

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENTFORM 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.***HOBBS OCD****SUBMIT IN TRIPLICATE - Other instructions on page 3**

SEP 13 2018

RECEIVED

1. Type of Well ☐ Oil Well ☒ Gas Well ☐ Other		5. Lease Serial No. NMNM26394
2. Name of Operator CIMAREX ENERGY CO Contact: ARICKA EASTERLING E-Mail: aeasterling@cimarex.com		6. If Indian, Allottee or Tribe Name
3a. Address 202 S. CHEYENNE AVE., STE 1000 TULSA, OK 74103	3b. Phone No. (include area code) Ph: 918.560.7060	7. If Unit or CA/Agreement, Name and/or No.
4. Location of Well (Footage, Sec., T., R., M., or Survey Description) Sec 20 T25S R33E SWSW 330FSL 730FWL 32.109737 N Lat, 103.600487 W Lon		8. Well Name and No. VACA DRAW 20-17 FEDERAL 8H
		9. API Well No. 30-025-44359-00-X1
		10. Field and Pool or Exploratory Area WILDCAT; WOLFCAMP
		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
	☐ 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 recomple 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 recomple 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 requests to change the SHL & BHL.

Approved:
SHL: 330 FSL & 730 FWL Sec 20-25S-33E
BHL: 330 FNL & 1310 FWL Sec 17-25S-33EProposed:
SHL: 330 FSL & 710 FWL Sec 20-25S-33E
BHL: 330 FNL & 791 FWL Sec 17-25S-33E

Please see attached Plat, Drilling plan and Directional Plan.

Carlsbad Field Office
OCD HobbsSurface good. COA's stay the same. 8-13-2018
JR

Engineering Gwd. All previous COA's shall apply except the following above. 25 8/16/18

14. I hereby certify that the foregoing is true and correct. Electronic Submission #411718 verified by the BLM Well Information System For CIMAREX ENERGY CO, sent to the Hobbs Committed to AFMSS for processing by PRISCILLA PEREZ on 05/04/2018 (18PP0926SE)	
Name (Printed/Typed) ARICKA EASTERLING	Title REGULATORY ANALYST
Signature (Electronic Submission)	Date 04/16/2018

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved By <i>Cody D. Taylor</i>	Title <i>AFM - CER</i>	Date <i>05/15/2018</i>
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 <i>CFD</i>

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 ****

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 30-025-44359		² Pool Code 98250		³ Pool Name WC-025-S253317M; Wolfcamp (Gas)	
⁴ Property Code 319775		⁵ Property Name VACA DRAW 20-17 FEDERAL			⁶ Well Number 8H
⁷ OGRID No. 215099		⁸ Operator Name CIMAREX ENERGY CO.			⁹ Elevation 3422.9'

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
M	20	25S	33E		330	SOUTH	710	WEST	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
D	17	25S	33E		330	NORTH	791	WEST	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.

¹⁶ NOTE:

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

NAD 83 (SURFACE LOCATION)	
LATITUDE = 32°06'35.06" (32.109739)	
LONGITUDE = 103°36'02.00" (103.600556)	
NAD 27 (SURFACE LOCATION)	
LATITUDE = 32°06'34.61" (32.109614)	
LONGITUDE = 103°36'00.30" (103.600083)	
STATE PLANE NAD 83 (N.M. EAST)	
N: 404430.67 E: 768221.88	
STATE PLANE NAD 27 (N.M. EAST)	
N: 404372.88 E: 727035.73	
NAD 83 (BOTTOM HOLE LOCATION)	
LATITUDE = 32°08'13.02" (32.136950)	
LONGITUDE = 103°36'01.02" (103.600283)	
NAD 27 (BOTTOM HOLE LOCATION)	
LATITUDE = 32°08'12.57" (32.136825)	
LONGITUDE = 103°35'59.31" (103.599810)	
STATE PLANE NAD 83 (N.M. EAST)	
N: 414330.17 E: 768238.53	
STATE PLANE NAD 27 (N.M. EAST)	
N: 414272.13 E: 727052.84	

LINE TABLE

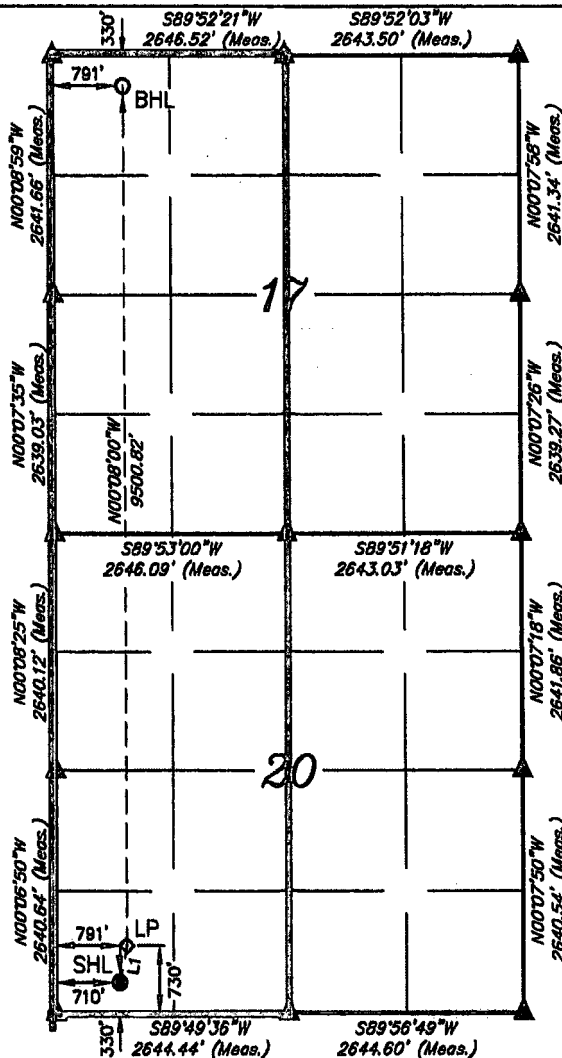
LINE	DIRECTION	LENGTH
L1	N11°19'53"E	408.20'



SCALE

REV: 2 12-20-17 R.T.
(WELL MOVE)

- = SURFACE HOLE LOCATION
- = BOTTOM HOLE LOCATION
- ▲ = SECTION CORNERS LOCATED
- ◆ = LANDING POINT



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.

Signature: *Aricka Easterling* Date: 4/16/18

Aricka Easterling

Printed Name

aeasterling@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 19, 2017

Date of Survey

Signature and Seal of Professional Surveyor:



Certificate Number:

1. Geological Formations

TVD of target 12,600

Pilot Hole TD N/A

MD at TD 22,234

Deepest expected fresh water

Formation	Depth (TVD) from KB	Water/Mineral Bearing/Target Zone	Hazards
Rustler	984	N/A	
Salado	1128	N/A	
Castille	4687	N/A	
Bell Canyon	4956	N/A	
Cherry Canyon	5974	Hydrocarbons	
Brushy Canyon	7484	Hydrocarbons	
Bone Spring	9040	Hydrocarbons	
2nd Bone Spring Sand	10573	Hydrocarbons	
3rd Bone Spring Sand	11726	Hydrocarbons	
Wolfcamp	12196	Hydrocarbons	
Wolfcamp A1 Shale	12361	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
14 3/4	0	1034	10-3/4"	40.50	J-55	BT&C	3.34	6.62	15.02
9 7/8	0	12717	7-5/8"	29.70	L-80	BT&C	2.44	1.17	1.78
6 3/4	0	12081	5-1/2"	20.00	P-110	LT&C	1.41	1.61	2.42
6 3/4	12081	22234	5"	18.00	P-110	BT&C	1.64	1.66	62.09
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

	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

3. Cementing Program

Casing	# Sk	Wt. lb/gal	Yld ft ³ /sack	H ₂ O gal/sk	500# Comp. Strength (hours)	Slurry Description
Surface	402	13.50	1.72	9.15	15.5	Lead: Class C + Bentonite
	107	14.80	1.34	6.32	9.5	Tail: Class C + LCM
Intermediate Stage 1	604	10.30	3.64	22.18		Lead: Tuned Light + LCM
	207	14.20	1.30	5.86	14:30	Tail: 50:50 (Poz:H) + Salt + Bentonite + Fluid Loss + Dispersant + SMS
Intermediate Stage 2	792	12.90	1.88	9.65	12	Lead: 35:65 (Poz:C) + Salt + Bentonite
Production	718	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 +/- 4,900'.

