

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 recomplete abandoned well. Use form 3160-3 (APD) for such proposals.*5. Lease Serial No.
NMNM05792

6. If Indian, Allottee or Tribe Name

7. If Unit or CA/Agreement, Name and/or No.
NMNM71019X8. Well Name and No.
RED HILLS UNIT 17H9. API Well No.
30-025-42325-00-X110. Field and Pool or Exploratory Area
WC-025 G06 S253329D11. County or Parish, State
LEA COUNTY, NM**SUBMIT IN TRIPLICATE - Other instructions on page 2**

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

600 N MARIENFELD STE 600
MIDLAND, TX 79703

3b. Phone No. (include area code)

Ph: 918.560.7060

4. Location of Well (Footage, Sec., T., R., M., or Survey Description)

Sec 33 T25S R33E NWNW 504FNL 564FWL
32.053800 N Lat, 103.345415 W Lon

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 APD
	☐ 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 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 requests approval to complete in the Wolfcamp.

Please see C-102, approved drilling plan & approved directional plan.

Carlsbad Field Office
OCD Hobbs*All previous COAs still apply.*

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

**Electronic Submission #438862 verified by the BLM Well Information System
For CIMAREX ENERGY COMPANY OF CO. sent to the Hobbs
Committed to AFMSS for processing by ZOTA STEVENS on 10/10/2018 (19ZS0009SE)**

Name (Printed/Typed) ARICKA EASTERLING

Title REGULATORY ANALYST

Signature (Electronic Submission)

Date 10/09/2018

THIS SPACE FOR FEDERAL OR STATE OFFICE USEApproved By ZOTA STEVENSTitle PETROLEUM ENGINEERDate 10/10/2018

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 Hobbs

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 *****KZ*

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 30-025-42325		2 Pool Code 9809X		3 Property Name WILDCAT; WOLFCAMP	
4 Property Code 300945		5 Property Name RED HILLS UNIT		6 Well Number 17H	
7 OGRID No. 162683		8 Operator Name CIMAREX ENERGY CO. OF COLORADO		9 Elevation 3377.5'	

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
D	33	25S	33E		504	NORTH	564	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
M	4	26S	33E		330	SOUTH	380	WEST	LEA
12 Dedicated Acres 320		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 HOLE LOCATION)	
LATITUDE = 32°05'34.51" (32.092919)	
LONGITUDE = 103°35'02.24" (103.583956)	
NAD 27 (SURFACE HOLE LOCATION)	
LATITUDE = 32°05'34.06" (32.092794)	
LONGITUDE = 103°35'00.55" (103.583486)	
STATE PLANE NAD 83 (N.M. EAST)	
N: 398346.89 E: 773403.63	
STATE PLANE NAD 27 (N.M. EAST)	
N: 398289.27 E: 732217.14	

NAD 83 (BOTTOM HOLE LOCATION)	
LATITUDE = 32°05'58.29" (32.066192)	
LONGITUDE = 103°35'04.38" (103.584550)	
NAD 27 (BOTTOM HOLE LOCATION)	
LATITUDE = 32°05'57.84" (32.066067)	
LONGITUDE = 103°35'02.69" (103.584081)	
STATE PLANE NAD 83 (N.M. EAST)	
N: 388623.08 E: 773287.67	
STATE PLANE NAD 27 (N.M. EAST)	
N: 388563.71 E: 732100.73	

LINE TABLE		
LINE	DIRECTION	LENGTH
L1	S89°58'30"W	184.30'

SCALE

DRAWN BY: S.F. 05-31-17

● = SURFACE HOLE LOCATION
○ = BOTTOM HOLE LOCATION
▲ = SECTION CORNER 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 therefore entered by the division.

Aricka Easterling 10/9/18
Signature Date

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.

May 05, 2017
Date of Survey

Signature and Seal of Professional Surveyor:

Certificate Number:

1. Geological Formations

TVD of target 12,335
MD at TD 21,888

Pilot Hole TD N/A
Deepest expected fresh water

Formation	Depth (TVD) from KB	Water/Mineral Bearing/Target Zone	Hazards
Groundwater	185	N/A	
Rustler	995	N/A	
Salt	1140	N/A	
Castille	3380	N/A	
Lamar	4900	N/A	
Bell Canyon	4945	N/A	
Cherry Canyon	6190	N/A	
Brushy Canyon	7485	N/A	
Bone Spring	9045	Hydrocarbons	
U. Avalon (Leonard)	9080	Hydrocarbons	
L. Avalon	9680	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	1040	10-3/4"	40.50	J-55	BT&C	3.54	7.01	15.91
9 7/8	0	12500	7-5/8"	29.70	L-80	BT&C	2.36	1.13	1.81
6 3/4	0	11837	5-1/2"	20.00	L-80	LT&C	1.15	1.19	1.87
6 3/4	11837	21888	5"	18.00	P-110	BT&C	1.68	1.70	64.70
BLM Minimum Safety Factor							1.125	1	1.6 Dry 1.8 Wet

TVD was used on all calculations.

