



Company: ConocoPhillips
Site: Ruby Federal
Well: 101H
Project: Lea County, New Mexico (NAD 27)
Rig: Precision 194



Azimuths to Grid North
True North: -0.29°
Magnetic North: 7.11°

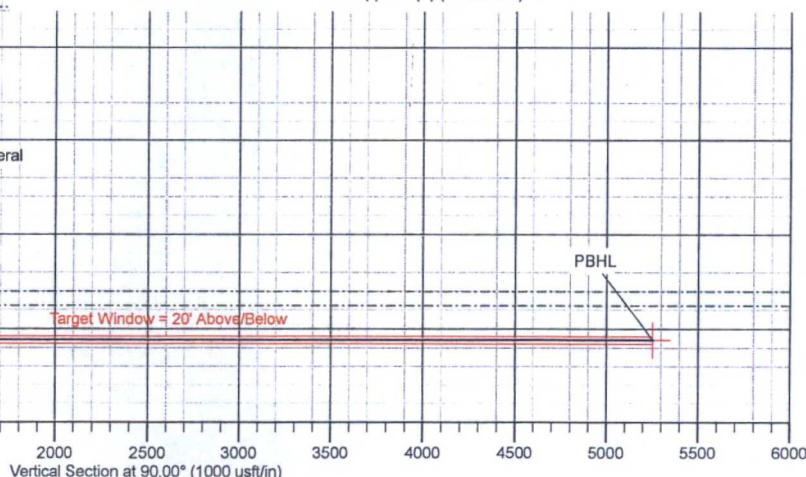
