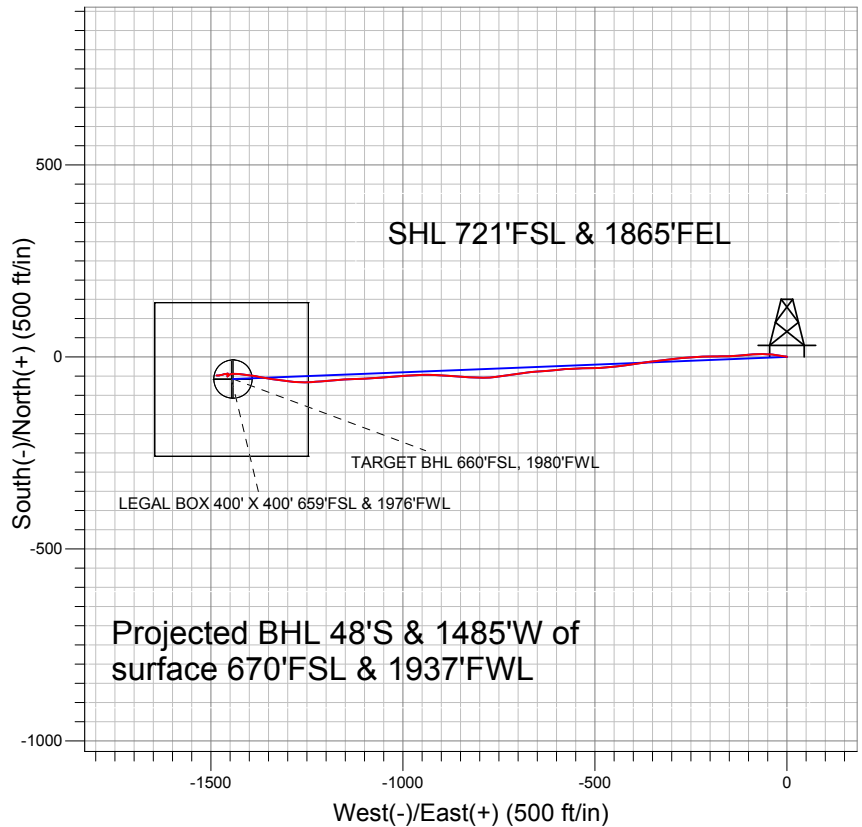


Anadarko, Weld County CO



LEGEND

- Cottonwood 14-33, Wellbore #1, Plan #2 (11-23-10) V0
- Wellbore #1
- Survey #1

Final Survey Plot

Projected Final Survey -
8355'MD & 8134'TVD @ 1486' VS
2.2 deg Inc 276.5 deg AZ

Project: SEC.33-T2N-R66W
Site: Cottonwood 15-33 Pad Sec.33-T2N-R66W
Well: Cottonwood 14-33
Plan: Wellbore #1



Directional

Anadarko, Weld County CO

SEC.33-T2N-R66W

Cottonwood 15-33 Pad Sec.33-T2N-R66W

Cottonwood 14-33

Wellbore #1

Survey: Survey #1

Standard Survey Report

07 December, 2010

Company:	Anadarko, Weld County CO	Local Co-ordinate Reference:	Well Cottonwood 14-33
Project:	SEC.33-T2N-R66W	TVD Reference:	WELL @ 4997.0ft (Original Well Elev)
Site:	Cottonwood 15-33 Pad Sec.33-T2N-R66W	MD Reference:	WELL @ 4997.0ft (Original Well Elev)
Well:	Cottonwood 14-33	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	Landmark

Project	SEC.33-T2N-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	Cottonwood 15-33 Pad Sec.33-T2N-R66W		
Site Position:		Northing:	1,276,226.88 ft
From:	Lat/Long	Easting:	3,201,622.77 ft
Position Uncertainty:	0.0 ft	Slot Radius:	"
		Latitude:	40° 5' 21.786 N
		Longitude:	104° 46' 45.700 W
		Grid Convergence:	0.47 °

