Form 3160-5
(June 2015)

HOBBS OCD
APR 08 2019
RECEIVED

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

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

SUNDRY NOTICES AND REPORTS ON WELLS

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

SUBMIT IN TRIPLICATE - Other instructions on page 2

5. Lease Serial No.
NMNM0553548

6. If Indian, Allottee or Tribe Name

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

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

8. Well Name and No.
DOS EQUIS 13 FEDERAL COM 9H

2. Name of Operator
CIMAREX ENERGY COMPANY
Contact: TERRI STATHEM
E-Mail: tstathem@cimarex.com

9. API Well No.
30-025-45416-00-X1

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

3b. Phone No. (include area code)
Ph: 432-620-1936

10. Field and Pool or Exploratory Area
WOLFCAMP

4. Location of Well *(Footage, Sec., T., R., M., or Survey Description)*
Sec 13 T24S R32E NENW 240FNL 1350FWL
32.224251 N Lat, 103.632500 W Lon

Carlsbad Field Office
OCD Hobbs

11. County or Parish, State
LEA COUNTY, NM

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

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

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

Cimarex Energy Co. respectfully requests approval to change the BHL:

Approved:
330 FSL & 1980 FWL, Sec 13-24S-32E

Proposed:
[redacted]

This well is proposed as a Bone Spring well. See attached Plat, directional pan and drilling plan.

All previous COAs still apply.

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

Electronic Submission #458336 verified by the BLM Well Information System
For CIMAREX ENERGY COMPANY, sent to the Hobbs
Committed to AFMSS for processing by PRISCILLA PEREZ on 03/19/2019 (19PP1357SE)

Name *(Printed/Typed)* TERRI STATHEM — Title MANAGER REGULATORY COMPLIANCE

Signature (Electronic Submission) — Date 03/18/2019

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved By ZOTA STEVENS — Title PETROLEUM ENGINEER — Date 03/24/2019

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

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

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

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

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

1 API Number	2 Pool Code	3 Pool Name
30-025-45416	96674	TRIPLE X; Bone Spring, WEST
4 Property Code	**5 Property Name**	**6 Well Number**
40201	DOS EQUIS 13 FEDERAL COM	9H
7 OGRID No.	**8 Operator Name**	**9 Elevation**
215099	CIMAREX ENERGY CO.	3622.2'

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
C	13	24S	32E		240	NORTH	1350	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
N	13	24S	32E		100	SOUTH	1980	WEST	LEA

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

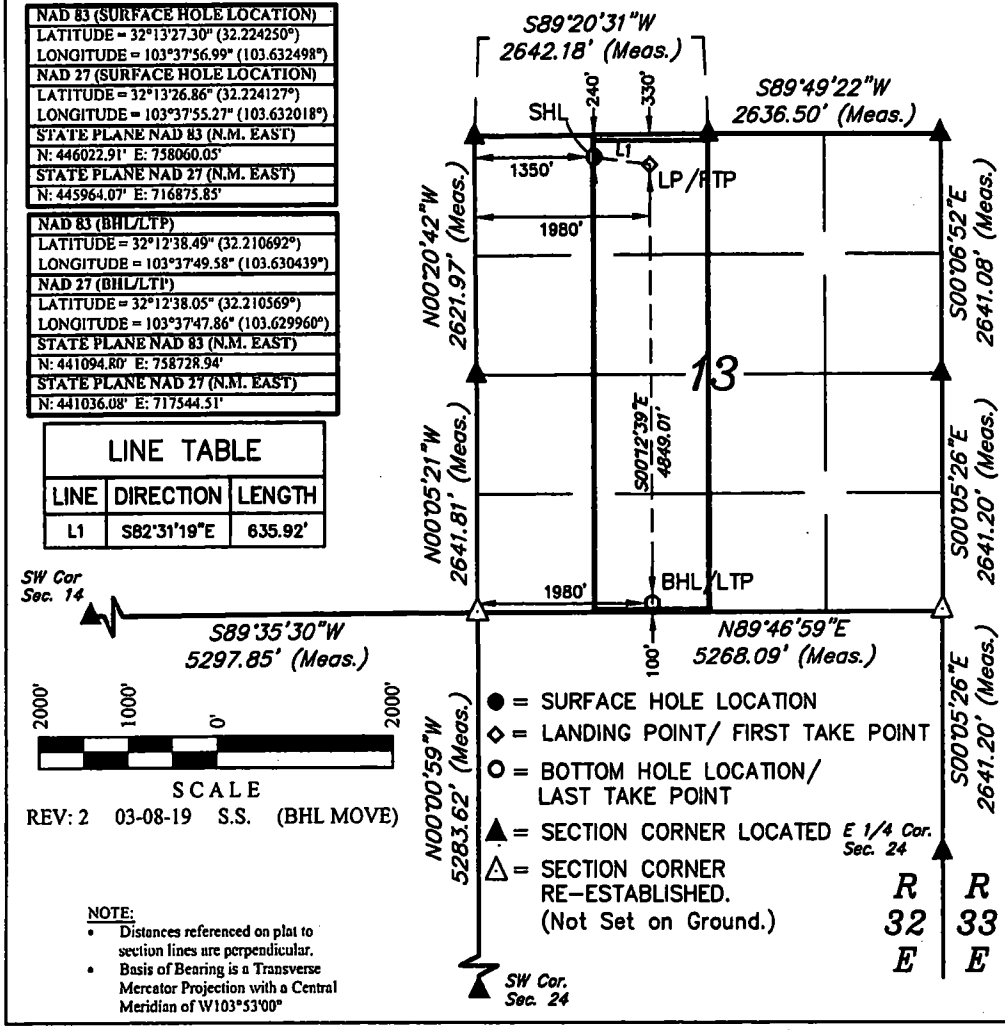
No allowable will be assigned to this completion until all interests have been consolidated or a non-standard unit has been approved by the division.

16

NAD 83 (SURFACE HOLE LOCATION)
LATITUDE = 32°13'27.30" (32.224250°)
LONGITUDE = 103°37'56.99" (103.632498°)
NAD 27 (SURFACE HOLE LOCATION)
LATITUDE = 32°13'26.86" (32.224127°)
LONGITUDE = 103°37'55.27" (103.632018°)
STATE PLANE NAD 83 (N.M. EAST)
N: 446022.91' E: 758060.05'
STATE PLANE NAD 27 (N.M. EAST)
N: 445964.07' E: 716875.85'

NAD 83 (BHL/LTP)
LATITUDE = 32°12'38.49" (32.210692°)
LONGITUDE = 103°37'49.58" (103.630439°)
NAD 27 (BHL/LTP)
LATITUDE = 32°12'38.05" (32.210569°)
LONGITUDE = 103°37'47.86" (103.629960°)
STATE PLANE NAD 83 (N.M. EAST)
N: 441094.80' E: 758728.94'
STATE PLANE NAD 27 (N.M. EAST)
N: 441036.08' E: 717544.51'

LINE TABLE		
LINE	DIRECTION	LENGTH
L1	S82°31'19"E	635.92'



REV: 2 03-08-19 S.S. (BHL MOVE)

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"

17 OPERATOR CERTIFICATION

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

Signature 3/12/19 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 03, 2018
Date of Survey

Signature and Seal of Professional Surveyor:

PAUL BUCHELE
NEW MEXICO
23782
03-08-19
PROFESSIONAL SURVEYOR

Certificate Number:

	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 ft3/sack	H2O gal/sk	500# Comp. Strength (hours)	Slurry Description
Surface	599	13.50	1.72	9.15	15.5	Lead: Class C + Bentonite
	160	14.80	1.34	6.32	9.5	Tail: Class C + LCM
Intermediate	919	12.90	1.88	9.65	12	Lead: 35:65 (Poz:C) + Salt + Bentonite
	286	14.80	1.34	6.32	9.5	Tail: Class C + LCM
Production	510	10.30	3.64	22.18		Lead: Tuned Light + LCM
	1114	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	45
Intermediate	0	51
Production	4700	18

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

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

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

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

5. Mud Program

Depth	Type	Weight (ppg)	Viscosity	Water Loss
0' to 1235'	FW Spud Mud	8.30 - 8.80	30-32	N/C
1235' to 4900'	Brine Water	9.70 - 10.20	30-32	N/C
4900' to 15816'	FW/Cut Brine	8.50 - 9.00	30-32	N/C

Sufficient mud materials to maintain mud properties and meet minimum lost circulation and weight increase requirements will be kept on location at all times.