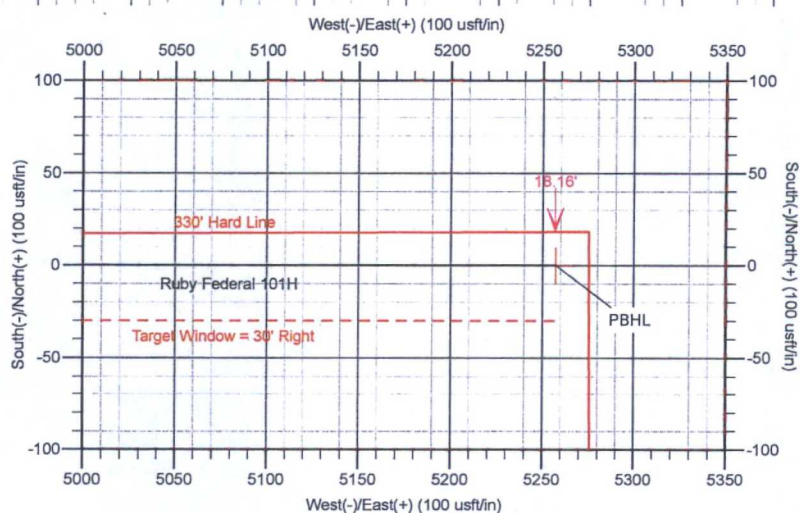
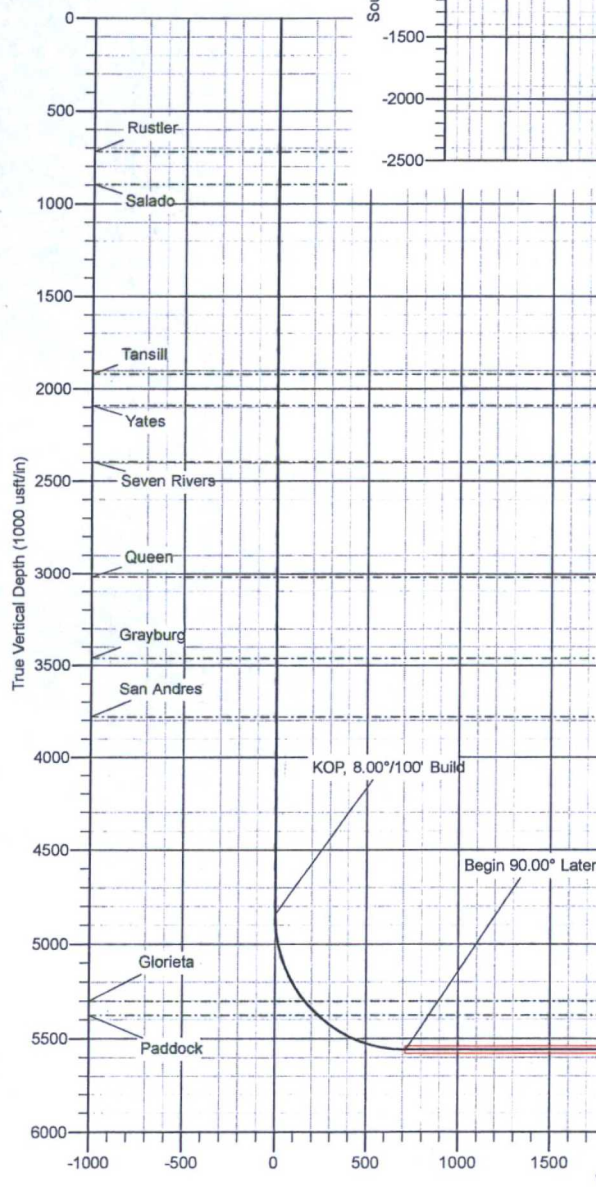
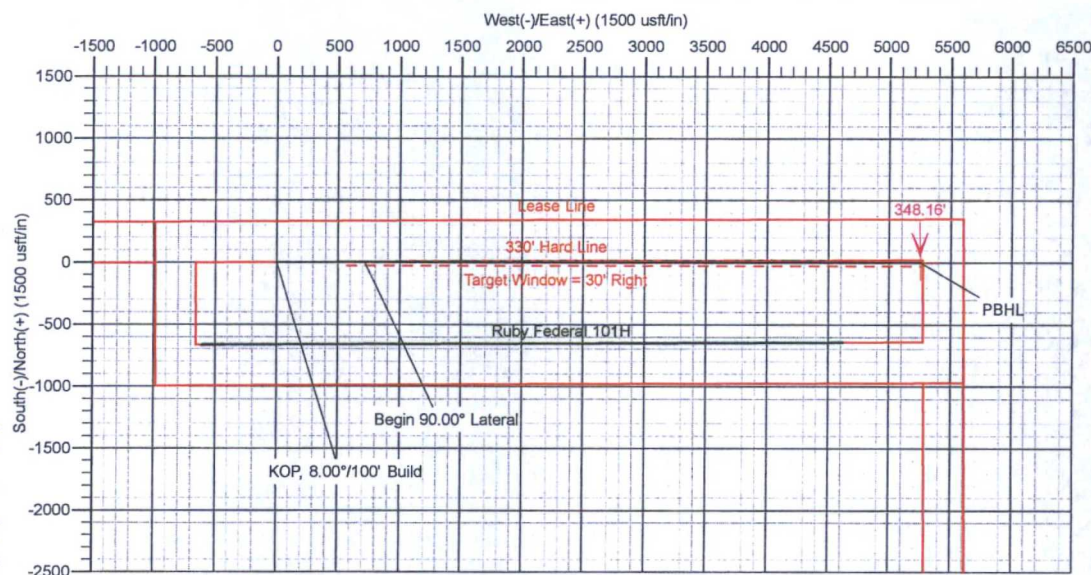
Magnetic Field
Strength: 48563.1nT
Dip Angle: 60.67°
Date: 06/16/2015
Model: BGM2015

