Results of Directional Survey

API number:	30-025-40901			
OGRID:		Operator:	CONOCOPHILLIPS COMPANY	
		Property:	BUCK 17 FEDERAL	# 6H

surface	ULSTR:	O	17	T	26S	R	32E
				28	FSL	2604	FEL
BH Loc	ULSTR:	B	17	T	26S	R	32E
13592	MD	8825.3	TVD	291	FNL	2367	FEL
				4989	FSL		
Top Perf/OH	ULSTR:	O	17	T	26S	R	32E
9129	MD	8842.3	TVD	528	FSL	2365	FEL
Bot Perf/OH	ULSTR:	B	17	T	26S	R	32E
13555	MD	8825.2	TVD	328	FNL	2367	FEL
				4952	FSL		

	MD	N/S	E/W	VD
	9095	465.70	237.60	8841.4
TOP PERFS/OH	**9129**	499.65	238.69	8842.30
	9223	593.50	241.70	8844.80
	13532	4900.70	235.10	8826.10
BOT PERFS/OH	**13555**	4923.70	235.68	8825.79
	13592	4960.70	236.60	8825.30

NEXT TO LAST	13532	4900.70	235.10	8826.10
LAST READING	13592	4960.70	236.60	8825.30
TD	**13592**	4960.70	236.60	8825.30

Surface Location	28	FS	2604	FE
Projected BHL	4989	FS	2367	FE
Location of				
Top Perfs/OH	528	FS	2365	FE
Bottom Perfs/OH	4952	FS	2368	FE

SUMMARY of Subsurface Locations

Surface Location	O-17-26S-32E	28	FS	2604	FE	Vert. Depth
Top Perfs/OH	O-17-26S-32E	528	FS	2365	FE	8842.30
Bottom Perfs/OH	B-17-26S-32E	4952	FS	2368	FE	8825.79
Projected TD	B-17-26S-32E	4989	FS	2367	FE	8825.30

ConocoPhillips

Conoco Phillips

Lea County, New Mexico
Sec 17, T26S,R32E
Buck Federal 17 #6H

Wellbore #1

Survey: MWD

DDC Survey Report

02 May, 2013

DDC
The DIRECTIONAL DRILLING COMPANY

The DIRECTIONAL DRILLING COMPANY

Survey Certification Sheet

Conoco Phillips	GC-13274	4/26/13
Company	Job Number	Date

Sec17, T26S, R32E	Buck Federal 17 #6H	Lea , NM
Lease	Well Name	County & State

API: 30-025-40901

Surveyed from a depth of: 167 feet to 13592 feet MD

Type of Survey: MWD

Directional Supervisor/Surveyor: Kevin Whittington

The data and calculations for this survey have been checked by me and conform to the standards and procedures set forth by **The Directional Drilling Company (DDC)**. This report represents a true and correct Directional survey of this well based on the original data obtained at the well site. Wellbore Coordinates are calculated using minimum curvature.

Digitally signed by Larry Wright
DN: cn=Larry Wright, o=The Directional Drilling Company, ou=GM of Guidance Services, email=larryw@directionaldrillers.com, c=US
Date: 2013.05.01 11:26:19 -05'00'

Larry Wright
MWD General Manager

• *11390 FM 830 • Willis, Texas 77318 •*
• *PH 936-856-4332 • FAX 936-856-8678 •*

Company:	Conoco Phillips	**Local Co-ordinate Reference:**	Well Buck Federal 17 #6H
Project:	Lea County, New Mexico	**TVD Reference:**	WELL @ 3191.0usft (Precision #827)
Site:	Sec 17, T26S,R32E	**MD Reference:**	WELL @ 3191.0usft (Precision #827)
Well:	Buck Federal 17 #6H	**North Reference:**	Grid
Wellbore:	Wellbore #1	**Survey Calculation Method:**	Minimum Curvature
Design:	Wellbore #1	**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 Sec 17, T26S,R32E

Site Position:		**Northing:**	377,537.90 usft	**Latitude:**	32° 2' 10.792 N
From:	Map	**Easting:**	699,538.80 usft	**Longitude:**	103° 41' 21.842 W
Position Uncertainty:	0.0 usft	**Slot Radius:**	13-3/16 "	**Grid Convergence:**	0.34 °

Well Buck Federal 17 #6H

Well Position	**+N/-S**	0.0 usft	**Northing:**	377,214.12 usfl	**Latitude:**	32° 2' 7.717 N
	+E/-W	0.0 usft	**Easting:**	697,338.10 usfl	**Longitude:**	103° 41' 47.430 W
Position Uncertainty		0.0 usft	**Wellhead Elevation:**	usfl	**Ground Level:**	3,175.0 usfl

