

Results of Directional Survey

DD

API number:	30-025-41019			
OGRID:		Operator:	CONOCOPHILLIPS COMPANY	
		Property:	RUBY FEDERAL	# 51

surface	ULSTR:	N	17	T 17S	R 32E
				330 FSL	2155 FWL

BH Loc	ULSTR:	N	17	T 17S	R 32E
6999 MD		6963.4	TVD	333 FSL	1584 FWL

Top Perf/OH	ULSTR:	N	17	T 17S	R 32E
5405 MD		5378.9	TVD	334 FSL	1757 FWL

Bot Perf/OH	ULSTR:	N	17	T 17S	R 32E
6750 MD		6715.3	TVD	334 FSL	1606 FWL

	MD	N/S	E/W	VD
	5387	3.83	-395.61	5361.04
TOP PERFS/OH	5405	3.74	-397.80	5378.90
	5432	3.61	-401.09	5405.70
	6730	3.93	-547.30	6695.36
BOT PERFS/OH	6750	3.90	-549.11	6715.28
	6819	3.78	-555.36	6783.99

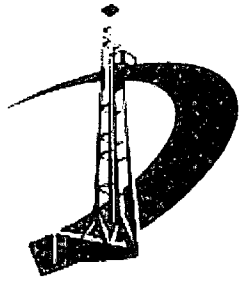
NEXT TO LAST	6954	3.19	-566.76	6918.51
LAST READING	6999	3.02	-570.52	6963.35
TD	6999	3.02	-570.52	6963.35

Surface Location	330	FS	2155	FW
Projected BHL	333	FS	1584	FW
Location of				
Top Perfs/OH	334	FS	1757	FW
Bottom Perfs/OH	334	FS	1606	FW

SUMMARY of Subsurface Locations

Surface Location	N-17-17S-32E	330	FS	2155	FW	Vert. Depth
Top Perfs/OH	N-17-17S-32E	334	FS	1757	FW	5378.90
Bottom Perfs/OH	N-17-17S-32E	334	FS	1606	FW	6715.28
Projected TD	N-17-17S-32E	333	FS	1584	FW	6963.35

SEP 05 2013



PRODIRECTIONAL

P.O. Box 750, Conroe, TX 77305 Phone: 936-441-7266

ConocoPhillips

Ruby Federal No. 51
Lea County, NM

HOBBS OCD

JUN 11 2013

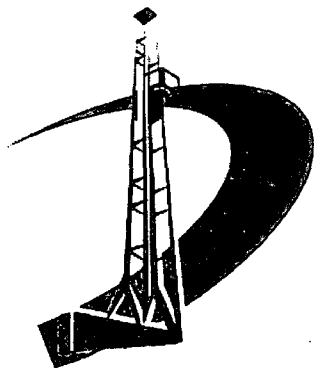
RECEIVED

May 3, 2013

Job Number LNM 5103213

Survey Completion Report

(COPY)



PRODIRECTIONAL

P.O. Box 750, Conroe, TX 77305 Phone: 936-441-7266 Fax: 936-441-7268

May 3, 2013

ConocoPhillips

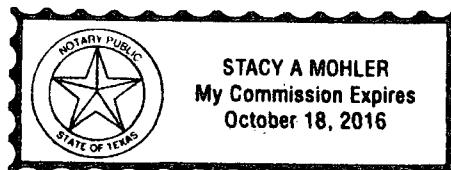
Ruby Federal No. 51
Lea County, NM

This is to certify surveys from 785' MD to a depth of 6,999' MD are true and correct MWD surveys. These surveys were taken from 04/19/2013 through 04/26/2013.

Sincerely,

John Jordan

Well Planning



Stacy A. Mohler
5/06/13



ConocoPhillips

Lea County, New Mexico

Ruby Federal

No. 51

OH

Survey: ProDirectional

Survey Completion Report

03 May, 2013



Company: ConocoPhillips
Project: Lea County, New Mexico
Site: Ruby Federal
Well: Ruby Federal 51
Wellbore: Original Hole
Design: Surveys Original Hole

Local Co-ordinate Reference: Well Ruby Federal 51
TVD Reference: RKB=3992+13 @ 4005.00usft (PD 822)
MD Reference: RKB=3992+13 @ 4005.00usft (PD 822)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM 5000.1 Single User Db

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 51		
Well Position	+N/-S 0.00 usft	Northing: 665,437.81 usft	Latitude: 32° 49' 41.500374 N
	+E/-W 0.00 usft	Easting: 666,996.38 usft	Longitude: 103° 47' 22.870781 W
Position Uncertainty 0.00 usft		Wellhead Elevation: usft	Ground Level: 3,992.00 usft

