

**5D Plan Report**

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**Anadarko Petroleum**

**Field Name:** *WATTENBURG\_NAD83*  
**Site Name:** *BERRY FARMS 41N-8HZ PAD*  
**Well Name:** *BERRY FARMS 30N-8HZ*  
**Plan:** *PLAN 1*

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**Weatherford**

**Plan Data for BERRY FARMS 30N-8HZ**

Field: WATTENBURG\_NAD83  
Map Unit: USFt Vertical Reference Datum (VRD): Mean Sea Level  
Projected Coordinate System: NAD83 / Colorado North (ftUS)

**Site: BERRY FARMS 41N-8HZ PAD**

Unit: USFeet TVD Reference:  
Company Name: Anadarko Petroleum  
Position: Northing: 1332293.10USft Latitude: 40.244018°  
Easting: 3165843.86USft Longitude: -104.905895°  
North Reference: True Grid Convergence: 0.38°  
Elevation Above VRD: 4821.00USft

**Slot: BERRY FARMS 30N-8HZ**

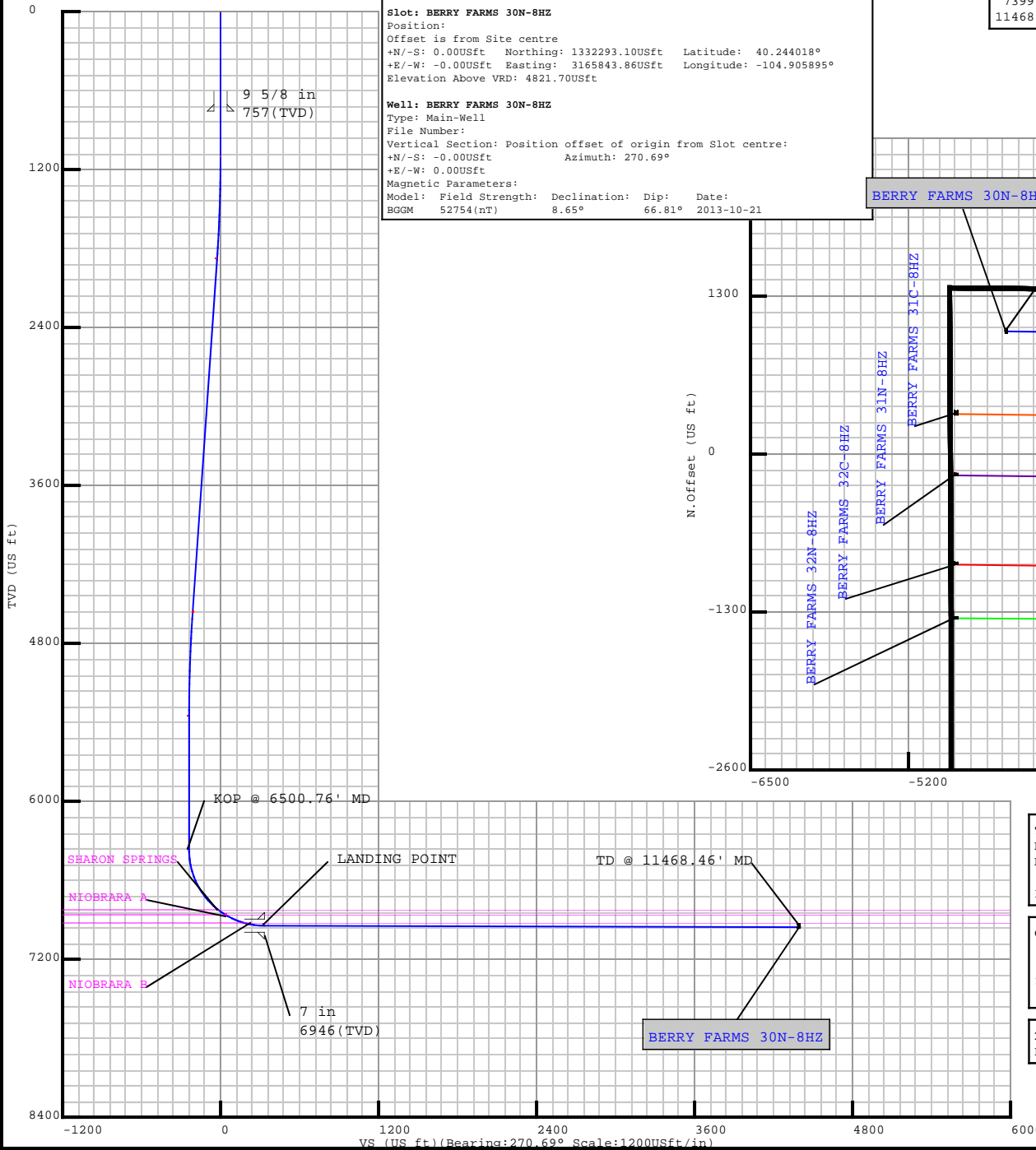
Position:  
Offset is from Site centre  
+N/-S: 0.00USft Northing: 1332293.10USft Latitude: 40.244018°  
+E/-W: -0.00USft Easting: 3165843.86USft Longitude: -104.905895°  
Elevation Above VRD: 4821.70USft