Casing String	TOC	% Excess
Surface	0	45
Intermediate Stage 1	4900	47
Intermediate Stage 2	0	39
Production	12351	9

4. Pressure Control Equipment

A variance is requested for the use of a diverter on the surface casing. See attached for schematic.					
BOP installed and tested before drilling which hole?	Size	Min Required WP	Type		Tested To
9 7/8	13 5/8	5M	Annular	X	50% of working pressure
			Blind Ram		5M
			Pipe Ram		
			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 1034'	FW Spud Mud	8.30 - 8.80	30-32	N/C
1034' to 12717'	Brine Diesel Emulsion	8.50 - 9.00	30-35	N/C
12717' to 22234'	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	
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	8190 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.

The surface casing string will be tested as per Onshore Order No. 2 to at least 0.22 psi/ft or 1500 psi, whichever is greater.

The casing string utilizing steel body pack-off will be tested to 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 Vaca Draw 20-17 Federal #8H Rev3 RM 3Apr18 Proposal

Geodetic Report

(Non-Def Plan)



Report Date: April 09, 2018 - 11:45 AM
Client: Cimarex
Field: NM Lea County (NAD 83)
Structure / Slot: Cimarex Vaca Draw 20-17 Federal #8H / Cimarex Vaca Draw 20-17 Federal #8H
Well: Cimarex Vaca Draw 20-17 Federal #8H
Borehole: Original Borehole
UWI / API#: Unknown / Unknown
Survey Name: Cimarex Vaca Draw 20-17 Federal #8H Rev3 RM 3Apr18
Survey Date: April 18, 2017
Tort / AHD / DDI / ERD Ratio: 96.610 ° / 9952.808 ft / 6.230 / 0.790
Coordinate Reference System: NAD83 New Mexico State Plane, Eastern Zone, US Feet
Location Lat / Long: N 32° 6' 35.06070", W 103° 36' 1.99689"
Location Grid N/E Y/X: N 404430.670 ftUS, E 768221.880 ftUS
CRS Grid Convergence Angle: 0.3895 °
Grid Scale Factor: 0.99996805
Version / Patch: 2.10.715.0

Survey / DLS Computation: Minimum Curvature / Lubinski
Vertical Section Azimuth: 359.633 ° (Grid North)
Vertical Section Origin: 0.000 ft, 0.000 ft
TVD Reference Datum: RKB
TVD Reference Elevation: 3446.900 ft above MSL
Seabed / Ground Elevation: 3422.900 ft above MSL
Magnetic Declination: 6.770 °
Total Gravity Field Strength: 998.4294mgn (9.80665 Based)
Gravity Model: GARM
Total Magnetic Field Strength: 47898.875 nT
Magnetic Dip Angle: 59.776 °
Declination Date: April 09, 2018
Magnetic Declination Model: HDGM 2018
North Reference: Grid North
Grid Convergence Used: 0.3895 °
Total Corr Mag North->Grid North: 6.3803 °
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 [330' FSL, 710' FWL]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	N/A	404430.67	768221.88	N 32 6 35.06 W 103 36	2.00
	100.00	0.00	67.00	100.00	0.00	0.00	0.00	0.00	404430.67	768221.88	N 32 6 35.06 W 103 36	2.00
	200.00	0.00	67.00	200.00	0.00	0.00	0.00	0.00	404430.67	768221.88	N 32 6 35.06 W 103 36	2.00
	300.00	0.00	67.00	300.00	0.00	0.00	0.00	0.00	404430.67	768221.88	N 32 6 35.06 W 103 36	2.00
	400.00	0.00	67.00	400.00	0.00	0.00	0.00	0.00	404430.67	768221.88	N 32 6 35.06 W 103 36	2.00
	500.00	0.00	67.00	500.00	0.00	0.00	0.00	0.00	404430.67	768221.88	N 32 6 35.06 W 103 36	2.00
	600.00	0.00	67.00	600.00	0.00	0.00	0.00	0.00	404430.67	768221.88	N 32 6 35.06 W 103 36	2.00
	700.00	0.00	67.00	700.00	0.00	0.00	0.00	0.00	404430.67	768221.88	N 32 6 35.06 W 103 36	2.00
	800.00	0.00	67.00	800.00	0.00	0.00	0.00	0.00	404430.67	768221.88	N 32 6 35.06 W 103 36	2.00
	900.00	0.00	67.00	900.00	0.00	0.00	0.00	0.00	404430.67	768221.88	N 32 6 35.06 W 103 36	2.00
Rustler	984.00	0.00	67.00	984.00	0.00	0.00	0.00	0.00	404430.67	768221.88	N 32 6 35.06 W 103 36	2.00
	1000.00	0.00	67.00	1000.00	0.00	0.00	0.00	0.00	404430.67	768221.88	N 32 6 35.06 W 103 36	2.00
	1100.00	0.00	67.00	1100.00	0.00	0.00	0.00	0.00	404430.67	768221.88	N 32 6 35.06 W 103 36	2.00
Top of Salt	1128.00	0.00	67.00	1128.00	0.00	0.00	0.00	0.00	404430.67	768221.88	N 32 6 35.06 W 103 36	2.00
	1200.00	0.00	67.00	1200.00	0.00	0.00	0.00	0.00	404430.67	768221.88	N 32 6 35.06 W 103 36	2.00
	1300.00	0.00	67.00	1300.00	0.00	0.00	0.00	0.00	404430.67	768221.88	N 32 6 35.06 W 103 36	2.00
	1400.00	0.00	67.00	1400.00	0.00	0.00	0.00	0.00	404430.67	768221.88	N 32 6 35.06 W 103 36	2.00
Nudge 2°/100' DLS	1500.00	0.00	67.00	1500.00	0.00	0.00	0.00	0.00	404430.67	768221.88	N 32 6 35.06 W 103 36	2.00
	1600.00	2.00	67.00	1599.98	0.67	0.68	1.61	2.00	404431.35	768223.49	N 32 6 35.07 W 103 36	1.98
Hold Nudge	1665.25	3.31	67.00	1665.16	1.83	1.86	4.39	2.00	404432.53	768226.27	N 32 6 35.08 W 103 36	1.95
	1700.00	3.31	67.00	1699.85	2.60	2.64	6.23	0.00	404433.31	768228.11	N 32 6 35.09 W 103 36	1.92
	1800.00	3.31	67.00	1799.68	4.82	4.90	11.54	0.00	404435.57	768233.42	N 32 6 35.11 W 103 36	1.86
	1900.00	3.31	67.00	1899.52	7.04	7.15	16.84	0.00	404437.82	768238.72	N 32 6 35.13 W 103 36	1.80
	2000.00	3.31	67.00	1999.35	9.26	9.40	22.15	0.00	404440.07	768244.03	N 32 6 35.15 W 103 36	1.74
	2100.00	3.31	67.00	2099.19	11.48	11.65	27.46	0.00	404442.32	768249.34	N 32 6 35.17 W 103 36	1.68

