

**5D Plan Report****Anadarko Petroleum**

**Field Name:** *WATTENBERG\_ANADARKO\_NAD 83*  
**Site Name:** *ELLIOTT STATE 4-17HZ PAD*  
**Well Name:** *ELLIOTT STATE 1N-17HZ*  
**Plan:** *WP01 PERMIT*



**Plan Data for ELLIOTT STATE 1N-17HZ**

**Field: WATTENBERG\_ANADARKO\_NAD 83**

Map Unit: USFt

Vertical Reference Datum (VRD): Mean Sea Level

Projected Coordinate System: NAD83 / Colorado North (ftUS)

**Slot: ELLIOTT STATE 1N-17HZ**

Position:

Offset is from Site centre

+N/-S: -0.36USft Northing: 1327770.52USft Latitude: 40.231677°

+E/-W: 29.87USft Easting: 3161788.23USft Longitude: -104.920529°

Elevation Above VRD: 4836.00USft

**Plan Point Information:**

DogLeg Severity Unit: °/100.00ft				Position offsets from Slot centre				
MD	Inc	Az	TVD	+N/-S	+E/-W	VSec	DLS	Toolface
(USft)	(°)	(°)	(USft)	(USft)	(USft)	(USft)	(DLSU)	(°)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0R
2000.00	0.00	0.00	2000.00	0.00	0.00	0.00	0.00	0.0R
2910.63	18.21	263.77	2895.38	-15.57	-142.67	-142.56	2.00	96.2L
5638.59	18.21	263.77	5486.67	-108.03	-990.25	-989.49	0.00	0.0R
6549.22	0.00	0.00	6382.04	-123.60	-1132.92	-1132.05	2.00	180.0R
7449.10	89.99	90.39	6955.00	-127.46	-560.09	-559.21	10.00	90.4R
12376.61	89.99	90.39	6956.00	-160.63	4367.31	4368.30	0.00	0.0R

**Plan Data for ELLIOTT STATE 1N-17HZ**

**Casing Point Information:**

Name	MD	TVD
	(USft)	(USft)
9 5/8 in	800.00	800.00
7 in	7449.10	6955.00

**Plan Data for ELLIOTT STATE 1N-17HZ**

**Target Set Information:**

Name: 20				
Name	TVD	Lat	Long	Shape
	(USft)	(°)	(°)	
HEEL	6955.00	40.231327	-104.922535	Cuboid
PBHL	6956.00	40.231235	-104.904887	Cuboid

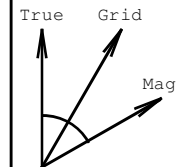
**Plan Data for ELLIOTT STATE 1N-17HZ**

**Formation Point Information:**

Name	TVD	Elevation	MD
	(USft)	(USft)	(USft)
FOX HILLS BASE	750.00	4103.00	750.00
PARKMAN	3550.00	1303.00	3599.78
SUSSEX	4013.00	840.00	4087.20
SHARON SPRINGS	6827.00	-1974.00	7058.72
NIOBRARA A	6886.00	-2033.00	7165.13
NIOBRARA B	6933.00	-2080.00	7289.93

