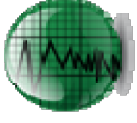




# Weatherford<sup>®</sup>



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## END OF WELL REPORT

FINAL SURVEYS

SECTION 1

DAILY ACTIVITIES

SECTION 2

BHA REPORTS

SECTION 3

MOTOR REPORTS

SECTION 4

SLIDE SHEET REPORTS

SECTION 5



## FINAL SURVEYS







**Field: Wattenberg**  
Map Unit: USFT  
Projected Coordinate System: NAD83 / Colorado North (ftUS)

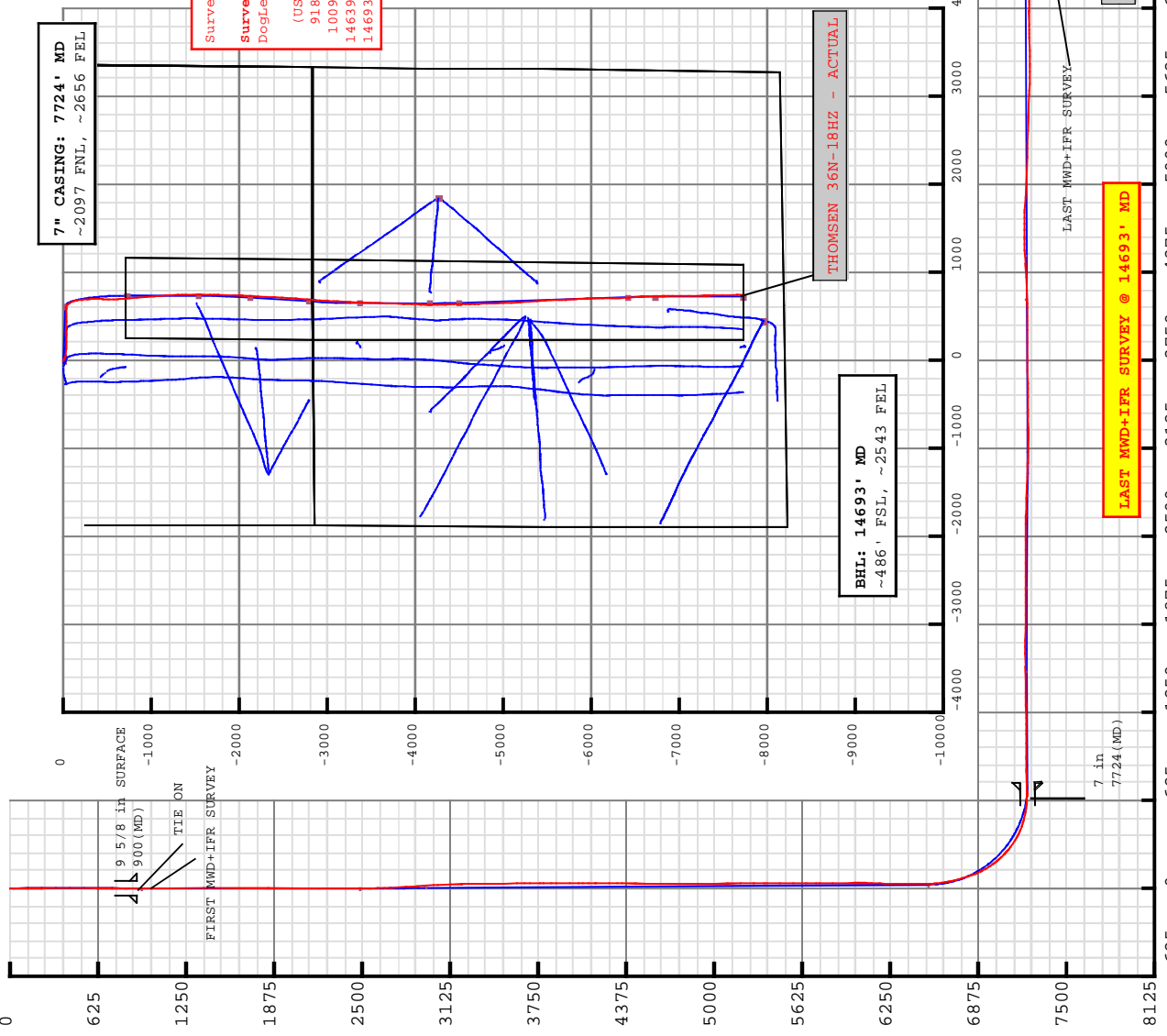
Vertical Reference Datum (VRD): Mean Sea Level

**Site: THOMSEN 6-7HZ Pad**  
Unit: USFeet  
Company Name: Andarko Petroleum  
Position:  
Northing: 1299840.67USft  
Easting: 3220948.57USft  
North Reference: True  
Elevation Above VRD: 4952.00USft

