

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.*

5. Lease Serial No.  
NMNM0106040A

6. If Indian, Allottee or Tribe Name

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

8. Well Name and No.  
RED HILLS 32-5 FEDERAL COM 155H

9. API Well No.  
30-025-46294-00-X1

10. Field and Pool or Exploratory Area  
WOLFCAMP

11. County or Parish, State  
LEA COUNTY, NM

**SUBMIT IN TRIPLICATE - Other Instructions on page 2**

**HOBBS OCD**

SEP 23 2019

**RECEIVED**

1. Type of Well  
 Oil Well  Gas Well  Other

2. Name of Operator  
CIMAREX ENERGY COMPANY OF CO  
Contact: AMITHY E CRAWFORD  
Mail: acrawford@cimarex.com

3a. Address  
600 N MARIENFELD STE 600  
MIDLAND, TX 79703

3b. Phone No. (include area code)  
Ph: 432-620-1909

4. Location of Well (Footage, Sec., T., R., M., or Survey Description)  
Sec 32 T25S R33E NENW 390FNL 2385FWL  
32.093246 N Lat, 103.595154 W Lon

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

TYPE OF SUBMISSION	TYPE OF ACTION			
<input checked="" type="checkbox"/> Notice of Intent	<input type="checkbox"/> Acidize	<input type="checkbox"/> Deepen	<input type="checkbox"/> Production (Start/Resume)	<input type="checkbox"/> Water Shut-Off
<input type="checkbox"/> Subsequent Report	<input type="checkbox"/> Alter Casing	<input type="checkbox"/> Hydraulic Fracturing	<input type="checkbox"/> Reclamation	<input type="checkbox"/> Well Integrity
<input type="checkbox"/> Final Abandonment Notice	<input type="checkbox"/> Casing Repair	<input type="checkbox"/> New Construction	<input type="checkbox"/> Recomplete	<input checked="" type="checkbox"/> Other
	<input type="checkbox"/> Change Plans	<input type="checkbox"/> Plug and Abandon	<input type="checkbox"/> Temporarily Abandon	Change to Original APD
	<input type="checkbox"/> Convert to Injection	<input type="checkbox"/> Plug Back	<input type="checkbox"/> 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 Respectfully requests to change the BHL as shown below:

No New Surface Disturbance.

Previously Approved:  
100' FSL & 2430' FWL Sec 5 25S 33E

Proposed:  
100' FSL & 2400' FWL Sec 5 26S 33E

**Carlsbad Field Office**  
**OCD Hobbs**

Please see attached updated C102, Drilling Plan, Directional Plan & Location Layout.

*same COAs P.P.*

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

Electronic Submission #479142 verified by the BLM Well Information System  
For CIMAREX ENERGY COMPANY OF CO, sent to the Hobbs  
Committed to AFMS for processing by PRISCILLA PEREZ on 09/13/2019 (19PP3171SE)

Name (Printed/Typed) AMITHY E CRAWFORD

Title REGULATORY ANALYST

Signature (Electronic Submission)

Date 08/19/2019

**THIS SPACE FOR FEDERAL OR STATE OFFICE USE**

Approved By JEROMY PORTER

Title PETROLEUM ENGINEER Date 09/16/2019

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*

**Additional data for EC transaction #479142 that would not fit on the form**

**32. Additional remarks, continued**

Cimarex Respectfully requests to update the dedicated acres of the C102 to 1280. A 1280 Com has been verbally approved by the BLM (Lewis Tromp, David Chase, James Glover) and State land Office (Niranjan Khalsa).

**Revisions to Operator-Submitted EC Data for Sundry Notice #479142**

	<b>Operator Submitted</b>	<b>BLM Revised (AFMSS)</b>
Sundry Type:	APDCH NOI	APDCH NOI
Lease:	NMNM0106040A	NMNM0106040A
Agreement:		
Operator:	CIMAREX ENERGY CO. OF COLORADO 600 N. MARIENFELD, SUITE 600 MIDLAND, TX 79701 Ph: 432-620-1909	CIMAREX ENERGY COMPANY OF CO 600 N MARIENFELD STE 600 MIDLAND, TX 79703 Ph: 432.620.1938
Admin Contact:	AMITHY E CRAWFORD REGULATORY ANALYST E-Mail: acrawford@cimarex.com  Ph: 432-620-1909	AMITHY E CRAWFORD REGULATORY ANALYST E-Mail: acrawford@cimarex.com  Ph: 432-620-1909
Tech Contact:	AMITHY E CRAWFORD REGULATORY ANALYST E-Mail: acrawford@cimarex.com  Ph: 432-620-1909	AMITHY E CRAWFORD REGULATORY ANALYST E-Mail: acrawford@cimarex.com  Ph: 432-620-1909
Location:		
State:	NM	NM
County:	LEA	LEA
Field/Pool:	WOLFCAMP	WOLFCAMP
Well/Facility:	RED HILLS 32-5 FEDERAL COM 155H Sec 32 T25S R33E 390FNL 2385FWL	RED HILLS 32-5 FEDERAL COM 155H Sec 32 T25S R33E NENW 390FNL 2385FWL 32.093246 N Lat, 103.595154 W Lon

**1. Geological Formations**

TVD of target 12,265  
MD at TD 22,119

Pilot Hole TD N/A  
Deepest expected fresh water

Formation	Depth (TVD) from KB	Water/Mineral Bearing/Target Zone	Hazards
Rustler	1000	N/A	
Top of Salt	1340	N/A	
Base of Salt	4630	N/A	
Lamar	4892	N/A	
Bell Canyon	4908	N/A	
Cherry Canyon	5980	N/A	
Brushy Canyon	7516	Hydrocarbons	
Bone Spring	9025	Hydrocarbons	
1st Bone Spring Sand	10010	Hydrocarbons	
2nd bone spring Carb	10210	Hydrocarbons	
2nd Bone Spring Sand	10565	Hydrocarbons	
3rd Bone Spring Carb	11035	Hydrocarbons	
3rd Bone Spring Sand	11690	Hydrocarbons	
Wolfcamp	12175	Hydrocarbons	

**2. Casing Program**

Hole Size	Casing Depth From	Casing Depth To	Setting Depth TVD	Casing Size	Weight (lb/ft)	Grade	Conn.	SF Collapse	SF Burst	SF Tension
14 3/4	0	1050	1050	10-3/4"	40.50	J-55	BT&C	3.29	6.51	14.79
9 7/8	0	12401	12236	7-5/8"	29.70	L-80	BT&C	2.50	1.20	1.83
6 3/4	0	11825	11825	5-1/2"	20.00	L-80	LT&C	1.15	1.20	1.88
6 3/4	11825	22119	12265	5"	18.00	P-110	BT&C	1.69	1.71	73.23
BLM-Minimum Safety Factor								1.125	1	1.6 Dry 1.8 Wet

TVD was used on all calculations.

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

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

Cimarex Energy Co., Red Hills 32-5 Federal Com 155H

	Y or N
Is casing new? If used, attach certification as required in Onshore Order #1	Y
Does casing meet API specifications? If no, attach casing specification sheet.	Y
Is premium or uncommon casing planned? If yes attach casing specification sheet.	N
Does the above casing design meet or exceed BLM's minimum standards? If not provide justification (loading assumptions, casing design criteria).	Y
Will the intermediate pipe be kept at a minimum 1/3 fluid filled to avoid approaching the collapse pressure rating of the casing?	Y
Is well located within Capitan Reef?	N
If yes, does production casing cement tie back a minimum of 50' above the Reef?	N
Is well within the designated 4 string boundary.	N
Is well located in SOPA but not in R-111-P?	N
If yes, are the first 2 strings cemented to surface and 3rd string cement tied back 500' into previous casing?	N
Is well located in R-111-P and SOPA?	N
If yes, are the first three strings cemented to surface?	N
Is 2nd string set 100' to 600' below the base of salt?	N
Is well located in high Cave/Karst?	N
If yes, are there two strings cemented to surface?	N
(For 2 string wells) If yes, is there a contingency casing if lost circulation occurs?	N
Is well located in critical Cave/Karst?	N
If yes, are there three strings cemented to surface?	N
Is AC Report included?	N

**3. Cementing Program**

Casing	# Sks	Wt. lb/gal	Yld ft <sup>3</sup> /sack	H <sub>2</sub> O gal/sk	500# Comp. Strength (hours)	Slurry Description
Surface	408	13.50	1.72	9.15	15.5	Lead: Class C + Bentonite
	109	14.80	1.34	6.32	9.5	Tail: Class C + LCM
Intermediate Stage 1	594	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	757	12.90	1.88	9.65	12	Lead: 35:65 (Poz:C) + Salt + Bentonite
Production	831	14.20	1.30	5.86	14:30	Tail: 50:50 (Poz:H) + Salt + Bentonite + Fluid Loss + Dispersant + SMS

DV tool with possible annular casing packer as needed is proposed at a depth of +/- 4,700'.

Casing String	TOC	% Excess
Surface	0	45
Intermediate Stage 1	4700	47
Intermediate Stage 2	0	39
Production	12201	25

Cimarex request the ability to perform casing integrity tests after plug bump of cement job.

**4. Pressure Control Equipment**

A variance is requested for the use of a diverter on the surface casing. See attached for schematic.					
BOP Installed and tested before drilling which hole?	Size	Min Required WP	Type		Tested To
9 7/8	13 5/8	5M	Annular	X	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 1050'	FW Spud Mud	8.30 - 8.80	30-32	N/C
1050' to 12401'	Brine Diesel Emulsion	8.50 - 9.00	30-35	N/C
12401' to 22119'	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

**7. Drilling Conditions**

Condition	
BH Pressure at deepest TVD	7972 psi
Abnormal Temperature	No

Hydrogen Sulfide (H2S) monitors will be installed prior to drilling out the surface shoe. If H2S is detected in concentrations greater than 100 ppm, the operator will comply with the provisions of Onshore Oil and Gas Order #6. If Hydrogen Sulfide is encountered, measured values and formations will be provided to the BLM.

X	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.

All casing strings will be tested as per Onshore Order No.2 to atleast 0.22 psi/ft or 1,500 whichever is greater and not to exceed 70% of casing burst.

If well conditions dictate conventional slips will be set and BOPE will be tested to appropriate pressures based on permitted pressure requirements.





**Cimarex Red Hills 32-5 Federal Com 155H Rev1 RM 09Aug09 Proposal**  
**Geodetic Report**  
 (Def Plan)



**Report Date:** August 06, 2019 - 01:45 PM  
**Client:** Cimarex Energy  
**Field:** NM Lea County (NAD 83)  
**Structure / Blot:** Cimarex Red Hills 32-5 Federal Com 155H / New Slot  
**Well:** Red Hills 32-5 Federal Com 155H  
**Borehole:** Red Hills 32-5 Federal Com 155H  
**UWI / AP#:** Unknown / Unknown  
**Survey Name:** Cimarex Red Hills 32-5 Federal Com 155H Rev1 RM 09Aug09  
**Survey Date:** October 03, 2018  
**Tort / AHD / DDI / ERD Ratio:** 90.281 \* / 10089.186 ft / 6.214 / 0.820  
**Coordinate Reference System:** NAD83 New Mexico State Plane, Eastern Zone, US Feet  
**Location Lat / Long:** N 32° 5' 35.68059", W 103° 35' 42.55834"  
**Location Grid N/E Y/X:** N 398441.600 RUS, E 789934.840 RUS  
**CRS Grid Convergence Angle:** 0.3922 \*  
**Grid Scale Factor:** 0.99998894  
**Version / Patch:** 2.10.760.0

**Survey / DLS Computation:** Minimum Curvature / Lubinski  
**Vertical Section Azimuth:** 179.604 \* (Grid North)  
**Vertical Section Origin:** 0.000 ft, 0.000 ft  
**TVD Reference Datum:** RIGB  
**TVD Reference Elevation:** 3435.800 ft above MSL  
**Seabed / Ground Elevation:** 3408.800 ft above MSL  
**Magnetic Declination:** 6.628 \*  
**Total Gravity Field Strength:** 998.4285mgN (9.80685 Based)  
**Gravity Model:** GARM  
**Total Magnetic Field Strength:** 47735.831 nT  
**Magnetic Dip Angle:** 59.693 \*  
**Declination Date:** August 06, 2019  
**Magnetic Declination Model:** HDGM 2019  
**North Reference:** Grid North  
**Grid Convergence Used:** 0.3922 \*  
**Total Corr Mag North->Grid North:** 6.2380 \*  
**Local Coord Referenced To:** Well Head