Wellbore	Original Hole		
Magnetics	Model Name	Sample Date	Declination (°)
	User Defined	3/28/2013	7.62
			Dip Angle (°)
			60.63
			Field Strength (nT)
			48,786

Design	Surveys Original Hole		
Audit Notes:			
Version: 1.0	Phase: ACTUAL	Tie On Depth: 0.00	
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)
	0.00	0.00	0.00
			Direction (°)
			269.770

Survey Program	Date 5/3/2013		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name
785.00	6,999.00	MWD (Original Hole)	MWD
			Description
			MWD - Standard

Company: ConocoPhillips
Project: Lea County, New Mexico
Site: Ruby Federal
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North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM 5000.1 Single User Db

Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	V. Sec (usft)	N/S (usft)	E/W (usft)	Closure Distance (usft)	Closure Azimuth (°)	Northing (usft)	Easting (usft)
0.00	0.00	0.000	0.00	0.00	0.00	0.00	0.00	0.000	665,437.81	666,996.38
785.00	0.20	142.900	785.00	-0.82	-1.09	0.83	1.37	142.900	665,436.72	666,997.21
Professional Directional Ltd MWD surveys										
860.00	0.30	142.100	860.00	-1.02	-1.35	1.03	1.70	142.807	665,436.46	666,997.41
950.00	0.50	158.300	950.00	-1.31	-1.90	1.32	2.31	145.334	665,435.91	666,997.70
1,040.00	0.70	156.300	1,039.99	-1.67	-2.77	1.68	3.24	148.742	665,435.04	666,998.06
1,129.00	0.50	152.900	1,128.99	-2.06	-3.61	2.08	4.17	150.112	665,434.20	666,998.46
1,219.00	0.60	134.900	1,218.98	-2.57	-4.30	2.59	5.02	148.918	665,433.51	666,998.97
1,309.00	0.50	146.600	1,308.98	-3.12	-4.96	3.14	5.87	147.648	665,432.85	666,999.52
1,398.00	0.60	140.700	1,397.97	-3.63	-5.64	3.65	6.72	147.107	665,432.17	667,000.03
1,488.00	0.50	130.600	1,487.97	-4.22	-6.26	4.25	7.57	145.864	665,431.55	667,000.63
1,578.00	0.80	105.000	1,577.96	-5.12	-6.68	5.15	8.44	142.367	665,431.13	667,001.53
1,667.00	0.90	91.300	1,666.95	-6.42	-6.86	6.45	9.41	136.754	665,430.95	667,002.83
1,757.00	1.10	83.500	1,756.94	-7.99	-6.78	8.01	10.49	130.210	665,431.03	667,004.39
1,847.00	0.50	355.500	1,846.93	-8.82	-6.29	8.84	10.85	125.410	665,431.52	667,005.22
1,937.00	0.50	339.600	1,936.93	-8.65	-5.53	8.67	10.29	122.501	665,432.28	667,005.05
1,981.00	0.50	352.500	1,980.93	-8.56	-5.16	8.58	10.01	120.997	665,432.65	667,004.96
2,071.00	1.60	280.900	2,070.91	-7.28	-4.53	7.30	8.59	121.827	665,433.28	667,003.68
2,161.00	2.40	266.700	2,160.86	-4.16	-4.40	4.18	6.07	136.454	665,433.41	667,000.56
2,250.00	3.70	272.100	2,249.73	0.57	-4.40	-0.55	4.44	187.096	665,433.41	666,995.83
2,340.00	4.40	270.000	2,339.51	6.92	-4.30	-6.90	8.13	238.103	665,433.51	666,989.48
2,430.00	5.10	277.100	2,429.20	14.34	-3.80	-14.32	14.82	255.138	665,434.01	666,982.06
2,519.00	6.00	277.600	2,517.78	22.87	-2.70	-22.86	23.02	263.271	665,435.11	666,973.52
2,609.00	7.10	273.200	2,607.19	33.08	-1.76	-33.08	33.12	266.946	665,436.05	666,963.30
2,699.00	7.10	271.000	2,696.50	44.20	-1.36	-44.19	44.21	268.241	665,436.45	666,952.19
2,788.00	7.10	269.700	2,784.82	55.20	-1.29	-55.19	55.21	268.661	665,436.52	666,941.19
2,878.00	7.40	268.400	2,874.10	66.55	-1.48	-66.55	66.56	268.725	665,436.33	666,929.83

