



Project: SEC.18-T1N-R66W
Site: Denver 20-18 Pad Sec.18-T1N-R66W
Well: Denver 16-18
Plan: Wellbore #1



Anadarko, Weld County CO

SEC.18-T1N-R66W

Denver 20-18 Pad Sec.18-T1N-R66W

Denver 16-18

Wellbore #1

Survey: Survey #1

Standard Survey Report

24 January, 2011



Company:	Anadarko, Weld County CO	Local Co-ordinate Reference:	Well Denver 16-18
Project:	SEC.18-T1N-R66W	TVD Reference:	WELL @ 4950.0ft (Original Well Elev)
Site:	Denver 20-18 Pad Sec.18-T1N-R66W	MD Reference:	WELL @ 4950.0ft (Original Well Elev)
Well:	Denver 16-18	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	Landmark

Project	SEC.18-T1N-R66W, Weld County, Colorado		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		Using Well Reference Point
Map Zone:	Colorado Northern Zone		Using geodetic scale factor

Site	Denver 20-18 Pad Sec.18-T1N-R66W		
Site Position:		Northing:	1,260,775.29 ft
From:	Lat/Long	Easting:	3,192,217.36 ft
Position Uncertainty:	0.0 ft	Slot Radius:	"
		Latitude:	40° 2' 49.826 N
		Longitude:	104° 48' 48.254 W
		Grid Convergence:	0.44 °

Well	Denver 16-18		
Well Position	+N/-S	0.0 ft	Northing: 1,260,775.87 ft
	+E/-W	0.0 ft	Easting: 3,192,247.31 ft
Position Uncertainty	0.0 ft	Wellhead Elevation:	ft
		Latitude:	40° 2' 49.830 N
		Longitude:	104° 48' 47.869 W
		Ground Level:	4,935.0 ft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	1/13/2011	8.91	66.77	52,983

Design	Wellbore #1				
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 (°)	
	5,000.0	0.0	0.0	157.55	

Survey Program	Date	1/24/2011			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
89.0	8,155.0	Survey #1 (Wellbore #1)	MWD	MWD - Standard	

Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical 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	0.0	0.0	0.0	0.00	0.00	0.00	
89.0	0.70	49.00	89.0	0.4	0.4	-0.2	0.79	0.79	0.00	
146.0	0.70	32.60	146.0	0.9	0.9	-0.5	0.35	0.00	-28.77	
235.0	0.70	25.50	235.0	1.8	1.4	-1.2	0.10	0.00	-7.98	
325.0	0.40	64.70	325.0	2.5	1.9	-1.5	0.52	-0.33	43.56	
417.0	0.40	113.80	417.0	2.5	2.5	-1.3	0.36	0.00	53.37	
508.0	0.30	65.00	508.0	2.4	3.0	-1.1	0.33	-0.11	-53.63	
600.0	0.30	79.30	600.0	2.6	3.5	-1.1	0.08	0.00	15.54	
693.0	0.30	62.50	693.0	2.7	3.9	-1.0	0.09	0.00	-18.06	
787.0	0.20	263.00	787.0	2.8	4.0	-1.1	0.52	-0.11	-169.68	
882.0	0.10	47.00	882.0	2.9	3.9	-1.2	0.30	-0.11	151.58	
952.0	0.40	263.00	952.0	2.9	3.7	-1.3	0.69	0.43	-205.71	
1,019.0	0.10	6.60	1,019.0	2.9	3.4	-1.4	0.65	-0.45	154.63	

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Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	Landmark

Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
1,115.0	0.10	6.60	1,115.0	3.1	3.5	-1.5	0.00	0.00	0.00
1,210.0	0.10	73.30	1,210.0	3.2	3.5	-1.6	0.12	0.00	70.21
1,305.0	0.40	101.20	1,305.0	3.1	4.0	-1.4	0.33	0.32	29.37
1,400.0	3.00	104.60	1,399.9	2.5	6.7	0.3	2.74	2.74	3.58
1,495.0	4.90	119.80	1,494.7	-0.2	12.6	5.0	2.27	2.00	16.00
1,591.0	6.90	119.00	1,590.2	-5.0	21.2	12.7	2.09	2.08	-0.83
1,686.0	6.20	132.30	1,684.6	-11.2	30.0	21.8	1.75	-0.74	14.00
1,781.0	8.50	136.50	1,778.8	-19.8	38.6	33.0	2.48	2.42	4.42
1,876.0	11.00	144.80	1,872.4	-32.3	48.7	48.4	3.01	2.63	8.74
1,971.0	11.40	145.60	1,965.6	-47.4	59.2	66.5	0.45	0.42	0.84
2,068.0	13.90	145.50	2,060.2	-65.0	71.2	87.2	2.58	2.58	-0.10
2,164.0	15.30	153.20	2,153.1	-85.8	83.5	111.1	2.49	1.46	8.02
2,259.0	16.50	150.20	2,244.5	-108.7	95.8	137.0	1.53	1.26	-3.16
2,354.0	15.80	154.00	2,335.8	-132.0	108.2	163.3	1.33	-0.74	4.00
2,449.0	15.50	155.50	2,427.2	-155.2	119.1	188.9	0.53	-0.32	1.58
2,545.0	15.40	159.40	2,519.8	-178.8	128.9	214.5	1.09	-0.10	4.06
2,640.0	14.10	164.30	2,611.6	-201.7	136.5	238.6	1.90	-1.37	5.16
2,735.0	12.70	160.90	2,704.1	-222.7	143.1	260.5	1.69	-1.47	-3.58
2,830.0	12.90	173.40	2,796.7	-243.1	147.7	281.1	2.92	0.21	13.16
2,925.0	13.60	167.10	2,889.2	-264.6	151.4	302.3	1.69	0.74	-6.63
3,021.0	16.40	171.60	2,981.9	-289.0	155.9	326.6	3.16	2.92	4.69
3,116.0	16.30	170.10	3,073.1	-315.4	160.2	352.6	0.46	-0.11	-1.58
3,211.0	16.40	168.70	3,164.2	-341.7	165.1	378.8	0.43	0.11	-1.47
3,306.0	15.10	165.60	3,255.7	-366.8	170.8	404.2	1.63	-1.37	-3.26
3,401.0	13.20	169.20	3,347.8	-389.4	175.9	427.1	2.20	-2.00	3.79
3,496.0	12.10	161.10	3,440.5	-409.5	181.2	447.7	2.19	-1.16	-8.53
3,591.0	10.80	160.30	3,533.6	-427.3	187.4	466.5	1.38	-1.37	-0.84
3,686.0	11.10	166.80	3,626.9	-444.6	192.5	484.4	1.34	0.32	6.84
3,782.0	13.10	169.40	3,720.7	-464.3	196.6	504.2	2.16	2.08	2.71
3,877.0	13.20	163.10	3,813.2	-485.3	201.7	525.5	1.51	0.11	-6.63
3,972.0	13.80	161.00	3,905.6	-506.4	208.6	547.6	0.82	0.63	-2.21
4,067.0	14.70	158.60	3,997.7	-528.3	216.6	571.0	1.13	0.95	-2.53
4,162.0	12.70	149.30	4,090.0	-548.5	226.4	593.4	3.13	-2.11	-9.79
4,257.0	14.80	157.10	4,182.3	-568.7	236.4	615.8	2.94	2.21	8.21
4,352.0	13.70	160.50	4,274.3	-590.4	244.9	639.2	1.45	-1.16	3.58
4,448.0	10.80	156.10	4,368.2	-609.4	252.4	659.6	3.17	-3.02	-4.58
4,543.0	7.20	146.60	4,462.0	-622.5	259.2	674.3	4.09	-3.79	-10.00
4,638.0	7.80	137.90	4,556.2	-632.2	266.8	686.2	1.35	0.63	-9.16
4,733.0	6.30	138.30	4,650.4	-640.9	274.6	697.2	1.58	-1.58	0.42
4,828.0	4.60	151.00	4,745.0	-648.1	279.9	705.9	2.18	-1.79	13.37
4,923.0	3.20	162.70	4,839.8	-654.0	282.6	712.4	1.69	-1.47	12.32
5,018.0	1.70	201.10	4,934.7	-657.9	282.9	716.0	2.26	-1.58	40.42
5,083.4	0.53	316.12	5,000.1	-658.5	282.3	716.4	3.03	-1.79	175.94
TARGET BHL 510°FSL, 510°FEL									
5,113.0	1.30	348.60	5,029.7	-658.1	282.1	716.0	3.03	2.60	109.64
5,208.0	1.90	7.80	5,124.7	-655.5	282.1	713.6	0.84	0.63	20.21
5,304.0	1.70	32.80	5,220.6	-652.7	283.1	711.4	0.84	-0.21	26.04
5,399.0	0.40	148.40	5,315.6	-651.8	284.1	710.9	2.01	-1.37	121.68
5,494.0	0.60	47.20	5,410.6	-651.8	284.6	711.1	0.82	0.21	-106.53
5,589.0	0.80	39.30	5,505.6	-650.9	285.4	710.6	0.23	0.21	-8.32
5,684.0	0.70	6.40	5,600.6	-649.8	285.9	709.7	0.46	-0.11	-34.63
5,779.0	1.00	0.80	5,695.6	-648.4	285.9	708.5	0.33	0.32	-5.89
5,874.0	1.30	359.60	5,790.6	-646.5	286.0	706.7	0.32	0.32	-1.26
5,970.0	1.40	350.90	5,886.5	-644.3	285.8	704.6	0.24	0.10	-9.06