Latitude: 40.153754°  
Longitude: -104.709538°  
Grid Convergence: 0.51°

**Slot: THOMSEN 36N-18HZ**

Position:  
Offset is from Site centre  
+N/-S: 1.45USft  
+E/-W: 90.00USft  
Elevation Above VRD: 4952.00USft



**Survey Data for THOMSEN 36N-18HZ**

**Survey Point Information:** DogLeg Severity Unit: °/100.00ft

MD	Inc	Az	TVD	+N/-S	+E/-W	YSec	DLS	Tooface	Build	Turn	Annotations
(USft)	(°)	(°)	(USft)	(USft)	(USft)	(USft)	(DLSU)	(DLSU)	(DLSU)	(DLSU)	
918.00	0.22	104.52	917.99	0.07	0.97	-0.07	0.38	141.1R	-0.03	102.87	TIE ON
1009.00	0.50	245.17	1008.99	-0.14	0.77	0.14	0.75	152.4R	0.31	154.56	FIRST MWD+IFR SVY
14639.00	89.45	177.42	7226.01	-7659.83	741.66	7658.78	1.19	114.8L	-0.50	-1.08	LAST MWD+IFR SVY
14693.00	89.45	177.42	7226.53	-7713.77	744.09	7712.72	0.00	0.0R	0.00	0.00	PROJECTION TO TD

**Casing Point Information:**

Name	MD	TVD
7 in	7724.00	7221.33

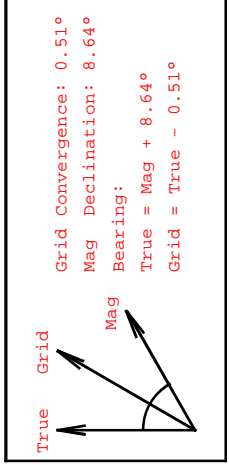
**Formation Point Information:**

Name	TVD	Elevation	MD
SUSSEX	4641.00	336.00	4664.43
SHARON SPRINGS	7042.00	-2065.00	7143.63
TOP NIOBRARA	7112.00	-2135.00	7250.66
NIOBRARA B	7162.00	-2185.00	7346.25
NIOBRARA C	7207.00	-2230.00	7488.00

**Target Set Information:**

Name: 36N-18HZ

Name	TVD	Lat	Long
36N-18HZ PBHL	7207.00	40.132511	-104.706629



THOMSEN 36N-18HZ - ACTUAL

LAST MWD+IFR SURVEY @ 14693' MD

LAST MWD+IFR SURVEY

PROJECTION TO BIT

**5D Survey Report**

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**Andarko Petroleum**

**Field Name:** *Wattenberg*  
**Site Name:** *THOMSEN 6-7HZ Pad*  
**Well Name:** *THOMSEN 36N-18HZ*  
**Survey:** *Definitive Survey*

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## DEFINITIVE SURVEYS FOR THE THOMSEN 36N-18HZ

<b>Site Name</b> THOMSEN 6-7HZ Pad	<b>Units :</b> US ft <b>North Reference :</b> True <b>Northing :</b> 1299840.67 US ft <b>Easting :</b> 3220948.57 US ft <b>Convergence Angle :</b> 0.51 <b>Latitude :</b> 40.153754 <b>Longitude :</b> -104.709538 <b>Elevation above:</b> 4952.00 US ft <b>Comment :</b>
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<b>Slot Name</b> THOMSEN 36N-18HZ	<b>Position (Offsets relative to Site Centre)</b> <b>Northing :</b> 1299842.93 US ft <b>Easting :</b> 3221038.56 US ft <b>Latitude :</b> 40.153758 <b>Longitude :</b> -104.709216 <b>Slot TVD Reference :</b> Ground Elevation <b>Elevation above :</b> 4952.00 US ft <b>Comment :</b>
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<b>Well Name</b> THOMSEN 36N-18HZ	<b>Type :</b> Main well <b>Rig Height Drill Floor :</b> 25.00 US ft <b>Relative to :</b> 4977.00 US ft <b>Closure Distance :</b> 7749.57 US ft <b>Vertical Section (Position of Origin Relative to Slot )</b> <b>+N / -S :</b> 0.00 US ft <b>+E / -W :</b> 0.00 US ft <b>Az :</b> 180.08° <b>UWI :</b> <b>Comment :</b> <b>Closure Azimuth :</b> 174.49°
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<b>Target Set</b>	<b>Name :</b> 36N-18HZ <b>Number of Targets :</b> 1
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<b>Comment :</b>	<b>Target Name:</b> 36N-18HZ PBHL <b>Shape:</b> Cuboid <b>Position (Relative to centre)</b> <b>Northing :</b> 1292109.84 US ft <b>Easting :</b> 3221830.91US ft <b>Latitude :</b> 40°7'57.039600" <b>Longitude :</b> -104°42'23.864400" <b>TVD (Drill Floor) :</b> 7207.00 US ft <b>Orientation</b> <b>Dimensions</b> <b>Azimuth :</b> 0.00° <b>Length :</b> 1.00 US ft <b>Inclination :</b> 0.00° <b>Breadth :</b> 1.00 US ft <b>Height :</b> 1.00 US ft
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5D Survey Report

