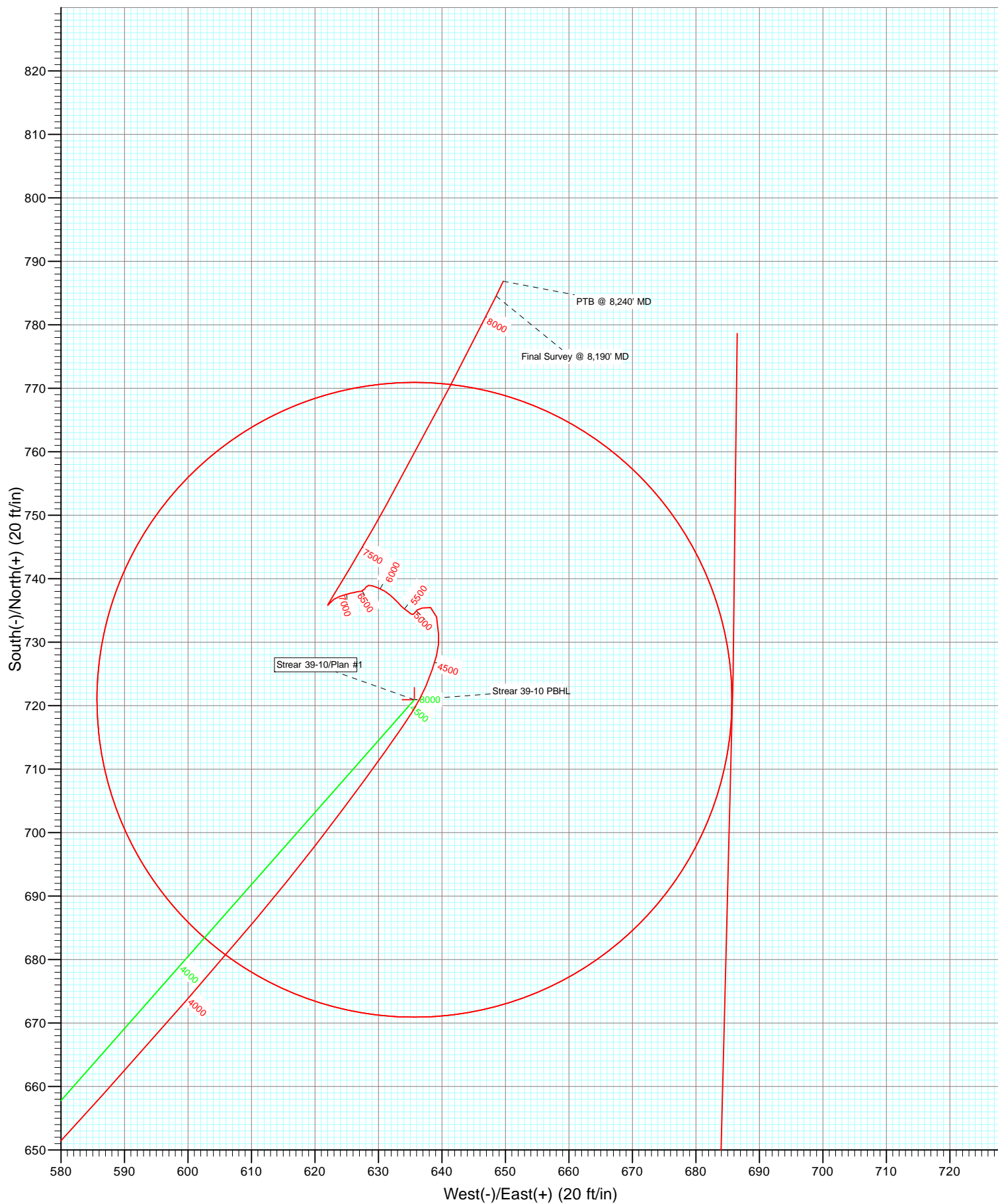


Azimuths to True North
 Magnetic North: 8.81°

Magnetic Field
 Strength: 52915.1nT
 Dip Angle: 66.81°
 Date: 2/15/2012
 Model: IGRF2010

Type	Target	Azimuth	Origin	Type	N/S	E/W	From
Target	Strear 39-10 PBHL	41.40	Slot		0.0	0.0	TVD
Name	Strear 39-10 PBHL	TVD	+N/-S	+E/-W	Latitude	Longitude	
		8111.0	720.9	635.7	40.148974	-104.867388	