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6,065.0	1.10	1.10	5,981.5	-642.2	285.6	702.6	0.39	-0.32	10.74	
6,160.0	1.10	301.00	6,076.5	-640.8	284.8	701.0	1.16	0.00	-63.26	
6,255.0	1.10	332.50	6,171.5	-639.5	283.6	699.4	0.63	0.00	33.16	
6,350.0	1.20	350.00	6,266.5	-637.8	283.0	697.5	0.38	0.11	18.42	
6,445.0	2.00	257.70	6,361.4	-637.1	281.2	696.2	2.50	0.84	-97.16	
6,541.0	1.80	265.70	6,457.4	-637.6	278.1	695.5	0.35	-0.21	8.33	
6,636.0	1.30	278.10	6,552.3	-637.6	275.5	694.5	0.63	-0.53	13.05	
6,731.0	1.00	271.60	6,647.3	-637.4	273.6	693.6	0.34	-0.32	-6.84	
6,826.0	0.60	316.20	6,742.3	-637.0	272.5	692.8	0.75	-0.42	46.95	
6,921.0	0.60	327.50	6,837.3	-636.2	271.9	691.8	0.12	0.00	11.89	
7,016.0	0.60	342.00	6,932.3	-635.3	271.4	690.8	0.16	0.00	15.26	
7,112.0	0.50	347.10	7,028.3	-634.5	271.2	689.9	0.12	-0.10	5.31	
7,178.4	0.56	4.76	7,094.7	-633.8	271.2	689.4	0.26	0.09	26.58	
TARGET CIRCLE 510'FSL & 510'FEL										
7,179.7	0.56	5.06	7,096.0	-633.8	271.2	689.3	0.26	0.13	23.28	
LEGAL BOX 400' X 400' 661'FSL & 660'FEL										
7,207.0	0.60	11.00	7,123.3	-633.6	271.2	689.1	0.26	0.14	21.78	
7,302.0	0.70	27.20	7,218.3	-632.6	271.6	688.3	0.22	0.11	17.05	
7,397.0	0.70	34.80	7,313.3	-631.6	272.2	687.6	0.10	0.00	8.00	
7,492.0	0.70	47.70	7,408.3	-630.7	272.9	687.1	0.17	0.00	13.58	
7,587.0	0.90	57.40	7,503.3	-629.9	274.0	686.8	0.25	0.21	10.21	
7,683.0	1.00	47.00	7,599.3	-628.9	275.2	686.4	0.21	0.10	-10.83	
7,778.0	1.10	37.10	7,694.2	-627.6	276.4	685.6	0.22	0.11	-10.42	
7,867.0	0.80	20.10	7,783.2	-626.4	277.1	684.7	0.46	-0.34	-19.10	
7,956.0	0.80	11.00	7,872.2	-625.2	277.4	683.7	0.14	0.00	-10.22	
8,105.0	0.50	40.30	8,021.2	-623.7	278.1	682.6	0.29	-0.20	19.66	
8,155.0	0.50	40.30	8,071.2	-623.3	278.3	682.4	0.00	0.00	0.00	

Checked By: _____	Approved By: _____	Date: _____
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