<b>Survey Name :Definitive Survey</b>		<b>Survey Tool :</b>		<b>Comment :</b>		<b>Company :</b>	
<b>Date : 05/Mar/2013</b>		<b>Date: 26/Feb/2013</b>		<b>Field Strength: 52775.5 nT</b>		<b>Declination: 8.64°</b>	
<b>Magnetic Model</b>		<b>Model Name: BGGM</b>		<b>Dip: 66.78°</b>			
<b>Survey Tool Ranges</b>		<b>Start MD (us ft)</b>		<b>End MD (us ft)</b>		<b>Source Survey</b>	
NSG Static GMS		0.00		825.00		SURFACE GYRC	
MWD + IFR		825.00		14693.00		MWD + IFR	

Well path created using minimum curvature

MD (US ft)	Inc (°)	Az (°)	TVD (US ft)	Drill Floor (US ft)	N Offset (US ft)	E Offset (US ft)	Northing (US ft)	Easting (US ft)	Latitude (°)	Longitude (°)	DLS (°/100 US ft)	VS (US ft)	Comment
0.00	0.00	0.00	0.00		0.00	0.00	1299842.93	3221038.56	40.153758	-104.709216	0.00	-0.00	2
25.00	0.00	0.00	25.00		0.00	0.00	1299842.93	3221038.56	40.153758	-104.709216	0.00	-0.00	
125.00	0.47	147.07	125.00		-0.34	0.22	1299842.59	3221038.79	40.153757	-104.709215	0.47	0.34	
225.00	0.11	48.28	225.00		-0.62	0.52	1299842.31	3221039.08	40.153756	-104.709214	0.50	0.62	
325.00	0.33	149.03	325.00		-0.81	0.74	1299842.13	3221039.30	40.153756	-104.709213	0.37	0.81	
425.00	0.04	232.76	425.00		-1.08	0.86	1299841.86	3221039.43	40.153755	-104.709213	0.33	1.07	
525.00	0.36	321.86	525.00		-0.85	0.64	1299842.09	3221039.20	40.153756	-104.709214	0.36	0.85	
625.00	0.20	148.68	625.00		-0.75	0.53	1299842.18	3221039.10	40.153756	-104.709214	0.56	0.75	
725.00	0.35	9.93	724.99		-0.60	0.68	1299842.34	3221039.24	40.153756	-104.709214	0.52	0.60	
825.00	0.25	8.85	824.99		-0.08	0.76	1299842.85	3221039.32	40.153758	-104.709213	0.10	0.08	
918.00	0.22	104.52	917.99		0.07	0.97	1299843.01	3221039.52	40.153758	-104.709213	0.38	-0.07	8
1009.00	0.50	245.17	1008.99		-0.14	0.77	1299842.80	3221039.34	40.153758	-104.709213	0.75	0.14	
1375.00	0.30	232.97	1374.98		-1.39	-1.44	1299841.53	3221037.13	40.153754	-104.709221	0.06	1.39	
1833.00	0.43	338.21	1832.98		-0.51	-3.04	1299842.39	3221035.53	40.153757	-104.709227	0.13	0.52	
2200.00	0.56	311.11	2199.96		1.95	-4.90	1299844.83	3221033.65	40.153763	-104.709234	0.07	-1.94	
2569.00	1.44	130.16	2568.93		0.14	-2.71	1299843.05	3221035.85	40.153758	-104.709226	0.54	-0.14	
2661.00	3.52	130.70	2660.84		-2.45	0.31	1299840.49	3221038.89	40.153751	-104.709215	2.26	2.45	
2754.00	5.42	121.46	2753.56		-6.60	6.22	1299836.38	3221044.84	40.153740	-104.709194	2.18	6.59	
2850.00	7.04	122.57	2848.99		-12.13	15.05	1299830.93	3221053.72	40.153725	-104.709162	1.69	12.11	
2945.00	8.85	115.37	2943.07		-18.40	26.56	1299824.77	3221065.28	40.153707	-104.709121	2.17	18.36	
3040.00	9.33	106.87	3036.88		-23.77	40.53	1299819.53	3221079.30	40.153693	-104.709071	1.50	23.71	
3135.00	8.99	102.53	3130.67		-27.61	55.15	1299815.81	3221093.95	40.153682	-104.709019	0.81	27.53	
3230.00	7.92	98.79	3224.64		-30.22	68.86	1299813.32	3221107.69	40.153675	-104.708970	1.27	30.13	
3324.00	7.54	88.77	3317.79		-31.08	81.43	1299812.58	3221120.26	40.153673	-104.708925	1.49	30.97	
3419.00	7.50	89.68	3411.97		-30.91	93.86	1299812.86	3221132.69	40.153673	-104.708880	0.13	30.78	
3514.00	7.90	101.01	3506.12		-32.12	106.47	1299811.76	3221145.31	40.153670	-104.708935	1.65	31.97	
3609.00	8.79	101.62	3600.12		-34.83	119.99	1299809.17	3221158.85	40.153662	-104.708787	0.94	34.66	
3704.00	10.27	96.16	3693.80		-37.20	135.52	1299806.94	3221174.41	40.153656	-104.708731	1.82	37.01	
3799.00	10.16	88.71	3787.30		-37.92	152.32	1299806.37	3221191.21	40.153654	-104.708671	1.39	37.71	

