Results of Directional Survey

API number:	30-025-40539		
OGRID:		Operator:	CONOCOPHILLIPS COMPANY
		Property:	BUCK 20 FEDERAL # 5H

surface	ULSTR:	A	20	T	26S	R	32E
				655	FNL	980	FEL

BH Loc	ULSTR:	P	20	T	26S	R	32E
12764	MD	8819.1	TVD	294	FSL	1025	FEL
				4986	FNL		

Top Perf/OH	ULSTR:	A	20	T	26S	R	32E
9334	MD	8825.0	TVD	1559	FNL	958	FEL

Bot Perf/OH	ULSTR:	P	20	T	26S	R	32E
12660	MD	8820.3	TVD	397	FSL	1015	FEL
				4883	FNL		

	MD	N/S	E/W	VD
	9223	-793.50	22.60	8826.3
TOP PERFS/OH	**9334**	-904.40	21.64	8824.96
	9339	-909.40	21.60	8824.90
	12573	-4141.00	-27.10	8820.60
BOT PERFS/OH	**12660**	-4227.64	-35.17	8820.33
	12669	-4236.60	-36.00	8820.30

NEXT TO LAST	12669	-4236.60	-36.00	8820.30
LAST READING	12764	-4331.20	-44.60	8819.10
TD	**12764**	-4331.20	-44.60	8819.10

Surface Location	655	FN	980	FE
Projected BHL	4986	FN	1025	FE
Location of				
Top Perfs/OH	1559	FN	958	FE
Bottom Perfs/OH	4883	FN	1015	FE

SUMMARY of Subsurface Locations

Surface Location	A-20-26S-32E	655	FN	980	FE	Vert. Depth
Top Perfs/OH	A-20-26S-32E	1559	FN	958	FE	8824.96
Bottom Perfs/OH	P-20-26S-32E	4883	FN	1015	FE	8820.33
Projected TD	P-20-26S-32E	4986	FN	1025	FE	8819.10

ConocoPhillips

Conoco Phillips

Lea County, New Mexico
Sec 20, T26S, 32E
Buck Federal 20 #5H

Wellbore #1

Survey: MWD

DDC Survey Report

23 October, 2012

SUR: A-20-26s-32e, 655/N & 980/E
BHL: P-20-26s-32e, 4986/N & 1025/E
API # 30-025-40539

DDC
The DIRECTIONAL DRILLING COMPANY

Company:	Conoco Phillips	**Local Co-ordinate Reference:**	Well Buck Federal 20 #5H
Project:	Lea County, New Mexico	**TVD Reference:**	WELL @ 3172.0usft (Nabors M-09)
Site:	Sec 20, T26S, 32E	**MD Reference:**	WELL @ 3172.0usft (Nabors M-09)
Well:	Buck Federal 20 #5H	**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 20, T26S, 32E

Site Position:		**Northing:**	376,829.70 usft	**Latitude:**	32° 2' 3.859 N
From:	Map	**Easting:**	698,257.30 usft	**Longitude:**	103° 41' 36.778 W
Position Uncertainty:	0.0 usft	**Slot Radius:**	13-3/16 "	**Grid Convergence:**	0.34 °

Well Buck Federal 20 #5H

Well Position	**+N/-S**	0.0 usft	**Northing:**	376,547.72 usft	**Latitude:**	32° 2' 1.027 N
	+E/-W	0.0 usft	**Easting:**	698,964.74 usft	**Longitude:**	103° 41' 28.580 W
Position Uncertainty		0.0 usft	**Wellhead Elevation:**	usft	**Ground Level:**	3,150.0 usft

Wellbore Wellbore #1

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	6/11/2012	7.51	59.96	48,391

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	180.01

Survey Program **Date** 10/23/2012

From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
100.0	7,826.0	GYRO (Wellbore #1)	Good_gyro	Good Gyro
7,936.0	12,764.0	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)
TIE IN @ 7826' MD / 7824' TVD									
7,826.0	0.84	178.01	7,824.3	-83.3	21.7	83.3	0.00	0.00	0.00
7,936.0	1.20	175.60	7,934.3	-85.2	21.8	85.2	0.33	0.33	-2.19
8,031.0	1.20	176.60	8,029.3	-87.2	21.9	87.2	0.02	0.00	1.05
8,125.0	3.00	187.90	8,123.2	-90.6	21.6	90.6	1.96	1.91	12.02
8,156.0	5.10	189.10	8,154.1	-92.8	21.3	92.8	6.78	6.77	3.87
8,188.0	6.60	189.60	8,186.0	-96.0	20.8	96.0	4.69	4.69	1.56
8,220.0	8.40	189.60	8,217.7	-100.1	20.1	100.1	5.63	5.63	0.00
8,251.0	9.30	196.70	8,248.3	-104.8	19.0	104.8	4.56	2.90	22.90
8,282.0	11.20	192.10	8,278.8	-110.1	17.6	110.1	6.67	6.13	-14.84