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

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?	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	# Skt	Wt. lb/gal	Yld ft ³ /sack	H ₂ O gal/sk	500# Comp. Strength (hours)	Slurry Description
Surface	328	13.50	1.72	9.15	15.5	Lead: Class C + Bentonite
	156	14.80	1.34	6.32	9.5	Tail: Class C + LCM
Intermediate Stage 1	600	10.3	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	700	12.9	1.88	9.65	12	Lead: 35:65 (Poz:C) + Salt + Bentonite
Production	711	14.20	1.30	5.86	14:30	Tail: 50:50 (Poz:H) + Salt + Bentonite + Fluid Loss + Dispersant + SMS

Casing String	TOC	% Excess
Surface	0	42
Intermediate Stage 1	4888	50
Intermediate Stage 2	0	48
Production	12300	9

DV tool with possible annular casing packer as needed is proposed at the depth of the Lamar at +/- 4,888'.

4. Pressure Control Equipment

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

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

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

X	Formation integrity test will be performed per Onshore Order #2. On Exploratory wells or on that portion of any well approved for a 5M BOPE system or greater, a pressure integrity test of each casing shoe shall be performed. Will be tested in accordance with Onshore Oil and Gas Order #2 III.B.1.i.
X	A variance is requested for the use of a flexible choke line from the BOP to Choke Manifold. See attached for specs and hydrostatic test chart.
N	Are anchors required by manufacturer?

5. Mud Program

Depth	Type	Weight (ppg)	Viscosity	Water Loss
0' to 976' 1040	FW Spud Mud	8.30 - 8.80	30-32	N/C
976' to 12500'	Brine Diesel Emulsion	9.00 - 9.50	30-35	N/C
12500' to 21888'	OBM	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	8017 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	H2S is present
X	H2S 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 Red Hills Unit 17H Rev3 tmn 05Jul17

(Non-Def Plan)

Report Date: July 05, 2017 - 10:52 AM
 Client: Cimarex
 Field: NM Lea County (NAD 83)
 Structure / Slot: Cimarex Red Hills Unit #17H / Red Hills Unit #17H
 Well: Red Hills Unit #17H
 Borehole: Original Borehole
 UWI / API#: Unknown / Unknown
 Survey Name: Cimarex Red Hills Unit 17H Rev3 tmn 05Jul17
 Survey Date: June 29, 2017
 Tort / AHD / DDI / ERD Ratio: 100.013 ° / 9767.704 ft / 6.238 / 0.791
 Coordinate Reference System: NAD83 New Mexico State Plane, Eastern Zone, US Feet
 Location Lat / Long: N 32° 5' 34.50664", W 103° 35' 2.24427"
 Location Grid N/E Y/X: N 398346.890 RUS, E 773403.630 RUS
 CRS Grid Convergence Angle: 0.3982 °
 Grid Scale Factor: 0.99997077
 Version / Patch: 2.10.544.0

Survey / DLS Computation: Minimum Curvature / Lubinski
 Vertical Section Azimuth: 180.000 ° (Grid North)
 Vertical Section Origin: 0.000 ft, 0.000 ft
 TVD Reference Datum: Ground Level
 TVD Reference Elevation: 3403.500 ft above MSL
 Seabed / Ground Elevation: 3377.500 ft above MSL
 Magnetic Declination: 6.842 °
 Total Gravity Field Strength: 998.4329mgn (9.80665 Based)
 Gravity Model: GARM
 Total Magnetic Field Strength: 47966.239 nT
 Magnetic Dip Angle: 59.784 °
 Declination Date: June 29, 2017
 Magnetic Declination Model: HDGM 2017
 North Reference: Grid North
 Grid Convergence Used: 0.3982 °
 Total Corr Mag North->Grid North: 6.4439 °
 Local Coord Referenced To: Well Head

