

Submit 1 Copy To Appropriate District Office

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

State of New Mexico
Energy, Minerals and Natural Resources

OIL CONSERVATION DIVISION

1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-103

Revised August 1, 2011

WELL API NO. 30-025-40411
5. Indicate Type of Lease STATE ☒ FEE ☐
6. State Oil & Gas Lease No.
7. Lease Name or Unit Agreement Name Red Hills West 16 State
8. Well Number 2H
9. OGRID Number 217817
10. Pool name or Wildcat Bone Spring
11. Elevation (Show whether DR, RKB, RT, GR, etc.) 3203

SUDDRY NOTICES AND REPORTS ON WELLS (DO NOT USE THIS FORM FOR PROPOSALS TO DRILL OR TO DEEPEN OR PLUG BACK TO A DIFFERENT RESERVOIR. USE "APPLICATION FOR PERMIT" (FORM C-101) FOR SUCH PROPOSALS.)	
1. Type of Well: Oil Well ☒ Gas Well ☐ Other	
2. Name of Operator ConocoPhillips Company	
3. Address of Operator P.O. Box 51810 Midland, Tx 79710	
4. Well Location Unit Letter C : 180 feet from the N line and 1960 feet from the W line Section 16 Township 26S Range 32E NMPM Lea County	
11. Elevation (Show whether DR, RKB, RT, GR, etc.) 3203	

12. Check Appropriate Box to Indicate Nature of Notice, Report or Other Data

NOTICE OF INTENTION TO:

PERFORM REMEDIAL WORK ☐ PLUG AND ABANDON ☐
TEMPORARILY ABANDON ☐ CHANGE PLANS ☐
PULL OR ALTER CASING ☐ MULTIPLE COMPL ☐
DOWNHOLE COMMINGLE ☐

OTHER: Revise Drill Plan ☒

SUBSEQUENT REPORT OF:

REMEDIAL WORK ☐ ALTERING CASING ☐
COMMENCE DRILLING OPNS. ☐ P AND A ☐
CASING/CEMENT JOB ☐

OTHER: ☐

13. Describe proposed or completed operations. (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work). SEE RULE 19.15.7.14 NMAC. For Multiple Completions: Attach wellbore diagram of proposed completion or recompletion.

ConocoPhillips Company respectfully request to amend the drill plan that is currently on file for the above proposed well. Please see attached information.

Spud Date:

Rig Release Date:

I hereby certify that the information above is true and complete to the best of my knowledge and belief.

SIGNATURE

TITLE

Sr. Regulatory Advisor

DATE

9/21/12

Type or print name Donna Williams

E-mail address

Donna.J.Williams@
Conocophillips.com

PHONE:

432-688-6943

For State Use Only

APPROVED BY:

TITLE

Petroleum Engineer

DATE

SEP 26 2012

Conditions of Approval (if any):

SEP 26 2012

DRILLING PLAN

PROSPECT/FIELD	Bonespring/Red Hills		COUNTY/STATE			Lea County, NM	
OWNERS	ConocoPhillips		LEASE				
WELL NO.	Red Hills West 16 State 2H		FNL	FSL	FEL	FWL	
LOCATION	Surface Location		180			1960	
	Bottom Hole Location			330		1700	
EST. T.D.	Leg #1 13,538' MD		GROUND ELEV			3,203' (est)	

PROGNOSIS	Based on 3,219' KB(est)				LOGS:	Type	Interval
MARKER		S S DEPTH		TVD		Open Hole	
Quaternary				Surface		GR-MWD	KOP-TD
Rustler		2,350		869			
Delaware Top		-1,213		4,432			
Bone Spring		-8,279		8,279			
Bone Spring 1st Carbonate Top		-5,270		8,489			
Bone Spring 1st Carbonate Base		-5,570		8,789			
KOP				8,192			
Avalon A Shale Top		-5,730		8,949			
Avalon A Shale Base		-5,600		9,019			
Avalon A Shale Horizontal Target		-5,753		8,972			

LOGS:	Type	Interval
	Open Hole	
	GR-MWD	KOP-TD

DEVIATION:	Surf	3" max, svy every 500'
	Int #1/2	3" max, svy every 90'
	Interm #2 Curve	90", svy every 30'
	Prod Lateral	90", svy every 30'

DST'S.	
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CORES:	No core
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SAMPLES	Mudlogging	Start	End	
	Two-Man	910'	TD	Vertical and Horizontal sections

BOP	COP Category 3 Well Control Requirements		
	Precision 827 BOPE (With Rotating Head)	13-5/8" 5Mpsi Annular	
		13-3/8" 5Mpsi Blind Ram	
		13-3/8" 5Mpsi Cross / Choke & Kill Lines	
		13-3/8" 5M psi Pipe Ram	
		13-3/8" 5Mpsi Spacer Spool	

Dip Rate	(See inclination prediction)						
Max. Anticipated BHP		0.65 psi/ft					
MUD.	Interval	Type	Max. MW	Vis	WL	Remarks	
Surface	0'-910'	Aquagel - Spud Mud	8.9	32-36	NC		
Intermediate 1	910'-4465'	Brine	10	28-30	5-8		
Intermediate 2	4465'-9450'	Brine	9.3	28-30	5-8		
Production	9450'-13538'	Cut Brine	9.3	30-40	<5		

CASING	Size	Wt ppf	Hole	Depth	Cement	WOC	Remarks
Surface	13-3/8"	54.5	17-1/2"	910'	To Surface	18hrs	
Intermediate 1	9-5/8"	36	12-1/4"	4,465'	To Surface	18hrs	
Intermediate 2	7"	29	8 3/4"	9,450'	500' into the 9-5/8"	18hrs	
Production Lat #1	4 1/2"	11.6	6 1/8"	13,538'	Packers and Sleeves	N/A	Liner