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (*/100ft)	Northing (RUS)	Easting (RUS)	Latitude (N/S °'")	Longitude (E/W °'")
SHL [390 FNL, 2385' FWL]	0.00	0.00	179.35	0.00	0.00	0.00	0.00	N/A	398441.80	789934.84	N 32 5 35.68 W 103 35 42.56	
	100.00	0.00	175.01	100.00	0.00	0.00	0.00	0.00	398441.80	789934.84	N 32 5 35.68 W 103 35 42.56	
	200.00	0.00	175.01	200.00	0.00	0.00	0.00	0.00	398441.80	789934.84	N 32 5 35.68 W 103 35 42.56	
	300.00	0.00	175.01	300.00	0.00	0.00	0.00	0.00	398441.80	789934.84	N 32 5 35.68 W 103 35 42.56	
	400.00	0.00	175.01	400.00	0.00	0.00	0.00	0.00	398441.80	789934.84	N 32 5 35.68 W 103 35 42.56	
	500.00	0.00	175.01	500.00	0.00	0.00	0.00	0.00	398441.80	789934.84	N 32 5 35.68 W 103 35 42.56	
	600.00	0.00	175.01	600.00	0.00	0.00	0.00	0.00	398441.80	789934.84	N 32 5 35.68 W 103 35 42.56	
	700.00	0.00	175.01	700.00	0.00	0.00	0.00	0.00	398441.80	789934.84	N 32 5 35.68 W 103 35 42.56	
	800.00	0.00	175.01	800.00	0.00	0.00	0.00	0.00	398441.80	789934.84	N 32 5 35.68 W 103 35 42.56	
	900.00	0.00	175.01	900.00	0.00	0.00	0.00	0.00	398441.80	789934.84	N 32 5 35.68 W 103 35 42.56	
Rustler	934.00	0.00	175.01	934.00	0.00	0.00	0.00	0.00	398441.80	789934.84	N 32 5 35.68 W 103 35 42.56	
	1000.00	0.00	175.01	1000.00	0.00	0.00	0.00	0.00	398441.80	789934.84	N 32 5 35.68 W 103 35 42.56	
	1100.00	0.00	175.01	1100.00	0.00	0.00	0.00	0.00	398441.80	789934.84	N 32 5 35.68 W 103 35 42.56	
	1200.00	0.00	175.01	1200.00	0.00	0.00	0.00	0.00	398441.80	789934.84	N 32 5 35.68 W 103 35 42.56	
	1300.00	0.00	175.01	1300.00	0.00	0.00	0.00	0.00	398441.80	789934.84	N 32 5 35.68 W 103 35 42.56	
Top of Salt	1349.00	0.00	175.01	1349.00	0.00	0.00	0.00	0.00	398441.80	789934.84	N 32 5 35.68 W 103 35 42.56	
	1400.00	0.00	175.01	1400.00	0.00	0.00	0.00	0.00	398441.80	789934.84	N 32 5 35.68 W 103 35 42.56	
	1500.00	0.00	175.01	1500.00	0.00	0.00	0.00	0.00	398441.80	789934.84	N 32 5 35.68 W 103 35 42.56	
	1600.00	0.00	175.01	1600.00	0.00	0.00	0.00	0.00	398441.80	789934.84	N 32 5 35.68 W 103 35 42.56	
	1700.00	0.00	175.01	1700.00	0.00	0.00	0.00	0.00	398441.80	789934.84	N 32 5 35.68 W 103 35 42.56	
	1800.00	0.00	175.01	1800.00	0.00	0.00	0.00	0.00	398441.80	789934.84	N 32 5 35.68 W 103 35 42.56	
	1900.00	0.00	175.01	1900.00	0.00	0.00	0.00	0.00	398441.80	789934.84	N 32 5 35.68 W 103 35 42.56	
	2000.00	0.00	175.01	2000.00	0.00	0.00	0.00	0.00	398441.80	789934.84	N 32 5 35.68 W 103 35 42.56	
	2100.00	0.00	175.01	2100.00	0.00	0.00	0.00	0.00	398441.80	789934.84	N 32 5 35.68 W 103 35 42.56	
	2200.00	0.00	175.01	2200.00	0.00	0.00	0.00	0.00	398441.80	789934.84	N 32 5 35.68 W 103 35 42.56	
	2300.00	0.00	175.01	2300.00	0.00	0.00	0.00	0.00	398441.80	789934.84	N 32 5 35.68 W 103 35 42.56	
	2400.00	0.00	175.01	2400.00	0.00	0.00	0.00	0.00	398441.80	789934.84	N 32 5 35.68 W 103 35 42.56	
	2500.00	0.00	175.01	2500.00	0.00	0.00	0.00	0.00	398441.80	789934.84	N 32 5 35.68 W 103 35 42.56	
	2600.00	0.00	175.01	2600.00	0.00	0.00	0.00	0.00	398441.80	789934.84	N 32 5 35.68 W 103 35 42.56	
	2700.00	0.00	175.01	2700.00	0.00	0.00	0.00	0.00	398441.80	789934.84	N 32 5 35.68 W 103 35 42.56	
	2800.00	0.00	175.01	2800.00	0.00	0.00	0.00	0.00	398441.80	789934.84	N 32 5 35.68 W 103 35 42.56	
	2900.00	0.00	175.01	2900.00	0.00	0.00	0.00	0.00	398441.80	789934.84	N 32 5 35.68 W 103 35 42.56	
	3000.00	0.00	175.01	3000.00	0.00	0.00	0.00	0.00	398441.80	789934.84	N 32 5 35.68 W 103 35 42.56	
	3100.00	0.00	175.01	3100.00	0.00	0.00	0.00	0.00	398441.80	789934.84	N 32 5 35.68 W 103 35 42.56	
	3200.00	0.00	175.01	3200.00	0.00	0.00	0.00	0.00	398441.80	789934.84	N 32 5 35.68 W 103 35 42.56	
	3300.00	0.00	175.01	3300.00	0.00	0.00	0.00	0.00	398441.80	789934.84	N 32 5 35.68 W 103 35 42.56	
	3400.00	0.00	175.01	3400.00	0.00	0.00	0.00	0.00	398441.80	789934.84	N 32 5 35.68 W 103 35 42.56	
	3500.00	0.00	175.01	3500.00	0.00	0.00	0.00	0.00	398441.80	789934.84	N 32 5 35.68 W 103 35 42.56	
	3600.00	0.00	175.01	3600.00	0.00	0.00	0.00	0.00	398441.80	789934.84	N 32 5 35.68 W 103 35 42.56	
	3700.00	0.00	175.01	3700.00	0.00	0.00	0.00	0.00	398441.80	789934.84	N 32 5 35.68 W 103 35 42.56	
	3800.00	0.00	175.01	3800.00	0.00	0.00	0.00	0.00	398441.80	789934.84	N 32 5 35.68 W 103 35 42.56	
	3900.00	0.00	175.01	3900.00	0.00	0.00	0.00	0.00	398441.80	789934.84	N 32 5 35.68 W 103 35 42.56	
	4000.00	0.00	175.01	4000.00	0.00	0.00	0.00	0.00	398441.80	789934.84	N 32 5 35.68 W 103 35 42.56	
	4100.00	0.00	175.01	4100.00	0.00	0.00	0.00	0.00	398441.80	789934.84	N 32 5 35.68 W 103 35 42.56	
	4200.00	0.00	175.01	4200.00	0.00	0.00	0.00	0.00	398441.80	789934.84	N 32 5 35.68 W 103 35 42.56	
	4300.00	0.00	175.01	4300.00	0.00	0.00	0.00	0.00	398441.80	789934.84	N 32 5 35.68 W 103 35 42.56	
	4400.00	0.00	175.01	4400.00	0.00	0.00	0.00	0.00	398441.80	789934.84	N 32 5 35.68 W 103 35 42.56	
	4500.00	0.00	175.01	4500.00	0.00	0.00	0.00	0.00	398441.80	789934.84	N 32 5 35.68 W 103 35 42.56	
	4600.00	0.00	175.01	4600.00	0.00	0.00	0.00	0.00	398441.80	789934.84	N 32 5 35.68 W 103 35 42.56	
Base of Salt	4651.00	0.00	175.01	4651.00	0.00	0.00	0.00	0.00	398441.80	789934.84	N 32 5 35.68 W 103 35 42.56	
	4700.00	0.00	175.01	4700.00	0.00	0.00	0.00	0.00	398441.80	789934.84	N 32 5 35.68 W 103 35 42.56	
	4800.00	0.00	175.01	4800.00	0.00	0.00	0.00	0.00	398441.80	789934.84	N 32 5 35.68 W 103 35 42.56	
Lamar	4892.00	0.00	175.01	4892.00	0.00	0.00	0.00	0.00	398441.80	789934.84	N 32 5 35.68 W 103 35 42.56	
	4900.00	0.00	175.01	4900.00	0.00	0.00	0.00	0.00	398441.80	789934.84	N 32 5 35.68 W 103 35 42.56	
Bell Canyon	4929.00	0.00	175.01	4929.00	0.00	0.00	0.00	0.00	398441.80	789934.84	N 32 5 35.68 W 103 35 42.56	
	5000.00	0.00	175.01	5000.00	0.00	0.00	0.00	0.00	398441.80	789934.84	N 32 5 35.68 W 103 35 42.56	
	5100.00	0.00	175.01	5100.00	0.00	0.00	0.00	0.00	398441.80	789934.84	N 32 5 35.68 W 103 35 42.56	
	5200.00	0.00	175.01	5200.00	0.00	0.00	0.00	0.00	398441.80	789934.84	N 32 5 35.68 W 103 35 42.56	
	5300.00	0.00	175.01	5300.00	0.00	0.00	0.00	0.00	398441.80	789934.84	N 32 5 35.68 W 103 35 42.56	
	5400.00	0.00	175.01	5400.00	0.00	0.00	0.00	0.00	398441.80	789934.84	N 32 5 35.68 W 103 35 42.56	
	5500.00	0.00	175.01	5500.00	0.00	0.00	0.00	0.00	398441.80	789934.84	N 32 5 35.68 W 103 35 42.56	
	5600.00	0.00	175.01	5600.00	0.00	0.00	0.00	0.00	398441.80	789934.84	N 32 5 35.68 W 103 35 42.56	
	5700.00	0.00	175.01	5700.00	0.00	0.00	0.00	0.00	398441.80	789934.84	N 32 5 35.68 W 103 35 42.56	
	5800.00	0.00	175.01	5800.00	0.00	0.00	0.00	0.00	398441.80	789934.84	N 32 5 35.68 W 103 35 42.56	
	5900.00	0.00	175.01	5900.00	0.00	0.00	0.00	0.00	398441.80	789934.84	N 32 5 35.68 W 103 35 42.56	
	6000.00	0.00	175.01	6000.00	0.00	0.00	0.00	0.00	398441.80	789934.84	N 32 5 35.68 W 103 35 42.56	
Cherry Canyon	6001.00	0.00	175.01	6001.00	0.00	0.00	0.00	0.00	398441.80	789934.84	N 32 5 35.68 W 103 35 42.56	
	6100.00	0										