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	TVDSS (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (°/100ft)	Closure (ft)	Closure Azimuth (°)	Northing (RUS)	Easting (RUS)	Latitude (N/S ° ' ")	Longitude (E/W ° ' ")
SL [504' FNL, 564' FWL]	0.00	0.00	0.00	0.00	-3403.50	0.00	0.00	0.00	N/A	0.00	0.00	398346.89	773403.63	N 32 5 34.51	W 103 35 2.24
	100.00	0.00	215.66	100.00	-3303.50	0.00	0.00	0.00	0.00	0.00	0.00	398346.89	773403.63	N 32 5 34.51	W 103 35 2.24
	200.00	0.00	215.66	200.00	-3203.50	0.00	0.00	0.00	0.00	0.00	0.00	398346.89	773403.63	N 32 5 34.51	W 103 35 2.24
	300.00	0.00	215.66	300.00	-3103.50	0.00	0.00	0.00	0.00	0.00	0.00	398346.89	773403.63	N 32 5 34.51	W 103 35 2.24
	400.00	0.00	215.66	400.00	-3003.50	0.00	0.00	0.00	0.00	0.00	0.00	398346.89	773403.63	N 32 5 34.51	W 103 35 2.24
	500.00	0.00	215.66	500.00	-2903.50	0.00	0.00	0.00	0.00	0.00	0.00	398346.89	773403.63	N 32 5 34.51	W 103 35 2.24
	600.00	0.00	215.66	600.00	-2803.50	0.00	0.00	0.00	0.00	0.00	0.00	398346.89	773403.63	N 32 5 34.51	W 103 35 2.24
	700.00	0.00	215.66	700.00	-2703.50	0.00	0.00	0.00	0.00	0.00	0.00	398346.89	773403.63	N 32 5 34.51	W 103 35 2.24
	800.00	0.00	215.66	800.00	-2603.50	0.00	0.00	0.00	0.00	0.00	0.00	398346.89	773403.63	N 32 5 34.51	W 103 35 2.24
	900.00	0.00	215.66	900.00	-2503.50	0.00	0.00	0.00	0.00	0.00	0.00	398346.89	773403.63	N 32 5 34.51	W 103 35 2.24
	1000.00	0.00	215.66	1000.00	-2403.50	0.00	0.00	0.00	0.00	0.00	0.00	398346.89	773403.63	N 32 5 34.51	W 103 35 2.24
	1100.00	0.00	215.66	1100.00	-2303.50	0.00	0.00	0.00	0.00	0.00	0.00	398346.89	773403.63	N 32 5 34.51	W 103 35 2.24
	1200.00	0.00	215.66	1200.00	-2203.50	0.00	0.00	0.00	0.00	0.00	0.00	398346.89	773403.63	N 32 5 34.51	W 103 35 2.24
	1300.00	0.00	215.66	1300.00	-2103.50	0.00	0.00	0.00	0.00	0.00	0.00	398346.89	773403.63	N 32 5 34.51	W 103 35 2.24
	1400.00	0.00	215.66	1400.00	-2003.50	0.00	0.00	0.00	0.00	0.00	0.00	398346.89	773403.63	N 32 5 34.51	W 103 35 2.24
	1500.00	0.00	215.66	1500.00	-1903.50	0.00	0.00	0.00	0.00	0.00	0.00	398346.89	773403.63	N 32 5 34.51	W 103 35 2.24
	1600.00	0.00	215.66	1600.00	-1803.50	0.00	0.00	0.00	0.00	0.00	0.00	398346.89	773403.63	N 32 5 34.51	W 103 35 2.24
	1700.00	0.00	215.66	1700.00	-1703.50	0.00	0.00	0.00	0.00	0.00	0.00	398346.89	773403.63	N 32 5 34.51	W 103 35 2.24
	1800.00	0.00	215.66	1800.00	-1603.50	0.00	0.00	0.00	0.00	0.00	0.00	398346.89	773403.63	N 32 5 34.51	W 103 35 2.24
	1900.00	0.00	215.66	1900.00	-1503.50	0.00	0.00	0.00	0.00	0.00	0.00	398346.89	773403.63	N 32 5 34.51	W 103 35 2.24
	2000.00	0.00	215.66	2000.00	-1403.50	0.00	0.00	0.00	0.00	0.00	0.00	398346.89	773403.63	N 32 5 34.51	W 103 35 2.24
	2100.00	0.00	215.66	2100.00	-1303.50	0.00	0.00	0.00	0.00	0.00	0.00	398346.89	773403.63	N 32 5 34.51	W 103 35 2.24
	2200.00	0.00	215.66	2200.00	-1203.50	0.00	0.00	0.00	0.00	0.00	0.00	398346.89	773403.63	N 32 5 34.51	W 103 35 2.24
	2300.00	0.00	215.66	2300.00	-1103.50	0.00	0.00	0.00	0.00	0.00	0.00	398346.89	773403.63	N 32 5 34.51	W 103 35 2.24
	2400.00	0.00	215.66	2400.00	-1003.50	0.00	0.00	0.00	0.00	0.00	0.00	398346.89	773403.63	N 32 5 34.51	W 103 35 2.24
	2500.00	0.00	215.66	2500.00	-903.50	0.00	0.00	0.00	0.00	0.00	0.00	398346.89	773403.63	N 32 5 34.51	W 103 35 2.24
	2600.00	0.00	215.66	2600.00	-803.50	0.00	0.00	0.00	0.00	0.00	0.00	398346.89	773403.63	N 32 5 34.51	W 103 35 2.24
	2700.00	0.00	215.66	2700.00	-703.50	0.00	0.00	0.00	0.00	0.00	0.00	398346.89	773403.63	N 32 5 34.51	W 103 35 2.24
	2800.00	0.00	215.66	2800.00	-603.50	0.00	0.00	0.00	0.00	0.00	0.00	398346.89	773403.63	N 32 5 34.51	W 103 35 2.24
	2900.00	0.00	215.66	2900.00	-503.50	0.00	0.00	0.00	0.00	0.00	0.00	398346.89	773403.63	N 32 5 34.51	W 103 35 2.24
	3000.00	0.00	215.66	3000.00	-403.50	0.00	0.00	0.00	0.00	0.00	0.00	398346.89	773403.63	N 32 5 34.51	W 103 35 2.24
	3100.00	0.00	215.66	3100.00	-303.50	0.00	0.00	0.00	0.00	0.00	0.00	398346.89	773403.63	N 32 5 34.51	W 103 35 2.24
	3200.00	0.00	215.66	3200.00	-203.50	0.00	0.00	0.00	0.00	0.00	0.00	398346.89	773403.63	N 32 5 34.51	W 103 35 2.24
	3300.00	0.00	215.66	3300.00	-103.50	0.00	0.00	0.00	0.00	0.00	0.00	398346.89	773403.63	N 32 5 34.51	W 103 35 2.24
	3400.00	0.00	215.66	3400.00	-3.50	0.00	0.00	0.00	0.00	0.00	0.00	398346.89	773403.63	N 32 5 34.51	W 103 35 2.24
	3500.00	0.00	215.66	3500.00	96.50	0.00	0.00	0.00	0.00	0.00	0.00	398346.89	773403.63	N 32 5 34.51	W 103 35 2.24
	3600.00	0.00	215.66	3600.00	196.50	0.00	0.00	0.00	0.00	0.00	0.00	398346.89	773403.63	N 32 5 34.51	W 103 35 2.24
	3700.00	0.00	215.66	3700.00	296.50	0.00	0.00	0.00	0.00	0.00	0.00	398346.89	773403.63	N 32 5 34.51	W 103 35 2.24
	3800.00	0.00	215.66	3800.00	396.50	0.00	0.00	0.00	0.00	0.00	0.00	398346.89	773403.63	N 32 5 34.51	W 103 35 2.24
	3900.00	0.00	215.66	3900.00	496.50	0.00	0.00	0.00	0.00	0.00	0.00	398346.89	773403.63	N 32 5 34.51	W 103 35 2.24
	4000.00	0.00	215.66	4000.00	596.50	0.00	0.00	0.00	0.00	0.00	0.00	398346.89	773403.63	N 32 5 34.51	W 103 35 2.24
	4100.00	0.00	215.66	4100.00	696.50	0.00	0.00	0.00	0.00	0.00	0.00	398346.89	773403.63	N 32 5 34.51	W 103 35 2.24
	4200.00	0.00	215.66	4200.00	796.50	0.00	0.00	0.00	0.00	0.00	0.00	398346.89	773403.63	N 32 5 34.51	W 103 35 2.24
	4300.00	0.00	215.66	4300.00	896.50	0.00	0.00	0.00	0.00	0.00	0.00	398346.89	773403.63	N 32 5 34.51	W 103 35 2.24
	4400.00	0.00	215.66	4400.00	996.50	0.00	0.00	0.00	0.00	0.00	0.00	398346.89	773403.63	N 32 5 34.51	W 103 35 2.24
	4500.00	0.00	215.66	4500.00	1096.50	0.00	0.00	0.00	0.00	0.00	0.00	398346.89	773403.63	N 32 5 34.51	W 103 35 2.24
	4600.00	0.00	215.66	4600.00	1196.50	0.00	0.00	0.00	0.00	0.00	0.00	398346.89	773403.63	N 32 5 34.51	W 103 35 2.24