What will be used to monitor the loss or gain of fluid?	PVT/Pason/Visual Monitoring

6. Logging and Testing Procedures

Logging, Coring and Testing	
X	Will run GR/CNL fromTD 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	5162 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 13-3/8" surface casing, a 13 5/8" BOP/BOPE system with a minimum working pressure of 3000 psi will be installed on the wellhead system and will be pressure tested to 250 psi low followed by a 3000 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 3000 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.

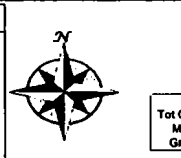
Schlumberger **Cimarex** Rev 2 CIMAREX

Borehole:	Well:	Field:	Structure:
Original Borehole	Cimarex Dos Equis 13 Federal Com #9H	NM Lea County (NAD 83)	Cimarex Dos Equis 13 Federal Com #9H

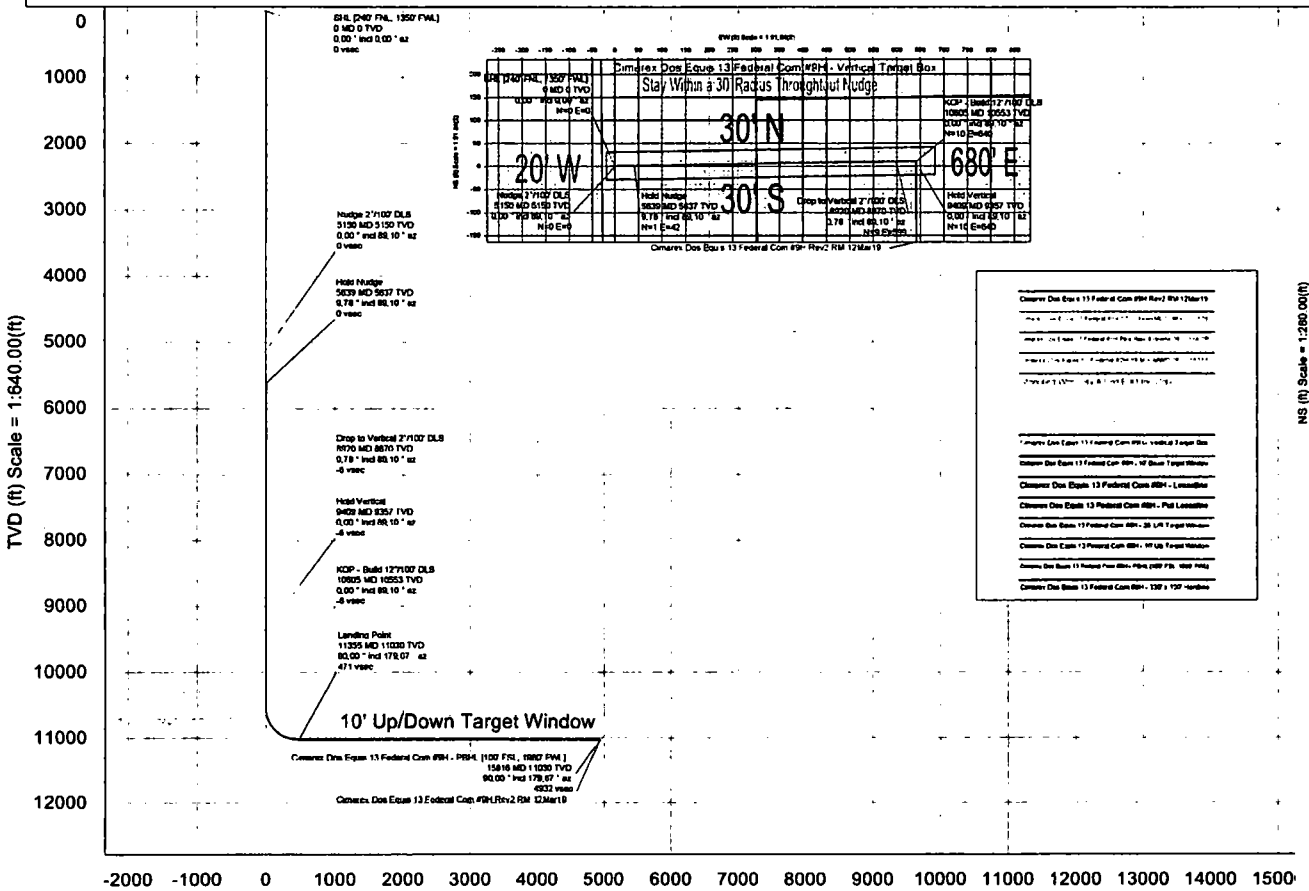
Gravity & Magnetic Parameters						Surface Location	NAD83 New Mexico State Plane, Eastern Zone, US Feet				Miscellaneous			
Model:	HDGM 2019	Dip:	59.696°	Date:	12-Mar-2019	Lat:	N 32 13 27.30	Northing:	448822.91 USft	Grid Conv:	0.3737°	Slot:	Cimarex Dos Equis 13 Federal Com #9H	TVD Ref:	RKB(3648.28 above MSL)
MagDec:	6.707°	FS:	47929.242nT	Gravity FS:	998.433mgn (9.80665 Based)	Lon:	W 103 37 58.99	Easting:	758999.08 USft	Scale Fact:	0.99996288	Plan:	Cimarex Dos Equis 13 Federal Com #9H Rev2 RM 12Mar19		