Company: ConocoPhillips
Project: Lea County, New Mexico
Site: Ruby Federal
Well: Ruby Federal 51
Wellbore: Original Hole
Design: Surveys Original Hole

Local Co-ordinate Reference: Well Ruby Federal 51
TVD Reference: RKB=3992+13 @ 4005.00usft (PD 822)
MD Reference: RKB=3992+13 @ 4005.00usft (PD 822)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM 5000.1 Single User Db

Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	V. Sec (usft)	N/S (usft)	E/W (usft)	Closure Distance (usft)	Closure Azimuth (°)	Northing (usft)	Easting (usft)
2,968.00	7.70	267.600	2,963.32	78.37	-1.90	-78.36	78.39	268.615	665,435.91	666,918.02
3,057.00	8.20	268.700	3,051.46	90.68	-2.29	-90.67	90.70	268.554	665,435.52	666,905.71
3,147.00	9.70	275.600	3,140.37	104.64	-1.69	-104.63	104.64	269.072	665,436.12	666,891.75
3,237.00	8.50	275.500	3,229.23	118.80	-0.32	-118.80	118.80	269.847	665,437.49	666,877.58
3,326.00	7.50	276.100	3,317.37	131.12	0.93	-131.12	131.12	270.407	665,438.74	666,865.26
3,416.00	6.80	275.400	3,406.67	142.26	2.06	-142.27	142.28	270.828	665,439.87	666,854.11
3,506.00	6.70	268.700	3,496.04	152.81	2.44	-152.82	152.84	270.914	665,440.25	666,843.56
3,595.00	8.10	264.600	3,584.30	164.24	1.73	-164.25	164.26	270.604	665,439.54	666,832.13
3,685.00	8.50	263.600	3,673.36	177.17	0.39	-177.18	177.18	270.127	665,438.20	666,819.20
3,775.00	9.10	271.400	3,762.30	190.90	-0.18	-190.90	190.90	269.947	665,437.63	666,805.48
3,864.00	9.30	274.500	3,850.16	205.10	0.56	-205.11	205.11	270.157	665,438.37	666,791.27
3,954.00	9.00	273.500	3,939.01	219.37	1.56	-219.38	219.39	270.408	665,439.37	666,777.00
4,043.00	8.20	271.800	4,027.01	232.66	2.19	-232.68	232.69	270.538	665,440.00	666,763.70
4,133.00	8.00	273.300	4,116.11	245.33	2.75	-245.34	245.36	270.642	665,440.56	666,751.04
4,222.00	6.80	273.400	4,204.37	256.77	3.42	-256.79	256.81	270.762	665,441.23	666,739.59
4,312.00	6.90	273.300	4,293.73	267.48	4.04	-267.50	267.53	270.866	665,441.85	666,728.88
4,401.00	7.00	274.500	4,382.07	278.22	4.78	-278.25	278.29	270.984	665,442.59	666,718.13
4,491.00	6.90	274.100	4,471.41	289.08	5.59	-289.10	289.16	271.109	665,443.40	666,707.28
4,581.00	6.80	275.300	4,560.77	299.77	6.47	-299.80	299.87	271.237	665,444.28	666,696.58
4,670.00	7.10	269.400	4,649.12	310.52	6.90	-310.55	310.63	271.273	665,444.71	666,685.83
4,759.00	7.30	267.000	4,737.41	321.67	6.55	-321.70	321.76	271.166	665,444.36	666,674.68
4,849.00	7.00	266.800	4,826.71	332.86	5.94	-332.88	332.93	271.023	665,443.75	666,663.50
4,939.00	6.90	266.900	4,916.05	343.73	5.34	-343.76	343.80	270.891	665,443.15	666,652.62
5,028.00	6.80	268.000	5,004.42	354.34	4.87	-354.36	354.39	270.788	665,442.68	666,642.02
5,118.00	6.60	268.400	5,093.80	364.83	4.54	-364.85	364.88	270.713	665,442.35	666,631.53
5,208.00	6.50	268.500	5,183.22	375.10	4.26	-375.12	375.14	270.651	665,442.07	666,621.26
5,297.00	6.50	269.200	5,271.64	385.17	4.06	-385.19	385.21	270.604	665,441.87	666,611.19

Company: ConocoPhillips
Project: Lea County, New Mexico
Site: Ruby Federal
Well: Ruby Federal 51
Wellbore: Original Hole
Design: Surveys Original Hole