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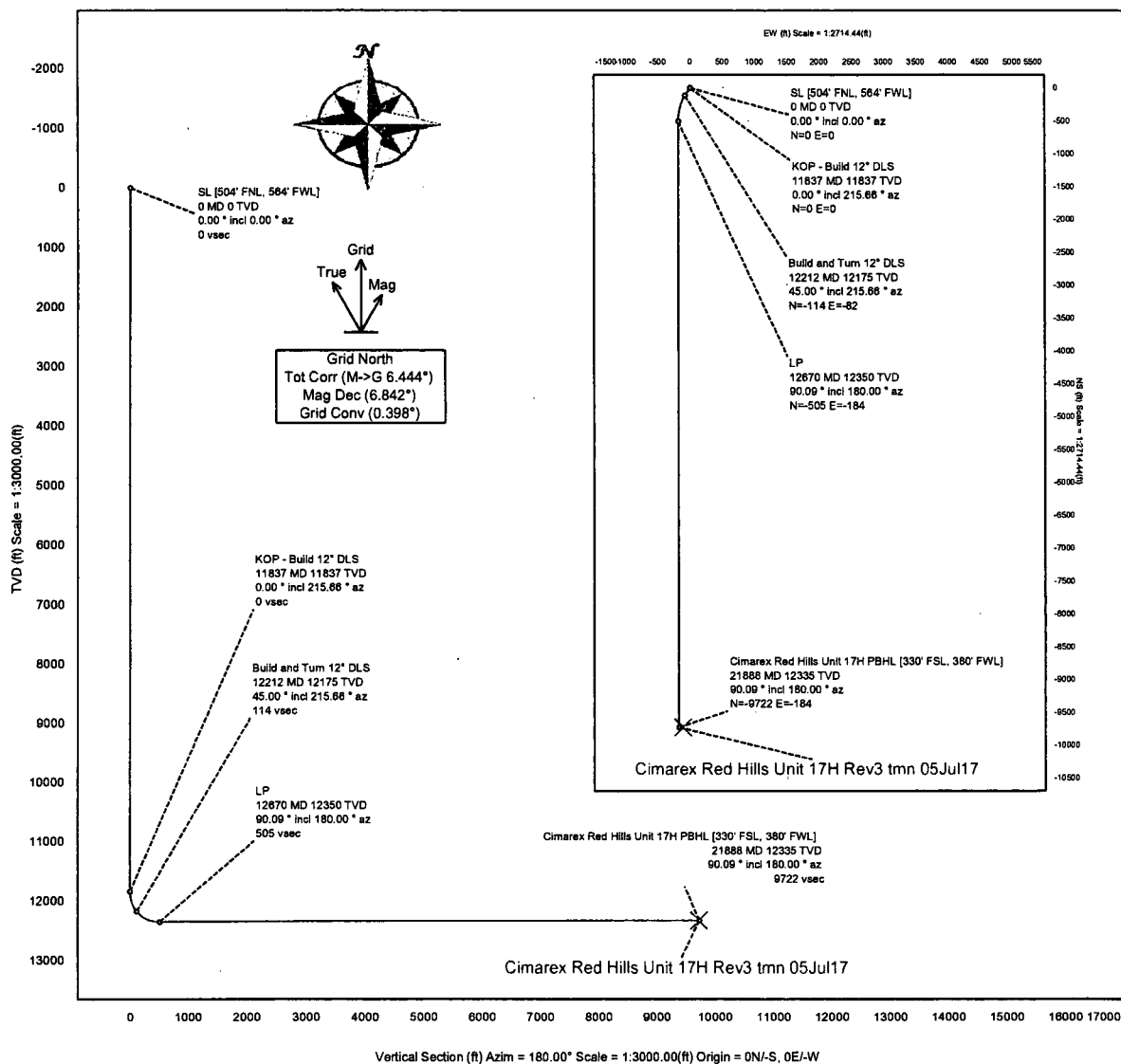
Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	TVDSS (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (ft/100ft)	Closure (ft)	Closure Azimuth (°)	Northing (ftUS)	Easting (ftUS)	Latitude (N/S ° ' ")	Longitude (E/W ° ' ")
Build and Turn 12° DLS	12211.98	45.00	215.66	12174.60	8771.10	113.63	-113.63	-81.52	12.00	139.85	215.66	398233.27	773222.11	N 32 53.39 W 103 35 3.20	
	12300.00	52.84	206.24	12232.47	8828.97	170.53	-170.53	-115.26	12.00	205.83	214.05	398176.36	773288.37	N 32 53.28 W 103 35 3.60	
	12400.00	62.46	197.73	12285.98	8882.48	248.79	-248.79	-146.49	12.00	288.72	210.49	398098.11	773257.14	N 32 53.05 W 103 35 3.97	
LP	12500.00	72.52	180.62	12324.26	8920.76	338.22	-338.22	-168.86	12.00	378.03	206.53	398008.68	773234.77	N 32 53.17 W 103 35 4.23	
	12600.00	82.80	184.27	12345.63	8942.13	434.92	-434.92	-181.40	12.00	471.23	202.64	397911.99	773222.24	N 32 53.02 W 103 35 4.39	
	12670.43	90.09	180.00	12350.00	8946.50	505.09	-505.09	-184.00	12.00	537.57	200.02	397841.81	773218.63	N 32 52.92 W 103 35 4.42	
	12700.00	90.09	180.00	12349.95	8946.45	534.67	-534.67	-184.00	0.00	565.44	198.99	397812.24	773218.63	N 32 52.92 W 103 35 4.43	
	12800.00	90.09	180.00	12349.79	8946.29	634.67	-634.67	-184.00	0.00	660.80	196.17	397712.24	773218.63	N 32 52.84 W 103 35 4.43	
	12900.00	90.09	180.00	12349.62	8946.12	734.67	-734.67	-184.00	0.00	757.36	194.06	397612.24	773218.63	N 32 52.75 W 103 35 4.44	
	13000.00	90.09	180.00	12349.46	8945.96	834.67	-834.67	-184.00	0.00	854.71	192.43	397512.25	773218.63	N 32 52.66 W 103 35 4.45	
	13100.00	90.09	180.00	12349.30	8945.80	934.67	-934.67	-184.00	0.00	952.61	191.14	397412.25	773218.63	N 32 52.57 W 103 35 4.46	
	13200.00	90.09	180.00	12349.14	8945.64	1034.67	-1034.67	-184.00	0.00	1050.90	190.08	397312.25	773218.63	N 32 52.48 W 103 35 4.47	
	13300.00	90.09	180.00	12348.97	8945.47	1134.67	-1134.67	-184.00	0.00	1149.49	189.21	397212.26	773218.63	N 32 52.39 W 103 35 4.47	
	13400.00	90.09	180.00	12348.81	8945.31	1234.67	-1234.67	-184.00	0.00	1248.30	188.48	397112.26	773218.63	N 32 52.30 W 103 35 4.48	
	13500.00	90.09	180.00	12348.65	8945.15	1334.67	-1334.67	-184.00	0.00	1347.29	187.85	397012.26	773218.63	N 32 52.21 W 103 35 4.49	
	13600.00	90.09	180.00	12348.49	8944.99	1434.67	-1434.67	-184.00	0.00	1446.42	187.31	396912.27	773218.63	N 32 52.12 W 103 35 4.50	
	13700.00	90.09	180.00	12348.32	8944.82	1534.67	-1534.67	-184.00	0.00	1545.66	186.84	396812.27	773218.63	N 32 52.03 W 103 35 4.51	
	13800.00	90.09	180.00	12348.16	8944.66	1634.67	-1634.67	-184.00	0.00	1644.99	186.42	396712.27	773218.63	N 32 51.93 W 103 35 4.52	
	13900.00	90.09	180.00	12348.00	8944.50	1734.67	-1734.67	-184.00	0.00	1744.40	186.05	396612.28	773218.63	N 32 51.84 W 103 35 4.52	