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 ° ' ")
	2200.00	3.31	67.00	2199.02	13.70	13.91	32.76	0.00	404444.58	768254.64	N 32 6 35.20 W 103 36	1.61
	2300.00	3.31	67.00	2298.85	15.92	16.16	38.07	0.00	404446.83	768259.95	N 32 6 35.22 W 103 36	1.55
	2400.00	3.31	67.00	2398.69	18.13	18.41	43.38	0.00	404449.08	768265.26	N 32 6 35.24 W 103 36	1.49
	2500.00	3.31	67.00	2498.52	20.35	20.67	48.68	0.00	404451.33	768270.56	N 32 6 35.26 W 103 36	1.43
	2600.00	3.31	67.00	2598.35	22.57	22.92	53.99	0.00	404453.59	768275.87	N 32 6 35.28 W 103 36	1.37
	2700.00	3.31	67.00	2698.19	24.79	25.17	59.30	0.00	404455.84	768281.18	N 32 6 35.31 W 103 36	1.31
	2800.00	3.31	67.00	2798.02	27.01	27.42	64.61	0.00	404458.09	768286.48	N 32 6 35.33 W 103 36	1.24
	2900.00	3.31	67.00	2897.85	29.23	29.68	69.91	0.00	404460.34	768291.79	N 32 6 35.35 W 103 36	1.18
	3000.00	3.31	67.00	2997.69	31.45	31.93	75.22	0.00	404462.60	768297.10	N 32 6 35.37 W 103 36	1.12
Drop to Vertical 2°/100' DLS	3002.32	3.31	67.00	3000.00	31.50	31.98	75.34	0.00	404462.65	768297.22	N 32 6 35.37 W 103 36	1.12
	3100.00	1.35	67.00	3097.60	33.02	33.53	78.99	2.00	404464.20	768300.87	N 32 6 35.39 W 103 36	1.08
Hold Vertical	3167.57	0.00	67.00	3165.16	33.33	33.84	79.73	2.00	404464.51	768301.60	N 32 6 35.39 W 103 36	1.07
	3200.00	0.00	67.00	3197.59	33.33	33.84	79.73	0.00	404464.51	768301.60	N 32 6 35.39 W 103 36	1.07
	3300.00	0.00	67.00	3297.59	33.33	33.84	79.73	0.00	404464.51	768301.60	N 32 6 35.39 W 103 36	1.07
	3400.00	0.00	67.00	3397.59	33.33	33.84	79.73	0.00	404464.51	768301.60	N 32 6 35.39 W 103 36	1.07
	3500.00	0.00	67.00	3497.59	33.33	33.84	79.73	0.00	404464.51	768301.60	N 32 6 35.39 W 103 36	1.07
	3600.00	0.00	67.00	3597.59	33.33	33.84	79.73	0.00	404464.51	768301.60	N 32 6 35.39 W 103 36	1.07
	3700.00	0.00	67.00	3697.59	33.33	33.84	79.73	0.00	404464.51	768301.60	N 32 6 35.39 W 103 36	1.07
	3800.00	0.00	67.00	3797.59	33.33	33.84	79.73	0.00	404464.51	768301.60	N 32 6 35.39 W 103 36	1.07
	3900.00	0.00	67.00	3897.59	33.33	33.84	79.73	0.00	404464.51	768301.60	N 32 6 35.39 W 103 36	1.07
	4000.00	0.00	67.00	3997.59	33.33	33.84	79.73	0.00	404464.51	768301.60	N 32 6 35.39 W 103 36	1.07
	4100.00	0.00	67.00	4097.59	33.33	33.84	79.73	0.00	404464.51	768301.60	N 32 6 35.39 W 103 36	1.07
	4200.00	0.00	67.00	4197.59	33.33	33.84	79.73	0.00	404464.51	768301.60	N 32 6 35.39 W 103 36	1.07
	4300.00	0.00	67.00	4297.59	33.33	33.84	79.73	0.00	404464.51	768301.60	N 32 6 35.39 W 103 36	1.07
	4400.00	0.00	67.00	4397.59	33.33	33.84	79.73	0.00	404464.51	768301.60	N 32 6 35.39 W 103 36	1.07
	4500.00	0.00	67.00	4497.59	33.33	33.84	79.73	0.00	404464.51	768301.60	N 32 6 35.39 W 103 36	1.07
	4600.00	0.00	67.00	4597.59	33.33	33.84	79.73	0.00	404464.51	768301.60	N 32 6 35.39 W 103 36	1.07
Base of Salt	4689.41	0.00	67.00	4687.00	33.33	33.84	79.73	0.00	404464.51	768301.60	N 32 6 35.39 W 103 36	1.07
	4700.00	0.00	67.00	4697.59	33.33	33.84	79.73	0.00	404464.51	768301.60	N 32 6 35.39 W 103 36	1.07
	4800.00	0.00	67.00	4797.59	33.33	33.84	79.73	0.00	404464.51	768301.60	N 32 6 35.39 W 103 36	1.07
	4900.00	0.00	67.00	4897.59	33.33	33.84	79.73	0.00	404464.51	768301.60	N 32 6 35.39 W 103 36	1.07
Bell Canyon	4958.41	0.00	67.00	4956.00	33.33	33.84	79.73	0.00	404464.51	768301.60	N 32 6 35.39 W 103 36	1.07
	5000.00	0.00	67.00	4997.59	33.33	33.84	79.73	0.00	404464.51	768301.60	N 32 6 35.39 W 103 36	1.07
	5100.00	0.00	67.00	5097.59	33.33	33.84	79.73	0.00	404464.51	768301.60	N 32 6 35.39 W 103 36	1.07
	5200.00	0.00	67.00	5197.59	33.33	33.84	79.73	0.00	404464.51	768301.60	N 32 6 35.39 W 103 36	1.07
	5300.00	0.00	67.00	5297.59	33.33	33.84	79.73	0.00	404464.51	768301.60	N 32 6 35.39 W 103 36	1.07
	5400.00	0.00	67.00	5397.59	33.33	33.84	79.73	0.00	404464.51	768301.60	N 32 6 35.39 W 103 36	1.07
	5500.00	0.00	67.00	5497.59	33.33	33.84	79.73	0.00	404464.51	768301.60	N 32 6 35.39 W 103 36	1.07
	5600.00	0.00	67.00	5597.59	33.33	33.84	79.73	0.00	404464.51	768301.60	N 32 6 35.39 W 103 36	1.07
	5700.00	0.00	67.00	5697.59	33.33	33.84	79.73	0.00	404464.51	768301.60	N 32 6 35.39 W 103 36	1.07
	5800.00	0.00	67.00	5797.59	33.33	33.84	79.73	0.00	404464.51	768301.60	N 32 6 35.39 W 103 36	1.07
	5900.00	0.00	67.00	5897.59	33.33	33.84	79.73	0.00	404464.51	768301.60	N 32 6 35.39 W 103 36	1.07
Cherry Canyon	5976.41	0.00	67.00	5974.00	33.33	33.84	79.73	0.00	404464.51	768301.60	N 32 6 35.39 W 103 36	1.07
	6000.00	0.00	67.00	5997.59	33.33	33.84	79.73	0.00	404464.51	768301.60	N 32 6 35.39 W 103 36	1.07
	6100.00	0.00	67.00	6097.59	33.33	33.84	79.73	0.00	404464.51	768301.60	N 32 6 35.39 W 103 36	1.07
	6200.00	0.00	67.00	6197.59	33.33	33.84	79.73	0.00	404464.51	768301.60	N 32 6 35.39 W 103 36	1.07
	6300.00	0.00	67.00	6297.59	33.33	33.84	79.73	0.00	404464.51	768301.60	N 32 6 35.39 W 103 36	1.07
	6400.00	0.00	67.00	6397.59	33.33	33.84	79.73	0.00	404464.51	768301.60	N 32 6 35.39 W 103 36	1.07
	6500.00	0.00	67.00	6497.59	33.33	33.84	79.73	0.00	404464.51	768301.60	N 32 6 35.39 W 103 36	1.07
	6600.00	0.00	67.00	6597.59	33.33	33.84	79.73	0.00	404464.51	768301.60	N 32 6 35.39 W 103 36	1.07
	6700.00	0.00	67.00	6697.59	33.33	33.84	79.73	0.00	404464.51	768301.60	N 32 6 35.39 W 103 36	1.07
	6800.00	0.00	67.00	6797.59	33.33	33.84	79.73	0.00	404464.51	768301.60	N 32 6 35.39 W 103 36	1.07
	6900.00	0.00	67.00	6897.59	33.33	33.84	79.73	0.00	404464.51	768301.60	N 32 6 35.39 W 103 36	1.07
	7000.00	0.00	67.00	6997.59	33.33	33.84	79.73	0.00	404464.51	768301.60	N 32 6 35.39 W 103 36	1.07
	7100.00	0.00	67.00	7097.59	33.33	33.84	79.73	0.00	404464.51	768301.60	N 32 6 35.39 W 103 36	1.07
	7200.00	0.00	67.00	7197.59	33.33	33.84	79.73	0.00	404464.51	768301.60	N 32 6 35.39 W 103 36	1.07
	7300.00	0.00	67.00	7297.59	33.33	33.84	79.73	0.00	404464.51	768301.60	N 32 6 35.39 W 103 36	1.07
	7400.00	0.00	67.00	7397.59	33.33	33.84	79.73	0.00	404464.51	768301.60	N 32 6 35.39 W 103 36	1.07