Wellbore Wellbore #1

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	BGGM2012	4/16/2013	7.51	59.90	48,328

Design Wellbore #1

Audit Notes:

Version:	1.0	**Phase:**	ACTUAL	**Tie On Depth:**	0.0

Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.0	0.0	0.0	2.62

Survey Program **Date** 4/25/2013

From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
167.0	13,592.0	MWD (Wellbore #1)	MWD default	MWD - Standard

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)
FIRST MWD SURVEY @ 167' MD / 167' TVD									
167.0	0.70	286.70	167.0	0.3	-1.0	0.2	0.42	0.42	0.00
261.0	0.70	252.90	261.0	0.3	-2.1	0.2	0.43	0.00	-35.96
353.0	0.80	285.80	353.0	0.3	-3.2	0.2	0.47	0.11	35.76
461.0	0.70	50.90	461.0	0.9	-3.4	0.8	1.23	-0.09	115.83
504.0	0.70	6.50	504.0	1.3	-3.2	1.2	1.23	0.00	-103.26
593.0	0.30	340.10	593.0	2.1	-3.2	2.0	0.51	-0.45	-29.66
682.0	0.20	345.90	682.0	2.5	-3.3	2.3	0.12	-0.11	6.52
772.0	0.70	152.00	772.0	2.1	-3.1	2.0	0.99	0.56	184.56
861.0	0.30	121.10	861.0	1.5	-2.7	1.4	0.53	-0.45	-34.72

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Wellbore:	Wellbore #1	**Survey Calculation Method:**	Minimum Curvature
Design:	Wellbore #1	**Database:**	EDM 5000.1 Single User Db

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)
951.0	0.60	341.90	951.0	1.9	-2.6	1.7	0.94	0.33	-154.67
1,010.0	1.50	350.30	1,010.0	2.9	-2.8	2.8	1.54	1.53	14.24
1,130.0	2.70	351.70	1,129.9	7.3	-3.5	7.1	1.00	1.00	1.17
1,219.0	4.60	99.60	1,218.8	8.7	-0.3	8.7	6.75	2.13	121.24
1,309.0	5.40	103.20	1,308.4	7.2	7.4	7.5	0.95	0.89	4.00
1,443.0	6.50	104.00	1,441.7	3.9	20.9	4.9	0.82	0.82	0.60
1,577.0	9.40	101.00	1,574.4	0.0	39.0	1.8	2.19	2.16	-2.24
1,711.0	7.80	85.00	1,706.9	-1.3	58.8	1.4	2.14	-1.19	-11.94
1,846.0	7.40	87.20	1,840.7	-0.1	76.6	3.4	0.37	-0.30	1.63
1,980.0	8.60	69.40	1,973.4	3.9	94.6	8.2	2.04	0.90	-13.28
2,114.0	8.20	82.80	2,106.0	8.6	113.5	13.8	1.49	-0.30	10.00
2,248.0	7.40	83.80	2,238.8	10.7	131.5	16.7	0.61	-0.60	0.75