	14000.00	90.09	180.00	12347.83	8944.33	1834.67	-1834.67	-184.00	0.00	1843.87	185.73	396512.28	773218.63	N 32 51.75 W 103 35 4.53	
	14100.00	90.09	180.00	12347.67	8944.17	1934.67	-1934.67	-184.00	0.00	1943.40	185.43	396412.28	773218.63	N 32 51.66 W 103 35 4.54	
	14200.00	90.09	180.00	12347.51	8944.01	2034.67	-2034.67	-184.00	0.00	2042.97	185.17	396312.29	773218.63	N 32 51.57 W 103 35 4.55	
	14300.00	90.09	180.00	12347.35	8943.85	2134.67	-2134.67	-184.00	0.00	2142.58	184.93	396212.29	773218.63	N 32 51.48 W 103 35 4.56	
	14400.00	90.09	180.00	12347.18	8943.68	2234.67	-2234.67	-184.00	0.00	2242.23	184.71	396112.29	773218.63	N 32 51.39 W 103 35 4.56	
	14500.00	90.09	180.00	12347.02	8943.52	2334.67	-2334.67	-184.00	0.00	2341.91	184.51	396012.30	773218.63	N 32 51.30 W 103 35 4.57	
	14600.00	90.09	180.00	12346.86	8943.36	2434.67	-2434.67	-184.00	0.00	2441.61	184.32	395912.30	773218.63	N 32 51.21 W 103 35 4.58	
	14700.00	90.09	180.00	12346.70	8943.20	2534.67	-2534.67	-184.00	0.00	2541.34	184.15	395812.30	773218.63	N 32 51.12 W 103 35 4.59	
	14800.00	90.09	180.00	12346.53	8943.03	2634.67	-2634.67	-184.00	0.00	2641.08	184.00	395712.31	773218.63	N 32 51.03 W 103 35 4.60	
	14900.00	90.09	180.00	12346.37	8942.87	2734.67	-2734.67	-184.00	0.00	2740.85	183.85	395612.31	773218.63	N 32 50.94 W 103 35 4.61	
	15000.00	90.09	180.00	12346.21	8942.71	2834.67	-2834.67	-184.00	0.00	2840.63	183.71	395512.31	773218.63	N 32 50.85 W 103 35 4.62	
	15100.00	90.09	180.00	12346.04	8942.54	2934.67	-2934.67	-184.00	0.00	2940.43	183.59	395412.32	773218.63	N 32 50.76 W 103 35 4.63	
	15200.00	90.09	180.00	12345.88	8942.38	3034.67	-3034.67	-184.00	0.00	3040.24	183.47	395312.32	773218.63	N 32 50.67 W 103 35 4.64	
	15300.00	90.09	180.00	12345.72	8942.22	3134.66	-3134.66	-184.00	0.00	3140.06	183.36	395212.32	773218.63	N 32 50.58 W 103 35 4.65	
	15400.00	90.09	180.00	12345.56	8942.06	3234.66	-3234.66	-184.00	0.00	3239.89	183.26	395112.33	773218.63	N 32 50.49 W 103 35 4.66	
	15500.00	90.09	180.00	12345.39	8941.89	3334.66	-3334.66	-184.00	0.00	3339.74	183.16	395012.33	773218.63	N 32 50.40 W 103 35 4.67	
	15600.00	90.09	180.00	12345.23	8941.73	3434.66	-3434.66	-184.00	0.00	3439.59	183.07	394912.33	773218.63	N 32 50.31 W 103 35 4.68	
	15700.00	90.09	180.00	12345.07	8941.57	3534.66	-3534.66	-184.00	0.00	3539.45	182.98	394812.34	773218.63	N 32 50.22 W 103 35 4.69	
	15800.00	90.09	180.00	12344.91	8941.41	3634.66	-3634.66	-184.00	0.00	3639.32	182.90	394712.34	773218.63	N 32 50.13 W 103 35 4.70	
	15900.00	90.09	180.00	12344.74	8941.24	3734.66	-3734.66	-184.00	0.00	3739.19	182.82	394612.34	773218.63	N 32 50.04 W 103 35 4.71	
	16000.00	90.09	180.00	12344.58	8941.08	3834.66	-3834.66	-184.00	0.00	3839.08	182.75	394512.35	773218.63	N 32 49.95 W 103 35 4.72	
	16100.00	90.09	180.00	12344.42	8940.92	3934.66	-3934.66	-184.00	0.00	3938.96	182.68	394412.35	773218.63	N 32 49.86 W 103 35 4.73	