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)	Eastng (US ft)	Latitude (°)	Longitude (°)	CLS (°/100 US ft)	VS (US ft)	Comment	
3894.00	8.86	82.53	3881.00	-36.78	167.95	1299807.65	3221206.83	40.153657	-104.708615	1.74	36.55		
3988.00	9.01	87.84	3973.86	-35.56	182.48	1299808.99	3221221.35	40.153660	-104.708563	0.89	35.31		
4083.00	9.59	96.22	4067.61	-36.14	197.78	1299808.55	3221236.66	40.153659	-104.708508	1.55	35.87		
4178.00	11.17	87.79	4161.06	-36.64	214.85	1299808.20	3221253.72	40.153657	-104.708447	2.30	36.34		
4273.00	10.35	88.82	4254.39	-36.11	232.57	1299808.89	3221271.45	40.153659	-104.708384	0.89	35.79		
4367.00	8.98	84.52	4347.05	-35.24	248.32	1299809.91	3221287.18	40.153661	-104.708328	1.65	34.89		
4462.00	9.10	86.69	4440.88	-34.10	263.20	1299811.18	3221302.05	40.153664	-104.708274	0.38	33.73		
4556.00	8.42	89.43	4533.78	-33.60	277.50	1299811.81	3221316.35	40.153666	-104.708223	0.85	33.21		
4651.00	8.67	86.57	4627.72	-33.10	291.61	1299812.43	3221330.45	40.153667	-104.708173	0.52	32.70		
4746.00	10.17	90.18	4721.44	-32.70	307.14	1299812.97	3221345.98	40.153668	-104.708117	1.70	32.27		
4840.00	9.05	86.29	4814.12	-32.25	322.82	1299813.56	3221361.65	40.153669	-104.708061	1.38	31.80		
4935.00	9.28	94.09	4907.91	-32.31	337.91	1299813.63	3221376.75	40.153669	-104.708007	1.33	31.84		
5030.00	8.77	93.87	5001.74	-33.35	352.78	1299812.73	3221391.62	40.153666	-104.707954	0.54	32.85		
5125.00	9.50	95.21	5095.53	-34.55	367.81	1299811.66	3221406.67	40.153663	-104.707900	0.80	34.03		
5219.00	9.61	93.28	5188.23	-35.70	383.37	1299810.65	3221422.24	40.153660	-104.707844	0.36	35.16		
5314.00	10.06	91.58	5281.83	-36.38	399.58	1299810.11	3221438.45	40.153658	-104.707786	0.56	35.82		
5409.00	9.29	85.72	5375.48	-36.04	415.52	1299810.60	3221454.39	40.153659	-104.707729	1.31	35.46		
5503.00	8.85	87.71	5468.31	-35.18	430.32	1299811.58	3221469.17	40.153661	-104.707677	0.57	34.58		
5598.00	9.07	90.23	5562.15	-34.92	445.11	1299811.98	3221483.96	40.153662	-104.707624	0.47	34.30		
5693.00	8.41	92.77	5656.04	-35.29	459.53	1299811.74	3221498.39	40.153661	-104.707572	0.80	34.65		
5787.00	9.70	94.10	5748.87	-36.19	474.30	1299810.97	3221513.16	40.153659	-104.707519	1.39	35.52		
5882.00	9.40	94.00	5842.55	-37.30	490.02	1299810.00	3221528.89	40.153656	-104.707463	0.32	36.62		
5976.00	10.45	92.21	5935.15	-38.16	506.20	1299809.28	3221545.08	40.153653	-104.707405	1.16	37.46		
6070.00	11.83	91.28	6027.37	-38.71	524.35	1299808.90	3221563.23	40.153652	-104.707340	1.48	37.98		
6165.00	11.93	80.94	6120.35	-37.38	543.78	1299810.40	3221582.65	40.153655	-104.707271	2.24	36.62		
6260.00	10.44	77.43	6213.54	-33.96	561.88	1299813.98	3221600.72	40.153665	-104.707206	1.72	33.17		
6354.00	8.34	84.74	6306.28	-31.48	576.99	1299816.59	3221615.80	40.153672	-104.707152	2.56	30.67		
6449.00	8.36	98.61	6400.28	-31.88	590.68	1299816.31	3221629.50	40.153670	-104.707103	2.12	31.06		
6544.00	9.87	93.57	6494.08	-33.42	605.63	1299814.91	3221644.47	40.153666	-104.707049	1.80	32.58		
6639.00	9.38	91.95	6524.65	-33.68	610.81	1299814.70	3221649.64	40.153666	-104.707031	1.81	32.82		
6734.00	8.77	105.01	6556.25	-34.40	615.77	1299814.02	3221654.61	40.153664	-104.707013	6.70	33.54		
6829.00	10.19	125.88	6586.83	-36.62	620.28	1299811.84	3221659.14	40.153657	-104.706997	11.91	35.75		
6924.00	11.41	135.41	6618.27	-40.53	624.79	1299807.97	3221663.69	40.153647	-104.706981	6.75	39.66		
7019.00	12.41	139.99	6648.60	-45.26	629.09	1299803.27	3221668.03	40.153634	-104.706965	4.44	44.39		
7114.00	14.47	143.78	6679.72	-51.12	633.66	1299797.46	3221672.65	40.153618	-104.706949	7.00	50.24		
7209.00	16.47	145.79	6709.60	-57.88	638.42	1299790.74	3221677.47	40.153599	-104.706932	6.68	56.99		
7304.00	17.99	148.22	6740.16	-65.84	643.57	1299782.83	3221682.70	40.153577	-104.706914	5.25	64.94		
7400.00	19.13	149.97	6769.55	-74.30	648.64	1299774.41	3221687.83	40.153554	-104.706895	4.09	73.40		
7495.00	20.19	149.46	6799.69	-83.60	654.07	1299765.16	3221693.35	40.153528	-104.706876	3.36	82.69		
7590.00	21.72	151.51	6829.57	-93.56	659.70	1299755.25	3221699.07	40.153501	-104.706856	5.30	92.64		
7685.00	24.19	156.21	6858.11	-104.42	665.00	1299744.45	3221704.46	40.153471	-104.706837	9.92	103.49		

