

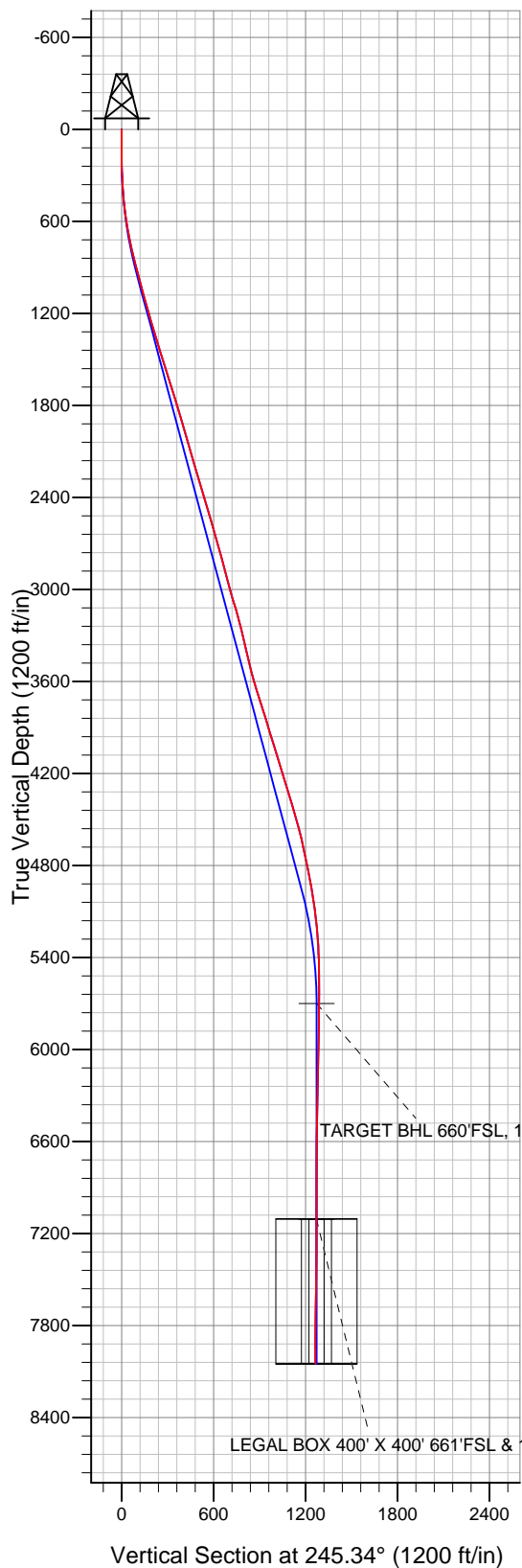
Well Name: **Denver 15-18**

Surface Location: Denver 20-18 Pad Sec.18-T1N-R66W  
North American Datum 1983 US State Plane 1983 Colorado Northern Zone

