

Well Name: **Cooley 35-16**

Surface Location: Cooley 19-16 Pad Sec.16-T2N-R68W  
 North American Datum 1983 US State Plane 1983 Colorado Northern Zone

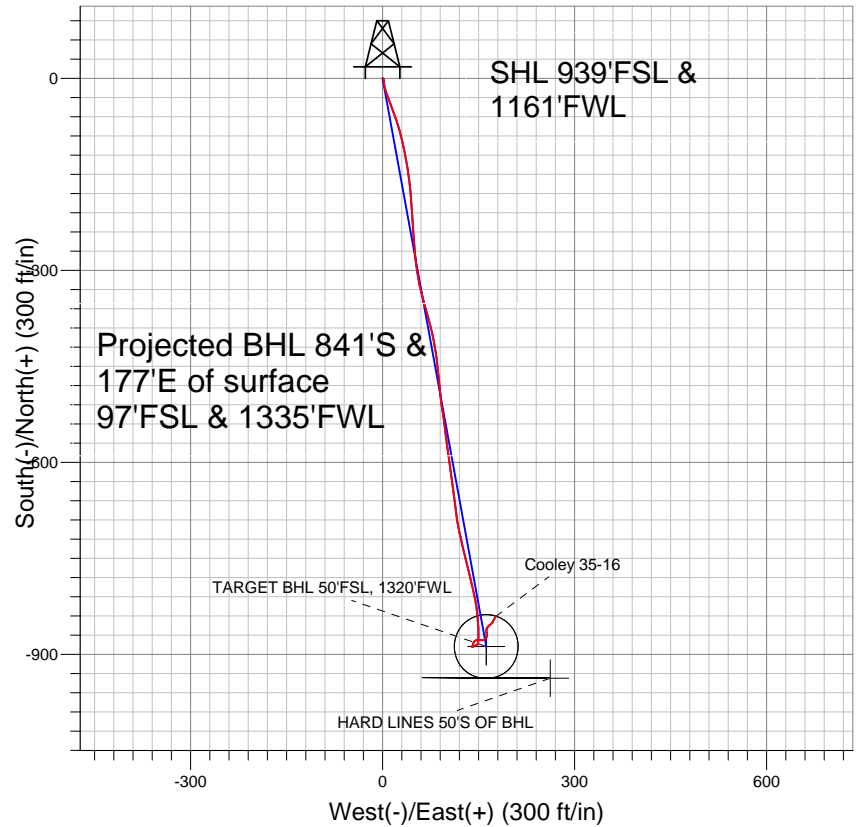
Ground Elevation: 4885.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
0.0	0.0	1292055.98	3136026.11	40.134063	-105.013500

Original Well Elev WELL @ 4900.0ft (Original Well Elev)