DIRECTIONAL PLAN	MD	TVD	AZ	
Surface	N/A	N/A	0	Directional Company DDC
Vertical KOP	8,192'	8,192'	220.0	Vertical Build Rate
End Build/ 7" Casing (90° curve)	9,444'	8,972'	179.6	Tan Leg Turn Rate
Tangent	N/A	N/A	179.6	
Turn	N/A	N/A	179.6	
TD	13,538'	8,957'	179.6	

Comments:
Surveys will be taken with INC Survey Tool below surface casing while drilling with PDC + Scout Vertical Seeking Tool + Straight Motor BHA. Continue with MWD surveys to TD.

Prep By	Katia Filina	Date:	9/20/12	Doc	REV-1
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Bonespring/Red Hills
 ConocoPhillips
 Red Hills West 16 State 2H

Surface Casing:

Surface Casing Depth (Ft)	910
Surface Casing O.D. (In.)	13.375
Surface Casing ID (In)	12.715
Hole O.D. (In)	17.5
Excess (%)	100%
Volume Tail (Sx)	320
Yield Tail (Cu. Ft./Sx)	1.33
Yield Lead (Cu. Ft./Sx)	1.75
Shoe Joint (Ft)	40
Shoe Volume (Cu. Ft)	35.3
Tail feet of cement	300
Calculated Total Volume (Cu. Ft.)	1,299
Calc. Tail Volume (Cu. Ft.)	417
Calc. Lead Volume (Cu. Ft.)	847
Calc. Lead Volume (Sx)	490

Intermediate1 Casing (Lead):

Intermediate Casing O.D. (In.)	9.625
Intermediate Casing ID (In)	8.921
Hole O.D. (In)	12.25
Excess (%)	150%
cap 12-1/4 - 9-5/8"	0.0558
Calculated fill:	3,965'
Yield Lead (Cu. Ft./Sx)	2.47
Calculated Total Lead (Cu. Ft.)	3,105
Calc. Lead Volume (Sx)	1,260

Intermediate2 Casing (Lead):

Intermediate Casing O.D. (In.)	7.000
Intermediate Casing ID (In)	6.184
Hole O.D. (In)	8.75
Excess (%)	100%
cap 7" - 8-3/4" bls/ft	0.0268
cap 7 - 9-5/8" bls/ft	0.02823
Calculated fill: (500' into 9-5/8")	4,229'
Yield Lead (Cu. Ft./Sx)	2.7
Calculated Total Lead (Cu. Ft.)	828
Calc. Lead Volume (Sx)	310

3965
 8,194'

Intermediate1 Casing (Tail):

Intermediate Casing O.D. (In.)	9.625
Production Casing ID (In)	8.921
Hole O.D. (In)	12.25
Excess (%)	200%
cap 12-1/4 - 9-5/8"	0.0558
Calculated fill:	500'
Yield Tail (Cu. Ft./Sx)	1.33
Shoe Joint (Ft)	40
Shoe Volume (Cu. Ft)	17.4
Calc. Tail Volume (Cu. Ft.)	331
Required Tail Volume (Sx)	250

Intermediate2 Casing (Tail):

Intermediate Casing O.D. (In.)	7.000
Intermediate Casing ID (In)	6.184
Hole O.D. (In)	8.75
Excess (%)	120%
cap 7" - 8-3/4" bls/ft	0.0268
cap 7 - 9-5/8" bls/ft	0.02823
Calculated fill:	1,250'
Yield Lead (Cu. Ft./Sx)	1.39
Calculated Total Tail (Cu. Ft.)	238
Required Tail Volume (Sx)	171

Red Hills West 16 State 2H	
Surface Location:	Bottom Hole Location:
180FNL	330FSL
FEL:	FEL:

Directional	MD	TVD	FNL/FSL	FEL/FWL	S-T-R	AZI
Verical KOP	8192	8192	0	0	0	220
End Build 7" Casing (90° curve)	9 444'	8,972'	0	0	0	179.6
Tangent	N/A	N/A	0	0	0	179.6
Turn	N/A	N/A	0	0	0	179.6
TD	13,538'	8,957'	0	0	0	179.6

Formation	TVD
Quaternary	Surface
Rustler	860
Delaware Top	4,432
KOP	8,279
Bone Spring	8,489
Bone Spring 1st Carbonate Top	8,780
Bone Spring 1st Carbonate Base	8,192
KOP	8,192
Avalon A Shale Top	8,949
Avalon A Shale Base	9,019

8,192

KOP (8°/100°) 8,192

Avalon A Shale Horizontal Target 8,972

CASING

Surface
810° 13.3/8" 54.5° J-55 BTC

Intermediate 1
4.465° 9.5/8" 36° J-55 LTC

4 1/2" Liner Top @ 8800' - 45deg INC

Intermediate 2
3.444° MD 7° 29° P-110 BTC

8,972' TVD

Drill Fluids

Surf Hole
FW gel mud
9 #
w/ high vis sweeps

Interm 1
Brine
10 #
40-50 Vis
5-8 WL

Interm 2
Brine
9 #
28-36 Vis
5-8 WL

Prod Hole
Cut Brine
9 #
28-36 Vis
≤5 WL
high vis sweeps as required

Cement

Data: These numbers are only estimates

Surface
320 Sx Lead
490 Sx Tail
Based on 17-1/2" OH
with 100% excess

Intermediate 1
1,260 Sx Lead
250 Sx Tail
Based on 12.25" in Hole
with 150% excess