**Well: BERRY FARMS 30N-8HZ**

Type: Main-Well  
File Number:  
Vertical Section: Position offset of origin from Slot centre:  
+N/-S: -0.00USft Azimuth: 270.69°  
+E/-W: 0.00USft  
Magnetic Parameters:  
Model: Field Strength: Declination: Dip: Date:  
BGGM 52754(nT) 8.65° 66.81° 2013-10-21

**Plan Point Information:**

DogLeg	Severity	Unit: °/100.00ft	Position offsets from Slot centre								
MD	Inc	Az	TVD	+N/-S	+E/-W	VSec	DLS Toolface	Build	Turn		
(USft)	(°)	(°)	(USft)	(USft)	(USft)	(USft)	(DLSU)	(°)	(DLSU)	(DLSU)	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0	0.00	0.00	
1100.00	0.00	0.00	1100.00	0.00	0.00	0.00	0.00	0.0	0.00	0.00	
1897.04	15.94	14.68	1886.80	106.57	27.93	-26.64	2.00	14.7	2.00	0.00	
4685.68	15.94	14.68	4568.20	847.43	222.08	-211.85	0.00	0.0	0.00	0.00	
5482.72	0.00	0.00	5355.00	954.00	250.00	-238.49	2.00	180.0	-2.00	0.00	
6500.76	0.00	0.00	6373.04	954.00	250.00	-238.49	0.00	0.0	0.00	0.00	
7399.21	89.85	270.69	6946.00	960.87	-321.37	332.91	10.00	270.7	10.00	0.00	
11468.46	89.85	270.69	6957.00	1009.82	-4390.31	4402.15	0.00	0.0	0.00	0.00	



**Target Set Information:**

Name	TVD	Lat	Long
(USft)	(°)	(°)	(°)
PBHL 6957.00	40.246789	-104.921623	

**Casing Point Information:**

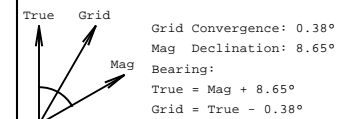
Name	MD	TVD
(USft)	(USft)	(USft)
9 5/8 in	757.00	757.00
7 in	7399.21	6946.00

**LINER: 6400.76' MD**

KOP: 6500.76' MD

**Formation Point Information:**

Name	TVD	Elevation	MD
(USft)	(USft)	(USft)	(USft)
FOX HILLS BASE	707.00	4131.70	707.00
SUSSEX	4124.00	714.70	4223.71
SHANNON	4533.00	305.70	4649.07
SHARON SPRINGS	6826.00	-1987.30	7023.14
NIOBRARA A	6869.00	-2030.30	7100.29
NIOBRARA B	6936.00	-2097.30	7293.57