**KOP- 6549.22' MD**

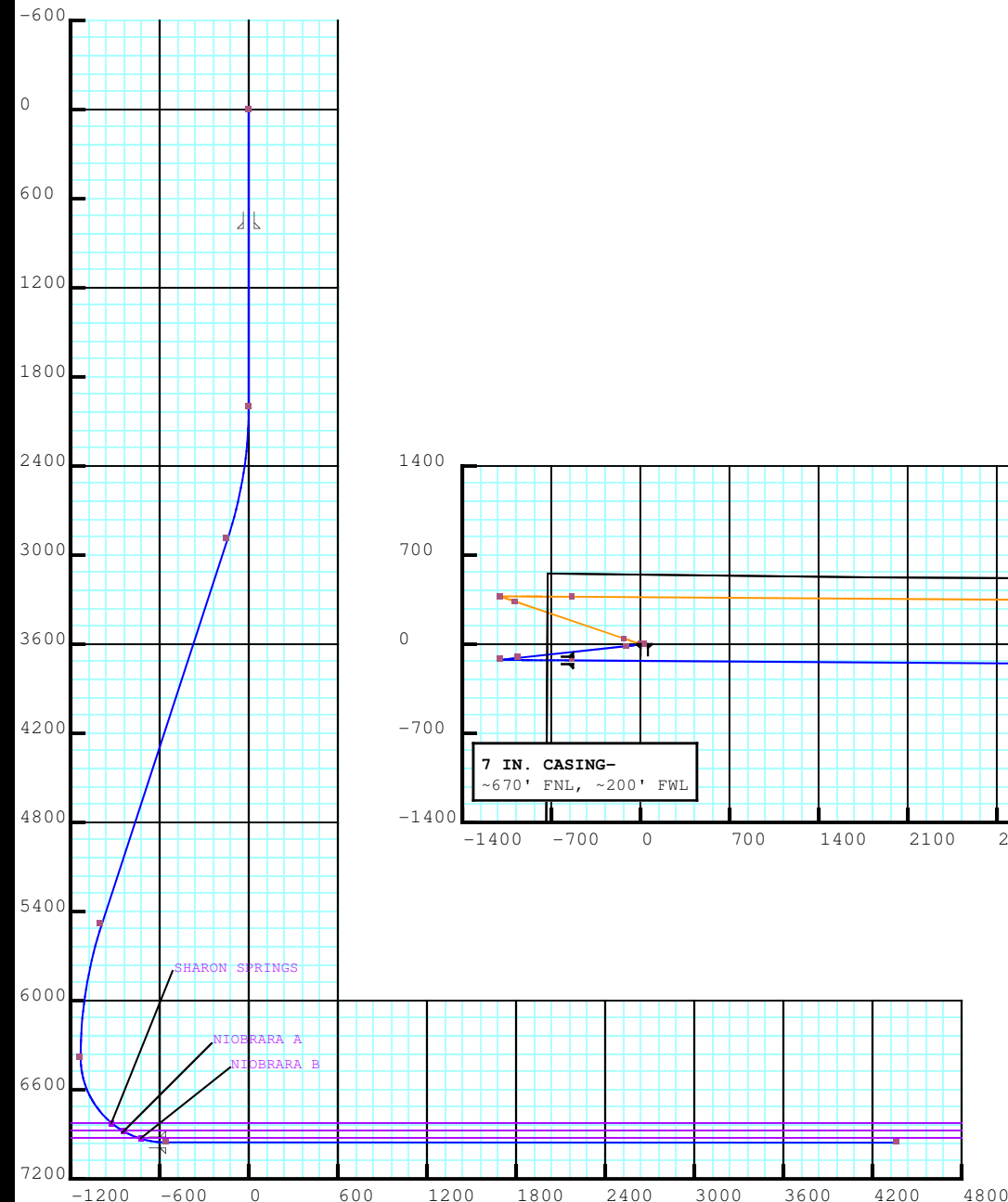
LINER TOP- 6449.22' MD



Grid Convergence: 0.37°  
Mag Declination: 8.67°  
Bearing:  
True = Mag + 8.67°  
Grid = True - 0.37°