	16200.00	90.09	180.00	12344.25	8940.75	4034.66	-4034.66	-184.00	0.00	4038.86	182.61	394312.35	773218.63	N 32 49.77 W 103 35 4.74	
	16300.00	90.09	180.00	12344.09	8940.59	4134.66	-4134.66	-184.00	0.00	4138.76	182.55	394212.36	773218.63	N 32 49.68 W 103 35 4.75	
	16400.00	90.09	180.00	12343.93	8940.43	4234.66	-4234.66	-184.00	0.00	4238.66	182.49	394112.36	773218.63	N 32 49.59 W 103 35 4.76	
	16500.00	90.09	180.00	12343.77	8940.27	4334.66	-4334.66	-184.00	0.00	4338.57	182.43	394012.36	773218.63	N 32 49.50 W 103 35 4.77	
	16600.00	90.09	180.00	12343.60	8940.10	4434.66	-4434.66	-184.00	0.00	4438.48	182.38	393912.37	773218.63	N 32 49.41 W 103 35 4.78	
	16700.00	90.09	180.00	12343.44	8939.94	4534.66	-4534.66	-184.00	0.00	4538.39	182.32	393812.37	773218.63	N 32 49.32 W 103 35 4.79	
	16800.00	90.09	180.00	12343.28	8939.78	4634.66	-4634.66	-184.00	0.00	4638.31	182.27	393712.37	773218.63	N 32 49.23 W 103 35 4.80	
	16900.00	90.09	180.00	12343.12	8939.62	4734.66	-4734.66	-184.00	0.00	4738.24	182.23	393612.38	773218.63	N 32 49.14 W 103 35 4.81	
	17000.00	90.09	180.00	12342.95	8939.45	4834.66	-4834.66	-184.00	0.00	4838.16	182.18	393512.38	773218.63	N 32 49.05 W 103 35 4.82	
	17100.00	90.09	180.00	12342.79	8939.29	4934.66	-4934.66	-184.00	0.00	4938.09	182.14	393412.38	773218.63	N 32 48.96 W 103 35 4.83	
	17200.00	90.09	180.00	12342.63	8939.13	5034.66	-5034.66	-184.00	0.00	5038.02	182.09	393312.38	773218.63	N 32 48.87 W 103 35 4.84	
	17300.00	90.09	180.00	12342.46	8938.96	5134.66	-5134.66	-184.00	0.00	5137.96	182.05	393212.39	773218.63	N 32 48.78 W 103 35 4.85	
	17400.00	90.09	180.00	12342.30	8938.80	5234.66	-5234.66	-184.00	0.00	5237.90	182.01	393112.39	773218.63	N 32 48.69 W 103 35 4.86	
	17500.00	90.09	180.00	12342.14	8938.64	5334.66	-5334.66	-184.00	0.00	5337.83	181.98	393012.39	773218.63	N 32 48.60 W 103 35 4.87	
	17600.00	90.09	180.00	12341.98	8938.48	5434.66	-5434.66	-184.00	0.00	5437.78	181.94	392912.40	773218.63	N 32 48.51 W 103 35 4.88	
	17700.00	90.09	180.00	12341.81	8938.31	5534.66	-5534.66	-184.00	0.00	5537.72	181.90	392812.40	773218.63	N 32 48.42 W 103 35 4.89	
	17800.00	90.09	180.00	12341.65	8938.15	5634.66	-5634.66	-184.00	0.00	5637.67	181.87	392712.40	773218.63	N 32 48.33 W 103 35 4.90	
	17900.00	90.09	180.00	12341.49	8937.99	5734.66	-5734.66	-184.00	0.00	5737.61	181.84	392612.41	773218.63	N 32 48.24 W 103 35 4.91	
	18000.00	90.09	180.00	12341.33	8937.83	5834.66	-5834.66	-184.00	0.00	5837.56	181.81	392512.41	773218.63	N 32 48.15 W 103 35 4.92	
	18100.00	90.09	180.00	12341.16	8937.66	5934.66	-5934.66	-184.00	0.00	5937.51	181.78	392412.41	773218.63	N 32 48.06 W 103 35 4.93	
	18200.00	90.09	180.00	12341.00	8937.50	6034.66	-6034.66	-184.00	0.00	6037.47	181.75	392312.42	773218.63	N 32 47.97 W 103 35 4.94	
	18300.00	90.09	180.00	12340.84	8937.34	6134.66	-6134.66	-184.0							