## Plan Surveys for the BERRY FARMS 30N-8HZ

<b>Site Name</b> BERRY FARMS 41N-8HZ PAD	<b>Units :</b> US ft	<b>North Reference :</b> True	<b>Convergence Angle :</b> 0.38
	<b>Position</b>	<b>Northing :</b> 1332293.10 US ft	<b>Latitude :</b> 40.244018
		<b>Easting :</b> 3165843.86 US ft	<b>Longitude :</b> -104.905895
	<b>Elevation above:</b> 4821.00 US ft <b>Comment :</b>		
<b>Slot Name</b> BERRY FARMS 30N-8HZ	<b>Position (Offsets relative to Site Centre)</b>		
	<b>+N / -S :</b> 0.00 US ft	<b>Northing :</b> 1332293.10 US ft	<b>Latitude :</b> 40.244018
	<b>+E / -W :</b> -0.00 US ft	<b>Easting :</b> 3165843.86 US ft	<b>Longitude :</b> -104.905895
	<b>Slot TVD Reference :</b> Ground Elevation <b>Elevation above :</b> 4821.70 US ft <b>Comment :</b>		
<b>Well Name</b> BERRY FARMS 30N-8HZ	<b>Type :</b> Main well	<b>UWI :</b>	<b>Plan :</b> PLAN 1
	<b>Rig Height</b> <b>Drill Floor :</b> 17.00 US ft	<b>Comment :</b>	
	<b>Relative to :</b> 4838.70 US ft		
	<b>Closure Distance :</b> 4504.95 US ft	<b>Closure Azimuth :</b> 282.953°	
	<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> 270.69°
	<b>Magnetic Parameters</b>		
	<b>Model :</b> BGGM	<b>Field Strength :</b> 52754.3nT	<b>Dec :</b> 8.65°
			<b>Dip :</b> 66.81°
			<b>Date :</b> 21/Oct/2013

**Target Set****Name :** BERRY FARMS 30N-8HZ**Number of Targets :** 1**Comment :**

TargetName:	Position (Relative to centre)			
PBHL	<b>+N / -S :</b> 1009.82US ft <b>+E / -W :</b> -4390.31 US ft <b>TVD (Drill Floor) :</b> 6957.00 US ft			
Shape:	<b>Northing :</b> 1333273.49 US ft <b>Easting :</b> 3161446.89US ft <b>Latitude :</b> 40°14'48.440400" <b>Longitude :</b> -104°55'17.842800"			
Cuboid	<b>Orientation</b> <b>Dimensions</b>			
	<b>Azimuth :</b> 0.00°	<b>Inclination :</b> 0.00°		
	<b>Length :</b> 20.00 US ft	<b>Breadth :</b> 20.00 US ft	<b>Height :</b> 20.00 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	757.00	0.00	0.00	757.00	0.00	0.00	40.244018	-104.905895
7 in	7399.21	89.85	270.69	6946.00	960.87	-321.37	40.246656	-104.907046

**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)	Latitude (°)	Longitude (°)	DLS (°/100 US ft)	T.Face (°)	VS (US ft)	Comment
0.00	0.00	0.00	0.00	0.00	0.00	40.244018	-104.905895	0.00	0.00	0.00	
707.00	0.00	0.00	707.00	0.00	0.00	40.244018	-104.905895	0.00	0.00	0.00	FOX HILLS BASE :
757.00	0.00	0.00	757.00	0.00	0.00	40.244018	-104.905895	0.00	0.00	0.00	9 5/8 in
1100.00	0.00	0.00	1100.00	0.00	0.00	40.244018	-104.905895	0.00	0.00	0.00	
1897.04	15.94	14.68	1886.80	106.57	27.93	40.244311	-104.905795	2.00	14.68	-26.64	
4223.71	15.94	14.68	4124.00	724.70	189.91	40.246007	-104.905215	0.00	0.00	-181.17	SUSSEX :
4649.07	15.94	14.68	4533.00	837.71	219.53	40.246318	-104.905109	0.00	0.00	-209.42	SHANNON :
4685.68	15.94	14.68	4568.20	847.43	222.08	40.246344	-104.905099	0.00	0.00	-211.85	
5482.72	0.00	0.00	5355.00	954.00	250.00	40.246637	-104.904999	2.00	180.00	-238.49	
6500.76	0.00	0.00	6373.04	954.00	250.00	40.246637	-104.904999	0.00	0.00	-238.49	KOP @ 6500.76' MD
7023.14	52.24	270.69	6826.00	956.67	27.93	40.246644	-104.905795	10.00	270.69	-16.40	SHARON SPRINGS :
7100.29	59.95	270.69	6869.00	957.44	-36.05	40.246646	-104.906024	10.00	0.00	47.58	NIOBRARA A :
7293.57	79.28	270.69	6936.00	959.61	-216.35	40.246652	-104.906670	10.00	0.00	227.90	NIOBRARA B :
7399.21	89.85	270.69	6946.00	960.87	-321.37	40.246656	-104.907046	10.00	0.00	332.92	LANDING POINT; 7 in