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Well:	Buck Federal 20 #5H	**North Reference:**	Grid
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)
8,314.0	14.90	190.30	8,310.0	-117.2	16.2	117.2	11.63	11.56	-5.63
8,345.0	18.40	185.20	8,339.7	-126.0	15.1	126.0	12.22	11.29	-16.45
8,377.0	21.70	179.10	8,369.8	-136.9	14.7	136.9	12.20	10.31	-19.06
8,408.0	25.10	176.40	8,398.2	-149.2	15.2	149.2	11.50	10.97	-8.71
8,439.0	27.90	175.20	8,426.0	-163.0	16.3	163.0	9.20	9.03	-3.87
8,471.0	30.30	174.00	8,453.9	-178.5	17.7	178.5	7.72	7.50	-3.75
8,502.0	32.30	174.50	8,480.4	-194.5	19.3	194.5	6.51	6.45	1.61
8,533.0	33.80	176.30	8,506.4	-211.4	20.7	211.4	5.78	4.84	5.81
8,565.0	35.70	177.90	8,532.7	-229.6	21.6	229.6	6.59	5.94	5.00
8,597.0	37.80	177.70	8,558.3	-248.7	22.3	248.7	6.57	6.56	-0.63
8,628.0	40.50	177.70	8,582.3	-268.3	23.1	268.3	8.71	8.71	0.00
8,659.0	43.30	177.70	8,605.4	-289.0	24.0	289.0	9.03	9.03	0.00
8,690.0	46.50	177.70	8,627.4	-310.8	24.8	310.8	10.32	10.32	0.00
8,722.0	49.70	177.30	8,648.7	-334.6	25.9	334.6	10.04	10.00	-1.25
8,753.0	51.90	178.60	8,668.3	-358.6	26.7	358.6	7.81	7.10	4.19
8,785.0	54.60	179.30	8,687.5	-384.3	27.2	384.3	8.62	8.44	2.19
8,816.0	56.60	180.30	8,705.0	-409.8	27.3	409.8	6.98	6.45	3.23
8,847.0	59.40	181.00	8,721.4	-436.1	27.0	436.1	9.23	9.03	2.26
8,878.0	62.30	180.10	8,736.5	-463.2	26.7	463.2	9.69	9.35	-2.90
8,910.0	65.70	179.30	8,750.5	-492.0	26.9	491.9	10.86	10.63	-2.50
8,941.0	67.70	180.00	8,762.8	-520.4	27.0	520.4	6.78	6.45	2.26
8,973.0	68.80	180.80	8,774.7	-550.1	26.8	550.1	4.15	3.44	2.50
9,004.0	71.10	182.60	8,785.3	-579.2	26.0	579.2	9.21	7.42	5.81
9,035.0	73.40	182.80	8,794.7	-608.7	24.6	608.7	7.44	7.42	0.65
9,067.0	75.30	180.80	8,803.4	-639.5	23.6	639.5	8.45	5.94	-6.25
9,098.0	77.50	181.00	8,810.7	-669.7	23.1	669.7	7.12	7.10	0.65
9,129.0	79.80	180.30	8,816.8	-700.0	22.8	700.0	7.74	7.42	-2.26
9,160.0	82.50	180.00	8,821.5	-730.7	22.7	730.7	8.76	8.71	-0.97
9,192.0	85.80	180.00	8,824.8	-762.5	22.7	762.5	10.31	10.31	0.00
9,223.0	88.50	180.50	8,826.3	-793.5	22.6	793.5	8.86	8.71	1.61
9,339.0	92.90	180.50	8,824.9	-909.4	21.6	909.4	3.79	3.79	0.00
9,435.0	91.80	179.80	8,821.0	-1,005.3	21.3	1,005.3	1.36	-1.15	-0.73
9,530.0	91.40	181.00	8,818.3	-1,100.3	20.7	1,100.3	1.33	-0.42	1.26
9,625.0	89.80	182.40	8,817.3	-1,195.2	17.8	1,195.2	2.24	-1.68	1.47
9,720.0	90.60	182.40	8,817.0	-1,290.2	13.9	1,290.2	0.84	0.84	0.00
9,815.0	89.10	181.50	8,817.3	-1,385.1	10.6	1,385.1	1.84	-1.58	-0.95
9,911.0	90.90	182.40	8,817.3	-1,481.0	7.4	1,481.0	2.10	1.88	0.94
10,006.0	91.10	182.10	8,815.6	-1,576.0	3.6	1,576.0	0.38	0.21	-0.32
10,101.0	87.50	180.10	8,816.8	-1,670.9	1.8	1,670.9	4.33	-3.79	-2.11
10,196.0	90.60	182.40	8,818.3	-1,765.9	-0.3	1,765.9	4.06	3.26	2.42
10,291.0	86.90	179.30	8,820.4	-1,860.8	-1.7	1,860.8	5.08	-3.89	-3.26
10,387.0	88.90	180.00	8,823.9	-1,956.7	-1.1	1,956.7	2.21	2.08	0.73
10,482.0	87.80	179.60	8,826.7	-2,051.7	-0.8	2,051.7	1.23	-1.16	-0.42