**WP01 PERMIT 8/22/13**

BY: JA UNDERWOOD





# Weatherford®



## Plan Surveys for the ELLIOTT STATE 1N-17HZ

<b>Site Name</b>  ELLIOTT STATE 4-17HZ PAD	<b>Units :</b> US ft	<b>North Reference :</b> True	<b>Convergence Angle :</b> 0.37
	<b>Position</b>	<b>Northing :</b> 1327770.69 US ft	<b>Latitude :</b> 40.231678
		<b>Easting :</b> 3161758.36 US ft	<b>Longitude :</b> -104.920636
	<b>Elevation above:</b> 4836.00 US ft <b>Comment :</b>		
<b>Slot Name</b>  ELLIOTT STATE 1N-17HZ	<b>Position (Offsets relative to Site Centre)</b>		
	<b>+N / -S :</b> -0.36 US ft	<b>Northing :</b> 1327770.52 US ft	<b>Latitude :</b> 40.231677
	<b>+E / -W :</b> 29.87 US ft	<b>Easting :</b> 3161788.23 US ft	<b>Longitude :</b> -104.920529
	<b>Slot TVD Reference :</b> Ground Elevation <b>Elevation above :</b> 4836.00 US ft <b>Comment :</b>		
<b>Well Name</b>  ELLIOTT STATE 1N-17HZ	<b>Type :</b> Main well	<b>UWI :</b>	<b>Plan :</b> WP01 PERMIT
	<b>Rig Height</b> <b>Drill Floor :</b> 17.00 US ft	<b>Comment :</b>	
	<b>Relative to :</b> 4853.00 US ft		
	<b>Closure Distance :</b> 4370.26 US ft	<b>Closure Azimuth :</b> 92.1064°	
	<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> 90.39°
	<b>Magnetic Parameters</b>		
	<b>Model :</b> BGGM	<b>Field Strength :</b> 52684.0nT	<b>Dec :</b> 8.67°
			<b>Dip :</b> 66.64°
			<b>Date :</b> 22/May/2013

**Target Set****Name :** 20**Number of Targets :** 2**Comment :**

<b>TargetName:</b>	<b>Position (Relative to centre)</b>			
HEEL	<b>+N / -S</b> : -127.50US ft	<b>Northing</b> : 1327639.37 US ft	<b>Latitude</b> : 40°13'52.777200"	
<b>Shape:</b>	<b>+E / -W</b> : -560.08 US ft	<b>Easting</b> : 3161229.00US ft	<b>Longitude</b> : -104°55'21.126000"	
Cuboid	<b>TVD (Drill Floor)</b> : 6955.00 US ft			
	<b>Orientation</b>	<b>Azimuth</b> : 0.00°	<b>Inclination</b> : 0.00°	
	<b>Dimensions</b>	<b>Length</b> : 1.00 US ft	<b>Breadth</b> : 1.00 US ft	<b>Height</b> : 1.00 US ft

<b>TargetName:</b>	<b>Position (Relative to centre)</b>			
PBHL	<b>+N / -S</b> : -160.63US ft	<b>Northing</b> : 1327638.43 US ft	<b>Latitude</b> : 40°13'52.446000"	
<b>Shape:</b>	<b>+E / -W</b> : 4367.31 US ft	<b>Easting</b> : 3166156.49US ft	<b>Longitude</b> : -104°54'17.593200"	
Cuboid	<b>TVD (Drill Floor)</b> : 6956.00 US ft			
	<b>Orientation</b>	<b>Azimuth</b> : 0.00°	<b>Inclination</b> : 0.00°	
	<b>Dimensions</b>	<b>Length</b> : 1.00 US ft	<b>Breadth</b> : 1.00 US ft	<b>Height</b> : 1.00 US ft

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)	Latitude (°)	Longitude (°)
9 5/8 in	800.00	0.00	0.00	800.00	0.00	0.00	40.231677	-104.920529
7 in	7449.10	89.99	90.39	6955.00	-127.46	-560.09	40.231327	-104.922535