ANNOTATIONS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Vsect	Departure	Annotation
4843.80	0.00	0.00	4843.80	0.00	0.00	0.00	0.00	KOP, 8.00°/100' Build
5968.80	90.00	90.00	5560.00	0.00	716.20	716.20	716.20	Begin 90.00° Lateral
10510.05	90.00	90.00	5560.00	0.00	5257.45	5257.45	5257.45	PBHL

US State Plane 1927 (Exact solution)
New Mexico East 3001

Created By: HLH
Date: 16:46, June 29 2015
Plan: Design #3





ConocoPhillips

Lea County, New Mexico (NAD 27)

Ruby Federal

101H

Wellbore #1

Plan: Design #3

Standard Planning Report

29 June, 2015

Database:	EDM 5000.1 Conroe DB	Local Co-ordinate Reference:	Well 101H
Company:	ConocoPhillips	TVD Reference:	WELL @ 4001.20usft (Precision 194)
Project:	Lea County, New Mexico (NAD 27)	MD Reference:	WELL @ 4001.20usft (Precision 194)
Site:	Ruby Federal	North Reference:	Grid
Well:	101H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #3		

Project	Lea County, New Mexico (NAD 27)		
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		

Well	101H					
Well Position	+N/-S	670,045.70 usft	Northing:	670,045.70 usft	Latitude:	32° 50' 27.288 N
	+E/-W	663,164.16 usft	Easting:	663,164.16 usft	Longitude:	103° 48' 7.510 W
Position Uncertainty		0.00 usft	Wellhead Elevation:	0.00 usft	Ground Level:	3,987.20 usft

Wellbore	Wellbore #1				
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Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	BGGM2015	06/16/15	7.40	60.67	48,563

Design	Design #3				
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Audit Notes:					
Version:	Phase:	PROTOTYPE	Tie On Depth:	0.00	

Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.00	0.00	0.00	90.00

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
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
4,843.80	0.00	0.00	4,843.80	0.00	0.00	0.00	0.00	0.00	0.00	
5,968.80	90.00	90.00	5,560.00	0.00	716.20	8.00	8.00	0.00	90.00	
10,510.05	90.00	90.00	5,560.00	0.00	5,257.45	0.00	0.00	0.00	0.00	PBHL v3 - Ruby Fe

Database:	EDM 5000.1 Conroe DB	Local Co-ordinate Reference:	Well 101H
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Site:	Ruby Federal	North Reference:	Grid
Well:	101H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #3		

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)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	0.00
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00
600.00	0.00	0.00	600.00	0.00	0.00	0.00	0.00	0.00	0.00
700.00	0.00	0.00	700.00	0.00	0.00	0.00	0.00	0.00	0.00
720.20	0.00	0.00	720.20	0.00	0.00	0.00	0.00	0.00	0.00
Rustler									
800.00	0.00	0.00	800.00	0.00	0.00	0.00	0.00	0.00	0.00
895.20	0.00	0.00	895.20	0.00	0.00	0.00	0.00	0.00	0.00
Salado									
900.00	0.00	0.00	900.00	0.00	0.00	0.00	0.00	0.00	0.00
1,000.00	0.00	0.00	1,000.00	0.00	0.00	0.00	0.00	0.00	0.00
1,100.00	0.00	0.00	1,100.00	0.00	0.00	0.00	0.00	0.00	0.00
1,200.00	0.00	0.00	1,200.00	0.00	0.00	0.00	0.00	0.00	0.00
1,300.00	0.00	0.00	1,300.00	0.00	0.00	0.00	0.00	0.00	0.00
1,400.00	0.00	0.00	1,400.00	0.00	0.00	0.00	0.00	0.00	0.00
1,500.00	0.00	0.00	1,500.00	0.00	0.00	0.00	0.00	0.00	0.00
1,600.00	0.00	0.00	1,600.00	0.00	0.00	0.00	0.00	0.00	0.00
1,700.00	0.00	0.00	1,700.00	0.00	0.00	0.00	0.00	0.00	0.00
1,800.00	0.00	0.00	1,800.00	0.00	0.00	0.00	0.00	0.00	0.00
1,900.00	0.00	0.00	1,900.00	0.00	0.00	0.00	0.00	0.00	0.00
1,920.20	0.00	0.00	1,920.20	0.00	0.00	0.00	0.00	0.00	0.00
Tansill									
2,000.00	0.00	0.00	2,000.00	0.00	0.00	0.00	0.00	0.00	0.00
2,090.20	0.00	0.00	2,090.20	0.00	0.00	0.00	0.00	0.00	0.00
Yates									
2,100.00	0.00	0.00	2,100.00	0.00	0.00	0.00	0.00	0.00	0.00
2,200.00	0.00	0.00	2,200.00	0.00	0.00	0.00	0.00	0.00	0.00
2,300.00	0.00	0.00	2,300.00	0.00	0.00	0.00	0.00	0.00	0.00
2,395.20	0.00	0.00	2,395.20	0.00	0.00	0.00	0.00	0.00	0.00
Seven Rivers									
2,400.00	0.00	0.00	2,400.00	0.00	0.00	0.00	0.00	0.00	0.00
2,500.00	0.00	0.00	2,500.00	0.00	0.00	0.00	0.00	0.00	0.00
2,600.00	0.00	0.00	2,600.00	0.00	0.00	0.00	0.00	0.00	0.00
2,700.00	0.00	0.00	2,700.00	0.00	0.00	0.00	0.00	0.00	0.00
2,800.00	0.00	0.00	2,800.00	0.00	0.00	0.00	0.00	0.00	0.00
2,900.00	0.00	0.00	2,900.00	0.00	0.00	0.00	0.00	0.00	0.00
3,000.00	0.00	0.00	3,000.00	0.00	0.00	0.00	0.00	0.00	0.00
3,020.20	0.00	0.00	3,020.20	0.00	0.00	0.00	0.00	0.00	0.00
Queen									
3,100.00	0.00	0.00	3,100.00	0.00	0.00	0.00	0.00	0.00	0.00
3,200.00	0.00	0.00	3,200.00	0.00	0.00	0.00	0.00	0.00	0.00
3,300.00	0.00	0.00	3,300.00	0.00	0.00	0.00	0.00	0.00	0.00
3,400.00	0.00	0.00	3,400.00	0.00	0.00	0.00	0.00	0.00	0.00
3,460.20	0.00	0.00	3,460.20	0.00	0.00	0.00	0.00	0.00	0.00
Grayburg									
3,500.00	0.00	0.00	3,500.00	0.00	0.00	0.00	0.00	0.00	0.00
3,600.00	0.00	0.00	3,600.00	0.00	0.00	0.00	0.00	0.00	0.00
3,700.00	0.00	0.00	3,700.00	0.00	0.00	0.00	0.00	0.00	0.00
3,780.20	0.00	0.00	3,780.20	0.00	0.00	0.00	0.00	0.00	0.00

