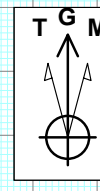
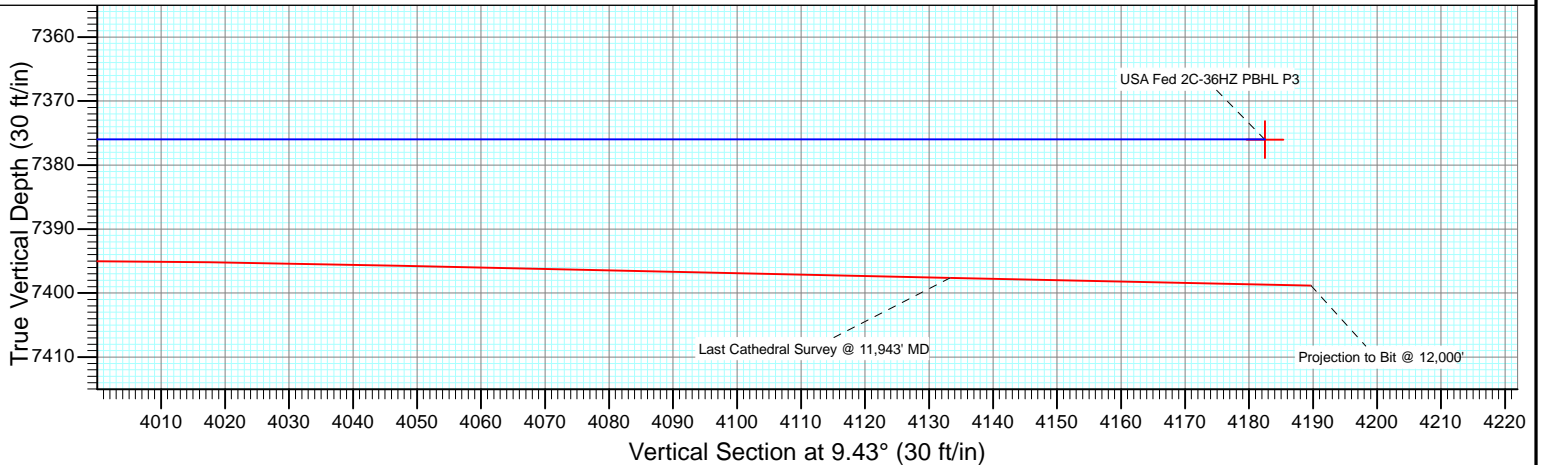


T G M

Azimuths to Grid North
 True North: -0.50°
 Magnetic North: 8.01°

Magnetic Field
 Strength: 52776.9snT
 Dip Angle: 66.80°
 Date: 9/25/2013
 Model: IGRF2010

Cathedral Energy Services

Survey Report

Company: Anadarko Petroleum Corporation	Local Co-ordinate Reference: Well USA Fed 2C-36HZ
Project: DJ Wattenberg	TVD Reference: KB=0' @ 4995.0ft
Site: USA FED 3 Pad (S36-T3N-R66W)	MD Reference: KB=0' @ 4995.0ft
Well: USA Fed 2C-36HZ	North Reference: Grid
Wellbore: HZ	Survey Calculation Method: Minimum Curvature
Design: FINAL	Database: USA EDM 5000 Multi Users DB

Project DJ Wattenberg		
Map System: US State Plane 1983	System Datum: Mean Sea Level	
Geo Datum: North American Datum 1983		
Map Zone: Colorado Northern Zone		

Site USA FED 3 Pad (S36-T3N-R66W)				
Site Position:	Northing: 1,308,044.64 ft	Latitude: 40.176359		
From: Lat/Long	Easting: 3,217,159.19 ft	Longitude: -104.722860		
Position Uncertainty: 0.0 ft	Slot Radius: 13.200 in	Grid Convergence: 0.50 °		

Well USA Fed 2C-36HZ				
Well Position	+N/-S 0.0 ft	Northing: 1,308,069.89 ft	Latitude: 40.176428	
	+E/-W 0.0 ft	Easting: 3,217,175.46 ft	Longitude: -104.722801	
Position Uncertainty	0.0 ft	Wellhead Elevation: ft	Ground Level: 4,995.0 ft	

Wellbore HZ					
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	9/25/2013	8.52	66.80	52,777

Design FINAL				
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	9.43

Survey Program		Date 10/29/2013			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
100.0	800.0	Survey #1 (HZ)	Gyro	Gyro	
971.0	12,000.0	Survey #2 (HZ)	MWD	Geolink MWD	

Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Formations / Comments
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	
100.0	0.34	0.45	100.0	0.3	0.0	0.3	0.34	0.34	
200.0	0.48	340.12	200.0	1.0	-0.1	1.0	0.20	0.14	
300.0	0.57	320.46	300.0	1.8	-0.6	1.6	0.20	0.09	
400.0	0.56	308.78	400.0	2.5	-1.3	2.2	0.12	-0.01	
500.0	0.40	298.61	500.0	2.9	-2.0	2.6	0.18	-0.16	
600.0	0.46	303.52	600.0	3.3	-2.6	2.8	0.07	0.06	
700.0	0.28	273.97	700.0	3.6	-3.2	3.0	0.26	-0.18	
800.0	0.65	263.34	800.0	3.5	-4.0	2.8	0.38	0.37	
984.0	0.50	212.50	984.0	2.7	-5.5	1.8	0.28	-0.08	
1,077.0	0.50	215.20	1,077.0	2.0	-5.9	1.0	0.03	0.00	
1,171.0	0.70	157.10	1,171.0	1.2	-5.9	0.2	0.65	0.21	

Cathedral Energy Services

Survey Report

Company:	Anadarko Petroleum Corporation	Local Co-ordinate Reference:	Well USA Fed 2C-36HZ
Project:	DJ Wattenberg	TVD Reference:	KB=0' @ 4995.0ft
Site:	USA FED 3 Pad (S36-T3N-R66W)	MD Reference:	KB=0' @ 4995.0ft
Well:	USA Fed 2C-36HZ	North Reference:	Grid
Wellbore:	HZ	Survey Calculation Method:	Minimum Curvature
Design:	FINAL	Database:	USA EDM 5000 Multi Users DB

Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Formations / Comments
1,264.0	2.20	145.20	1,263.9	-0.8	-4.7	-1.6	1.64	1.61	
1,358.0	5.10	145.90	1,357.7	-5.8	-1.3	-5.9	3.09	3.09	
1,451.0	7.30	135.50	1,450.2	-13.4	5.1	-12.4	2.65	2.37	
1,545.0	8.20	129.80	1,543.3	-22.0	14.5	-19.3	1.26	0.96	
1,638.0	9.50	122.50	1,635.2	-30.3	26.0	-25.6	1.84	1.40	
1,732.0	11.00	118.00	1,727.7	-38.7	40.5	-31.5	1.81	1.60	
1,825.0	10.80	125.90	1,819.0	-48.0	55.4	-38.3	1.62	-0.22	
1,919.0	12.20	135.00	1,911.2	-60.2	69.6	-48.0	2.43	1.49	
2,009.0	13.50	136.90	1,998.9	-74.6	83.5	-59.9	1.52	1.44	
2,099.0	14.40	131.80	2,086.3	-89.7	99.0	-72.3	1.69	1.00	
2,189.0	19.00	131.00	2,172.4	-106.8	118.4	-85.9	5.12	5.11	
2,279.0	19.10	127.20	2,257.5	-125.3	141.2	-100.5	1.38	0.11	
2,369.0	19.80	123.60	2,342.4	-142.6	165.6	-113.6	1.54	0.78	
2,459.0	20.70	129.50	2,426.8	-161.2	190.6	-127.8	2.48	1.00	
2,549.0	22.60	134.80	2,510.5	-183.5	215.1	-145.8	3.03	2.11	
2,639.0	23.40	133.10	2,593.3	-207.9	240.4	-165.7	1.16	0.89	
2,729.0	19.60	125.40	2,677.1	-228.9	265.8	-182.2	5.25	-4.22	
2,819.0	22.20	126.10	2,761.1	-247.6	291.9	-196.5	2.90	2.89	
2,909.0	22.80	121.90	2,844.3	-266.9	320.4	-210.8	1.91	0.67	
2,999.0	23.60	123.60	2,927.0	-286.0	350.2	-224.8	1.16	0.89	
3,089.0	25.80	125.90	3,008.8	-307.5	381.1	-240.9	2.67	2.44	
3,179.0	27.10	127.90	3,089.3	-331.6	413.1	-259.4	1.75	1.44	
3,269.0	26.90	132.60	3,169.5	-357.9	444.3	-280.3	2.38	-0.22	
3,359.0	25.20	131.80	3,250.4	-384.5	473.6	-301.7	1.93	-1.89	
3,449.0	22.30	128.80	3,332.8	-408.0	501.2	-320.4	3.49	-3.22	
3,539.0	23.30	132.50	3,415.7	-430.7	527.6	-338.5	1.94	1.11	
3,629.0	21.20	136.20	3,499.0	-454.5	552.0	-357.9	2.80	-2.33	
3,719.0	20.90	135.40	3,583.0	-477.7	574.5	-377.1	0.46	-0.33	
3,809.0	20.60	132.40	3,667.2	-499.8	597.5	-395.2	1.23	-0.33	
3,899.0	17.20	130.20	3,752.3	-519.0	619.4	-410.6	3.86	-3.78	
3,989.0	14.80	124.30	3,838.9	-534.1	639.0	-422.2	3.22	-2.67	
4,079.0	13.60	130.80	3,926.1	-547.5	656.5	-432.6	2.22	-1.33	
4,169.0	13.90	129.90	4,013.5	-561.3	672.8	-443.6	0.41	0.33	
4,259.0	13.30	139.10	4,101.0	-576.1	687.9	-455.7	2.49	-0.67	
4,349.0	12.10	142.10	4,188.8	-591.4	700.5	-468.7	1.52	-1.33	
4,439.0	9.30	138.40	4,277.2	-604.3	711.1	-479.6	3.20	-3.11	
4,529.0	7.10	129.80	4,366.3	-613.3	720.2	-487.0	2.79	-2.44	
4,619.0	4.10	120.60	4,455.9	-618.5	727.2	-491.0	3.47	-3.33	
4,710.0	2.10	186.70	4,546.8	-621.8	729.9	-493.8	4.15	-2.20	
4,800.0	2.50	265.70	4,726.7	-625.3	725.6	-498.1	1.63	0.22	
5,070.0	3.60	299.10	4,906.4	-622.9	716.7	-497.1	1.14	0.61	
5,249.0	4.00	301.20	5,085.0	-616.9	706.4	-492.9	0.24	0.22	
5,609.0	3.90	300.10	5,444.2	-604.3	685.1	-483.9	0.03	-0.03	
5,789.0	1.50	313.10	5,624.0	-599.6	678.1	-480.4	1.37	-1.33	
5,969.0	1.40	294.10	5,803.9	-597.1	674.4	-478.6	0.27	-0.06	
6,149.0	1.80	260.30	5,983.8	-596.7	669.6	-478.9	0.56	0.22	
6,329.0	1.80	281.20	6,163.7	-596.6	664.0	-479.8	0.36	0.00	
6,509.0	1.30	264.50	6,343.7	-596.2	659.2	-480.2	0.37	-0.28	
6,689.0	0.70	232.00	6,523.7	-597.1	656.3	-481.6	0.45	-0.33	
6,870.0	0.70	193.00	6,704.6	-598.9	655.2	-483.5	0.26	0.00	
6,960.0	5.10	355.30	6,794.5	-595.4	654.7	-480.1	6.41	4.89	
7,005.0	12.10	9.60	6,839.0	-588.8	655.4	-473.5	16.15	15.56	
7,050.0	16.20	12.20	6,882.6	-578.0	657.5	-462.5	9.22	9.11	

Cathedral Energy Services

Survey Report

Company:	Anadarko Petroleum Corporation	Local Co-ordinate Reference:	Well USA Fed 2C-36HZ
Project:	DJ Wattenberg	TVD Reference:	KB=0' @ 4995.0ft
Site:	USA FED 3 Pad (S36-T3N-R66W)	MD Reference:	KB=0' @ 4995.0ft
Well:	USA Fed 2C-36HZ	North Reference:	Grid
Wellbore:	HZ	Survey Calculation Method:	Minimum Curvature
Design:	FINAL	Database:	USA EDM 5000 Multi Users DB

Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Formations / Comments
7,095.0	18.20	10.30	6,925.6	-564.9	660.1	-449.2	4.62	4.44	
7,140.0	20.80	8.90	6,968.0	-550.1	662.6	-434.2	5.87	5.78	
7,185.0	24.70	10.40	7,009.5	-533.0	665.5	-416.8	8.76	8.67	
7,230.0	27.50	9.30	7,049.9	-513.5	668.9	-397.0	6.31	6.22	
7,275.0	30.50	7.80	7,089.3	-491.9	672.1	-375.2	6.86	6.67	
7,320.0	34.50	4.00	7,127.2	-467.8	674.5	-351.1	9.98	8.89	
7,365.0	41.50	1.30	7,162.7	-440.2	675.8	-323.6	15.98	15.56	
7,410.0	46.10	358.80	7,195.1	-409.1	675.8	-292.9	10.92	10.22	
7,455.0	50.20	358.00	7,225.2	-375.6	674.8	-260.0	9.21	9.11	
7,500.0	53.80	359.20	7,252.9	-340.1	674.0	-225.1	8.27	8.00	
7,545.0	56.10	359.00	7,278.7	-303.3	673.4	-188.9	5.12	5.11	
7,590.0	59.70	359.30	7,302.6	-265.2	672.8	-151.4	8.02	8.00	
7,635.0	64.00	0.50	7,323.8	-225.5	672.8	-112.3	9.84	9.56	
7,680.0	69.90	0.30	7,341.5	-184.1	673.0	-71.4	13.12	13.11	
7,725.0	73.80	359.20	7,355.5	-141.4	672.9	-29.3	8.97	8.67	
7,770.0	76.40	358.30	7,367.0	-97.9	671.9	13.5	6.09	5.78	
7,815.0	80.70	356.50	7,376.0	-53.8	669.9	56.6	10.33	9.56	
7,867.0	87.20	358.00	7,381.4	-2.2	667.4	107.1	12.82	12.50	
7,985.0	89.90	358.50	7,384.4	115.7	663.8	222.8	2.33	2.29	
8,075.0	92.20	359.80	7,382.8	205.6	662.5	311.4	2.94	2.56	
8,165.0	89.80	359.70	7,381.2	295.6	662.1	400.1	2.67	-2.67	
8,255.0	92.20	0.80	7,379.6	385.6	662.5	488.9	2.93	2.67	
8,345.0	91.60	1.20	7,376.7	475.5	664.1	577.9	0.80	-0.67	
8,435.0	90.40	1.30	7,375.1	565.5	666.0	666.9	1.34	-1.33	
8,525.0	90.00	359.70	7,374.8	655.5	666.8	755.8	1.83	-0.44	
8,615.0	90.10	0.00	7,374.7	745.5	666.6	844.6	0.35	0.11	
8,705.0	90.60	0.50	7,374.1	835.5	667.0	933.4	0.79	0.56	
8,795.0	87.80	2.60	7,375.4	925.4	669.4	1,022.6	3.89	-3.11	
8,885.0	88.70	3.00	7,378.1	1,015.3	673.8	1,111.9	1.09	1.00	
8,975.0	87.60	3.30	7,381.1	1,105.1	678.7	1,201.3	1.27	-1.22	
9,065.0	88.00	3.20	7,384.5	1,194.9	683.8	1,290.7	0.46	0.44	
9,155.0	88.00	1.80	7,387.7	1,284.7	687.8	1,380.0	1.55	0.00	
9,245.0	88.30	1.00	7,390.6	1,374.7	690.0	1,469.1	0.95	0.33	
9,335.0	89.00	1.10	7,392.7	1,464.6	691.6	1,558.1	0.79	0.78	
9,425.0	89.70	1.20	7,393.7	1,554.6	693.4	1,647.2	0.79	0.78	
9,515.0	90.70	1.90	7,393.4	1,644.6	695.8	1,736.3	1.36	1.11	
9,605.0	91.30	1.20	7,391.8	1,734.5	698.3	1,825.5	1.02	0.67	
9,695.0	92.10	1.50	7,389.1	1,824.4	700.4	1,914.5	0.95	0.89	
9,785.0	91.40	0.70	7,386.4	1,914.4	702.1	2,003.5	1.18	-0.78	
9,875.0	90.50	358.90	7,384.9	2,004.4	701.8	2,092.2	2.24	-1.00	
9,965.0	91.00	359.00	7,383.7	2,094.3	700.2	2,180.7	0.57	0.56	
10,055.0	91.90	358.90	7,381.4	2,184.3	698.5	2,269.2	1.01	1.00	
10,145.0	91.40	359.10	7,378.9	2,274.3	696.9	2,357.7	0.60	-0.56	
10,235.0	91.60	359.40	7,376.5	2,364.2	695.8	2,446.2	0.40	0.22	
10,325.0	91.30	359.20	7,374.2	2,454.2	694.7	2,534.8	0.40	-0.33	
10,415.0	90.60	0.00	7,372.7	2,544.2	694.0	2,623.5	1.18	-0.78	
10,505.0	89.00	359.40	7,373.0	2,634.2	693.6	2,712.2	1.90	-1.78	
10,595.0	88.00	359.70	7,375.4	2,724.1	692.9	2,800.8	1.16	-1.11	
10,685.0	87.30	359.90	7,379.1	2,814.0	692.5	2,889.5	0.81	-0.78	
10,775.0	87.60	359.70	7,383.1	2,904.0	692.2	2,978.1	0.40	0.33	
10,865.0	88.40	359.00	7,386.2	2,993.9	691.2	3,066.7	1.18	0.89	
10,955.0	89.10	359.20	7,388.2	3,083.9	689.8	3,155.2	0.81	0.78	
11,045.0	89.60	358.40	7,389.2	3,173.8	687.9	3,243.6	1.05	0.56	