Well	Cottonwood 14-33		
Well Position	+N-S	0.0 ft	Northing: 1,276,210.84 ft
	+E-W	0.0 ft	Easting: 3,201,622.90 ft
Position Uncertainty	0.0 ft	Wellhead Elevation:	ft
		Latitude:	40° 5' 21.627 N
		Longitude:	104° 46' 45.700 W
		Ground Level:	4,982.0 ft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	11/4/2010	8.93	66.82	53,029

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 (°)	
	0.0	0.0	0.0	268.16	

Survey Program	Date	12/7/2010			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
150.0	8,355.0	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	
150.0	0.40	336.50	150.0	0.5	-0.2	0.2	0.27	0.27	0.00	
235.0	0.70	286.70	235.0	0.9	-0.8	0.8	0.63	0.35	-58.59	
324.0	1.50	274.30	324.0	1.1	-2.5	2.5	0.93	0.90	-13.93	
417.0	2.70	275.70	416.9	1.5	-5.9	5.9	1.29	1.29	1.51	
508.0	4.40	277.30	507.7	2.1	-11.5	11.4	1.87	1.87	1.76	
600.0	7.00	281.00	599.3	3.6	-20.5	20.4	2.85	2.83	4.02	
692.0	9.40	277.30	690.3	5.7	-33.5	33.3	2.67	2.61	-4.02	
786.0	12.10	273.60	782.7	7.2	-50.9	50.6	2.96	2.87	-3.94	
881.0	14.30	268.70	875.2	7.6	-72.6	72.3	2.60	2.32	-5.16	
955.0	15.60	265.20	946.7	6.6	-91.6	91.4	2.14	1.76	-4.73	
1,025.0	15.20	264.00	1,014.1	4.8	-110.1	109.9	0.73	-0.57	-1.71	
1,120.0	15.50	266.40	1,105.8	2.7	-135.2	135.0	0.74	0.32	2.53	