2,382.0	7.60	85.20	2,371.6	12.4	148.9	19.2	0.20	0.15	1.04
2,516.0	7.90	87.00	2,504.4	13.6	167.0	21.2	0.29	0.22	1.34
2,650.0	7.60	88.40	2,637.2	14.3	185.0	22.8	0.26	-0.22	1.04
2,784.0	6.90	91.90	2,770.1	14.3	201.9	23.5	0.62	-0.52	2.61
2,918.0	5.10	78.90	2,903.4	15.2	215.8	25.0	1.67	-1.34	-9.70
3,053.0	4.00	84.70	3,037.9	16.8	226.4	27.1	0.88	-0.81	4.30
3,187.0	1.90	89.80	3,171.7	17.2	233.3	27.9	1.58	-1.57	3.81
3,321.0	0.80	330.10	3,305.7	18.0	235.0	28.8	1.79	-0.82	-89.33
3,455.0	0.40	94.90	3,439.7	18.8	235.0	29.5	0.81	-0.30	93.13
3,589.0	1.00	109.30	3,573.7	18.4	236.6	29.2	0.46	0.45	10.75
3,723.0	0.30	68.00	3,707.7	18.1	238.0	29.0	0.60	-0.52	-30.82
3,857.0	0.60	307.40	3,841.7	18.7	237.8	29.5	0.59	0.22	-90.00
3,991.0	0.30	222.00	3,975.7	18.9	237.0	29.7	0.48	-0.22	-63.73
4,126.0	1.10	201.60	4,110.7	17.4	236.3	28.2	0.61	0.59	-15.11
4,260.0	0.30	240.80	4,244.7	16.0	235.5	26.8	0.66	-0.60	29.25
4,394.0	0.30	300.70	4,378.7	16.0	234.9	26.8	0.22	0.00	44.70
4,428.0	0.90	271.00	4,412.7	16.1	234.5	26.8	1.93	1.76	-87.35
4,500.0	0.80	259.10	4,484.7	16.0	233.5	26.7	0.28	-0.14	-16.53
4,634.0	0.60	253.80	4,618.7	15.6	231.9	26.2	0.16	-0.15	-3.96
4,768.0	1.00	271.40	4,752.6	15.5	230.1	26.0	0.35	0.30	13.13
4,902.0	0.80	281.20	4,886.6	15.7	228.0	26.1	0.19	-0.15	7.31
5,036.0	0.20	179.80	5,020.6	15.6	227.0	26.0	0.64	-0.45	-75.67
5,170.0	0.30	177.90	5,154.6	15.0	227.1	25.4	0.07	0.07	-1.42
5,304.0	0.40	195.80	5,288.6	14.2	226.9	24.6	0.11	0.07	13.36
5,439.0	0.30	230.90	5,423.6	13.6	226.5	23.9	0.17	-0.07	26.00
5,573.0	0.40	232.50	5,557.6	13.0	225.9	23.4	0.07	0.07	1.19
5,707.0	0.30	227.30	5,691.6	12.5	225.3	22.8	0.08	-0.07	-3.88
5,841.0	0.30	242.70	5,825.6	12.1	224.7	22.4	0.06	0.00	11.49
5,975.0	1.10	242.00	5,959.6	11.4	223.3	21.6	0.60	0.60	-0.52
6,109.0	0.50	13.00	6,093.6	11.3	222.3	21.5	1.10	-0.45	97.76
6,243.0	0.30	20.00	6,227.6	12.2	222.5	22.4	0.15	-0.15	5.22
6,377.0	0.40	70.60	6,361.6	12.7	223.1	22.9	0.23	0.07	37.76