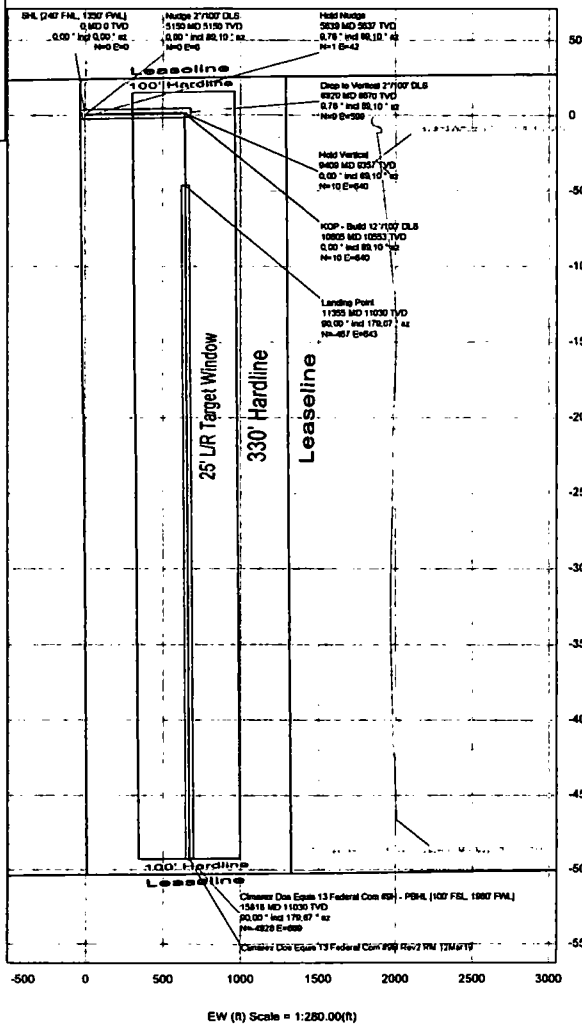
Critical Points

Critical Point	MD	INCL	AZIM	TVD	VSEC	N(+)/S(-)	E(+)/W(-)	DLS
SHL (240' FNL, 1350' FWL)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Nudge 2°/100' DLS	5150.00	0.00	89.10	5150.00	0.00	0.00	0.00	0.00
Hold Nudge	5638.98	9.78	89.10	5638.59	-0.41	0.65	41.62	2.00
Drop to Vertical 2°/100' DLS	8920.05	9.78	89.10	8870.00	-5.94	9.39	598.65	0.00
Hold Vertical	9409.01	0.00	89.10	9356.59	-6.35	10.04	640.47	2.00
KOP - Build 12°/100' DLS	10604.95	0.00	89.10	10552.54	-6.35	10.04	640.47	0.00
2nd Bone Spring Sand	10713.38	13.01	179.67	10660.00	5.90	-2.21	640.54	12.00
Landing Point	11354.85	90.00	179.67	11030.00	471.11	-467.42	643.22	12.00
Cimarex Dos Equis 13 Federal Com #9H - PBHL (100' FSL, 1980' FWL)	15815.91	90.00	179.67	11030.00	4932.07	-4928.30	668.92	0.00
3rd Bone Spring Carb	NaN			11060.00				



CONTROLLED





Schlumberger

Cimarex Dos Equis 13 Federal Com #9H Rev2 RM 12Mar19 Proposal
Geodetic Report
(Non-Def Plan)

CIMAREX

Report Date:	March 12, 2019 - 04:14 PM	**Survey / DLS Computation:**	Minimum Curvature / Lubinski
Client:	Cimarex	**Vertical Section Azimuth:**	179.670 ° (Grid North)
Field:	NM Lea County (NAD 83)	**Vertical Section Origin:**	0.000 ft, 0.000 ft
Structure / Slot:	Cimarex Dos Equis 13 Federal Com #9H / Cimarex Dos Equis 13 Federal Com #9H	**TVD Reference Datum:**	RKB
Well:	Cimarex Dos Equis 13 Federal Com #9H	**TVD Reference Elevation:**	3648.200 ft above MSL
Borehole:	Original Borehole	**Seabed / Ground Elevation:**	3622.200 ft above MSL
UWI / API#:	Unknown / Unknown	**Magnetic Declination:**	6.707 °
Survey Name:	Cimarex Dos Equis 13 Federal Com #9H Rev2 RM 12Mar19	**Total Gravity Field Strength:**	998.4331mgn (9.80665 Based)
Survey Date:	March 08, 2019	**Gravity Model:**	GARM
Tort / AHD / DDI / ERD Ratio:	109.558 ° / 5578.975 ft / 5.943 / 0.506	**Total Magnetic Field Strength:**	47929.242 nT
Coordinate Reference System:	NAD83 New Mexico State Plane, Eastern Zone, US Feet	**Magnetic Dip Angle:**	59.896 °
Location Lat / Long:	N 32° 13' 27.30138", W 103° 37' 56.99236"	**Declination Date:**	March 12, 2019
Location Grid N/E Y/X:	N 446022.910 ftUS, E 758060.050 ftUS	**Magnetic Declination Model:**	HDGM 2019
CRS Grid Convergence Angle:	0.3737 °	**North Reference:**	Grid North
Grid Scale Factor:	0.99996288	**Grid Convergence Used:**	0.3737 °
Version / Patch:	2.10.753.0	**Total Corr Mag North->Grid North:**	6.3336 °
		Local Coord Referenced To:	Structure Reference Point

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (°/100ft)	Northing (ftUS)	Easting (ftUS)	Latitude (N/S ° ' ")	Longitude (E/W ° ' ")
SHL [240' FNL, 1350' FWL]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	N/A	446022.91	758060.05	N 32 13 27.30	W 103 37 56.99
	100.00	0.00	89.10	100.00	0.00	0.00	0.00	0.00	446022.91	758060.05	N 32 13 27.30	W 103 37 56.99
	200.00	0.00	89.10	200.00	0.00	0.00	0.00	0.00	446022.91	758060.05	N 32 13 27.30	W 103 37 56.99
	300.00	0.00	89.10	300.00	0.00	0.00	0.00	0.00	446022.91	758060.05	N 32 13 27.30	W 103 37 56.99
	400.00	0.00	89.10	400.00	0.00	0.00	0.00	0.00	446022.91	758060.05	N 32 13 27.30	W 103 37 56.99
	500.00	0.00	89.10	500.00	0.00	0.00	0.00	0.00	446022.91	758060.05	N 32 13 27.30	W 103 37 56.99
	600.00	0.00	89.10	600.00	0.00	0.00	0.00	0.00	446022.91	758060.05	N 32 13 27.30	W 103 37 56.99
	700.00	0.00	89.10	700.00	0.00	0.00	0.00	0.00	446022.91	758060.05	N 32 13 27.30	W 103 37 56.99
	800.00	0.00	89.10	800.00	0.00	0.00	0.00	0.00	446022.91	758060.05	N 32 13 27.30	W 103 37 56.99
	900.00	0.00	89.10	900.00	0.00	0.00	0.00	0.00	446022.91	758060.05	N 32 13 27.30	W 103 37 56.99
	1000.00	0.00	89.10	1000.00	0.00	0.00	0.00	0.00	446022.91	758060.05	N 32 13 27.30	W 103 37 56.99
	1100.00	0.00	89.10	1100.00	0.00	0.00	0.00	0.00	446022.91	758060.05	N 32 13 27.30	W 103 37 56.99
Rustler	*1185.00*	*0.00*	*89.10*	*1185.00*	*0.00*	*0.00*	*0.00*	*0.00*	*446022.91*	*758060.05*	*N 32 13 27.30*	*W 103 37 56.99*
	1200.00	0.00	89.10	1200.00	0.00	0.00	0.00	0.00	446022.91	758060.05	N 32 13 27.30	W 103 37 56.99
	1300.00	0.00	89.10	1300.00	0.00	0.00	0.00	0.00	446022.91	758060.05	N 32 13 27.30	W 103 37 56.99
	1400.00	0.00	89.10	1400.00	0.00	0.00	0.00	0.00	446022.91	758060.05	N 32 13 27.30	W 103 37 56.99
Salado (Top Salt)	1500.00	0.00	89.10	1500.00	0.00	0.00	0.00	0.00	446022.91	758060.05	N 32 13 27.30	W 103 37 56.99
	1600.00	0.00	89.10	1600.00	0.00	0.00	0.00	0.00	446022.91	758060.05	N 32 13 27.30	W 103 37 56.99
	1700.00	0.00	89.10	1700.00	0.00	0.00	0.00	0.00	446022.91	758060.05	N 32 13 27.30	W 103 37 56.99
	1800.00	0.00	89.10	1800.00	0.00	0.00	0.00	0.00	446022.91	758060.05	N 32 13 27.30	W 103 37 56.99
	1900.00	0.00	89.10	1900.00	0.00	0.00	0.00	0.00	446022.91	758060.05	N 32 13 27.30	W 103 37 56.99
	2000.00	0.00	89.10	2000.00	0.00	0.00	0.00	0.00	446022.91	758060.05	N 32 13 27.30	W 103 37 56.99
	2100.00	0.00	89.10	2100.00	0.00	0.00	0.00	0.00	446022.91	758060.05	N 32 13 27.30	W 103 37 56.99
	2200.00	0.00	89.10	2200.00	0.00	0.00	0.00	0.00	446022.91	758060.05	N 32 13 27.30	W 103 37 56.99
	2300.00	0.00	89.10	2300.00	0.00	0.00	0.00	0.00	446022.91	758060.05	N 32 13 27.30	W 103 37 56.99

