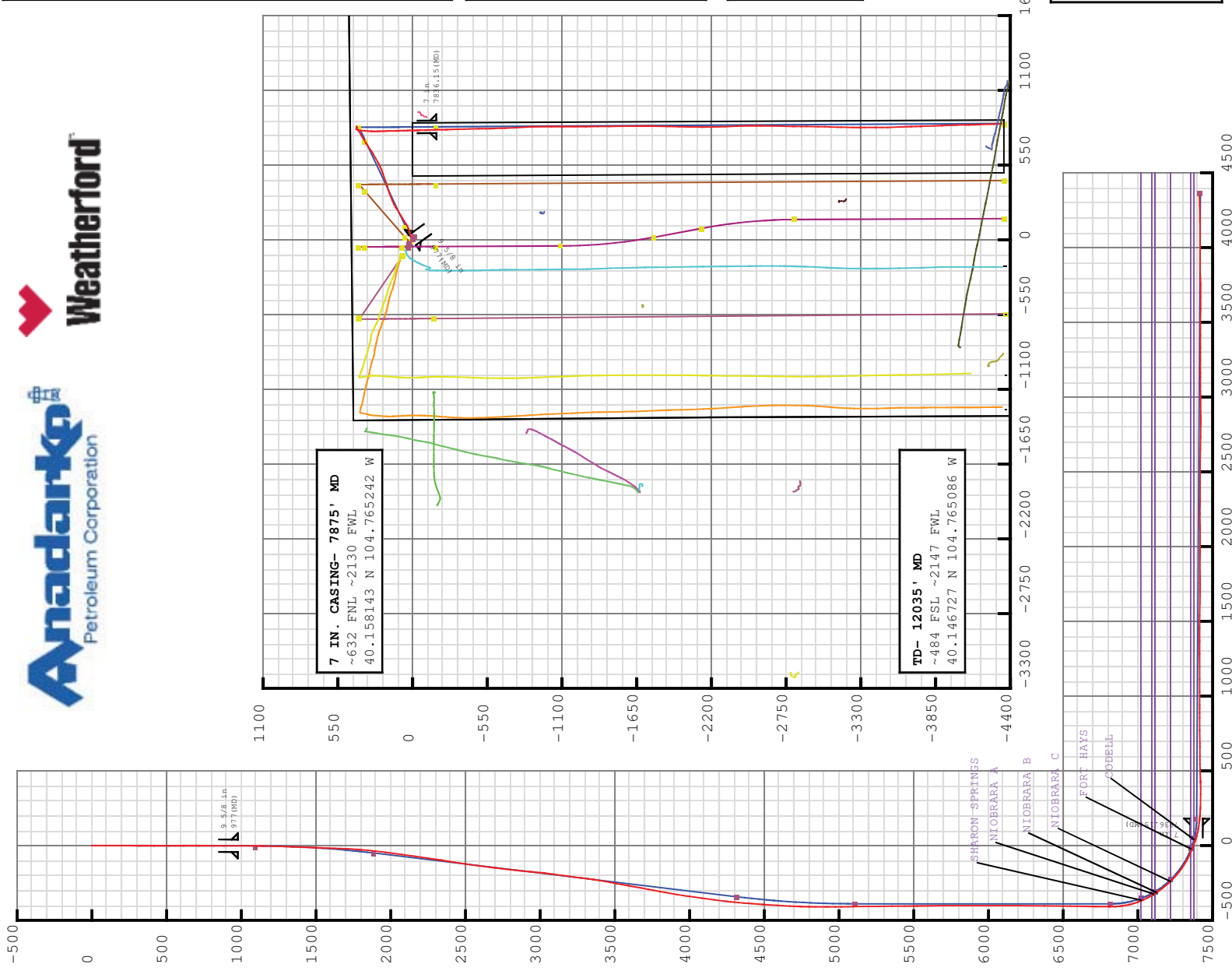




**Plan Data for CANNON 14C-10HZ**  
**Field: WATTENBERG\_ANADARKO\_NAD 83**  
Map Unit: USFt Vertical Reference Datum (VRD): Mean Sea Level  
Projected Coordinate System: NAD83 / Colorado North (ftUS)