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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)
10,576.0	88.80	179.60	8,829.4	-2,145.6	-0.1	2,145.6	1.06	1.06	0.00
10,672.0	88.00	177.70	8,832.1	-2,241.6	2.2	2,241.6	2.15	-0.83	-1.98
10,767.0	89.30	177.70	8,834.4	-2,336.5	6.0	2,336.5	1.37	1.37	0.00
10,862.0	90.20	177.10	8,834.8	-2,431.4	10.3	2,431.4	1.14	0.95	-0.63
10,957.0	90.10	179.10	8,834.5	-2,526.3	13.4	2,526.3	2.11	-0.11	2.11
11,052.0	90.20	180.80	8,834.3	-2,621.3	13.5	2,621.3	1.79	0.11	1.79
11,147.0	91.30	181.40	8,833.0	-2,716.3	11.7	2,716.3	1.32	1.16	0.63
11,242.0	89.80	179.80	8,832.1	-2,811.3	10.7	2,811.3	2.31	-1.58	-1.68
11,337.0	91.30	180.30	8,831.2	-2,906.2	10.6	2,906.2	1.66	1.58	0.53
11,432.0	89.80	179.40	8,830.3	-3,001.2	10.9	3,001.2	1.84	-1.58	-0.95
11,527.0	91.30	180.00	8,829.4	-3,096.2	11.4	3,096.2	1.70	1.58	0.63
11,622.0	91.60	180.00	8,827.0	-3,191.2	11.4	3,191.2	0.32	0.32	0.00
11,717.0	90.00	180.30	8,825.7	-3,286.2	11.1	3,286.2	1.71	-1.68	0.32
11,813.0	90.80	179.60	8,825.0	-3,382.2	11.2	3,382.2	1.11	0.83	-0.73
11,908.0	90.40	181.90	8,824.0	-3,477.2	9.9	3,477.2	2.46	-0.42	2.42
12,003.0	92.70	182.30	8,821.4	-3,572.1	6.5	3,572.1	2.46	2.42	0.42
12,098.0	90.10	183.30	8,819.1	-3,666.9	1.8	3,666.9	2.93	-2.74	1.05
12,193.0	90.30	183.80	8,818.8	-3,761.7	-4.1	3,761.7	0.57	0.21	0.53
12,288.0	90.60	183.60	8,818.0	-3,856.5	-10.2	3,856.5	0.38	0.32	-0.21
12,383.0	89.20	182.90	8,818.2	-3,951.4	-15.6	3,951.4	1.65	-1.47	-0.74
12,478.0	88.90	182.90	8,819.8	-4,046.2	-20.4	4,046.2	0.32	-0.32	0.00
12,573.0	90.10	185.20	8,820.6	-4,141.0	-27.1	4,141.0	2.73	1.26	2.42
12,669.0	90.30	185.40	8,820.3	-4,236.6	-36.0	4,236.6	0.29	0.21	0.21
12,710.0	90.80	185.20	8,819.9	-4,277.4	-39.7	4,277.4	1.31	1.22	-0.49
TD @ 12764' MD / 8819' TVD									
12,764.0	90.80	185.20	8,819.1	-4,331.2	-44.6	4,331.2	0.00	0.00	0.00

Survey Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates +N/-S (usft)	Local Coordinates +E/-W (usft)	Comment
7,826.0	7,824.3	-83.3	21.7	TIE IN @ 7826' MD / 7824' TVD
12,764.0	8,819.1	-4,331.2	-44.6	TD @ 12764' MD / 8819' TVD

Checked By: _____ Approved By: _____ Date: _____