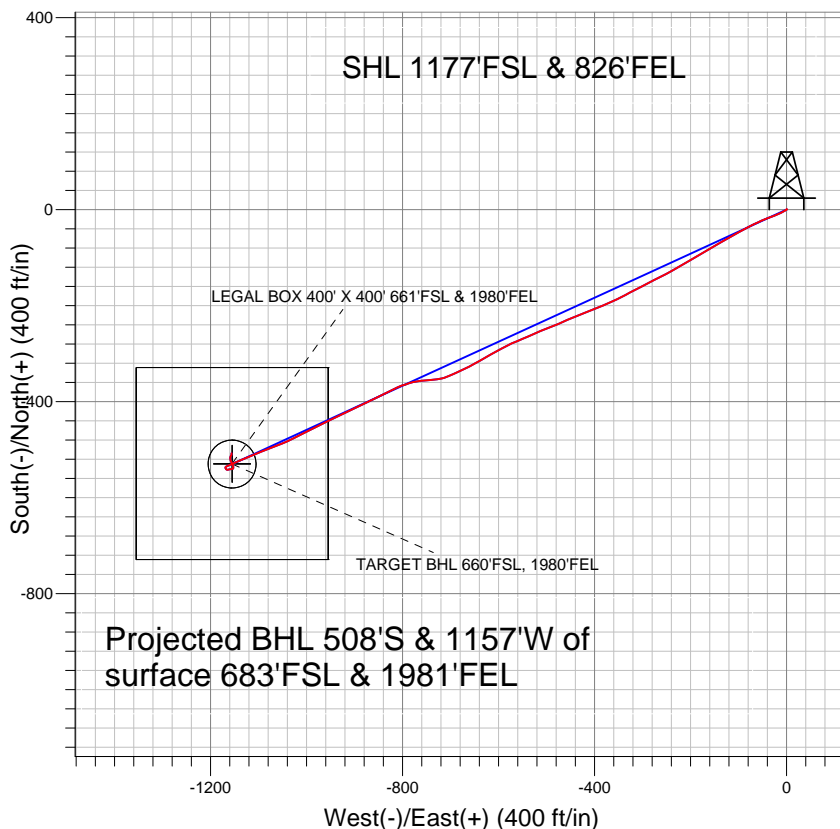
Ground Elevation: 4935.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
0.0	0.0	1260775.19	3192207.28	40° 2' 49.826 N	104° 48' 48.384 W
Original Well Elev WELL @ 4950.0ft (Original Well Elev)					

Slot



## Anadarko, Weld County CO



### LEGEND

- ◆ Denver 15-18, Wellbore #1, Plan #1 (12-14-10) V0
- Wellbore #1
- Survey #1

## Final Survey Plot

Projected Final Survey -  
8222'MD & 8048'TVD @ 1263' VS  
0.7 deg Inc 354.4 deg AZ

Project: SEC.18-T1N-R66W  
Site: Denver 20-18 Pad Sec.18-T1N-R66W  
Well: Denver 15-18  
Plan: Wellbore #1



## **Directional**

### **Anadarko, Weld County CO**

**SEC.18-T1N-R66W**

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

**Denver 15-18**

**Wellbore #1**

**Survey: Survey #1**

### **Standard Survey Report**

**14 February, 2011**

<b>Company:</b>	Anadarko, Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Denver 15-18
<b>Project:</b>	SEC.18-T1N-R66W	<b>TVD Reference:</b>	WELL @ 4950.0ft (Original Well Elev)
<b>Site:</b>	Denver 20-18 Pad Sec.18-T1N-R66W	<b>MD Reference:</b>	WELL @ 4950.0ft (Original Well Elev)
<b>Well:</b>	Denver 15-18	<b>North Reference:</b>	True
<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Wellbore #1	<b>Database:</b>	Landmark

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

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

<b>Well</b>	Denver 15-18		
<b>Well Position</b>	<b>+N/-S</b>	0.0 ft	<b>Northing:</b> 1,260,775.19 ft
	<b>+E/-W</b>	0.0 ft	<b>Easting:</b> 3,192,207.28 ft
<b>Position Uncertainty</b>	0.0 ft	<b>Wellhead Elevation:</b>	ft
		<b>Latitude:</b>	40° 2' 49.826 N
		<b>Longitude:</b>	104° 48' 48.384 W
		<b>Ground Level:</b>	4,935.0 ft

<b>Wellbore</b>	Wellbore #1				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF2010	12/14/2010	8.93	66.77	52,992

<b>Design</b>	Wellbore #1				
<b>Audit Notes:</b>					
<b>Version:</b>	1.0	<b>Phase:</b>	ACTUAL	<b>Tie On Depth:</b>	0.0
<b>Vertical Section:</b>	<b>Depth From (TVD) (ft)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Direction (°)</b>	
	0.0	0.0	0.0	245.34	

<b>Survey Program</b>	<b>Date</b>	2/14/2011			
<b>From (ft)</b>	<b>To (ft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>	
144.0	8,222.0	Survey #1 (Wellbore #1)	MWD	MWD - Standard	