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	VSEC (ft)	N8 (ft)	EW (ft)	DLS (*/100ft)	Northing (ftUS)	Easting (ftUS)	Latitude (N/S/°/')	Longitude (E/W/°/')
	7100.00	0.00	175.01	7100.00	0.00	0.00	0.00	0.00	398441.80	789934.84	N 32 53.68	W 103 35 42.56
	7200.00	0.00	175.01	7200.00	0.00	0.00	0.00	0.00	398441.80	789934.84	N 32 53.68	W 103 35 42.56
	7300.00	0.00	175.01	7300.00	0.00	0.00	0.00	0.00	398441.80	789934.84	N 32 53.68	W 103 35 42.56
	7400.00	0.00	175.01	7400.00	0.00	0.00	0.00	0.00	398441.80	789934.84	N 32 53.68	W 103 35 42.56
	7500.00	0.00	175.01	7500.00	0.00	0.00	0.00	0.00	398441.80	789934.84	N 32 53.68	W 103 35 42.56
Brushy Canyon	7537.00	0.00	175.01	7537.00	0.00	0.00	0.00	0.00	398441.80	789934.84	N 32 53.68	W 103 35 42.56
	7600.00	0.00	175.01	7600.00	0.00	0.00	0.00	0.00	398441.80	789934.84	N 32 53.68	W 103 35 42.56
	7700.00	0.00	175.01	7700.00	0.00	0.00	0.00	0.00	398441.80	789934.84	N 32 53.68	W 103 35 42.56
	7800.00	0.00	175.01	7800.00	0.00	0.00	0.00	0.00	398441.80	789934.84	N 32 53.68	W 103 35 42.56
	7900.00	0.00	175.01	7900.00	0.00	0.00	0.00	0.00	398441.80	789934.84	N 32 53.68	W 103 35 42.56
	8000.00	0.00	175.01	8000.00	0.00	0.00	0.00	0.00	398441.80	789934.84	N 32 53.68	W 103 35 42.56
	8100.00	0.00	175.01	8100.00	0.00	0.00	0.00	0.00	398441.80	789934.84	N 32 53.68	W 103 35 42.56
	8200.00	0.00	175.01	8200.00	0.00	0.00	0.00	0.00	398441.80	789934.84	N 32 53.68	W 103 35 42.56
	8300.00	0.00	175.01	8300.00	0.00	0.00	0.00	0.00	398441.80	789934.84	N 32 53.68	W 103 35 42.56
	8400.00	0.00	175.01	8400.00	0.00	0.00	0.00	0.00	398441.80	789934.84	N 32 53.68	W 103 35 42.56
	8500.00	0.00	175.01	8500.00	0.00	0.00	0.00	0.00	398441.80	789934.84	N 32 53.68	W 103 35 42.56
	8600.00	0.00	175.01	8600.00	0.00	0.00	0.00	0.00	398441.80	789934.84	N 32 53.68	W 103 35 42.56
	8700.00	0.00	175.01	8700.00	0.00	0.00	0.00	0.00	398441.80	789934.84	N 32 53.68	W 103 35 42.56
	8800.00	0.00	175.01	8800.00	0.00	0.00	0.00	0.00	398441.80	789934.84	N 32 53.68	W 103 35 42.56
	8900.00	0.00	175.01	8900.00	0.00	0.00	0.00	0.00	398441.80	789934.84	N 32 53.68	W 103 35 42.56
	9000.00	0.00	175.01	9000.00	0.00	0.00	0.00	0.00	398441.80	789934.84	N 32 53.68	W 103 35 42.56
Bone Spring	9039.00	0.00	175.01	9039.00	0.00	0.00	0.00	0.00	398441.80	789934.84	N 32 53.68	W 103 35 42.56
Leonard Shale	9094.00	0.00	175.01	9094.00	0.00	0.00	0.00	0.00	398441.80	789934.84	N 32 53.68	W 103 35 42.56
	9100.00	0.00	175.01	9100.00	0.00	0.00	0.00	0.00	398441.80	789934.84	N 32 53.68	W 103 35 42.56
	9200.00	0.00	175.01	9200.00	0.00	0.00	0.00	0.00	398441.80	789934.84	N 32 53.68	W 103 35 42.56
	9300.00	0.00	175.01	9300.00	0.00	0.00	0.00	0.00	398441.80	789934.84	N 32 53.68	W 103 35 42.56
Avalon Shale	9356.00	0.00	175.01	9356.00	0.00	0.00	0.00	0.00	398441.80	789934.84	N 32 53.68	W 103 35 42.56
	9400.00	0.00	175.01	9400.00	0.00	0.00	0.00	0.00	398441.80	789934.84	N 32 53.68	W 103 35 42.56
	9500.00	0.00	175.01	9500.00	0.00	0.00	0.00	0.00	398441.80	789934.84	N 32 53.68	W 103 35 42.56
	9600.00	0.00	175.01	9600.00	0.00	0.00	0.00	0.00	398441.80	789934.84	N 32 53.68	W 103 35 42.56
	9700.00	0.00	175.01	9700.00	0.00	0.00	0.00	0.00	398441.80	789934.84	N 32 53.68	W 103 35 42.56
Lower Avalon	9731.00	0.00	175.01	9731.00	0.00	0.00	0.00	0.00	398441.80	789934.84	N 32 53.68	W 103 35 42.56
Shale	9800.00	0.00	175.01	9800.00	0.00	0.00	0.00	0.00	398441.80	789934.84	N 32 53.68	W 103 35 42.56
	9900.00	0.00	175.01	9900.00	0.00	0.00	0.00	0.00	398441.80	789934.84	N 32 53.68	W 103 35 42.56
	10000.00	0.00	175.01	10000.00	0.00	0.00	0.00	0.00	398441.80	789934.84	N 32 53.68	W 103 35 42.56
1st Bone Spring	10038.00	0.00	175.01	10038.00	0.00	0.00	0.00	0.00	398441.80	789934.84	N 32 53.68	W 103 35 42.56
Sand	10100.00	0.00	175.01	10100.00	0.00	0.00	0.00	0.00	398441.80	789934.84	N 32 53.68	W 103 35 42.56
	10200.00	0.00	175.01	10200.00	0.00	0.00	0.00	0.00	398441.80	789934.84	N 32 53.68	W 103 35 42.56
2nd Bone Spring	10223.00	0.00	175.01	10223.00	0.00	0.00	0.00	0.00	398441.80	789934.84	N 32 53.68	W 103 35 42.56
Carb	10300.00	0.00	175.01	10300.00	0.00	0.00	0.00	0.00	398441.80	789934.84	N 32 53.68	W 103 35 42.56
	10400.00	0.00	175.01	10400.00	0.00	0.00	0.00	0.00	398441.80	789934.84	N 32 53.68	W 103 35 42.56
	10500.00	0.00	175.01	10500.00	0.00	0.00	0.00	0.00	398441.80	789934.84	N 32 53.68	W 103 35 42.56
2nd Bone Spring	10564.00	0.00	175.01	10564.00	0.00	0.00	0.00	0.00	398441.80	789934.84	N 32 53.68	W 103 35 42.56
Sand	10600.00	0.00	175.01	10600.00	0.00	0.00	0.00	0.00	398441.80	789934.84	N 32 53.68	W 103 35 42.56
	10700.00	0.00	175.01	10700.00	0.00	0.00	0.00	0.00	398441.80	789934.84	N 32 53.68	W 103 35 42.56
	10800.00	0.00	175.01	10800.00	0.00	0.00	0.00	0.00	398441.80	789934.84	N 32 53.68	W 103 35 42.56
	10900.00	0.00	175.01	10900.00	0.00	0.00	0.00	0.00	398441.80	789934.84	N 32 53.68	W 103 35 42.56
	11000.00	0.00	175.01	11000.00	0.00	0.00	0.00	0.00	398441.80	789934.84	N 32 53.68	W 103 35 42.56
3rd Bone Spring	11017.00	0.00	175.01	11017.00	0.00	0.00	0.00	0.00	398441.80	789934.84	N 32 53.68	W 103 35 42.56
Carb	11100.00	0.00	175.01	11100.00	0.00	0.00	0.00	0.00	398441.80	789934.84	N 32 53.68	W 103 35 42.56
	11200.00	0.00	175.01	11200.00	0.00	0.00	0.00	0.00	398441.80	789934.84	N 32 53.68	W 103 35 42.56
	11300.00	0.00	175.01	11300.00	0.00	0.00	0.00	0.00	398441.80	789934.84	N 32 53.68	W 103 35 42.56
	11400.00	0.00	175.01	11400.00	0.00	0.00	0.00	0.00	398441.80	789934.84	N 32 53.68	W 103 35 42.56
	11500.00	0.00	175.01	11500.00	0.00	0.00	0.00	0.00	398441.80	789934.84	N 32 53.68	W 103 35 42.56
	11600.00	0.00	175.01	11600.00	0.00	0.00	0.00	0.00	398441.80	789934.84	N 32 53.68	W 103 35 42.56
3rd Bone Spring	11682.00	0.00	175.01	11682.00	0.00	0.00	0.00	0.00	398441.80	789934.84	N 32 53.68	W 103 35 42.56
Sand	11700.00	0.00	175.01	11700.00	0.00	0.00	0.00	0.00	398441.80	789934.84	N 32 53.68	W 103 35 42.56
KOP - Build	11774.19	0.00	175.01	11774.19	0.00	0.00	0.00	0.00	398441.80	789934.84	N 32 53.68	W 103 35 42.56
12*/100' DLS	11800.00	3.10	175.01	11799.99	0.89	-0.89	0.08	12.00	398440.91	789934.90	N 32 53.67	W 103 35 42.56
	11900.00	15.10	175.01	11898.55	16.43	-16.42	1.43	12.00	398425.18	789938.27	N 32 53.52	W 103 35 42.54
	12000.00	27.10	175.01	11991.88	52.24	-52.21	4.58	12.00	398399.39	789939.40	N 32 53.16	W 103 35 42.51
Build & Turn	12065.88	35.00	175.01	12048.66	86.07	-86.02	7.51	12.00	398355.58	789942.35	N 32 53.43	W 103 35 42.48
12*/100' DLS	12100.00	39.07	175.79	12075.30	106.57	-106.51	9.15	12.00	398335.09	789943.99	N 32 53.43	W 103 35 42.48
	12168.16	47.21	177.00	12125.00	153.07	-152.99	12.04	12.00	398288.62	789946.89	N 32 53.17	W 103 35 42.43
Wolfcamp	12200.00	51.01	177.48	12145.84	177.11	-177.03	13.20	12.00	398264.58	789948.04	N 32 53.33	W 103 35 42.42
	12300.00	62.97	178.85	12200.22	260.79	-260.88	15.99	12.00	398180.93	789950.82	N 32 53.33	W 103 35 42.39
	12400.00	74.94	179.80	12238.06	353.94	-353.83	17.38	12.00	398087.78	789952.22	N 32 53.18	W 103 35 42.38
Build 4*/100'	12400.51	75.00	179.80	12238.20	354.44	-354.33	17.38	12.00	398087.28	789952.22	N 32 53.17	W 103 35 42.38
DLS												
Wolfcamp Y	12481.82	78.25	179.80	12255.00	433.53	-433.42	17.93	4.00	398008.20	789952.77	N 32 53.19	W 103 35 42.38
Sand	12500.00	78.98	179.80	12258.59	451.35	-451.24	18.06	4.00	397990.38	789952.89	N 32 53.21	W 103 35 42.38
	12600.00	82.89	179.80	12274.28	550.10	-549.88	18.74	4.00	397891.84	789953.58	N 32 53.24	W 103 35 42.38
	12700.00	88.88	179.80	12283.01	649.89	-649.57	19.42	4.00	397792.05	789954.28	N 32 52.25	W 103 35 42.38
Wolfcamp Y SS	12772.45	89.88	179.80	12285.00	722.11	-721.89	19.92	4.00	397719.84	789954.78	N 32 52.84	W 103 35 42.38
Target												
Wolfcamp Y SS	12778.58	90.12	179.80	12285.00	728.24	-728.12	19.97	4.00	397713.51	789954.81	N 32 52.87	W 103 35 42.38
Target												
Landing Point	12800.00	90.12	179.80	12284.95	749.88	-749.54	20.11	0.00	397692.09	789954.85	N 32 52.82	W 103 35 42.38
	12900.00	90.12	179.80	12284.74	849.88	-849.53	20.81	0.00	397592.09	789955.65	N 32 52.77	W 103 35 42.38
	13000.00	90.12	179.80	12284.53	949.88	-949.53	21.50	0.00	397492.10	789956.34	N 32 52.82	W 103 35 42.38
	13100.00	90.12	179.80	12284.31	1049.88	-1049.53	22.19	0.00	397392.11	789957.03	N 32 52.29	