**Slot: CANNON 14C-10HZ**  
Position:  
Offset is from Site centre  
+N/-S: -93.26USft Northing: 1301477.34USft Latitude: 40.158633°  
+E/-W: 154.00USft Easting: 3204554.52USft Longitude: -104.768138°  
Elevation Above VRD: 4949.00USft



**Plan Point Information:**

Dogleg Severity Unit: °/100.00ft	MD	Inc	Az	TVD	+N/-S (USft)	+E/-W (USft)	VSec (USft)	DLS Toolface (°)	Position offsets from Slot centre
886.00	0.27	324.33	886.00	0.89	-1.43	-0.90	0.13	14.5R	
1100.00	0.27	324.33	1099.99	1.71	-2.02	-1.73	0.00	0.0R	
1902.37	16.00	64.82	1892.01	50.61	97.58	-50.03	2.00	101.4R	
4428.73	16.00	64.82	4320.55	346.81	727.62	-342.49	0.00	0.0R	
5228.53	0.00	0.00	5110.00	394.00	828.00	-389.08	2.00	180.0R	
6939.58	0.00	0.00	6821.05	394.00	828.00	-389.08	0.00	0.0R	
7836.16	89.66	179.66	7394.00	-175.52	831.35	180.45	10.00	179.7R	
12021.57	89.66	179.66	7419.00	-4360.78	856.01	4365.79	0.00	0.0R	

**Plan Data for CANNON 14C-10HZ**

**Formation Point Information:**

Name	TVD Elevation (USft)	MD
PARKMAN	3991.00	974.00 4085.91
SUSSEX	4398.00	567.00 4508.99
SHARON SPRINGS	7024.00	-2059.00 7147.03
NIOBRARA A	7103.00	-2138.00 7234.36
NIOBRARA B	7124.00	-2159.00 7258.79
NIOBRARA C	7219.00	-2254.00 7379.50
FORT HAYS	7358.00	-2393.00 7635.37
CODELL	7380.00	-2415.00 7712.62

**Casing Point Information:**

Name	MD	TVD (USft)
9 5/8 in	977.00	976.99
7 in	7836.15	7394.00

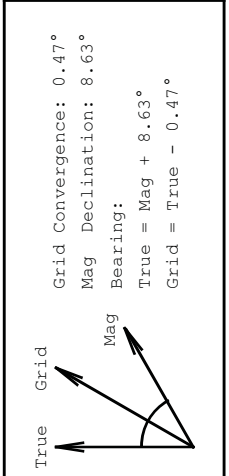
**LINER TOP- 6839.58 MD**  
KOP- 6939.58 MD

Plan Data for CANNON 14C-10HZ

Target Set Information:

Name: 7

Name	TVD (USft)	Lat (°)	Long (°)	Shape
PBHL 7419.00	40.146662	-104.765076	Cuboid	





## FINAL SURVEYS





**5D Survey Report**

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**Anadarko Petroleum**

**Field Name:** WATTENBERG\_ANADARKO\_NAD 83  
**Site Name:** CANNON 29-10HZ  
**Well Name:** CANNON 14C-10HZ  
**Survey:** Definitive Survey

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Surveys for the CANNON 14C-10HZ

Site Name  CANNON 29-10HZ	Units : US ft		North Reference : True		Convergence Angle : 0.47	
	Position		Northing : 1301569.32 US ft		Latitude : 40.158889	
			Easting : 3204399.75 US ft		Longitude : -104.768689	
	Elevation above:4949.00 US ft					
Comment :						
Slot Name  CANNON 14C-10HZ	Position (Offsets relative to Site Centre)					
	+N / -S : -93.26 US ft		Northing :1301477.34 US ft		Latitude : 40.158633	
	+E / -W : 154.00 US ft		Easting :3204554.52 US ft		Longitude : -104.768138	
	Slot TVD Reference : Ground Elevation					
Elevation above : 4949.00 US ft						
Comment :						
Well Name  CANNON 14C-10HZ	Type : Main well		UWI :			
	Rig Height		Comment :			
	Drill Floor : 16.00 US ft		Closure Azimuth : 168.87°			
	Relative to : 4965.00 US ft					
	Closure Distance : 4420.09 US ft					
	Vertical Section (Position of Origin Relative to Slot )					
		+N / -S : 0.00 US ft		+E / -W : 0.00 US ft		Az :179.66°