Intermediate 2
310 Sx Lead
171 Sx Tail
Based on 8.75" in Hole
with 200% excess

Slurry Top
Surface
600' from Bottom

Slurry Top
500' into 9-5/8"
600' from Bottom

Analysis

Mudlogging
Two-Man
On @ 910'
TD

Open Hole
None
GR-MWD
KOP-TD

Cased Hole Logs
None

Notes for Well:

Drill 17 1/2" surface hole with conventional BHA and INC Survey Tool, RIH 13 3/8" CSG and cement it up to surface
Install well head and NU BOP CSG Pressure Test and FIT
Mud logger (two-man) to be on at surface casing depth of 910'
Drill 12 1/4" Intermediate #1 hole with Vertical Seeking Scout Tool+Motor and INC Survey Tool till 4500'
RIH 9 5/8" CSG and cement it up to surface
Drill 9 3/4" Intermediate #2 hole with Mud Motor BHA till 8192ft
Run Gyro till 8192ft if drilled with INC Tool if drilled with MWD no need to run gyro
Begin GR-MWD service after KOP 8192'
The 8 3/4" Curve will be drilled with - 6°/100' build rate and 179.6° Azimuth with PDM+MWD till 8444' MD/ 8972' TVD
Run 7" CSG from surface to 9450' and cement it 500ft into 9 5/8"
The 6" Lateral will be drilled with PDM+MWD till TD 13538' MD/ 8957' TVD holding 90.2° INC & 179.6° Azm
POOH Backreaming after circulating the hole until clean returns
RIH 4 1/2" Liner with around 20-28 Stages of Open Hole Completion swell Packers and Sliding Sleeves
Displace cement with 5% KCl Brine
POOH laying down 4in Drill Pipe
ND BOPE Install 10M tubing head Test connection
Release drilling rig

