Form 3160-4
(August 2007)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

Rcvd 4/17/2020 – NMOCD

FORM APPROVED
OMB No. 1004-0137
Expires: July 31, 2010

WELL COMPLETION OR RECOMPLETION REPORT AND LOG

5. Lease Serial No. NMNM26394

1a. Type of Well ☒ Oil Well ☐ Gas Well ☐ Dry ☐ Other
b. Type of Completion ☒ New Well ☐ Work Over ☐ Deepen ☐ Plug Back ☐ Diff. Resvr.
Other _____

6. If Indian, Allottee or Tribe Name

7. Unit or CA Agreement Name and No.

2. Name of Operator: CIMAREX ENERGY COMPANY — Contact: FATIMA VASQUEZ — E-Mail: fvasquez@cimarex.com

8. Lease Name and Well No.: CASCADE 28 FEDERAL 86H

3. Address: 600 N MARIENFELD ST SUITE 600, MIDLAND, TX 79701

3a. Phone No. (include area code): Ph: 432-620-1933

9. API Well No.: 30-025-46314

4. Location of Well (Report location clearly and in accordance with Federal requirements)*

At surface: NWNE 390FNL 1380FEL 32.107722 N Lat, 103.573246 W Lon

At top prod interval reported below: NENE 687FNL 747FEL 32.106903 N Lat, 103.571200 W Lon

At total depth: SESE 100FSL 740FEL 32.094550 N Lat, 103.571144 W Lon

10. Field and Pool, or Exploratory: BOBCAT DRAW; UPR WOLFCAMP

11. Sec., T., R., M., or Block and Survey or Area: Sec 28 T25S R33E Mer NMP

12. County or Parish: LEA

13. State: NM

14. Date Spudded: 10/15/2019

15. Date T.D. Reached: 11/18/2019

16. Date Completed: ☐ D & A ☒ Ready to Prod. 01/24/2020

17. Elevations (DF, KB, RT, GL)*: 3365 GL

18. Total Depth: MD 17120 TVD 12511

19. Plug Back T.D.: MD 17104 TVD 12511

20. Depth Bridge Plug Set: MD TVD

21. Type Electric & Other Mechanical Logs Run (Submit copy of each)
CBL & CCL

22. Was well cored? ☒ No ☐ Yes (Submit analysis)
Was DST run? ☒ No ☐ Yes (Submit analysis)
Directional Survey? ☐ No ☒ Yes (Submit analysis)

23. Casing and Liner Record *(Report all strings set in well)*

Hole Size	Size/Grade	Wt. (#/ft.)	Top (MD)	Bottom (MD)	Stage Cementer Depth	No. of Sks. & Type of Cement	Slurry Vol. (BBL)	Cement Top*	Amount Pulled
14.750	10.750 J-55	45.5	0	1020		875		0	
6.750	5.500 P-110	23.0	0	11957					
9.875	7.625 HCL-80	29.7	0	12670		1330		0	
6.750	5.000 P-110	18.0	11957	17120		530		12068	

24. Tubing Record

Size	Depth Set (MD)	Packer Depth (MD)	Size	Depth Set (MD)	Packer Depth (MD)	Size	Depth Set (MD)	Packer Depth (MD)

25. Producing Intervals / 26. Perforation Record

	Formation	Top	Bottom	Perforated Interval	Size	No. Holes	Perf. Status
A)	WOLFCAMP	12165		12614 TO 17080	0.350	700	PRODUCING
B)							
C)							
D)							

27. Acid, Fracture, Treatment, Cement Squeeze, Etc.

Depth Interval	Amount and Type of Material
12614 TO 17080	245,790 BBLS OF TOTAL FLUID & 12,482,466# SAND

28. Production - Interval A

Date First Produced	Test Date	Hours Tested	Test Production	Oil BBL	Gas MCF	Water BBL	Oil Gravity Corr. API	Gas Gravity	Production Method
01/24/2020	02/03/2020	24	→	1400.0	3626.0	5087.0	46.5		FLOWS FROM WELL

Choke Size	Tbg. Press. Flwg. SI	Csg. Press.	24 Hr. Rate	Oil BBL	Gas MCF	Water BBL	Gas:Oil Ratio	Well Status
30	0	3982.0	→	1400	3626	5087	2590	POW

28a. Production - Interval B

Date First Produced	Test Date	Hours Tested	Test Production	Oil BBL	Gas MCF	Water BBL	Oil Gravity Corr. API	Gas Gravity	Production Method
			→						

Choke Size	Tbg. Press. Flwg. SI	Csg. Press.	24 Hr. Rate	Oil BBL	Gas MCF	Water BBL	Gas:Oil Ratio	Well Status
			→					

(See Instructions and spaces for additional data on reverse side)

ELECTRONIC SUBMISSION #509661 VERIFIED BY THE BLM WELL INFORMATION SYSTEM

**** OPERATOR-SUBMITTED ** OPERATOR-SUBMITTED ** OPERATOR-SUBMITTED ****

28b. Production - Interval C

Date First Produced	Test Date	Hours Tested	Test Production	Oil BBL	Gas MCF	Water BBL	Oil Gravity Corr. API	Gas Gravity	Production Method
			→						

Choke Size	Tbg. Press. Flwg. SI	Csg. Press.	24 Hr. Rate	Oil BBL	Gas MCF	Water BBL	Gas:Oil Ratio	Well Status
			→					

28c. Production - Interval D

Date First Produced	Test Date	Hours Tested	Test Production	Oil BBL	Gas MCF	Water BBL	Oil Gravity Corr. API	Gas Gravity	Production Method
			→						

Choke Size	Tbg. Press. Flwg. SI	Csg. Press.	24 Hr. Rate	Oil BBL	Gas MCF	Water BBL	Gas:Oil Ratio	Well Status
			→					

29. Disposition of Gas *(Sold, used for fuel, vented, etc.)*
SOLD

30. Summary of Porous Zones (Include Aquifers):

Show all important zones of porosity and contents thereof: Cored intervals and all drill-stem tests, including depth interval tested, cushion used, time tool open, flowing and shut-in pressures and recoveries.

31. Formation (Log) Markers

Formation	Top	Bottom	Descriptions, Contents, etc.	Name	Top Meas. Depth
BELL CANYON	4958	6032	SANDSTONE: WATER	RUSTLER	994
CHERRY CANYON	6032	7514	SANDSTONE: WATER	TOP OF SALT	1328
BRUSHY CANYON	7514	9038	SANDSTONE: WATER	BELL CANYON	4958
BONE SPRING	9038	12165	LS/SHALE/SS:OIL,GAS,WATER	CHERRY CANYON	6032
WOLFCAMP	12165		SHALE/SANDSTONE:OIL,GAS,WATER	BRUSHY CANYON	7514
				BONE SPRING	9038
				WOLFCAMP	12165

32. Additional remarks (include plugging procedure):
Emailed CBL to Jennifer Sanchez since too large to attach.

33. Circle enclosed attachments:

1. Electrical/Mechanical Logs (1 full set req'd.)
2. Geologic Report
3. DST Report
4. Directional Survey
5. Sundry Notice for plugging and cement verification
6. Core Analysis
7 Other:

34. I hereby certify that the foregoing and attached information is complete and correct as determined from all available records (see attached instructions):

Electronic Submission #509661 Verified by the BLM Well Information System.
For CIMAREX ENERGY COMPANY, sent to the Hobbs

Name *(please print)* FATIMA VASQUEZ Title REGULATORY ANALYST

Signature (Electronic Submission) Date 04/03/2020

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 fradulent statements or representations as to any matter within its jurisdiction.

**** ORIGINAL ** ORIGINAL ** ORIGINAL ** ORIGINAL ** ORIGINAL ** ORIGINAL ** ORIGINAL ****

Form 3160-5
(June 2015)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

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.

