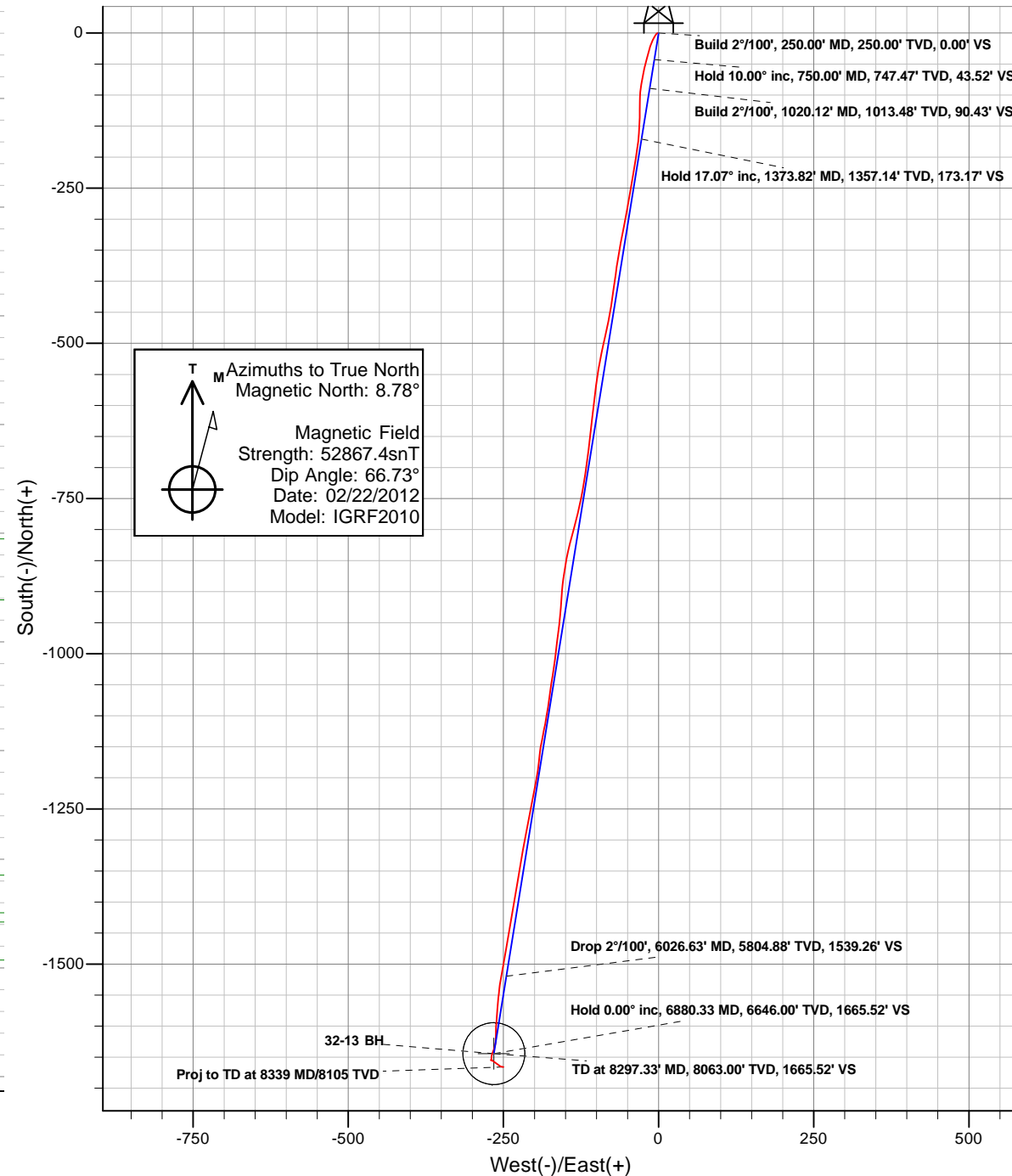