Production
Liner 4 1/2" 11.6° P-110 BTC
13,538' MD

Max Anticipated BHP 0.65 psi/ft

TD @ 13,538' MD
TD @ 8,957' MD

David Sdis Geologist Date 9/20/2012

Katia Filina Drilling Engineer Date 9/20/2012



Conoco Phillips

Lea County, New Mexico
Sec 16, T26S, R32E NMPM
Red Hills West 16 State #2H

Wellbore #1

Plan: Design #1

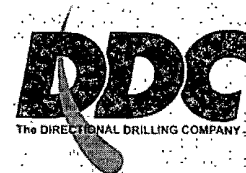
HOBBS OCD

SEP 24 2012

RECEIVED

DDC Well Planning Report

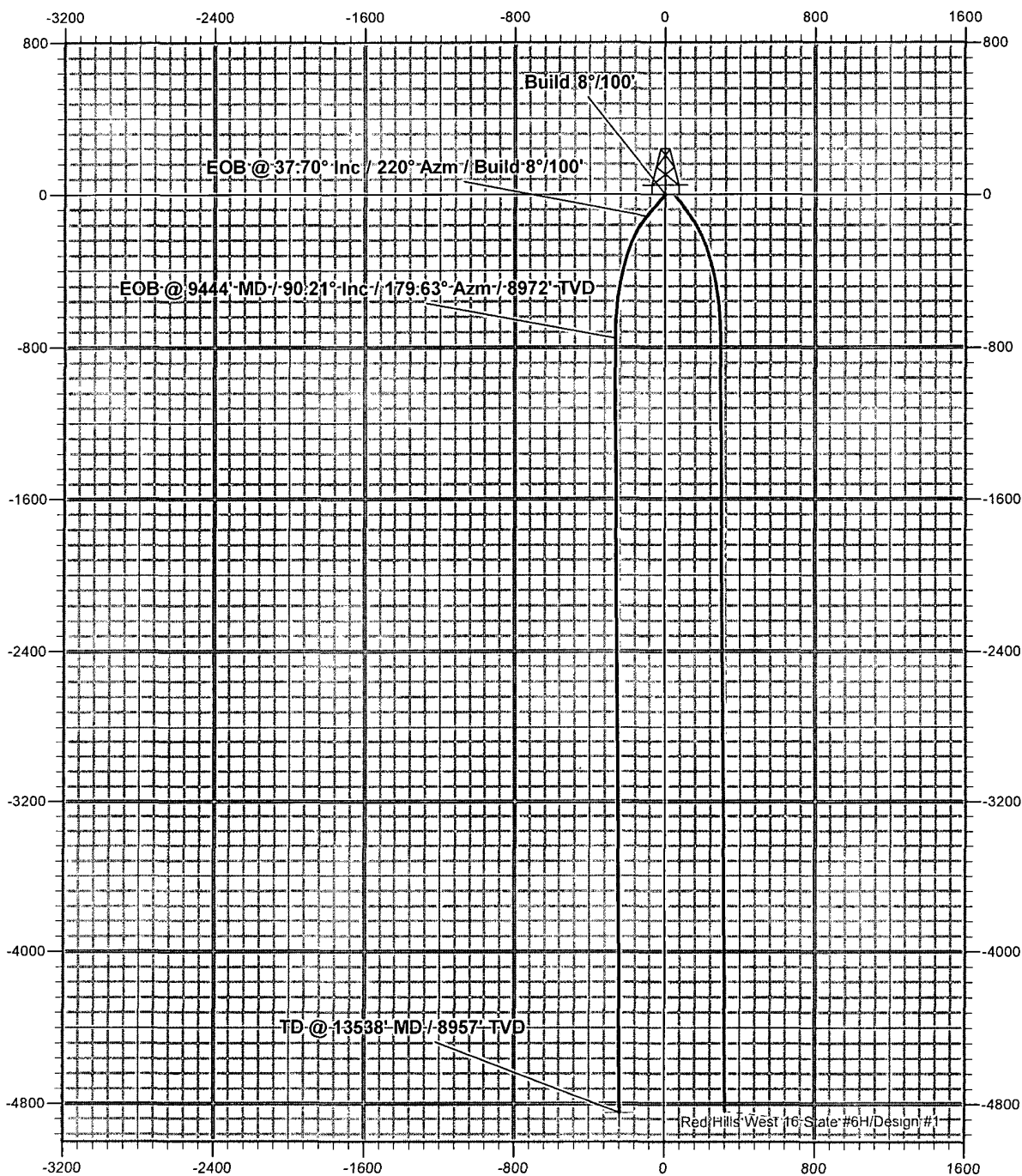
10 September, 2012



ConocoPhillips

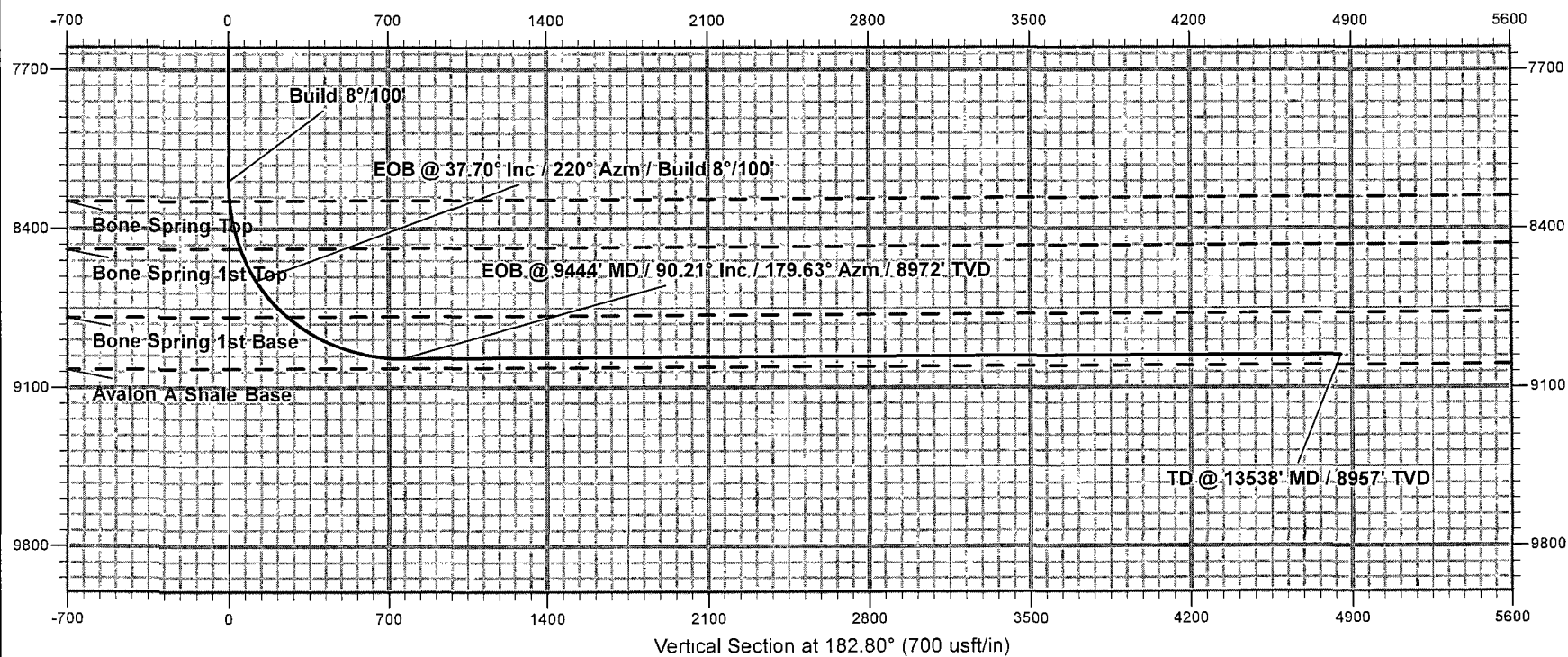
Lea County, New Mexico
Red Hills West 16 State #2H
Design #1

DDC
The DIRECTIONAL DRILLING COMPANY





Lea County, New Mexico
Red Hills West 16 State #2H
Design #1



Database:	EDM 5000 1 Single User Db	Local Co-ordinate Reference:	Well Red Hills West 16 State #2H
Company:	Conoco Phillips	TVD Reference:	WELL @ 3219.0usft (Original Well Elev)
Project:	Lea County, New Mexico	MD Reference:	WELL @ 3219.0usft (Original Well Elev)
Site:	Sec 16 T26S R32E NMPM	North Reference:	Grid
Well:	Red Hills West 16 State #2H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

Project	Lea County, New Mexico		
Map System:	US State Plane 1927 (Exact solution)	System Datum:	Mean Sea Level
Geo Datum:	NAD 1927 (NADCON CONUS)		
Map Zone:	New Mexico East 3001		

Site						Sec 16, T26S, R32E NMPM					
Site Position:		Northing:		382,382.50 usft		Latitude:		32° 2' 58.675 N			
From:		Map		Easting:		700,544.80 usft		Longitude:		103° 41' 9.818 W	
Position Uncertainty:		0.0 usft		Slot Radius:		13-3/16 "		Grid Convergence:		0.34 °	