<b>Survey</b>										
<b>Measured Depth (ft)</b>	<b>Inclination (°)</b>	<b>Azimuth (°)</b>	<b>Vertical Depth (ft)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Vertical Section (ft)</b>	<b>Dogleg Rate (°/100ft)</b>	<b>Build Rate (°/100ft)</b>	<b>Turn Rate (°/100ft)</b>	
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00	
144.0	0.30	59.60	144.0	0.2	0.3	-0.4	0.21	0.21	0.00	
233.0	1.00	236.40	233.0	-0.1	-0.1	0.2	1.46	0.79	198.65	
323.0	2.70	236.10	322.9	-1.7	-2.5	3.0	1.89	1.89	-0.33	
415.0	4.70	241.90	414.7	-4.7	-7.7	8.9	2.21	2.17	6.30	
506.0	6.50	245.30	505.3	-8.6	-15.6	17.8	2.01	1.98	3.74	
598.0	8.50	249.40	596.5	-13.2	-26.7	29.8	2.25	2.17	4.46	
690.0	11.00	248.80	687.2	-18.8	-41.3	45.3	2.72	2.72	-0.65	
785.0	12.70	245.10	780.2	-26.4	-59.2	64.8	1.96	1.79	-3.89	
880.0	14.50	243.10	872.5	-36.2	-79.3	87.2	1.96	1.89	-2.11	
948.0	14.90	241.00	938.3	-44.3	-94.5	104.4	0.98	0.59	-3.09	
1,020.0	14.70	239.20	1,007.9	-53.5	-110.5	122.7	0.70	-0.28	-2.50	
1,115.0	15.80	241.90	1,099.5	-65.7	-132.2	147.6	1.38	1.16	2.84	