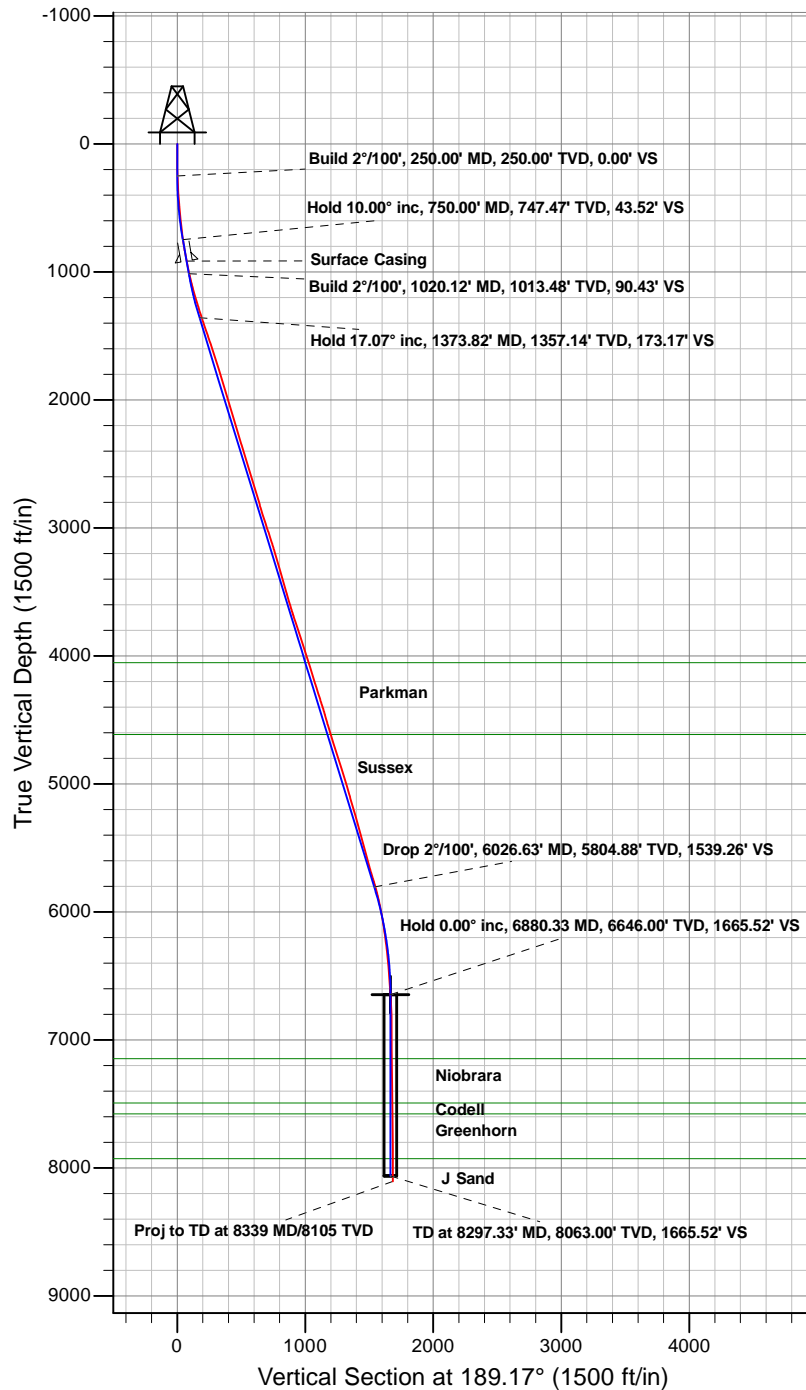