Well	Red Hills West 16 State #2H					
Well Position	+N-S	-11.7 usft	Northing:	382,370.80 usft	Latitude:	32° 2' 58.481 N
	+E-W	1,315.9 usft	Easting:	701,860.69 usft	Longitude:	103° 40' 54.530 W
Position Uncertainty	0.0 usft		Wellhead Elevation:		Ground Level:	3,203.0 usft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	9/10/2012	7.47	59.98	48,377

Design	Design #1			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.0	0.0	0.0	182.80

Plan Sections										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (%)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
8,192.3	0.00	0.00	8,192.3	0.0	0.0	0.00	0.00	0.00	0.00	
8,663.5	37.70	220.00	8,630.3	-114.5	-96.1	8.00	8.00	0.00	220.00	
9,443.8	90.21	179.63	8,972.0	-751.7	-263.9	8.00	6.73	-5.17	-46.95	
13,538.1	90.21	179.63	8,957.0	-4,845.9	-237.3	0.00	0.00	0.00	0.00	PBHL Red Hills We

Database:	EDM 5000 1 Single User Db	Local Co-ordinate Reference:	Well Red Hills West 16 State #2H
Company:	Conoco Phillips	TVD Reference:	WELL @ 3219.0usft (Original Well Elev)
Project:	Lea County, New Mexico	MD Reference:	WELL @ 3219.0usft (Original Well Elev)
Site:	Sec 16, T26S, R32E NMPM	North Reference:	Grid
Well:	Red Hills West 16 State #2H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	0.00
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	0.00
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	0.00	0.00
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	0.00
500.0	0.00	0.00	500.0	0.0	0.0	0.0	0.00	0.00	0.00
600.0	0.00	0.00	600.0	0.0	0.0	0.0	0.00	0.00	0.00
700.0	0.00	0.00	700.0	0.0	0.0	0.0	0.00	0.00	0.00
800.0	0.00	0.00	800.0	0.0	0.0	0.0	0.00	0.00	0.00
Rustler									
869.0	0.00	0.00	869.0	0.0	0.0	0.0	0.00	0.00	0.00
900.0	0.00	0.00	900.0	0.0	0.0	0.0	0.00	0.00	0.00
Salado									
965.0	0.00	0.00	965.0	0.0	0.0	0.0	0.00	0.00	0.00
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.0	0.00	0.00	0.00
1,100.0	0.00	0.00	1,100.0	0.0	0.0	0.0	0.00	0.00	0.00
1,200.0	0.00	0.00	1,200.0	0.0	0.0	0.0	0.00	0.00	0.00
1,300.0	0.00	0.00	1,300.0	0.0	0.0	0.0	0.00	0.00	0.00
1,400.0	0.00	0.00	1,400.0	0.0	0.0	0.0	0.00	0.00	0.00
1,500.0	0.00	0.00	1,500.0	0.0	0.0	0.0	0.00	0.00	0.00
1,600.0	0.00	0.00	1,600.0	0.0	0.0	0.0	0.00	0.00	0.00
1,700.0	0.00	0.00	1,700.0	0.0	0.0	0.0	0.00	0.00	0.00
1,800.0	0.00	0.00	1,800.0	0.0	0.0	0.0	0.00	0.00	0.00
1,900.0	0.00	0.00	1,900.0	0.0	0.0	0.0	0.00	0.00	0.00
2,000.0	0.00	0.00	2,000.0	0.0	0.0	0.0	0.00	0.00	0.00
2,100.0	0.00	0.00	2,100.0	0.0	0.0	0.0	0.00	0.00	0.00
2,200.0	0.00	0.00	2,200.0	0.0	0.0	0.0	0.00	0.00	0.00
2,300.0	0.00	0.00	2,300.0	0.0	0.0	0.0	0.00	0.00	0.00
2,400.0	0.00	0.00	2,400.0	0.0	0.0	0.0	0.00	0.00	0.00
2,500.0	0.00	0.00	2,500.0	0.0	0.0	0.0	0.00	0.00	0.00
2,600.0	0.00	0.00	2,600.0	0.0	0.0	0.0	0.00	0.00	0.00
2,700.0	0.00	0.00	2,700.0	0.0	0.0	0.0	0.00	0.00	0.00
Castile									
2,769.0	0.00	0.00	2,769.0	0.0	0.0	0.0	0.00	0.00	0.00
2,800.0	0.00	0.00	2,800.0	0.0	0.0	0.0	0.00	0.00	0.00
2,900.0	0.00	0.00	2,900.0	0.0	0.0	0.0	0.00	0.00	0.00
3,000.0	0.00	0.00	3,000.0	0.0	0.0	0.0	0.00	0.00	0.00
3,100.0	0.00	0.00	3,100.0	0.0	0.0	0.0	0.00	0.00	0.00
3,200.0	0.00	0.00	3,200.0	0.0	0.0	0.0	0.00	0.00	0.00
3,300.0	0.00	0.00	3,300.0	0.0	0.0	0.0	0.00	0.00	0.00
3,400.0	0.00	0.00	3,400.0	0.0	0.0	0.0	0.00	0.00	0.00
3,500.0	0.00	0.00	3,500.0	0.0	0.0	0.0	0.00	0.00	0.00
3,600.0	0.00	0.00	3,600.0	0.0	0.0	0.0	0.00	0.00	0.00
3,700.0	0.00	0.00	3,700.0	0.0	0.0	0.0	0.00	0.00	0.00
3,800.0	0.00	0.00	3,800.0	0.0	0.0	0.0	0.00	0.00	0.00
3,900.0	0.00	0.00	3,900.0	0.0	0.0	0.0	0.00	0.00	0.00
4,000.0	0.00	0.00	4,000.0	0.0	0.0	0.0	0.00	0.00	0.00
4,100.0	0.00	0.00	4,100.0	0.0	0.0	0.0	0.00	0.00	0.00
4,200.0	0.00	0.00	4,200.0	0.0	0.0	0.0	0.00	0.00	0.00
4,300.0	0.00	0.00	4,300.0	0.0	0.0	0.0	0.00	0.00	0.00
4,400.0	0.00	0.00	4,400.0	0.0	0.0	0.0	0.00	0.00	0.00
Delaware Top									
4,432.0	0.00	0.00	4,432.0	0.0	0.0	0.0	0.00	0.00	0.00
Ramsey									

Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well Red Hills West 16 State #2H
Company:	Conoco Phillips	TVD Reference:	WELL @ 3219 0usft (Original Well Elev)
Project:	Lea County, New Mexico	MD Reference:	WELL @ 3219 0usft (Original Well Elev)
Site:	Sec 16 T26S R32E NMPM	North Reference:	Grid
Well:	Red Hills West 16 State #2H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
4,470.0	0.00	0.00	4,470.0	0.0	0.0	0.0	0.00	0.00	0.00
4,500.0	0.00	0.00	4,500.0	0.0	0.0	0.0	0.00	0.00	0.00
Ford Sh.									
4,531.0	0.00	0.00	4,531.0	0.0	0.0	0.0	0.00	0.00	0.00
Olds									
4,544.0	0.00	0.00	4,544.0	0.0	0.0	0.0	0.00	0.00	0.00
4,600.0	0.00	0.00	4,600.0	0.0	0.0	0.0	0.00	0.00	0.00
4,700.0	0.00	0.00	4,700.0	0.0	0.0	0.0	0.00	0.00	0.00
4,800.0	0.00	0.00	4,800.0	0.0	0.0	0.0	0.00	0.00	0.00
4,900.0	0.00	0.00	4,900.0	0.0	0.0	0.0	0.00	0.00	0.00
5,000.0	0.00	0.00	5,000.0	0.0	0.0	0.0	0.00	0.00	0.00
5,100.0	0.00	0.00	5,100.0	0.0	0.0	0.0	0.00	0.00	0.00
5,200.0	0.00	0.00	5,200.0	0.0	0.0	0.0	0.00	0.00	0.00
5,300.0	0.00	0.00	5,300.0	0.0	0.0	0.0	0.00	0.00	0.00
Cherry Canyon									
5,399.0	0.00	0.00	5,399.0	0.0	0.0	0.0	0.00	0.00	0.00
5,400.0	0.00	0.00	5,400.0	0.0	0.0	0.0	0.00	0.00	0.00
5,500.0	0.00	0.00	5,500.0	0.0	0.0	0.0	0.00	0.00	0.00
5,600.0	0.00	0.00	5,600.0	0.0	0.0	0.0	0.00	0.00	0.00
5,700.0	0.00	0.00	5,700.0	0.0	0.0	0.0	0.00	0.00	0.00
5,800.0	0.00	0.00	5,800.0	0.0	0.0	0.0	0.00	0.00	0.00
5,900.0	0.00	0.00	5,900.0	0.0	0.0	0.0	0.00	0.00	0.00
6,000.0	0.00	0.00	6,000.0	0.0	0.0	0.0	0.00	0.00	0.00
6,100.0	0.00	0.00	6,100.0	0.0	0.0	0.0	0.00	0.00	0.00
6,200.0	0.00	0.00	6,200.0	0.0	0.0	0.0	0.00	0.00	0.00
6,300.0	0.00	0.00	6,300.0	0.0	0.0	0.0	0.00	0.00	0.00
6,400.0	0.00	0.00	6,400.0	0.0	0.0	0.0	0.00	0.00	0.00
6,500.0	0.00	0.00	6,500.0	0.0	0.0	0.0	0.00	0.00	0.00
6,600.0	0.00	0.00	6,600.0	0.0	0.0	0.0	0.00	0.00	0.00
6,700.0	0.00	0.00	6,700.0	0.0	0.0	0.0	0.00	0.00	0.00
6,800.0	0.00	0.00	6,800.0	0.0	0.0	0.0	0.00	0.00	0.00
6,900.0	0.00	0.00	6,900.0	0.0	0.0	0.0	0.00	0.00	0.00
7,000.0	0.00	0.00	7,000.0	0.0	0.0	0.0	0.00	0.00	0.00
7,100.0	0.00	0.00	7,100.0	0.0	0.0	0.0	0.00	0.00	0.00
Brushy Canyon									
7,119.0	0.00	0.00	7,119.0	0.0	0.0	0.0	0.00	0.00	0.00
7,200.0	0.00	0.00	7,200.0	0.0	0.0	0.0	0.00	0.00	0.00
7,300.0	0.00	0.00	7,300.0	0.0	0.0	0.0	0.00	0.00	0.00
7,400.0	0.00	0.00	7,400.0	0.0	0.0	0.0	0.00	0.00	0.00
7,500.0	0.00	0.00	7,500.0	0.0	0.0	0.0	0.00	0.00	0.00
7,600.0	0.00	0.00	7,600.0	0.0	0.0	0.0	0.00	0.00	0.00
7,700.0	0.00	0.00	7,700.0	0.0	0.0	0.0	0.00	0.00	0.00
7,800.0	0.00	0.00	7,800.0	0.0	0.0	0.0	0.00	0.00	0.00
7,900.0	0.00	0.00	7,900.0	0.0	0.0	0.0	0.00	0.00	0.00
8,000.0	0.00	0.00	8,000.0	0.0	0.0	0.0	0.00	0.00	0.00
8,100.0	0.00	0.00	8,100.0	0.0	0.0	0.0	0.00	0.00	0.00
Build 8°/100'									
8,192.3	0.00	0.00	8,192.3	0.0	0.0	0.0	0.00	0.00	0.00
8,200.0	0.62	220.00	8,200.0	0.0	0.0	0.0	8.00	8.00	0.00
Bone Spring Top									
8,279.2	6.95	220.00	8,279.0	-4.0	-3.4	4.2	8.00	8.00	0.00
8,300.0	8.62	220.00	8,299.6	-6.2	-5.2	6.4	8.00	8.00	0.00
8,400.0	16.62	220.00	8,397.1	-22.9	-19.2	23.8	8.00	8.00	0.00