Target Set												
Name : 7			Number of Targets : 1									
Comment :												
TargetName:		Position (Relative to centre)					Latitude : 40°8'47.983200"					
PBHL		Northing : 1297123.77 US ft					Longitude : -104°45'54.273600"					
Shape:		Easting : 3205446.47US ft										
Cuboid		TVD (Drill Floor) : 7419.00 US ft										
Orientation		Azimuth : 0.00°					Inclination : 0.00°					
Dimensions		Length : 1.00 US ft					Breadth : 1.00 US ft					
							Height : 1.00 US ft					
Survey Name :Definitive Survey												
Date : 18/Jun/2013			Survey Tool :			Comment :			Company :			
Magnetic Model												
Model Name: Default			Date: 04/Apr/2013			Field Strength: 50000.0 nT			Declination: 0.00°			
Dip: 0.00°												
Survey Tool Ranges												
Name		Start MD (us ft)			End MD (us ft)			Source Survey				
MWD		0.00			886.00			GYROS				
MWD		886.00			12035.00			WFT MWD SURVEYS				
Casing Points (Relative to centre, TVD relative to Drill Floor )												
Name	MD (US ft)	Inc (°)	Az (°)	TVD (US ft)	N.Offset (US ft)	E.Offset (US ft)	Northing (US ft)	Easting (US ft)	Latitude (°)	Longitude (°)	VS (US ft)	Comment
7 in	7875.00	84.74	178.62	7414.22	-178.64	809.55	40.158143	-104.765242				
Well path created using minimum curvature												
Survey Points (Relative to centre, TVD relative to Drill Floor )												
MD (US ft)	Inc (°)	Az (°)	TVD (US ft)	N.Offset (US ft)	E.Offset (US ft)	Northing (US ft)	Easting (US ft)	Latitude (°)	Longitude (°)	VS (US ft)	Comment	
0.00	0.00	0.00	0.00	0.00	0.00	1301477.34	3204554.52	40.158633	-104.768138	-0.00		
16.00	0.00	0.00	16.00	0.00	0.00	1301477.34	3204554.52	40.158633	-104.768138	-0.00		
116.00	0.11	139.57	116.00	-0.07	0.06	1301477.27	3204554.58	40.158633	-104.768138	0.07		
216.00	0.27	302.85	216.00	-0.02	-0.07	1301477.32	3204554.45	40.158633	-104.768138	0.02		
316.00	0.22	313.72	316.00	0.24	-0.41	1301477.58	3204554.11	40.158634	-104.768139	-0.24		
416.00	0.22	341.49	416.00	0.56	-0.61	1301477.89	3204553.91	40.158635	-104.768140	-0.56		
516.00	0.06	109.98	516.00	0.72	-0.62	1301478.06	3204553.89	40.158635	-104.768140	-0.72		
616.00	0.25	208.14	616.00	0.51	-0.68	1301477.85	3204553.84	40.158634	-104.768140	-0.51		