Anadarko Petroleum Corporation

Riverbend 32-13 (111419)
Plan vs Actual



Anadarko Petroleum Corporation

Riverbend

Riverbend 14 Pad

Riverbend 32-13 (111419) - Slot 32-13

32-13

Survey: 32-13

Survey Report - Geographic

06 February, 2012

ARK Directional Services

Survey Report - Geographic

Company:	Anadarko Petroleum Corporation	Local Co-ordinate Reference:	Well Riverbend 32-13 (111419) - Slot 32-13
Project:	Riverbend	TVD Reference:	KB @ 4968.00ft (Original Well Elev)
Site:	Riverbend 14 Pad	MD Reference:	KB @ 4968.00ft (Original Well Elev)
Well:	Riverbend 32-13 (111419)	North Reference:	True
Wellbore:	32-13	Survey Calculation Method:	Minimum Curvature
Design:	32-13	Database:	EDM5000

Project	Riverbend		
Map System:	Universal Transverse Mercator	System Datum:	Mean Sea Level
Geo Datum:	NAD83 Colorado - HARN		
Map Zone:	Zone 13N (108 W to 102 W)		

Site	Riverbend 14 Pad				
Site Position:		Northing:	14,547,138.00 usft	Latitude:	40.055934°N
From:	Lat/Long	Easting:	1,683,122.87 usft	Longitude:	104.847381°W
Position Uncertainty:	0.00 ft	Slot Radius:	13.20 in	Grid Convergence:	0.10 °

Well	Riverbend 32-13 (111419) - Slot 32-13					
Well Position	+N/-S	0.00 ft	Northing:	14,547,068.00 usft	Latitude:	40.055742°N
	+E/-W	0.00 ft	Easting:	1,683,123.17 usft	Longitude:	104.847381°W
Position Uncertainty		0.00 ft	Wellhead Elevation:	ft	Ground Level:	4,953.00 ft

Wellbore	32-13				
Magnetics	Model Name	Sample Date	Declination	Dip Angle	Field Strength
			(°)	(°)	(nT)
	IGRF2010	02/22/12	8.79	66.73	52,867

Survey Program	Date	02/01/12			
From	To	Survey (Wellbore)	Tool Name	Description	
(ft)	(ft)				
133.00	8,339.00	32-13 (32-13)	MWD	MWD - Standard	

Survey									
Measured	Inclination	Azimuth	Vertical	+N/-S	+E/-W	Map	Map	Latitude	Longitude
Depth	(°)	(°)	Depth	(ft)	(ft)	Northing	Easting		
(ft)			(ft)			(usft)	(usft)		
0.00	0.00	0.00	0.00	0.00	0.00	14,547,068.00	1,683,123.17	40.055742°N	104.847381°W
133.00	0.62	281.90	133.00	0.15	-0.70	14,547,068.15	1,683,122.47	40.055742°N	104.847383°W
226.00	2.11	232.90	225.97	-0.78	-2.56	14,547,067.22	1,683,120.61	40.055740°N	104.847390°W
319.00	2.99	213.87	318.88	-3.83	-5.28	14,547,064.17	1,683,117.90	40.055731°N	104.847400°W
395.00	4.09	206.49	394.73	-7.90	-7.59	14,547,060.09	1,683,115.59	40.055720°N	104.847408°W
440.00	4.61	206.49	439.60	-10.95	-9.12	14,547,057.03	1,683,114.07	40.055712°N	104.847413°W
529.00	5.89	199.77	528.23	-18.45	-12.26	14,547,049.53	1,683,110.95	40.055691°N	104.847424°W
618.00	5.49	197.57	616.79	-26.81	-15.09	14,547,041.17	1,683,108.13	40.055668°N	104.847435°W
704.00	7.29	194.19	702.25	-36.02	-17.67	14,547,031.95	1,683,105.57	40.055643°N	104.847444°W
794.00	9.18	193.97	791.32	-48.53	-20.80	14,547,019.44	1,683,102.45	40.055609°N	104.847455°W
896.00	10.90	191.37	891.76	-65.88	-24.66	14,547,002.08	1,683,098.62	40.055561°N	104.847469°W
981.00	11.82	190.27	975.09	-82.32	-27.80	14,546,985.63	1,683,095.51	40.055516°N	104.847480°W
1,070.00	13.49	183.29	1,061.93	-101.66	-30.02	14,546,966.29	1,683,093.32	40.055463°N	104.847488°W
1,160.00	15.60	179.07	1,149.04	-124.24	-30.43	14,546,943.71	1,683,092.95	40.055401°N	104.847489°W
1,247.00	17.18	182.89	1,232.51	-148.77	-30.89	14,546,919.18	1,683,092.54	40.055333°N	104.847491°W
1,335.00	17.40	186.28	1,316.53	-174.83	-32.98	14,546,893.11	1,683,090.49	40.055262°N	104.847498°W
1,424.00	18.72	189.40	1,401.15	-202.15	-36.77	14,546,865.79	1,683,086.75	40.055187°N	104.847512°W
1,511.00	18.98	189.00	1,483.48	-229.90	-41.26	14,546,838.03	1,683,082.30	40.055111°N	104.847528°W
1,600.00	18.72	190.58	1,567.71	-258.23	-46.15	14,546,809.69	1,683,077.46	40.055033°N	104.847546°W
1,687.00	17.19	189.18	1,650.47	-284.65	-50.76	14,546,783.27	1,683,072.89	40.054960°N	104.847562°W
1,778.00	17.58	191.77	1,737.31	-311.38	-55.71	14,546,756.53	1,683,067.99	40.054887°N	104.847580°W

