



Company: ConocoPhillips
Site: Ruby Federal
Well: 100H
Project: Lea County, New Mexico (NAD 27)
Rig: Precision 194



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

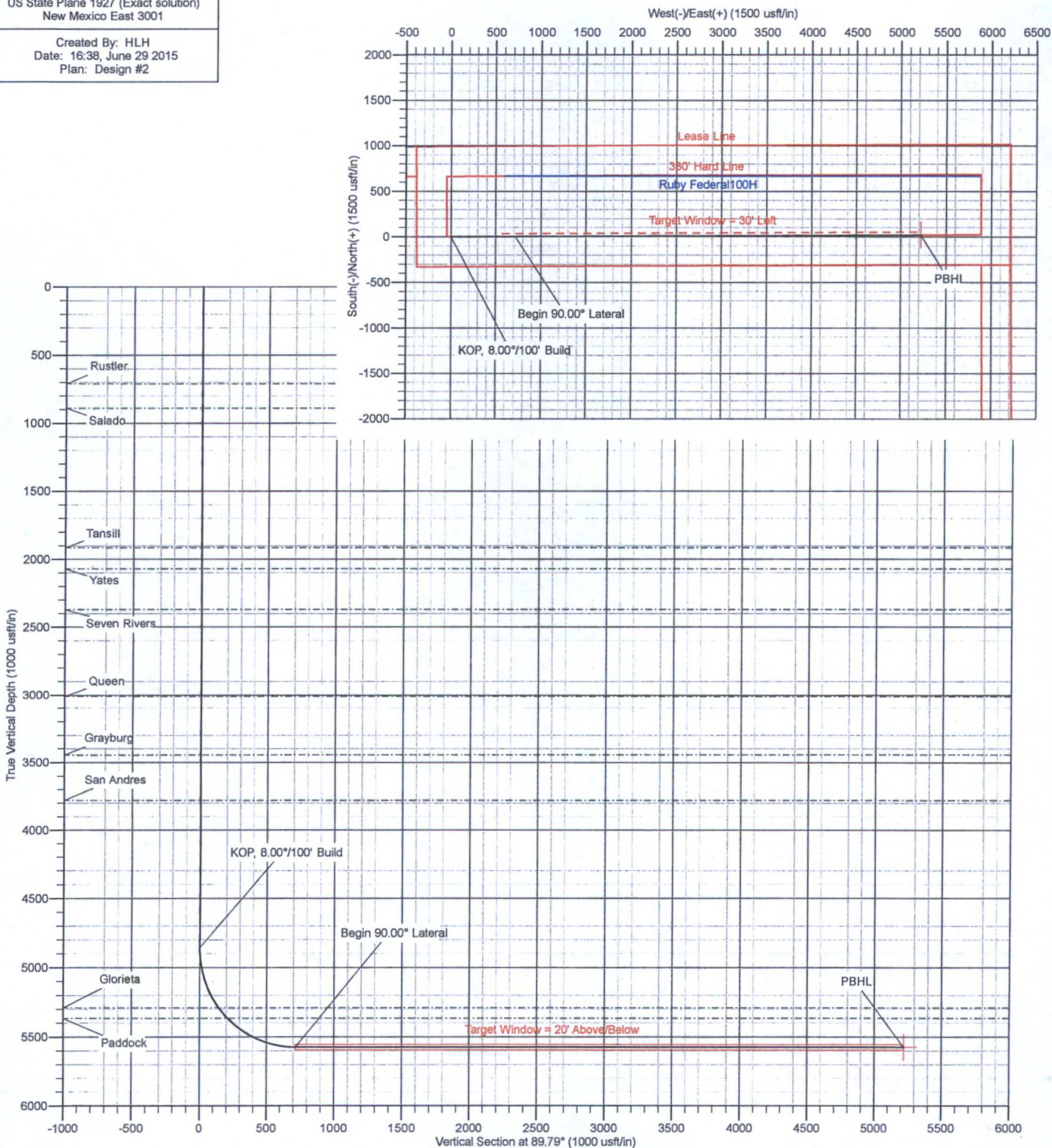
Magnetic Field
Strength: 48561.8nT
Dip Angle: 60.67°
Date: 06/16/2015
Model: BGGM2015

ANNOTATIONS

MD	Inc	Azi	TVD	+N/-S	+E/-W	V Sect	Departure	Annotation
4858.80	0.00	0.00	4858.80	0.00	0.00	0.00	0.00	KOP, 8.00°/100' Build
5983.80	90.00	89.79	5575.00	2.65	716.19	716.20	716.20	Begin 90.00° Lateral
10491.60	90.00	89.79	5575.00	19.32	5223.96	5224.00	5224.00	PBHL