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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)
6,512.0	0.40	66.80	6,496.6	13.1	223.9	23.3	0.02	0.00	-2.81
6,646.0	0.30	113.20	6,630.6	13.1	224.7	23.4	0.22	-0.07	34.63
6,780.0	0.60	194.20	6,764.6	12.3	224.8	22.5	0.47	0.22	60.45
6,914.0	1.30	196.70	6,898.6	10.1	224.2	20.4	0.52	0.52	1.87
7,048.0	0.50	245.70	7,032.5	8.4	223.3	18.6	0.78	-0.60	36.57
7,182.0	0.30	26.70	7,166.5	8.5	222.9	18.7	0.56	-0.15	105.22
7,316.0	0.20	206.10	7,300.5	8.6	222.9	18.8	0.37	-0.07	133.88
7,450.0	0.40	185.80	7,434.5	7.9	222.8	18.1	0.17	0.15	-15.15
7,585.0	0.70	191.00	7,569.5	6.7	222.6	16.8	0.23	0.22	3.85
7,719.0	1.00	215.30	7,703.5	4.9	221.8	15.0	0.35	0.22	18.13
7,853.0	0.80	198.90	7,837.5	3.1	220.8	13.2	0.24	-0.15	-12.24
7,987.0	0.20	12.30	7,971.5	2.4	220.5	12.5	0.75	-0.45	129.40
8,121.0	0.30	195.40	8,105.5	2.3	220.5	12.4	0.37	0.07	-132.01
8,255.0	0.60	197.00	8,239.5	1.3	220.2	11.4	0.22	0.22	1.19
8,290.0	0.90	226.00	8,274.5	0.9	219.9	11.0	1.36	0.86	82.86
8,335.0	1.10	344.10	8,319.5	1.1	219.6	11.1	3.82	0.44	262.44
8,379.0	6.10	6.60	8,363.4	3.8	219.7	13.9	11.59	11.36	51.14
8,424.0	11.60	7.30	8,407.8	10.7	220.6	20.8	12.22	12.22	1.56
8,469.0	17.10	5.40	8,451.4	21.8	221.8	31.9	12.27	12.22	-4.22
8,514.0	21.30	4.40	8,493.9	36.5	223.0	46.7	9.36	9.33	-2.22
8,558.0	25.00	1.20	8,534.3	53.8	223.8	64.0	8.88	8.41	-7.27
8,603.0	29.20	358.40	8,574.4	74.3	223.7	84.4	9.75	9.33	-6.22
8,648.0	34.10	356.80	8,612.7	97.9	222.7	107.9	11.05	10.89	-3.56
8,693.0	39.60	357.00	8,648.7	124.8	221.2	134.8	12.23	12.22	0.44
8,737.0	44.80	358.00	8,681.3	154.3	220.0	164.2	11.92	11.82	2.27
8,782.0	48.50	359.40	8,712.2	187.0	219.2	196.9	8.53	8.22	3.11
8,827.0	52.90	1.50	8,740.7	221.8	219.5	231.6	10.42	9.78	4.67
8,871.0	57.50	2.80	8,765.8	257.9	220.9	267.8	10.73	10.45	2.95
8,916.0	61.60	5.10	8,788.6	296.6	223.6	306.5	10.12	9.11	5.11
8,961.0	66.60	5.60	8,808.2	336.9	227.4	347.0	11.16	11.11	1.11
9,005.0	72.50	5.40	8,823.6	377.9	231.3	388.1	13.42	13.41	-0.45
9,050.0	78.40	4.00	8,834.9	421.3	234.9	431.6	13.45	13.11	-3.11
9,095.0	84.90	3.00	8,841.4	465.7	237.6	476.1	14.61	14.44	-2.22
9,223.0	92.10	0.70	8,844.8	593.5	241.7	604.0	5.90	5.63	-1.80
9,314.0	89.90	359.80	8,843.2	684.5	242.1	694.9	2.61	-2.42	-0.99
9,404.0	90.40	359.10	8,842.9	774.5	241.2	784.7	0.96	0.56	-0.78
9,495.0	90.10	359.10	8,842.5	865.5	239.8	875.6	0.33	-0.33	0.00
9,586.0	90.10	357.90	8,842.4	956.5	237.4	966.3	1.32	0.00	-1.32
9,677.0	90.70	359.40	8,841.8	1,047.4	235.3	1,057.1	1.78	0.66	1.65
9,768.0	91.30	359.30	8,840.2	1,138.4	234.3	1,147.9	0.67	0.66	-0.11
9,858.0	89.90	359.60	8,839.2	1,228.4	233.4	1,237.8	1.59	-1.56	0.33
9,949.0	90.70	359.80	8,838.7	1,319.4	232.9	1,328.7	0.91	0.88	0.22
10,040.0	89.20	0.70	8,838.8	1,410.4	233.3	1,419.6	1.92	-1.65	0.99