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 ° ' ")
Brushy Canyon	7486.41	0.00	67.00	7484.00	33.33	33.84	79.73	0.00	404464.51	768301.60	N 32 6 35.39 W 103 36 1.07	
	7500.00	0.00	67.00	7497.59	33.33	33.84	79.73	0.00	404464.51	768301.60	N 32 6 35.39 W 103 36 1.07	
	7600.00	0.00	67.00	7597.59	33.33	33.84	79.73	0.00	404464.51	768301.60	N 32 6 35.39 W 103 36 1.07	
	7700.00	0.00	67.00	7697.59	33.33	33.84	79.73	0.00	404464.51	768301.60	N 32 6 35.39 W 103 36 1.07	
	7800.00	0.00	67.00	7797.59	33.33	33.84	79.73	0.00	404464.51	768301.60	N 32 6 35.39 W 103 36 1.07	
	7900.00	0.00	67.00	7897.59	33.33	33.84	79.73	0.00	404464.51	768301.60	N 32 6 35.39 W 103 36 1.07	
	8000.00	0.00	67.00	7997.59	33.33	33.84	79.73	0.00	404464.51	768301.60	N 32 6 35.39 W 103 36 1.07	
	8100.00	0.00	67.00	8097.59	33.33	33.84	79.73	0.00	404464.51	768301.60	N 32 6 35.39 W 103 36 1.07	
	8200.00	0.00	67.00	8197.59	33.33	33.84	79.73	0.00	404464.51	768301.60	N 32 6 35.39 W 103 36 1.07	
	8300.00	0.00	67.00	8297.59	33.33	33.84	79.73	0.00	404464.51	768301.60	N 32 6 35.39 W 103 36 1.07	
	8400.00	0.00	67.00	8397.59	33.33	33.84	79.73	0.00	404464.51	768301.60	N 32 6 35.39 W 103 36 1.07	
	8500.00	0.00	67.00	8497.59	33.33	33.84	79.73	0.00	404464.51	768301.60	N 32 6 35.39 W 103 36 1.07	
	8600.00	0.00	67.00	8597.59	33.33	33.84	79.73	0.00	404464.51	768301.60	N 32 6 35.39 W 103 36 1.07	
	8700.00	0.00	67.00	8697.59	33.33	33.84	79.73	0.00	404464.51	768301.60	N 32 6 35.39 W 103 36 1.07	
	8800.00	0.00	67.00	8797.59	33.33	33.84	79.73	0.00	404464.51	768301.60	N 32 6 35.39 W 103 36 1.07	
	8900.00	0.00	67.00	8897.59	33.33	33.84	79.73	0.00	404464.51	768301.60	N 32 6 35.39 W 103 36 1.07	
	9000.00	0.00	67.00	8997.59	33.33	33.84	79.73	0.00	404464.51	768301.60	N 32 6 35.39 W 103 36 1.07	
Bone Spring	9042.41	0.00	67.00	9040.00	33.33	33.84	79.73	0.00	404464.51	768301.60	N 32 6 35.39 W 103 36 1.07	
	9100.00	0.00	67.00	9097.59	33.33	33.84	79.73	0.00	404464.51	768301.60	N 32 6 35.39 W 103 36 1.07	
	9200.00	0.00	67.00	9197.59	33.33	33.84	79.73	0.00	404464.51	768301.60	N 32 6 35.39 W 103 36 1.07	
	9300.00	0.00	67.00	9297.59	33.33	33.84	79.73	0.00	404464.51	768301.60	N 32 6 35.39 W 103 36 1.07	
	9400.00	0.00	67.00	9397.59	33.33	33.84	79.73	0.00	404464.51	768301.60	N 32 6 35.39 W 103 36 1.07	
	9500.00	0.00	67.00	9497.59	33.33	33.84	79.73	0.00	404464.51	768301.60	N 32 6 35.39 W 103 36 1.07	
	9600.00	0.00	67.00	9597.59	33.33	33.84	79.73	0.00	404464.51	768301.60	N 32 6 35.39 W 103 36 1.07	
	9700.00	0.00	67.00	9697.59	33.33	33.84	79.73	0.00	404464.51	768301.60	N 32 6 35.39 W 103 36 1.07	
	9800.00	0.00	67.00	9797.59	33.33	33.84	79.73	0.00	404464.51	768301.60	N 32 6 35.39 W 103 36 1.07	
	9900.00	0.00	67.00	9897.59	33.33	33.84	79.73	0.00	404464.51	768301.60	N 32 6 35.39 W 103 36 1.07	
	10000.00	0.00	67.00	9997.59	33.33	33.84	79.73	0.00	404464.51	768301.60	N 32 6 35.39 W 103 36 1.07	
	10100.00	0.00	67.00	10097.59	33.33	33.84	79.73	0.00	404464.51	768301.60	N 32 6 35.39 W 103 36 1.07	
	10200.00	0.00	67.00	10197.59	33.33	33.84	79.73	0.00	404464.51	768301.60	N 32 6 35.39 W 103 36 1.07	
	10300.00	0.00	67.00	10297.59	33.33	33.84	79.73	0.00	404464.51	768301.60	N 32 6 35.39 W 103 36 1.07	
	10400.00	0.00	67.00	10397.59	33.33	33.84	79.73	0.00	404464.51	768301.60	N 32 6 35.39 W 103 36 1.07	
	10500.00	0.00	67.00	10497.59	33.33	33.84	79.73	0.00	404464.51	768301.60	N 32 6 35.39 W 103 36 1.07	
2nd Bone Spring Sand	10575.41	0.00	67.00	10573.00	33.33	33.84	79.73	0.00	404464.51	768301.60	N 32 6 35.39 W 103 36 1.07	
	10600.00	0.00	67.00	10597.59	33.33	33.84	79.73	0.00	404464.51	768301.60	N 32 6 35.39 W 103 36 1.07	
	10700.00	0.00	67.00	10697.59	33.33	33.84	79.73	0.00	404464.51	768301.60	N 32 6 35.39 W 103 36 1.07	
	10800.00	0.00	67.00	10797.59	33.33	33.84	79.73	0.00	404464.51	768301.60	N 32 6 35.39 W 103 36 1.07	
	10900.00	0.00	67.00	10897.59	33.33	33.84	79.73	0.00	404464.51	768301.60	N 32 6 35.39 W 103 36 1.07	
	11000.00	0.00	67.00	10997.59	33.33	33.84	79.73	0.00	404464.51	768301.60	N 32 6 35.39 W 103 36 1.07	
	11100.00	0.00	67.00	11097.59	33.33	33.84	79.73	0.00	404464.51	768301.60	N 32 6 35.39 W 103 36 1.07	
	11200.00	0.00	67.00	11197.59	33.33	33.84	79.73	0.00	404464.51	768301.60	N 32 6 35.39 W 103 36 1.07	
	11300.00	0.00	67.00	11297.59	33.33	33.84	79.73	0.00	404464.51	768301.60	N 32 6 35.39 W 103 36 1.07	
	11400.00	0.00	67.00	11397.59	33.33	33.84	79.73	0.00	404464.51	768301.60	N 32 6 35.39 W 103 36 1.07	
	11500.00	0.00	67.00	11497.59	33.33	33.84	79.73	0.00	404464.51	768301.60	N 32 6 35.39 W 103 36 1.07	
	11600.00	0.00	67.00	11597.59	33.33	33.84	79.73	0.00	404464.51	768301.60	N 32 6 35.39 W 103 36 1.07	
3rd Bone Spring Sand	11700.00	0.00	67.00	11697.59	33.33	33.84	79.73	0.00	404464.51	768301.60	N 32 6 35.39 W 103 36 1.07	
	11728.41	0.00	67.00	11726.00	33.33	33.84	79.73	0.00	404464.51	768301.60	N 32 6 35.39 W 103 36 1.07	
	11800.00	0.00	67.00	11797.59	33.33	33.84	79.73	0.00	404464.51	768301.60	N 32 6 35.39 W 103 36 1.07	
	11900.00	0.00	67.00	11897.59	33.33	33.84	79.73	0.00	404464.51	768301.60	N 32 6 35.39 W 103 36 1.07	
KOP - Build 12"/100' DLS	12000.00	0.00	67.00	11997.59	33.33	33.84	79.73	0.00	404464.51	768301.60	N 32 6 35.39 W 103 36 1.07	
	12092.40	0.00	67.00	12090.00	33.33	33.84	79.73	0.00	404464.51	768301.60	N 32 6 35.39 W 103 36 1.07	
Wolfcamp	12100.00	0.91	359.63	12097.59	33.39	33.90	79.73	12.00	404464.57	768301.60	N 32 6 35.39 W 103 36 1.07	
	12199.30	12.83	359.63	12196.00	45.25	45.76	79.65	12.00	404476.43	768301.53	N 32 6 35.51 W 103 36 1.07	
	12200.00	12.91	359.63	12196.68	45.40	45.91	79.65	12.00	404476.58	768301.53	N 32 6 35.51 W 103 36 1.07	
	12300.00	24.91	359.63	12291.11	77.75	78.27	79.44	12.00	404508.93	768301.32	N 32 6 35.83 W 103 36 1.07	
	12400.00	36.91	359.63	12376.75	129.03	129.54	79.12	12.00	404560.21	768300.99	N 32 6 36.34 W 103 36 1.07	