<b>Company:</b>	Anadarko, Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Denver 15-18
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<b>Site:</b>	Denver 20-18 Pad Sec.18-T1N-R66W	<b>MD Reference:</b>	WELL @ 4950.0ft (Original Well Elev)
<b>Well:</b>	Denver 15-18	<b>North Reference:</b>	True
<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Wellbore #1	<b>Database:</b>	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)	
1,210.0	16.30	240.20	1,190.8	-78.5	-155.2	173.8	0.72	0.53	-1.79	
1,305.0	16.50	238.90	1,282.0	-92.1	-178.3	200.5	0.44	0.21	-1.37	
1,401.0	16.90	238.60	1,373.9	-106.4	-201.9	227.9	0.43	0.42	-0.31	
1,496.0	17.20	239.90	1,464.7	-120.6	-225.8	255.6	0.51	0.32	1.37	
1,591.0	18.00	242.80	1,555.3	-134.4	-251.1	284.2	1.25	0.84	3.05	
1,686.0	17.50	242.80	1,645.8	-147.6	-276.8	313.1	0.53	-0.53	0.00	
1,781.0	17.10	243.30	1,736.5	-160.4	-302.0	341.4	0.45	-0.42	0.53	
1,876.0	16.70	242.80	1,827.4	-172.9	-326.6	369.0	0.45	-0.42	-0.53	
1,972.0	16.70	244.20	1,919.3	-185.2	-351.3	396.5	0.42	0.00	1.46	
2,069.0	16.00	244.20	2,012.4	-197.1	-375.9	423.8	0.72	-0.72	0.00	
2,164.0	15.90	248.50	2,103.7	-207.6	-399.8	449.9	1.25	-0.11	4.53	
2,259.0	16.80	250.80	2,194.9	-216.9	-424.8	476.6	1.17	0.95	2.42	
2,354.0	16.80	245.50	2,285.9	-227.1	-450.3	504.0	1.61	0.00	-5.58	
2,450.0	16.50	247.30	2,377.8	-238.1	-475.5	531.5	0.62	-0.31	1.88	
2,545.0	16.80	248.80	2,468.8	-248.3	-500.8	558.7	0.55	0.32	1.58	
2,640.0	16.40	245.00	2,559.9	-258.9	-525.7	585.8	1.22	-0.42	-4.00	
2,735.0	15.60	248.50	2,651.2	-269.2	-549.8	611.9	1.32	-0.84	3.68	
2,831.0	14.90	245.20	2,743.8	-279.1	-573.0	637.2	1.16	-0.73	-3.44	
2,926.0	15.30	241.80	2,835.6	-290.2	-595.1	661.9	1.02	0.42	-3.58	
3,021.0	14.90	240.60	2,927.3	-302.1	-616.8	686.6	0.53	-0.42	-1.26	
3,116.0	15.60	239.00	3,018.9	-314.7	-638.4	711.5	0.86	0.74	-1.68	
3,211.0	16.70	242.80	3,110.2	-327.5	-661.5	737.8	1.61	1.16	4.00	
3,306.0	16.20	246.20	3,201.3	-339.1	-685.7	764.7	1.14	-0.53	3.58	
3,402.0	13.30	247.30	3,294.1	-348.8	-708.2	789.1	3.03	-3.02	1.15	
3,496.0	12.70	264.70	3,385.7	-353.9	-728.5	809.7	4.20	-0.64	18.51	
3,591.0	15.00	265.40	3,478.0	-355.8	-751.1	831.1	2.43	2.42	0.74	
3,687.0	15.60	257.70	3,570.6	-359.6	-776.1	855.4	2.21	0.63	-8.02	
3,782.0	17.50	250.50	3,661.7	-367.1	-802.1	882.1	2.94	2.00	-7.58	
3,877.0	17.30	241.20	3,752.3	-378.7	-827.9	910.4	2.93	-0.21	-9.79	
3,972.0	17.70	243.80	3,842.9	-391.8	-853.2	938.9	0.92	0.42	2.74	
4,067.0	17.40	245.50	3,933.5	-404.1	-879.1	967.5	0.63	-0.32	1.79	
4,163.0	17.30	244.90	4,025.1	-416.1	-905.1	996.2	0.21	-0.10	-0.63	
4,258.0	16.90	243.40	4,115.9	-428.3	-930.2	1,024.1	0.63	-0.42	-1.58	
4,353.0	16.40	243.80	4,207.0	-440.4	-954.6	1,051.3	0.54	-0.53	0.42	
4,448.0	17.60	243.60	4,297.8	-452.7	-979.5	1,079.1	1.26	1.26	-0.21	
4,543.0	17.10	243.20	4,388.5	-465.4	-1,004.9	1,107.4	0.54	-0.53	-0.42	
4,638.0	15.60	242.70	4,479.6	-477.5	-1,028.7	1,134.1	1.59	-1.58	-0.53	
4,734.0	14.50	248.80	4,572.3	-487.8	-1,051.4	1,159.0	2.01	-1.15	6.35	
4,829.0	12.20	248.90	4,664.8	-495.7	-1,071.8	1,180.9	2.42	-2.42	0.11	
4,923.0	12.50	249.10	4,756.6	-502.9	-1,090.6	1,201.0	0.32	0.32	0.21	
5,018.0	10.90	247.40	4,849.6	-510.0	-1,108.5	1,220.2	1.72	-1.68	-1.79	
5,113.0	9.50	246.40	4,943.1	-516.6	-1,124.0	1,237.0	1.49	-1.47	-1.05	
5,209.0	8.80	247.10	5,037.9	-522.7	-1,138.0	1,252.3	0.74	-0.73	0.73	
5,304.0	7.00	245.40	5,132.0	-527.9	-1,149.9	1,265.3	1.91	-1.89	-1.79	
5,399.0	5.00	246.10	5,226.5	-532.0	-1,159.0	1,275.3	2.11	-2.11	0.74	
5,494.0	3.20	252.60	5,321.2	-534.5	-1,165.3	1,282.0	1.95	-1.89	6.84	
5,589.0	1.90	217.40	5,416.1	-536.5	-1,168.8	1,286.0	2.08	-1.37	-37.05	
5,684.0	1.00	163.50	5,511.1	-538.5	-1,169.5	1,287.6	1.62	-0.95	-56.74	
5,779.0	1.00	141.60	5,606.1	-540.0	-1,168.8	1,287.5	0.40	0.00	-23.05	
5,872.9	0.71	149.55	5,700.0	-541.1	-1,168.0	1,287.2	0.34	-0.31	8.46	
TARGET BHL 660'FSL, 1980'FEL										
5,875.0	0.70	149.80	5,702.1	-541.2	-1,167.9	1,287.2	0.34	-0.30	12.05	
5,970.0	0.80	108.90	5,797.1	-541.9	-1,167.0	1,286.7	0.56	0.11	-43.05	
6,065.0	0.80	103.70	5,892.1	-542.2	-1,165.8	1,285.7	0.08	0.00	-5.47	