**Well path created using minimum curvature**

Salient 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)	DLS (°/100 US ft)	T.Face (°)	VS (US ft)	Comment
0.00	0.00	0.00	0.00	0.00	0.00	1327770.52	3161788.23	0.00	0.00	-0.00	SURFACE
800.00	0.00	0.00	800.00	0.00	0.00	1327770.52	3161788.23	0.00	0.00	-0.00	9 5/8 in
2000.00	0.00	0.00	2000.00	0.00	0.00	1327770.52	3161788.23	0.00	0.00	-0.00	BEGIN NUDGE
2910.63	18.21	263.77	2895.38	-15.57	-142.67	1327754.02	3161645.66	2.00	263.77	-142.56	
5638.59	18.21	263.77	5486.67	-108.03	-990.25	1327656.02	3160798.71	0.00	0.00	-989.49	

## 5D Plan Report

Salient 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)	DLS (°/100 US ft)	T.Face (°)	VS (US ft)	Comment
6549.22	0.00	0.00	6382.04	-123.60	-1132.92	1327639.52	3160656.14	2.00	180.00	-1132.05	KOP
7449.10	89.99	90.39	6955.00	-127.46	-560.09	1327639.41	3161228.98	10.00	90.39	-559.21	7 in
12376.61	89.99	90.39	6956.00	-160.63	4367.31	1327638.43	3166156.49	0.00	0.00	4368.30	TD
Interpolated 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)		DLS (°/100 US ft)		T.Face (°)	VS (US ft)	Comment
0.00	0.00	0.00	0.00	0.00	0.00		0.00		0.00	-0.00	SURFACE
100.00	0.00	0.00	100.00	0.00	0.00		0.00		0.00	-0.00	
200.00	0.00	0.00	200.00	0.00	0.00		0.00		0.00	-0.00	
300.00	0.00	0.00	300.00	0.00	0.00		0.00		0.00	-0.00	
400.00	0.00	0.00	400.00	0.00	0.00		0.00		0.00	-0.00	
500.00	0.00	0.00	500.00	0.00	0.00		0.00		0.00	-0.00	
600.00	0.00	0.00	600.00	0.00	0.00		0.00		0.00	-0.00	
700.00	0.00	0.00	700.00	0.00	0.00		0.00		0.00	-0.00	
800.00	0.00	0.00	800.00	0.00	0.00		0.00		0.00	-0.00	
900.00	0.00	0.00	900.00	0.00	0.00		0.00		0.00	-0.00	
1000.00	0.00	0.00	1000.00	0.00	0.00		0.00		0.00	-0.00	
1100.00	0.00	0.00	1100.00	0.00	0.00		0.00		0.00	-0.00	
1200.00	0.00	0.00	1200.00	0.00	0.00		0.00		0.00	-0.00	
1300.00	0.00	0.00	1300.00	0.00	0.00		0.00		0.00	-0.00	
1400.00	0.00	0.00	1400.00	0.00	0.00		0.00		0.00	-0.00	
1500.00	0.00	0.00	1500.00	0.00	0.00		0.00		0.00	-0.00	
1600.00	0.00	0.00	1600.00	0.00	0.00		0.00		0.00	-0.00	
1700.00	0.00	0.00	1700.00	0.00	0.00		0.00		0.00	-0.00	
1800.00	0.00	0.00	1800.00	0.00	0.00		0.00		0.00	-0.00	
1900.00	0.00	0.00	1900.00	0.00	0.00		0.00		0.00	-0.00	
2000.00	0.00	0.00	2000.00	0.00	0.00		0.00		0.00	-0.00	BEGIN NUDGE
2100.00	2.00	263.77	2099.98	-0.19	-1.73		2.00		263.77	-1.73	
2200.00	4.00	263.77	2199.84	-0.76	-6.94		2.00		0.00	-6.93	
2300.00	6.00	263.77	2299.45	-1.70	-15.60		2.00		0.00	-15.59	
2400.00	8.00	263.77	2398.70	-3.02	-27.72		2.00		0.00	-27.69	
2500.00	10.00	263.77	2497.47	-4.72	-43.27		2.00		0.00	-43.23	
2600.00	12.00	263.77	2595.62	-6.79	-62.23		2.00		0.00	-62.19	
2700.00	14.00	263.77	2693.06	-9.23	-84.59		2.00		0.00	-84.53	
2800.00	16.00	263.77	2789.64	-12.04	-110.32		2.00		0.00	-110.24	
2900.00	18.00	263.77	2885.27	-15.21	-139.39		2.00		0.00	-139.28	
2910.63	18.21	263.77	2895.38	-15.57	-142.67		2.00		0.00	-142.56	
3000.00	18.21	263.77	2980.26	-18.59	-170.44		0.00		0.00	-170.31	
3100.00	18.21	263.77	3075.26	-21.98	-201.51		0.00		0.00	-201.35	
3200.00	18.21	263.77	3170.25	-25.37	-232.58		0.00		0.00	-232.40	
3300.00	18.21	263.77	3265.24	-28.76	-263.65		0.00		0.00	-263.45	