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (°/100ft)	Northing (ftUS)	Easting (ftUS)	Latitude (N/S ° ' ")	Longitude (E/W ° ' ")
Build 4"/100'	12500.00	48.91	359.63	12449.86	196.99	197.50	78.68	12.00	404628.17	768300.56	N 32 6 37.01 W	103 36 1.07
	12600.00	60.91	359.63	12507.24	278.67	279.18	78.16	12.00	404709.84	768300.04	N 32 6 37.82 W	103 36 1.07
	12700.00	72.91	359.63	12546.38	370.49	371.00	77.57	12.00	404801.66	768299.45	N 32 6 38.73 W	103 36 1.07
DLS	12717.40	75.00	359.63	12551.19	387.22	387.72	77.47	12.00	404818.38	768299.34	N 32 6 38.89 W	103 36 1.07
Landing Point	12800.00	78.30	359.63	12570.26	467.57	468.08	76.95	4.00	404898.73	768298.83	N 32 6 39.69 W	103 36 1.07
	12900.00	82.30	359.63	12587.10	566.12	566.62	76.32	4.00	404997.28	768298.20	N 32 6 40.66 W	103 36 1.06
	13000.00	86.30	359.63	12597.02	665.61	666.11	75.69	4.00	405096.76	768297.56	N 32 6 41.65 W	103 36 1.06
	13092.40	90.00	359.63	12600.00	757.95	758.45	75.09	4.00	405189.09	768296.97	N 32 6 42.56 W	103 36 1.06
	13100.00	90.00	359.63	12600.00	765.55	766.04	75.05	0.00	405196.69	768296.92	N 32 6 42.64 W	103 36 1.06
	13200.00	90.00	359.63	12600.00	865.55	866.04	74.41	0.00	405296.68	768296.28	N 32 6 43.63 W	103 36 1.06
	13300.00	90.00	359.63	12600.00	965.55	966.04	73.77	0.00	405396.68	768295.65	N 32 6 44.61 W	103 36 1.06
	13400.00	90.00	359.63	12600.00	1065.55	1066.04	73.13	0.00	405496.67	768295.01	N 32 6 45.60 W	103 36 1.06
	13500.00	90.00	359.63	12600.00	1165.55	1166.03	72.49	0.00	405596.66	768294.37	N 32 6 46.59 W	103 36 1.06
	13600.00	90.00	359.63	12600.00	1265.55	1266.03	71.85	0.00	405696.66	768293.73	N 32 6 47.58 W	103 36 1.06
	13700.00	90.00	359.63	12600.00	1365.55	1366.03	71.21	0.00	405796.65	768293.09	N 32 6 48.57 W	103 36 1.06
	13800.00	90.00	359.63	12600.00	1465.55	1466.03	70.57	0.00	405896.65	768292.45	N 32 6 49.56 W	103 36 1.06
	13900.00	90.00	359.63	12600.00	1565.55	1566.03	69.93	0.00	405996.64	768291.81	N 32 6 50.55 W	103 36 1.06
	14000.00	90.00	359.63	12600.00	1665.55	1666.02	69.29	0.00	406096.64	768291.17	N 32 6 51.54 W	103 36 1.06
	14100.00	90.00	359.63	12600.00	1765.55	1766.02	68.65	0.00	406196.63	768290.53	N 32 6 52.53 W	103 36 1.06
	14200.00	90.00	359.63	12600.00	1865.55	1866.02	68.01	0.00	406296.63	768289.89	N 32 6 53.52 W	103 36 1.06
	14300.00	90.00	359.63	12600.00	1965.55	1966.02	67.37	0.00	406396.62	768289.25	N 32 6 54.51 W	103 36 1.06
	14400.00	90.00	359.63	12600.00	2065.55	2066.02	66.74	0.00	406496.62	768288.61	N 32 6 55.50 W	103 36 1.06
	14500.00	90.00	359.63	12600.00	2165.55	2166.01	66.10	0.00	406596.61	768287.97	N 32 6 56.49 W	103 36 1.06
	14600.00	90.00	359.63	12600.00	2265.55	2266.01	65.46	0.00	406696.60	768287.33	N 32 6 57.48 W	103 36 1.06
	14700.00	90.00	359.63	12600.00	2365.55	2366.01	64.82	0.00	406796.60	768286.69	N 32 6 58.47 W	103 36 1.06
	14800.00	90.00	359.63	12600.00	2465.55	2466.01	64.18	0.00	406896.59	768286.06	N 32 6 59.46 W	103 36 1.06
	14900.00	90.00	359.63	12600.00	2565.55	2566.01	63.54	0.00	406996.59	768285.42	N 32 7 0.45 W	103 36 1.06
	15000.00	90.00	359.63	12600.00	2665.55	2666.00	62.90	0.00	407096.58	768284.78	N 32 7 1.44 W	103 36 1.05