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 ° ' ")
	2400.00	0.00	89.10	2400.00	0.00	0.00	0.00	0.00	446022.91	758060.05	N 32 13 27.30	W 103 37 56.99
	2500.00	0.00	89.10	2500.00	0.00	0.00	0.00	0.00	446022.91	758060.05	N 32 13 27.30	W 103 37 56.99
	2600.00	0.00	89.10	2600.00	0.00	0.00	0.00	0.00	446022.91	758060.05	N 32 13 27.30	W 103 37 56.99
	2700.00	0.00	89.10	2700.00	0.00	0.00	0.00	0.00	446022.91	758060.05	N 32 13 27.30	W 103 37 56.99
	2800.00	0.00	89.10	2800.00	0.00	0.00	0.00	0.00	446022.91	758060.05	N 32 13 27.30	W 103 37 56.99
	2900.00	0.00	89.10	2900.00	0.00	0.00	0.00	0.00	446022.91	758060.05	N 32 13 27.30	W 103 37 56.99
	3000.00	0.00	89.10	3000.00	0.00	0.00	0.00	0.00	446022.91	758060.05	N 32 13 27.30	W 103 37 56.99
	3100.00	0.00	89.10	3100.00	0.00	0.00	0.00	0.00	446022.91	758060.05	N 32 13 27.30	W 103 37 56.99
	3200.00	0.00	89.10	3200.00	0.00	0.00	0.00	0.00	446022.91	758060.05	N 32 13 27.30	W 103 37 56.99
	3300.00	0.00	89.10	3300.00	0.00	0.00	0.00	0.00	446022.91	758060.05	N 32 13 27.30	W 103 37 56.99
	3400.00	0.00	89.10	3400.00	0.00	0.00	0.00	0.00	446022.91	758060.05	N 32 13 27.30	W 103 37 56.99
	3500.00	0.00	89.10	3500.00	0.00	0.00	0.00	0.00	446022.91	758060.05	N 32 13 27.30	W 103 37 56.99
	3600.00	0.00	89.10	3600.00	0.00	0.00	0.00	0.00	446022.91	758060.05	N 32 13 27.30	W 103 37 56.99
	3700.00	0.00	89.10	3700.00	0.00	0.00	0.00	0.00	446022.91	758060.05	N 32 13 27.30	W 103 37 56.99
	3800.00	0.00	89.10	3800.00	0.00	0.00	0.00	0.00	446022.91	758060.05	N 32 13 27.30	W 103 37 56.99
	3900.00	0.00	89.10	3900.00	0.00	0.00	0.00	0.00	446022.91	758060.05	N 32 13 27.30	W 103 37 56.99
	4000.00	0.00	89.10	4000.00	0.00	0.00	0.00	0.00	446022.91	758060.05	N 32 13 27.30	W 103 37 56.99
	4100.00	0.00	89.10	4100.00	0.00	0.00	0.00	0.00	446022.91	758060.05	N 32 13 27.30	W 103 37 56.99
	4200.00	0.00	89.10	4200.00	0.00	0.00	0.00	0.00	446022.91	758060.05	N 32 13 27.30	W 103 37 56.99
	4300.00	0.00	89.10	4300.00	0.00	0.00	0.00	0.00	446022.91	758060.05	N 32 13 27.30	W 103 37 56.99
	4400.00	0.00	89.10	4400.00	0.00	0.00	0.00	0.00	446022.91	758060.05	N 32 13 27.30	W 103 37 56.99
	4500.00	0.00	89.10	4500.00	0.00	0.00	0.00	0.00	446022.91	758060.05	N 32 13 27.30	W 103 37 56.99
	4600.00	0.00	89.10	4600.00	0.00	0.00	0.00	0.00	446022.91	758060.05	N 32 13 27.30	W 103 37 56.99
Base of Salt	*4650.00*	*0.00*	*89.10*	*4650.00*	*0.00*	*0.00*	*0.00*	*0.00*	*446022.91*	*758060.05*	*N 32 13 27.30*	*W 103 37 56.99*
	4700.00	0.00	89.10	4700.00	0.00	0.00	0.00	0.00	446022.91	758060.05	N 32 13 27.30	W 103 37 56.99
	4800.00	0.00	89.10	4800.00	0.00	0.00	0.00	0.00	446022.91	758060.05	N 32 13 27.30	W 103 37 56.99
	4900.00	0.00	89.10	4900.00	0.00	0.00	0.00	0.00	446022.91	758060.05	N 32 13 27.30	W 103 37 56.99
Delaware Sands	*4920.00*	*0.00*	*89.10*	*4920.00*	*0.00*	*0.00*	*0.00*	*0.00*	*446022.91*	*758060.05*	*N 32 13 27.30*	*W 103 37 56.99*
	5000.00	0.00	89.10	5000.00	0.00	0.00	0.00	0.00	446022.91	758060.05	N 32 13 27.30	W 103 37 56.99
	5100.00	0.00	89.10	5100.00	0.00	0.00	0.00	0.00	446022.91	758060.05	N 32 13 27.30	W 103 37 56.99
Nudge 2°/100' DLS	5150.00	0.00	89.10	5150.00	0.00	0.00	0.00	0.00	446022.91	758060.05	N 32 13 27.30	W 103 37 56.99
	5200.00	1.00	89.10	5200.00	0.00	0.01	0.44	2.00	446022.92	758060.49	N 32 13 27.30	W 103 37 56.99
	5300.00	3.00	89.10	5299.93	-0.04	0.06	3.93	2.00	446022.97	758063.98	N 32 13 27.30	W 103 37 56.95
	5400.00	5.00	89.10	5399.68	-0.11	0.17	10.90	2.00	446023.08	758070.95	N 32 13 27.30	W 103 37 56.87
	5500.00	7.00	89.10	5499.13	-0.21	0.33	21.35	2.00	446023.24	758081.40	N 32 13 27.30	W 103 37 56.74
	5600.00	9.00	89.10	5598.15	-0.35	0.55	35.27	2.00	446023.46	758095.31	N 32 13 27.30	W 103 37 56.58
Hold Nudge	5638.96	9.78	89.10	5636.59	-0.41	0.65	41.62	2.00	446023.56	758101.67	N 32 13 27.31	W 103 37 56.51
	5700.00	9.78	89.10	5696.74	-0.52	0.81	51.99	0.00	446023.72	758112.04	N 32 13 27.31	W 103 37 56.39
	5800.00	9.78	89.10	5795.29	-0.68	1.08	68.97	0.00	446023.99	758129.02	N 32 13 27.31	W 103 37 56.19
	5900.00	9.78	89.10	5893.84	-0.85	1.35	85.95	0.00	446024.26	758146.00	N 32 13 27.31	W 103 37 55.99
	6000.00	9.78	89.10	5992.38	-1.02	1.61	102.94	0.00	446024.52	758162.98	N 32 13 27.31	W 103 37 55.79
	6100.00	9.78	89.10	6090.93	-1.19	1.88	119.92	0.00	446024.79	758179.97	N 32 13 27.31	W 103 37 55.60
	6200.00	9.78	89.10	6189.48	-1.36	2.15	136.90	0.00	446025.06	758196.95	N 32 13 27.31	W 103 37 55.40
	6300.00	9.78	89.10	6288.02	-1.53	2.41	153.89	0.00	446025.32	758213.93	N 32 13 27.32	W 103 37 55.20
	6400.00	9.78	89.10	6386.57	-1.69	2.68	170.87	0.00	446025.59	758230.91	N 32 13 27.32	W 103 37 55.00
	6500.00	9.78	89.10	6485.12	-1.86	2.94	187.85	0.00	446025.85	758247.90	N 32 13 27.32	W 103 37 54.81
	6600.00	9.78	89.10	6583.67	-2.03	3.21	204.84	0.00	446026.12	758264.88	N 32 13 27.32	W 103 37 54.61
	6700.00	9.78	89.10	6682.21	-2.20	3.48	221.82	0.00	446026.39	758281.86	N 32 13 27.32	W 103 37 54.41
	6800.00	9.78	89.10	6780.76	-2.37	3.74	238.80	0.00	446026.65	758298.84	N 32 13 27.32	W 103 37 54.21
	6900.00	9.78	89.10	6879.31	-2.54	4.01	255.78	0.00	446026.92	758315.82	N 32 13 27.32	W 103 37 54.01
	7000.00	9.78	89.10	6977.85	-2.70	4.28	272.77	0.00	446027.19	758332.81	N 32 13 27.33	W 103 37 53.82
	7100.00	9.78	89.10	7076.40	-2.87	4.54	289.75	0.00	446027.45	758349.79	N 32 13 27.33	W 103 37 53.62
	7200.00	9.78	89.10	7174.95	-3.04	4.81	306.73	0.00	446027.72	758366.77	N 32 13 27.33	W 103 37 53.42
	7300.00	9.78	89.10	7273.49	-3.21	5.07	323.72	0.00	446027.98	758383.75	N 32 13 27.33	W 103 37 53.22
	7400.00	9.78	89.10	7372.04	-3.38	5.34	340.70	0.00	446028.25	758400.74	N 32 13 27.33	W 103 37 53.03
	7500.00	9.78	89.10	7470.59	-3.55	5.61	357.68	0.00	446028.52	758417.72	N 32 13 27.33	W 103 37 52.83
	7600.00	9.78	89.10	7569.13	-3.71	5.87	374.67	0.00	446028.78	758434.70	N 32 13 27.34	W 103 37 52.63