Company:	Anadarko, Weld County CO	Local Co-ordinate Reference:	Well Cottonwood 14-33
Project:	SEC.33-T2N-R66W	TVD Reference:	WELL @ 4997.0ft (Original Well Elev)
Site:	Cottonwood 15-33 Pad Sec.33-T2N-R66W	MD Reference:	WELL @ 4997.0ft (Original Well Elev)
Well:	Cottonwood 14-33	North Reference:	True
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)
1,215.0	17.30	269.90	1,196.9	1.9	-162.0	161.8	2.16	1.89	3.68
1,310.0	19.90	268.30	1,286.9	1.4	-192.3	192.1	2.79	2.74	-1.68
1,405.0	19.80	268.50	1,376.3	0.5	-224.5	224.4	0.13	-0.11	0.21
1,500.0	19.80	265.20	1,465.7	-1.3	-256.6	256.6	1.18	0.00	-3.47
1,596.0	20.10	264.00	1,555.9	-4.4	-289.3	289.2	0.53	0.31	-1.25
1,691.0	19.30	263.40	1,645.3	-7.9	-321.1	321.2	0.87	-0.84	-0.63
1,786.0	20.50	262.20	1,734.7	-11.9	-353.2	353.4	1.33	1.26	-1.26
1,881.0	19.30	261.70	1,824.0	-16.5	-385.2	385.5	1.28	-1.26	-0.53
1,977.0	18.90	261.70	1,914.7	-21.0	-416.3	416.7	0.42	-0.42	0.00
2,074.0	17.10	263.70	2,007.0	-24.8	-446.0	446.6	1.96	-1.86	2.06
2,169.0	16.90	265.20	2,097.8	-27.5	-473.6	474.3	0.51	-0.21	1.58
2,264.0	17.70	269.30	2,188.5	-28.8	-501.8	502.5	1.53	0.84	4.32
2,359.0	19.30	268.30	2,278.6	-29.5	-532.0	532.6	1.72	1.68	-1.05
2,455.0	18.90	267.00	2,369.3	-30.8	-563.3	564.0	0.61	-0.42	-1.35
2,550.0	17.30	264.20	2,459.6	-33.0	-592.8	593.5	1.92	-1.68	-2.95
2,645.0	19.60	265.20	2,549.7	-35.8	-622.7	623.5	2.44	2.42	1.05
2,740.0	18.20	265.70	2,639.6	-38.2	-653.4	654.3	1.48	-1.47	0.53
2,836.0	18.90	262.90	2,730.6	-41.3	-683.8	684.7	1.18	0.73	-2.92
2,931.0	18.20	261.20	2,820.7	-45.4	-713.7	714.8	0.93	-0.74	-1.79
3,026.0	18.70	261.30	2,910.8	-50.0	-743.4	744.6	0.53	0.53	0.11
3,121.0	18.60	266.30	3,000.8	-53.3	-773.6	774.9	1.69	-0.11	5.26
3,216.0	18.20	271.60	3,091.0	-53.8	-803.5	804.8	1.81	-0.42	5.58
3,311.0	17.50	273.20	3,181.4	-52.6	-832.6	833.9	0.90	-0.74	1.68
3,407.0	19.10	274.60	3,272.5	-50.6	-862.7	863.9	1.73	1.67	1.46
3,500.0	16.40	273.10	3,361.1	-48.6	-891.0	892.1	2.94	-2.90	-1.61
3,595.0	17.40	273.60	3,452.0	-47.0	-918.5	919.6	1.06	1.05	0.53
3,691.0	16.20	269.30	3,543.9	-46.3	-946.3	947.3	1.80	-1.25	-4.48
3,786.0	16.70	264.90	3,635.0	-47.7	-973.1	974.1	1.41	0.53	-4.63
3,881.0	18.20	266.20	3,725.6	-49.9	-1,001.5	1,002.6	1.63	1.58	1.37
3,976.0	19.40	266.20	3,815.6	-51.9	-1,032.1	1,033.2	1.26	1.26	0.00
4,071.0	18.50	265.90	3,905.4	-54.0	-1,062.8	1,064.0	0.95	-0.95	-0.32
4,166.0	18.90	266.40	3,995.4	-56.1	-1,093.2	1,094.5	0.45	0.42	0.53
4,262.0	18.10	268.80	4,086.4	-57.3	-1,123.6	1,124.9	1.15	-0.83	2.50
4,357.0	18.20	266.00	4,176.7	-58.7	-1,153.2	1,154.5	0.92	0.11	-2.95
4,452.0	18.70	265.50	4,266.8	-60.9	-1,183.2	1,184.5	0.55	0.53	-0.53
4,547.0	17.50	264.60	4,357.1	-63.5	-1,212.6	1,214.0	1.30	-1.26	-0.95
4,642.0	19.20	267.00	4,447.3	-65.6	-1,242.4	1,243.9	1.96	1.79	2.53
4,737.0	17.40	273.50	4,537.5	-65.6	-1,272.2	1,273.6	2.86	-1.89	6.84
4,833.0	17.40	276.50	4,629.1	-63.1	-1,300.8	1,302.1	0.93	0.00	3.13
4,928.0	16.10	278.80	4,720.1	-59.4	-1,327.9	1,329.1	1.54	-1.37	2.42
5,023.0	15.30	279.20	4,811.5	-55.4	-1,353.3	1,354.4	0.85	-0.84	0.42
5,118.0	13.80	280.20	4,903.5	-51.4	-1,376.8	1,377.8	1.60	-1.58	1.05
5,214.0	10.90	277.60	4,997.2	-48.2	-1,397.1	1,397.9	3.08	-3.02	-2.71
5,309.0	9.10	278.00	5,090.8	-45.9	-1,413.4	1,414.2	1.90	-1.89	0.42
5,404.0	7.60	275.50	5,184.8	-44.3	-1,427.1	1,427.8	1.62	-1.58	-2.63
5,499.0	6.00	267.80	5,279.1	-43.9	-1,438.4	1,439.0	1.93	-1.68	-8.11
5,594.0	4.40	261.10	5,373.7	-44.6	-1,446.9	1,447.6	1.80	-1.68	-7.05
5,689.0	2.50	238.90	5,468.6	-46.3	-1,452.3	1,453.0	2.41	-2.00	-23.37
5,784.0	2.10	217.50	5,563.5	-48.7	-1,455.1	1,455.9	0.99	-0.42	-22.53
5,820.5	1.76	217.86	5,599.9	-49.7	-1,455.9	1,456.7	0.94	-0.94	1.00
TARGET BHL 660'FSL, 1980'FWL									
5,880.0	1.20	218.90	5,659.4	-50.9	-1,456.8	1,457.7	0.94	-0.94	1.74
5,975.0	1.90	17.30	5,754.4	-50.2	-1,457.0	1,457.8	3.21	0.74	166.74
6,070.0	2.00	18.80	5,849.4	-47.1	-1,456.0	1,456.7	0.12	0.11	1.58