SUBMIT IN TRIPLICATE - Other instructions on page 2

5. Lease Serial No.
NMNM26394

6. If Indian, Allottee or Tribe Name

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

1. Type of Well
☒ Oil Well ☐ Gas Well ☐ Other

8. Well Name and No.
CASCADE 28 FEDERAL 86H

2. Name of Operator
CIMAREX ENERGY COMPANY
Contact: FATIMA VASQUEZ
E-Mail: fvasquez@cimarex.com

9. API Well No.
30-025-46314

3a. Address
600 N MARIENFELD ST SUITE 600
MIDLAND, TX 79701

3b. Phone No. (include area code)
Ph: 432-620-1933

10. Field and Pool or Exploratory Area
BOBCAT DRAW; UPR WOLFCAMP

4. Location of Well *(Footage, Sec., T., R., M., or Survey Description)*
Sec 28 T25S R33E Mer NMP NWNE 390FNL 1380FEL
32.107722 N Lat, 103.573246 W Lon

11. County or Parish, State
LEA COUNTY, NM

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 Production Start-up
	☐ Change Plans	☐ Plug and Abandon	☐ Temporarily Abandon	
	☐ Convert to Injection	☐ Plug Back	☐ Water Disposal	

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 recomplete 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 recompletion 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 completed this well as follows:

12/15/2019 Test csg to 12,830# for 30 min. OK. SWI.
01/09/2020 to
01/16/2020 Perf Wolfcamp @ 12,614? ? 17,080?, 700 holes, .35?. Frac w/ 245,790 bbls total fluid & 12,482,466# sand.
01/18/2020 to
01/19/2020 DO plugs. Circulate well clean. SI.
01/24/2020 Flowing well. TTP

14. I hereby certify that the foregoing is true and correct.

Electronic Submission #509529 verified by the BLM Well Information System
For CIMAREX ENERGY COMPANY, sent to the Hobbs

Name *(Printed/Typed)* FATIMA VASQUEZ — Title REGULATORY ANALYST

Signature (Electronic Submission) — Date 04/03/2020

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved By _____ Title _____ Date _____

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 _____

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)

**** OPERATOR-SUBMITTED ** OPERATOR-SUBMITTED ** OPERATOR-SUBMITTED ****

District I
1625 N. French Dr., Hobbs, NM 88240
Phone: (575) 393-6161 Fax: (575) 393-0720
District II
811 S. First St., Artesia, NM 88210
Phone: (575) 748-1283 Fax: (575) 748-9720
District III
1000 Rio Brazos Road, Aztec, NM 87410
Phone: (505) 334-6178 Fax: (505) 334-6170
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505
Phone: (505) 476-3460 Fax: (505) 476-3462

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

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

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

[1] API Number	[2] Pool Code	[3] Pool Name
30-025-46314	98094	Bobcat Draw; UPR Wolfcamp

[4] Property Code	[5] Property Name	[6] Well Number
314104	CASCADE 28 FEDERAL	86H

[7] OGRID No.	[8] Operator Name	[9] Elevation
215099	CIMAREX ENERGY CO.	3365.6

[10] Surface Location

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
B	28	25S	33E		390	NORTH	1380	EAST	LEA

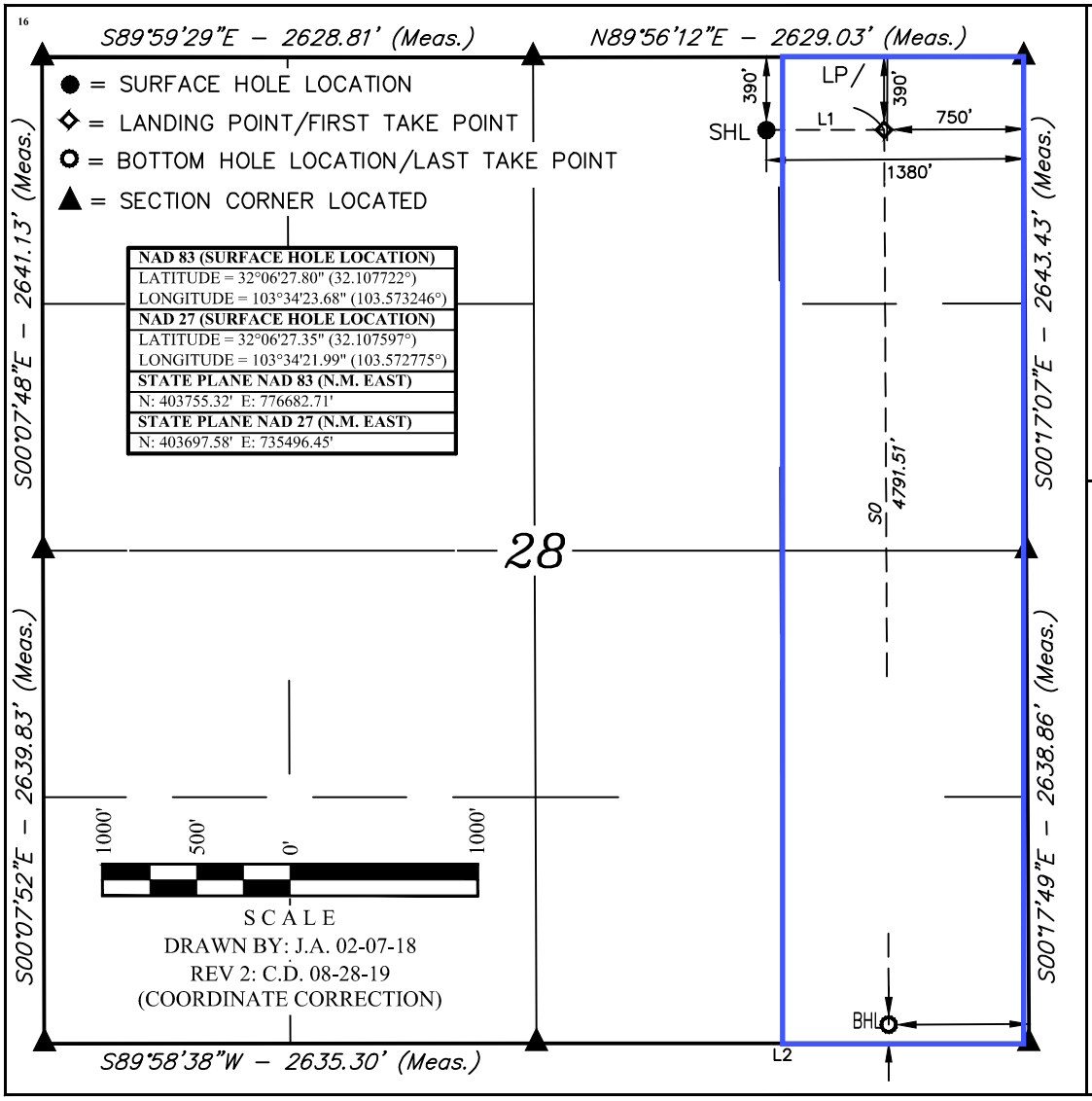
[11] Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
P	28	25S	33E		100	SOUTH	740	EAST	LEA

[12] Dedicated Acres	[13] Joint or Infill	[14] Consolidation Code	[15] Order No.
160			

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

[16]



[17] OPERATOR CERTIFICATION

I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom hole location or has a right to drill this well at this location pursuant to a contract with an owner of such a mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.

Fatima Vasquez 03/31/2020
Signature Date

Fatima Vasquez
Printed Name

fvasquez@cimarex.com
E-mail Address

[18] SURVEYOR CERTIFICATION

I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief.

January 24, 2018
Date of Survey

Signature and Seal of Professional Surveyor:

PAUL BUCHELE
NEW MEXICO
23782
PROFESSIONAL SURVEYOR
08-28-19

Certificate Number:

Intent [ ] As Drilled [X]

API #
30-025-46314

Operator Name:	Property Name:	Well Number
Cimarex Energy Co. (215099)	Cascade 28 Federal	86H

Kick Off Point (KOP)

UL	Section	Township	Range	Lot	Feet	From N/S	Feet	From E/W	County
A	28	25S	33E		405	NORTH	773	East	Lea

Latitude	Longitude	NAD
32.0107681	-103.571286	83

First Take Point (FTP)

UL	Section	Township	Range	Lot	Feet	From N/S	Feet	From E/W	County
A	28	25S	33E		687	NORTH	747	East	Lea

Latitude	Longitude	NAD
32.106903	-103.5712	83

Last Take Point (LTP)

UL	Section	Township	Range	Lot	Feet	From N/S	Feet	From E/W	County
P	28	25S	33E		129	SOUTH	742	East	Lea

Latitude	Longitude	NAD
32.094631	-103.571153	83

Is this well the defining well for the Horizontal Spacing Unit? NO

Is this well an infill well? YES

If infill is yes please provide API if available, Operator Name and well number for Defining well for Horizontal Spacing Unit.

