

Results of Directional Survey

DD

API number:	30-025-41012		
OGRID:		Operator:	CONOCOPHILLIPS COMPANY
		Property:	RUBY FEDERAL # 16

surface	ULSTR:	K	17	T	17S	R	32E
				2260	FSL	1980	FWL

BH Loc	ULSTR:	K	17	T	17S	R	32E
6969	MD	6953.1	TVD	2332	FSL	1616	FWL

Top Perf/OH	ULSTR:	K	17	T	17S	R	32E
5430	MD	5417.5	TVD	2293	FSL	1709	FWL

Bot Perf/OH	ULSTR:	K	17	T	17S	R	32E
6562	MD	6546.6	TVD	2323	FSL	1633	FWL

	MD	N/S	E/W	VD
	5341	32.01	-265.12	5328.72
TOP PERFS/OH	5430	33.21	-271.21	5417.51
	5430	33.21	-271.21	5417.51
	6505	61.87	-343.50	6489.67
BOT PERFS/OH	6562	63.24	-346.64	6546.57
	6595	64.04	-348.46	6579.51

NEXT TO LAST	6910	71.08	-362.47	6894.11
LAST READING	6969	72.27	-364.39	6953.07
TD	6969	72.27	-364.39	6953.07

Surface Location	2260	FS	1980	FW
Projected BHL	2332	FS	1616	FW
Location of				
Top Perfs/OH	2293	FS	1709	FW
Bottom Perfs/OH	2323	FS	1633	FW

SUMMARY of Subsurface Locations

Surface Location	K-17-17S-32E	2260	FS	1980	FW	Vert. Depth
Top Perfs/OH	K-17-17S-32E	2293	FS	1709	FW	5417.51
Bottom Perfs/OH	K-17-17S-32E	2323	FS	1633	FW	6546.57
Projected TD	K-17-17S-32E	2332	FS	1616	FW	6953.07

DEC 02 2013



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BlueStar MWD, LP performed a MWD survey for ConocoPhillips' Ruby Federal 16, located in Lea County, NM. The API number is: 30-025-41012. The surveys were taken from 862 MD to 6910 MD and ranged over the dates from 15-June-13 to 19-June-13 and are certified as being true and correct.

A handwritten signature in black ink, appearing to read "Greg Nazzal".