## 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)	Latitude (°)	Longitude (°)	DLS (°/100 US ft)	T.Face (°)	VS (US ft)	Comment
11468.46	89.85	270.69	6957.00	1009.82	-4390.31	40.246789	-104.921623	0.00	0.00	4402.15	TD @ 11468.46' MD
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	
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	
707.00	0.00	0.00	707.00	0.00	0.00			0.00	0.00	0.00	FOX HILLS BASE : 9 5/8 in
757.00	0.00	0.00	757.00	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	2.00	14.68	1199.98	1.69	0.44			2.00	14.68	-0.42	
1300.00	4.00	14.68	1299.84	6.75	1.77			2.00	0.00	-1.68	
1400.00	6.00	14.68	1399.45	15.18	3.98			2.00	0.00	-3.79	
1500.00	8.00	14.68	1498.70	26.97	7.07			2.00	0.00	-6.74	
1600.00	10.00	14.68	1597.47	42.10	11.03			2.00	0.00	-10.52	
1700.00	12.00	14.68	1695.62	60.56	15.87			2.00	0.00	-15.14	
1800.00	14.00	14.68	1793.06	82.32	21.57			2.00	0.00	-20.58	
1897.04	15.94	14.68	1886.80	106.57	27.93			2.00	0.00	-26.64	
1900.00	15.94	14.68	1889.64	107.35	28.13			0.00	0.00	-26.83	
2000.00	15.94	14.68	1985.80	133.92	35.09			0.00	0.00	-33.48	
2100.00	15.94	14.68	2081.95	160.49	42.06			0.00	0.00	-40.12	
2200.00	15.94	14.68	2178.11	187.05	49.02			0.00	0.00	-46.76	
2300.00	15.94	14.68	2274.26	213.62	55.98			0.00	0.00	-53.40	
2400.00	15.94	14.68	2370.42	240.19	62.94			0.00	0.00	-60.04	
2500.00	15.94	14.68	2466.57	266.76	69.90			0.00	0.00	-66.68	
2600.00	15.94	14.68	2562.73	293.32	76.87			0.00	0.00	-73.33	
2700.00	15.94	14.68	2658.88	319.89	83.83			0.00	0.00	-79.97	
2800.00	15.94	14.68	2755.03	346.46	90.79			0.00	0.00	-86.61	
2900.00	15.94	14.68	2851.19	373.03	97.75			0.00	0.00	-93.25	
3000.00	15.94	14.68	2947.34	399.59	104.72			0.00	0.00	-99.89	
3100.00	15.94	14.68	3043.50	426.16	111.68			0.00	0.00	-106.53	
3200.00	15.94	14.68	3139.65	452.73	118.64			0.00	0.00	-113.18	

