



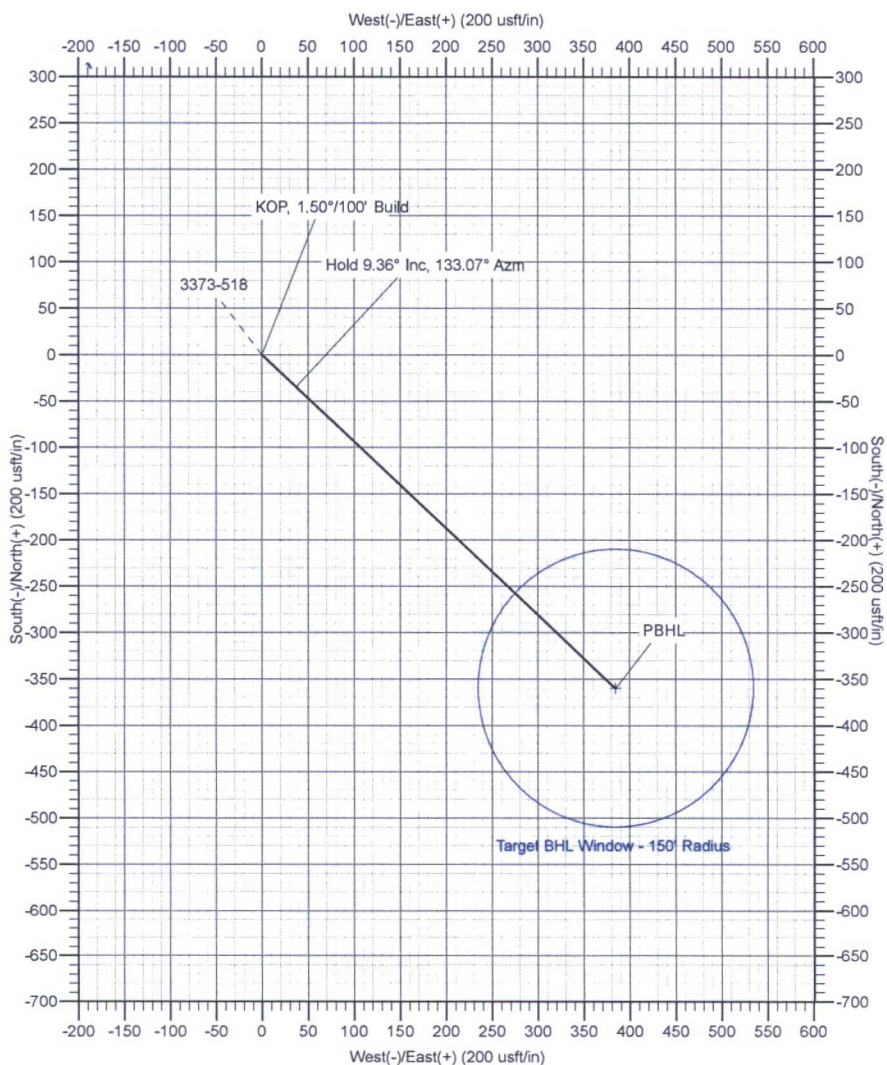
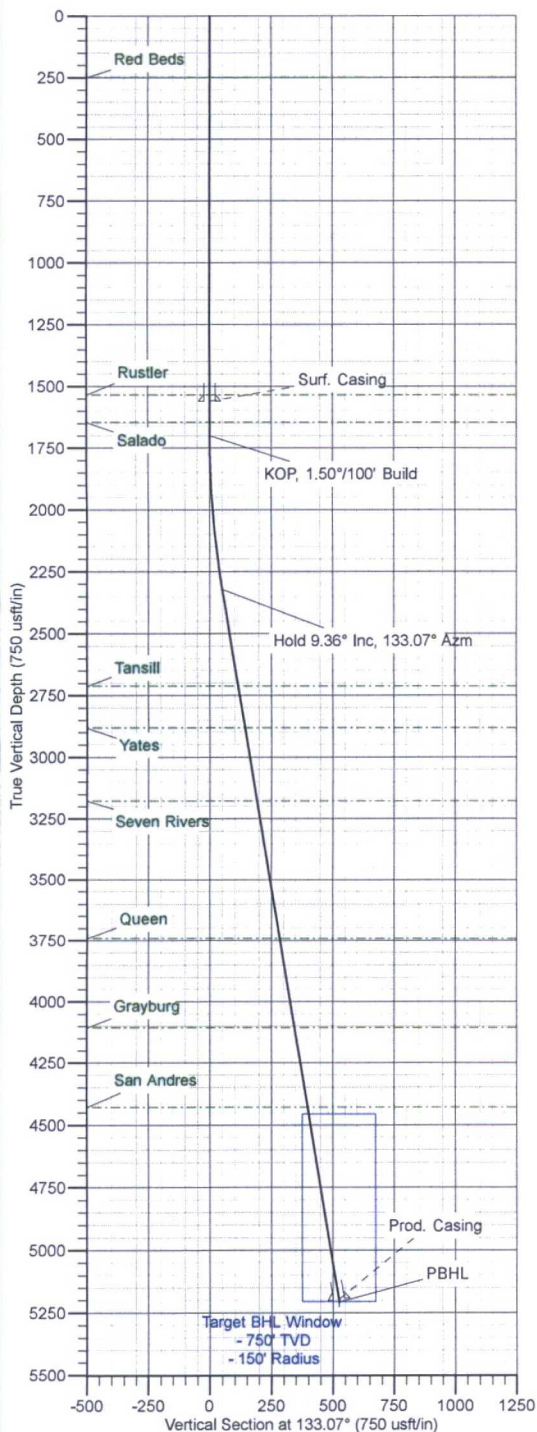
Azimuths to Grid North
 True North: -0.47°
 Magnetic North: 6.52°
 Magnetic Field
 Strength: 48388.8snT
 Dip Angle: 60.64°
 Date: 3/29/2017
 Model: BGGM2016