## 5D Plan Report

Interpolated 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)	DLS (°/100 US ft)	T.Face (°)	VS (US ft)	Comment
3400.00	18.21	263.77	3360.23	-32.15	-294.72	0.00	0.00	-294.49	
3500.00	18.21	263.77	3455.22	-35.54	-325.79	0.00	0.00	-325.54	
3600.00	18.21	263.77	3550.21	-38.93	-356.86	0.00	0.00	-356.58	
3700.00	18.21	263.77	3645.20	-42.32	-387.93	0.00	0.00	-387.63	
3800.00	18.21	263.77	3740.19	-45.71	-419.00	0.00	0.00	-418.68	
3900.00	18.21	263.77	3835.18	-49.10	-450.07	0.00	0.00	-449.72	
4000.00	18.21	263.77	3930.17	-52.49	-481.14	0.00	0.00	-480.77	
4100.00	18.21	263.77	4025.16	-55.88	-512.21	0.00	0.00	-511.82	
4200.00	18.21	263.77	4120.15	-59.27	-543.28	0.00	0.00	-542.86	
4300.00	18.21	263.77	4215.14	-62.66	-574.35	0.00	0.00	-573.91	
4400.00	18.21	263.77	4310.13	-66.05	-605.42	0.00	0.00	-604.96	
4500.00	18.21	263.77	4405.12	-69.44	-636.49	0.00	0.00	-636.00	
4600.00	18.21	263.77	4500.11	-72.83	-667.56	0.00	0.00	-667.05	
4700.00	18.21	263.77	4595.10	-76.22	-698.63	0.00	0.00	-698.09	
4800.00	18.21	263.77	4690.09	-79.61	-729.70	0.00	0.00	-729.14	
4900.00	18.21	263.77	4785.08	-83.00	-760.77	0.00	0.00	-760.19	
5000.00	18.21	263.77	4880.07	-86.39	-791.84	0.00	0.00	-791.23	
5100.00	18.21	263.77	4975.06	-89.78	-822.91	0.00	0.00	-822.28	
5200.00	18.21	263.77	5070.05	-93.17	-853.98	0.00	0.00	-853.33	
5300.00	18.21	263.77	5165.04	-96.56	-885.05	0.00	0.00	-884.37	
5400.00	18.21	263.77	5260.03	-99.95	-916.12	0.00	0.00	-915.42	
5500.00	18.21	263.77	5355.02	-103.34	-947.19	0.00	0.00	-946.47	
5600.00	18.21	263.77	5450.01	-106.73	-978.26	0.00	0.00	-977.51	
5638.59	18.21	263.77	5486.67	-108.03	-990.25	0.00	0.00	-989.49	
5700.00	16.98	263.77	5545.20	-110.05	-1008.71	2.00	180.00	-1007.94	
5800.00	14.98	263.77	5641.33	-113.04	-1036.08	2.00	180.00	-1035.29	
5900.00	12.98	263.77	5738.36	-115.66	-1060.10	2.00	180.00	-1059.29	
6000.00	10.98	263.77	5836.18	-117.91	-1080.74	2.00	180.00	-1079.92	
6100.00	8.98	263.77	5934.66	-119.79	-1097.98	2.00	180.00	-1097.14	
6200.00	6.98	263.77	6033.69	-121.29	-1111.79	2.00	180.00	-1110.94	
6300.00	4.98	263.77	6133.14	-122.43	-1122.15	2.00	180.00	-1121.29	
6400.00	2.98	263.77	6232.89	-123.18	-1129.06	2.00	180.00	-1128.19	
6500.00	0.98	263.77	6332.82	-123.55	-1132.50	2.00	180.00	-1131.63	
6549.22	0.00	0.00	6382.04	-123.60	-1132.92	2.00	180.00	-1132.05	KOP
6600.00	5.08	90.39	6432.76	-123.62	-1130.67	10.00	90.39	-1129.80	
6700.00	15.08	90.39	6531.09	-123.73	-1113.20	10.00	0.00	-1112.33	
6800.00	25.08	90.39	6624.89	-123.96	-1078.91	10.00	0.00	-1078.04	
6900.00	35.08	90.39	6711.32	-124.30	-1028.86	10.00	0.00	-1027.99	
7000.00	45.08	90.39	6787.73	-124.73	-964.56	10.00	0.00	-963.68	
7100.00	55.08	90.39	6851.83	-125.25	-887.96	10.00	0.00	-887.09	
7200.00	65.08	90.39	6901.65	-125.83	-801.40	10.00	0.00	-800.53	