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 ° ' ")
	7700.00	9.78	89.10	7667.68	-3.88	6.14	391.65	0.00	446029.05	758451.68	N 32 13 27.34	W 103 37 52.43
	7800.00	9.78	89.10	7766.23	-4.05	6.41	408.63	0.00	446029.31	758468.67	N 32 13 27.34	W 103 37 52.24
	7900.00	9.78	89.10	7864.78	-4.22	6.67	425.62	0.00	446029.58	758485.65	N 32 13 27.34	W 103 37 52.04
	8000.00	9.78	89.10	7963.32	-4.39	6.94	442.60	0.00	446029.85	758502.63	N 32 13 27.34	W 103 37 51.84
	8100.00	9.78	89.10	8061.87	-4.56	7.20	459.58	0.00	446030.11	758519.61	N 32 13 27.34	W 103 37 51.64
	8200.00	9.78	89.10	8160.42	-4.72	7.47	476.57	0.00	446030.38	758536.60	N 32 13 27.34	W 103 37 51.44
	8300.00	9.78	89.10	8258.96	-4.89	7.74	493.55	0.00	446030.65	758553.58	N 32 13 27.35	W 103 37 51.25
	8400.00	9.78	89.10	8357.51	-5.06	8.00	510.53	0.00	446030.91	758570.56	N 32 13 27.35	W 103 37 51.05
	8500.00	9.78	89.10	8456.06	-5.23	8.27	527.51	0.00	446031.18	758587.54	N 32 13 27.35	W 103 37 50.85
	8600.00	9.78	89.10	8554.60	-5.40	8.53	544.50	0.00	446031.44	758604.53	N 32 13 27.35	W 103 37 50.65
	8700.00	9.78	89.10	8653.15	-5.57	8.80	561.48	0.00	446031.71	758621.51	N 32 13 27.35	W 103 37 50.46
	8800.00	9.78	89.10	8751.70	-5.74	9.07	578.46	0.00	446031.98	758638.49	N 32 13 27.35	W 103 37 50.26
	8900.00	9.78	89.10	8850.25	-5.90	9.33	595.45	0.00	446032.24	758655.47	N 32 13 27.36	W 103 37 50.06
Bone Spring Drop to Vertical 2°/100' DLS	8920.05	9.78	89.10	8870.00	-5.94	9.39	598.85	0.00	446032.30	758658.88	N 32 13 27.36	W 103 37 50.02
	9000.00	8.18	89.10	8948.97	-6.06	9.58	611.33	2.00	446032.49	758671.35	N 32 13 27.36	W 103 37 49.88
	9100.00	6.18	89.10	9048.18	-6.18	9.78	623.83	2.00	446032.69	758683.85	N 32 13 27.36	W 103 37 49.73
	9200.00	4.18	89.10	9147.77	-6.27	9.92	632.85	2.00	446032.83	758692.88	N 32 13 27.36	W 103 37 49.62
	9300.00	2.18	89.10	9247.61	-6.33	10.01	638.40	2.00	446032.92	758698.42	N 32 13 27.36	W 103 37 49.56
	9400.00	0.18	89.10	9347.58	-6.35	10.04	640.46	2.00	446032.95	758700.48	N 32 13 27.36	W 103 37 49.54
Hold Vertical	9409.01	0.00	89.10	9356.59	-6.35	10.04	640.47	2.00	446032.95	758700.50	N 32 13 27.36	W 103 37 49.54
	9500.00	0.00	89.10	9447.58	-6.35	10.04	640.47	0.00	446032.95	758700.50	N 32 13 27.36	W 103 37 49.54
	9600.00	0.00	89.10	9547.58	-6.35	10.04	640.47	0.00	446032.95	758700.50	N 32 13 27.36	W 103 37 49.54
	9700.00	0.00	89.10	9647.58	-6.35	10.04	640.47	0.00	446032.95	758700.50	N 32 13 27.36	W 103 37 49.54
	9800.00	0.00	89.10	9747.58	-6.35	10.04	640.47	0.00	446032.95	758700.50	N 32 13 27.36	W 103 37 49.54
	9900.00	0.00	89.10	9847.58	-6.35	10.04	640.47	0.00	446032.95	758700.50	N 32 13 27.36	W 103 37 49.54
	10000.00	0.00	89.10	9947.58	-6.35	10.04	640.47	0.00	446032.95	758700.50	N 32 13 27.36	W 103 37 49.54
1st Bone Spring Sand	*10052.42*	*0.00*	*89.10*	*10000.00*	*-6.35*	*10.04*	*640.47*	*0.00*	*446032.95*	*758700.50*	*N 32 13 27.36*	*W 103 37 49.54*
	10100.00	0.00	89.10	10047.58	-6.35	10.04	640.47	0.00	446032.95	758700.50	N 32 13 27.36	W 103 37 49.54
	10200.00	0.00	89.10	10147.58	-6.35	10.04	640.47	0.00	446032.95	758700.50	N 32 13 27.36	W 103 37 49.54
	10300.00	0.00	89.10	10247.58	-6.35	10.04	640.47	0.00	446032.95	758700.50	N 32 13 27.36	W 103 37 49.54
	10400.00	0.00	89.10	10347.58	-6.35	10.04	640.47	0.00	446032.95	758700.50	N 32 13 27.36	W 103 37 49.54
	10500.00	0.00	89.10	10447.58	-6.35	10.04	640.47	0.00	446032.95	758700.50	N 32 13 27.36	W 103 37 49.54
	10600.00	0.00	89.10	10547.58	-6.35	10.04	640.47	0.00	446032.95	758700.50	N 32 13 27.36	W 103 37 49.54
KOP - Build 12°/100' DLS	10604.95	0.00	89.10	10552.54	-6.35	10.04	640.47	0.00	446032.95	758700.50	N 32 13 27.36	W 103 37 49.54
	10700.00	11.41	179.67	10646.96	3.08	0.61	640.53	12.00	446023.52	758700.55	N 32 13 27.27	W 103 37 49.54
2nd Bone Spring Sand	*10713.35*	*13.01*	*179.67*	*10660.00*	*5.90*	*-2.21*	*640.54*	*12.00*	*446020.70*	*758700.57*	*N 32 13 27.24*	*W 103 37 49.54*
	10800.00	23.41	179.67	10742.20	32.94	-29.25	640.70	12.00	445993.66	758700.72	N 32 13 26.97	W 103 37 49.54
	10900.00	35.41	179.67	10829.16	81.95	-78.26	640.98	12.00	445944.66	758701.01	N 32 13 26.49	W 103 37 49.54
	11000.00	47.41	179.67	10904.03	147.97	-144.27	641.36	12.00	445878.64	758701.39	N 32 13 25.83	W 103 37 49.54
	11100.00	59.41	179.67	10963.53	228.11	-224.41	641.82	12.00	445798.50	758701.85	N 32 13 25.04	W 103 37 49.54
	11200.00	71.41	179.67	11005.08	318.87	-315.17	642.35	12.00	445707.75	758702.37	N 32 13 24.14	W 103 37 49.54
	11300.00	83.41	179.67	11026.84	416.28	-412.59	642.91	12.00	445610.34	758702.93	N 32 13 23.18	W 103 37 49.54
2nd BSPG Sand Target Landing Point	11354.95	90.00	179.67	11030.00	471.11	-467.42	643.22	12.00	445555.51	758703.25	N 32 13 22.63	W 103 37 49.54
	11400.00	90.00	179.67	11030.00	516.16	-512.47	643.48	0.00	445510.46	758703.51	N 32 13 22.19	W 103 37 49.54
	11500.00	90.00	179.67	11030.00	616.16	-612.46	644.06	0.00	445410.47	758704.08	N 32 13 21.20	W 103 37 49.54
	11600.00	90.00	179.67	11030.00	716.16	-712.46	644.63	0.00	445310.48	758704.66	N 32 13 20.21	W 103 37 49.54
	11700.00	90.00	179.67	11030.00	816.16	-812.46	645.21	0.00	445210.48	758705.23	N 32 13 19.22	W 103 37 49.54
	11800.00	90.00	179.67	11030.00	916.16	-912.46	645.79	0.00	445110.49	758705.81	N 32 13 18.23	W 103 37 49.54
	11900.00	90.00	179.67	11030.00	1016.16	-1012.46	646.36	0.00	445010.49	758706.39	N 32 13 17.24	W 103 37 49.55
	12000.00	90.00	179.67	11030.00	1116.16	-1112.46	646.94	0.00	444910.50	758706.96	N 32 13 16.25	W 103 37 49.55
	12100.00	90.00	179.67	11030.00	1216.16	-1212.45	647.51	0.00	444810.50	758707.54	N 32 13 15.26	W 103 37 49.55
	12200.00	90.00	179.67	11030.00	1316.16	-1312.45	648.09	0.00	444710.51	758708.11	N 32 13 14.27	W 103 37 49.55