<b>Company:</b>	Anadarko, Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Denver 15-18
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<b>Site:</b>	Denver 20-18 Pad Sec.18-T1N-R66W	<b>MD Reference:</b>	WELL @ 4950.0ft (Original Well Elev)
<b>Well:</b>	Denver 15-18	<b>North Reference:</b>	True
<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Wellbore #1	<b>Database:</b>	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)
6,160.0	1.10	78.60	5,987.0	-542.2	-1,164.2	1,284.3	0.53	0.32	-26.42
6,255.0	1.20	76.10	6,082.0	-541.8	-1,162.4	1,282.4	0.12	0.11	-2.63
6,351.0	1.30	78.20	6,178.0	-541.3	-1,160.3	1,280.4	0.11	0.10	2.19
6,446.0	1.30	76.30	6,273.0	-540.9	-1,158.2	1,278.2	0.05	0.00	-2.00
6,541.0	1.90	85.70	6,367.9	-540.5	-1,155.6	1,275.7	0.69	0.63	9.89
6,636.0	0.60	48.30	6,462.9	-540.0	-1,153.7	1,273.8	1.55	-1.37	-39.37
6,731.0	0.70	20.10	6,557.9	-539.2	-1,153.1	1,272.9	0.35	0.11	-29.68
6,826.0	1.10	0.90	6,652.9	-537.7	-1,152.9	1,272.1	0.52	0.42	-20.21
6,921.0	1.30	349.70	6,747.9	-535.7	-1,153.0	1,271.4	0.32	0.21	-11.79
7,017.0	1.60	341.20	6,843.9	-533.4	-1,153.7	1,271.0	0.38	0.31	-8.85
7,112.0	2.20	335.30	6,938.8	-530.5	-1,154.9	1,270.9	0.66	0.63	-6.21
7,207.0	2.10	332.50	7,033.7	-527.3	-1,156.4	1,271.0	0.15	-0.11	-2.95
7,278.1	2.02	335.83	7,104.8	-525.0	-1,157.5	1,271.0	0.20	-0.11	4.68
<b>LEGAL BOX 400' X 400' 661'FSL &amp; 1980'FEL - TARGET CIRCLE 660'FSL &amp; 1980'FEL</b>									
7,302.0	2.00	337.00	7,128.7	-524.2	-1,157.9	1,271.0	0.20	-0.10	4.91
7,397.0	1.50	339.00	7,223.6	-521.5	-1,159.0	1,270.9	0.53	-0.53	2.11
7,492.0	1.10	350.90	7,318.6	-519.5	-1,159.6	1,270.5	0.51	-0.42	12.53
7,588.0	1.20	7.90	7,414.6	-517.6	-1,159.6	1,269.8	0.37	0.10	17.71
7,683.0	1.20	21.30	7,509.6	-515.6	-1,159.1	1,268.5	0.29	0.00	14.11
7,778.0	1.20	26.70	7,604.5	-513.8	-1,158.3	1,267.0	0.12	0.00	5.68
7,873.0	1.00	34.20	7,699.5	-512.3	-1,157.4	1,265.5	0.26	-0.21	7.89
7,968.0	0.80	13.50	7,794.5	-510.9	-1,156.7	1,264.4	0.40	-0.21	-21.79
8,063.0	0.70	4.80	7,889.5	-509.7	-1,156.5	1,263.7	0.16	-0.11	-9.16
8,172.0	0.70	354.40	7,998.5	-508.4	-1,156.5	1,263.2	0.12	0.00	-9.54
8,222.0	0.70	354.40	8,048.5	-507.8	-1,156.6	1,263.0	0.00	0.00	0.00

Checked By: \_\_\_\_\_ Approved By: \_\_\_\_\_ Date: \_\_\_\_\_