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

Created By: HLH
Date: 16:38, June 29 2015
Plan: Design #2





ConocoPhillips

Lea County, New Mexico (NAD 27)

Ruby Federal

100H

Wellbore #1

Plan: Design #2

Standard Planning Report

29 June, 2015

Database:	EDM 5000.1 Conroe DB	Local Co-ordinate Reference:	Well 100H
Company:	ConocoPhillips	TVD Reference:	WELL @ 3993.40usft (Precision 194)
Project:	Lea County, New Mexico (NAD 27)	MD Reference:	WELL @ 3993.40usft (Precision 194)
Site:	Ruby Federal	North Reference:	Grid
Well:	100H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #2		

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	100H			
Well Position	+N/-S	669,382.38 usft	Northing:	669,382.38 usft
	+E/-W	662,558.79 usft	Easting:	662,558.79 usft
Position Uncertainty		0.00 usft	Wellhead Elevation:	0.00 usft
			Ground Level:	3,979.40 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	48,562

Design	Design #2			
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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	89.79

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	
4,858.80	0.00	0.00	4,858.80	0.00	0.00	0.00	0.00	0.00	0.00	
5,983.80	90.00	89.79	5,575.00	2.65	716.19	8.00	8.00	0.00	89.79	
10,491.60	90.00	89.79	5,575.00	19.32	5,223.96	0.00	0.00	0.00	0.00	PBHL v2 - Ruby Fe

Database:	EDM 5000.1 Conroe DB	Local Co-ordinate Reference:	Well 100H
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Project:	Lea County, New Mexico (NAD 27)	MD Reference:	WELL @ 3993.40usft (Precision 194)
Site:	Ruby Federal	North Reference:	Grid
Well:	100H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #2		

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
710.40	0.00	0.00	710.40	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
890.40	0.00	0.00	890.40	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
1,915.40	0.00	0.00	1,915.40	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
2,070.40	0.00	0.00	2,070.40	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
2,370.40	0.00	0.00	2,370.40	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
3,010.40	0.00	0.00	3,010.40	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
3,445.40	0.00	0.00	3,445.40	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
3,780.40	0.00	0.00	3,780.40	0.00	0.00	0.00	0.00	0.00	0.00

Database: EDM 5000.1 Conroe DB
Company: ConocoPhillips
Project: Lea County, New Mexico (NAD 27)
Site: Ruby Federal
Well: 100H
Wellbore: Wellbore #1
Design: Design #2

Local Co-ordinate Reference: Well 100H
TVL Reference: WELL @ 3993.40usft (Precision 194)
MD Reference: WELL @ 3993.40usft (Precision 194)
North Reference: Grid
Survey Calculation Method: Minimum Curvature