API #
30-025-45990

Operator Name:	Property Name:	Well Number
Cimarex Energy Co.	CASCADE 28 FED	71H

KZ 06/29/2018

District I
1625 N. French Dr., Hobbs, NM 88240
District II
811 S. First St., Artesia, NM 88210
District III
1000 Rio Brazos Rd., Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy, Minerals & Natural Resources

Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-104
Revised August 1, 2011

Submit one copy to appropriate District Office

☐ AMENDED REPORT

I. REQUEST FOR ALLOWABLE AND AUTHORIZATION TO TRANSPORT

[1] Operator name and Address	[2] OGRID Number
Cimarex Energy Co. 600 N. Marienfeld St. Suite 600 Midland, TX 79701	215099
	[3] Reason for Filing Code/ Effective Date NW / 01/24/2020

[4] API Number	[5] Pool Name	[6] Pool Code
30-025-46317	Bobcat Draw; UPR Wolfcamp	98094
[7] Property Code	**[8] Property Name**	**[9] Well Number**
31404	Cascade 28 Federal	86H

II. [10] Surface Location

Ul or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South Line	Feet from the	East/West line	County
B	28	25S	33E		390	NORTH	1380	East	Lea

[11] Bottom Hole Location

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
P	28	25S	33E		100	SOUTH	740	East	Lea

[12] Lse Code	[13] Producing Method Code	[14] Gas Connection Date	[15] C-129 Permit Number	[16] C-129 Effective Date	[17] C-129 Expiration Date
F	F	01/24/2020			

III. Oil and Gas Transporters

[18] Transporter OGRID	[19] Transporter Name and Address	[20] O/G/W
21778	Sunoco R&M PO Box 2039 Tulsa OK 74102	O
320009	Enlink Midstream Operating, LP 1722 Routh St., Suite 1300 Dallas, TX 75201	G

IV. Well Completion Data

[21] Spud Date	[22] Ready Date	[23] TD	[24] PBTD	[25] Perforations	[26] DHC, MC
10/15/19	1/24/2020	17,120'	17,100'	12,614'-17,080'	

[27] Hole Size	[28] Casing & Tubing Size	[29] Depth Set	[30] Sacks Cement
14-3/4"	10-3/4"	1020'	875 sx - TOC @ 0
9-7/8"	7-5/8"	12,670'	1330 sx - TOC @ 0
6-3/4"	5-1/2" & 5"	17,120'	530 sx - TOC @ 12,068'

V. Well Test Data

[31] Date New Oil	[32] Gas Delivery Date	[33] Test Date	[34] Test Length	[35] Tbg. Pressure	[36] Csg. Pressure
01/24/2020	01/24/2020	02/03/2020	24	0	3982
[37] Choke Size	**[38] Oil**	**[39] Water**	**[40] Gas**		**[41] Test Method**
	1400	5087	3626		P

[42] I hereby certify that the rules of the Oil Conservation Division have been complied with and that the information given above is true and complete to the best of my knowledge and belief.

Signature: Fatima Vasquez

Printed name: Fatima Vasquez

Title: Regulatory Analyst

E-mail Address: fvasquez@cimarex.com

Date: 03/31/2020

Phone: (432) 620-1933

OIL CONSERVATION DIVISION

Approved by:

Title:

Approval Date:

Schlumberger

Final Surveys - Cimarex Cascade 28 Federal 86H MWD 0ft to 17120ft (Surcon Corrected) Survey Geodetic Report

(Def Survey)

Report Date:	November 20, 2019 - 10:21 AM	**Survey / DLS Computation:**	Minimum Curvature / Lubinski
Client:	Cimarex	**Vertical Section Azimuth:**	179.470 ° (Grid North)
Field:	NM Lea County (NAD 83)	**Vertical Section Origin:**	0.000 ft, 0.000 ft
Structure / Slot:	Cimarex Cascade 28 Federal 86H / Cimarex Cascade 28 Federal 86H	**TVD Reference Datum:**	RKB
Well:	Cimarex Cascade 28 Federal 86H	**TVD Reference Elevation:**	3391.600 ft above MSL
Borehole:	Original Borehole	**Seabed / Ground Elevation:**	3365.600 ft above MSL
UWI / API#:	Unknown / 30-025-46314	**Magnetic Declination:**	6.600 °
Survey Name:	Final Surveys - Cimarex Cascade 28 Federal 86H MWD 0ft to 17120ft (Surcon Corrected)	**Total Gravity Field Strength:**	998.4372mgn (9.80665 Based)
Survey Date:	October 14, 2019	**Gravity Model:**	GARM
Tort / AHD / DDI / ERD Ratio:	219.785 ° / 5531.651 ft / 6.220 / 0.441	**Total Magnetic Field Strength:**	47728.330 nT
Coordinate Reference System:	NAD83 New Mexico State Plane, Eastern Zone, US Feet	**Magnetic Dip Angle:**	59.702 °
Location Lat / Long:	N 32° 6' 27.79806", W 103° 34' 23.68479"	**Declination Date:**	October 28, 2019
Location Grid N/E Y/X:	N 403755.320 ftUS, E 776682.710 ftUS	**Magnetic Declination Model:**	HDGM 2019
CRS Grid Convergence Angle:	0.4040 °	**North Reference:**	Grid North
Grid Scale Factor:	0.99997253	**Grid Convergence Used:**	0.4040 °
Version / Patch:	2.10.782.0	**Total Corr Mag North->Grid North:**	6.1957 °
		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 ° ' ")	Closure Azimuth (°)	Closure (ft)
SHL [390' FNL, 1380' FEL]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	N/A	403755.32	776682.71	N 32 6 27.80	W 103 34 23.68	0.00	0.00
	200.00	1.07	333.83	199.99	-1.68	1.68	-0.82	0.54	403757.00	776681.89	N 32 6 27.81	W 103 34 23.69	333.83	1.87
	301.00	1.17	334.53	300.97	-3.47	3.45	-1.68	0.10	403758.77	776681.03	N 32 6 27.83	W 103 34 23.70	334.02	3.84
	484.00	1.12	330.93	483.93	-6.73	6.70	-3.36	0.05	403762.02	776679.35	N 32 6 27.86	W 103 34 23.72	333.41	7.50
	667.00	1.17	321.09	666.90	-9.77	9.72	-5.40	0.11	403765.04	776677.31	N 32 6 27.89	W 103 34 23.75	330.96	11.12
	757.00	1.33	307.80	756.87	-11.14	11.08	-6.80	0.37	403766.40	776675.91	N 32 6 27.91	W 103 34 23.76	328.45	13.00
	848.00	1.41	304.46	847.85	-12.43	12.36	-8.56	0.12	403767.68	776674.15	N 32 6 27.92	W 103 34 23.78	325.29	15.03
	933.00	1.50	303.26	932.82	-13.65	13.56	-10.35	0.11	403768.88	776672.36	N 32 6 27.93	W 103 34 23.80	322.64	17.06
	1034.00	1.59	302.56	1033.78	-15.15	15.04	-12.64	0.09	403770.36	776670.07	N 32 6 27.95	W 103 34 23.83	319.96	19.64
	1128.00	1.59	218.57	1127.76	-14.85	14.72	-14.55	2.26	403770.04	776668.16	N 32 6 27.94	W 103 34 23.85	315.33	20.70
	1223.00	2.40	207.24	1222.70	-12.07	11.92	-16.28	0.94	403767.24	776666.43	N 32 6 27.92	W 103 34 23.87	306.21	20.18
	1317.00	0.80	108.02	1316.67	-10.12	9.97	-16.56	2.82	403765.29	776666.15	N 32 6 27.90	W 103 34 23.88	301.05	19.33
	1412.00	1.75	66.20	1411.65	-10.48	10.35	-14.60	1.34	403765.67	776668.11	N 32 6 27.90	W 103 34 23.85	305.33	17.90
	1506.00	1.65	63.07	1505.61	-11.65	11.54	-12.08	0.15	403766.86	776670.63	N 32 6 27.91	W 103 34 23.82	313.69	16.71
	1601.00	1.46	60.59	1600.57	-12.84	12.75	-9.81	0.21	403768.07	776672.90	N 32 6 27.92	W 103 34 23.80	322.44	16.09
	1695.00	1.45	55.17	1694.54	-14.09	14.02	-7.79	0.15	403769.34	776674.92	N 32 6 27.94	W 103 34 23.77	330.95	16.04
	1884.00	1.38	56.05	1883.49	-16.69	16.66	-3.94	0.04	403771.98	776678.77	N 32 6 27.96	W 103 34 23.73	346.70	17.12
	1979.00	1.76	133.77	1978.46	-16.30	16.29	-1.93	2.10	403771.61	776680.78	N 32 6 27.96	W 103 34 23.71	353.23	16.40
	2073.00	1.95	139.26	2072.41	-14.07	14.08	0.15	0.28	403769.40	776682.86	N 32 6 27.94	W 103 34 23.68	0.62	14.08
	2168.00	1.38	193.34	2167.37	-11.73	11.74	0.94	1.68	403767.06	776683.65	N 32 6 27.91	W 103 34 23.67	4.59	11.78
	2262.00	1.31	203.81	2261.35	-9.65	9.65	0.25	0.27	403764.97	776682.96	N 32 6 27.89	W 103 34 23.68	1.47	9.66
	2357.00	1.13	195.52	2356.33	-7.76	7.76	-0.44	0.26	403763.08	776682.27	N 32 6 27.87	W 103 34 23.69	356.75	7.77
	2451.00	1.04	193.74	2450.31	-6.04	6.04	-0.89	0.10	403761.36	776681.82	N 32 6 27.86	W 103 34 23.69	351.60	6.10
	2546.00	0.92	187.56	2545.30	-4.45	4.44	-1.20	0.17	403759.76	776681.51	N 32 6 27.84	W 103 34 23.70	344.92	4.60
	2640.00	0.89	175.36	2639.28	-2.98	2.97	-1.24	0.21	403758.29	776681.47	N 32 6 27.83	W 103 34 23.70	337.37	3.21
	2735.00	2.53	94.93	2734.25	-2.04	2.05	0.91	2.67	403757.37	776683.62	N 32 6 27.82	W 103 34 23.67	23.97	2.25
	2829.00	3.21	92.18	2828.13	-1.72	1.77	5.61	0.74	403757.09	776688.32	N 32 6 27.82	W 103 34 23.62	72.46	5.88
	2923.00	6.40	82.90	2921.79	-2.20	2.32	13.44	3.48	403757.64	776696.15	N 32 6 27.82	W 103 34 23.53	80.20	13.64
	3018.00	6.61	83.22	3016.18	-3.40	3.62	24.12	0.22	403758.94	776706.83	N 32 6 27.83	W 103 34 23.40	81.46	24.39
	3112.00	7.73	85.71	3109.44	-4.40	4.73	35.80	1.24	403760.05	776718.51	N 32 6 27.84	W 103 34 23.27	82.47	36.11
	3207.00	9.40	91.84	3203.38	-4.50	4.96	49.93	2.00	403760.28	776732.64	N 32 6 27.84	W 103 34 23.10	84.33	50.17
	3301.00	8.73	92.55	3296.21	-3.80	4.40	64.73	0.72	403759.72	776747.43	N 32 6 27.84	W 103 34 22.93	86.11	64.88
	3395.00	6.89	89.04	3389.33	-3.46	4.17	77.49	2.02	403759.49	776760.20	N 32 6 27.83	W 103 34 22.78	86.92	77.60
	3584.00	6.76	90.43	3576.99	-3.36	4.28	99.95	0.11	403759.60	776782.66	N 32 6 27.83	W 103 34 22.52	87.55	100.04