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Site:	Ruby Federal	North Reference:	Grid
Well:	101H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #3		

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)
San Andres									
3,800.00	0.00	0.00	3,800.00	0.00	0.00	0.00	0.00	0.00	0.00
3,900.00	0.00	0.00	3,900.00	0.00	0.00	0.00	0.00	0.00	0.00
4,000.00	0.00	0.00	4,000.00	0.00	0.00	0.00	0.00	0.00	0.00
4,100.00	0.00	0.00	4,100.00	0.00	0.00	0.00	0.00	0.00	0.00
4,200.00	0.00	0.00	4,200.00	0.00	0.00	0.00	0.00	0.00	0.00
4,300.00	0.00	0.00	4,300.00	0.00	0.00	0.00	0.00	0.00	0.00
4,400.00	0.00	0.00	4,400.00	0.00	0.00	0.00	0.00	0.00	0.00
4,500.00	0.00	0.00	4,500.00	0.00	0.00	0.00	0.00	0.00	0.00
4,600.00	0.00	0.00	4,600.00	0.00	0.00	0.00	0.00	0.00	0.00
4,700.00	0.00	0.00	4,700.00	0.00	0.00	0.00	0.00	0.00	0.00
4,800.00	0.00	0.00	4,800.00	0.00	0.00	0.00	0.00	0.00	0.00
4,843.80	0.00	0.00	4,843.80	0.00	0.00	0.00	0.00	0.00	0.00
KOP, 8.00°/100° Build									
4,850.00	0.50	90.00	4,850.00	0.00	0.03	0.03	8.00	8.00	0.00
4,900.00	4.50	90.00	4,899.94	0.00	2.20	2.20	8.00	8.00	0.00
4,950.00	8.50	90.00	4,949.61	0.00	7.86	7.86	8.00	8.00	0.00
5,000.00	12.50	90.00	4,998.76	0.00	16.97	16.97	8.00	8.00	0.00
5,050.00	16.50	90.00	5,047.16	0.00	29.48	29.48	8.00	8.00	0.00
5,100.00	20.50	90.00	5,094.57	0.00	45.34	45.34	8.00	8.00	0.00
5,150.00	24.50	90.00	5,140.76	0.00	64.46	64.46	8.00	8.00	0.00
5,200.00	28.50	90.00	5,185.50	0.00	86.77	86.77	8.00	8.00	0.00
5,250.00	32.50	90.00	5,228.57	0.00	112.13	112.13	8.00	8.00	0.00
5,300.00	36.50	90.00	5,269.77	0.00	140.45	140.45	8.00	8.00	0.00
5,338.64	39.59	90.00	5,300.20	0.00	164.26	164.26	8.00	8.00	0.00
Glorieta									
5,350.00	40.50	90.00	5,308.90	0.00	171.56	171.56	8.00	8.00	0.00
5,400.00	44.50	90.00	5,345.75	0.00	205.33	205.33	8.00	8.00	0.00
5,442.55	47.90	90.00	5,375.20	0.00	236.04	236.04	8.00	8.00	0.00
Paddock									
5,450.00	48.50	90.00	5,380.17	0.00	241.59	241.59	8.00	8.00	0.00
5,500.00	52.50	90.00	5,411.97	0.00	280.16	280.16	8.00	8.00	0.00
5,550.00	56.50	90.00	5,441.00	0.00	320.86	320.86	8.00	8.00	0.00
5,600.00	60.50	90.00	5,467.12	0.00	363.48	363.48	8.00	8.00	0.00
5,650.00	64.50	90.00	5,490.21	0.00	407.82	407.82	8.00	8.00	0.00
5,700.00	68.50	90.00	5,510.15	0.00	453.66	453.66	8.00	8.00	0.00
5,750.00	72.50	90.00	5,526.84	0.00	500.78	500.78	8.00	8.00	0.00
5,800.00	76.50	90.00	5,540.20	0.00	548.95	548.95	8.00	8.00	0.00
5,850.00	80.50	90.00	5,550.17	0.00	597.94	597.94	8.00	8.00	0.00
5,900.00	84.50	90.00	5,556.70	0.00	647.50	647.50	8.00	8.00	0.00
5,950.00	88.50	90.00	5,559.75	0.00	697.40	697.40	8.00	8.00	0.00
5,968.80	90.00	90.00	5,560.00	0.00	716.20	716.20	8.00	8.00	0.00
Begin 90.00° Lateral									
6,000.00	90.00	90.00	5,560.00	0.00	747.39	747.39	0.00	0.00	0.00
6,100.00	90.00	90.00	5,560.00	0.00	847.39	847.39	0.00	0.00	0.00
6,200.00	90.00	90.00	5,560.00	0.00	947.39	947.39	0.00	0.00	0.00
6,300.00	90.00	90.00	5,560.00	0.00	1,047.39	1,047.39	0.00	0.00	0.00
6,400.00	90.00	90.00	5,560.00	0.00	1,147.39	1,147.39	0.00	0.00	0.00
6,500.00	90.00	90.00	5,560.00	0.00	1,247.39	1,247.39	0.00	0.00	0.00
6,600.00	90.00	90.00	5,560.00	0.00	1,347.39	1,347.39	0.00	0.00	0.00
6,700.00	90.00	90.00	5,560.00	0.00	1,447.39	1,447.39	0.00	0.00	0.00
6,800.00	90.00	90.00	5,560.00	0.00	1,547.39	1,547.39	0.00	0.00	0.00
6,900.00	90.00	90.00	5,560.00	0.00	1,647.39	1,647.39	0.00	0.00	0.00
7,000.00	90.00	90.00	5,560.00	0.00	1,747.39	1,747.39	0.00	0.00	0.00