Certification by Greg Nazzal
President

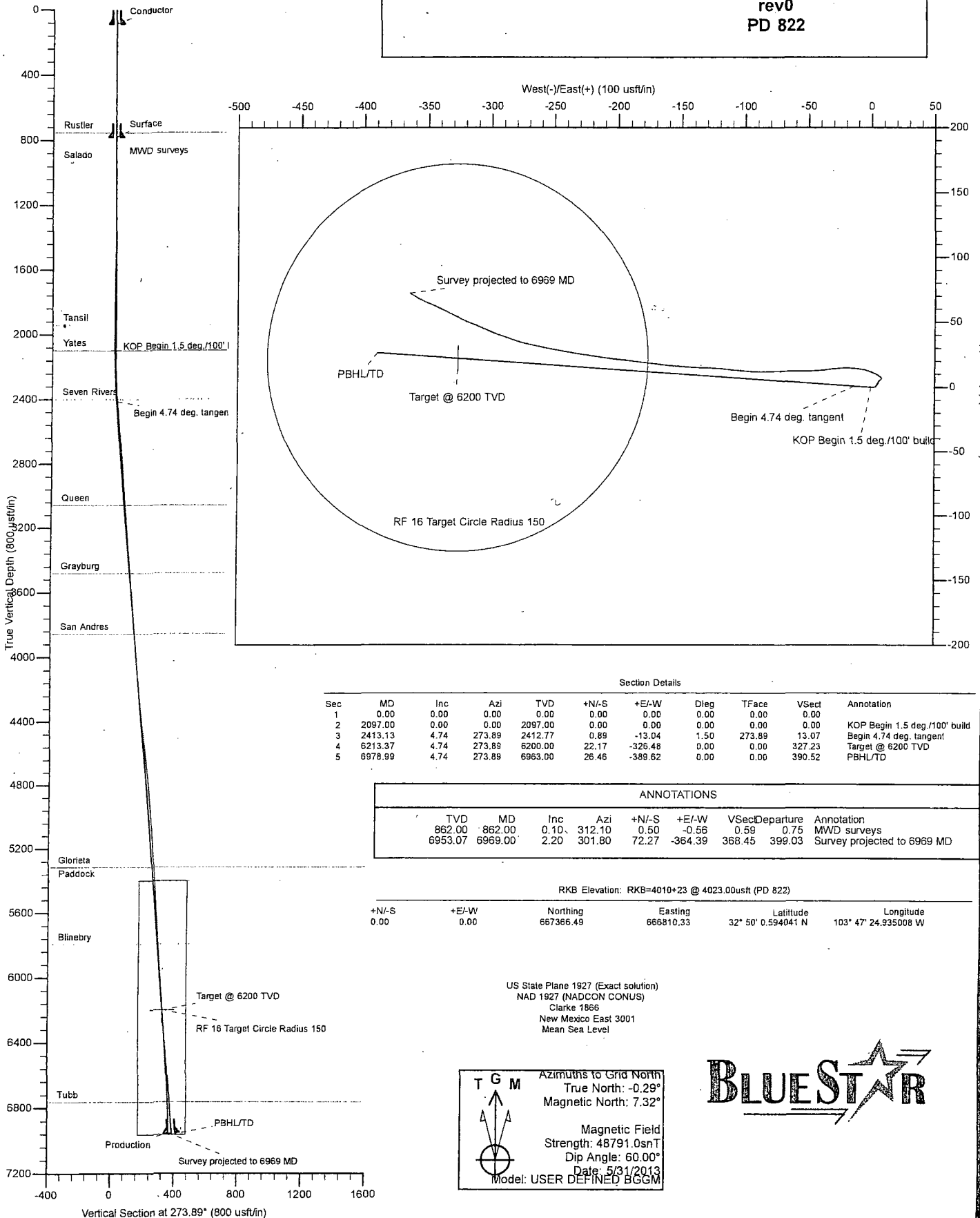
HOBBS OCD

OCT 03 2013

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ConocoPhillips
Lea County, New Mexico
Ruby Federal
Ruby Federal 16
rev0
PD 822





ConocoPhillips

Lea County, New Mexico

Ruby Federal

Ruby Federal 16

Original Hole

Design: Surveys Original Hole

Standard Survey Report

19 July, 2013

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OCT 03 2013

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Company:	ConocoPhillips	Local Co-ordinate Reference:	Well Ruby Federal 16
Project:	Lea County, New Mexico	TVD Reference:	RKB=4010+23 @ 4023.00usft (PD 822)
Site:	Ruby Federal	MD Reference:	RKB=4010+23 @ 4023.00usft (PD 822)
Well:	Ruby Federal 16	North Reference:	Grid
Wellbore:	Original Hole	Survey Calculation Method:	Minimum Curvature
Design:	Surveys Original Hole	Database:	EDM 5000.1 Ddatabase

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:		Ruby Federal			
Site Position:		Northing:	665,437.81 usft	Latitude:	32° 49' 41.500374 N
From:	Map	Easting:	666,996.38 usft	Longitude:	103° 47' 22.870781 W
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.29 °

Well:	Ruby Federal 16					
Well Position	+N-S	0.00 usft	Northing:	667,366.49 usft	Latitude:	32° 50' 0.594041 N
	+E-W	0.00 usft	Easting:	666,810.33 usft	Longitude:	103° 47' 24.935008 W
Position Uncertainty		0.00 usft	Wellhead Elevation:	usft	Ground Level:	4,010.00 usft

Wellbore	Original Hole				
Magnetics	Model Name	Sample Date	Declination	Dip Angle	Field Strength
			(°)	(°)	(nT)
	User Defined	5/31/2013	7.61	60.00	48,791

Design:	Surveys Original Hole				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD)	+N-S	+E-W	Direction	
	(usft)	(usft)	(usft)	(°)	
	0.00	0.00	0.00	273.88	

Survey Program		Date	7/19/2013		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
862.00	6,969.00	MWD (Original Hole)	MWD	MWD - Standard	

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
862.00	0.10	312.10	862.00	0.50	-0.56	0.59	0.01	0.01	0.00
MWD surveys									
951.00	0.20	62.40	951.00	0.63	-0.48	0.52	0.28	0.11	123.93
1,040.00	0.10	168.40	1,040.00	0.62	-0.32	0.37	0.28	-0.11	119.10
1,130.00	0.30	100.20	1,130.00	0.51	-0.08	0.11	0.31	0.22	-75.78
1,220.00	0.50	121.70	1,220.00	0.26	0.49	-0.47	0.27	0.22	23.89
1,310.00	0.80	95.10	1,309.99	0.00	1.45	-1.45	0.46	0.33	-29.56
1,399.00	1.00	84.30	1,398.98	0.02	2.84	-2.83	0.29	0.22	-12.13
1,488.00	0.90	27.90	1,487.97	0.71	3.94	-3.88	1.01	-0.11	-63.37
1,578.00	1.30	32.50	1,577.95	2.20	4.82	-4.66	0.45	0.44	5.11