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	TVDSS (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (°/100ft)	Closure (ft)	Closure Azimuth (°)	Northing (ftUS)	Easting (ftUS)	Latitude (N/S ° ' '')	Longitude (E/W ° ' '')
	19700.00	90.09	180.00	12338.56	8935.06	7534.66	-7534.66	-184.00	0.00	7536.91	181.40	390812.47	773219.63	N 32 4 19.96	W 103 35 4.99
	19800.00	90.09	180.00	12338.40	8934.90	7634.66	-7634.66	-184.00	0.00	7636.88	181.38	390712.47	773219.63	N 32 4 18.97	W 103 35 5.00
	19900.00	90.09	180.00	12338.23	8934.73	7734.66	-7734.66	-184.00	0.00	7736.85	181.36	390612.47	773219.63	N 32 4 17.98	W 103 35 5.01
	20000.00	90.09	180.00	12338.07	8934.57	7834.66	-7834.66	-184.00	0.00	7836.82	181.35	390512.48	773219.63	N 32 4 16.99	W 103 35 5.02
	20100.00	90.09	180.00	12337.91	8934.41	7934.66	-7934.66	-184.00	0.00	7936.79	181.33	390412.48	773219.63	N 32 4 16.00	W 103 35 5.02
	20200.00	90.09	180.00	12337.75	8934.25	8034.66	-8034.66	-184.00	0.00	8036.77	181.31	390312.48	773219.63	N 32 4 15.02	W 103 35 5.03
	20300.00	90.09	180.00	12337.58	8934.08	8134.66	-8134.66	-184.00	0.00	8136.74	181.30	390212.49	773219.64	N 32 4 14.03	W 103 35 5.04
	20400.00	90.09	180.00	12337.42	8933.92	8234.66	-8234.66	-184.00	0.00	8236.71	181.28	390112.49	773219.64	N 32 4 13.04	W 103 35 5.05
	20500.00	90.09	180.00	12337.26	8933.76	8334.66	-8334.66	-184.00	0.00	8336.69	181.26	390012.49	773219.64	N 32 4 12.05	W 103 35 5.06
	20600.00	90.09	180.00	12337.10	8933.60	8434.66	-8434.66	-184.00	0.00	8436.66	181.25	389912.50	773219.64	N 32 4 11.06	W 103 35 5.06
	20700.00	90.09	180.00	12336.93	8933.43	8534.66	-8534.66	-184.00	0.00	8536.64	181.24	389812.50	773219.64	N 32 4 10.07	W 103 35 5.07
	20800.00	90.09	180.00	12336.77	8933.27	8634.66	-8634.66	-184.00	0.00	8636.62	181.22	389712.50	773219.64	N 32 4 9.08	W 103 35 5.08
	20900.00	90.09	180.00	12336.61	8933.11	8734.66	-8734.66	-184.00	0.00	8736.60	181.21	389612.51	773219.64	N 32 4 8.09	W 103 35 5.09
	21000.00	90.09	180.00	12336.44	8932.94	8834.66	-8834.66	-184.00	0.00	8836.57	181.19	389512.51	773219.64	N 32 4 7.10	W 103 35 5.10
	21100.00	90.09	180.00	12336.28	8932.78	8934.66	-8934.66	-184.00	0.00	8936.55	181.18	389412.51	773219.64	N 32 4 6.11	W 103 35 5.10
	21200.00	90.09	180.00	12336.12	8932.62	9034.66	-9034.66	-184.00	0.00	9036.53	181.17	389312.51	773219.64	N 32 4 5.12	W 103 35 5.11
	21300.00	90.09	180.00	12335.96	8932.46	9134.66	-9134.66	-184.00	0.00	9136.51	181.15	389212.52	773219.64	N 32 4 4.13	W 103 35 5.12
	21400.00	90.09	180.00	12335.79	8932.29	9234.66	-9234.66	-184.00	0.00	9236.49	181.14	389112.52	773219.64	N 32 4 3.14	W 103 35 5.13
	21500.00	90.09	180.00	12335.63	8932.13	9334.66	-9334.66	-184.00	0.00	9336.47	181.13	389012.52	773219.64	N 32 4 2.15	W 103 35 5.14
	21600.00	90.09	180.00	12335.47	8931.97	9434.66	-9434.66	-184.00	0.00	9436.45	181.12	388912.53	773219.64	N 32 4 1.16	W 103 35 5.14
	21700.00	90.09	180.00	12335.31	8931.81	9534.66	-9534.66	-184.00	0.00	9536.43	181.11	388812.53	773219.64	N 32 4 0.17	W 103 35 5.15
	21800.00	90.09	180.00	12335.14	8931.64	9634.66	-9634.66	-184.00	0.00	9636.41	181.09	388712.53	773219.64	N 32 3 59.18	W 103 35 5.16
Cimarex Red Hills Unit 17H PBHL [330' FSL, 380' FWL]	21887.69	90.09	180.00	12335.00	8931.50	9722.34	-9722.34	-184.00	0.00	9724.08	181.08	388624.85	773219.64	N 32 3 58.32	W 103 35 5.17