ANNOTATIONS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Vsect	Departure	Annotation
1700.00	0.00	0.00	1700.00	0.00	0.00	0.00	0.00	KOP, 1.50°/100' Build
2324.23	9.36	133.07	2321.46	-34.75	37.18	50.89	50.89	Hold 9.36° Inc, 133.07° Azm
5249.05	9.36	133.07	5207.30	-359.71	384.81	526.75	526.75	PBHL

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

Created By: MEB
 Date: 11:18, March 31 2017
 Plan: Design #1



The customer should only rely on this document after independently verifying all paths, targets, coordinates, lease and hard lines represented.

Any decisions made or wells drilled utilizing this or any other information supplied by MS Energy are at the sole risk and responsibility of the customer. MS Energy is not responsible for the accuracy of this schematic or the information contained herein.



ConocoPhillips

Lea County, New Mexico (NAD 27)
East Vacuum GBSA Unit
3373-518

Wellbore #1

Plan: Design #1

Standard Planning Report

30 March, 2017

HOEDS
APR 05 2017
RECEIVED

Database:	EDM 5000.14 Conroe DB	Local Co-ordinate Reference:	Well 3373-518
Company:	ConocoPhillips	TVD Reference:	WELL @ 3970.30usft (Trinidad 417)
Project:	Lea County, New Mexico (NAD 27)	MD Reference:	WELL @ 3970.30usft (Trinidad 417)
Site:	East Vacuum GBSA Unit	North Reference:	Grid
Well:	3373-518	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

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	3373-518			
Well Position	+N/-S	651,913.44 usft	Northing:	651,913.44 usft
	+E/-W	766,168.56 usft	Easting:	766,168.56 usft
Position Uncertainty		0.00 usft	Wellhead Elevation:	
			Ground Level:	3,952.80 usft

Wellbore	Wellbore #1
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Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	BGGM2016	3/29/2017	6.98	60.64	48,389

Design	Design #1
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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	133.07