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 ° ' ")	Closure Azimuth (°)	Closure (ft)
	3678.00	6.98	89.92	3670.32	-3.22	4.25	111.19	0.24	403759.57	776793.90	N 32 6 27.83	W 103 34 22.39	87.81	111.27
	3867.00	7.01	89.96	3857.91	-3.03	4.27	134.21	0.02	403759.59	776816.92	N 32 6 27.83	W 103 34 22.12	88.18	134.28
	3961.00	7.10	89.26	3951.20	-3.00	4.35	145.75	0.13	403759.67	776828.46	N 32 6 27.83	W 103 34 21.99	88.29	145.82
	4056.00	6.06	94.37	4045.57	-2.60	4.04	156.63	1.26	403759.36	776839.33	N 32 6 27.83	W 103 34 21.86	88.52	156.68
	4150.00	5.76	96.69	4139.07	-1.58	3.12	166.26	0.41	403758.44	776848.96	N 32 6 27.82	W 103 34 21.75	88.93	166.29
	4244.00	7.11	90.17	4232.48	-0.91	2.55	176.76	1.63	403757.87	776859.47	N 32 6 27.81	W 103 34 21.63	89.17	176.78
	4339.00	7.80	91.80	4326.67	-0.58	2.33	189.08	0.76	403757.65	776871.79	N 32 6 27.81	W 103 34 21.49	89.29	189.10
	4433.00	7.90	93.52	4419.79	0.13	1.73	201.91	0.27	403757.05	776884.61	N 32 6 27.80	W 103 34 21.34	89.51	201.91
	4528.00	8.28	97.31	4513.85	1.53	0.46	215.21	0.69	403755.78	776897.91	N 32 6 27.79	W 103 34 21.18	89.88	215.21
	4622.00	7.54	100.69	4606.95	3.65	-1.54	227.98	0.93	403753.78	776910.69	N 32 6 27.77	W 103 34 21.03	90.39	227.99
	4716.00	7.57	91.34	4700.14	5.05	-2.83	240.23	1.31	403752.49	776922.94	N 32 6 27.75	W 103 34 20.89	90.68	240.25
	4811.00	7.58	88.23	4794.31	5.12	-2.79	252.75	0.43	403752.53	776935.45	N 32 6 27.75	W 103 34 20.75	90.63	252.77
	4999.00	7.10	89.06	4980.77	4.77	-2.21	276.76	0.26	403753.11	776959.46	N 32 6 27.76	W 103 34 20.47	90.46	276.77
	5094.00	7.35	90.42	5075.02	4.83	-2.16	288.71	0.32	403753.16	776971.41	N 32 6 27.76	W 103 34 20.33	90.43	288.72
	5189.00	7.60	89.89	5169.21	4.98	-2.19	301.07	0.27	403753.13	776983.77	N 32 6 27.76	W 103 34 20.18	90.42	301.08
	5283.00	7.73	89.43	5262.37	5.02	-2.12	313.61	0.15	403753.20	776996.31	N 32 6 27.76	W 103 34 20.04	90.39	313.61
	5378.00	7.74	88.80	5356.51	4.94	-1.92	326.39	0.09	403753.40	777009.09	N 32 6 27.76	W 103 34 19.89	90.34	326.40
	5472.00	7.81	89.21	5449.64	4.84	-1.70	339.10	0.10	403753.62	777021.80	N 32 6 27.76	W 103 34 19.74	90.29	339.11
	5567.00	7.87	88.94	5543.75	4.75	-1.49	352.06	0.07	403753.83	777034.76	N 32 6 27.76	W 103 34 19.59	90.24	352.06
	5661.00	7.68	83.74	5636.89	4.06	-0.69	364.74	0.77	403754.63	777047.44	N 32 6 27.77	W 103 34 19.44	90.11	364.74
	5756.00	6.67	88.06	5731.15	3.29	0.19	376.56	1.20	403755.51	777059.26	N 32 6 27.77	W 103 34 19.31	89.97	376.56
	5850.00	6.74	88.79	5824.50	3.09	0.49	387.53	0.12	403755.81	777070.23	N 32 6 27.78	W 103 34 19.18	89.93	387.54
	6039.00	6.44	86.78	6012.25	2.46	1.32	409.21	0.20	403756.64	777091.90	N 32 6 27.78	W 103 34 18.93	89.81	409.21
	6133.00	6.43	85.96	6105.66	1.89	1.99	419.72	0.10	403757.31	777102.42	N 32 6 27.79	W 103 34 18.81	89.73	419.72
	6228.00	6.49	84.99	6200.06	1.15	2.83	430.37	0.13	403758.15	777113.07	N 32 6 27.80	W 103 34 18.68	89.62	430.38
	6417.00	7.20	91.35	6387.71	0.70	3.49	452.86	0.55	403758.81	777135.55	N 32 6 27.80	W 103 34 18.42	89.56	452.87
	6511.00	7.36	90.62	6480.96	1.02	3.28	464.77	0.20	403758.60	777147.46	N 32 6 27.80	W 103 34 18.28	89.60	464.78
	6605.00	6.79	91.94	6574.24	1.38	3.03	476.34	0.63	403758.35	777159.04	N 32 6 27.79	W 103 34 18.15	89.64	476.35
	6700.00	6.83	92.16	6668.57	1.88	2.63	487.60	0.05	403757.95	777170.29	N 32 6 27.79	W 103 34 18.02	89.69	487.60
	6794.00	6.79	93.15	6761.91	2.50	2.11	498.73	0.13	403757.43	777181.43	N 32 6 27.78	W 103 34 17.89	89.76	498.74
	6889.00	6.59	92.67	6856.26	3.17	1.55	509.78	0.22	403756.87	777192.48	N 32 6 27.78	W 103 34 17.76	89.83	509.79
	6983.00	6.57	91.70	6949.64	3.68	1.14	520.55	0.12	403756.46	777203.24	N 32 6 27.77	W 103 34 17.63	89.87	520.55
	7078.00	6.57	93.24	7044.02	4.25	0.67	531.41	0.19	403755.99	777214.10	N 32 6 27.77	W 103 34 17.51	89.93	531.41
	7172.00	6.65	87.41	7137.39	4.40	0.61	542.21	0.72	403755.93	777224.91	N 32 6 27.77	W 103 34 17.38	89.94	542.21
	7267.00	6.54	86.77	7231.76	3.95	1.17	553.11	0.14	403756.49	777235.80	N 32 6 27.77	W 103 34 17.25	89.88	553.11
	7361.00	6.64	86.69	7325.14	3.44	1.78	563.88	0.11	403757.10	777246.57	N 32 6 27.78	W 103 34 17.13	89.82	563.88
	7456.00	6.74	88.05	7419.50	3.03	2.29	574.93	0.20	403757.61	777257.63	N 32 6 27.78	W 103 34 17.00	89.77	574.94
	7550.00	6.65	88.23	7512.86	2.78	2.64	585.89	0.10	403757.96	777268.58	N 32 6 27.78	W 103 34 16.87	89.74	585.89
	7645.00	6.25	89.40	7607.25	2.65	2.87	596.56	0.44	403758.19	777279.25	N 32 6 27.78	W 103 34 16.75	89.72	596.56
	7739.00	4.43	92.57	7700.84	2.84	2.76	605.30	1.96	403758.08	777287.99	N 32 6 27.78	W 103 34 16.65	89.74	605.31
	7834.00	3.86	94.32	7795.59	3.31	2.35	612.15	0.61	403757.67	777294.85	N 32 6 27.78	W 103 34 16.57	89.78	612.16
	7929.00	2.76	87.42	7890.43	3.50	2.22	617.63	1.23	403757.53	777300.32	N 32 6 27.78	W 103 34 16.50	89.79	617.63
	8023.00	1.35	49.75	7984.37	2.71	3.03	620.73	2.00	403758.35	777303.43	N 32 6 27.78	W 103 34 16.47	89.72	620.74
	8212.00	1.00	22.61	8173.34	-0.23	5.99	623.07	0.34	403761.31	777305.76	N 32 6 27.81	W 103 34 16.44	89.45	623.10
	8307.00	1.14	19.34	8268.32	-1.88	7.65	623.70	0.16	403762.97	777306.39	N 32 6 27.83	W 103 34 16.43	89.30	623.75
	8402.00	1.06	18.70	8363.30	-3.60	9.37	624.29	0.09	403764.69	777306.99	N 32 6 27.85	W 103 34 16.43	89.14	624.36
	8496.00	0.83	18.53	8457.29	-5.06	10.84	624.79	0.24	403766.16	777307.48	N 32 6 27.86	W 103 34 16.42	89.01	624.88
	8590.00	0.72	23.13	8551.28	-6.25	12.03	625.24	0.13	403767.35	777307.93	N 32 6 27.87	W 103 34 16.42	88.90	625.35
	8685.00	0.62	37.78	8646.27	-7.20	12.99	625.79	0.21	403768.31	777308.48	N 32 6 27.88	W 103 34 16.41	88.81	625.92
	8779.00	0.55	35.45	8740.27	-7.96	13.76	626.36	0.08	403769.08	777309.05	N 32 6 27.89	W 103 34 16.40	88.74	626.51
	8874.00	0.33	26.37	8835.27	-8.58	14.37	626.75	0.24	403769.69	777309.44	N 32 6 27.90	W 103 34 16.40	88.69	626.91
	8968.00	0.12	37.99	8929.27	-8.89	14.69	626.93	0.23	403770.01	777309.62	N 32 6 27.90	W 103 34 16.40	88.66	627.10
	9063.00	0.12	62.93	9024.27	-9.02	14.82	627.08	0.05	403770.14	777309.77	N 32 6 27.90	W 103 34 16.39	88.65	627.25
	9157.00	0.34	219.45	9118.27	-8.85	14.65	626.99	0.48	403769.97	777309.68	N 32 6 27.90	W 103 34 16.39	88.66	627.16
	9252.00	0.52	202.50	9213.26	-8.23	14.03	626.64	0.23	403769.35	777309.33	N 32 6 27.89	W 103 34 16.40	88.72	626.80
	9347.00	0.44	202.73	9308.26	-7.50	13.30	626.34	0.08	403768.62	777309.03	N 32 6 27.89	W 103 34 16.40	88.78	626.48
	9441.00	0.59	179.84	9402.26	-6.69	12.48	626.20	0.27	403767.80	777308.89	N 32 6 27.88	W 103 34 16.40	88.86	626.32
	9536.00	0.49	134.05	9497.25	-5.91	11.71	626.49	0.45	403767.03	777309.18	N 32 6 27.87	W 103 34 16.40	88.93	626.60
	9630.00	0.43	116.00	9591.25	-5.47	11.27	627.10	0.17	403766.59	777309.79	N 32 6 27.87	W 103 34 16.39	88.97	627.20
	9682.00	0.68	85.25	9643.25	-5.41	11.21	627.58	0.73	403766.53	777310.27	N 32 6 27.87	W 103 34 16.39	88.98	627.68
	9724.00	0.88	93.85	9685.24	-5.40	11.21	628.15	0.55	403766.53	777310.84	N 32 6 27.87	W 103 34 16.38	88.98	628.25
	9819.00	1.00	83.66	9780.23	-5.43	11.26	629.70	0.22	403766.57	777312.39	N 32 6 27.87	W 103 34 16.36	88.98	629.80
	9913.00	1.14	84.15	9874.21	-5.60	11.44	631.45	0.15	403766.76	777314.14	N 32 6 27.87	W 103 34 16.34	88.96	631.55
	10008.00	1.02	122.54	9969.20	-5.23	11.08	633.10	0.76	403766.40	777315.79	N 32 6 27.86	W 103 34 16.32	89.00	633.20
	10102.00	1.20	131.39	10063.18	-4.11	9.98	634.55	0.26	403765.30	777317.24	N 32 6 27.85	W 103 34 16.31	89.10	634.62
	10197.00	1.28	123.35	10158.16	-2.86	8.74	636.18	0.20	403764.06	777318.87	N 32 6 27.84	W 103 34 16.29	89.21	636.24
	10291.00	1.16	207.74	10252.14	-1.43	7.32	636.61	1.75	403762.64	777319.30	N 32 6 27.83	W 103 34 16.28	89.34	636.65
	10385.00	1.48	218.52	10346.12	0.35	5.53	635.41	0.43	403760.85	777318.10	N 32 6 27.81	W 103 34 16.30	89.50	635.44