Local Co-ordinate Reference: Well Ruby Federal 51
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North Reference: Grid
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Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	V. Sec (usft)	N/S (usft)	E/W (usft)	Closure Distance (usft)	Closure Azimuth (°)	Northing (usft)	Easting (usft)
5,387.00	6.80	268.300	5,361.04	395.59	3.83	-395.61	395.63	270.555	665,441.64	666,600.77
5,432.00	7.20	267.100	5,405.70	401.07	3.61	-401.09	401.11	270.516	665,441.42	666,595.29
5,475.00	7.30	270.100	5,448.36	406.49	3.48	-406.51	406.53	270.490	665,441.29	666,589.87
5,565.00	7.20	270.700	5,537.64	417.85	3.56	-417.87	417.88	270.488	665,441.37	666,578.51
5,655.00	7.10	271.500	5,626.94	429.05	3.77	-429.07	429.09	270.504	665,441.58	666,567.31
5,744.00	7.10	272.000	5,715.26	440.04	4.11	-440.06	440.08	270.535	665,441.92	666,556.32
5,834.00	7.20	270.000	5,804.56	451.24	4.30	-451.26	451.28	270.546	665,442.11	666,545.12
5,923.00	6.70	270.700	5,892.90	462.01	4.37	-462.03	462.05	270.541	665,442.18	666,534.35
6,013.00	6.60	270.600	5,982.30	472.43	4.48	-472.45	472.47	270.544	665,442.29	666,523.93
6,103.00	6.60	271.100	6,071.70	482.77	4.64	-482.80	482.82	270.550	665,442.45	666,513.58
6,192.00	6.30	269.300	6,160.14	492.77	4.68	-492.79	492.82	270.544	665,442.49	666,503.59
6,282.00	6.20	268.500	6,249.60	502.57	4.49	-502.59	502.61	270.512	665,442.30	666,493.79
6,371.00	5.90	268.800	6,338.11	511.95	4.27	-511.97	511.98	270.478	665,442.08	666,484.41
6,461.00	6.00	269.200	6,427.62	521.27	4.10	-521.29	521.31	270.451	665,441.91	666,475.09
6,550.00	5.50	271.100	6,516.17	530.19	4.12	-530.21	530.23	270.445	665,441.93	666,466.17
6,640.00	5.50	268.100	6,605.76	538.81	4.06	-538.83	538.85	270.432	665,441.87	666,457.55
6,730.00	5.30	270.100	6,695.36	547.28	3.93	-547.30	547.31	270.411	665,441.74	666,449.08
6,819.00	5.10	267.800	6,783.99	555.34	3.78	-555.36	555.38	270.390	665,441.59	666,441.02
6,909.00	4.70	266.300	6,873.67	563.02	3.39	-563.04	563.05	270.345	665,441.20	666,433.34
6,954.00	4.80	267.500	6,918.51	566.74	3.19	-566.76	566.77	270.322	665,441.00	666,429.62
6,999.00	4.80	267.500	6,963.35	570.51	3.02	-570.52	570.53	270.304	665,440.83	666,425.86

Survey projected to 6999 MD

Company: ConocoPhillips
Project: Lea County, New Mexico
Site: Ruby Federal
Well: Ruby Federal 51
Wellbore: Original Hole
Design: Surveys Original Hole

Local Co-ordinate Reference: Well Ruby Federal 51
TVD Reference: RKB=3992+13 @ 4005.00usft (PD 822)
MD Reference: RKB=3992+13 @ 4005.00usft (PD 822)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM 5000.1 Single User Db

Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
785.00	785.00	-1.09	0.83	Professional Directional Ltd MWD surveys
6,999.00	6,963.35	3.02	-570.52	Survey projected to 6999 MD

Checked By:

Mik Coats

Approved By:

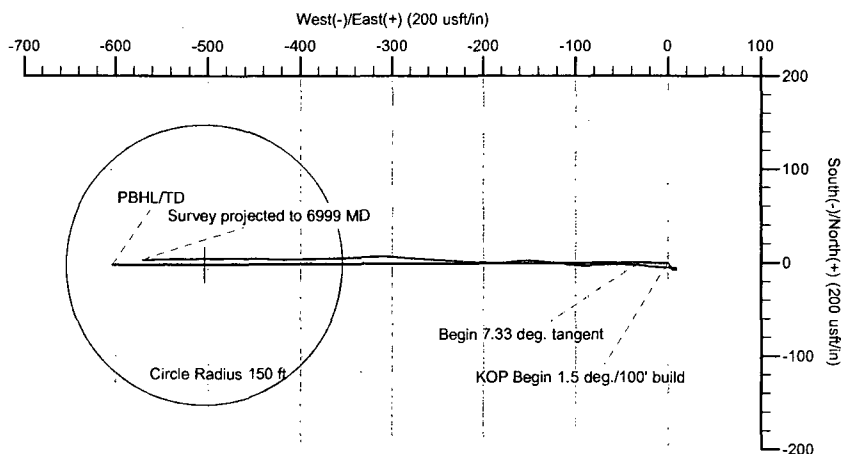
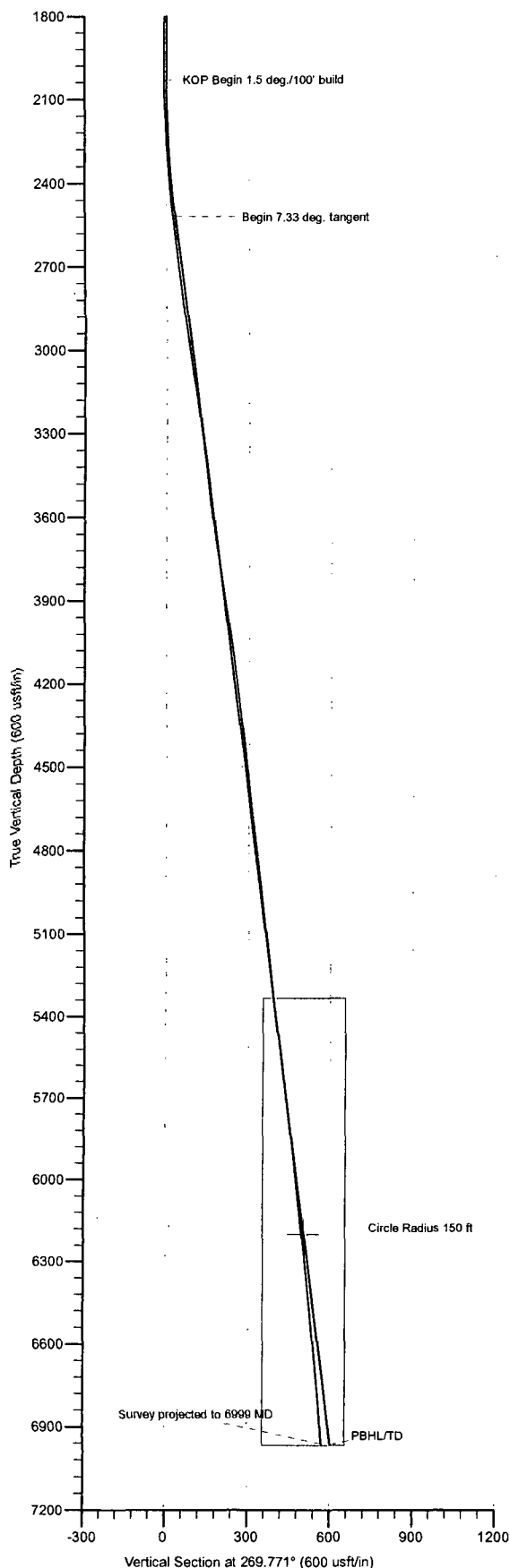
[Signature]

Date:

5-1-2013



ConocoPhillips
Lea County, New Mexico
Ruby Federal
Ruby Federal 51
rev0
PD 822



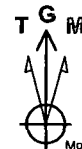
RKB Elevation: RKB=3992+13 @ 4005.00usf (PD 822)

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.00	0.00	665437.81	666996.38	32° 49' 41.500374 N	103° 47' 22.870781 W	

Section Details

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSecl	Annotation
1	0.00	0.00	0.000	0.00	0.00	0.00	0.000	0.00	0.00	
2	2032.00	0.00	0.000	2032.00	0.00	0.00	0.000	0.00	0.00	KOP Begin 1.5 deg./100' build
3	2520.58	7.33	269.771	2519.25	-0.12	-31.20	1.500	269.77	31.20	Begin 7.33 deg. tangent
4	6231.85	7.33	269.771	6200.00	-2.02	-504.59	0.000	0.00	504.59	
5	7004.97	7.33	269.771	6967.00	-2.41	-603.23	0.000	0.00	603.24	PBHL/TD

US State Plane 1927 (Exact solution)
 NAD 1927 (NADCON CONUS)
 Clarke 1866
 New Mexico East 3001
 Mean Sea Level



Azimuths to Grid North
 True North: -0.29°
 Magnetic North: 7.33°

Magnetic Field
 Strength: 48786.0snT
 Dip Angle: 60.63°
 Date: 3/28/2013
 Model: USER DEFINED BGGM



PRODIRECTIONAL