Company:	Anadarko, Weld County CO	Local Co-ordinate Reference:	Well Cottonwood 14-33
Project:	SEC.33-T2N-R66W	TVD Reference:	WELL @ 4997.0ft (Original Well Elev)
Site:	Cottonwood 15-33 Pad Sec.33-T2N-R66W	MD Reference:	WELL @ 4997.0ft (Original Well Elev)
Well:	Cottonwood 14-33	North Reference:	True
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)
6,165.0	0.40	18.70	5,944.3	-45.2	-1,455.3	1,456.0	1.68	-1.68	-0.11
6,260.0	0.40	337.20	6,039.3	-44.6	-1,455.4	1,456.0	0.30	0.00	-43.68
6,356.0	0.30	4.90	6,135.3	-44.0	-1,455.5	1,456.1	0.20	-0.10	28.85
6,451.0	0.40	332.10	6,230.3	-43.5	-1,455.6	1,456.3	0.23	0.11	-34.53
6,546.0	0.40	303.10	6,325.3	-43.0	-1,456.0	1,456.7	0.21	0.00	-30.53
6,641.0	0.50	273.60	6,420.3	-42.8	-1,456.7	1,457.4	0.26	0.11	-31.05
6,736.0	0.50	252.60	6,515.3	-42.9	-1,457.5	1,458.2	0.19	0.00	-22.11
6,831.0	0.50	234.70	6,610.3	-43.3	-1,458.3	1,458.9	0.16	0.00	-18.84
6,923.0	0.60	238.10	6,702.3	-43.8	-1,459.0	1,459.7	0.11	0.11	3.70
7,022.0	0.30	232.80	6,801.3	-44.2	-1,459.7	1,460.3	0.31	-0.30	-5.35
7,117.0	0.30	227.90	6,896.3	-44.5	-1,460.0	1,460.7	0.03	0.00	-5.16
7,212.0	0.40	252.30	6,991.3	-44.8	-1,460.5	1,461.2	0.19	0.11	25.68
7,307.0	0.40	271.70	7,086.3	-44.9	-1,461.2	1,461.9	0.14	0.00	20.42
7,394.5	0.67	304.38	7,173.8	-44.6	-1,461.9	1,462.6	0.45	0.31	37.36
TARGET CIRCLE 660'FSL & 1980'FWL									
7,402.0	0.70	305.90	7,181.3	-44.5	-1,462.0	1,462.7	0.45	0.39	20.21
7,497.0	0.70	271.70	7,276.3	-44.2	-1,463.0	1,463.7	0.43	0.00	-36.00
7,593.0	1.00	254.50	7,372.3	-44.4	-1,464.4	1,465.1	0.41	0.31	-17.92
7,688.0	1.40	250.70	7,467.3	-45.0	-1,466.3	1,467.0	0.43	0.42	-4.00
7,783.0	1.50	252.70	7,562.2	-45.7	-1,468.6	1,469.3	0.12	0.11	2.11
7,874.0	1.80	256.70	7,653.2	-46.4	-1,471.1	1,471.9	0.35	0.33	4.40
7,969.0	1.60	259.00	7,748.2	-47.0	-1,473.9	1,474.6	0.22	-0.21	2.42
8,064.0	1.60	266.10	7,843.1	-47.4	-1,476.5	1,477.3	0.21	0.00	7.47
8,159.0	1.40	251.70	7,938.1	-47.8	-1,478.9	1,479.7	0.45	-0.21	-15.16
8,305.0	2.20	276.50	8,084.0	-48.1	-1,483.4	1,484.2	0.75	0.55	16.99
LEGAL BOX 400' X 400' 659'FSL & 1976'FWL									
8,355.0	2.20	276.50	8,134.0	-47.8	-1,485.3	1,486.1	0.00	0.00	0.00

Checked By: _____ Approved By: _____ Date: _____