DD
 Strear 39-10
 143655 125151: LR
 KBE @ 4976.0ft (Xtreme 14)
 North American Datum 1983
 Well Strear 39-10, True North



Cathedral Energy Services

Survey Report

Company:	Anadarko Petroleum Corporation	Local Co-ordinate Reference:	Well Strear 39-10
Project:	DJ Wattenberg	TVD Reference:	KBE @ 4976.0ft (Xtreme 14)
Site:	SESE Sec10-T2N-R67W (Strear 16-10-9F)	MD Reference:	KBE @ 4976.0ft (Xtreme 14)
Well:	Strear 39-10	North Reference:	True
Wellbore:	DD	Survey Calculation Method:	Minimum Curvature
Design:	DD	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		SESE Sec10-T2N-R67W (Strear 16-10-9F)			
Site Position:		Northing:	1,297,030.56 ft	Latitude:	40.147017
From:	Lat/Long	Easting:	3,176,209.76 ft	Longitude:	-104.869683
Position Uncertainty:	0.0 ft	Slot Radius:	13.200 in	Grid Convergence:	0.41 °

Well	Strear 39-10					
Well Position	+N/-S	0.0 ft	Northing:	1,297,022.58 ft	Latitude:	40.146995
	+E/-W	0.0 ft	Easting:	3,176,215.69 ft	Longitude:	-104.869662
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,961.0 ft

Wellbore	DD				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	2/15/2012	8.81	66.81	52,915

Design	DD				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD)	+N/-S	+E/-W	Direction	
	(ft)	(ft)	(ft)	(°)	
	0.0	0.0	0.0	41.40	

Survey Program	Date	2/19/2012			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
121.0	2,955.0	Survey #1 (DD)	MWD	Geolink MWD	
3,044.0	8,240.0	Survey #2 (DD)	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	
121.0	0.10	24.00	121.0	0.1	0.0	0.1	0.08	0.08	
215.0	1.00	41.30	215.0	0.8	0.6	1.0	0.96	0.96	
308.0	1.90	37.60	308.0	2.6	2.1	3.3	0.97	0.97	
416.0	4.20	34.50	415.8	7.3	5.4	9.1	2.13	2.13	
506.0	5.80	41.60	505.5	13.4	10.3	16.9	1.90	1.78	
595.0	7.70	39.50	593.8	21.4	17.1	27.3	2.15	2.13	
665.0	8.00	41.20	663.2	28.7	23.3	36.9	0.54	0.43	
736.0	8.10	40.60	733.5	36.2	29.8	46.8	0.18	0.14	
827.0	9.40	44.80	823.4	46.3	39.2	60.7	1.59	1.43	
914.0	11.70	44.70	908.9	57.6	50.4	76.6	2.64	2.64	
1,004.0	13.80	43.00	996.7	72.0	64.2	96.4	2.37	2.33	