## 5D Plan Report

Interpolated 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)	DLS (°/100 US ft)	T.Face (°)	VS (US ft)		
7300.00	75.08	90.39	6935.68	-126.46	-707.51	10.00	0.00	-706.63		
7400.00	85.08	90.39	6952.89	-127.13	-609.13	10.00	0.00	-608.25		
7449.10	89.99	90.39	6955.00	-127.46	-560.09	10.00	0.00	-559.21		
7500.00	89.99	90.39	6955.01	-127.80	-509.20	0.00	0.00	-508.31		
7600.00	89.99	90.39	6955.03	-128.47	-409.20	0.00	0.00	-408.31		
7700.00	89.99	90.39	6955.05	-129.15	-309.20	0.00	0.00	-308.31		
7800.00	89.99	90.39	6955.07	-129.82	-209.20	0.00	0.00	-208.31		
7900.00	89.99	90.39	6955.09	-130.49	-109.21	0.00	0.00	-108.31		
8000.00	89.99	90.39	6955.11	-131.16	-9.21	0.00	0.00	-8.31		
8100.00	89.99	90.39	6955.13	-131.84	90.79	0.00	0.00	91.69		
8200.00	89.99	90.39	6955.15	-132.51	190.79	0.00	0.00	191.69		
8300.00	89.99	90.39	6955.17	-133.18	290.79	0.00	0.00	291.69		
8400.00	89.99	90.39	6955.19	-133.86	390.78	0.00	0.00	391.69		
8500.00	89.99	90.39	6955.21	-134.53	490.78	0.00	0.00	491.69		
8600.00	89.99	90.39	6955.23	-135.20	590.78	0.00	0.00	591.69		
8700.00	89.99	90.39	6955.25	-135.88	690.78	0.00	0.00	691.69		
8800.00	89.99	90.39	6955.27	-136.55	790.77	0.00	0.00	791.69		
8900.00	89.99	90.39	6955.29	-137.22	890.77	0.00	0.00	891.69		
9000.00	89.99	90.39	6955.31	-137.90	990.77	0.00	0.00	991.69		
9100.00	89.99	90.39	6955.33	-138.57	1090.77	0.00	0.00	1091.69		
9200.00	89.99	90.39	6955.35	-139.24	1190.77	0.00	0.00	1191.69		
9300.00	89.99	90.39	6955.37	-139.92	1290.76	0.00	0.00	1291.69		
9400.00	89.99	90.39	6955.40	-140.59	1390.76	0.00	0.00	1391.69		
9500.00	89.99	90.39	6955.42	-141.26	1490.76	0.00	0.00	1491.69		
9600.00	89.99	90.39	6955.44	-141.94	1590.76	0.00	0.00	1591.69		
9700.00	89.99	90.39	6955.46	-142.61	1690.75	0.00	0.00	1691.69		
9800.00	89.99	90.39	6955.48	-143.28	1790.75	0.00	0.00	1791.69		
9900.00	89.99	90.39	6955.50	-143.95	1890.75	0.00	0.00	1891.69		
10000.00	89.99	90.39	6955.52	-144.63	1990.75	0.00	0.00	1991.69		
10100.00	89.99	90.39	6955.54	-145.30	2090.75	0.00	0.00	2091.69		
10200.00	89.99	90.39	6955.56	-145.97	2190.74	0.00	0.00	2191.69		
10300.00	89.99	90.39	6955.58	-146.65	2290.74	0.00	0.00	2291.69		
10400.00	89.99	90.39	6955.60	-147.32	2390.74	0.00	0.00	2391.69		
10500.00	89.99	90.39	6955.62	-147.99	2490.74	0.00	0.00	2491.69		
10600.00	89.99	90.39	6955.64	-148.67	2590.73	0.00	0.00	2591.69		
10700.00	89.99	90.39	6955.66	-149.34	2690.73	0.00	0.00	2691.69		
10800.00	89.99	90.39	6955.68	-150.01	2790.73	0.00	0.00	2791.69		
10900.00	89.99	90.39	6955.70	-150.69	2890.73	0.00	0.00	2891.69		
11000.00	89.99	90.39	6955.72	-151.36	2990.72	0.00	0.00	2991.69		
11100.00	89.99	90.39	6955.74	-152.03	3090.72	0.00	0.00	3091.69		
11200.00	89.99	90.39	6955.76	-152.71	3190.72	0.00	0.00	3191.69		