5D Survey Report

Survey Points (Relative to centre, TVD relative to Drill Floor )												
MD (US ft)	Inc (°)	Az (°)	TVD (US ft)	∇.Offset (US ft)	∇.Offset (US ft)	Northing (US ft)	Eastng (US ft)	Latitude (°)	Longitude (°)	∇.S (°/100 US ft)	∇.S (US ft)	Comment
6954.00	26.87	160.91	6886.99	-117.25	670.01	1299731.65	3221709.59	40.153436	-104.706819	10.49	116.32	
6985.00	29.62	166.15	6914.30	-131.32	674.14	1299717.63	3221713.84	40.153397	-104.706804	11.94	130.37	
7017.00	32.23	166.57	6941.75	-147.36	677.72	1299701.62	3221717.57	40.153353	-104.706791	9.03	146.42	
7048.00	34.67	171.52	6967.61	-164.19	680.66	1299684.82	3221720.66	40.153307	-104.706781	9.46	163.24	
7080.00	37.11	172.92	6993.54	-182.77	683.19	1299666.25	3221723.35	40.153256	-104.706772	8.04	181.82	
7111.00	40.16	174.08	7017.75	-202.00	685.38	1299647.05	3221725.71	40.153203	-104.706764	10.11	201.04	
7143.00	43.73	175.09	7041.55	-223.29	687.39	1299625.77	3221727.91	40.153145	-104.706757	11.35	222.33	
7174.00	47.37	174.90	7063.25	-245.33	689.32	1299603.75	3221730.04	40.153084	-104.706750	11.75	244.37	
7206.00	49.95	174.38	7084.39	-269.25	691.57	1299579.85	3221732.50	40.153019	-104.706742	8.15	268.29	
7251.00	53.69	176.54	7112.20	-304.51	694.35	1299544.63	3221735.59	40.152922	-104.706732	9.13	303.54	
7301.00	58.68	178.97	7140.02	-346.00	695.95	1299503.15	3221737.57	40.152808	-104.706726	10.76	345.03	
7348.00	63.36	180.73	7162.79	-387.10	696.04	1299462.05	3221738.03	40.152695	-104.706726	10.48	386.13	
7395.00	69.04	182.21	7181.75	-430.07	694.93	1299419.07	3221737.29	40.152577	-104.706730	12.42	429.10	
7440.00	74.78	183.02	7195.72	-472.78	692.97	1299376.34	3221735.72	40.152460	-104.706737	12.87	471.81	
7490.00	78.16	181.36	7207.41	-521.35	691.12	1299327.76	3221734.30	40.152327	-104.706744	7.49	520.38	
7522.00	80.03	179.64	7213.47	-552.77	690.85	1299296.34	3221734.31	40.152241	-104.706745	7.87	551.80	
7553.00	83.06	177.40	7218.02	-583.42	691.64	1299265.70	3221735.37	40.152156	-104.706742	12.11	582.45	
7585.00	85.59	176.48	7221.19	-615.21	693.34	1299233.92	3221737.36	40.152069	-104.706736	8.41	614.24	
7672.00	91.96	176.07	7223.05	-701.96	696.99	1299147.23	3221743.78	40.151831	-104.706715	7.34	700.99	