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 ° ' ")	Closure Azimuth (°)	Closure (ft)
	10480.00	1.62	207.40	10441.08	2.49	3.38	634.03	0.35	403758.70	777316.72	N 32 6 27.79	W 103 34 16.31	89.69	634.04
	10575.00	1.31	238.69	10536.05	4.23	1.62	632.49	0.89	403756.94	777315.18	N 32 6 27.77	W 103 34 16.33	89.85	632.49
	10669.00	1.23	231.87	10630.03	5.40	0.44	630.77	0.18	403755.76	777313.47	N 32 6 27.76	W 103 34 16.35	89.96	630.77
	10763.00	1.24	211.97	10724.01	6.87	-1.05	629.44	0.45	403754.27	777312.13	N 32 6 27.74	W 103 34 16.37	90.10	629.44
	10858.00	1.51	208.99	10818.98	8.82	-3.01	628.29	0.29	403752.31	777310.98	N 32 6 27.72	W 103 34 16.38	90.27	628.30
	10952.00	1.39	247.31	10912.95	10.33	-4.54	626.64	1.02	403750.78	777309.33	N 32 6 27.71	W 103 34 16.40	90.41	626.65
	11047.00	1.24	255.82	11007.93	11.01	-5.23	624.58	0.26	403750.09	777307.27	N 32 6 27.70	W 103 34 16.42	90.48	624.60
	11141.00	1.40	224.50	11101.90	12.06	-6.30	622.79	0.78	403749.02	777305.48	N 32 6 27.69	W 103 34 16.45	90.58	622.82
	11236.00	1.14	224.77	11196.88	13.55	-7.80	621.31	0.27	403747.52	777304.00	N 32 6 27.68	W 103 34 16.46	90.72	621.36
	11330.00	0.81	241.28	11290.87	14.52	-8.78	620.07	0.46	403746.54	777302.76	N 32 6 27.67	W 103 34 16.48	90.81	620.13
	11425.00	0.75	257.76	11385.86	14.96	-9.24	618.87	0.24	403746.08	777301.56	N 32 6 27.66	W 103 34 16.49	90.86	618.94
	11520.00	0.86	247.05	11480.85	15.36	-9.65	617.61	0.20	403745.67	777300.30	N 32 6 27.66	W 103 34 16.51	90.89	617.68
	11614.00	0.99	273.79	11574.84	15.57	-9.87	616.15	0.47	403745.45	777298.84	N 32 6 27.66	W 103 34 16.52	90.92	616.23
	11709.00	0.85	276.12	11669.83	15.42	-9.74	614.63	0.15	403745.58	777297.32	N 32 6 27.66	W 103 34 16.54	90.91	614.70
	11803.00	0.98	274.10	11763.81	15.28	-9.61	613.13	0.14	403745.71	777295.82	N 32 6 27.66	W 103 34 16.56	90.90	613.21
	11898.00	1.38	271.76	11858.79	15.17	-9.51	611.18	0.42	403745.81	777293.87	N 32 6 27.66	W 103 34 16.58	90.89	611.25
	11960.00	1.54	275.95	11920.77	15.04	-9.40	609.60	0.31	403745.92	777292.30	N 32 6 27.66	W 103 34 16.60	90.88	609.68
First SLB Survey	12001.00	1.70	268.54	11961.76	14.99	-9.36	608.45	0.64	403745.96	777291.14	N 32 6 27.66	W 103 34 16.61	90.88	608.52
	12033.00	1.70	237.59	11993.74	15.25	-9.63	607.57	2.83	403745.69	777290.26	N 32 6 27.66	W 103 34 16.62	90.91	607.65
	12064.00	3.69	209.62	12024.71	16.35	-10.74	606.69	7.51	403744.58	777289.38	N 32 6 27.65	W 103 34 16.63	91.01	606.79
KOP	*12068.00*	*4.05*	*207.90*	*12028.70*	*16.59*	*-10.98*	*606.56*	*9.47*	*403744.34*	*777289.25*	*N 32 6 27.65*	*W 103 34 16.63*	*91.04*	*606.66*
	12096.00	6.63	201.16	12056.58	18.96	-13.36	605.52	9.47	403741.96	777288.21	N 32 6 27.62	W 103 34 16.65	91.26	605.66
	12127.00	8.76	194.15	12087.30	22.91	-17.32	604.29	7.50	403738.00	777286.98	N 32 6 27.58	W 103 34 16.66	91.64	604.54
	12159.00	11.01	187.89	12118.82	28.29	-22.71	603.28	7.78	403732.61	777285.97	N 32 6 27.53	W 103 34 16.67	92.16	603.70
	12186.00	13.85	184.35	12145.18	34.06	-28.49	602.68	10.89	403726.83	777285.37	N 32 6 27.47	W 103 34 16.68	92.71	603.35
	12217.00	17.15	179.65	12175.05	42.33	-36.76	602.42	11.38	403718.56	777285.12	N 32 6 27.39	W 103 34 16.68	93.49	603.54
	12249.00	20.72	174.33	12205.32	52.69	-47.12	603.01	12.38	403708.21	777285.70	N 32 6 27.29	W 103 34 16.68	94.47	604.85
	12280.00	24.55	172.84	12233.93	64.56	-58.97	604.36	12.49	403696.35	777287.05	N 32 6 27.17	W 103 34 16.66	95.57	607.23
	12312.00	29.11	170.31	12262.48	78.85	-73.24	606.50	14.69	403682.08	777289.19	N 32 6 27.03	W 103 34 16.64	96.89	610.90
	12343.00	33.32	169.43	12288.98	94.69	-89.05	609.33	13.66	403666.27	777292.02	N 32 6 26.87	W 103 34 16.61	98.31	615.80
	12375.00	38.49	169.61	12314.89	113.16	-107.50	612.74	16.16	403647.82	777295.43	N 32 6 26.69	W 103 34 16.57	99.95	622.10
	12406.00	41.70	170.27	12338.60	132.85	-127.16	616.22	10.45	403628.17	777298.92	N 32 6 26.50	W 103 34 16.53	101.66	629.21
	12438.00	45.62	171.04	12361.75	154.68	-148.95	619.80	12.36	403606.37	777302.50	N 32 6 26.28	W 103 34 16.49	103.51	637.45
	12469.00	50.35	171.25	12382.49	177.46	-171.70	623.35	15.27	403583.62	777306.04	N 32 6 26.06	W 103 34 16.45	105.40	646.56
	12501.00	52.02	171.50	12402.55	202.15	-196.36	627.09	5.25	403558.97	777309.78	N 32 6 25.81	W 103 34 16.41	107.39	657.11
	12532.00	55.55	173.70	12420.86	226.97	-221.15	630.30	12.74	403534.17	777312.99	N 32 6 25.57	W 103 34 16.38	109.33	667.97
	12564.00	59.94	176.03	12437.94	253.94	-248.10	632.70	15.04	403507.23	777315.40	N 32 6 25.30	W 103 34 16.35	111.41	679.61
	12595.00	65.23	177.03	12452.21	281.41	-275.56	634.36	17.30	403479.77	777317.05	N 32 6 25.03	W 103 34 16.33	113.48	691.63
	12614.00	68.04	177.32	12459.74	298.84	-292.98	635.22	14.86	403462.35	777317.91	N 32 6 24.85	W 103 34 16.32	114.76	699.53
	12701.00	76.80	177.49	12485.99	381.64	-375.75	638.97	10.07	403379.58	777321.66	N 32 6 24.04	W 103 34 16.29	120.46	741.26
	12733.00	77.40	177.71	12493.14	412.82	-406.91	640.28	1.99	403348.42	777322.97	N 32 6 23.73	W 103 34 16.27	122.44	758.64
	12765.00	77.84	177.65	12500.00	444.06	-438.14	641.54	1.39	403317.19	777324.23	N 32 6 23.42	W 103 34 16.26	124.33	776.88
	12796.00	78.58	178.11	12506.33	474.39	-468.47	642.66	2.79	403286.87	777325.36	N 32 6 23.12	W 103 34 16.25	126.09	795.28
	12828.00	79.36	178.10	12512.46	505.79	-499.86	643.70	2.44	403255.48	777326.39	N 32 6 22.81	W 103 34 16.24	127.83	814.99
	12859.00	79.90	178.14	12518.04	536.28	-530.33	644.70	1.75	403225.00	777327.39	N 32 6 22.51	W 103 34 16.23	129.44	834.80
	12891.00	80.72	178.42	12523.42	567.81	-561.86	645.65	2.70	403193.47	777328.34	N 32 6 22.19	W 103 34 16.22	131.03	855.89
	12923.00	81.61	178.71	12528.34	599.43	-593.47	646.44	2.92	403161.86	777329.13	N 32 6 21.88	W 103 34 16.22	132.55	877.55
	12954.00	83.01	179.13	12532.48	630.15	-624.19	647.02	4.71	403131.15	777329.71	N 32 6 21.58	W 103 34 16.21	133.97	899.03
	12986.00	83.99	179.29	12536.11	661.94	-655.98	647.46	3.10	403099.36	777330.15	N 32 6 21.26	W 103 34 16.21	135.37	921.69
	13017.00	85.67	179.62	12538.90	692.81	-686.85	647.75	5.52	403068.49	777330.44	N 32 6 20.96	W 103 34 16.21	136.68	944.11
	13049.00	87.05	180.11	12540.93	724.75	-718.79	647.83	4.58	403036.56	777330.52	N 32 6 20.64	W 103 34 16.21	137.97	967.64
	13081.00	88.14	180.37	12542.27	756.72	-750.76	647.69	3.50	403004.59	777330.38	N 32 6 20.32	W 103 34 16.22	139.21	991.54
	13112.00	89.64	180.48	12542.88	787.70	-781.75	647.46	4.85	402973.59	777330.15	N 32 6 20.02	W 103 34 16.22	140.37	1015.06
	13176.00	91.39	180.99	12542.30	851.68	-845.74	646.64	2.85	402909.61	777329.33	N 32 6 19.38	W 103 34 16.24	142.60	1064.62
	13271.00	91.11	181.13	12540.23	946.62	-940.70	644.89	0.33	402814.65	777327.58	N 32 6 18.44	W 103 34 16.26	145.57	1140.52
	13366.00	90.92	181.74	12538.54	1041.55	-1035.65	642.51	0.67	402719.70	777325.20	N 32 6 17.51	W 103 34 16.30	148.19	1218.77
	13460.00	91.09	182.01	12536.90	1135.46	-1129.59	639.43	0.34	402625.76	777322.12	N 32 6 16.58	W 103 34 16.34	150.49	1298.02
	13555.00	90.86	181.15	12535.28	1230.38	-1224.54	636.81	0.94	402530.82	777319.50	N 32 6 15.64	W 103 34 16.38	152.52	1380.23
	13649.00	90.77	180.17	12533.94	1324.35	-1318.52	635.73	1.05	402436.84	777318.42	N 32 6 14.71	W 103 34 16.40	154.26	1463.78
	13744.00	90.95	181.33	12532.52	1419.31	-1413.50	634.49	1.24	402341.86	777317.18	N 32 6 13.77	W 103 34 16.42	155.83	1549.37
	13839.00	91.83	181.63	12530.21	1514.22	-1508.44	632.03	0.98	402246.92	777314.73	N 32 6 12.83	W 103 34 16.46	157.27	1635.50
	13934.00	91.91	181.23	12527.11	1609.12	-1603.36	629.66	0.43	402152.01	777312.36	N 32 6 11.89	W 103 34 16.50	158.56	1722.57
	14028.00	90.64	176.72	12525.02	1703.06	-1697.30	631.35	4.98	402058.07	777314.04	N 32 6 10.96	W 103 34 16.48	159.60	1810.91
	14124.00	89.29	172.70	12525.08	1798.71	-1792.86	640.19	4.42	401962.51	777322.89	N 32 6 10.01	W 103 34 16.39	160.35	1903.74
	14219.00	90.52	177.12	12525.24	1893.38	-1887.46	648.62	4.83	401867.91	777331.31	N 32 6 9.08	W 103 34 16.30	161.03	1995.80
	14313.00	90.93	179.64	12524.05	1987.35	-1981.41	651.28	2.72	401773.97	777333.97	N 32 6 8.15	W 103 34 16.28	161.80	2085.70
	14408.00	90.89	178.96	12522.54	2082.34	-2076.39	652.44	0.72	401678.99	777335.13	N 32 6 7.21	W 103 34 16.27	162.56	2176.48