Plan Survey Tool Program		Date	3/29/2017		
Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks	
1	0.00	5,248.38	Design #1 (Wellbore #1)	MWD - OWSG R1	
				MWD - OWSG R1	

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	
1,700.00	0.00	0.00	1,700.00	0.00	0.00	0.00	0.00	0.00	0.00	
2,324.23	9.36	133.07	2,321.46	-34.75	37.18	1.50	1.50	21.32	133.07	
5,249.05	9.36	133.07	5,207.30	-359.71	384.81	0.00	0.00	0.00	0.00	PBHL - EVGBSA U

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Site:	East Vacuum GBSA Unit	North Reference:	Grid
Well:	3373-518	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)
0.00	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
250.30	0.00	0.00	250.30	0.00	0.00	0.00	0.00	0.00	0.00
Red Beds									
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
800.00	0.00	0.00	800.00	0.00	0.00	0.00	0.00	0.00	0.00
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
1,536.30	0.00	0.00	1,536.30	0.00	0.00	0.00	0.00	0.00	0.00
Rustler									
1,561.30	0.00	0.00	1,561.30	0.00	0.00	0.00	0.00	0.00	0.00
Surf. Casing									
1,600.00	0.00	0.00	1,600.00	0.00	0.00	0.00	0.00	0.00	0.00
1,646.30	0.00	0.00	1,646.30	0.00	0.00	0.00	0.00	0.00	0.00
Salado									
1,700.00	0.00	0.00	1,700.00	0.00	0.00	0.00	0.00	0.00	0.00
KOP, 1.50°/100' Build									
1,800.00	1.50	133.07	1,799.99	-0.89	0.96	1.31	1.50	1.50	0.00
1,900.00	3.00	133.07	1,899.91	-3.57	3.82	5.23	1.50	1.50	0.00
2,000.00	4.50	133.07	1,999.69	-8.04	8.60	11.77	1.50	1.50	0.00
2,100.00	6.00	133.07	2,099.27	-14.29	15.29	20.92	1.50	1.50	0.00
2,200.00	7.50	133.07	2,198.57	-22.32	23.87	32.68	1.50	1.50	0.00
2,300.00	9.00	133.07	2,297.54	-32.11	34.35	47.03	1.50	1.50	0.00
2,324.23	9.36	133.07	2,321.46	-34.75	37.18	50.89	1.50	1.50	0.00
Hold 9.36° Inc, 133.07° Azm									
2,400.00	9.36	133.07	2,396.22	-43.17	46.18	63.22	0.00	0.00	0.00
2,500.00	9.36	133.07	2,494.88	-54.28	58.07	79.49	0.00	0.00	0.00
2,600.00	9.36	133.07	2,593.55	-65.39	69.96	95.76	0.00	0.00	0.00
2,700.00	9.36	133.07	2,692.22	-76.50	81.84	112.03	0.00	0.00	0.00
2,721.37	9.36	133.07	2,713.30	-78.88	84.38	115.51	0.00	0.00	0.00
Tansill									
2,800.00	9.36	133.07	2,790.89	-87.61	93.73	128.30	0.00	0.00	0.00
2,892.65	9.36	133.07	2,882.30	-97.91	104.74	143.37	0.00	0.00	0.00
Yates									
2,900.00	9.36	133.07	2,889.55	-98.72	105.61	144.57	0.00	0.00	0.00
3,000.00	9.36	133.07	2,988.22	-109.83	117.50	160.84	0.00	0.00	0.00
3,100.00	9.36	133.07	3,086.89	-120.94	129.38	177.11	0.00	0.00	0.00
3,191.63	9.36	133.07	3,177.30	-131.13	140.27	192.02	0.00	0.00	0.00
Seven Rivers									
3,200.00	9.36	133.07	3,185.56	-132.05	141.27	193.38	0.00	0.00	0.00
3,300.00	9.36	133.07	3,284.22	-143.17	153.15	209.65	0.00	0.00	0.00
3,400.00	9.36	133.07	3,382.89	-154.28	165.04	225.92	0.00	0.00	0.00
3,500.00	9.36	133.07	3,481.56	-165.39	176.93	242.19	0.00	0.00	0.00