5D Survey Report

Survey Points (Relative to centre, TVD relative to Drill Floor )											
MD (US ft)	Inc (°)	Az (°)	TVD (US ft)	N. Offset (US ft)	E. Offset (US ft)	Northing (US ft)	Easting (US ft)	Latitude (°)	Longitude (°)	VS (US ft)	Comment
716.00	0.26	301.85	716.00	0.44	-0.97	1301477.77	3204553.55	40.158634	-104.768141	-0.44	
816.00	0.18	319.44	816.00	0.68	-1.27	1301478.01	3204553.25	40.158635	-104.768143	-0.68	
886.00	0.27	324.33	886.00	0.89	-1.43	1301478.22	3204553.08	40.158635	-104.768143	-0.90	TIE ON
1070.00	0.31	329.50	1069.99	1.68	-1.94	1301479.00	3204552.57	40.158638	-104.768145	-1.69	FIRST WFT MWD SVY
1163.00	2.60	70.00	1162.96	2.61	-0.08	1301479.95	3204554.41	40.158640	-104.768138	-2.61	
1255.00	3.68	66.28	1254.82	4.52	4.58	1301481.89	3204559.06	40.158645	-104.768122	-4.49	
1349.00	5.95	64.54	1348.48	7.82	11.74	1301485.26	3204566.20	40.158654	-104.768096	-7.75	
1441.00	7.22	70.22	1439.88	11.83	21.49	1301489.35	3204575.91	40.158665	-104.768061	-11.70	
1534.00	8.66	76.27	1531.98	15.47	33.79	1301493.09	3204588.18	40.158675	-104.768017	-15.27	
1627.00	10.30	82.61	1623.71	18.20	48.84	1301495.94	3204603.21	40.158683	-104.767963	-17.91	
1719.00	10.82	71.62	1714.16	21.98	65.19	1301499.86	3204619.53	40.158693	-104.767905	-21.60	
1812.00	11.56	67.19	1805.40	28.35	82.06	1301506.36	3204636.35	40.158711	-104.767844	-27.86	
1904.00	12.87	59.38	1895.32	37.14	99.38	1301515.30	3204653.59	40.158735	-104.767782	-36.55	
1995.00	14.15	58.04	1987.69	48.68	118.34	1301526.99	3204672.45	40.158767	-104.767715	-47.97	
2089.00	14.46	58.06	2074.90	60.44	137.21	1301538.91	3204691.22	40.158799	-104.767647	-59.63	
2180.00	14.94	58.52	2162.92	72.58	156.85	1301551.21	3204710.77	40.158832	-104.767577	-71.65	
2271.00	15.76	58.99	2250.67	85.07	177.45	1301563.87	3204731.26	40.158867	-104.767503	-84.02	
2362.00	16.76	58.94	2338.03	98.21	199.28	1301577.19	3204752.98	40.158903	-104.767425	-97.03	
2452.00	16.30	56.00	2424.31	111.97	220.87	1301591.13	3204774.46	40.158940	-104.767348	-110.66	
2543.00	16.54	60.29	2511.60	125.53	242.71	1301604.87	3204796.18	40.158978	-104.767270	-124.09	
2634.00	17.00	63.97	2598.74	137.79	265.91	1301617.32	3204819.29	40.159011	-104.767187	-136.21	
2725.00	17.49	68.16	2685.65	148.71	290.56	1301628.44	3204843.84	40.159041	-104.767098	-146.99	
2816.00	16.87	65.96	2772.59	159.18	315.31	1301639.11	3204868.51	40.159070	-104.767010	-157.31	
2906.00	17.29	70.49	2858.62	168.97	339.84	1301649.10	3204892.96	40.159097	-104.766922	-166.95	
2997.00	19.25	74.43	2945.03	177.51	367.05	1301657.87	3204920.09	40.159120	-104.766825	-175.33	
3058.00	19.81	73.64	3002.53	183.12	386.65	1301663.64	3204939.65	40.159136	-104.766755	-180.82	
3149.00	22.54	70.54	3087.38	193.28	417.90	1301674.06	3204970.81	40.159164	-104.766643	-190.79	
3268.00	21.98	69.67	3197.51	208.61	460.29	1301689.74	3205013.07	40.159206	-104.766491	-205.88	
3354.00	20.77	70.38	3277.59	219.32	489.74	1301700.70	3205042.44	40.159235	-104.766386	-216.41	
3439.00	22.59	69.05	3356.57	230.22	519.19	1301711.84	3205071.79	40.159265	-104.766280	-227.14	
3525.00	22.39	63.90	3436.04	243.34	549.33	1301725.20	3205101.82	40.159301	-104.766173	-240.07	
3610.00	20.48	60.55	3515.16	257.77	576.82	1301739.86	3205129.19	40.159341	-104.766074	-254.34	
3695.00	20.08	60.65	3594.89	272.23	602.48	1301754.53	3205154.74	40.159380	-104.765982	-268.65	
3781.00	20.25	58.64	3675.62	287.22	628.06	1301769.73	3205180.19	40.159421	-104.765891	-283.48	
3866.00	18.88	56.38	3755.71	302.49	652.07	1301785.19	3205204.08	40.159463	-104.765805	-298.61	
3952.00	17.30	54.73	3837.46	317.58	674.10	1301800.46	3205225.98	40.159505	-104.765726	-313.57	
4037.00	16.89	57.86	3918.71	331.44	694.88	1301814.50	3205246.64	40.159543	-104.765652	-327.31	
4122.00	15.73	59.31	4000.28	343.89	715.24	1301827.12	3205266.90	40.159577	-104.765579	-339.64	
4208.00	14.81	57.94	4083.25	355.68	734.58	1301839.06	3205286.14	40.159609	-104.765510	-351.31	
4293.00	14.36	58.36	4165.51	366.97	752.76	1301850.51	3205304.23	40.159640	-104.765445	-362.50	