	15100.00	90.00	359.63	12600.00	2765.55	2766.00	62.26	0.00	407196.58	768284.14	N 32 7 2.43 W	103 36 1.05
	15200.00	90.00	359.63	12600.00	2865.55	2866.00	61.62	0.00	407296.57	768283.50	N 32 7 3.42 W	103 36 1.05
	15300.00	90.00	359.63	12600.00	2965.55	2966.00	60.98	0.00	407396.57	768282.86	N 32 7 4.41 W	103 36 1.05
	15400.00	90.00	359.63	12600.00	3065.55	3066.00	60.34	0.00	407496.56	768282.22	N 32 7 5.39 W	103 36 1.05
	15500.00	90.00	359.63	12600.00	3165.55	3165.99	59.70	0.00	407596.56	768281.58	N 32 7 6.38 W	103 36 1.05
	15600.00	90.00	359.63	12600.00	3265.55	3265.99	59.06	0.00	407696.55	768280.94	N 32 7 7.37 W	103 36 1.05
	15700.00	90.00	359.63	12600.00	3365.55	3365.99	58.42	0.00	407796.54	768280.30	N 32 7 8.36 W	103 36 1.05
	15800.00	90.00	359.63	12600.00	3465.55	3465.99	57.78	0.00	407896.54	768279.66	N 32 7 9.35 W	103 36 1.05
	15900.00	90.00	359.63	12600.00	3565.55	3565.99	57.15	0.00	407996.53	768279.02	N 32 7 10.34 W	103 36 1.05
	16000.00	90.00	359.63	12600.00	3665.55	3665.98	56.51	0.00	408096.53	768278.38	N 32 7 11.33 W	103 36 1.05
	16100.00	90.00	359.63	12600.00	3765.55	3765.98	55.87	0.00	408196.52	768277.74	N 32 7 12.32 W	103 36 1.05
	16200.00	90.00	359.63	12600.00	3865.55	3865.98	55.23	0.00	408296.52	768277.11	N 32 7 13.31 W	103 36 1.05
	16300.00	90.00	359.63	12600.00	3965.55	3965.98	54.59	0.00	408396.51	768276.47	N 32 7 14.30 W	103 36 1.05
	16400.00	90.00	359.63	12600.00	4065.55	4065.97	53.95	0.00	408496.51	768275.83	N 32 7 15.29 W	103 36 1.05
	16500.00	90.00	359.63	12600.00	4165.55	4165.97	53.31	0.00	408596.50	768275.19	N 32 7 16.28 W	103 36 1.05
	16600.00	90.00	359.63	12600.00	4265.55	4265.97	52.67	0.00	408696.50	768274.55	N 32 7 17.27 W	103 36 1.05
	16700.00	90.00	359.63	12600.00	4365.55	4365.97	52.03	0.00	408796.49	768273.91	N 32 7 18.26 W	103 36 1.05
	16800.00	90.00	359.63	12600.00	4465.55	4465.97	51.39	0.00	408896.49	768273.27	N 32 7 19.25 W	103 36 1.05
	16900.00	90.00	359.63	12600.00	4565.55	4565.96	50.75	0.00	408996.48	768272.63	N 32 7 20.24 W	103 36 1.05
	17000.00	90.00	359.63	12600.00	4665.55	4665.96	50.11	0.00	409096.47	768271.99	N 32 7 21.23 W	103 36 1.05
	17100.00	90.00	359.63	12600.00	4765.55	4765.96	49.47	0.00	409196.47	768271.35	N 32 7 22.22 W	103 36 1.04
	17200.00	90.00	359.63	12600.00	4865.55	4865.96	48.83	0.00	409296.46	768270.71	N 32 7 23.21 W	103 36 1.04
	17300.00	90.00	359.63	12600.00	4965.55	4965.96	48.19	0.00	409396.46	768270.07	N 32 7 24.20 W	103 36 1.04
	17400.00	90.00	359.63	12600.00	5065.55	5065.95	47.56	0.00	409496.45	768269.43	N 32 7 25.19 W	103 36 1.04
	17500.00	90.00	359.63	12600.00	5165.55	5165.95	46.92	0.00	409596.45	768268.79	N 32 7 26.18 W	103 36 1.04
	17600.00	90.00	359.63	12600.00	5265.55	5265.95	46.28	0.00	409696.44	768268.16	N 32 7 27.16 W	103 36 1.04
	17700.00	90.00	359.63	12600.00	5365.55	5365.95	45.64	0.00	409796.44	768267.52	N 32 7 28.15 W	103 36 1.04
	17800.00	90.00	359.63	12600.00	5465.55	5465.95	45.00	0.00	409896.43	768266.88	N 32 7 29.14 W	103 36 1.04
	17900.00	90.00	359.63	12600.00	5565.55	5565.94	44.36	0.00	409996.43	768266.24	N 32 7 30.13 W	103 36 1.04
	18000.00	90.00	359.63	12600.00	5665.55	5665.94	43.72	0.00	410096.42	768265.60	N 32 7 31.12 W	103 36 1.04