Database:	EDM 5000 1 Single User Db	Local Co-ordinate Reference:	Well-Red Hills West 16 State #2H
Company:	Conoco Phillips	TVD Reference:	WELL @ 3219.0usft.(Original Well Elev)
Project:	Lea County New Mexico	MD Reference:	WELL @ 3219.0usft.(Original Well Elev)
Site:	Sec 16-T26S, R32E NMPM	North Reference:	Grid
Well:	Red Hills West 16 State #2H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

Planned Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
Bone Spring 1st Top										
8,498.0	24.46	220.00	8,488.8	-49.2	-41.3	51.2	8.00	8.00	0.00	
8,500.0	24.62	220.00	8,490.6	-49.9	-41.8	51.8	8.00	8.00	0.00	
8,600.0	32.62	220.00	8,578.3	-86.5	-72.6	90.0	8.00	8.00	0.00	
EOB @ 37.70° Inc / 220° Azm / Build 8°/100'										
8,663.5	37.70	220.00	8,630.3	-114.5	-96.1	119.1	8.00	8.00	0.00	
8,700.0	39.74	216.67	8,658.7	-132.4	-110.2	137.7	8.00	5.59	-9.15	
8,800.0	45.74	208.86	8,732.2	-189.5	-146.7	196.5	8.00	6.01	-7.81	
Bone Spring 1st Base - Avalon A Shale Top										
8,884.3	51.15	203.46	8,788.1	-246.1	-174.3	254.3	8.00	6.41	-6.40	
8,900.0	52.18	202.55	8,797.8	-257.5	-179.2	265.9	8.00	6.57	-5.81	
9,000.0	58.90	197.27	8,854.4	-335.0	-207.1	344.7	8.00	6.72	-5.28	
9,100.0	65.80	192.70	8,900.8	-420.5	-229.8	431.2	8.00	6.90	-4.57	
9,200.0	72.83	188.61	8,936.1	-512.4	-247.0	523.8	8.00	7.03	-4.09	
9,300.0	79.93	184.82	8,959.7	-608.8	-258.4	620.7	8.00	7.10	-3.79	
9,400.0	87.08	181.19	8,971.0	-707.9	-263.5	720.0	8.00	7.14	-3.63	
EOB @ 94.44° MD / 90.21° Inc / 179.63° Azm / 8972' TVD										
9,443.8	90.21	179.63	8,972.0	-751.7	-263.9	763.7	8.00	7.16	-3.58	
9,500.0	90.21	179.63	8,971.8	-807.9	-263.5	819.8	0.00	0.00	0.00	
9,600.0	90.21	179.63	8,971.4	-907.9	-262.8	919.7	0.00	0.00	0.00	
9,700.0	90.21	179.63	8,971.1	-1,007.9	-262.2	1,019.5	0.00	0.00	0.00	
9,800.0	90.21	179.63	8,970.7	-1,107.9	-261.5	1,119.4	0.00	0.00	0.00	
9,900.0	90.21	179.63	8,970.3	-1,207.9	-260.9	1,219.2	0.00	0.00	0.00	
10,000.0	90.21	179.63	8,970.0	-1,307.9	-260.2	1,319.1	0.00	0.00	0.00	
10,100.0	90.21	179.63	8,969.6	-1,407.9	-259.6	1,418.9	0.00	0.00	0.00	
10,200.0	90.21	179.63	8,969.2	-1,507.9	-258.9	1,518.8	0.00	0.00	0.00	
10,300.0	90.21	179.63	8,968.9	-1,607.9	-258.3	1,618.6	0.00	0.00	0.00	
10,400.0	90.21	179.63	8,968.5	-1,707.9	-257.6	1,718.4	0.00	0.00	0.00	
10,500.0	90.21	179.63	8,968.1	-1,807.9	-257.0	1,818.3	0.00	0.00	0.00	
10,600.0	90.21	179.63	8,967.8	-1,907.9	-256.4	1,918.1	0.00	0.00	0.00	
10,700.0	90.21	179.63	8,967.4	-2,007.9	-255.7	2,018.0	0.00	0.00	0.00	
10,800.0	90.21	179.63	8,967.0	-2,107.9	-255.1	2,117.8	0.00	0.00	0.00	
10,900.0	90.21	179.63	8,966.7	-2,207.9	-254.4	2,217.7	0.00	0.00	0.00	
11,000.0	90.21	179.63	8,966.3	-2,307.9	-253.8	2,317.5	0.00	0.00	0.00	
11,100.0	90.21	179.63	8,965.9	-2,407.9	-253.1	2,417.4	0.00	0.00	0.00	
11,200.0	90.21	179.63	8,965.6	-2,507.9	-252.5	2,517.2	0.00	0.00	0.00	
11,300.0	90.21	179.63	8,965.2	-2,607.9	-251.8	2,617.1	0.00	0.00	0.00	
11,400.0	90.21	179.63	8,964.8	-2,707.9	-251.2	2,716.9	0.00	0.00	0.00	
11,500.0	90.21	179.63	8,964.5	-2,807.9	-250.5	2,816.8	0.00	0.00	0.00	
11,600.0	90.21	179.63	8,964.1	-2,907.9	-249.9	2,916.6	0.00	0.00	0.00	
11,700.0	90.21	179.63	8,963.7	-3,007.9	-249.2	3,016.4	0.00	0.00	0.00	
11,800.0	90.21	179.63	8,963.4	-3,107.9	-248.6	3,116.3	0.00	0.00	0.00	
11,900.0	90.21	179.63	8,963.0	-3,207.8	-247.9	3,216.1	0.00	0.00	0.00	
12,000.0	90.21	179.63	8,962.6	-3,307.8	-247.3	3,316.0	0.00	0.00	0.00	
12,100.0	90.21	179.63	8,962.3	-3,407.8	-246.6	3,415.8	0.00	0.00	0.00	
12,200.0	90.21	179.63	8,961.9	-3,507.8	-246.0	3,515.7	0.00	0.00	0.00	
12,300.0	90.21	179.63	8,961.5	-3,607.8	-245.3	3,615.5	0.00	0.00	0.00	
12,400.0	90.21	179.63	8,961.2	-3,707.8	-244.7	3,715.4	0.00	0.00	0.00	
12,500.0	90.21	179.63	8,960.8	-3,807.8	-244.0	3,815.2	0.00	0.00	0.00	
12,600.0	90.21	179.63	8,960.4	-3,907.8	-243.4	3,915.1	0.00	0.00	0.00	
12,700.0	90.21	179.63	8,960.1	-4,007.8	-242.7	4,014.9	0.00	0.00	0.00	
12,800.0	90.21	179.63	8,959.7	-4,107.8	-242.1	4,114.7	0.00	0.00	0.00	
12,900.0	90.21	179.63	8,959.3	-4,207.8	-241.4	4,214.6	0.00	0.00	0.00	