5D Survey Report

Survey Points (Relative to centre, TVD relative to Drill Floor )											VS (US ft)	Comment
MD (US ft)	Inc (°)	Az (°)	TVD (US ft)	N. Offset (US ft)	E. Offset (US ft)	Northing (US ft)	Easting (US ft)	Latitude (°)	Longitude (°)			
4379.00	13.23	60.64	4249.03	377.39	770.42	1301861.07	3205321.80	40.159669	-104.765382	-372.82	7 in	
4464.00	10.07	59.75	4332.27	385.91	785.32	1301869.71	3205336.63	40.159692	-104.765328	-381.24		
4550.00	7.58	54.91	4417.24	392.96	796.46	1301876.85	3205347.71	40.159712	-104.765288	-388.22		
4635.00	6.53	51.97	4501.60	399.16	804.85	1301883.12	3205356.05	40.159729	-104.765258	-394.38		
4720.00	5.79	57.77	4586.11	404.42	812.29	1301888.45	3205363.44	40.159743	-104.765232	-399.60		
4806.00	5.50	58.47	4671.69	408.89	819.47	1301892.98	3205370.59	40.159755	-104.765206	-404.02		
4891.00	4.35	62.44	4756.38	412.51	825.80	1301896.65	3205376.89	40.159765	-104.765183	-407.61		
4977.00	2.26	69.62	4842.23	414.61	830.28	1301898.79	3205381.35	40.159771	-104.765167	-409.68		
5062.00	1.55	99.98	4927.18	415.00	832.98	1301899.19	3205384.05	40.159772	-104.765158	-410.05		
5148.00	1.01	183.04	5013.17	414.04	834.09	1301898.24	3205385.17	40.159770	-104.765154	-409.08		
5233.00	0.66	178.64	5098.16	412.80	834.06	1301897.01	3205385.15	40.159766	-104.765154	-407.84		
5318.00	0.84	167.34	5183.15	411.70	834.21	1301895.91	3205385.31	40.159763	-104.765153	-406.75		
5403.00	0.70	153.76	5268.14	410.63	834.58	1301894.84	3205385.68	40.159760	-104.765152	-405.67		
5489.00	0.49	166.35	5354.14	409.80	834.90	1301894.01	3205386.01	40.159758	-104.765151	-404.84		
5574.00	0.49	217.89	5439.14	409.16	834.76	1301893.37	3205385.87	40.159756	-104.765151	-404.20		
5659.00	1.05	244.77	5524.13	408.54	833.83	1301892.75	3205384.95	40.159754	-104.765155	-403.59		
5829.00	1.41	238.53	5694.09	406.79	830.64	1301890.96	3205381.77	40.159750	-104.765166	-401.85		
5999.00	0.30	266.87	5864.07	405.67	828.41	1301889.83	3205379.55	40.159747	-104.765174	-400.75		
6170.00	0.99	278.63	6035.05	405.87	826.50	1301890.01	3205377.65	40.159747	-104.765181	-400.96		
6341.00	0.97	281.33	6206.03	406.37	823.62	1301890.49	3205374.76	40.159748	-104.765191	-401.48		
6512.00	0.98	304.14	6377.01	407.48	820.99	1301891.58	3205372.12	40.159752	-104.765201	-402.60		
6683.00	1.19	307.92	6547.98	409.39	818.38	1301893.47	3205369.50	40.159757	-104.765210	-404.53		
6853.00	1.16	326.86	6717.94	411.92	816.05	1301895.97	3205367.14	40.159764	-104.765218	-407.07		
6939.00	1.14	324.55	6803.92	413.34	815.08	1301897.39	3205366.16	40.159768	-104.765222	-408.50		
7024.00	8.14	208.25	6888.65	408.72	811.73	1301892.74	3205362.85	40.159755	-104.765234	-403.90		
7110.00	16.32	189.96	6972.65	391.42	806.75	1301875.40	3205358.01	40.159707	-104.765252	-386.63		
7195.00	26.49	185.57	7051.69	360.71	802.83	1301844.66	3205354.35	40.159623	-104.765266	-355.94		
7281.00	34.19	183.91	7125.86	317.45	799.32	1301801.37	3205351.19	40.159504	-104.765278	-312.70		
7366.00	40.61	179.05	7193.36	265.90	798.15	1301749.81	3205350.45	40.159363	-104.765282	-261.15		
7452.00	48.49	177.94	7254.60	205.64	799.77	1301689.56	3205352.57	40.159197	-104.765277	-200.89		
7537.00	57.22	179.00	7305.88	137.97	801.54	1301621.92	3205354.90	40.159012	-104.765270	-133.21		
7623.00	65.02	178.42	7347.39	62.75	803.25	1301546.71	3205357.22	40.158805	-104.765264	-57.98		
7708.00	70.32	178.74	7379.67	-15.83	805.19	1301468.15	3205359.82	40.158589	-104.765257	20.61		
7794.00	78.01	178.23	7403.12	-98.47	807.39	1301385.53	3205362.69	40.158363	-104.765249	103.26		
7825.00	82.07	178.44	7408.48	-128.99	808.27	1301355.02	3205363.83	40.158279	-104.765246	133.78		
7875.00	84.74	178.62	7414.22	-178.64	809.55	1301305.39	3205365.51	40.158143	-104.765242	183.44		
7949.00	88.70	178.88	7418.45	-252.48	811.16	1301231.56	3205367.73	40.157940	-104.765236	257.29		
8035.00	89.26	178.09	7419.98	-338.44	813.43	1301145.62	3205370.72	40.157704	-104.765228	343.26		
8120.00	91.29	178.67	7419.57	-423.40	815.84	1301060.68	3205373.82	40.157471	-104.765219	428.23		
8206.00	92.47	179.31	7416.75	-509.34	817.35	1300974.76	3205376.04	40.157235	-104.765214	514.18		
8291.00	89.69	178.59	7415.15	-594.30	818.91	1300889.82	3205378.30	40.157002	-104.765208	599.15		