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
4,858.80	0.00	0.00	4,858.80	0.00	0.00	0.00	0.00	0.00	0.00
KOP, 8.00°/100' Build									
4,900.00	3.30	89.79	4,899.98	0.00	1.18	1.18	8.00	8.00	0.00
4,950.00	7.30	89.79	4,949.75	0.02	5.80	5.80	8.00	8.00	0.00
5,000.00	11.30	89.79	4,999.09	0.05	13.87	13.87	8.00	8.00	0.00
5,050.00	15.30	89.79	5,047.74	0.09	25.37	25.37	8.00	8.00	0.00
5,100.00	19.30	89.79	5,095.47	0.15	40.23	40.23	8.00	8.00	0.00
5,150.00	23.30	89.79	5,142.04	0.22	58.39	58.39	8.00	8.00	0.00
5,200.00	27.30	89.79	5,187.24	0.29	79.75	79.75	8.00	8.00	0.00
5,250.00	31.30	89.79	5,230.84	0.39	104.21	104.21	8.00	8.00	0.00
5,300.00	35.30	89.79	5,272.62	0.49	131.65	131.65	8.00	8.00	0.00
5,322.03	37.06	89.79	5,290.40	0.53	144.65	144.65	8.00	8.00	0.00
Glorieta									
5,350.00	39.30	89.79	5,312.39	0.60	161.94	161.94	8.00	8.00	0.00
5,400.00	43.30	89.79	5,349.95	0.72	194.93	194.93	8.00	8.00	0.00
5,421.54	45.02	89.79	5,365.40	0.78	209.94	209.94	8.00	8.00	0.00
Paddock									
5,450.00	47.30	89.79	5,385.11	0.85	230.46	230.46	8.00	8.00	0.00
5,500.00	51.30	89.79	5,417.71	0.99	268.36	268.36	8.00	8.00	0.00
5,550.00	55.30	89.79	5,447.59	1.14	308.44	308.44	8.00	8.00	0.00
5,600.00	59.30	89.79	5,474.60	1.30	350.50	350.50	8.00	8.00	0.00
5,650.00	63.30	89.79	5,498.61	1.46	394.35	394.35	8.00	8.00	0.00
5,700.00	67.30	89.79	5,519.50	1.63	439.76	439.76	8.00	8.00	0.00
5,750.00	71.30	89.79	5,537.18	1.80	486.52	486.53	8.00	8.00	0.00
5,800.00	75.30	89.79	5,551.54	1.98	534.40	534.41	8.00	8.00	0.00
5,850.00	79.30	89.79	5,562.54	2.16	583.17	583.17	8.00	8.00	0.00
5,900.00	83.30	89.79	5,570.10	2.34	632.58	632.59	8.00	8.00	0.00
5,950.00	87.30	89.79	5,574.20	2.52	682.40	682.41	8.00	8.00	0.00
5,983.80	90.00	89.79	5,575.00	2.65	716.19	716.20	8.00	8.00	0.00
Begin 90.00° Lateral									
6,000.00	90.00	89.79	5,575.00	2.71	732.39	732.39	0.00	0.00	0.00
6,100.00	90.00	89.79	5,575.00	3.08	832.39	832.39	0.00	0.00	0.00
6,200.00	90.00	89.79	5,575.00	3.45	932.39	932.39	0.00	0.00	0.00
6,300.00	90.00	89.79	5,575.00	3.82	1,032.39	1,032.39	0.00	0.00	0.00
6,400.00	90.00	89.79	5,575.00	4.19	1,132.39	1,132.39	0.00	0.00	0.00
6,500.00	90.00	89.79	5,575.00	4.56	1,232.39	1,232.39	0.00	0.00	0.00
6,600.00	90.00	89.79	5,575.00	4.93	1,332.39	1,332.39	0.00	0.00	0.00
6,700.00	90.00	89.79	5,575.00	5.30	1,432.38	1,432.39	0.00	0.00	0.00
6,800.00	90.00	89.79	5,575.00	5.67	1,532.38	1,532.39	0.00	0.00	0.00
6,900.00	90.00	89.79	5,575.00	6.04	1,632.38	1,632.39	0.00	0.00	0.00
7,000.00	90.00	89.79	5,575.00	6.41	1,732.38	1,732.39	0.00	0.00	0.00
7,100.00	90.00	89.79	5,575.00	6.78	1,832.38	1,832.39	0.00	0.00	0.00

Database:	EDM 5000.1 Conroe DB	Local Co-ordinate Reference:	Well 100H
Company:	ConocoPhillips	TVD Reference:	WELL @ 3993.40usft (Precision 194)
Project:	Lea County, New Mexico (NAD 27)	MD Reference:	WELL @ 3993.40usft (Precision 194)
Site:	Ruby Federal	North Reference:	Grid
Well:	100H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #2		