Comments	MD (ft)	Incl (°)	Azimuth (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	DL3 (°/100ft)	Northing (ftUS)	Easting (ftUS)	Latitude (N/S ° ' ")	Longitude (E/W ° ' ")
	15000.00	90.12	179.80	12280.24	2949.85	-2949.48	35.32	0.00	385492.22	769970.16	N 32 5 6.49	W 103 35 42.38
	15100.00	90.12	179.80	12280.03	3049.85	-3049.48	38.01	0.00	385392.23	769970.85	N 32 5 5.50	W 103 35 42.38
	15200.00	90.12	179.80	12279.82	3149.85	-3149.47	38.70	0.00	385292.23	769971.54	N 32 5 4.51	W 103 35 42.38
	15300.00	90.12	179.80	12279.60	3249.85	-3249.47	37.39	0.00	385192.24	769972.23	N 32 5 3.52	W 103 35 42.38
	15400.00	90.12	179.80	12279.39	3349.85	-3349.47	38.08	0.00	385092.24	769972.92	N 32 5 2.53	W 103 35 42.38
	15500.00	90.12	179.80	12279.17	3449.85	-3449.47	38.78	0.00	384992.25	769973.61	N 32 5 1.55	W 103 35 42.38
	15600.00	90.12	179.80	12278.96	3549.85	-3549.48	39.47	0.00	384892.25	769974.31	N 32 5 0.58	W 103 35 42.38
	15700.00	90.12	179.80	12278.74	3649.85	-3649.48	40.16	0.00	384792.26	769975.00	N 32 4 59.57	W 103 35 42.38
	15800.00	90.12	179.80	12278.53	3749.85	-3749.48	40.85	0.00	384692.27	769975.69	N 32 4 58.58	W 103 35 42.38
	15900.00	90.12	179.80	12278.32	3849.85	-3849.45	41.54	0.00	384592.27	769976.38	N 32 4 57.59	W 103 35 42.38
	16000.00	90.12	179.80	12278.10	3949.85	-3949.45	42.23	0.00	384492.28	769977.07	N 32 4 56.60	W 103 35 42.38
	16100.00	90.12	179.80	12277.89	4049.85	-4049.45	42.92	0.00	384392.28	769977.76	N 32 4 55.61	W 103 35 42.38
	16200.00	90.12	179.80	12277.67	4149.85	-4149.45	43.61	0.00	384292.29	769978.45	N 32 4 54.62	W 103 35 42.38
	16300.00	90.12	179.80	12277.46	4249.85	-4249.44	44.30	0.00	384192.30	769979.14	N 32 4 53.63	W 103 35 42.38
	16400.00	90.12	179.80	12277.25	4349.85	-4349.44	45.00	0.00	384092.30	769979.83	N 32 4 52.64	W 103 35 42.38
	16500.00	90.12	179.80	12277.03	4449.85	-4449.44	45.69	0.00	383992.31	769980.53	N 32 4 51.65	W 103 35 42.38
	16600.00	90.12	179.80	12276.82	4549.85	-4549.44	46.38	0.00	383892.31	769981.22	N 32 4 50.66	W 103 35 42.38
	16700.00	90.12	179.80	12276.60	4649.85	-4649.43	47.07	0.00	383792.32	769981.91	N 32 4 49.67	W 103 35 42.38
	16800.00	90.12	179.80	12276.39	4749.85	-4749.43	47.76	0.00	383692.33	769982.60	N 32 4 48.68	W 103 35 42.38
	16900.00	90.12	179.80	12276.18	4849.85	-4849.43	48.45	0.00	383592.33	769983.29	N 32 4 47.69	W 103 35 42.38
	17000.00	90.12	179.80	12275.96	4949.85	-4949.43	49.14	0.00	383492.34	769983.98	N 32 4 46.70	W 103 35 42.38
	17100.00	90.12	179.80	12275.75	5049.85	-5049.42	49.83	0.00	383392.34	769984.67	N 32 4 45.71	W 103 35 42.38
	17200.00	90.12	179.80	12275.53	5149.85	-5149.42	50.53	0.00	383292.35	769985.36	N 32 4 44.72	W 103 35 42.38
	17300.00	90.12	179.80	12275.32	5249.85	-5249.42	51.22	0.00	383192.36	769986.05	N 32 4 43.73	W 103 35 42.38
	17400.00	90.12	179.80	12275.10	5349.85	-5349.42	51.91	0.00	383092.36	769986.75	N 32 4 42.74	W 103 35 42.38
	17500.00	90.12	179.80	12274.89	5449.85	-5449.41	52.60	0.00	382992.37	769987.44	N 32 4 41.75	W 103 35 42.38
	17600.00	90.12	179.80	12274.68	5549.85	-5549.41	53.29	0.00	382892.37	769988.13	N 32 4 40.76	W 103 35 42.38
	17700.00	90.12	179.80	12274.47	5649.85	-5649.41	53.98	0.00	382792.38	769988.82	N 32 4 39.77	W 103 35 42.38
	17800.00	90.12	179.80	12274.25	5749.85	-5749.41	54.67	0.00	382692.38	769989.51	N 32 4 38.78	W 103 35 42.38
	17900.00	90.12	179.80	12274.03	5849.85	-5849.40	55.36	0.00	382592.39	769990.20	N 32 4 37.80	W 103 35 42.38
	18000.00	90.12	179.80	12273.82	5949.85	-5949.40	56.05	0.00	382492.40	769990.89	N 32 4 36.81	W 103 35 42.38
	18100.00	90.12	179.80	12273.61	6049.84	-6049.40	56.75	0.00	382392.40	769991.58	N 32 4 35.82	W 103 35 42.38
	18200.00	90.12	179.80	12273.39	6149.84	-6149.39	57.44	0.00	382292.41	769992.27	N 32 4 34.83	W 103 35 42.38
	18300.00	90.12	179.80	12273.18	6249.84	-6249.39	58.13	0.00	382192.41	769992.96	N 32 4 33.84	W 103 35 42.38
	18400.00	90.12	179.80	12272.96	6349.84	-6349.39	58.82	0.00	382092.42	769993.65	N 32 4 32.85	W 103 35 42.38
	18500.00	90.12	179.80	12272.75	6449.84	-6449.39	59.51	0.00	381992.43	769994.34	N 32 4 31.86	W 103 35 42.38
	18600.00	90.12	179.80	12272.54	6549.84	-6549.38	60.20	0.00	381892.43	769995.03	N 32 4 30.87	W 103 35 42.38
	18700.00	90.12	179.80	12272.32	6649.84	-6649.38	60.89	0.00	381792.44	769995.72	N 32 4 29.88	W 103 35 42.38
	18800.00	90.12	179.80	12272.11	6749.84	-6749.38	61.58	0.00	381692.44	769996.41	N 32 4 28.89	W 103 35 42.38
	18900.00	90.12	179.80	12271.89	6849.84	-6849.38	62.27	0.00	381592.45	769997.10	N 32 4 27.90	W 103 35 42.38
	19000.00	90.12	179.80	12271.68	6949.84	-6949.37	62.96	0.00	381492.46	769997.79	N 32 4 26.91	W 103 35 42.38
	19100.00	90.12	179.80	12271.47	7049.84	-7049.37	63.65	0.00	381392.46	769998.48	N 32 4 25.92	W 103 35 42.38
	19200.00	90.12	179.80	12271.25	7149.84	-7149.37	64.34	0.00	381292.47	769999.17	N 32 4 24.93	W 103 35 42.38
	19300.00	90.12	179.80	12271.04	7249.84	-7249.37	65.03	0.00	381192.47	769999.86	N 32 4 23.94	W 103 35 42.38
	19400.00	90.12	179.80	12270.82	7349.84	-7349.38	65.73	0.00	381092.48	770000.55	N 32 4 22.95	W 103 35 42.38
	19500.00	90.12	179.80	12270.61	7449.84	-7449.38	66.42	0.00	380992.49	770001.24	N 32 4 21.96	W 103 35 42.38
	19600.00	90.12	179.80	12270.39	7549.84	-7549.38	67.11	0.00	380892.49	770001.93	N 32 4 20.97	W 103 35 42.38
	19700.00	90.12	179.80	12270.18	7649.84	-7649.38	67.80	0.00	380792.50	770002.62	N 32 4 19.98	W 103 35 42.38
	19800.00	90.12	179.80	12269.97	7749.84	-7749.35	68.49	0.00	380692.50	770003.31	N 32 4 19.00	W 103 35 42.38
	19900.00	90.12	179.80	12269.75	7849.84	-7849.35	69.19	0.00	380592.51	770004.00	N 32 4 18.01	W 103 35 42.38
	20000.00	90.12	179.80	12269.54	7949.84	-7949.35	69.88	0.00	380492.52	770004.69	N 32 4 17.02	W 103 35 42.38
	20100.00	90.12	179.80	12269.32	8049.84	-8049.34	70.57	0.00	380392.52	770005.38	N 32 4 16.03	W 103 35 42.38
	20200.00	90.12	179.80	12269.11	8149.84	-8149.34	71.26	0.00	380292.53	770006.07	N 32 4 15.04	W 103 35 42.38
	20300.00	90.12	179.80	12268.90	8249.84	-8249.34	71.95	0.00	380192.53	770006.76	N 32 4 14.05	W 103 35 42.38
	20400.00	90.12	179.80	12268.68	8349.84	-8349.34	72.64	0.00	380092.54	770007.45	N 32 4 13.06	W 103 35 42.38
	20500.00	90.12	179.80	12268.47	8449.84	-8449.33	73.33	0.00	379992.54	770008.14	N 32 4 12.07	W 103 35 42.38
	20600.00	90.12	179.80	12268.25	8549.84	-8549.33	74.02	0.00	379892.55	770008.83	N 32 4 11.08	W 103 35 42.38
	20700.00	90.12	179.80	12268.04	8649.84	-8649.33	74.72	0.00	379792.56	770009.52	N 32 4 10.09	W 103 35 42.38
	20800.00	90.12	179.80	12267.82	8749.84	-8749.33	75.41	0.00	379692.56	770010.21	N 32 4 9.10	W 103 35 42.38
	20900.00	90.12	179.80	12267.61	8849.84	-8849.32	76.10	0.00	379592.57	770010.90	N 32 4 8.11	W 103 35 42.38
	21000.00	90.12	179.80	12267.40	8949.84	-8949.32	76.79	0.00	379492.57	770011.59	N 32 4 7.12	W 103 35 42.38
	21100.00	90.12	179.80	12267.18	9049.84	-9049.32	77.48	0.00	379392.58	770012.28	N 32 4 6.13	W 103 35 42.38
	21200.00	90.12	179.80	12266.97	9149.84	-9149.32	78.17	0.00	379292.58	770012.97	N 32 4 5.14	W 103 35 42.38
	21300.00	90.12	179.80	12266.75	9249.84	-9249.31	78.86	0.00	379192.59	770013.66	N 32 4 4.15	W 103 35 42.38
	21400.00	90.12	179.80	12266.54	9349.84	-9349.31	79.55	0.00	379092.60	770014.35	N 32 4 3.16	W 103 35 42.38
	21500.00	90.12	179.80	12266.33	9449.84	-9449.31	80.24	0.00	378992.60	770015.04	N 32 4 2.17	W 103 35 42.38
	21600.00	90.12	179.80	12266.11	9549.84	-9549.31	80.93	0.00	378892.61	770015.73	N 32 4 1.18	W 103 35 42.38
	21700.00	90.12	179.80	12265.90	9649.84	-9649.30	81.62	0.00	378792.62	770016.42	N 32 4 0.19	W 103 35 42.38
	21800.00	90.12	179.80	12265.68	9749.84	-9749.30	82.31	0.00	378692.62	770017.11	N 32 3 59.20	W 103 35 42.38
	21900.00	90.12	179.80	12265.47	9849.84	-9849.30	83.00	0.00	378592.63	770017.80	N 32 3 58.21	W 103 35 42.38
	22000.00	90.12	179.80	12265.25	9949.84	-9949.30	83.70	0.00	378492.63	770018.49	N 32 3 57.22	W 103 35 42.38
	22100.00	90.12	179.80	12265.04	10049.84	-10049.29	84.39	0.00	378392.64	770019.18	N 32 3 56.23	W 103 35 42.38

Cimarex Red Hills 32-5 Federal Com 155H - PBHL [100' FSL, 2400' FWL] 22119.07 90.12 179.80 12285.00 10068.71 -10068.38 84.52 0.00 388373.57 770019.38 N 32 3 56.05 W 103 35 42.38

Survey Type: Def Plan

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

Description	Part	MD From (ft)	MD To (ft)	EOU Freq (ft)	Hole Size (in)	Casing Diameter (in)	Expected Max Inclination (deg)	Survey Tool Type	Borehole / Survey
	1	0.000	26.000	1/100.000	30.000				

**Cimarex Red Hills 32-5 Federal Com 155H Rev1 RM 09Aug09 Proposal  
Geodetic Report  
(Def Plan)**



**Report Date:** August 09, 2019 - 01:45 PM  
**Client:** Cimarex Energy  
**Field:** NM Lea County (NAD 83)  
**Structure / Slot:** Cimarex Red Hills 32-5 Federal Com 155H / New Slot  
**Well:** Red Hills 32-5 Federal Com 155H  
**Borehole:** Red Hills 32-5 Federal Com 155H  
**UWI / AP#:** Unknown / Unknown  
**Survey Name:** Cimarex Red Hills 32-5 Federal Com 155H Rev1 RM 09Aug09  
**Survey Date:** October 03, 2018  
**Tort / AHD / DDI / ERD Ratio:** 90.281 ° / 10069.188 ft / 6.214 / 0.820  
**Coordinate Reference System:** NAD83 New Mexico State Plane, Eastern Zone, US Feet  
**Location Lat / Long:** N 32° 5' 35.68050", W 103° 35' 42.55834"  
**Location Grid N/E Y/X:** N 398441.800 RUS, E 789934.840 RUS  
**CRS Grid Convergence Angle:** 0.3922 °  
**Grid Scale Factor:** 0.99998894  
**Version / Patch:** 2.10.760.0

**Survey / DLS Computation:** Minimum Curvature / Lubinski  
**Vertical Section Azimuth:** 179.804 ° (Grid North)  
**Vertical Section Origin:** 0.000 ft, 0.000 ft  
**TVD Reference Datum:** RKB  
**TVD Reference Elevation:** 3435.800 ft above MSL  
**Seabed / Ground Elevation:** 3409.800 ft above MSL  
**Magnetic Declination:** 6.628 °  
**Total Gravity Field Strength:** 988.4285mgn (9.80865 Based)  
**Gravity Model:** GARM  
**Total Magnetic Field Strength:** 47735.831 nT  
**Magnetic Dip Angle:** 59.893 °  
**Declination Date:** August 09, 2019  
**Magnetic Declination Model:** HDGM 2019  
**North Reference:** Grid North  
**Grid Convergence Used:** 0.3922 °  
**Total Corr Mag North->Grid North:** 6.2380 °  
**Local Coord Referenced To:** Well Head