5D Survey Report

Survey Points (Relative to centre, TVD relative to Drill Floor )											Comment
MD (US ft)	Inc (°)	Az (°)	TVD (US ft)	N. Offset (US ft)	E. Offset (US ft)	Northing (US ft)	Easting (US ft)	Latitude (°)	Longitude (°)	VS (US ft)	
8377.00	90.55	177.50	7414.97	-680.25	821.84	1300803.90	3205381.94	40.156766	-104.765198	685.11	
8462.00	90.49	177.45	7414.20	-765.16	825.96	1300719.02	3205386.39	40.156532	-104.765184	770.05	
8548.00	90.12	176.72	7413.74	-851.05	829.96	1300633.17	3205391.47	40.156297	-104.765169	855.96	
8633.00	89.94	179.38	7413.70	-935.99	832.85	1300548.25	3205395.06	40.156064	-104.765158	940.92	
8719.00	90.25	180.15	7413.55	-1021.99	833.20	1300462.26	3205396.12	40.155827	-104.765157	1026.91	
8804.00	90.12	179.85	7413.28	-1106.99	833.20	1300377.26	3205396.83	40.155594	-104.765157	1111.91	
8889.00	90.06	179.94	7413.15	-1191.99	833.36	1300292.27	3205397.68	40.155361	-104.765157	1196.91	
8975.00	90.18	180.07	7412.97	-1277.99	833.35	1300206.27	3205398.38	40.155125	-104.765157	1282.91	
9060.00	89.94	179.56	7412.88	-1362.99	833.63	1300121.28	3205399.36	40.154891	-104.765156	1367.91	
9146.00	89.82	179.25	7413.06	-1448.98	834.52	1300035.29	3205400.96	40.154655	-104.765152	1453.91	
9231.00	89.51	179.68	7413.55	-1533.98	835.31	1299950.31	3205402.46	40.154422	-104.765150	1538.91	
9317.00	88.58	179.41	7414.99	-1619.96	836.00	1299864.33	3205403.85	40.154186	-104.765147	1624.89	
9402.00	89.75	179.49	7416.23	-1704.95	836.81	1299779.35	3205405.36	40.153953	-104.765144	1709.88	
9488.00	90.49	181.20	7416.05	-1790.94	836.29	1299693.36	3205405.56	40.153717	-104.765146	1795.87	
9573.00	89.82	181.06	7415.82	-1875.92	834.62	1299608.36	3205404.58	40.153483	-104.765152	1880.84	
9658.00	89.38	181.90	7416.41	-1960.89	832.42	1299523.38	3205403.09	40.153250	-104.765160	1965.80	
9744.00	89.82	180.74	7417.01	-2046.86	830.44	1299437.39	3205401.81	40.153014	-104.765167	2051.76	
9829.00	91.11	180.19	7416.32	-2131.86	829.75	1299352.40	3205401.83	40.152781	-104.765170	2136.74	
9915.00	89.32	178.85	7416.00	-2217.85	830.47	1299266.42	3205403.26	40.152545	-104.765167	2222.74	