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 ° ' ")
	12300.00	90.00	179.67	11030.00	1416.16	-1412.45	648.67	0.00	444610.51	758708.69	N 32 13 13.28	W 103 37 49.55
	12400.00	90.00	179.67	11030.00	1516.16	-1512.45	649.24	0.00	444510.52	758709.27	N 32 13 12.29	W 103 37 49.55
	12500.00	90.00	179.67	11030.00	1616.16	-1612.45	649.82	0.00	444410.53	758709.84	N 32 13 11.30	W 103 37 49.55
	12600.00	90.00	179.67	11030.00	1716.16	-1712.45	650.39	0.00	444310.53	758710.42	N 32 13 10.31	W 103 37 49.55
	12700.00	90.00	179.67	11030.00	1816.16	-1812.44	650.97	0.00	444210.54	758710.99	N 32 13 9.33	W 103 37 49.55
	12800.00	90.00	179.67	11030.00	1916.16	-1912.44	651.55	0.00	444110.54	758711.57	N 32 13 8.34	W 103 37 49.55
	12900.00	90.00	179.67	11030.00	2016.16	-2012.44	652.12	0.00	444010.55	758712.15	N 32 13 7.35	W 103 37 49.55
	13000.00	90.00	179.67	11030.00	2116.16	-2112.44	652.70	0.00	443910.55	758712.72	N 32 13 6.36	W 103 37 49.56
	13100.00	90.00	179.67	11030.00	2216.16	-2212.44	653.27	0.00	443810.56	758713.30	N 32 13 5.37	W 103 37 49.56
	13200.00	90.00	179.67	11030.00	2316.16	-2312.44	653.85	0.00	443710.56	758713.87	N 32 13 4.38	W 103 37 49.56
	13300.00	90.00	179.67	11030.00	2416.16	-2412.43	654.43	0.00	443610.57	758714.45	N 32 13 3.39	W 103 37 49.56
	13400.00	90.00	179.67	11030.00	2516.16	-2512.43	655.00	0.00	443510.58	758715.03	N 32 13 2.40	W 103 37 49.56
	13500.00	90.00	179.67	11030.00	2616.16	-2612.43	655.58	0.00	443410.58	758715.60	N 32 13 1.41	W 103 37 49.56
	13600.00	90.00	179.67	11030.00	2716.16	-2712.43	656.15	0.00	443310.59	758716.18	N 32 13 0.42	W 103 37 49.56
	13700.00	90.00	179.67	11030.00	2816.16	-2812.43	656.73	0.00	443210.59	758716.75	N 32 12 59.43	W 103 37 49.56
	13800.00	90.00	179.67	11030.00	2916.16	-2912.43	657.31	0.00	443110.60	758717.33	N 32 12 58.44	W 103 37 49.56
	13900.00	90.00	179.67	11030.00	3016.16	-3012.42	657.88	0.00	443010.60	758717.91	N 32 12 57.45	W 103 37 49.56
	14000.00	90.00	179.67	11030.00	3116.16	-3112.42	658.46	0.00	442910.61	758718.48	N 32 12 56.46	W 103 37 49.56
	14100.00	90.00	179.67	11030.00	3216.16	-3212.42	659.03	0.00	442810.61	758719.06	N 32 12 55.47	W 103 37 49.57
	14200.00	90.00	179.67	11030.00	3316.16	-3312.42	659.61	0.00	442710.62	758719.63	N 32 12 54.48	W 103 37 49.57
	14300.00	90.00	179.67	11030.00	3416.16	-3412.42	660.19	0.00	442610.63	758720.21	N 32 12 53.49	W 103 37 49.57
	14400.00	90.00	179.67	11030.00	3516.16	-3512.42	660.76	0.00	442510.63	758720.79	N 32 12 52.50	W 103 37 49.57
	14500.00	90.00	179.67	11030.00	3616.16	-3612.41	661.34	0.00	442410.64	758721.36	N 32 12 51.51	W 103 37 49.57
	14600.00	90.00	179.67	11030.00	3716.16	-3712.41	661.91	0.00	442310.64	758721.94	N 32 12 50.52	W 103 37 49.57
	14700.00	90.00	179.67	11030.00	3816.16	-3812.41	662.49	0.00	442210.65	758722.51	N 32 12 49.53	W 103 37 49.57
	14800.00	90.00	179.67	11030.00	3916.16	-3912.41	663.06	0.00	442110.65	758723.09	N 32 12 48.55	W 103 37 49.57
	14900.00	90.00	179.67	11030.00	4016.16	-4012.41	663.64	0.00	442010.66	758723.66	N 32 12 47.56	W 103 37 49.57
	15000.00	90.00	179.67	11030.00	4116.16	-4112.41	664.22	0.00	441910.67	758724.24	N 32 12 46.57	W 103 37 49.57
	15100.00	90.00	179.67	11030.00	4216.16	-4212.40	664.79	0.00	441810.67	758724.82	N 32 12 45.58	W 103 37 49.57
	15200.00	90.00	179.67	11030.00	4316.16	-4312.40	665.37	0.00	441710.68	758725.39	N 32 12 44.59	W 103 37 49.58
	15300.00	90.00	179.67	11030.00	4416.16	-4412.40	665.94	0.00	441610.68	758725.97	N 32 12 43.60	W 103 37 49.58
	15400.00	90.00	179.67	11030.00	4516.16	-4512.40	666.52	0.00	441510.69	758726.54	N 32 12 42.61	W 103 37 49.58
	15500.00	90.00	179.67	11030.00	4616.16	-4612.40	667.10	0.00	441410.69	758727.12	N 32 12 41.62	W 103 37 49.58
	15600.00	90.00	179.67	11030.00	4716.16	-4712.40	667.67	0.00	441310.70	758727.70	N 32 12 40.63	W 103 37 49.58
	15700.00	90.00	179.67	11030.00	4816.16	-4812.39	668.25	0.00	441210.70	758728.27	N 32 12 39.64	W 103 37 49.58
	15800.00	90.00	179.67	11030.00	4916.16	-4912.39	668.82	0.00	441110.71	758728.85	N 32 12 38.65	W 103 37 49.58
Cimarex Dos Equis 13 Federal Com #9H - PBHL [100' FSL, 1980' FWL]	15815.91	90.00	179.67	11030.00	4932.07	-4928.30	668.92	0.00	441094.80	758728.94	N 32 12 38.49	W 103 37 49.58