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)
7,200.00	90.00	89.79	5,575.00	7.15	1,932.38	1,932.39	0.00	0.00	0.00
7,300.00	90.00	89.79	5,575.00	7.52	2,032.38	2,032.39	0.00	0.00	0.00
7,400.00	90.00	89.79	5,575.00	7.89	2,132.38	2,132.39	0.00	0.00	0.00
7,500.00	90.00	89.79	5,575.00	8.26	2,232.38	2,232.39	0.00	0.00	0.00
7,600.00	90.00	89.79	5,575.00	8.63	2,332.38	2,332.39	0.00	0.00	0.00
7,700.00	90.00	89.79	5,575.00	9.00	2,432.38	2,432.39	0.00	0.00	0.00
7,800.00	90.00	89.79	5,575.00	9.37	2,532.38	2,532.39	0.00	0.00	0.00
7,900.00	90.00	89.79	5,575.00	9.74	2,632.38	2,632.39	0.00	0.00	0.00
8,000.00	90.00	89.79	5,575.00	10.11	2,732.38	2,732.39	0.00	0.00	0.00
8,100.00	90.00	89.79	5,575.00	10.48	2,832.38	2,832.39	0.00	0.00	0.00
8,200.00	90.00	89.79	5,575.00	10.84	2,932.37	2,932.39	0.00	0.00	0.00
8,300.00	90.00	89.79	5,575.00	11.21	3,032.37	3,032.39	0.00	0.00	0.00
8,400.00	90.00	89.79	5,575.00	11.58	3,132.37	3,132.39	0.00	0.00	0.00
8,500.00	90.00	89.79	5,575.00	11.95	3,232.37	3,232.39	0.00	0.00	0.00
8,600.00	90.00	89.79	5,575.00	12.32	3,332.37	3,332.39	0.00	0.00	0.00
8,700.00	90.00	89.79	5,575.00	12.69	3,432.37	3,432.39	0.00	0.00	0.00
8,800.00	90.00	89.79	5,575.00	13.06	3,532.37	3,532.39	0.00	0.00	0.00
8,900.00	90.00	89.79	5,575.00	13.43	3,632.37	3,632.39	0.00	0.00	0.00
9,000.00	90.00	89.79	5,575.00	13.80	3,732.37	3,732.39	0.00	0.00	0.00
9,100.00	90.00	89.79	5,575.00	14.17	3,832.37	3,832.39	0.00	0.00	0.00
9,200.00	90.00	89.79	5,575.00	14.54	3,932.37	3,932.39	0.00	0.00	0.00
9,300.00	90.00	89.79	5,575.00	14.91	4,032.37	4,032.39	0.00	0.00	0.00
9,400.00	90.00	89.79	5,575.00	15.28	4,132.37	4,132.39	0.00	0.00	0.00
9,500.00	90.00	89.79	5,575.00	15.65	4,232.37	4,232.39	0.00	0.00	0.00
9,600.00	90.00	89.79	5,575.00	16.02	4,332.36	4,332.39	0.00	0.00	0.00
9,700.00	90.00	89.79	5,575.00	16.39	4,432.36	4,432.39	0.00	0.00	0.00
9,800.00	90.00	89.79	5,575.00	16.76	4,532.36	4,532.39	0.00	0.00	0.00
9,900.00	90.00	89.79	5,575.00	17.13	4,632.36	4,632.39	0.00	0.00	0.00
10,000.00	90.00	89.79	5,575.00	17.50	4,732.36	4,732.39	0.00	0.00	0.00
10,100.00	90.00	89.79	5,575.00	17.87	4,832.36	4,832.39	0.00	0.00	0.00
10,200.00	90.00	89.79	5,575.00	18.24	4,932.36	4,932.39	0.00	0.00	0.00
10,300.00	90.00	89.79	5,575.00	18.61	5,032.36	5,032.39	0.00	0.00	0.00
10,400.00	90.00	89.79	5,575.00	18.98	5,132.36	5,132.39	0.00	0.00	0.00
10,491.60	90.00	89.79	5,575.00	19.32	5,223.96	5,223.99	0.00	0.00	0.00
PBHL - 5 1/2"									