Cathedral Energy Services

Survey Report

Company: Anadarko Petroleum Corporation	Local Co-ordinate Reference: Well USA Fed 2C-36HZ
Project: DJ Wattenberg	TVD Reference: KB=0' @ 4995.0ft
Site: USA FED 3 Pad (S36-T3N-R66W)	MD Reference: KB=0' @ 4995.0ft
Well: USA Fed 2C-36HZ	North Reference: Grid
Wellbore: HZ	Survey Calculation Method: Minimum Curvature
Design: FINAL	Database: USA EDM 5000 Multi Users DB

Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Formations / Comments
11,135.0	88.10	359.70	7,391.0	3,263.8	686.4	3,332.1	2.21	-1.67	
11,225.0	87.00	358.50	7,394.9	3,353.7	685.0	3,420.6	1.81	-1.22	
11,315.0	87.60	0.60	7,399.1	3,443.6	684.3	3,509.2	2.42	0.67	
11,405.0	90.40	4.10	7,400.7	3,533.5	688.0	3,598.4	4.98	3.11	
11,496.0	90.50	4.70	7,400.0	3,624.2	695.0	3,689.1	0.67	0.11	
11,585.0	90.90	4.40	7,398.9	3,712.9	702.0	3,777.8	0.56	0.45	
11,675.0	91.70	4.50	7,396.8	3,802.6	709.0	3,867.4	0.90	0.89	
11,766.0	90.50	3.20	7,395.1	3,893.4	715.1	3,958.0	1.94	-1.32	
11,856.0	88.70	1.10	7,395.7	3,983.3	718.5	4,047.2	3.07	-2.00	
11,943.0	88.80	1.20	7,397.6	4,070.3	720.2	4,133.3	0.16	0.11	Last Cathedral Survey @ 11,943' MD
12,000.0	88.80	1.20	7,398.8	4,127.3	721.4	4,189.7	0.00	0.00	Projection to Bit @ 12,000'

Targets										
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude	
USA Fed 2C-36HZ PBH - hit/miss target - Shape	0.00	0.00	7,376.0	4,126.0	645.0	1,312,195.89	3,217,820.46	40.187738	-104.720363	
- actual wellpath misses target center by 79.7ft at 11996.7ft MD (7398.7 TVD, 4123.9 N, 721.4 E)										
- Point										
USA Fed 2C-36HZ PBH - hit/miss target - Shape	0.00	0.00	7,376.0	4,126.0	685.0	1,312,195.89	3,217,860.46	40.187737	-104.720220	
- actual wellpath misses target center by 42.9ft at 11997.5ft MD (7398.8 TVD, 4124.8 N, 721.4 E)										
- Point										
USA Fed 2C-36HZ VP - hit/miss target - Shape	0.00	0.00	4,286.0	-579.8	645.0	1,307,490.09	3,217,820.46	40.174821	-104.720511	
- actual wellpath misses target center by 71.0ft at 4436.3ft MD (4274.6 TVD, -603.9 N, 710.8 E)										
- Point										
USA Fed 2C-36HZ VP F - hit/miss target - Shape	0.00	0.00	4,376.0	-579.8	685.0	1,307,490.09	3,217,860.46	40.174820	-104.720368	
- actual wellpath misses target center by 49.4ft at 4533.9ft MD (4371.2 TVD, -613.6 N, 720.7 E)										
- Point										

Casing Points						
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (in)	Hole Diameter (in)		
7,907.0	7,383.1	7" -				

Design Annotations				
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
11,943.0	7,397.6	4,070.3	720.2	Last Cathedral Survey @ 11,943' MD
12,000.0	7,398.8	4,127.3	721.4	Projection to Bit @ 12,000'

Checked By: _____	Approved By: _____	Date: _____
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