7814.00	91.60	175.02	7218.64	-843.46	710.01	1299005.83	3221756.06	40.151443	-104.706676	0.78	842.47	
7907.00	90.43	175.08	7216.99	-936.10	718.04	1298913.27	3221764.91	40.151188	-104.706647	1.26	935.10	
7999.00	90.18	174.93	7216.50	-1027.75	726.05	1298821.69	3221773.74	40.150937	-104.706619	0.32	1026.73	
8090.00	89.56	176.16	7216.71	-1118.47	733.12	1298731.04	3221781.62	40.150688	-104.706593	1.51	1117.45	
8182.00	91.06	177.39	7216.21	-1210.32	738.29	1298639.24	3221787.61	40.150435	-104.706575	2.11	1209.29	
8273.00	90.62	177.92	7214.87	-1301.23	742.01	1298548.36	3221792.14	40.150186	-104.706562	0.76	1300.20	
8364.00	91.11	179.42	7213.50	-1392.20	744.13	1298457.42	3221795.07	40.149936	-104.706554	1.73	1391.16	
8456.00	90.92	180.03	7211.87	-1484.18	744.57	1298365.45	3221796.33	40.149684	-104.706552	0.69	1483.14	
8548.00	90.92	180.23	7210.39	-1576.17	744.36	1298273.46	3221796.94	40.149431	-104.706553	0.22	1575.13	
8640.00	90.62	180.87	7209.16	-1668.15	743.48	1298181.47	3221796.88	40.149179	-104.706556	0.77	1667.11	
8732.00	88.77	180.92	7209.65	-1760.14	742.04	1298089.48	3221796.26	40.148926	-104.706562	2.01	1759.10	
8824.00	89.57	181.61	7210.98	-1852.10	740.01	1297997.50	3221795.05	40.148674	-104.706569	1.15	1851.07	
8915.00	89.91	182.15	7211.39	-1943.05	737.02	1297906.52	3221792.87	40.148424	-104.706580	0.70	1942.02	
9005.00	90.00	181.87	7211.46	-2033.00	733.87	1297816.55	3221790.52	40.148177	-104.706591	0.33	2031.97	
9097.00	89.12	183.56	7212.17	-2124.89	729.51	1297724.63	3221786.98	40.147925	-104.706606	2.07	2123.87	
9189.00	89.51	182.63	7213.27	-2216.75	724.54	1297632.73	3221782.83	40.147673	-104.706624	1.10	2215.73	
9282.00	89.74	182.68	7213.88	-2309.64	720.23	1297539.80	3221779.35	40.147418	-104.706640	0.25	2308.64	
9374.00	90.35	182.86	7213.81	-2401.54	715.79	1297447.87	3221775.73	40.147165	-104.706656	0.69	2400.53	
9465.00	89.57	183.79	7213.87	-2492.38	710.51	1297356.98	3221771.26	40.146916	-104.706674	1.33	2491.39	
9558.00	89.69	183.45	7214.47	-2585.19	704.64	1297264.12	3221766.21	40.146661	-104.706695	0.39	2584.21	
9651.00	88.34	184.09	7216.07	-2677.98	696.52	1297171.29	3221760.93	40.146407	-104.706717	1.61	2677.00	
9743.00	88.06	184.45	7218.96	-2769.68	691.68	1297079.53	3221754.90	40.146155	-104.706742	0.50	2768.71	