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Wellbore:	Wellbore #1	**Survey Calculation Method:**	Minimum Curvature
Design:	Wellbore #1	**Database:**	EDM 5000.1 Single User Db

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)
10,130.0	90.30	0.80	8,839.2	1,500.4	234.5	1,509.5	1.23	1.22	0.11
10,221.0	90.20	359.60	8,838.8	1,591.4	234.8	1,600.4	1.32	-0.11	-1.32
10,312.0	91.40	0.80	8,837.5	1,682.4	235.1	1,691.4	1.86	1.32	1.32
10,403.0	89.70	358.40	8,836.7	1,773.3	234.5	1,782.2	3.23	-1.87	-2.64
10,493.0	89.30	357.10	8,837.5	1,863.3	231.0	1,871.9	1.51	-0.44	-1.44
10,584.0	90.00	358.20	8,838.0	1,954.2	227.2	1,962.5	1.43	0.77	1.21
10,675.0	90.80	358.40	8,837.4	2,045.2	224.5	2,053.3	0.91	0.88	0.22
10,766.0	89.50	358.00	8,837.1	2,136.1	221.7	2,144.0	1.49	-1.43	-0.44
10,856.0	90.40	359.80	8,837.2	2,226.1	219.9	2,233.8	2.24	1.00	2.00
10,947.0	89.40	1.40	8,837.4	2,317.1	220.9	2,324.7	2.07	-1.10	1.76
11,038.0	91.50	1.90	8,836.7	2,408.0	223.5	2,415.7	2.37	2.31	0.55
11,128.0	90.50	2.30	8,835.1	2,498.0	226.8	2,505.7	1.20	-1.11	0.44
11,219.0	88.20	359.30	8,836.1	2,588.9	228.1	2,596.6	4.15	-2.53	-3.30
11,310.0	87.50	359.60	8,839.5	2,679.9	227.2	2,687.4	0.84	-0.77	0.33
11,401.0	90.70	1.20	8,841.0	2,770.8	227.8	2,778.3	3.93	3.52	1.76
11,491.0	89.60	1.20	8,840.7	2,860.8	229.7	2,868.3	1.22	-1.22	0.00
11,582.0	88.60	359.80	8,842.2	2,951.8	230.5	2,959.2	1.89	-1.10	-1.54
11,673.0	90.00	1.90	8,843.3	3,042.8	231.9	3,050.2	2.77	1.54	2.31
11,763.0	90.60	2.10	8,842.8	3,132.7	235.0	3,140.2	0.70	0.67	0.22
11,854.0	89.30	358.90	8,842.9	3,223.7	235.8	3,231.1	3.80	-1.43	-3.52
11,945.0	90.90	359.10	8,842.7	3,314.7	234.2	3,321.9	1.77	1.76	0.22
12,036.0	88.30	358.70	8,843.4	3,405.6	232.5	3,412.7	2.89	-2.86	-0.44
12,126.0	88.40	357.30	8,846.0	3,495.5	229.3	3,502.4	1.56	0.11	-1.56
12,217.0	89.30	356.50	8,847.8	3,586.4	224.4	3,592.9	1.32	0.99	-0.88
12,262.0	90.80	357.90	8,847.7	3,631.3	222.2	3,637.7	4.56	3.33	3.11
12,308.0	91.70	357.90	8,846.7	3,677.3	220.5	3,683.5	1.96	1.96	0.00
12,399.0	91.90	1.20	8,843.9	3,768.2	219.8	3,774.3	3.63	0.22	3.63
12,489.0	93.90	1.00	8,839.3	3,858.1	221.5	3,864.2	2.23	2.22	-0.22
12,580.0	90.80	0.30	8,835.6	3,949.0	222.6	3,955.1	3.49	-3.41	-0.77
12,671.0	90.10	1.50	8,834.9	4,040.0	224.0	4,046.0	1.53	-0.77	1.32
12,761.0	90.20	1.70	8,834.6	4,130.0	226.5	4,136.0	0.25	0.11	0.22
12,852.0	89.30	1.50	8,835.0	4,220.9	229.1	4,227.0	1.01	-0.99	-0.22
12,942.0	92.00	2.60	8,834.0	4,310.8	232.3	4,317.0	3.24	3.00	1.22
13,033.0	90.70	0.30	8,831.9	4,401.8	234.6	4,407.9	2.90	-1.43	-2.53
13,124.0	91.40	359.40	8,830.2	4,492.8	234.3	4,498.8	1.25	0.77	-0.99
13,215.0	90.90	359.60	8,828.4	4,583.7	233.5	4,589.6	0.59	-0.55	0.22
13,305.0	90.20	0.00	8,827.5	4,673.7	233.2	4,679.5	0.90	-0.78	0.44
13,396.0	90.20	0.30	8,827.2	4,764.7	233.5	4,770.4	0.33	0.00	0.33
13,487.0	90.50	0.70	8,826.6	4,855.7	234.3	4,861.4	0.55	0.33	0.44
13,532.0	90.80	1.40	8,826.1	4,900.7	235.1	4,906.3	1.69	0.67	1.56
TD @ 13592' MD / 8825.3' TVD									
13,592.0	90.80	1.40	8,825.3	4,960.7	236.6	4,966.3	0.00	0.00	0.00

Company:	Conoco Phillips	**Local Co-ordinate Reference:**	Well Buck Federal 17 #6H
Project:	Lea County, New Mexico	**TVD Reference:**	WELL @ 3191.0usft (Precision #827)
Site:	Sec 17, T26S,R32E	**MD Reference:**	WELL @ 3191.0usft (Precision #827)
Well:	Buck Federal 17 #6H	**North Reference:**	Grid
Wellbore:	Wellbore #1	**Survey Calculation Method:**	Minimum Curvature
Design:	Wellbore #1	**Database:**	EDM 5000.1 Single User Db

Survey Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates +N/-S (usft)	Local Coordinates +E/-W (usft)	Comment
167.0	167.0	0.3	-1.0	FIRST MWD SURVEY @ 167' MD / 167' TVD
13,592.0	8,825.3	4,960.7	236.6	TD @ 13592' MD / 8825.3' TVD

Checked By: _____ Approved By: _____ Date: _____