## 5D Plan Report

Interpolated 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)	DLS (°/100 US ft)	T.Face (°)	VS (US ft)	Comment
11300.00	89.99	90.39	6955.78	-153.38	3290.72	0.00	0.00	3291.69	
11400.00	89.99	90.39	6955.80	-154.05	3390.72	0.00	0.00	3391.69	
11500.00	89.99	90.39	6955.82	-154.73	3490.71	0.00	0.00	3491.69	
11600.00	89.99	90.39	6955.84	-155.40	3590.71	0.00	0.00	3591.69	
11700.00	89.99	90.39	6955.86	-156.07	3690.71	0.00	0.00	3691.69	
11800.00	89.99	90.39	6955.88	-156.75	3790.71	0.00	0.00	3791.69	
11900.00	89.99	90.39	6955.90	-157.42	3890.70	0.00	0.00	3891.69	
12000.00	89.99	90.39	6955.92	-158.09	3990.70	0.00	0.00	3991.69	
12100.00	89.99	90.39	6955.94	-158.76	4090.70	0.00	0.00	4091.69	
12200.00	89.99	90.39	6955.96	-159.44	4190.70	0.00	0.00	4191.69	
12300.00	89.99	90.39	6955.98	-160.11	4290.70	0.00	0.00	4291.69	
12376.61	89.99	90.39	6956.00	-160.63	4367.31	0.00	0.00	4368.30	TD

Formation Points (Relative to centre, TVD relative to Drill Floor )			
Name	MD (US ft)	TVD (US ft)	
FOX HILLS BASE	750.00	750.00	
PARKMAN	3599.78	3550.00	
SUSSEX	4087.20	4013.00	
SHARON SPRINGS	7058.72	6827.00	
NIOBRARA A	7165.13	6886.00	
NIOBRARA B	7289.93	6933.00	