Survey Type:

Non-Def Plan

Borehole:	Well:	Field:	Structure:
Original Borehole	Red Hills Unit #17H	NM Lea County (NAD 83)	Cimarex Red Hills Unit #17H
Gravity & Magnetic Parameters			
Model: HDGM 2017	Dip: 59.754°	Date: 29-Jun-2017	Surface Location NAD83 New Mexico State Plane, Eastern Zone, US Feet
MagDec: 6.842°	F8: 47866.239nT	Gravity F8: 998.433mgn (9.80665 Based)	Lat: N 32 5 34.51 Northing: 398346.897US Grid Conv: 0.3982°
			Lon: W 103 35 2.24 Easting: 773403.83RUS Scale Fact: 0.99987077
Miscellaneous			
	Slot: Red Hills Unit # 17H	TVD Ref: Ground Level(3403.5ft above MSL)	
	Plan: Cimarex Red Hills Unit 17H Rev3 tmm 05Jul17		



Critical Points

Critical Point	MD	INCL	AZIM	TVD	VSEC	N(+)/S(-)	E(+)/W(-)	DLS
SL [504' FNL, 564' FWL]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
KOP - Build 12° DLS	11836.98	0.00	215.66	11836.98	0.00	0.00	0.00	0.00
Build and Turn 12° DLS	12211.98	45.00	215.66	12174.60	113.63	-113.63	-81.52	12.00
Wolfcamp A1	12474.35	69.91	192.35	12316.00	314.43	-314.43	-164.03	12.00
LP	12670.43	90.09	180.00	12350.00	505.09	-505.09	-184.00	12.00
Cimarex Red Hills Unit 17H PBHL [330' FSL, 380' FWL]	21887.69	90.09	180.00	12335.00	9722.34	-9722.34	-184.00	0.00