Petroleum Development Corp.

Mesa
SWSE Sec 7-T7S-R96W
Puckett 34C-7D

DD

Survey: Survey #1

Standard Survey Report

13 August, 2011

PHOENIX
TECHNOLOGY SERVICES

Company:	Petroleum Development Corp.	**Local Co-ordinate Reference:**	Well Puckett 34C-7D
Project:	Mesa	**TVD Reference:**	Puckett 34C-7D KBE @ 8384.0ft (H&P 318)
Site:	SWSE Sec 7-T7S-R96W	**MD Reference:**	Puckett 34C-7D KBE @ 8384.0ft (H&P 318)
Well:	Puckett 34C-7D	**North Reference:**	True
Wellbore:	DD	**Survey Calculation Method:**	Minimum Curvature
Design:	DD	**Database:**	Local

Project Mesa

Map System:	US State Plane 1983	**System Datum:**	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	Colorado Central Zone		

Site SWSE Sec 7-T7S-R96W

Site Position:		**Northing:**		**Latitude:**	
From:	Lat/Long	**Easting:**		**Longitude:**	
Position Uncertainty:	0.0 ft	**Slot Radius:**		**Grid Convergence:**	1.00

Well Puckett 34C-7D

Well Position	**+N/-S**	0.0 ft	**Northing:**	1,598,580.48 ft	**Latitude:**	39.446947
	+E/-W	0.0 ft	**Easting:**	2,252,214.09 ft	**Longitude:**	-108.148369
Position Uncertainty		0.0 ft	**Wellhead Elevation:**	ft	**Ground Level:**	8,360.0 ft

Wellbore DD

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010-14	08/01/11	10.40	65.67	52,171

Design DD

Audit Notes:

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

Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.0	0.0	0.0	144.98

Survey Program **Date** 08/13/11

From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
175.0	8,695.0	Survey #1 (DD)	MWD	Geolink MWD

Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	Subsea Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
0.0	0.00	0.00	0.0	-8,384.0	0.0	0.0	0.0	0.00	0.00	0.00
175.0	1.00	4.30	175.0	-8,209.0	1.5	0.1	-1.2	0.57	0.57	0.00
246.0	0.30	70.80	246.0	-8,138.0	2.2	0.3	-1.6	1.30	-0.99	93.66
338.0	1.10	218.20	338.0	-8,046.0	1.6	0.0	-1.3	1.48	0.87	160.22
432.0	1.30	191.30	432.0	-7,952.0	-0.2	-0.7	-0.3	0.63	0.21	-28.62
523.0	1.00	147.80	522.9	-7,861.1	-1.9	-0.5	1.2	0.99	-0.33	-47.80
615.0	1.30	140.00	614.9	-7,769.1	-3.3	0.6	3.1	0.37	0.33	-8.48
707.0	1.80	127.60	706.9	-7,677.1	-5.0	2.4	5.5	0.65	0.54	-13.48
801.0	3.40	111.30	800.8	-7,583.2	-6.9	6.2	9.2	1.86	1.70	-17.34
895.0	2.70	104.20	894.7	-7,489.3	-8.5	10.9	13.2	0.84	-0.74	-7.55

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Well:	Puckett 34C-7D	**North Reference:**	True
Wellbore:	DD	**Survey Calculation Method:**	Minimum Curvature
Design:	DD	**Database:**	Local

Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	Subsea Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
990.0	2.50	78.60	989.6	-7,394.4	-8.6	15.1	15.7	1.23	-0.21	-26.95
1,084.0	1.30	67.60	1,083.5	-7,300.5	-7.8	18.1	16.8	1.33	-1.28	-11.70
1,178.0	1.50	105.00	1,177.5	-7,206.5	-7.7	20.3	18.0	0.98	0.21	39.79
1,273.0	2.00	93.50	1,272.4	-7,111.6	-8.1	23.1	19.9	0.64	0.53	-12.11
1,367.0	2.70	122.20	1,366.4	-7,017.6	-9.4	26.6	23.0	1.43	0.74	30.53
1,461.0	3.60	124.50	1,460.2	-6,923.8	-12.3	30.9	27.8	0.97	0.96	2.45
1,555.0	4.20	121.40	1,554.0	-6,830.0	-15.7	36.3	33.7	0.68	0.64	-3.30
1,650.0	3.20	133.50	1,648.8	-6,735.2	-19.4	41.2	39.5	1.33	-1.05	12.74
1,744.0	4.00	140.20	1,742.6	-6,641.4	-23.7	45.2	45.4	0.96	0.85	7.13
1,838.0	4.00	135.20	1,836.4	-6,547.6	-28.5	49.6	51.9	0.37	0.00	-5.32
1,932.0	4.90	135.50	1,930.1	-6,453.9	-33.7	54.7	59.0	0.96	0.96	0.32
2,027.0	4.60	126.50	2,024.8	-6,359.2	-38.9	60.6	66.7	0.84	-0.32	-9.47
2,125.0	5.80	127.50	2,122.4	-6,261.6	-44.3	67.7	75.1	1.23	1.22	1.02
2,219.0	4.50	136.50	2,216.0	-6,168.0	-49.8	74.0	83.3	1.62	-1.38	9.57
2,314.0	5.90	126.40	2,310.6	-6,073.4	-55.4	80.5	91.6	1.76	1.47	-10.63
2,408.0	4.50	149.90	2,404.2	-5,979.8	-61.5	86.3	99.9	2.68	-1.49	25.00
2,502.0	4.30	146.70	2,498.0	-5,886.0	-67.6	90.1	107.1	0.34	-0.21	-3.40
2,597.0	3.70	149.40	2,592.7	-5,791.3	-73.2	93.6	113.7	0.66	-0.63	2.84
2,691.0	4.00	146.90	2,686.5	-5,697.5	-78.6	96.9	120.0	0.37	0.32	-2.66
2,785.0	3.90	155.20	2,780.3	-5,603.7	-84.2	100.0	126.4	0.62	-0.11	8.83
2,880.0	4.00	152.90	2,875.1	-5,508.9	-90.1	102.9	132.9	0.20	0.11	-2.42
2,974.0	3.40	152.50	2,968.9	-5,415.1	-95.5	105.7	138.9	0.64	-0.64	-0.43
3,068.0	4.30	136.20	3,062.7	-5,321.3	-100.5	109.4	145.1	1.50	0.96	-17.34
3,163.0	4.10	133.20	3,157.4	-5,226.6	-105.4	114.4	152.0	0.31	-0.21	-3.16
3,257.0	4.30	144.20	3,251.1	-5,132.9	-110.6	118.9	158.8	0.88	0.21	11.70
3,351.0	4.70	141.70	3,344.9	-5,039.1	-116.5	123.3	166.1	0.47	0.43	-2.66
3,446.0	4.30	153.50	3,439.6	-4,944.4	-122.7	127.3	173.5	1.06	-0.42	12.42
3,540.0	4.60	157.90	3,533.3	-4,850.7	-129.3	130.3	180.7	0.48	0.32	4.68
3,634.0	4.50	160.70	3,627.0	-4,757.0	-136.3	132.9	187.9	0.26	-0.11	2.98
3,729.0	4.40	140.60	3,721.7	-4,662.3	-142.7	136.5	195.1	1.64	-0.11	-21.16
3,823.0	4.30	140.60	3,815.4	-4,568.6	-148.2	141.0	202.3	0.11	-0.11	0.00
3,917.0	4.10	138.60	3,909.2	-4,474.8	-153.4	145.5	209.1	0.26	-0.21	-2.13
4,012.0	4.70	154.40	4,003.9	-4,380.1	-159.5	149.4	216.3	1.42	0.63	16.63
4,106.0	4.10	153.00	4,097.6	-4,286.4	-165.9	152.6	223.5	0.65	-0.64	-1.49
4,200.0	4.40	143.70	4,191.4	-4,192.6	-171.8	156.2	230.4	0.80	0.32	-9.89
4,295.0	4.70	142.70	4,286.1	-4,097.9	-177.9	160.8	237.9	0.33	0.32	-1.05
4,389.0	4.80	138.00	4,379.7	-4,004.3	-183.8	165.7	245.7	0.43	0.11	-5.00
4,483.0	4.70	140.20	4,473.4	-3,910.6	-189.7	170.8	253.4	0.22	-0.11	2.34
4,578.0	4.30	131.50	4,568.1	-3,815.9	-195.1	176.0	260.8	0.83	-0.42	-9.16
4,672.0	4.30	133.90	4,661.9	-3,722.1	-199.9	181.2	267.6	0.19	0.00	2.55
4,766.0	4.10	133.50	4,755.6	-3,628.4	-204.6	186.1	274.4	0.22	-0.21	-0.43
4,860.0	4.80	146.80	4,849.3	-3,534.7	-210.2	190.7	281.6	1.32	0.74	14.15
4,955.0	4.50	148.10	4,944.0	-3,440.0	-216.7	194.9	289.3	0.33	-0.32	1.37