ARK Directional Services

Survey Report - Geographic

Company:	Anadarko Petroleum Corporation	Local Co-ordinate Reference:	Well Riverbend 32-13 (111419) - Slot 32-13
Project:	Riverbend	TVD Reference:	KB @ 4968.00ft (Original Well Elev)
Site:	Riverbend 14 Pad	MD Reference:	KB @ 4968.00ft (Original Well Elev)
Well:	Riverbend 32-13 (111419)	North Reference:	True
Wellbore:	32-13	Survey Calculation Method:	Minimum Curvature
Design:	32-13	Database:	EDM5000

Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude
1,868.00	17.40	190.19	1,823.15	-337.93	-60.87	14,546,729.97	1,683,062.88	40.054814°N	104.847598°W
1,956.00	17.31	189.40	1,907.15	-363.80	-65.33	14,546,704.10	1,683,058.46	40.054743°N	104.847614°W
2,046.00	16.08	187.77	1,993.35	-389.36	-69.20	14,546,678.53	1,683,054.63	40.054673°N	104.847628°W
2,136.00	16.48	187.99	2,079.74	-414.35	-72.66	14,546,653.53	1,683,051.22	40.054604°N	104.847640°W
2,225.00	16.79	188.78	2,165.02	-439.55	-76.38	14,546,628.32	1,683,047.54	40.054535°N	104.847654°W
2,314.00	16.79	191.37	2,250.23	-464.86	-80.88	14,546,603.01	1,683,043.09	40.054465°N	104.847670°W
2,404.00	16.70	193.57	2,336.41	-490.17	-86.47	14,546,577.68	1,683,037.54	40.054396°N	104.847690°W
2,494.00	17.71	191.20	2,422.38	-516.17	-92.17	14,546,551.67	1,683,031.89	40.054324°N	104.847710°W
2,583.00	16.48	189.97	2,507.45	-541.89	-96.98	14,546,525.95	1,683,027.12	40.054254°N	104.847727°W
2,670.00	16.92	187.37	2,590.78	-566.60	-100.74	14,546,501.24	1,683,023.40	40.054186°N	104.847741°W
2,759.00	17.31	186.49	2,675.84	-592.60	-103.90	14,546,475.23	1,683,020.29	40.054115°N	104.847752°W
2,846.00	16.00	185.48	2,759.19	-617.39	-106.51	14,546,450.43	1,683,017.72	40.054046°N	104.847761°W
2,935.00	16.61	187.37	2,844.61	-642.22	-109.31	14,546,425.60	1,683,014.96	40.053978°N	104.847771°W
3,025.00	18.50	187.90	2,930.41	-669.12	-112.92	14,546,398.69	1,683,011.39	40.053904°N	104.847784°W
3,112.00	17.71	186.49	3,013.11	-695.94	-116.32	14,546,371.86	1,683,008.05	40.053831°N	104.847796°W
3,199.00	18.19	188.47	3,095.87	-722.52	-119.81	14,546,345.28	1,683,004.60	40.053758°N	104.847809°W
3,290.00	16.22	192.78	3,182.80	-748.97	-124.72	14,546,318.82	1,682,999.74	40.053685°N	104.847826°W
3,380.00	16.70	192.78	3,269.11	-773.84	-130.36	14,546,293.94	1,682,994.14	40.053617°N	104.847846°W
3,471.00	16.08	194.80	3,356.41	-798.77	-136.47	14,546,269.00	1,682,988.07	40.053548°N	104.847868°W
3,560.00	16.00	195.46	3,441.95	-822.51	-142.89	14,546,245.25	1,682,981.69	40.053483°N	104.847891°W
3,650.00	16.30	189.57	3,528.40	-846.92	-148.29	14,546,220.83	1,682,976.33	40.053416°N	104.847911°W
3,739.00	16.48	189.48	3,613.79	-871.69	-152.45	14,546,196.05	1,682,972.21	40.053348°N	104.847925°W
3,827.00	18.81	184.39	3,697.65	-898.15	-155.59	14,546,169.59	1,682,969.12	40.053275°N	104.847937°W
3,916.00	18.50	183.86	3,781.97	-926.55	-157.64	14,546,141.19	1,682,967.12	40.053197°N	104.847944°W
4,006.00	17.58	187.29	3,867.55	-954.28	-160.33	14,546,113.45	1,682,964.48	40.053121°N	104.847954°W