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 ° ' ")
	18100.00	90.00	359.63	12600.00	5765.55	5765.94	43.08	0.00	410196.41	768264.96	N 32 7 32.11 W 103 36	1.04
	18200.00	90.00	359.63	12600.00	5865.55	5865.94	42.44	0.00	410296.41	768264.32	N 32 7 33.10 W 103 36	1.04
	18300.00	90.00	359.63	12600.00	5965.55	5965.94	41.80	0.00	410396.40	768263.68	N 32 7 34.09 W 103 36	1.04
	18400.00	90.00	359.63	12600.00	6065.55	6065.93	41.16	0.00	410496.40	768263.04	N 32 7 35.08 W 103 36	1.04
	18500.00	90.00	359.63	12600.00	6165.55	6165.93	40.52	0.00	410596.39	768262.40	N 32 7 36.07 W 103 36	1.04
	18600.00	90.00	359.63	12600.00	6265.55	6265.93	39.88	0.00	410696.39	768261.76	N 32 7 37.06 W 103 36	1.04
	18700.00	90.00	359.63	12600.00	6365.55	6365.93	39.24	0.00	410796.38	768261.12	N 32 7 38.05 W 103 36	1.04
	18800.00	90.00	359.63	12600.00	6465.55	6465.93	38.60	0.00	410896.38	768260.48	N 32 7 39.04 W 103 36	1.04
	18900.00	90.00	359.63	12600.00	6565.55	6565.92	37.97	0.00	410996.37	768259.84	N 32 7 40.03 W 103 36	1.04
	19000.00	90.00	359.63	12600.00	6665.55	6665.92	37.33	0.00	411096.37	768259.20	N 32 7 41.02 W 103 36	1.04
	19100.00	90.00	359.63	12600.00	6765.55	6765.92	36.69	0.00	411196.36	768258.57	N 32 7 42.01 W 103 36	1.04
	19200.00	90.00	359.63	12600.00	6865.55	6865.92	36.05	0.00	411296.35	768257.93	N 32 7 43.00 W 103 36	1.03
	19300.00	90.00	359.63	12600.00	6965.55	6965.92	35.41	0.00	411396.35	768257.29	N 32 7 43.99 W 103 36	1.03
	19400.00	90.00	359.63	12600.00	7065.55	7065.91	34.77	0.00	411496.34	768256.65	N 32 7 44.98 W 103 36	1.03
	19500.00	90.00	359.63	12600.00	7165.55	7165.91	34.13	0.00	411596.34	768256.01	N 32 7 45.97 W 103 36	1.03
	19600.00	90.00	359.63	12600.00	7265.55	7265.91	33.49	0.00	411696.33	768255.37	N 32 7 46.96 W 103 36	1.03
	19700.00	90.00	359.63	12600.00	7365.55	7365.91	32.85	0.00	411796.33	768254.73	N 32 7 47.94 W 103 36	1.03
	19800.00	90.00	359.63	12600.00	7465.55	7465.91	32.21	0.00	411896.32	768254.09	N 32 7 48.93 W 103 36	1.03
	19900.00	90.00	359.63	12600.00	7565.55	7565.90	31.57	0.00	411996.32	768253.45	N 32 7 49.92 W 103 36	1.03
	20000.00	90.00	359.63	12600.00	7665.55	7665.90	30.93	0.00	412096.31	768252.81	N 32 7 50.91 W 103 36	1.03
	20100.00	90.00	359.63	12600.00	7765.55	7765.90	30.29	0.00	412196.31	768252.17	N 32 7 51.90 W 103 36	1.03
	20200.00	90.00	359.63	12600.00	7865.55	7865.90	29.65	0.00	412296.30	768251.53	N 32 7 52.89 W 103 36	1.03
	20300.00	90.00	359.63	12600.00	7965.55	7965.90	29.01	0.00	412396.29	768250.89	N 32 7 53.88 W 103 36	1.03
	20400.00	90.00	359.63	12600.00	8065.55	8065.89	28.38	0.00	412496.29	768250.25	N 32 7 54.87 W 103 36	1.03
	20500.00	90.00	359.63	12600.00	8165.55	8165.89	27.74	0.00	412596.28	768249.62	N 32 7 55.86 W 103 36	1.03
	20600.00	90.00	359.63	12600.00	8265.55	8265.89	27.10	0.00	412696.28	768248.98	N 32 7 56.85 W 103 36	1.03
	20700.00	90.00	359.63	12600.00	8365.55	8365.89	26.46	0.00	412796.27	768248.34	N 32 7 57.84 W 103 36	1.03
	20800.00	90.00	359.63	12600.00	8465.55	8465.89	25.82	0.00	412896.27	768247.70	N 32 7 58.83 W 103 36	1.03
	20900.00	90.00	359.63	12600.00	8565.55	8565.88	25.18	0.00	412996.26	768247.06	N 32 7 59.82 W 103 36	1.03
	21000.00	90.00	359.63	12600.00	8665.55	8665.88	24.54	0.00	413096.26	768246.42	N 32 8 0.81 W 103 36	1.03
	21100.00	90.00	359.63	12600.00	8765.55	8765.88	23.90	0.00	413196.25	768245.78	N 32 8 1.80 W 103 36	1.03
	21200.00	90.00	359.63	12600.00	8865.55	8865.88	23.26	0.00	413296.25	768245.14	N 32 8 2.79 W 103 36	1.03
	21300.00	90.00	359.63	12600.00	8965.55	8965.87	22.62	0.00	413396.24	768244.50	N 32 8 3.78 W 103 36	1.02
	21400.00	90.00	359.63	12600.00	9065.55	9065.87	21.98	0.00	413496.23	768243.86	N 32 8 4.77 W 103 36	1.02
	21500.00	90.00	359.63	12600.00	9165.55	9165.87	21.34	0.00	413596.23	768243.22	N 32 8 5.76 W 103 36	1.02
	21600.00	90.00	359.63	12600.00	9265.55	9265.87	20.70	0.00	413696.22	768242.58	N 32 8 6.75 W 103 36	1.02
	21700.00	90.00	359.63	12600.00	9365.55	9365.87	20.06	0.00	413796.22	768241.94	N 32 8 7.74 W 103 36	1.02
	21800.00	90.00	359.63	12600.00	9465.55	9465.86	19.43	0.00	413896.21	768241.30	N 32 8 8.72 W 103 36	1.02
	21900.00	90.00	359.63	12600.00	9565.55	9565.86	18.79	0.00	413996.21	768240.67	N 32 8 9.71 W 103 36	1.02
	22000.00	90.00	359.63	12600.00	9665.55	9665.86	18.15	0.00	414096.20	768240.03	N 32 8 10.70 W 103 36	1.02
	22100.00	90.00	359.63	12600.00	9765.55	9765.86	17.51	0.00	414196.20	768239.39	N 32 8 11.69 W 103 36	1.02
	22200.00	90.00	359.63	12600.00	9865.55	9865.86	16.87	0.00	414296.19	768238.75	N 32 8 12.68 W 103 36	1.02
Cimarex Vaca Draw 20-17 Federal #8H - PBHL [330' FNL, 791' FWL]	22233.98	90.00	359.63	12600.00	9899.53	9899.84	16.65	0.00	414330.17	768238.53	N 32 8 13.02 W 103 36	1.02