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Site:	East Vacuum GBSA Unit	North Reference:	Grid
Well:	3373-518	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)
3,600.00	9.36	133.07	3,580.23	-176.50	188.81	258.46	0.00	0.00	0.00
3,700.00	9.36	133.07	3,678.89	-187.61	200.70	274.73	0.00	0.00	0.00
3,764.26	9.36	133.07	3,742.30	-194.75	208.34	285.18	0.00	0.00	0.00
Queen									
3,800.00	9.36	133.07	3,777.56	-198.72	212.58	291.00	0.00	0.00	0.00
3,900.00	9.36	133.07	3,876.23	-209.83	224.47	307.27	0.00	0.00	0.00
4,000.00	9.36	133.07	3,974.90	-220.94	236.35	323.54	0.00	0.00	0.00
4,100.00	9.36	133.07	4,073.56	-232.05	248.24	339.81	0.00	0.00	0.00
4,134.19	9.36	133.07	4,107.30	-235.85	252.30	345.37	0.00	0.00	0.00
Grayburg									
4,200.00	9.36	133.07	4,172.23	-243.16	260.13	356.08	0.00	0.00	0.00
4,300.00	9.36	133.07	4,270.90	-254.27	272.01	372.35	0.00	0.00	0.00
4,400.00	9.36	133.07	4,369.57	-265.38	283.90	388.62	0.00	0.00	0.00
4,461.55	9.36	133.07	4,430.30	-272.22	291.21	398.63	0.00	0.00	0.00
San Andres									
4,500.00	9.36	133.07	4,468.24	-276.49	295.78	404.89	0.00	0.00	0.00
4,600.00	9.36	133.07	4,566.90	-287.60	307.67	421.16	0.00	0.00	0.00
4,700.00	9.36	133.07	4,665.57	-298.71	319.55	437.43	0.00	0.00	0.00
4,800.00	9.36	133.07	4,764.24	-309.82	331.44	453.70	0.00	0.00	0.00
4,900.00	9.36	133.07	4,862.91	-320.93	343.32	469.97	0.00	0.00	0.00
5,000.00	9.36	133.07	4,961.57	-332.04	355.21	486.24	0.00	0.00	0.00
5,100.00	9.36	133.07	5,060.24	-343.15	367.10	502.50	0.00	0.00	0.00
5,200.00	9.36	133.07	5,158.91	-354.26	378.98	518.77	0.00	0.00	0.00
5,238.91	9.36	133.07	5,197.30	-358.58	383.61	525.11	0.00	0.00	0.00
Prod. Casing									
5,249.05	9.36	133.07	5,207.30	-359.71	384.81	526.75	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 - EVGBSA Unit	0.00	0.00	5,207.30	-359.71	384.81	651,553.73	766,553.37	32° 47' 17.549 N	103° 27' 57.532 W
- plan hits target center									
- Circle (radius 150.00)									

Casing Points

Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")
1,561.30	1,561.30	Surf. Casing	9-5/8	12-1/4
5,238.91	5,197.30	Prod. Casing	5-1/2	7-7/8

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Site:	East Vacuum GBSA Unit	North Reference:	Grid
Well:	3373-518	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

Formations

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
250.30	250.30	Red Beds			
1,536.30	1,536.30	Rustler			
1,646.30	1,646.30	Salado			
2,721.37	2,713.30	Tansill			
2,892.65	2,882.30	Yates			
3,191.63	3,177.30	Seven Rivers			
3,764.26	3,742.30	Queen			
4,134.19	4,107.30	Grayburg			
4,461.55	4,430.30	San Andres			

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
1,700.00	1,700.00	0.00	0.00	KOP, 1.50°/100' Build
2,324.23	2,321.46	-34.75	37.18	Hold 9.36° Inc, 133.07° Azm
5,249.05	5,207.30	-359.71	384.81	PBHL