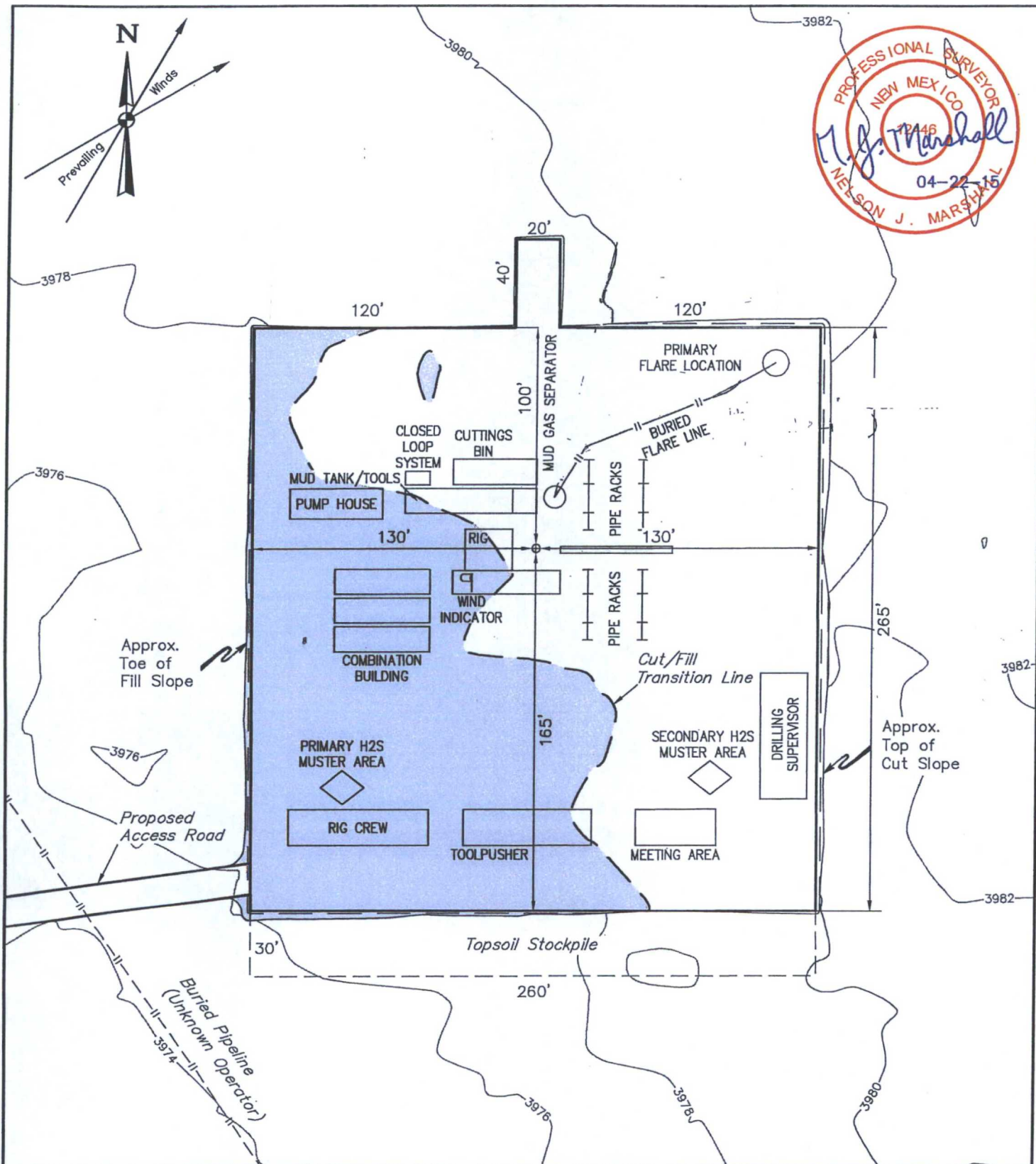
Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
PBHL v2 - Ruby Fede	0.00	89.79	5,575.00	19.32	5,223.96	669,401.70	667,782.75	32° 50' 20.683 N	103° 47' 13.415 W
- hit/miss target									
- Shape									
- plan hits target center									
- Rectangle (sides W0.00 H4,651.04 D40.00)									

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")	
10,491.60	5,575.00	5 1/2"	5-1/2	6	

Database:	EDM 5000.1 Conroe DB	Local Co-ordinate Reference:	Well 100H
Company:	ConocoPhillips	TVD Reference:	WELL @ 3993.40usft (Precision 194)
Project:	Lea County, New Mexico (NAD 27)	MD Reference:	WELL @ 3993.40usft (Precision 194)
Site:	Ruby Federal	North Reference:	Grid
Well:	100H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #2		

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
710.40	710.40	Rustler		0.00	89.79	
890.40	890.40	Salado		0.00	89.79	
1,915.40	1,915.40	Tansill		0.00	89.79	
2,070.40	2,070.40	Yates		0.00	89.79	
2,370.40	2,370.40	Seven Rivers		0.00	89.79	
3,010.40	3,010.40	Queen		0.00	89.79	
3,445.40	3,445.40	Grayburg		0.00	89.79	
3,780.40	3,780.40	San Andres		0.00	89.79	
5,322.03	5,290.40	Glorieta		0.00	89.79	
5,421.54	5,365.40	Paddock		0.00	89.79	

Plan Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
4,858.80	4,858.80	0.00	0.00	KOP, 8.00°/100' Build
5,983.80	5,575.00	2.65	716.19	Begin 90.00° Lateral
10,491.60	5,575.00	19.32	5,223.96	PBHL



NOTES:

- Flare pit is to be located a min. of 160' from the wellhead.
- Contours shown at 2' intervals.

ConocoPhillips Company

**RUBY FEDERAL 100H
SECTION 18, T17S, R32E, N.M.P.M.
990' FNL 2260' FEL
LEA COUNTY, NEW MEXICO**

DRAWN BY: T.E.

DATE DRAWN: 04-17-15

SCALE: 1" = 60'

REVISED: 00-00-00

TYPICAL RIG LAYOUT

FIGURE #3



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