## 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)	Eastng (US ft)	Latitude (°)	Longitude (°)	DLS (°/100 US ft)	VS (US ft)	Comment
9836.00	88.33	184.27	7221.89	-2862.36	684.61	1296986.79	3221748.66	40.145900	-104.706767	0.35	2861.40	
9899.00	88.15	184.27	7223.82	-2925.16	679.92	1296923.95	3221744.53	40.145728	-104.706784	0.29	2924.20	
9994.00	87.29	183.34	7227.60	-3019.87	673.62	1296829.19	3221739.08	40.145468	-104.706806	1.33	3018.93	
10089.00	88.94	183.03	7230.73	-3114.67	666.35	1296734.34	3221734.65	40.145208	-104.706825	1.77	3113.73	
10183.00	89.56	183.03	7231.96	-3208.53	663.38	1296640.44	3221730.51	40.144950	-104.706843	0.66	3207.60	
10278.00	91.60	182.77	7231.00	-3303.40	658.57	1296545.54	3221726.55	40.144690	-104.706860	2.16	3302.47	
10372.00	89.82	182.15	7229.83	-3397.30	654.54	1296451.60	3221723.36	40.144432	-104.706875	2.01	3396.38	
10467.00	90.18	181.46	7229.83	-3492.25	651.55	1296356.63	3221721.21	40.144171	-104.706885	0.82	3491.34	
10562.00	91.79	181.62	7228.20	-3587.20	648.00	1296261.66	3221719.51	40.143911	-104.706895	1.70	3586.29	
10656.00	90.92	182.37	7225.97	-3681.11	645.72	1296167.72	3221717.07	40.143653	-104.706906	1.22	3680.21	
10751.00	89.20	181.57	7225.88	-3776.05	642.46	1296072.75	3221714.65	40.143392	-104.706918	2.00	3775.15	
10845.00	89.51	181.92	7226.93	-3870.00	639.60	1295978.78	3221712.63	40.143134	-104.706928	0.50	3869.11	
10940.00	90.00	181.85	7227.34	-3964.95	636.47	1295883.81	3221710.35	40.142874	-104.706939	0.52	3964.06	
11035.00	91.05	180.78	7226.47	-4059.92	634.29	1295788.83	3221709.02	40.142613	-104.706947	1.58	4059.03	
11129.00	92.53	180.28	7223.53	-4153.87	633.42	1295694.87	3221708.98	40.142355	-104.706950	1.66	4152.98	
11224.00	92.10	179.72	7219.70	-4248.79	633.42	1295599.96	3221709.83	40.142094	-104.706950	0.74	4247.90	
11318.00	92.84	179.35	7215.64	-4342.70	634.18	1295506.06	3221711.43	40.141837	-104.706948	0.88	4341.81	
11413.00	92.77	179.14	7211.00	-4437.58	635.43	1295411.20	3221713.53	40.141576	-104.706943	0.23	4436.68	
11508.00	92.90	178.99	7206.30	-4532.45	636.98	1295316.34	3221715.92	40.141316	-104.706938	0.21	4531.55	
11602.00	90.68	179.62	7203.36	-4626.39	636.12	1295222.42	3221717.90	40.141058	-104.706934	2.45	4625.49	
11697.00	89.51	178.12	7203.20	-4721.36	640.00	1295127.46	3221720.62	40.140797	-104.706927	2.00	4720.47	
11791.00	87.10	178.19	7205.98	-4815.27	643.02	1295033.59	3221724.48	40.140539	-104.706916	2.56	4814.36	
11886.00	86.43	177.86	7211.34	-4910.06	646.29	1294938.83	3221728.59	40.140279	-104.706904	0.79	4909.15	
11980.00	87.16	177.96	7216.60	-5003.85	649.71	1294845.07	3221732.85	40.140022	-104.706892	0.78	5002.94	
12075.00	88.09	177.39	7220.54	-5098.69	653.56	1294750.27	3221737.55	40.139761	-104.706878	1.15	5097.77	
12170.00	87.47	176.65	7224.22	-5193.49	658.50	1294655.52	3221743.33	40.139501	-104.706861	1.02	5192.56	
12264.00	88.77	175.95	7227.30	-5287.24	664.56	1294561.83	3221750.22	40.139244	-104.706839	1.57	5286.30	
12359.00	88.89	176.20	7229.24	-5382.00	671.06	1294467.13	3221757.57	40.138984	-104.706816	0.29	5381.05	
12454.00	88.27	176.24	7231.59	-5476.76	677.32	1294372.43	3221764.68	40.138723	-104.706793	0.65	5475.81	
12548.00	87.47	177.34	7235.09	-5570.54	682.58	1294278.69	3221770.77	40.138466	-104.706775	1.45	5569.59	
12643.00	87.78	178.70	7239.03	-5665.40	685.86	1294183.87	3221774.90	40.138206	-104.706763	1.47	5664.44	
12737.00	88.52	176.85	7242.06	-5759.28	689.51	1294090.03	3221779.38	40.137948	-104.706750	2.12	5758.31	
12832.00	90.86	176.08	7242.57	-5854.09	695.37	1293995.27	3221786.08	40.137688	-104.706729	2.59	5853.11	
12927.00	91.32	177.75	7240.77	-5948.93	700.48	1293900.48	3221792.04	40.137427	-104.706711	1.82	5947.95	
13021.00	91.42	177.63	7238.52	-6042.83	704.27	1293806.62	3221796.66	40.137170	-104.706697	0.17	6041.84	
13116.00	90.80	181.12	7236.68	-6137.79	705.30	1293711.67	3221798.55	40.136909	-104.706693	3.73	6136.80	
13210.00	90.06	181.13	7235.97	-6231.77	703.46	1293617.68	3221797.54	40.136651	-104.706700	0.79	6230.78	
13305.00	89.26	177.03	7236.54	-6326.73	704.98	1293522.73	3221799.91	40.136390	-104.706695	4.40	6325.74	
13400.00	90.49	176.32	7236.74	-6421.57	710.49	1293427.95	3221806.26	40.136130	-104.706675	1.49	6420.57	
13494.00	89.57	176.15	7236.69	-6515.37	716.66	1293334.21	3221813.27	40.135872	-104.706653	1.00	6514.36	
13619.00	90.25	177.87	7236.89	-6640.19	723.18	1293209.45	3221820.91	40.135530	-104.706630	1.48	6639.17	