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (*/100ft)	Northing (ftUS)	Easting (ftUS)	Latitude (N/S ° ' ")	Longitude (E/W ° ' ")
SHL [380' FNL, 2385' FWL]	0.00	0.00	179.35	0.00	0.00	0.00	0.00	N/A	398441.80	789934.84	N 32 5 35.68	W 103 35 42.56
KOP - Build 12"/100' DLS	11774.19	0.00	175.01	11774.19	0.00	0.00	0.00	0.00	398441.80	789934.84	N 32 5 35.68	W 103 35 42.56
Build & Turn 12"/100' DLs	12065.86	35.00	175.01	12048.06	88.07	-86.02	7.51	12.00	398355.58	789942.35	N 32 5 34.83	W 103 35 42.48
Build 4"/100' DLS	12400.51	75.00	179.80	12236.20	354.44	-354.33	17.38	12.00	398087.28	789952.22	N 32 5 32.17	W 103 35 42.38
Landing Point Cimarex Red Hills 32-5 Federal Com 155H - PBHL [100' FSL, 2400' FWL]	12778.58	90.12	179.80	12285.00	728.24	-728.12	19.97	4.00	397713.51	789954.81	N 32 5 28.47	W 103 35 42.38
Federal Com 155H - PBHL [100' FSL, 2400' FWL]	22119.07	90.12	179.80	12285.00	10068.71	-10088.38	84.52	0.00	388373.57	770019.38	N 32 3 56.05	W 103 35 42.38

**Survey Type:** Def Plan

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

Description	Part	MD From (ft)	MD To (ft)	EOU Freq (ft)	Hole Size (in)	Casing Diameter (in)	Expected Max Inclination (deg)	Survey Tool Type	Borehole / Survey
	1	0.000	26.000	1/100.000	30.000	30.000		NAL_MWD_IFR1+MS-Depth Only	Red Hills 32-5 Federal Com 155H / Cimarex Red Hills 32-5 Federal Com 155H Rev1 RM 09Aug09
	1	26.000	22119.071	1/100.000	30.000	30.000		NAL_MWD_IFR1+MS	Red Hills 32-5 Federal Com 155H / Cimarex Red Hills 32-5 Federal

### Cimarex Red Hills 32-5 Federal Com 155H Rev1 RM 09Aug09 Anti-Collision Summary Report

Analysis Date-24hr Time:	August 09, 2010 - 13:45	Analysis Method:	3D Least Distance
Client:	Cimarex Energy	Reference Trajectory:	Cimarex Red Hills 32-5 Federal Com 155H Rev1 RM 09Aug09 (Def Plan)
Field:	NM Lea County (NAD 83)	Depth Interval:	Every 10.00 Measured Depth (ft)
Structure:	Cimarex Red Hills 32-5 Federal Com 155H	Rule Set:	NAL Procedure: D&M Anti-Collision Standard S002
Slot:	New Slot	Min Pts:	All local minima indicated.
Well:	Red Hills 32-5 Federal Com 155H	Version / Patch:	2.10.760.0
Borehole:	Red Hills 32-5 Federal Com 155H	Database \ Project:	US1153APP452.dir.slb.com\drilling-NM Lea County 2.10
Scan MD Range:	0.00ft - 22119.07ft		

**Trajectory Error Model:** ISCW5AD 3-D 95.000% Confidence 2.7955 sigma, for subject well. For offset wells, error model version is specified with each well respectively.

**Offset Trajectories Summary**

**Offset Selection Criteria**

Wellhead distance scan: Not performed!  
 Selection filters: Definitive Surveys - Definitive Plans - Definitive surveys exclude definitive plans  
 - All Non-Def Surveys when no Def-Survey is set in a borehole - All Non-Def Plans when no Def-Plan is set in a borehole

Offset Trajectory	Separation			Allow Dev. (ft)	Sep. Fact.	Controlling Rule	Reference Trajectory		Risk Level			Alert	Status
	Ct-Ct (ft)	MAS (ft)	EOU (ft)				MD (ft)	TVD (ft)	Alert	Minor	Major		

Results Highlighted: Sep-Factor separation <= 1.50 ft

Cimarex Red Hills Unit #3H  
 (Offset) Gas Inc Only On-17667ft (Def Survey)

Offset Trajectory	Ct-Ct (ft)	MAS (ft)	EOU (ft)	Allow Dev. (ft)	Sep. Fact.	Controlling Rule	Reference Trajectory MD (ft)	Reference Trajectory TVD (ft)	Risk Level	Alert	Status
8176.95	32.81	8174.45	8144.14	N/A		MAS = 10.00 (m)	0.00	0.00			Surface
8176.82	32.81	8174.31	8144.02	649378.74		MAS = 10.00 (m)	28.00	28.00			WRP
8176.76	32.81	8172.59	8143.97	4637.78		MAS = 10.00 (m)	180.00	180.00			MinPts
8174.34	43.92	8144.23	8130.42	295.95		OSF1.50	880.00	880.00			MinPt-CICI
8175.18	48.50	8143.35	8128.88	278.63		OSF1.50	1020.00	1020.00			MNPT-O-EQU
8176.24	47.79	8143.54	8128.45	270.73		OSF1.50	1090.00	1090.00			MinPt-O-ADP
8168.63	85.76	8110.92	8083.17	147.14		OSF1.50	1650.00	1650.00			MinPt-CICI
8169.29	86.94	8110.50	8082.35	145.08		OSF1.50	1740.00	1740.00			MNPT-O-EQU
8169.83	87.59	8110.90	8082.23	143.87		OSF1.50	1790.00	1790.00			MinPt-O-ADP
8171.22	143.00	8075.05	8028.22	87.21		OSF1.50	2820.00	2820.00			MinPt-CICI
8174.94	154.38	8071.20	8020.58	80.72		OSF1.50	3200.00	3200.00			MNPT-O-EQU
8171.04	201.40	8033.94	7989.64	81.60		OSF1.50	3940.00	3940.00			MinPt-CICI
8166.58	290.63	7989.16	7897.16	45.88		OSF1.50	5240.00	5240.00			MinPt-CICI
8169.22	277.18	7983.80	7892.04	44.60		OSF1.50	5530.00	5530.00			MNPT-O-EQU
8172.50	281.12	7984.20	7891.30	43.68		OSF1.50	5690.00	5690.00			MinPt-O-ADP
8165.10	382.67	7922.57	7802.52	34.00		OSF1.50	7020.00	7020.00			MinPt-CICI
8168.35	372.24	7919.35	7798.11	33.15		OSF1.50	7380.00	7380.00			MNPT-O-EQU
8162.48	454.05	7858.83	7708.42	27.11		OSF1.50	8780.00	8780.00			MinPt-CICI
8163.69	457.68	7857.70	7708.01	26.90		OSF1.50	8940.00	8940.00			MNPT-O-EQU
8185.04	499.31	7857.99	7705.72	26.80		OSF1.50	9030.00	9030.00			MinPt-O-ADP
8184.62	538.34	7854.88	7628.28	22.85		OSF1.50	10380.00	10380.00			MinPt-CICI
8169.14	551.67	7850.32	7617.18	22.29		OSF1.50	10820.00	10820.00			MNPT-O-EQU
2116.79	644.67	1682.63	1471.82	4.89		OSF1.50	18100.00	12273.81	OSF<5.00		Enter Alert
647.49	649.24	209.75	-1.74	1.50		OSF1.50	19590.00	12270.42		OSF<1.50	Enter Minor
433.40	651.10	-5.44	-217.70	0.69		OSF1.50	19620.00	12269.62		OSF<1.00	Enter Major
193.03	656.49	-245.65	-463.47	0.44		OSF1.50	20200.00	12269.11			MinPts
192.86	656.03	-245.32	-463.10	0.44		OSF1.50	20210.00	12269.09			MinPt-CICI
427.75	640.54	-0.11	-212.79	1.00		OSF1.50	20590.00	12268.27	OSF>1.00		Exit Major
631.69	638.35	205.53	-6.42	1.48		OSF1.50	20810.00	12267.80		OSF>1.50	Exit Minor
1920.44	637.45	1494.63	1282.88	4.53		OSF1.50	22119.07	12265.00			TD

Cimarex Red Hills Unit #4  
 (Offset) Gas Blend On-17676ft (Def Survey)

Offset Trajectory	Ct-Ct (ft)	MAS (ft)	EOU (ft)	Allow Dev. (ft)	Sep. Fact.	Controlling Rule	Reference Trajectory MD (ft)	Reference Trajectory TVD (ft)	Risk Level	Alert	Status
4502.05	32.81	4500.15	4489.84	N/A		MAS = 10.00 (m)	0.00	0.00			Surface
4502.44	32.81	4489.92	4489.83	125743.91		MAS = 10.00 (m)	28.00	28.00			MinPt-O-SF
4502.38	1354.91	3568.28	3147.47	4.99		OSF1.50	4400.00	4400.00	OSF<5.00		Enter Alert
3830.80	3834.64	1272.83	-4.15	1.50		OSF1.50	12740.00	12284.56		OSF<1.50	Enter Minor
2553.23	3836.22	-0.25	-1282.98	1.00		OSF1.50	14070.00	12282.23		OSF<1.00	Enter Major
867.63	3831.80	-1987.44	-2993.67	0.34		OSF1.50	16470.00	12277.10			MinPts
2550.69	3829.73	-3.00	-1278.74	1.00		OSF1.50	18870.00	12271.98	OSF>1.00		Exit Major
3828.48	3828.78	1278.14	-0.29	1.50		OSF1.50	20200.00	12269.11		OSF>1.50	Exit Minor
6714.16	3827.43	3181.71	1888.73	2.24		OSF1.50	22119.07	12265.00			TD

Cimarex Red Hills Unit #1  
 (Offset) Gas Inc Only On-21321ft (Def Survey)

Offset Trajectory	Ct-Ct (ft)	MAS (ft)	EOU (ft)	Allow Dev. (ft)	Sep. Fact.	Controlling Rule	Reference Trajectory MD (ft)	Reference Trajectory TVD (ft)	Risk Level	Alert	Status
4589.56	32.81	4587.06	4558.76	N/A		MAS = 10.00 (m)	0.00	0.00			Surface
4589.63	32.81	4587.02	4558.72	N/A		MAS = 10.00 (m)	10.00	10.00			MinPt-O-SF
4589.61	32.81	4587.01	4558.71	N/A		MAS = 10.00 (m)	20.00	20.00			MinPts
4589.51	32.81	4587.01	4558.71	N/A		MAS = 10.00 (m)	28.00	28.00			WRP
4589.33	32.81	4573.72	4558.52	350.09		MAS = 10.00 (m)	450.00	450.00			MinPts
4589.81	32.81	4573.02	4558.81	325.57		MAS = 10.00 (m)	520.00	520.00			MNPT-O-EQU
4588.45	34.89	4564.49	4553.70	213.71		OSF1.50	690.00	690.00			MinPt-CICI
4588.52	41.80	4559.95	4548.92	175.83		OSF1.50	820.00	820.00			MinPt-CICI
4589.78	44.84	4559.05	4544.83	162.51		OSF1.50	980.00	980.00			MNPT-O-EQU
4589.34	58.56	4550.79	4532.77	127.28		OSF1.50	1110.00	1110.00			MinPt-CICI
4590.29	59.30	4549.93	4530.99	121.18		OSF1.50	1230.00	1230.00			MNPT-O-EQU
4589.88	70.84	4541.81	4518.83	100.69		OSF1.50	1380.00	1380.00			MinPt-CICI
4589.47	92.20	4527.17	4497.27	78.70		OSF1.50	1790.00	1790.00			MinPt-CICI
4589.17	118.25	4509.50	4470.92	59.44		OSF1.50	2290.00	2290.00			MinPt-CICI
4588.16	148.87	4489.81	4441.58	47.74		OSF1.50	2830.00	2830.00			MinPt-CICI
4588.44	186.81	4470.40	4421.83	41.87		OSF1.50	3220.00	3220.00			MinPt-CICI
4588.86	188.64	4475.82	4420.31	41.41		OSF1.50	3310.00	3310.00			MNPT-O-EQU
4589.69	178.78	4470.01	4411.92	39.47		OSF1.50	3410.00	3410.00			MinPt-CICI
4590.01	198.60	4458.12	4393.42	35.45		OSF1.50	3790.00	3790.00			MinPt-CICI
4590.12	197.28	4457.78	4392.84	35.33		OSF1.50	3830.00	3830.00			MNPT-O-EQU
4590.27	197.47	4457.79	4392.85	35.30		OSF1.50	3850.00	3850.00			MinPt-O-ADP
4589.05	209.48	4448.58	4379.57	33.24		OSF1.50	4040.00	4040.00			MinPt-CICI
4589.87	211.16	4448.07	4378.52	32.88		OSF1.50	4130.00	4130.00			MNPT-O-EQU
4588.79	224.89	4438.16	4364.10	30.96		OSF1.50	4330.00	4330.00			MinPt-CICI
4589.34	228.43	4437.55	4362.91	30.72		OSF1.50	4420.00	4420.00			MNPT-O-EQU