4,096.00	17.31	186.58	3,953.41	-981.06	-163.59	14,546,086.67	1,682,961.27	40.053048°N	104.847965°W
4,184.00	18.41	187.20	4,037.17	-1,007.85	-166.83	14,546,059.87	1,682,958.07	40.052974°N	104.847977°W
4,274.00	17.40	189.57	4,122.81	-1,035.22	-170.85	14,546,032.49	1,682,954.10	40.052899°N	104.847991°W
4,362.00	16.61	187.29	4,206.96	-1,060.67	-174.63	14,546,007.03	1,682,950.36	40.052829°N	104.848005°W
4,451.00	17.40	188.47	4,292.07	-1,086.45	-178.20	14,545,981.25	1,682,946.83	40.052758°N	104.848017°W
4,541.00	18.19	190.79	4,377.76	-1,113.56	-182.82	14,545,954.13	1,682,942.26	40.052684°N	104.848034°W
4,629.00	15.91	192.08	4,461.89	-1,138.85	-187.91	14,545,928.83	1,682,937.21	40.052614°N	104.848052°W
4,718.00	16.22	185.48	4,547.42	-1,163.16	-191.65	14,545,904.52	1,682,933.51	40.052548°N	104.848066°W
4,806.00	17.18	188.16	4,631.71	-1,188.26	-194.67	14,545,879.41	1,682,930.54	40.052479°N	104.848076°W
4,894.00	17.80	191.20	4,715.64	-1,214.32	-199.13	14,545,853.35	1,682,926.12	40.052407°N	104.848092°W
4,984.00	18.02	190.49	4,801.28	-1,241.50	-204.34	14,545,826.16	1,682,920.96	40.052333°N	104.848111°W
5,072.00	17.58	191.28	4,885.07	-1,267.92	-209.41	14,545,799.73	1,682,915.93	40.052260°N	104.848129°W
5,160.00	16.22	191.07	4,969.27	-1,293.01	-214.37	14,545,774.63	1,682,911.01	40.052191°N	104.848147°W
5,249.00	16.48	189.40	5,054.67	-1,317.67	-218.82	14,545,749.97	1,682,906.61	40.052123°N	104.848163°W
5,338.00	15.90	189.57	5,140.14	-1,342.14	-222.91	14,545,725.48	1,682,902.56	40.052056°N	104.848177°W
5,428.00	16.22	189.79	5,226.62	-1,366.69	-227.10	14,545,700.93	1,682,898.42	40.051989°N	104.848192°W
5,517.00	15.38	190.27	5,312.26	-1,390.55	-231.31	14,545,677.06	1,682,894.24	40.051923°N	104.848207°W
5,607.00	16.08	188.47	5,398.89	-1,414.62	-235.28	14,545,652.98	1,682,890.32	40.051857°N	104.848221°W
5,697.00	14.59	189.09	5,485.68	-1,438.14	-238.91	14,545,629.45	1,682,886.73	40.051793°N	104.848234°W
5,785.00	14.50	190.80	5,570.86	-1,459.91	-242.72	14,545,607.68	1,682,882.95	40.051733°N	104.848248°W
5,875.00	16.39	190.36	5,657.61	-1,483.47	-247.12	14,545,584.11	1,682,878.60	40.051668°N	104.848264°W
5,964.00	17.31	190.49	5,742.79	-1,508.84	-251.78	14,545,558.73	1,682,873.97	40.051598°N	104.848280°W
6,054.00	14.72	187.77	5,829.29	-1,533.34	-255.77	14,545,534.23	1,682,870.03	40.051531°N	104.848295°W
6,144.00	12.70	184.87	5,916.72	-1,554.53	-258.16	14,545,513.03	1,682,867.68	40.051473°N	104.848303°W
6,234.00	10.68	184.87	6,004.85	-1,572.70	-259.70	14,545,494.86	1,682,866.16	40.051423°N	104.848309°W
6,321.00	9.18	184.56	6,090.54	-1,587.65	-260.94	14,545,479.91	1,682,864.95	40.051382°N	104.848313°W
6,410.00	7.78	182.50	6,178.57	-1,600.75	-261.77	14,545,466.81	1,682,864.15	40.051346°N	104.848316°W
6,500.00	7.12	181.27	6,267.81	-1,612.41	-262.16	14,545,455.15	1,682,863.78	40.051314°N	104.848317°W
6,590.00	5.71	180.56	6,357.24	-1,622.46	-262.32	14,545,445.10	1,682,863.63	40.051286°N	104.848318°W
6,680.00	4.92	195.46	6,446.86	-1,630.66	-263.40	14,545,436.90	1,682,862.57	40.051264°N	104.848322°W