10000.00	89.45	177.78	7416.91	-2302.80	832.97	1299181.48	3205406.45	40.152311	-104.765158	2307.71	
10086.00	90.49	177.41	7416.95	-2388.73	836.58	1299095.59	3205410.77	40.152076	-104.765145	2393.65	
10171.00	89.57	179.45	7416.91	-2473.69	838.91	1299010.65	3205413.80	40.151842	-104.765137	2478.62	
10257.00	89.63	181.02	7417.51	-2559.68	838.56	1298924.66	3205414.16	40.151606	-104.765138	2564.62	
10342.00	89.20	180.72	7418.38	-2644.67	837.27	1298839.66	3205413.57	40.151373	-104.765143	2649.59	
10427.00	88.83	181.43	7419.84	-2729.64	835.67	1298754.68	3205412.67	40.151140	-104.765149	2734.55	
10513.00	89.38	180.31	7421.18	-2815.62	834.37	1298668.70	3205412.08	40.150904	-104.765153	2820.52	
10598.00	91.11	180.59	7420.82	-2900.61	833.70	1298583.70	3205412.11	40.150670	-104.765156	2905.51	
10684.00	90.62	180.64	7419.52	-2986.60	832.78	1298497.71	3205411.90	40.150434	-104.765159	2991.49	
10769.00	90.55	182.40	7418.65	-3071.56	830.52	1298412.73	3205410.34	40.150201	-104.765167	3076.43	
10854.00	90.18	181.02	7418.11	-3156.52	827.98	1298327.76	3205408.51	40.149968	-104.765176	3161.38	
10940.00	89.44	180.94	7418.40	-3242.51	826.51	1298241.76	3205407.75	40.149732	-104.765181	3247.35	
11025.00	90.31	179.50	7418.58	-3327.50	826.19	1298156.77	3205408.12	40.149499	-104.765183	3332.35	
11111.00	89.45	180.26	7418.76	-3413.50	826.37	1298070.77	3205409.01	40.149262	-104.765182	3418.34	
11196.00	89.88	178.29	7419.26	-3498.49	827.44	1297985.80	3205410.79	40.149029	-104.765178	3503.34	
11281.00	89.32	177.71	7419.85	-3583.43	830.41	1297900.88	3205414.45	40.148796	-104.765167	3588.30	
11367.00	89.63	178.66	7420.64	-3669.38	833.13	1297814.95	3205417.89	40.148560	-104.765158	3674.26	
11452.00	91.97	178.21	7419.45	-3754.34	835.45	1297730.02	3205420.91	40.148327	-104.765149	3759.23	
11538.00	90.99	177.97	7417.23	-3840.26	838.32	1297644.12	3205424.48	40.148091	-104.765139	3845.17	
11623.00	89.57	177.56	7416.82	-3925.19	841.63	1297559.22	3205428.50	40.147858	-104.765127	3930.12	
11708.00	89.57	178.58	7417.46	-4010.14	844.50	1297474.30	3205432.06	40.147625	-104.765117	4015.08	
11794.00	90.86	179.06	7417.13	-4096.12	846.27	1297388.34	3205434.54	40.147389	-104.765111	4101.07	