Cathedral Energy Services

Survey Report

Company:	Anadarko Petroleum Corporation	Local Co-ordinate Reference:	Well Strear 39-10
Project:	DJ Wattenberg	TVD Reference:	KBE @ 4976.0ft (Xtreme 14)
Site:	SESE Sec10-T2N-R67W (Strear 16-10-9F)	MD Reference:	KBE @ 4976.0ft (Xtreme 14)
Well:	Strear 39-10	North Reference:	True
Wellbore:	DD	Survey Calculation Method:	Minimum Curvature
Design:	DD	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
1,093.0	14.50	39.40	1,083.0	88.3	78.5	118.2	1.26	0.79	
1,181.0	15.40	41.80	1,168.0	105.6	93.2	140.9	1.24	1.02	
1,271.0	16.00	38.30	1,254.7	124.2	108.9	165.2	1.25	0.67	
1,361.0	15.30	35.50	1,341.4	143.6	123.5	189.4	1.14	-0.78	
1,448.0	15.20	43.20	1,425.3	161.3	138.0	212.2	2.33	-0.11	
1,536.0	14.90	44.50	1,510.3	177.8	153.8	235.0	0.51	-0.34	
1,624.0	15.10	43.70	1,595.3	194.1	169.6	257.8	0.33	0.23	
1,714.0	16.00	42.10	1,682.0	211.8	186.1	281.9	1.11	1.00	
1,803.0	14.20	39.20	1,767.9	229.3	201.2	305.1	2.19	-2.02	
1,892.0	14.90	46.10	1,854.1	245.7	216.3	327.4	2.10	0.79	
1,981.0	16.30	44.60	1,939.8	262.6	233.3	351.3	1.64	1.57	
2,070.0	14.50	43.30	2,025.6	279.6	249.7	374.9	2.06	-2.02	
2,158.0	15.80	43.00	2,110.5	296.4	265.5	397.9	1.48	1.48	
2,247.0	15.00	40.30	2,196.3	314.0	281.2	421.5	1.21	-0.90	
2,337.0	15.60	42.00	2,283.1	331.9	296.8	445.2	0.83	0.67	
2,426.0	15.40	39.80	2,368.9	349.9	312.4	469.0	0.70	-0.22	
2,516.0	15.40	40.70	2,455.7	368.1	327.8	492.9	0.27	0.00	
2,604.0	14.80	40.60	2,540.6	385.5	342.8	515.8	0.68	-0.68	
2,692.0	15.20	40.00	2,625.6	402.9	357.5	538.6	0.49	0.45	
2,779.0	15.20	39.30	2,709.6	420.4	372.1	561.4	0.21	0.00	
2,866.0	16.30	43.30	2,793.3	438.1	387.6	585.0	1.78	1.26	
2,955.0	14.50	40.50	2,879.1	455.7	403.5	608.6	2.19	-2.02	
3,044.0	15.20	45.70	2,965.2	472.3	419.0	631.4	1.69	0.79	
3,132.0	15.90	43.40	3,049.9	489.1	435.6	655.0	1.06	0.80	
3,220.0	13.50	39.40	3,135.1	505.8	450.4	677.3	2.96	-2.73	
3,310.0	15.10	42.40	3,222.3	522.6	465.0	699.5	1.96	1.78	
3,398.0	13.70	39.60	3,307.5	539.1	479.3	721.4	1.78	-1.59	
3,488.0	13.90	41.70	3,394.9	555.4	493.3	742.8	0.60	0.22	
3,577.0	14.50	41.80	3,481.2	571.7	507.9	764.7	0.67	0.67	
3,667.0	15.90	40.80	3,568.0	589.4	523.4	788.3	1.58	1.56	
3,757.0	15.70	42.70	3,654.6	607.7	539.7	812.8	0.62	-0.22	
3,845.0	15.00	42.60	3,739.5	624.8	555.5	836.1	0.80	-0.80	
3,935.0	15.30	42.80	3,826.4	642.1	571.5	859.6	0.34	0.33	
4,023.0	14.50	41.90	3,911.4	658.8	586.7	882.2	0.95	-0.91	
4,110.0	11.60	41.00	3,996.1	673.5	599.7	901.8	3.34	-3.33	
4,198.0	10.20	40.10	4,082.6	686.2	610.6	918.5	1.60	-1.59	
4,288.0	9.20	37.60	4,171.3	698.0	620.1	933.6	1.21	-1.11	
4,377.0	7.60	36.10	4,259.3	708.4	627.9	946.6	1.81	-1.80	
4,465.0	5.80	34.50	4,346.7	716.7	633.8	956.8	2.06	-2.05	
4,553.0	3.90	22.80	4,434.4	723.2	637.5	964.0	2.42	-2.16	
4,641.0	2.60	13.80	4,522.2	727.9	639.1	968.6	1.58	-1.48	
4,730.0	1.80	354.00	4,611.2	731.2	639.5	971.4	1.23	-0.90	
4,819.0	1.80	353.20	4,700.1	734.0	639.2	973.3	0.03	0.00	
4,909.0	1.00	274.90	4,790.1	735.5	638.2	973.7	2.08	-0.89	
4,999.0	0.70	257.00	4,880.1	735.4	636.9	972.8	0.44	-0.33	
5,088.0	0.40	233.00	4,969.1	735.1	636.1	972.1	0.42	-0.34	
5,177.0	0.30	201.30	5,058.1	734.7	635.8	971.5	0.24	-0.11	
5,265.0	0.20	256.50	5,146.1	734.4	635.6	971.2	0.28	-0.11	
5,355.0	0.10	259.20	5,236.1	734.4	635.3	971.0	0.11	-0.11	
5,444.0	0.30	309.30	5,325.1	734.5	635.1	970.9	0.28	0.22	
5,534.0	0.40	307.00	5,415.1	734.8	634.6	970.9	0.11	0.11	
5,622.0	0.50	305.90	5,503.1	735.3	634.1	970.9	0.11	0.11	
5,708.0	0.40	318.80	5,589.1	735.7	633.6	970.9	0.16	-0.12	