Company:	ConocoPhillips	Local Co-ordinate Reference:	Well Ruby Federal 16
Project:	Lea County, New Mexico	TVD Reference:	RKB=4010+23 @ 4023.00usft (PD 822)
Site:	Ruby Federal	MD Reference:	RKB=4010+23 @ 4023.00usft (PD 822)
Well:	Ruby Federal 16	North Reference:	Grid
Wellbore:	Original Hole	Survey Calculation Method:	Minimum Curvature
Design:	Surveys Original Hole	Database:	EDM 5000.1 Ddatabase

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)	
1,668.00	0.70	14.10	1,667.94	3.59	5.50	-5.25	0.75	-0.67	-20.44	
1,757.00	0.70	53.30	1,756.93	4.44	6.07	-5.76	0.53	0.00	44.04	
1,847.00	0.90	35.10	1,846.92	5.35	6.92	-6.54	0.36	0.22	-20.22	
1,937.00	1.00	63.31	1,936.91	6.28	8.03	-7.58	0.53	0.11	31.34	
2,026.00	0.70	333.40	2,025.91	7.12	8.48	-7.98	1.37	-0.34	-101.02	
2,115.00	1.60	304.00	2,114.89	8.30	7.20	-6.62	1.18	1.01	-33.03	
2,205.00	2.30	299.90	2,204.83	9.90	4.60	-3.91	0.79	0.78	-4.56	
2,295.00	3.20	293.10	2,294.73	11.79	0.72	0.08	1.06	1.00	-7.56	
2,384.00	4.00	282.40	2,383.55	13.43	-4.60	5.50	1.17	0.90	-12.02	
2,474.00	4.40	278.60	2,473.31	14.62	-11.08	12.04	0.54	0.44	-4.22	
2,563.00	4.70	268.00	2,562.03	15.00	-18.10	19.07	1.00	0.34	-11.91	
2,653.00	4.10	267.50	2,651.77	14.73	-25.00	25.94	0.67	-0.67	-0.56	
2,743.00	4.40	261.10	2,741.52	14.06	-31.62	32.50	0.62	0.33	-7.11	
2,832.00	5.40	264.90	2,830.20	13.16	-39.17	39.97	1.18	1.12	4.27	
2,922.00	4.50	267.80	2,919.86	12.65	-46.91	47.66	1.04	-1.00	3.22	
3,011.00	4.70	269.90	3,008.57	12.51	-54.05	54.77	0.29	0.22	2.36	
3,101.00	5.40	268.70	3,098.22	12.40	-61.97	62.67	0.79	0.78	-1.33	
3,191.00	6.00	269.70	3,187.78	12.28	-70.91	71.57	0.68	0.67	1.11	
3,280.00	5.00	267.10	3,276.37	12.06	-79.43	80.07	1.16	-1.12	-2.92	
3,370.00	5.10	269.90	3,366.02	11.86	-87.35	87.95	0.30	0.11	3.11	
3,459.00	5.10	274.90	3,454.67	12.19	-95.25	95.85	0.50	0.00	5.62	
3,549.00	5.10	273.60	3,544.31	12.78	-103.22	103.85	0.13	0.00	-1.44	
3,639.00	5.10	276.70	3,633.95	13.50	-111.19	111.85	0.31	0.00	3.44	
3,728.00	5.10	276.50	3,722.60	14.41	-119.05	119.75	0.02	0.00	-0.22	
3,818.00	5.00	272.00	3,812.25	15.00	-126.94	127.67	0.45	-0.11	-5.00	
3,907.00	5.00	270.60	3,900.91	15.17	-134.70	135.41	0.14	0.00	-1.57	
3,997.00	5.00	274.90	3,990.57	15.55	-142.53	143.25	0.42	0.00	4.78	
4,087.00	4.70	274.40	4,080.25	16.17	-150.11	150.86	0.34	-0.33	-0.56	
4,176.00	4.70	273.40	4,168.95	16.66	-157.39	158.15	0.09	0.00	-1.12	
4,266.00	6.20	277.50	4,258.54	17.52	-165.88	166.69	1.72	1.67	4.56	
4,355.00	6.10	276.00	4,347.03	18.64	-175.35	176.21	0.21	-0.11	-1.69	
4,445.00	6.00	277.90	4,436.53	19.78	-184.77	185.68	0.25	-0.11	2.11	
4,535.00	6.00	276.30	4,526.03	20.95	-194.10	195.07	0.19	0.00	-1.78	
4,624.00	6.10	275.10	4,614.54	21.88	-203.44	204.45	0.18	0.11	-1.35	
4,714.00	6.10	279.10	4,704.03	23.06	-212.92	213.99	0.47	0.00	4.44	
4,803.00	6.10	278.10	4,792.52	24.47	-222.27	223.42	0.12	0.00	-1.12	
4,893.00	5.40	279.10	4,882.07	25.82	-231.19	232.40	0.79	-0.78	1.11	
4,982.00	5.10	280.00	4,970.70	27.17	-239.22	240.51	0.35	-0.34	1.01	
5,072.00	4.00	277.80	5,060.41	28.29	-246.27	247.62	1.24	-1.22	-2.44	
5,162.00	4.10	280.00	5,150.19	29.27	-252.55	253.95	0.21	0.11	2.44	
5,251.00	4.20	283.40	5,238.96	30.58	-258.85	260.33	0.30	0.11	3.82	
5,341.00	4.00	282.30	5,328.72	32.01	-265.12	266.68	0.24	-0.22	-1.22	
5,430.00	4.00	280.00	5,417.51	33.21	-271.21	272.84	0.18	0.00	-2.58	