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 ° ' ")	Closure Azimuth (°)	Closure (ft)
	14503.00	90.47	177.55	12521.41	2177.31	-2171.34	655.33	1.55	401584.05	777338.02	N 32 6 6.27	W 103 34 16.24	163.21	2268.08
	14598.00	91.25	180.21	12519.98	2272.28	-2266.30	657.19	2.92	401489.09	777339.88	N 32 6 5.33	W 103 34 16.23	163.83	2359.66
	14692.00	90.97	180.86	12518.16	2366.25	-2360.28	656.31	0.75	401395.11	777339.00	N 32 6 4.40	W 103 34 16.25	164.46	2449.83
	14787.00	91.24	181.64	12516.33	2461.18	-2455.24	654.24	0.87	401300.16	777336.93	N 32 6 3.46	W 103 34 16.28	165.08	2540.91
	14881.00	90.58	179.92	12514.84	2555.14	-2549.21	652.96	1.96	401206.18	777335.65	N 32 6 2.53	W 103 34 16.30	165.63	2631.51
	14976.00	90.44	179.73	12513.99	2650.14	-2644.21	653.25	0.25	401111.19	777335.94	N 32 6 1.59	W 103 34 16.31	166.12	2723.71
	15071.00	90.52	179.75	12513.20	2745.13	-2739.20	653.68	0.09	401016.20	777336.37	N 32 6 0.65	W 103 34 16.31	166.58	2816.12
	15165.00	90.84	180.42	12512.08	2839.12	-2833.20	653.54	0.79	400922.21	777336.23	N 32 5 59.72	W 103 34 16.32	167.01	2907.60
	15260.00	90.41	177.48	12511.04	2934.10	-2928.16	655.28	3.13	400827.24	777337.97	N 32 5 58.78	W 103 34 16.31	167.39	3000.59
	15354.00	89.51	176.78	12511.11	3028.02	-3022.05	659.99	1.21	400733.36	777342.68	N 32 5 57.85	W 103 34 16.26	167.68	3093.27
	15449.00	90.37	177.00	12511.21	3122.92	-3116.90	665.14	0.93	400638.51	777347.83	N 32 5 56.91	W 103 34 16.21	167.95	3187.08
	15543.00	90.11	178.50	12510.82	3216.88	-3210.83	668.83	1.62	400544.59	777351.52	N 32 5 55.98	W 103 34 16.17	168.23	3279.75
	15638.00	89.37	179.18	12511.25	3311.87	-3305.81	670.76	1.06	400449.61	777353.45	N 32 5 55.04	W 103 34 16.16	168.53	3373.17
	15732.00	90.18	180.28	12511.62	3405.87	-3399.80	671.20	1.45	400355.62	777353.89	N 32 5 54.11	W 103 34 16.16	168.83	3465.42
	15826.00	89.97	180.55	12511.49	3499.85	-3493.80	670.52	0.36	400261.62	777353.21	N 32 5 53.18	W 103 34 16.18	169.14	3557.56
	15921.00	91.37	181.61	12510.38	3594.80	-3588.77	668.73	1.85	400166.65	777351.42	N 32 5 52.24	W 103 34 16.21	169.44	3650.55
	16016.00	89.35	178.90	12509.78	3689.78	-3683.76	668.30	3.56	400071.67	777351.00	N 32 5 51.30	W 103 34 16.22	169.72	3743.89
	16111.00	89.35	179.36	12510.86	3784.77	-3778.74	669.75	0.48	399976.69	777352.44	N 32 5 50.36	W 103 34 16.21	169.95	3837.63
	16206.00	91.71	182.30	12509.98	3879.72	-3873.71	668.37	3.97	399881.73	777351.06	N 32 5 49.42	W 103 34 16.23	170.21	3930.95
	16300.00	88.64	182.53	12509.70	3973.59	-3967.61	664.41	3.28	399787.82	777347.10	N 32 5 48.49	W 103 34 16.29	170.49	4022.86
	16395.00	89.67	182.60	12511.10	4068.44	-4062.51	660.16	1.09	399692.93	777342.85	N 32 5 47.55	W 103 34 16.34	170.77	4115.79
	16490.00	90.76	180.22	12510.74	4163.37	-4157.47	657.82	2.76	399597.97	777340.51	N 32 5 46.61	W 103 34 16.38	171.01	4209.19
	16585.00	89.80	178.13	12510.28	4258.37	-4252.45	659.19	2.42	399502.99	777341.88	N 32 5 45.67	W 103 34 16.37	171.19	4303.24
	16680.00	90.02	178.25	12510.43	4353.34	-4347.40	662.19	0.26	399408.05	777344.88	N 32 5 44.73	W 103 34 16.34	171.34	4397.55
	16775.00	89.45	177.70	12510.87	4448.31	-4442.34	665.55	0.83	399313.11	777348.24	N 32 5 43.79	W 103 34 16.31	171.48	4491.92
	16869.00	90.52	177.68	12510.89	4542.26	-4536.26	669.34	1.14	399219.19	777352.03	N 32 5 42.86	W 103 34 16.28	171.61	4585.38
	16964.00	89.62	176.82	12510.77	4637.19	-4631.15	673.89	1.31	399124.30	777356.58	N 32 5 41.93	W 103 34 16.23	171.72	4679.93
	17059.00	89.77	176.08	12511.28	4732.05	-4725.97	679.78	0.79	399029.49	777362.47	N 32 5 40.99	W 103 34 16.17	171.81	4774.61
Final Survey	17091.00	89.82	175.69	12511.39	4763.99	-4757.89	682.07	1.23	398997.57	777364.76	N 32 5 40.67	W 103 34 16.15	171.84	4806.53
TD, PTB [100' FSL, 740' FEL]	17120.00	89.82	175.69	12511.49	4792.93	-4786.80	684.25	0.00	398968.66	777366.94	N 32 5 40.38	W 103 34 16.12	171.86	4835.46