Slot

## Anadarko, Weld County CO



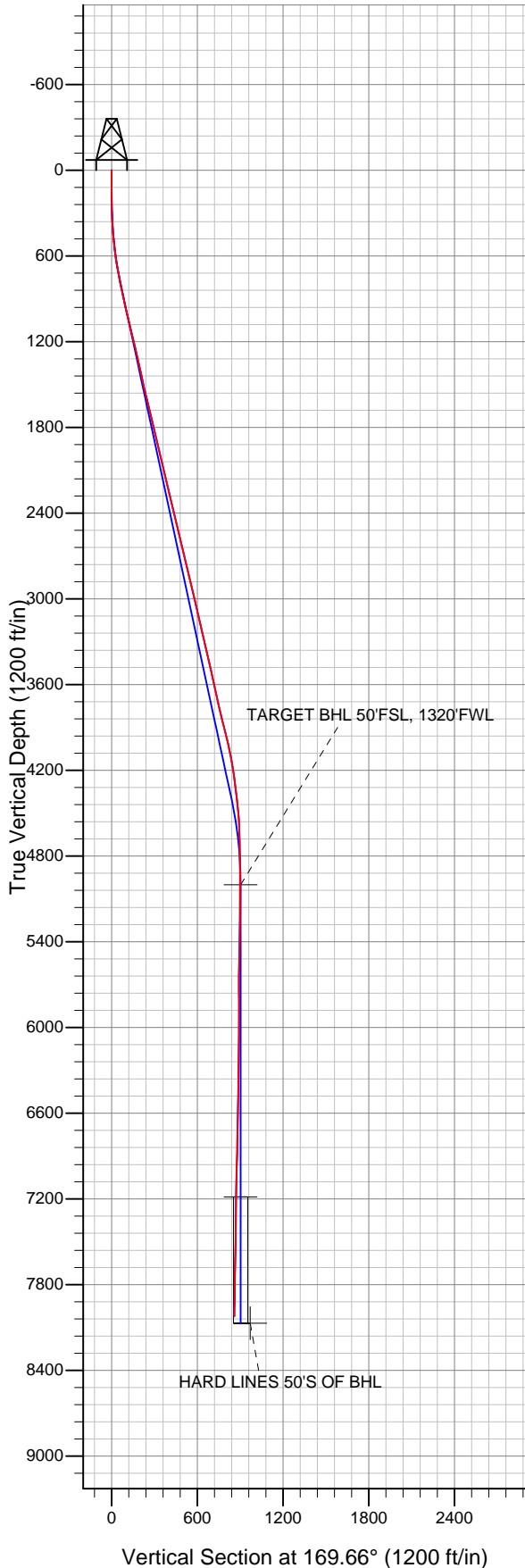
### LEGEND

- x Cooley 35-16, Wellbore #1, Plan #1 (7-25-11) V0
- Wellbore #1
- Survey #1

## Final Survey Plot

Projected Final Survey -  
 8121'MD & 8022'TVD @ 859'VS  
 0.8 deg Inc 27.4 deg AZ

Project: SEC.16-T2N-R68W  
 Site: Cooley 19-16 Pad Sec.16-T2N-R68W  
 Well: Cooley 35-16  
 Plan: Wellbore #1





## **Directional**

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

**SEC.16-T2N-R68W**

**Cooley 19-16 Pad Sec.16-T2N-R68W**

**Cooley 35-16**

**Wellbore #1**

**Survey: Survey #1**

### **Standard Survey Report**

**18 August, 2011**

<b>Company:</b>	Anadarko, Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Cooley 35-16
<b>Project:</b>	SEC.16-T2N-R68W	<b>TVD Reference:</b>	WELL @ 4900.0ft (Original Well Elev)
<b>Site:</b>	Cooley 19-16 Pad Sec.16-T2N-R68W	<b>MD Reference:</b>	WELL @ 4900.0ft (Original Well Elev)
<b>Well:</b>	Cooley 35-16	<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.16-T2N-R68W, 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>	Cooley 19-16 Pad Sec.16-T2N-R68W		
<b>Site Position:</b>		<b>Northing:</b>	1,292,055.98 ft
<b>From:</b>	Lat/Long	<b>Easting:</b>	3,136,026.11 ft
<b>Position Uncertainty:</b>	0.0 ft	<b>Slot Radius:</b>	"
		<b>Latitude:</b>	40.134063
		<b>Longitude:</b>	-105.013500
		<b>Grid Convergence:</b>	0.31 °

<b>Well</b>	Cooley 35-16		
<b>Well Position</b>	<b>+N/-S</b>	0.0 ft	<b>Northing:</b> 1,292,055.98 ft
	<b>+E/-W</b>	0.0 ft	<b>Easting:</b> 3,136,026.11 ft
<b>Position Uncertainty</b>	0.0 ft	<b>Wellhead Elevation:</b>	ft
		<b>Latitude:</b>	40.134063
		<b>Longitude:</b>	-105.013500
		<b>Ground Level:</b>	4,885.0 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	8/2/2011	8.96	66.79	52,950

<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	169.66	

<b>Survey Program</b>	<b>Date</b>	8/18/2011			
<b>From (ft)</b>	<b>To (ft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>	
144.0	8,121.0	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	0.50	87.20	144.0	0.0	0.6	0.1	0.35	0.35	0.00	
233.0	0.80	144.30	233.0	-0.5	1.4	0.7	0.76	0.34	64.16	
324.0	2.30	177.00	324.0	-2.8	1.8	3.1	1.85	1.65	35.93	
415.0	3.80	175.80	414.8	-7.6	2.2	7.9	1.65	1.65	-1.32	
507.0	6.10	165.20	506.5	-15.4	3.6	15.8	2.68	2.50	-11.52	
599.0	8.10	159.80	597.8	-26.2	7.1	27.1	2.29	2.17	-5.87	
691.0	10.30	159.30	688.6	-40.0	12.3	41.5	2.39	2.39	-0.54	
783.0	10.90	160.00	779.0	-55.8	18.1	58.2	0.67	0.65	0.76	
875.0	12.10	162.80	869.2	-73.2	24.0	76.3	1.44	1.30	3.04	
910.0	12.60	164.00	903.4	-80.4	26.1	83.8	1.61	1.43	3.43	
978.0	13.40	166.50	969.6	-95.2	30.0	99.0	1.44	1.18	3.68	
1,074.0	13.60	168.60	1,063.0	-117.1	34.8	121.4	0.55	0.21	2.19	