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Survey

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5,049.0	4.80	148.40	5,037.7	-3,346.3	-223.2	198.9	296.9	0.32	0.32	0.32
5,144.0	4.70	139.90	5,132.4	-3,251.6	-229.6	203.5	304.8	0.75	-0.11	-8.95
5,238.0	4.90	157.10	5,226.1	-3,157.9	-236.2	207.5	312.5	1.54	0.21	18.30
5,332.0	4.30	157.10	5,319.8	-3,064.2	-243.1	210.5	319.9	0.64	-0.64	0.00
5,427.0	4.50	151.90	5,414.5	-2,969.5	-249.7	213.6	327.1	0.47	0.21	-5.47
5,521.0	4.60	154.80	5,508.2	-2,875.8	-256.4	216.9	334.4	0.27	0.11	3.09
5,616.0	4.60	150.20	5,602.9	-2,781.1	-263.1	220.4	342.0	0.39	0.00	-4.84
5,710.0	3.80	149.90	5,696.6	-2,687.4	-269.1	223.9	348.9	0.85	-0.85	-0.32
5,804.0	3.80	153.00	5,790.4	-2,593.6	-274.6	226.9	355.0	0.22	0.00	3.30
5,898.0	3.40	143.90	5,884.2	-2,499.8	-279.6	229.9	360.9	0.74	-0.43	-9.68
5,992.0	3.00	142.00	5,978.1	-2,405.9	-283.8	233.1	366.2	0.44	-0.43	-2.02
6,087.0	2.90	143.50	6,073.0	-2,311.0	-287.7	236.0	371.0	0.13	-0.11	1.58
6,181.0	2.80	122.80	6,166.8	-2,217.2	-290.8	239.4	375.5	1.09	-0.11	-22.02
6,275.0	1.20	124.60	6,260.8	-2,123.2	-292.6	242.1	378.6	1.70	-1.70	1.91
6,370.0	1.10	144.60	6,355.8	-2,028.2	-293.9	243.5	380.4	0.43	-0.11	21.05
6,464.0	0.90	52.20	6,449.8	-1,934.2	-294.2	244.6	381.3	1.54	-0.21	-98.30
6,558.0	1.50	61.50	6,543.7	-1,840.3	-293.2	246.2	381.4	0.67	0.64	9.89
6,653.0	0.90	103.60	6,638.7	-1,745.3	-292.8	248.1	382.1	1.08	-0.63	44.32
6,747.0	0.70	126.20	6,732.7	-1,651.3	-293.3	249.2	383.2	0.39	-0.21	24.04
6,842.0	0.50	115.20	6,827.7	-1,556.3	-293.8	250.1	384.1	0.24	-0.21	-11.58
6,936.0	1.10	158.40	6,921.7	-1,462.3	-294.8	250.8	385.3	0.86	0.64	45.96
7,030.0	1.10	169.40	7,015.7	-1,368.3	-296.5	251.3	387.0	0.22	0.00	11.70
7,124.0	1.10	171.40	7,109.7	-1,274.3	-298.3	251.6	388.7	0.04	0.00	2.13
7,219.0	1.20	186.20	7,204.6	-1,179.4	-300.2	251.6	390.2	0.33	0.11	15.58
7,313.0	1.10	170.00	7,298.6	-1,085.4	-302.1	251.7	391.8	0.36	-0.11	-17.23
7,407.0	2.00	176.70	7,392.6	-991.4	-304.6	251.9	394.0	0.98	0.96	7.13
7,502.0	2.00	173.60	7,487.5	-896.5	-307.9	252.2	396.9	0.11	0.00	-3.26
7,596.0	2.50	186.50	7,581.5	-802.5	-311.6	252.1	399.9	0.75	0.53	13.72
7,690.0	2.30	192.90	7,675.4	-708.6	-315.4	251.5	402.7	0.36	-0.21	6.81
7,785.0	1.80	212.90	7,770.3	-613.7	-318.6	250.3	404.5	0.91	-0.53	21.05
7,879.0	2.20	222.00	7,864.3	-519.7	-321.1	248.2	405.5	0.54	0.43	9.68
7,973.0	1.90	217.40	7,958.2	-425.8	-323.7	246.1	406.3	0.36	-0.32	-4.89
8,068.0	2.40	223.20	8,053.1	-330.9	-326.4	243.8	407.2	0.57	0.53	6.11
8,162.0	1.20	229.40	8,147.1	-236.9	-328.5	241.7	407.7	1.29	-1.28	6.60
8,256.0	0.50	165.30	8,241.1	-142.9	-329.5	241.0	408.2	1.15	-0.74	-68.19
8,350.0	0.80	176.20	8,335.1	-48.9	-330.6	241.2	409.1	0.34	0.32	11.60
8,445.0	1.40	190.70	8,430.1	46.1	-332.4	241.0	410.5	0.69	0.63	15.26
8,539.0	2.00	192.20	8,524.0	140.0	-335.1	240.4	412.4	0.64	0.64	1.60
8,645.0	1.90	181.90	8,629.9	245.9	-338.7	240.0	415.1	0.34	-0.09	-9.72
Projection to Bit										
8,695.0	1.90	181.90	8,679.9	295.9	-340.3	239.9	416.4	0.00	0.00	0.00

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Well:	Puckett 34C-7D	**North Reference:**	True
Wellbore:	DD	**Survey Calculation Method:**	Minimum Curvature
Design:	DD	**Database:**	Local

Survey Annotations

Measured Depth ()	Vertical Depth ()	Local Coordinates +N/-S ()	Local Coordinates +E/-W ()	Comment
8,695.0	8,679.9	-340.3	239.9	Projection to Bit

Checked By: _____ Approved By: _____ Date: _____