Survey Type: Non-Def Plan

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

Survey Program:

Description	Part	MD From (ft)	MD To (ft)	EOU Freq (ft)	Hole Size (in)	Casing Diameter (in)	Expected Max Inclination (deg)	Survey Tool Type	Borehole / Survey
	1	0.000	26.000	1/100.000	30.000	30.000		NAL_MWD_IFR1+MS-Depth Only	Original Borehole / Cimarex Dos Equis 13 Federal Com #9H Rev2 RM 12Mar19
	1	26.000	15815.911	1/100.000	30.000	30.000		NAL_MWD_IFR1+MS	Original Borehole / Cimarex Dos Equis 13 Federal Com #9H Rev2

Schlumberger

CIMAREX

Cimarex Dos Equis 13 Federal Com #9H Rev2 RM 12Mar19 Anti-Collision Summary Report

Analysis Date-24hr Time:	March 12, 2019 - 16:15	**Analysis Method:**	3D Least Distance
Client:	Cimarex	**Reference Trajectory:**	Cimarex Dos Equis 13 Federal Com #9H Rev2 RM 12Mar19 (Non-Def Plan)
Field:	NM Lea County (NAD 83)	**Depth Interval:**	Every 10.00 Measured Depth (ft)
Structure:	Cimarex Dos Equis 13 Federal Com #9H	**Rule Set:**	NAL Procedure: D&M AntiCollision Standard S002
Slot:	Cimarex Dos Equis 13 Federal Com #9H	**Min Pts:**	All local minima indicated.
Well:	Cimarex Dos Equis 13 Federal Com #9H	**Version / Patch:**	2.10.753.0
Borehole:	Original Borehole	**Database \ Project:**	US1153APP452.dir.slb.com\drilling-NM Lea County 2.10
Scan MD Range:	0.00ft ~ 15815.91ft		

Trajectory Error Model: ISCWSA0 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	Sep.	Controlling	Reference Trajectory		Risk Level			Alert	Status
	Ct-Ct (ft)	MAS (ft)	EOU (ft)	Dev. (ft)	Fact.	Rule	MD (ft)	TVD (ft)	Alert	Minor	Major		
Results highlighted: Sep-Factor separation <= 1.50 ft													
Cimarex Dos Equis 13 Federal #2H XEM + MWD 0ft to 15311 (Def Survey)													Pass
	1854.29	32.81	1851.79	1821.48	N/A	MAS = 10.00 (m)	0.00	0.00				Surface	
	1854.06	32.81	1851.54	1821.25	87772.19	MAS = 10.00 (m)	20.00	20.00				MinPt-O-SF	
	1854.04	32.81	1851.52	1821.23	145417.21	MAS = 10.00 (m)	26.00	26.00				WRP	
	1836.63	32.81	1816.78	1803.83	105.72	MAS = 10.00 (m)	3490.00	3490.00				MinPts	
	1836.90	32.81	1816.62	1804.09	103.23	MAS = 10.00 (m)	3650.00	3650.00				MINPT-O-EOU	
	1838.07	32.81	1816.64	1805.26	97.02	MAS = 10.00 (m)	3900.00	3900.00				MINPT-O-EOU	
	1838.51	32.81	1816.60	1805.70	94.61	MAS = 10.00 (m)	4020.00	4020.00				MINPT-O-EOU	
	1863.66	38.17	1837.38	1825.50	78.27	OSF1.50	5200.00	5200.00				MinPt-O-SF	
	1274.29	49.70	1239.95	1224.59	41.36	OSF1.50	9180.00	9127.83				MinPt-O-SF	
	1234.67	54.33	1197.22	1180.35	36.48	OSF1.50	10580.00	10527.58				MinPt-CtCt	
	1234.72	54.46	1197.17	1180.25	36.38	OSF1.50	10604.95	10552.54				MinPts	
	1235.48	54.53	1197.89	1180.95	36.36	OSF1.50	10690.00	10637.13				MinPt-O-SF	
	1304.16	190.37	1176.05	1113.79	10.44	OSF1.50	14210.00	11030.00				MinPt-CtCt	
	1331.38	255.99	1159.54	1075.39	7.89	OSF1.50	15440.00	11030.00				MINPT-O-EOU	
	1338.77	294.07	1141.55	1044.70	6.89	OSF1.50	15620.00	11030.00				MinPts	
	1362.02	292.72	1165.73	1069.29	7.04	OSF1.50	15815.91	11030.00				TD	
Stanolind Wimberly A Unit B #1 Inc Only (Def Survey)													Pass
	1995.79	32.81	1993.29	1962.98	N/A	MAS = 10.00 (m)	0.00	0.00				Surface	
	1995.27	32.81	1992.71	1962.46	32200.15	MAS = 10.00 (m)	26.00	26.00				MinPt-O-SF	
	1892.59	554.88	1521.81	1337.71	5.13	OSF1.50	5080.00	5080.00				MinPt-O-SF	
	1892.51	554.84	1521.75	1337.67	5.13	OSF1.50	5090.00	5090.00				MinPts	