<b>Company:</b>	Anadarko, Weld County CO	<b>Local Co-ordinate Reference:</b>	Well Cooley 35-16
<b>Project:</b>	SEC.16-T2N-R68W	<b>TVD Reference:</b>	WELL @ 4900.0ft (Original Well Elev)
<b>Site:</b>	Cooley 19-16 Pad Sec.16-T2N-R68W	<b>MD Reference:</b>	WELL @ 4900.0ft (Original Well Elev)
<b>Well:</b>	Cooley 35-16	<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)
1,169.0	13.50	171.20	1,155.3	-139.0	38.7	143.7	0.65	-0.11	2.74
1,264.0	12.90	173.80	1,247.8	-160.5	41.6	165.3	0.89	-0.63	2.74
1,359.0	12.80	174.50	1,340.4	-181.5	43.7	186.4	0.19	-0.11	0.74
1,454.0	12.60	175.60	1,433.1	-202.3	45.5	207.2	0.33	-0.21	1.16
1,550.0	13.10	177.20	1,526.7	-223.6	46.9	228.4	0.64	0.52	1.67
1,645.0	13.50	175.20	1,619.2	-245.4	48.3	250.1	0.64	0.42	-2.11
1,740.0	13.50	176.00	1,711.5	-267.5	50.0	272.2	0.20	0.00	0.84
1,835.0	12.90	173.00	1,804.0	-289.1	52.1	293.8	0.96	-0.63	-3.16
1,930.0	13.70	168.70	1,896.5	-310.7	55.6	315.6	1.34	0.84	-4.53
2,025.0	14.10	167.50	1,988.7	-333.0	60.3	338.4	0.52	0.42	-1.26
2,121.0	13.40	163.60	2,081.9	-355.1	66.0	361.2	1.21	-0.73	-4.06
2,216.0	13.00	165.10	2,174.4	-376.0	71.8	382.8	0.55	-0.42	1.58
2,312.0	12.90	167.20	2,268.0	-396.9	77.0	404.2	0.50	-0.10	2.19
2,408.0	13.30	169.80	2,361.5	-418.2	81.3	426.0	0.74	0.42	2.71
2,503.0	14.20	173.00	2,453.8	-440.5	84.7	448.5	1.24	0.95	3.37
2,599.0	14.10	174.50	2,546.9	-463.8	87.2	472.0	0.40	-0.10	1.56
2,694.0	13.50	175.10	2,639.1	-486.4	89.3	494.5	0.65	-0.63	0.63
2,789.0	13.20	171.60	2,731.5	-508.2	91.8	516.4	0.91	-0.32	-3.68
2,884.0	13.50	171.60	2,824.0	-529.9	95.0	538.3	0.32	0.32	0.00
2,980.0	13.60	173.00	2,917.3	-552.2	98.0	560.8	0.36	0.10	1.46
3,075.0	13.10	173.00	3,009.7	-573.9	100.7	582.7	0.53	-0.53	0.00
3,170.0	12.60	171.90	3,102.4	-594.9	103.5	603.8	0.59	-0.53	-1.16
3,265.0	13.10	170.90	3,195.0	-615.8	106.6	624.9	0.58	0.53	-1.05
3,360.0	12.60	172.40	3,287.6	-636.7	109.7	646.0	0.63	-0.53	1.58
3,455.0	13.00	173.50	3,380.2	-657.6	112.3	667.0	0.49	0.42	1.16
3,551.0	13.10	173.30	3,473.8	-679.1	114.8	688.7	0.11	0.10	-0.21
3,646.0	12.20	170.00	3,566.5	-699.7	117.8	709.4	1.21	-0.95	-3.47
3,741.0	12.30	165.60	3,659.3	-719.4	122.0	729.6	0.99	0.11	-4.63
3,836.0	13.50	166.60	3,751.9	-739.9	127.1	750.7	1.28	1.26	1.05
3,931.0	13.80	166.50	3,844.2	-761.8	132.3	773.1	0.32	0.32	-0.11
4,026.0	13.60	166.10	3,936.5	-783.6	137.7	795.6	0.23	-0.21	-0.42
4,121.0	13.50	167.70	4,028.9	-805.3	142.7	817.8	0.41	-0.11	1.68
4,216.0	10.30	171.40	4,121.8	-824.5	146.3	837.4	3.46	-3.37	3.89
4,311.0	8.40	174.70	4,215.5	-839.8	148.2	852.8	2.08	-2.00	3.47
4,407.0	7.20	176.80	4,310.7	-852.8	149.2	865.8	1.28	-1.25	2.19
4,502.0	6.70	178.20	4,405.0	-864.3	149.7	877.1	0.56	-0.53	1.47
4,597.0	4.80	182.80	4,499.5	-873.8	149.7	886.5	2.06	-2.00	4.84
4,692.0	3.00	184.90	4,594.3	-880.3	149.3	892.8	1.90	-1.89	2.21
4,787.0	1.10	202.50	4,689.2	-883.6	148.7	895.9	2.08	-2.00	18.53
4,883.0	0.80	244.50	4,785.2	-884.7	147.8	896.9	0.77	-0.31	43.75
4,978.0	1.20	245.90	4,880.2	-885.4	146.3	897.3	0.42	0.42	1.47
5,073.0	1.50	240.60	4,975.1	-886.4	144.3	897.9	0.34	0.32	-5.58
5,097.4	1.58	240.81	4,999.6	-886.8	143.7	898.1	0.32	0.32	0.84
<b>TARGET BHL 50'FSL, 1320'FWL</b>									
5,168.0	1.80	241.30	5,070.1	-887.8	141.9	898.8	0.32	0.32	0.70
5,262.0	0.90	289.00	5,164.1	-888.2	139.9	898.9	1.45	-0.96	50.74
5,358.0	1.40	41.80	5,260.1	-887.1	140.0	897.8	2.02	0.52	117.50
5,453.0	1.10	21.90	5,355.0	-885.4	141.1	896.3	0.55	-0.32	-20.95
5,548.0	1.10	0.30	5,450.0	-883.6	141.4	894.7	0.43	0.00	-22.74
5,643.0	1.80	30.40	5,545.0	-881.4	142.2	892.6	1.07	0.74	31.68
5,738.0	2.50	45.30	5,639.9	-878.7	144.4	890.3	0.94	0.74	15.68
5,833.0	3.20	98.10	5,734.8	-877.6	148.5	890.0	2.75	0.74	55.58
5,929.0	2.30	87.90	5,830.7	-877.9	153.1	891.1	1.06	-0.94	-10.63
6,024.0	1.80	80.30	5,925.7	-877.6	156.5	891.4	0.60	-0.53	-8.00