Database:	EDM 5000 1 Single User Db	Local Co-ordinate Reference:	Well Red Hills West 16 State #2H
Company:	Conoco Phillips	TVD Reference:	WELL @ 3219.0usft (Original Well Elev)
Project:	Lea County New Mexico	MD Reference:	WELL @ 3219.0usft (Original Well Elev)
Site:	Sec 16, T26S, R32E NMPM	North Reference:	Grid
Well:	Red Hills West 16 State #2H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

Planned Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
13,000.0	90.21	179.63	8,959.0	-4,307.8	-240.8	4,314.4	0.00	0.00	0.00	
13,100.0	90.21	179.63	8,958.6	-4,407.8	-240.1	4,414.3	0.00	0.00	0.00	
13,200.0	90.21	179.63	8,958.2	-4,507.8	-239.5	4,514.1	0.00	0.00	0.00	
13,300.0	90.21	179.63	8,957.9	-4,607.8	-238.8	4,614.0	0.00	0.00	0.00	
13,400.0	90.21	179.63	8,957.5	-4,707.8	-238.2	4,713.8	0.00	0.00	0.00	
13,500.0	90.21	179.63	8,957.1	-4,807.8	-237.5	4,813.7	0.00	0.00	0.00	
13,538.1	90.21	179.63	8,957.0	-4,845.9	-237.3	4,851.7	0.00	0.00	0.00	

Design Targets										
Target Name	Dip Angle (°)	Dip Dir (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude Longitude		
- hit/miss target										
- Shape										
PBHL Red Hills West	0.00	0.00	8,957.0	-4,845.9	-237.3	377,524.88	701,623.42	32° 2' 10.540 N 103° 40' 57.626 W		
- plan hits target center										
- Point										

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
869.0	868.0	Rustler		-0.21	182.80	
965.0	964.0	Salado		-0.21	182.80	
2,769.0	2,768.0	Castile		-0.21	182.80	
4,432.0	4,431.0	Delaware Top		-0.21	182.80	
4,470.0	4,469.0	Ramsey		-0.21	182.80	
4,531.0	4,530.0	Ford Sh		-0.21	182.80	
4,544.0	4,543.0	Olds		-0.21	182.80	
5,399.0	5,398.0	Cherry Canyon		-0.21	182.80	
7,119.0	7,118.0	Brushy Canyon		-0.21	182.80	
8,279.2	8,278.0	Bone Spring Top		-0.21	182.80	
8,498.0	8,487.8	Bone Spring 1st Top		-0.21	182.80	
8,884.3	8,787.1	Bone Spring 1st Base		-0.21	182.80	
8,884.3	8,787.1	Avalon A Shale Top		-0.21	182.80	

Plan Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment	
		+N/-S (usft)	+E/-W (usft)		
8,192.3	8,192.3	0.0	0.0	Build 8°/100'	
8,663.5	8,630.3	-114.5	-96.1	EOB @ 37.70° Inc / 220° Azm / Build 8°/100'	
9,443.8	8,972.0	-751.7	-263.9	EOB @ 9444' MD / 90.21° Inc / 179.63° Azm / 8972' TVD	
13,538.1	8,957.0	-4,845.9	-237.3	TD @ 13538' MD / 8957' TVD	