Offset Trajectory	Separation			Allow	Sep.	Controlling	Reference Trajectory		Risk Level			Alert	Status
	Ct-Ct (ft)	MAS (ft)	EOU (ft)	Dev. (ft)	Fact.	Rule	MD (ft)	TVD (ft)	Alert	Minor	Major		
	1892.47	554.78	1521.76	1337.69	5.13	OSF1.50	5100.00	5100.00				MinPt-CtCt	
	7613.47	369.32	7366.43	7244.15	31.12	OSF1.50	15815.91	11030.00				MinPt-O-SF	
Cimarex Dos Equis 13 Federal #1H ST01 Xem+MWD 0ft to 15250ft (Def Survey)													Pass
	3274.62	32.81	3272.12	3241.82	N/A	MAS = 10.00 (m)	0.00	0.00				Surface	
	3274.35	32.81	3271.82	3241.54	111314.59	MAS = 10.00 (m)	26.00	26.00				MinPt-O-SF	
	3274.28	32.81	3271.73	3241.48	61349.08	MAS = 10.00 (m)	50.00	50.00				MinPts	
	3274.34	32.81	3271.70	3241.53	22591.51	MAS = 10.00 (m)	90.00	90.00				MINPT-O-EOU	
	3274.45	32.81	3271.68	3241.64	12318.01	MAS = 10.00 (m)	120.00	120.00				MINPT-O-EOU	
	3276.26	32.81	3269.29	3243.45	731.89	MAS = 10.00 (m)	1060.00	1060.00				MinPts	
	3275.33	32.81	3264.63	3242.52	398.96	MAS = 10.00 (m)	1890.00	1890.00				MinPts	
	3272.96	32.81	3257.31	3240.15	248.65	MAS = 10.00 (m)	3020.00	3020.00				MinPts	
	3273.47	32.81	3254.26	3240.66	195.80	MAS = 10.00 (m)	3820.00	3820.00				MinPts	
	3273.65	32.81	3253.46	3240.85	184.85	MAS = 10.00 (m)	4040.00	4040.00				MinPts	
	3274.06	32.81	3252.86	3241.25	175.00	MAS = 10.00 (m)	4260.00	4260.00				MINPT-O-EOU	
	3292.18	36.72	3266.86	3255.46	144.19	OSF1.50	5200.00	5200.00				MinPt-O-SF	
	2724.52	48.03	2691.31	2676.49	91.81	OSF1.50	9030.00	8978.69				MinPt-O-SF	
	2715.33	47.90	2682.20	2667.43	91.81	OSF1.50	9090.00	9038.24				MinPt-O-SF	
	2653.50	53.22	2616.77	2600.28	80.34	OSF1.50	10700.00	10646.96				MinPts	
	2653.52	52.93	2616.99	2600.59	80.83	OSF1.50	10760.00	10704.87				MinPt-CtCt	
	2654.98	52.28	2618.88	2602.70	81.93	OSF1.50	10970.00	10883.04				MinPt-O-SF	
	2636.86	69.87	2589.02	2567.00	59.77	OSF1.50	11840.00	11030.00				MinPt-CtCt	
	2637.78	72.28	2588.33	2565.50	57.68	OSF1.50	11940.00	11030.00				MINPT-O-EOU	
	2638.86	73.56	2588.56	2565.30	56.65	OSF1.50	11990.00	11030.00				MinPt-O-ADP	
	2640.47	121.74	2558.05	2518.73	33.53	OSF1.50	12980.00	11030.00				MinPt-CtCt	
	2647.64	140.65	2552.62	2507.00	28.97	OSF1.50	13410.00	11030.00				MINPT-O-EOU	
	2649.63	143.42	2552.76	2506.21	28.42	OSF1.50	13470.00	11030.00				MinPt-O-ADP	
	2663.03	174.31	2545.57	2488.72	23.39	OSF1.50	13980.00	11030.00				MinPt-CtCt	
	2660.99	197.42	2528.13	2463.57	20.58	OSF1.50	14400.00	11030.00				MinPt-CtCt	
	2657.83	213.04	2514.55	2444.78	19.02	OSF1.50	14700.00	11030.00				MinPt-CtCt	
	2658.40	308.16	2451.72	2350.25	13.08	OSF1.50	15540.00	11030.00				MinPt-CtCt	
	2658.43	308.25	2451.68	2350.18	13.08	OSF1.50	15550.00	11030.00				MINPT-O-EOU	
	2658.49	308.34	2451.69	2350.16	13.07	OSF1.50	15560.00	11030.00				MinPt-O-ADP	
	2660.76	308.95	2453.55	2351.81	13.06	OSF1.50	15650.00	11030.00				MinPt-O-SF	
	2672.89	309.23	2465.51	2363.66	13.10	OSF1.50	15815.91	11030.00				TD	
Cimarex Dos Equis 13 Federal #1H Pilot Hole Extreme 0ft to 11400ft (Def Survey)													Pass
	3274.62	32.81	3272.12	3241.82	N/A	MAS = 10.00 (m)	0.00	0.00				Surface	
	3274.35	32.81	3271.82	3241.54	111314.59	MAS = 10.00 (m)	26.00	26.00				MinPt-O-SF	
	3274.28	32.81	3271.73	3241.48	61349.08	MAS = 10.00 (m)	50.00	50.00				MinPts	
	3274.34	32.81	3271.70	3241.53	22591.51	MAS = 10.00 (m)	90.00	90.00				MINPT-O-EOU	
	3274.45	32.81	3271.68	3241.64	12318.01	MAS = 10.00 (m)	120.00	120.00				MINPT-O-EOU	
	3276.26	32.81	3269.29	3243.45	731.89	MAS = 10.00 (m)	1060.00	1060.00				MinPts	
	3275.33	32.81	3264.63	3242.52	398.96	MAS = 10.00 (m)	1890.00	1890.00				MinPts	
	3272.96	32.81	3257.31	3240.15	248.65	MAS = 10.00 (m)	3020.00	3020.00				MinPts	
	3273.47	32.81	3254.26	3240.66	195.80	MAS = 10.00 (m)	3820.00	3820.00				MinPts	
	3273.65	32.81	3253.46	3240.85	184.85	MAS = 10.00 (m)	4040.00	4040.00				MinPts	
	3274.06	32.81	3252.86	3241.25	175.00	MAS = 10.00 (m)	4260.00	4260.00				MINPT-O-EOU	
	3292.18	36.72	3266.86	3255.46	144.19	OSF1.50	5200.00	5200.00				MinPt-O-SF	
	2724.52	48.03	2691.31	2676.49	91.81	OSF1.50	9030.00	8978.69				MinPt-O-SF	

Offset Trajectory	Separation			Allow	Sep.	Controlling	Reference Trajectory		Risk Level			Alert	Status
	Ct-Ct (ft)	MAS (ft)	EOU (ft)	Dev. (ft)	Fact.	Rule	MD (ft)	TVD (ft)	Alert	Minor	Major		
	2715.33	47.90	2682.20	2667.43	91.81	OSF1.50	9090.00	9038.24				MinPt-O-SF	
	2653.67	53.15	2616.98	2600.52	80.46	OSF1.50	10650.00	10597.52				MinPt-O-SF	
	2645.72	51.24	2610.30	2594.48	83.49	OSF1.50	11030.00	10923.63				MinPt-O-ADP	
	2645.68	51.19	2610.30	2594.49	83.58	OSF1.50	11040.00	10929.84				MINPT-O-EOU	
	2645.67	51.14	2610.32	2594.53	83.66	OSF1.50	11050.00	10935.88				MinPt-CtCt	
	3252.39	63.67	3209.11	3188.72	79.70	OSF1.50	12940.00	11030.00				MinPt-O-SF	
	5453.34	82.55	5397.47	5370.79	102.14	OSF1.50	15815.91	11030.00				TD	

1. Geological Formations

TVD of target 11,030
MD at TD 15,816

Pilot Hole TD N/A
Deepest expected fresh water

Formation	Depth (TVD) from KB	Water/Mineral Bearing/Target Zone	Hazards
Rustler	1185	N/A	
Salado (Top Salt)	1500	N/A	
Base of Salt	4650	N/A	
Delaware Sands	4920	N/A	
Bone Spring	8815	Hydrocarbons	
1st Bone Spring Sand	9910	Hydrocarbons	
2nd Bone Spring Sand	10635	Hydrocarbons	
2nd Bone Spring Target	11030	Hydrocarbons	
3rd Bone Spring Sand	11835	Hydrocarbons	
Wolfcamp	12245	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
17 1/2	0	1235	1235	13-3/8"	48.00	H-40/J-55 Hybrid	ST&C	1.31	3.06	5.43
12 1/4	0	4900	4900	9-5/8"	40.00	J-55	LT&C	1.32	1.52	2.65
8 3/4	0	10605	10605	5-1/2"	17.00	L-80	LT&C	1.27	1.56	1.80
8 3/4	10605	15816	11030	5-1/2"	17.00	L-80	BT&C	1.22	1.50	54.95
					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