ARK Directional Services

Survey Report - Geographic

Company:	Anadarko Petroleum Corporation	Local Co-ordinate Reference:	Well Riverbend 32-13 (111419) - Slot 32-13
Project:	Riverbend	TVD Reference:	KB @ 4968.00ft (Original Well Elev)
Site:	Riverbend 14 Pad	MD Reference:	KB @ 4968.00ft (Original Well Elev)
Well:	Riverbend 32-13 (111419)	North Reference:	True
Wellbore:	32-13	Survey Calculation Method:	Minimum Curvature
Design:	32-13	Database:	EDM5000

Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Map Northing (usft)	Map Easting (usft)	Latitude	Longitude	
6,767.00	4.00	199.68	6,533.60	-1,637.11	-265.41	14,545,430.44	1,682,860.56	40.051246°N	104.848329°W	
6,858.00	3.52	199.77	6,624.40	-1,642.73	-267.43	14,545,424.82	1,682,858.56	40.051231°N	104.848336°W	
6,947.00	3.21	193.26	6,713.25	-1,647.73	-268.92	14,545,419.82	1,682,857.07	40.051217°N	104.848342°W	
7,037.00	2.50	181.00	6,803.13	-1,652.14	-269.53	14,545,415.40	1,682,856.47	40.051205°N	104.848344°W	
7,126.00	0.70	186.76	6,892.10	-1,654.62	-269.63	14,545,412.92	1,682,856.37	40.051198°N	104.848344°W	
7,214.00	0.62	345.13	6,980.09	-1,654.70	-269.82	14,545,412.85	1,682,856.19	40.051198°N	104.848345°W	
7,302.00	0.22	86.30	7,068.09	-1,654.23	-269.77	14,545,413.32	1,682,856.24	40.051199°N	104.848345°W	
7,435.00	0.79	127.70	7,201.09	-1,654.77	-268.79	14,545,412.78	1,682,857.22	40.051198°N	104.848341°W	
7,569.00	1.80	124.58	7,335.05	-1,656.53	-266.33	14,545,411.02	1,682,859.68	40.051193°N	104.848332°W	
7,701.00	2.29	127.87	7,466.97	-1,659.32	-262.54	14,545,408.23	1,682,863.48	40.051185°N	104.848319°W	
7,835.00	1.71	126.72	7,600.88	-1,662.16	-258.82	14,545,405.40	1,682,867.20	40.051177°N	104.848306°W	
7,968.00	1.19	121.68	7,733.84	-1,664.07	-256.06	14,545,403.49	1,682,869.97	40.051172°N	104.848296°W	
8,100.00	0.88	98.78	7,865.82	-1,664.95	-253.89	14,545,402.62	1,682,872.14	40.051170°N	104.848288°W	
8,234.00	1.01	107.79	7,999.80	-1,665.47	-251.75	14,545,402.11	1,682,874.28	40.051168°N	104.848280°W	
8,294.00	1.01	101.90	8,059.79	-1,665.74	-250.73	14,545,401.84	1,682,875.30	40.051167°N	104.848277°W	
8,339.00	1.01	101.90	8,104.79	-1,665.90	-249.95	14,545,401.68	1,682,876.08	40.051167°N	104.848274°W	
Proj to TD at 8339 MD/8105 TVD										

Survey Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment	
		+N/-S (ft)	+E/-W (ft)		
8,339.00	8,104.79	-1,665.90	-249.95	Proj to TD at 8339 MD/8105 TVD	

Checked By: _____ Approved By: _____ Date: _____