Offset Trajectory	Separation			Allow Dev. (ft)	Sep. Fact.	Controlling Rule	Reference Trajectory		Risk Level		Alert	Status
	Ch-C1 (ft)	MAS (ft)	EQU (ft)				MD (ft)	TYD (ft)	Minor	Major		
0000.25	18.49	17.49	3.60	N/A	N/A	MAS = 6.03 (m)	0.00	0.00				
0000.05	18.49	17.49	3.60	N/A	N/A	MAS = 6.03 (m)	28.00	28.00				
0001.20	18.49	8.49	3.50	1.94	1.94	MAS = 6.03 (m)	1600.00	1600.00				
0003.12	18.49	8.49	3.51	1.83	1.83	MAS = 6.03 (m)	1610.00	1610.00				
0003.65	18.49	8.49	3.55	1.62	1.62	MAS = 6.03 (m)	1630.00	1630.00				
0003.97	18.49	45.11	39.45	4.89	4.89	OSF1.50	2020.00	2020.00				
0004.44	18.49	220.26	200.81	6.00	6.00	OSF1.50	10210.00	10210.00				
0004.85	18.49	223.04	198.26	4.81	4.81	OSF1.50	10350.00	10350.00				
0005.18	18.49	223.07	198.32	4.81	4.81	OSF1.50	10390.00	10390.00				
0005.50	18.49	223.34	200.87	6.00	6.00	OSF1.50	10440.00	10440.00				
0005.82	18.49	1482.35	1378.85	8.33	8.33	OSF1.50	22119.07	12285.00				
0006.25	32.49	31.49	7.60	N/A	N/A	MAS = 6.00 (m)	0.00	0.00				
0006.57	32.49	31.49	7.60	N/A	N/A	MAS = 6.00 (m)	28.00	28.00				
0007.00	32.49	28.49	7.50	4.15	4.15	MAS = 6.00 (m)	1600.00	1600.00				
0007.43	32.49	28.49	7.52	4.13	4.13	MAS = 6.00 (m)	1610.00	1610.00				
0007.86	32.49	28.49	8.12	4.89	4.89	MAS = 6.00 (m)	1630.00	1630.00				
0008.29	32.49	28.49	20.02	4.89	4.89	MAS = 6.00 (m)	1770.00	1770.00				
0008.72	32.49	28.49	20.02	4.89	4.89	MAS = 6.00 (m)	1780.00	1780.00				
0009.15	32.49	659.06	627.78	11.41	11.41	OSF1.50	11780.00	11780.00				
0009.58	32.49	659.06	627.78	11.41	11.41	OSF1.50	11780.00	11780.00				
0010.01	32.49	659.06	627.78	11.41	11.41	OSF1.50	11780.00	11780.00				
0010.44	32.49	659.06	627.78	11.41	11.41	OSF1.50	11780.00	11780.00				
0010.87	32.49	659.06	627.78	11.41	11.41	OSF1.50	11780.00	11780.00				
0011.30	32.49	659.06	627.78	11.41	11.41	OSF1.50	11780.00	11780.00				
0011.73	32.49	659.06	627.78	11.41	11.41	OSF1.50	11780.00	11780.00				
0012.16	32.49	659.06	627.78	11.41	11.41	OSF1.50	11780.00	11780.00				
0012.59	32.49	659.06	627.78	11.41	11.41	OSF1.50	11780.00	11780.00				
0013.02	32.49	659.06	627.78	11.41	11.41	OSF1.50	11780.00	11780.00				
0013.45	32.49	659.06	627.78	11.41	11.41	OSF1.50	11780.00	11780.00				
0013.88	32.49	659.06	627.78	11.41	11.41	OSF1.50	11780.00	11780.00				
0014.31	32.49	659.06	627.78	11.41	11.41	OSF1.50	11780.00	11780.00				
0014.74	32.49	659.06	627.78	11.41	11.41	OSF1.50	11780.00	11780.00				
0015.17	32.49	659.06	627.78	11.41	11.41	OSF1.50	11780.00	11780.00				
0015.60	32.49	659.06	627.78	11.41	11.41	OSF1.50	11780.00	11780.00				
0016.03	32.49	659.06	627.78	11.41	11.41	OSF1.50	11780.00	11780.00				
0016.46	32.49	659.06	627.78	11.41	11.41	OSF1.50	11780.00	11780.00				
0016.89	32.49	659.06	627.78	11.41	11.41	OSF1.50	11780.00	11780.00				
0017.32	32.49	659.06	627.78	11.41	11.41	OSF1.50	11780.00	11780.00				
0017.75	32.49	659.06	627.78	11.41	11.41	OSF1.50	11780.00	11780.00				
0018.18	32.49	659.06	627.78	11.41	11.41	OSF1.50	11780.00	11780.00				
0018.61	32.49	659.06	627.78	11.41	11.41	OSF1.50	11780.00	11780.00				
0019.04	32.49	659.06	627.78	11.41	11.41	OSF1.50	11780.00	11780.00				
0019.47	32.49	659.06	627.78	11.41	11.41	OSF1.50	11780.00	11780.00				
0019.90	32.49	659.06	627.78	11.41	11.41	OSF1.50	11780.00	11780.00				
0020.33	32.49	659.06	627.78	11.41	11.41	OSF1.50	11780.00	11780.00				
0020.76	32.49	659.06	627.78	11.41	11.41	OSF1.50	11780.00	11780.00				
0021.19	32.49	659.06	627.78	11.41	11.41	OSF1.50	11780.00	11780.00				
0021.62	32.49	659.06	627.78	11.41	11.41	OSF1.50	11780.00	11780.00				
0022.05	32.49	659.06	627.78	11.41	11.41	OSF1.50	11780.00	11780.00				
0022.48	32.49	659.06	627.78	11.41	11.41	OSF1.50	11780.00	11780.00				
0022.91	32.49	659.06	627.78	11.41	11.41	OSF1.50	11780.00	11780.00				
0023.34	32.49	659.06	627.78	11.41	11.41	OSF1.50	11780.00	11780.00				
0023.77	32.49	659.06	627.78	11.41	11.41	OSF1.50	11780.00	11780.00				
0024.20	32.49	659.06	627.78	11.41	11.41	OSF1.50	11780.00	11780.00				
0024.63	32.49	659.06	627.78	11.41	11.41	OSF1.50	11780.00	11780.00				
0025.06	32.49	659.06	627.78	11.41	11.41	OSF1.50	11780.00	11780.00				
0025.49	32.49	659.06	627.78	11.41	11.41	OSF1.50	11780.00	11780.00				
0025.92	32.49	659.06	627.78	11.41	11.41	OSF1.50	11780.00	11780.00				
0026.35	32.49	659.06	627.78	11.41	11.41	OSF1.50	11780.00	11780.00				
0026.78	32.49	659.06	627.78	11.41	11.41	OSF1.50	11780.00	11780.00				
0027.21	32.49	659.06	627.78	11.41	11.41	OSF1.50	11780.00	11780.00				
0027.64	32.49	659.06	627.78	11.41	11.41	OSF1.50	11780.00	11780.00				
0028.07	32.49	659.06	627.78	11.41	11.41	OSF1.50	11780.00	11780.00				
0028.50	32.49	659.06	627.78	11.41	11.41	OSF1.50	11780.00	11780.00				
0028.93	32.49	659.06	627.78	11.41	11.41	OSF1.50	11780.00	11780.00				
0029.36	32.49	659.06	627.78	11.41	11.41	OSF1.50	11780.00	11780.00				
0029.79	32.49	659.06	627.78	11.41	11.41	OSF1.50	11780.00	11780.00				
0030.22	32.49	659.06	627.78	11.41	11.41	OSF1.50	11780.00	11780.00				
0030.65	32.49	659.06	627.78	11.41	11.41	OSF1.50	11780.00	11780.00				
0031.08	32.49	659.06	627.78	11.41	11.41	OSF1.50	11780.00	11780.00				
0031.51	32.49	659.06	627.78	11.41	11.41	OSF1.50	11780.00	11780.00				
0031.94	32.49	659.06	627.78	11.41	11.41	OSF1.50	11780.00	11780.00				
0032.37	32.49	659.06	627.78	11.41	11.41	OSF1.50	11780.00	11780.00				
0032.80	32.49	659.06	627.78	11.41	11.41	OSF1.50	11780.00	11780.00				
0033.23	32.49	659.06	627.78	11.41	11.41	OSF1.50	11780.00	11780.00				
0033.66	32.49	659.06	627.78	11.41	11.41	OSF1.50	11780.00	11780.00				
0034.09	32.49	659.06	627.78	11.41	11.41	OSF1.50	11780.00	11780.00				
0034.52	32.49	659.06	627.78	11.41	11.41	OSF1.50	11780.00	11780.00				
0034.95	32.49	659.06	627.78	11.41	11.41	OSF1.50	11780.00	11780.00				
0035.38	32.49	659.06	627.78	11.41	11.41	OSF1.50	11780.00	11780.00				
0035.81	32.49	659.06	627.78	11.41	11.41	OSF1.50	11780.00	11780.00				
0036.24	32.49	659.06	627.78	11.41	11.41	OSF1.50	11780.00	11780.00				
0036.67	32.49	659.06	627.78	11.41	11.41	OSF1.50	11780.00	11780.00				
0037.10	32.49	659.06	627.78	11.41	11.41	OSF1.50	11780.00	11780.00				
0037.53	32.49	659.06	627.78	11.41	11.41	OSF1.50	11780.00	11780.00				
0037.96	32.49	659.06	627.78	11.41	11.41	OSF1.50	11780.00	11780.00				
0038.39	32.49	659.06	627.78	11.41	11.41	OSF1.50	11780.00	11780.00				
0038.82	32.49	659.06	627.78	11.41	11.41	OSF1.50	11780.00	11780.00				
0039.25	32.49	659.06	627.78	11.41	11.41	OSF1.50	11780.00	11780.00				
0039.68	32.49	659.06	627.78	11.41	1							

Offset Trajectory	Separation			Allow Dev. (ft)	Sep. Fact.	Controlling Rule	Reference Trajectory		Risk Level			Alert	Status
	C1-C1 (ft)	MAS (ft)	EOU (ft)				MD (ft)	TVD (ft)	Alert	Minor	Major		
4392.05	1316.01	3504.08	3086.04	5.00	OSF1.50	7440.00	7440.00	OSP>5.00			Esti Alert		
7558.12	473.02	7241.54	7084.50	24.06	OSF1.50	14970.00	12280.31				MinPl-CICI		
7558.25	473.88	7241.49	7084.37	24.04	OSF1.50	15010.00	12280.22				MinPl-O-EOU		
7558.89	474.38	7241.91	7084.31	24.02	OSF1.50	15080.00	12280.11				MinPl-O-ADP		
10168.79	1119.67	9421.58	9049.22	13.85	OSF1.50	21770.00	12285.75				MinPl-O-SF		
10405.55	1144.43	9641.78	9291.12	13.67	OSF1.50	22119.07	12285.00				TD		

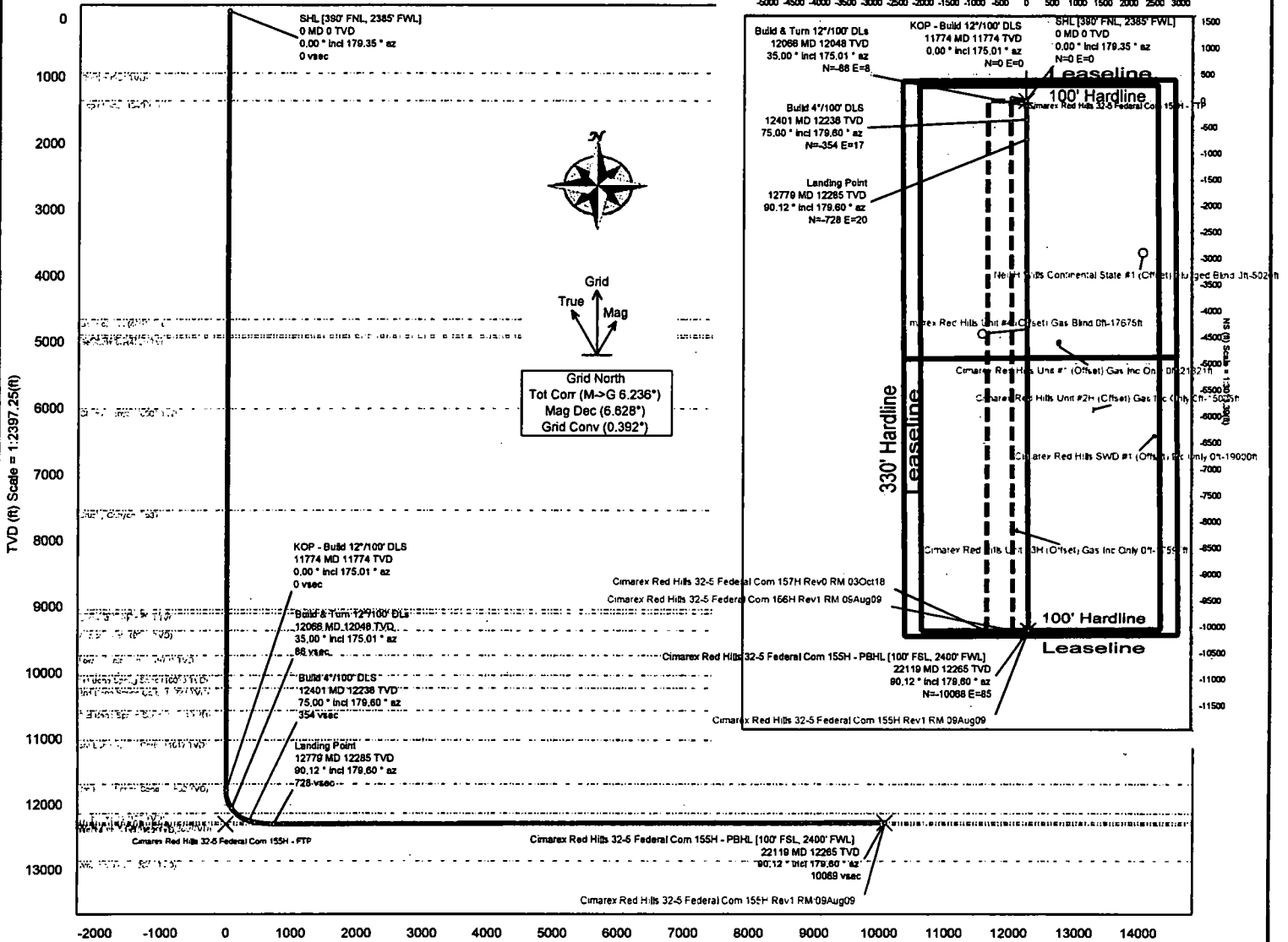
Cimarex Red Hills SWD #1  
(Offset) Inc Only 0N-10000N  
(Def Survey)