Survey Type: Non-Def Plan

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

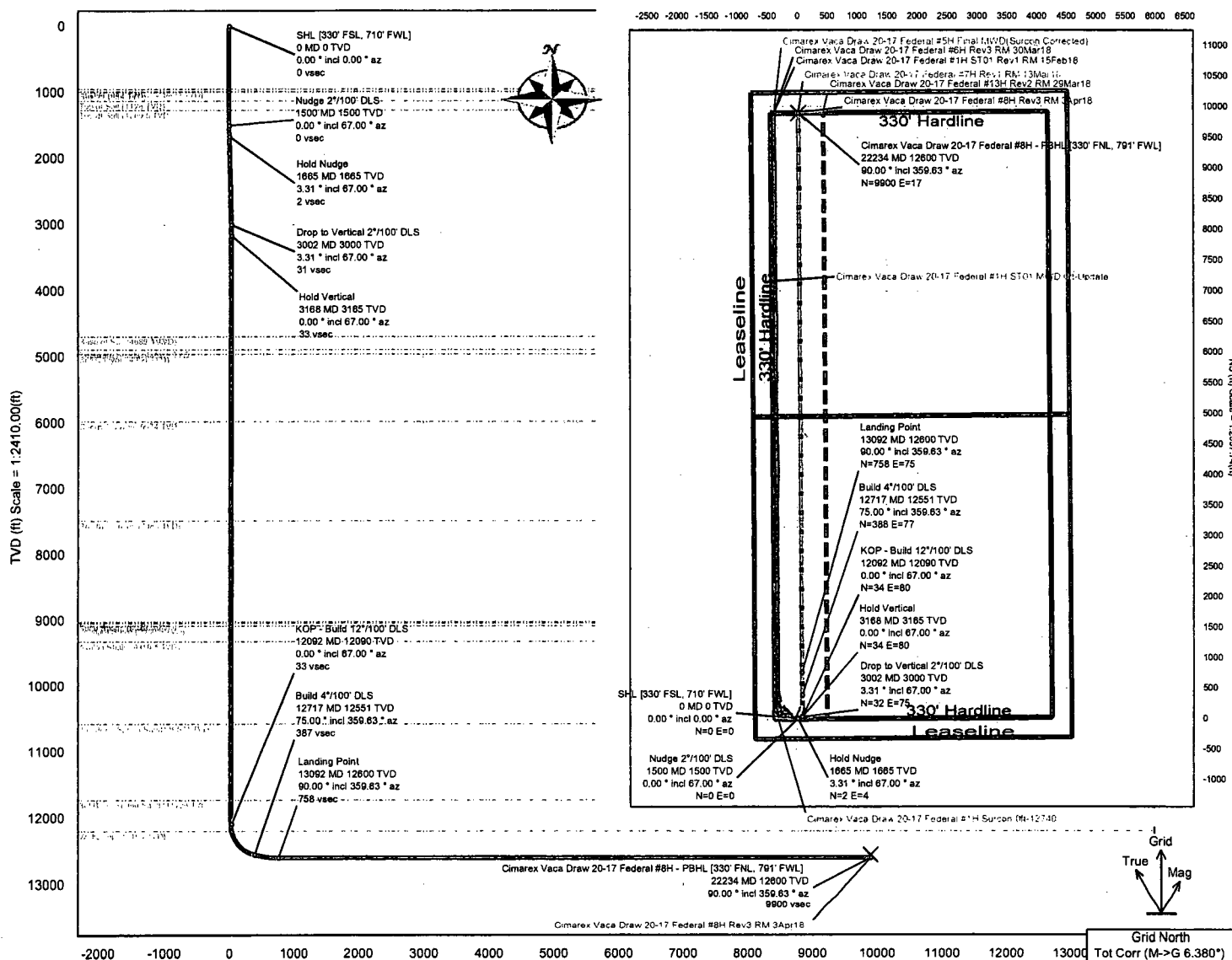
Description	Part	MD From (ft)	MD To (ft)	EOU Freq (ft)	Hole Size (in)	Casing Diameter (in)	Expected Max Inclination (deg)	Survey Tool Type	Borehole / Survey
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Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (°/100ft)	Northing (ftUS)	Easting (ftUS)	Latitude (N/S ° ' ")	Longitude (E/W ° ' ")
		1	0.000	24.000	1/100.000	30.000	30.000		NAL_MWD_IFR1+MS-Depth Only		Original Borehole / Cimarex Vaca Draw 20-17 Federal #8H Rev3 RM 3Apr18	
		1	24.000	22233.980	1/100.000	30.000	30.000		NAL_MWD_IFR1+MS		Original Borehole / Cimarex Vaca Draw 20-17 Federal #8H Rev3	

Borehole:	Well:	Field:	Structure:
Original Borehole	Cimarex Vaca Draw 20-17 Federal #8H	NM Lea County (NAD 83)	Cimarex Vaca Draw 20-17 Federal #8H

Gravity & Magnetic Parameters				Surface Location				NAD83 New Mexico State Plane, Eastern Zone, US Feet				Miscellaneous			
Model:	HOGM 2018	Dip:	58.77°	Date:	09-Apr-2018	Lat:	N 32 6 35.08	Northings:	404430.678US	Grid Conv:	0.359°	Plot:	Draw 20-17	TVD Ref:	RKB(3448.9R above MSL)
MagDec:	6.77°	FB:	47898.875eT	Gravity FB:	988.428mg (9.80865 Based)	Lon:	W 103 38 2.00	Easting:	788231.86RUS	Scale Fact:	0.9999805	Plan:	Cimarex Vaca Draw 20-17 Federal #8H Rev3 RM 3Apr18		

EW (ft) Scale = 1:2507.74(N)



Vertical Section (ft) Azim = 359.63° Scale = 1:2410.00(ft) Origin = 0N-S, 0E-W

Critical Points

Critical Point	MD	INCL	AZIM	TVD	VSEC	N(+)/S(-)	E(+)/W(-)	DLS
SHL [330' FSL, 710' FWL]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rustler	984.00	0.00	67.00	984.00	0.00	0.00	0.00	0.00
Top of Salt	1128.00	0.00	67.00	1128.00	0.00	0.00	0.00	0.00
Nudge 2°/100' DLS	1500.00	0.00	67.00	1500.00	0.00	0.00	0.00	0.00
Hold Nudge	1665.25	3.31	67.00	1665.16	1.83	1.86	4.39	2.00
Drop to Vertical 2°/100' DLS	3002.32	3.31	67.00	3000.00	31.50	31.98	75.34	0.00
Hold Vertical	3167.57	0.00	67.00	3165.16	33.33	33.84	79.73	2.00
Base of Salt	4689.41	0.00	67.00	4687.00	33.33	33.84	79.73	0.00
Bell Canyon	4958.41	0.00	67.00	4956.00	33.33	33.84	79.73	0.00
Cherry Canyon	5976.41	0.00	67.00	5974.00	33.33	33.84	79.73	0.00
Brushy Canyon	7486.41	0.00	67.00	7484.00	33.33	33.84	79.73	0.00
Bone Spring	9042.41	0.00	67.00	9040.00	33.33	33.84	79.73	0.00
2nd Bone Spring Sand	10575.41	0.00	67.00	10573.00	33.33	33.84	79.73	0.00
3rd Bone Spring Sand	11728.41	0.00	67.00	11726.00	33.33	33.84	79.73	0.00
KOP - Build 12°/100' DLS	12092.40	0.00	67.00	12090.00	33.33	33.84	79.73	0.00
Wolfcamp	12199.30	12.83	359.63	12196.00	45.25	45.76	79.65	12.00
Build 4°/100' DLS	12717.40	75.00	359.63	12551.19	387.22	387.72	77.47	12.00
Landing Point	13092.40	90.00	359.63	12600.00	757.95	756.45	75.09	4.00
Cimarex Vaca Draw 20-17 Federal #8H - PBHL [330' FSL, 781' FWL]	22233.98	90.00	359.63	12600.00	9899.53	9899.84	16.65	0.00

Grid North
Tot Corr (M->G 6.380°)
Mag Dec (6.770°)
Grid Conv (0.390°)