## 5D Survey Report

Survey Points (Relative to centre, TVD relative to Drill Floor)													
MD (US ft)	Inc (°)	Az (°)	TVD (US ft)	∆Offset (US ft)	F. Offset (US ft)	Northing (US ft)	Eastng (US ft)	Latitude (°)	Longitude (°)	∆LS (°/100 US ft)	VS (US ft)	Comment	
13714.00	90.62	178.60	7236.17	-6735.14	726.11	1293114.53	3221824.68	40.135269	-104.706619	0.86	6734.12		
13808.00	90.06	179.71	7235.61	-6829.13	727.49	1293020.56	3221826.90	40.135011	-104.706614	1.32	6828.11		
13903.00	91.79	178.87	7234.08	-6924.10	728.67	1292925.60	3221828.92	40.134750	-104.706610	2.02	6923.08		
13997.00	91.79	179.11	7231.14	-7018.04	730.33	1292831.68	3221831.42	40.134492	-104.706604	0.26	7017.02		
14092.00	91.35	179.01	7228.54	-7113.00	731.89	1292736.74	3221833.82	40.134232	-104.706599	0.47	7111.97		
14187.00	90.86	178.97	7226.71	-7207.96	733.56	1292641.79	3221836.34	40.133971	-104.706593	0.52	7206.93		
14281.00	91.42	180.09	7224.84	-7301.94	734.33	1292547.83	3221837.95	40.133713	-104.706590	1.33	7300.91		
14376.00	89.32	179.07	7224.22	-7396.93	735.03	1292452.85	3221839.49	40.133452	-104.706587	2.46	7395.89		
14470.00	89.63	179.04	7225.09	-7490.91	736.58	1292358.88	3221841.88	40.133194	-104.706582	0.33	7489.87		
14565.00	89.82	178.22	7225.54	-7585.88	738.85	1292263.94	3221845.00	40.132934	-104.706574	0.89	7584.84		
14639.00	89.45	177.42	7226.01	-7659.83	741.66	1292190.02	3221848.47	40.132731	-104.706564	1.19	7658.78		
14693.00	89.45	177.42	7226.53	-7713.77	744.09	1292136.10	3221851.39	40.132583	-104.706555	0.00	7712.72		

Formation Points (Relative to centre, TVD relative to Drill Floor)						
Name	MC (US ft)	TVD (US ft)	F.D.P (°)	F.D.R (°)		
SUSSEX	4664.43	4641.00	0	0		
SHARON SPRINGS	7143.63	7042.00	0	0		
TOP NIOBRARA	7250.66	7112.00	0	0		
NIOBRARA B	7346.25	7162.00	0	0		
NIOBRARA C	7488.00	7207.00	0	0		



## DAILY ACTIVITIES