											Pass
6855.68	32.81	6853.08	6822.77	N/A	MAS = 10.00 (m)	0.00	0.00				Surface
6855.35	32.81	6852.81	6822.54	209479.68	MAS = 10.00 (m)	26.00	26.00				MinPl-O-SF
6855.17	32.81	6852.53	6822.36	40029.87	MAS = 10.00 (m)	80.00	80.00				MinPls
6858.42	67.72	6799.10	6770.89	120.67	OSF1.50	1750.00	1750.00				MinPl-CICI
6857.39	173.01	6741.21	6834.38	60.30	OSF1.50	3390.00	3390.00				MinPl-CICI
6834.42	268.78	6854.39	6565.64	38.49	OSF1.50	5180.00	5180.00				MinPl-CICI
6835.50	272.07	6853.28	6563.43	38.03	OSF1.50	5320.00	5320.00				MinPl-O-EOU
6838.70	273.49	6853.53	6563.21	37.83	OSF1.50	5390.00	5390.00				MinPl-O-ADP
6843.25	284.55	6852.71	6556.09	36.38	OSF1.50	5690.00	5690.00				MinPl-O-EOU
6843.40	349.76	6809.39	6493.84	29.55	OSF1.50	6780.00	6780.00				MinPl-CICI
6847.05	434.77	6556.36	6412.27	23.75	OSF1.50	8400.00	8400.00				MinPl-CICI
6845.50	517.14	6499.96	6328.42	19.95	OSF1.50	9980.00	9980.00				MinPl-CICI
6838.17	601.45	6434.35	6234.71	17.12	OSF1.50	11580.00	11580.00				MinPl-CICI
6837.53	605.03	6432.93	6231.89	17.00	OSF1.50	11760.00	11760.00				MinPl-O-EOU
2485.41	649.36	2031.68	1816.05	5.71	OSF1.50	18440.00	12272.88				MinPls
2485.74	649.63	2031.89	1816.21	5.71	OSF1.50	18480.00	12272.79				MinPl-O-SF
4428.56	649.85	3994.82	3776.04	10.28	OSF1.50	22119.07	12285.00				TD



<b>Borehole:</b> Red Hills 32-5 Federal Com 155H	<b>Well:</b> Red Hills 32-5 Federal Com 155H	<b>Field:</b> NM Lea County (NAD 83)	<b>Structure:</b> Cimarex Red Hills 32-5 Federal Com 155H
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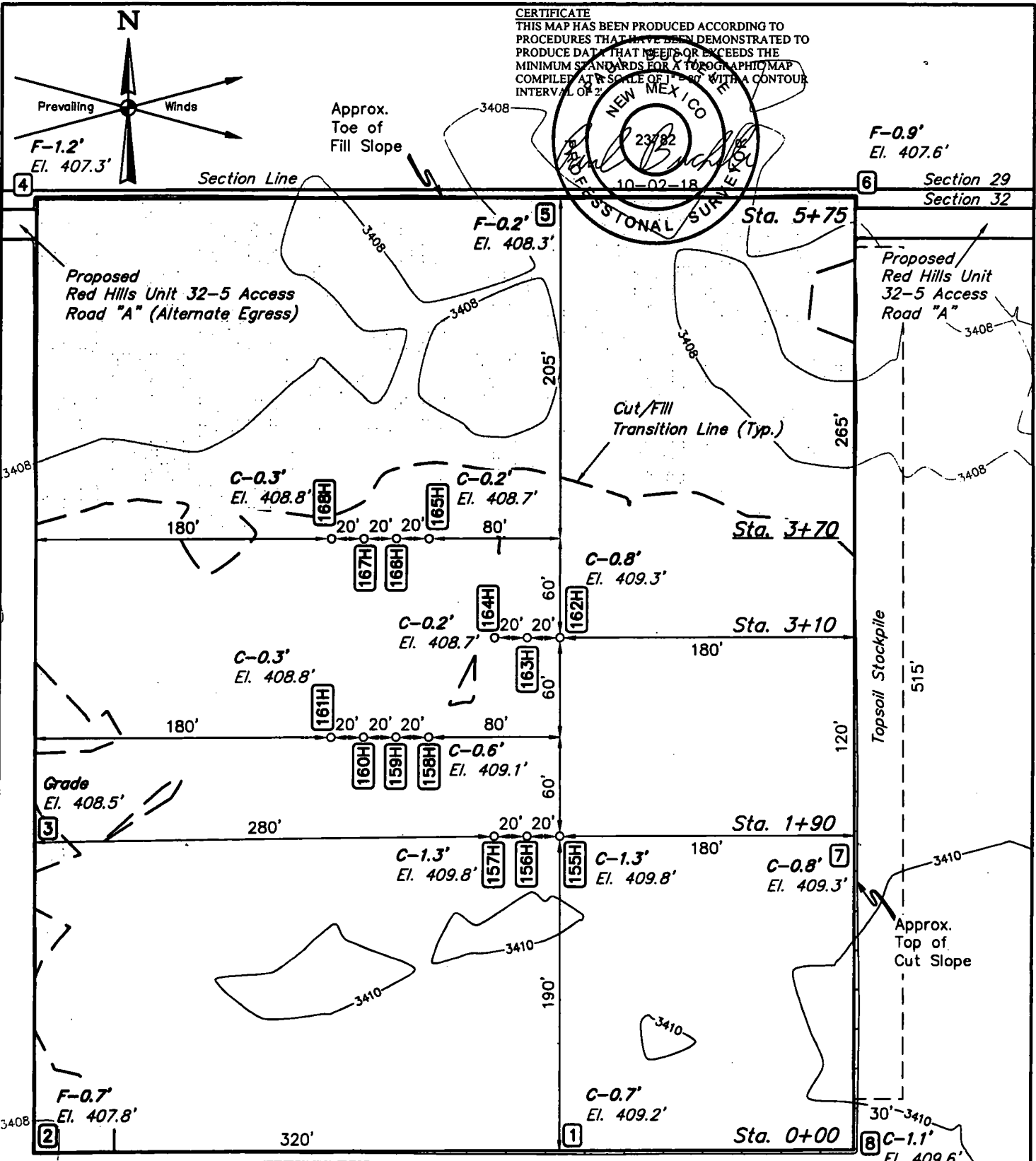
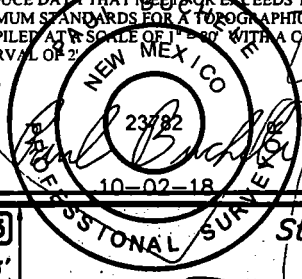
<b>Gravity &amp; Magnetic Parameters</b> Model: HDGM 2019 Dip: 63.537° Date: 09-Aug-2019 MagDec: 6.628° FS: 47735.831mT Gravity PR: 988.423mgal (8,00685 Based)	<b>Surface Location</b> NAD83 New Mexico State Plane, Eastern Zone, US Feet Loc: N 32 9 35.53 Northing: 398441.070 US Grid Cont: 0.3922° Lon: W 103 35 42.58 Easting: 763934.8470 US Scale Fact: 0.39996834	<b>Miscellaneous</b> s/b: New 8 bit TVD Ref: RYB(2435.87 above MSL) Plan: Cimarex Red Hills 32-5 Federal Com 155H Rev1 RM 09Aug09 EW (ft) Scale = 1:3013.39(ft)
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Vertical Section (ft) Azim = 179.60° Scale = 1:2397.25(ft) Origin = 0N/-S, 0E/-W

Critical Point	MD	INCL	AZIM	TVD	VSEC	N(+)/S(-)	E(+)/W(-)	DLS
SHL (380' FNL, 2385' FWL)	0.00	0.00	179.35	0.00	0.00	0.00	0.00	
Rustler	934.00	0.00	175.01	934.00	0.00	0.00	0.00	0.00
Top of Salt	1346.00	0.00	175.01	1349.00	0.00	0.00	0.00	0.00
Base of Salt	4851.00	0.00	175.01	4851.00	0.00	0.00	0.00	0.00
Lamar	4892.00	0.00	175.01	4892.00	0.00	0.00	0.00	0.00
Bell Canyon	4929.00	0.00	175.01	4929.00	0.00	0.00	0.00	0.00
Cherry Canyon	6001.00	0.00	175.01	6001.00	0.00	0.00	0.00	0.00
Brushy Canyon	7537.00	0.00	175.01	7537.00	0.00	0.00	0.00	0.00
Bone Spring	9039.00	0.00	175.01	9039.00	0.00	0.00	0.00	0.00
Leonard Shale	9094.00	0.00	175.01	9094.00	0.00	0.00	0.00	0.00
Avalon Shale	9356.00	0.00	175.01	9356.00	0.00	0.00	0.00	0.00
Lower Avalon Shale	9731.00	0.00	175.01	9731.00	0.00	0.00	0.00	0.00
1st Bone Spring Sand	10036.00	0.00	175.01	10036.00	0.00	0.00	0.00	0.00
2nd Bone Spring Carb	10223.00	0.00	175.01	10223.00	0.00	0.00	0.00	0.00
2nd Bone Spring Sand	10564.00	0.00	175.01	10564.00	0.00	0.00	0.00	0.00
3rd Bone Spring Carb	11017.00	0.00	175.01	11017.00	0.00	0.00	0.00	0.00
3rd Bone Spring Sand	11682.00	0.00	175.01	11682.00	0.00	0.00	0.00	0.00
KOP - Build 12°/100' DLS	11774.19	0.00	175.01	11774.19	0.00	0.00	0.00	0.00
Build & Turn 12°/100' DLS	12065.86	35.00	175.01	12048.06	86.07	-88.02	7.51	12.00
Wolfcamp	12168.16	47.21	179.80	12125.00	153.07	-152.99	12.04	12.00
Build 4°/100' DLS	12400.51	75.00	179.80	12236.20	354.44	-354.33	17.38	12.00
Wolfcamp Y Sand	12481.82	78.25	179.80	12255.00	433.53	-433.42	17.93	4.00
Wolfcamp Y SS Target	12772.45	89.88	179.80	12285.00	722.11	-721.99	19.92	4.00
Wolfcamp Y SS Target	12778.58	90.12	179.80	12285.00	728.23	-728.11	19.97	4.00
Landing Point	12778.58	90.12	179.80	12285.00	728.24	-728.12	19.97	4.00
Cimarex Red Hills 32-5 Federal Com 155H - PBHL (100' FSL, 2400' FWL)	22119.07	90.12	179.80	12285.00	10068.71	-10068.36	84.52	4.00
Wolfcamp A1	NaN	NaN	NaN	12301.00	NaN	NaN	NaN	NaN
Wolfcamp A2	NaN	NaN	NaN	12648.00	NaN	NaN	NaN	NaN

**CERTIFICATE**  
 THIS MAP HAS BEEN PRODUCED ACCORDING TO PROCEDURES THAT HAVE BEEN DEMONSTRATED TO PRODUCE DATA THAT MEETS OR EXCEEDS THE MINIMUM STANDARDS FOR A TOPOGRAPHIC MAP COMPILED AT A SCALE OF 1"=80' WITH A CONTOUR INTERVAL OF 2'