Cathedral Energy Services

Survey Report

Company:	Anadarko Petroleum Corporation	Local Co-ordinate Reference:	Well Strear 39-10
Project:	DJ Wattenberg	TVD Reference:	KBE @ 4976.0ft (Xtreme 14)
Site:	SESE Sec10-T2N-R67W (Strear 16-10-9F)	MD Reference:	KBE @ 4976.0ft (Xtreme 14)
Well:	Strear 39-10	North Reference:	True
Wellbore:	DD	Survey Calculation Method:	Minimum Curvature
Design:	DD	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
5,796.0	0.60	317.00	5,677.1	736.3	633.1	970.9	0.23	0.23	
5,886.0	0.50	311.40	5,767.1	736.9	632.4	971.0	0.13	-0.11	
5,975.0	0.60	311.30	5,856.1	737.4	631.8	971.0	0.11	0.11	
6,063.0	0.80	302.70	5,944.1	738.1	630.9	970.9	0.26	0.23	
6,153.0	0.70	289.30	6,034.1	738.6	629.9	970.6	0.22	-0.11	
6,242.0	0.40	288.00	6,123.1	738.9	629.1	970.3	0.34	-0.34	
6,332.0	0.40	264.40	6,213.1	738.9	628.5	969.9	0.18	0.00	
6,421.0	0.30	205.50	6,302.1	738.7	628.1	969.5	0.40	-0.11	
6,510.0	0.20	233.50	6,391.1	738.4	627.8	969.1	0.17	-0.11	
6,596.0	0.30	235.00	6,477.1	738.2	627.5	968.7	0.12	0.12	
6,684.0	0.10	247.40	6,565.1	738.0	627.3	968.4	0.23	-0.23	
6,773.0	0.30	269.40	6,654.1	738.0	627.0	968.2	0.24	0.22	
6,863.0	0.20	251.00	6,744.1	737.9	626.6	967.9	0.14	-0.11	
6,949.0	0.30	256.70	6,830.1	737.8	626.2	967.6	0.12	0.12	
7,037.0	0.40	261.10	6,918.1	737.7	625.7	967.2	0.12	0.11	
7,126.0	0.60	251.40	7,007.0	737.5	625.0	966.5	0.24	0.22	
7,214.0	0.70	253.80	7,095.0	737.2	624.0	965.7	0.12	0.11	
7,303.0	0.70	236.80	7,184.0	736.8	623.0	964.7	0.23	0.00	
7,391.0	0.90	217.30	7,272.0	735.9	622.2	963.5	0.38	0.23	
7,480.0	2.40	31.30	7,361.0	737.0	622.7	964.6	3.70	1.69	
7,570.0	4.40	30.90	7,450.8	741.6	625.4	969.9	2.22	2.22	
7,658.0	5.20	29.80	7,538.5	747.9	629.2	977.1	0.92	0.91	
7,747.0	6.20	27.80	7,627.1	755.7	633.4	985.7	1.15	1.12	
7,833.0	5.80	28.70	7,712.6	763.6	637.7	994.5	0.48	-0.47	
7,921.0	4.60	27.40	7,800.3	770.6	641.4	1,002.2	1.37	-1.36	
8,010.0	3.10	26.60	7,889.1	775.9	644.1	1,008.0	1.69	-1.69	
8,100.0	3.10	28.10	7,978.9	780.3	646.4	1,012.7	0.09	0.00	
8,190.0	3.00	26.00	8,068.8	784.5	648.6	1,017.4	0.17	-0.11	Final Survey @ 8,190' MD
8,228.9	2.95	25.09	8,107.6	786.3	649.4	1,019.3	0.17	-0.12	Strear 39-10 PBHL
8,240.0	2.94	24.83	8,118.7	786.9	649.7	1,019.9	0.17	-0.12	PTB @ 8,240' MD

Targets

Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
- hit/miss target									
- Shape									
Strear 39-10 PBHL	0.00	0.00	8,111.0	720.9	635.7	1,297,748.01	3,176,846.23	40.148974	-104.867388
- actual wellpath misses target center by 66.9ft at 8228.9ft MD (8107.6 TVD, 786.3 N, 649.4 E)									
- Circle (radius 50.0)									

Design Annotations

	Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
			+N/-S (ft)	+E/-W (ft)	
	8,190.0	8,068.8	784.5	648.6	Final Survey @ 8,190' MD
	8,240.0	8,118.7	786.9	649.7	PTB @ 8,240' MD

Checked By: _____ Approved By: _____ Date: _____