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Well:	101H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
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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)
7,100.00	90.00	90.00	5,560.00	0.00	1,847.39	1,847.39	0.00	0.00	0.00
7,200.00	90.00	90.00	5,560.00	0.00	1,947.39	1,947.39	0.00	0.00	0.00
7,300.00	90.00	90.00	5,560.00	0.00	2,047.39	2,047.39	0.00	0.00	0.00
7,400.00	90.00	90.00	5,560.00	0.00	2,147.39	2,147.39	0.00	0.00	0.00
7,500.00	90.00	90.00	5,560.00	0.00	2,247.39	2,247.39	0.00	0.00	0.00
7,600.00	90.00	90.00	5,560.00	0.00	2,347.39	2,347.39	0.00	0.00	0.00
7,700.00	90.00	90.00	5,560.00	0.00	2,447.39	2,447.39	0.00	0.00	0.00
7,800.00	90.00	90.00	5,560.00	0.00	2,547.39	2,547.39	0.00	0.00	0.00
7,900.00	90.00	90.00	5,560.00	0.00	2,647.39	2,647.39	0.00	0.00	0.00
8,000.00	90.00	90.00	5,560.00	0.00	2,747.39	2,747.39	0.00	0.00	0.00
8,100.00	90.00	90.00	5,560.00	0.00	2,847.39	2,847.39	0.00	0.00	0.00
8,200.00	90.00	90.00	5,560.00	0.00	2,947.39	2,947.39	0.00	0.00	0.00
8,300.00	90.00	90.00	5,560.00	0.00	3,047.39	3,047.39	0.00	0.00	0.00
8,400.00	90.00	90.00	5,560.00	0.00	3,147.39	3,147.39	0.00	0.00	0.00
8,500.00	90.00	90.00	5,560.00	0.00	3,247.39	3,247.39	0.00	0.00	0.00
8,600.00	90.00	90.00	5,560.00	0.00	3,347.39	3,347.39	0.00	0.00	0.00
8,700.00	90.00	90.00	5,560.00	0.00	3,447.39	3,447.39	0.00	0.00	0.00
8,800.00	90.00	90.00	5,560.00	0.00	3,547.39	3,547.39	0.00	0.00	0.00
8,900.00	90.00	90.00	5,560.00	0.00	3,647.39	3,647.39	0.00	0.00	0.00
9,000.00	90.00	90.00	5,560.00	0.00	3,747.39	3,747.39	0.00	0.00	0.00
9,100.00	90.00	90.00	5,560.00	0.00	3,847.39	3,847.39	0.00	0.00	0.00
9,200.00	90.00	90.00	5,560.00	0.00	3,947.39	3,947.39	0.00	0.00	0.00
9,300.00	90.00	90.00	5,560.00	0.00	4,047.39	4,047.39	0.00	0.00	0.00
9,400.00	90.00	90.00	5,560.00	0.00	4,147.39	4,147.39	0.00	0.00	0.00
9,500.00	90.00	90.00	5,560.00	0.00	4,247.39	4,247.39	0.00	0.00	0.00
9,600.00	90.00	90.00	5,560.00	0.00	4,347.39	4,347.39	0.00	0.00	0.00
9,700.00	90.00	90.00	5,560.00	0.00	4,447.39	4,447.39	0.00	0.00	0.00
9,800.00	90.00	90.00	5,560.00	0.00	4,547.39	4,547.39	0.00	0.00	0.00
9,900.00	90.00	90.00	5,560.00	0.00	4,647.39	4,647.39	0.00	0.00	0.00
10,000.00	90.00	90.00	5,560.00	0.00	4,747.39	4,747.39	0.00	0.00	0.00
10,100.00	90.00	90.00	5,560.00	0.00	4,847.39	4,847.39	0.00	0.00	0.00
10,200.00	90.00	90.00	5,560.00	0.00	4,947.39	4,947.39	0.00	0.00	0.00
10,300.00	90.00	90.00	5,560.00	0.00	5,047.39	5,047.39	0.00	0.00	0.00
10,386.53	90.00	90.00	5,560.00	0.00	5,133.92	5,133.92	0.00	0.00	0.00
5 1/2"									
10,400.00	90.00	90.00	5,560.00	0.00	5,147.39	5,147.39	0.00	0.00	0.00
10,500.00	90.00	90.00	5,560.00	0.00	5,247.39	5,247.39	0.00	0.00	0.00
10,510.05	90.00	90.00	5,560.00	0.00	5,257.45	5,257.45	0.00	0.00	0.00
PBHL									