Survey Type: Def Survey

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)	Survey Tool Type	Borehole / Survey
	1	0.000	26.000	1/98.425	14.750	10.750	NAL_MWD_IFR1+MS-Depth Only	Original Borehole / Final Surveys - Cimarex Cascade 28 Federal 86H MWD 0ft to 17120ft (Surcon
	1	26.000	26.000	Act Stns	14.750	10.750	NAL_MWD_IFR1+MS-Depth Only	Original Borehole / Final Surveys - Cimarex Cascade 28 Federal 86H MWD 0ft to 17120ft (Surcon
	1	26.000	1020.000	Act Stns	14.750	10.750	NAL_MWD_IFR1+MS	Original Borehole / Final Surveys - Cimarex Cascade 28 Federal 86H
	1	1020.000	12020.000	Act Stns	9.875	7.625	NAL_MWD_IFR1+MS	Original Borehole / Final Surveys - Cimarex Cascade 28 Federal 86H
	1	12020.000	12670.000	Act Stns	8.750	7.000	NAL_MWD_IFR1+MS	Original Borehole / Final Surveys - Cimarex Cascade 28 Federal 86H
	1	12670.000	17120.000	Act Stns	6.750	4.750	NAL_MWD_IFR1+MS	Original Borehole / Final Surveys - Cimarex Cascade 28 Federal 86H