Company: ConocoPhillips
 Project: Lea County, New Mexico
 Site: Ruby Federal
 Well: Ruby Federal 16
 Wellbore: Original Hole
 Design: Surveys Original Hole

Local Co-ordinate Reference: Well Ruby Federal 16
 TVD Reference: RKB=4010+23 @ 4023.00usft (PD 822)
 MD Reference: RKB=4010+23 @ 4023.00usft (PD 822)
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature
 Database: EDM 5000.1 Ddatabase

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)
5,520.00	4.00	286.30	5,507.29	34.64	-277.32	279.02	0.49	0.00	7.00
5,610.00	4.20	289.20	5,597.06	36.60	-283.44	285.27	0.32	0.22	3.22
5,699.00	4.40	287.90	5,685.81	38.72	-289.77	291.72	0.25	0.22	-1.46
5,789.00	4.20	290.00	5,775.56	40.91	-296.15	298.24	0.28	-0.22	2.33
5,879.00	4.30	293.00	5,865.31	43.36	-302.35	304.59	0.27	0.11	3.33
5,968.00	4.30	293.80	5,954.06	46.01	-308.48	310.88	0.07	0.00	0.90
6,058.00	4.30	289.60	6,043.80	48.50	-314.74	317.30	0.35	0.00	-4.67
6,148.00	4.20	294.80	6,133.56	51.02	-320.91	323.63	0.44	-0.11	5.78
6,238.00	4.20	296.70	6,223.32	53.88	-326.85	329.75	0.15	0.00	2.11
6,327.00	4.10	297.00	6,312.08	56.79	-332.60	335.68	0.11	-0.11	0.34
6,416.00	3.90	294.50	6,400.87	59.49	-338.19	341.44	0.30	-0.22	-2.81
6,505.00	3.60	293.80	6,489.67	61.87	-343.50	346.90	0.34	-0.34	-0.79
6,595.00	3.30	293.50	6,579.51	64.04	-348.46	351.99	0.33	-0.33	-0.33
6,684.00	3.30	292.30	6,668.36	66.04	-353.18	356.83	0.08	0.00	-1.35
6,774.00	2.80	299.60	6,758.24	68.11	-357.48	361.27	0.70	-0.56	8.11
6,863.00	2.30	301.50	6,847.15	70.11	-360.90	364.81	0.57	-0.56	2.13
6,910.00	2.20	301.80	6,894.11	71.08	-362.47	366.45	0.21	-0.21	0.64
6,969.00	2.20	301.80	6,953.07	72.27	-364.39	368.45	0.00	0.00	0.00

Survey projected to 6969 MD

Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Comment
862.00	862.00	0.50	-0.56	MWD surveys
6,969.00	6,953.07	72.27	-364.39	Survey projected to 6969 MD

Checked By: _____ Approved By: _____ Date: _____