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 v3 - Ruby Fede	0.00	89.95	5,560.00	0.00	5,257.45	670,045.70	668,421.61	32° 50' 27.022 N	103° 47' 5.888 W
- plan hits target center									
- Point									

Database:	EDM 5000.1 Conroe DB	Local Co-ordinate Reference:	Well 101H
Company:	ConocoPhillips	TVD Reference:	WELL @ 4001.20usft (Precision 194)
Project:	Lea County, New Mexico (NAD 27)	MD Reference:	WELL @ 4001.20usft (Precision 194)
Site:	Ruby Federal	North Reference:	Grid
Well:	101H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #3		

Casing Points				
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")
10,386.53	5,560.00	5 1/2"	5-1/2	6

Formations					
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
720.20	720.20	Rustler		0.00	89.95
895.20	895.20	Salado		0.00	89.95
1,920.20	1,920.20	Tansill		0.00	89.95
2,090.20	2,090.20	Yates		0.00	89.95
2,395.20	2,395.20	Seven Rivers		0.00	89.95
3,020.20	3,020.20	Queen		0.00	89.95
3,460.20	3,460.20	Grayburg		0.00	89.95
3,780.20	3,780.20	San Andres		0.00	89.95
5,338.64	5,300.20	Glorieta		0.00	89.95
5,442.55	5,375.20	Paddock		0.00	89.95

Plan Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
4,843.80	4,843.80	0.00	0.00	KOP, 8.00°/100' Build
5,968.80	5,560.00	0.00	716.20	Begin 90.00° Lateral
10,510.05	5,560.00	0.00	5,257.45	PBHL