Schlumberger

Cimarex

Final PvA

CIMAREX

Borehole:	Well:	Field:	Structure:
Original Borehole	Cimarex Cascade 28 Federal 86H	NM Lea County (NAD 83)	Cimarex Cascade 28 Federal 86H

Gravity & Magnetic Parameters

Model:	HDGM 2019	Dip:	59.702°	Date:	28-Oct-2019
MagDec:	6.6°	FS:	47728.33nT	Gravity FS:	998.437mgn (9.80665 Based)

Surface Location NAD83 New Mexico State Plane, Eastern Zone, US Feet

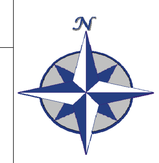
Lat:	N 32 6 27.80	Northing:	403755.32ftUS	Grid Conv:	0.404°
Lon:	W 103 34 23.68	Easting:	776682.71ftUS	Scale Fact:	0.99997253

Miscellaneous

Slot:	Cimarex Cascade 28 Federal 86H	TVD Ref:	RKB(3391.6ft above MSL)
Plan:	Final Surveys - Cimarex Cascade 28 Federal 86H MWD 0ft to 17120ft (Surcon Corrected)		

Critical Points

Critical Point	MD	INCL	AZIM	TVD	VSEC	N(+)/S(-)	E(+)/W(-)	DLS
SHL [390' FNL, 1380' FEL]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
First SLB Survey	12001.00	1.70	268.54	11961.76	14.99	-9.36	608.45	0.64
KOP	12068.00	4.05	207.90	12028.70	16.59	-10.98	606.56	9.47
Final Survey	17091.00	89.82	175.69	12511.39	4763.99	-4757.89	682.07	1.23
TD, PTB [100' FSL, 740' FEL]	17120.00	89.82	175.69	12511.49	4792.93	-4786.80	684.25	0.00

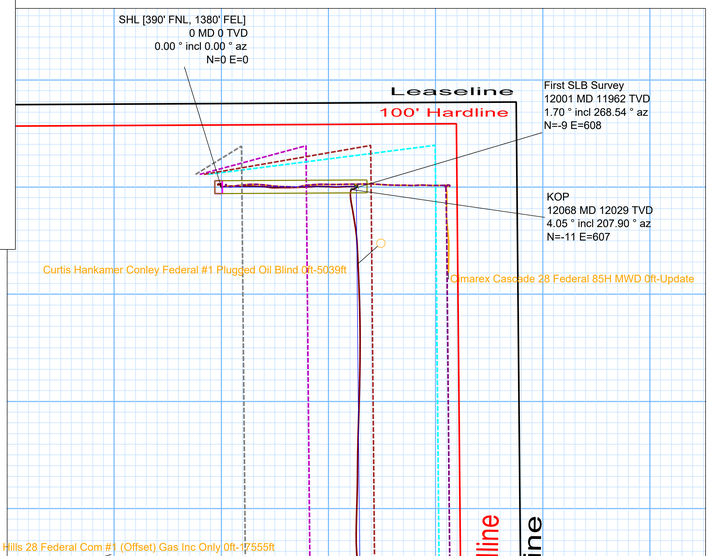


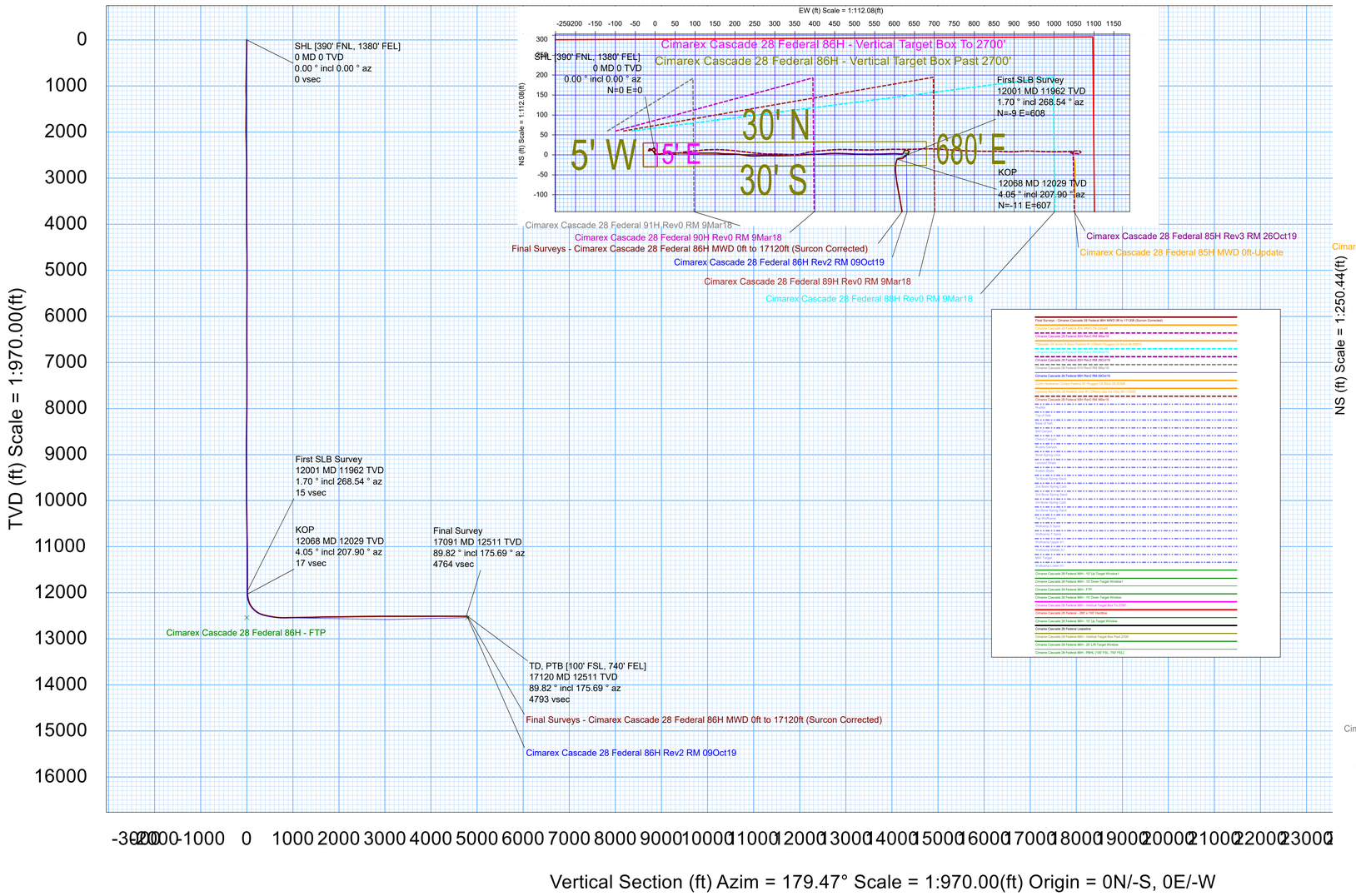
D
E
C **CONTROLLED**

Plan ref	Final Surveys - Cimarex Cascade 28 Federal 86H MWD 0ft to 17120ft (Surcon Corrected)
Drawing ref	
Copy number	of 3
Date	20-Nov-2019

1	Client	
2	Client	
3	Office	
4	Office	

Copy number for





Cimarex Energy Co.
600 N. Marienfeld St. ♦ Suite 600 ♦ Midland, TX 79701 ♦ (432) 620-1938 ♦ Fax (432) 620-1940
A subsidiary of Cimarex Energy Co. • A NYSE Listed Company • "XEC"

March 31, 2020

Rcvd 4/17/2020 – NMOCD

State of New Mexico
Oil Conservation Division – District 1
1625 N. French Drive
Hobbs, NM 88240

Re: Request for Exception to Rule 107J
Tubingless Completion
Cascade 28 Federal 86H – 30-025-46314
Lea County, NM

Dear Sir:

Cimarex Energy Co. respectfully requests an exception to NMOCD Rule 107J, well tubing requirements. Cimarex request a tubingless completions for our Cascade 28 Federal 86H well to allow for greater flowback after frac stimulation.

Cimarex plans to install production tubing as soon as flow decreases, which should occur within 6 months.

Thank you for your consideration of this request. Please feel free to contact me if you need additional information.

Sincerely,

Fatima Vasquez

Fatima Vasquez
Regulatory Analyst
432-620-1933