THE SURFACE CASING DOES NOT CIRCULATE, THEN THE NEXT TWO CASING STRINGS MUST BE CEMENTED TO SURFACE

R-111-P Potash

Capitan Reef

Possibility of water flows in the Salado, and Artesia Group

Possibility of lost circulation in the Rustler, Capitan Reef, Delaware, and Artesia Group

1. The 20 inch surface casing shall be set at approximately 350 feet and cemented to the surface. If salt is encountered, set casing at least 25 feet above the salt. Excess calculates to negative 14%. Additional cement will be required.
 - 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 is to include the lead cement slurry.**
- 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 shall be kept fluid filled while running into hole to meet BLM minimum collapse requirements.

- 2. The minimum required fill of cement behind the 13-3/8 inch 1st 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 potash and cave/karst.**

- 3. The minimum required fill of cement behind the 9-5/8 inch 2nd intermediate casing is:

Operator has proposed DV tool at depth of 2080', but will adjust cement proportionately if moved. DV tool shall be set a minimum of 50' below previous shoe and a minimum of 200' above current shoe. Operator shall submit sundry if DV tool depth cannot be set in this range. If an ECP is used, it is to be set a minimum of 50' below the shoe to provide cement across the shoe. If it cannot be set below the shoe, a CBL shall be run to verify cement coverage.

- a. First stage to DV tool:

- ☒ Cement to circulate. If cement does not circulate, contact the appropriate BLM office before proceeding with second stage cement job. Operator should have plans as to how they will achieve circulation on the next stage.

- b. Second stage above DV tool:

- ☒ 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 and potash. Excess calculates to 11% - Additional cement may be required

4. The minimum required fill of cement behind the **5-1/2** inch production casing is:
 - ☒ Cement should tie-back at least **50 feet above the Capitan Reef** (Top of Capitan Reef estimated at 2070'). Operator shall provide method of verification. **Excess calculates to 5% - Additional cement may be required.**
5. 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.
6. Whenever a casing string is cemented in the R-111-P potash area, the NMOCD requirements shall be followed.

C. 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. Variance approved to use flex line from BOP to choke manifold. 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.** If the BLM inspector questions the straightness of the hose, a BLM engineer will be contacted and will review in the field or via picture supplied by inspector to determine if changes are required (operator shall expect delays if this occurs).
3. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be **2000 (2M)** psi.
4. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the **13-3/8 1st** intermediate casing shoe shall be **2000 (2M)** psi.

5. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the 9-5/8 2nd intermediate casing shoe shall be **3000 (3M) psi.**
6. The appropriate BLM office shall be notified a minimum of 4 hours in advance for a representative to witness the tests.
 - a. 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.
 - b. The tests shall be done by an independent service company utilizing a test plug **not a cup or J-packer.**
 - c. 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.
 - d. The results of the test shall be reported to the appropriate BLM office.
 - e. 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.**
 - f. 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.

D. DRILL STEM TEST

If drill stem tests are performed, Onshore Order 2.III.D shall be followed.

E. 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.

CLN 11302016