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<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)
6,119.0	1.20	66.10	6,020.6	-876.9	158.9	891.2	0.74	-0.63	-14.95
6,214.0	1.10	49.70	6,115.6	-875.9	160.5	890.5	0.36	-0.11	-17.26
6,309.0	1.00	30.40	6,210.6	-874.6	161.6	889.4	0.38	-0.11	-20.32
6,404.0	1.00	22.50	6,305.6	-873.2	162.3	888.1	0.15	0.00	-8.32
6,500.0	0.90	13.50	6,401.6	-871.7	162.8	886.7	0.19	-0.10	-9.38
6,595.0	0.90	10.90	6,496.5	-870.2	163.1	885.3	0.04	0.00	-2.74
6,690.0	1.10	0.90	6,591.5	-868.6	163.3	883.8	0.28	0.21	-10.53
6,785.0	1.20	336.10	6,686.5	-866.7	162.9	881.9	0.53	0.11	-26.11
6,880.0	1.30	356.80	6,781.5	-864.7	162.4	879.9	0.48	0.11	21.79
6,975.0	1.40	3.70	6,876.5	-862.5	162.4	877.7	0.20	0.11	7.26
7,071.0	1.60	11.10	6,972.4	-860.0	162.8	875.3	0.29	0.21	7.71
7,166.0	1.80	37.80	7,067.4	-857.5	163.9	873.0	0.85	0.21	28.11
7,261.0	2.30	47.30	7,162.3	-855.1	166.3	871.0	0.63	0.53	10.00
7,282.8	2.16	48.13	7,184.1	-854.5	166.9	870.6	0.65	-0.64	3.81
<b>TARGET CIRCLE 50'FSL &amp;1320'FWL</b>									
7,356.0	1.70	51.90	7,257.3	-852.9	168.8	869.4	0.65	-0.63	5.15
7,451.0	1.20	40.80	7,352.2	-851.3	170.5	868.1	0.60	-0.53	-11.68
7,546.0	0.50	42.40	7,447.2	-850.2	171.5	867.2	0.74	-0.74	1.68
7,641.0	0.70	24.60	7,542.2	-849.4	172.0	866.5	0.29	0.21	-18.74
7,737.0	1.80	27.40	7,638.2	-847.5	172.9	864.8	1.15	1.15	2.92
7,832.0	1.60	29.70	7,733.2	-845.0	174.3	862.6	0.22	-0.21	2.42
7,927.0	0.80	29.50	7,828.1	-843.3	175.2	861.1	0.84	-0.84	-0.21
8,021.0	0.80	27.40	7,922.1	-842.2	175.9	860.1	0.03	0.00	-2.23
8,071.0	0.80	27.40	7,972.1	-841.5	176.2	859.5	0.00	0.00	0.00
8,121.0	0.80	27.40	8,022.1	-840.9	176.5	858.9	0.00	0.00	0.00
<b>HARD LINES 50'S OF BHL</b>									

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