**FINISHED GRADE ELEVATION = 3408.5'**

**REV: 2 10-02-18 D.J.S. (NAME CHANGE)**

**NOTES:**

- Flare pit is to be located a min. of 100' from the wellhead.
- Contours shown at 2' intervals.
- Cut/Fill slopes 1 1/2:1 (Typ. except where noted)
- Basis of Bearings is a Transverse Mercator Projection with a Central Meridian of W103°53'00"

**CIMAREX ENERGY CO.**

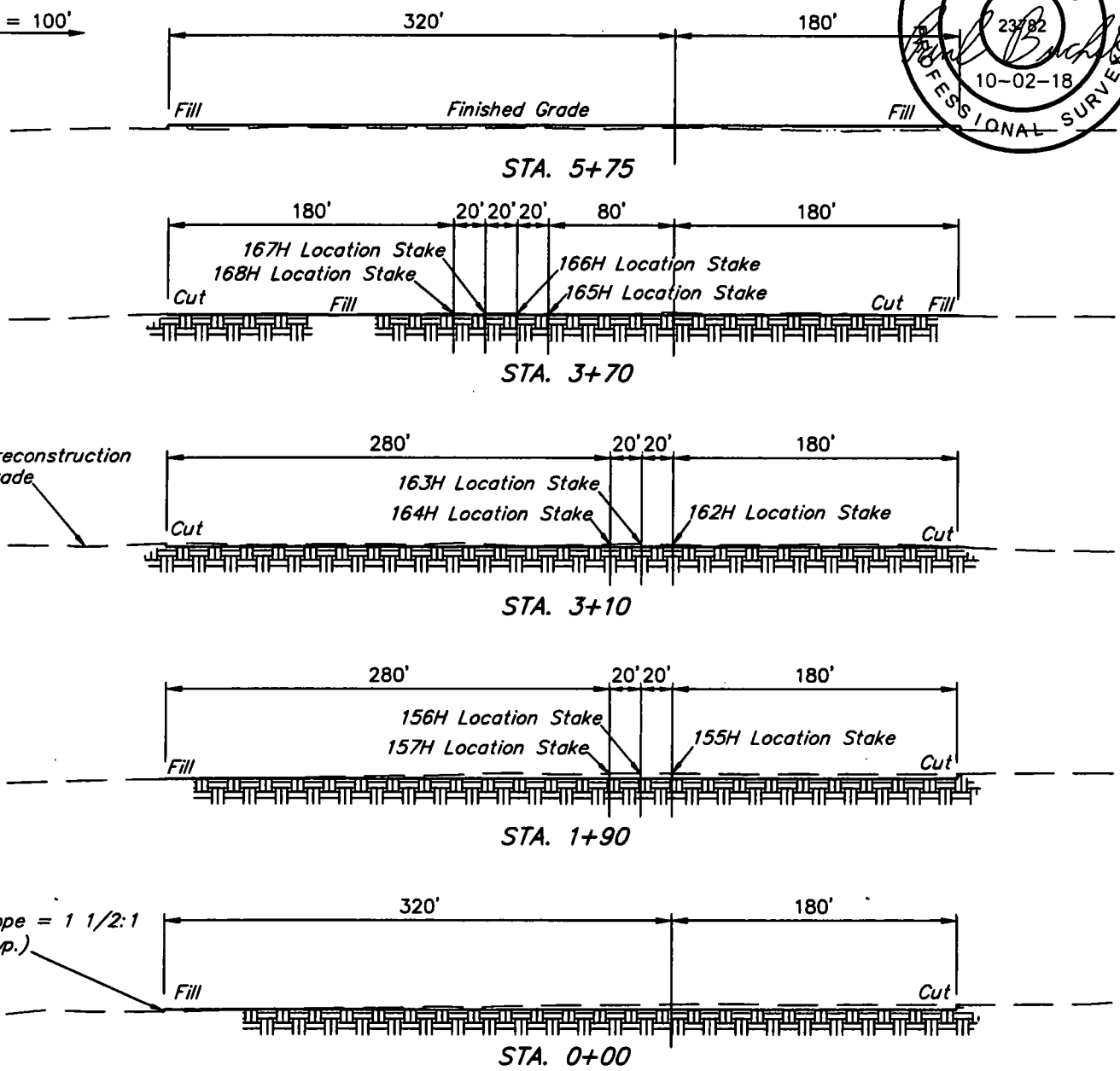
**RED HILLS 32-5 FEDERAL COM E2W2 PAD #3  
 NE 1/4 NW 1/4, SECTION 32, T25S, R33E, N.M.P.M.  
 LEA COUNTY, NEW MEXICO**



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

<b>SURVEYED BY</b>	J.J., C.H.	05-01-18	<b>SCALE</b>
<b>DRAWN BY</b>	J.A.	05-08-18	1" = 80'
<b>LOCATION LAYOUT</b>		<b>EXHIBIT J</b>	

1" = 40'  
 X-Section Scale  
 1" = 100'



APPROXIMATE EARTHWORK QUANTITIES	
(4") TOPSOIL STRIPPING	3,580 Cu. Yds.
REMAINING LOCATION	3,530 Cu. Yds.
<b>TOTAL CUT</b>	<b>7,110 Cu. Yds.</b>
<b>FILL</b>	<b>3,530 Cu. Yds.</b>
EXCESS MATERIAL	3,580 Cu. Yds.
TOPSOIL	3,580 Cu. Yds.
<b>EXCESS UNBALANCE</b> (After Interim Rehabilitation)	<b>0 Cu. Yds.</b>

APPROXIMATE SURFACE DISTURBANCE AREAS		
	DISTANCE	ACRES
WELL SITE DISTURBANCE	NA	±6.991

REV: 2 10-02-18 D.J.S. (NAME CHANGE)

**NOTES:**

- Fill quantity includes 5% for compaction.
- Cut/Fill slopes 1 1/2:1 (Typ. except where noted)

**CIMAREX ENERGY CO.**

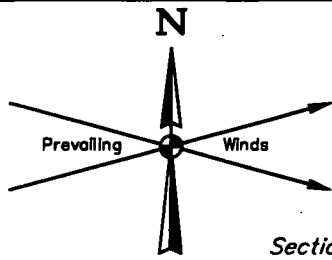
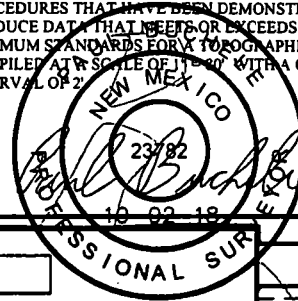
**RED HILLS 32-5 FEDERAL COM E2W2 PAD #3**  
 NE 1/4 NW 1/4, SECTION 32, T25S, R33E, N.M.P.M.  
 LEA COUNTY, NEW MEXICO



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

SURVEYED BY	J.J., C.H.	05-01-18	SCALE
DRAWN BY	J.A.	05-08-18	AS SHOWN
<b>TYPICAL CROSS SECTIONS EXHIBIT J</b>			

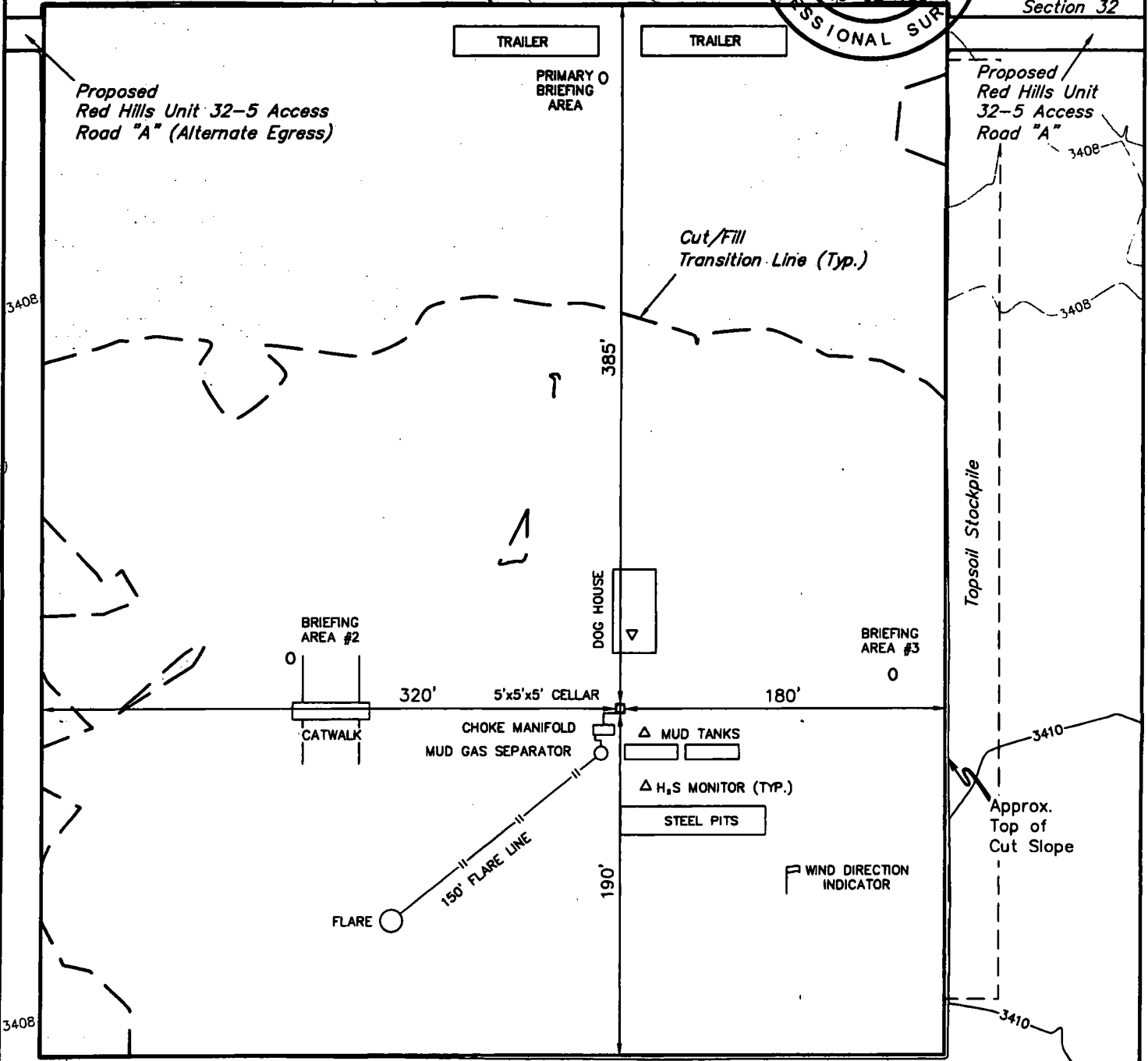
**CERTIFICATE**  
 THIS MAP HAS BEEN PRODUCED ACCORDING TO PROCEDURES THAT HAVE BEEN DEMONSTRATED TO PRODUCE DATA THAT MEETS OR EXCEEDS THE MINIMUM STANDARDS FOR A TOPOGRAPHIC MAP COMPILED AT A SCALE OF 1"=80' WITH A CONTOUR INTERVAL OF 2'



Section Line

Approx. Toe of Fill Slope

Section 29  
 Section 32



REV: 2 10-02-18 D.J.S. (NAME CHANGE)

**NOTES:**

- Contours shown at 2' intervals.

**CIMAREX ENERGY CO.**

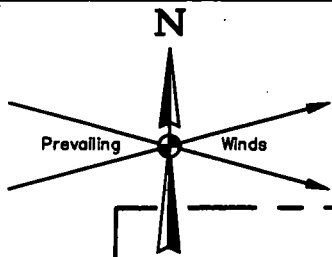
**RED HILLS 32-5 FEDERAL COM 155H**  
 390' FNL 2385' FWL  
 NE 1/4 NW 1/4, SECTION 32, T25S, R33E, N.M.P.M.  
 LEA COUNTY, NEW MEXICO

SURVEYED BY	JJ., C.H.	05-01-18	SCALE
DRAWN BY	J.A.	05-08-18	1" = 80'

**TYPICAL RIG LAYOUT EXHIBIT K**



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



660' X 760' Archaeological Survey Boundary



Section Line

Section 29

Section 32

Proposed  
Red Hills Unit 32-5 Access  
Road "A" (Alternate Egress)

Proposed  
Red Hills Unit  
32-5 Access  
Road "A"

168H  
167H  
166H  
165H

164H  
163H  
162H

161H  
160H  
159H  
158H

157H  
156H  
155H

Topsoil Stockpile

REV: 2 10-02-18 D.J.S. (NAME CHANGE)

NOTES:

**CIMAREX ENERGY CO.**

**RED HILLS 32-5 FEDERAL COM E2W2 PAD #3  
NE 1/4 NW 1/4, SECTION 32, T25S, R33E, N.M.P.M.  
LEA COUNTY, NEW MEXICO**



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

SURVEYED BY	J.J., C.H.	05-01-18	SCALE
DRAWN BY	J.A.	05-08-18	1" = 100'
ARCHAEOLOGICAL SURVEY BOUNDARY			<b>EXHIBIT L</b>