## 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
3300.00	15.94	14.68	3235.81	479.30	125.60	0.00	0.00	-119.82	
3400.00	15.94	14.68	3331.96	505.86	132.56	0.00	0.00	-126.46	
3500.00	15.94	14.68	3428.12	532.43	139.53	0.00	0.00	-133.10	
3600.00	15.94	14.68	3524.27	559.00	146.49	0.00	0.00	-139.74	
3700.00	15.94	14.68	3620.43	585.57	153.45	0.00	0.00	-146.38	
3800.00	15.94	14.68	3716.58	612.13	160.41	0.00	0.00	-153.03	
3900.00	15.94	14.68	3812.73	638.70	167.38	0.00	0.00	-159.67	
4000.00	15.94	14.68	3908.89	665.27	174.34	0.00	0.00	-166.31	
4100.00	15.94	14.68	4005.04	691.83	181.30	0.00	0.00	-172.95	
4200.00	15.94	14.68	4101.20	718.40	188.26	0.00	0.00	-179.59	
4223.71	15.94	14.68	4124.00	724.70	189.91	0.00	0.00	-181.17	SUSSEX :
4300.00	15.94	14.68	4197.35	744.97	195.22	0.00	0.00	-186.24	
4400.00	15.94	14.68	4293.51	771.54	202.19	0.00	0.00	-192.88	
4500.00	15.94	14.68	4389.66	798.10	209.15	0.00	0.00	-199.52	
4600.00	15.94	14.68	4485.82	824.67	216.11	0.00	0.00	-206.16	
4649.07	15.94	14.68	4533.00	837.71	219.53	0.00	0.00	-209.42	SHANNON :
4685.68	15.94	14.68	4568.20	847.43	222.08	0.00	0.00	-211.85	
4700.00	15.65	14.68	4581.98	851.21	223.06	2.00	180.00	-212.79	
4800.00	13.65	14.68	4678.72	875.68	229.48	2.00	180.00	-218.91	
4900.00	11.65	14.68	4776.29	896.87	235.03	2.00	180.00	-224.21	
5000.00	9.65	14.68	4874.56	914.75	239.72	2.00	180.00	-228.68	
5100.00	7.65	14.68	4973.42	929.31	243.53	2.00	180.00	-232.32	
5200.00	5.65	14.68	5072.74	940.52	246.47	2.00	180.00	-235.12	
5300.00	3.65	14.68	5172.40	948.37	248.52	2.00	180.00	-237.08	
5400.00	1.65	14.68	5272.29	952.84	249.70	2.00	180.00	-238.20	
5482.72	0.00	0.00	5355.00	954.00	250.00	2.00	180.00	-238.49	
5500.00	0.00	0.00	5372.28	954.00	250.00	0.00	0.00	-238.49	
5600.00	0.00	0.00	5472.28	954.00	250.00	0.00	0.00	-238.49	
5700.00	0.00	0.00	5572.28	954.00	250.00	0.00	0.00	-238.49	
5800.00	0.00	0.00	5672.28	954.00	250.00	0.00	0.00	-238.49	
5900.00	0.00	0.00	5772.28	954.00	250.00	0.00	0.00	-238.49	
6000.00	0.00	0.00	5872.28	954.00	250.00	0.00	0.00	-238.49	
6100.00	0.00	0.00	5972.28	954.00	250.00	0.00	0.00	-238.49	
6200.00	0.00	0.00	6072.28	954.00	250.00	0.00	0.00	-238.49	
6300.00	0.00	0.00	6172.28	954.00	250.00	0.00	0.00	-238.49	
6400.00	0.00	0.00	6272.28	954.00	250.00	0.00	0.00	-238.49	
6500.00	0.00	0.00	6372.28	954.00	250.00	0.00	0.00	-238.49	
6500.76	0.00	0.00	6373.04	954.00	250.00	0.00	0.00	-238.49	KOP @ 6500.76' MD
6600.00	9.92	270.69	6471.78	954.10	241.43	10.00	270.69	-229.92	
6700.00	19.92	270.69	6568.29	954.41	215.71	10.00	0.00	-204.20	
6800.00	29.92	270.69	6658.86	954.92	173.63	10.00	0.00	-162.11	

## 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
6900.00	39.92	270.69	6740.75	955.61	116.45	10.00	0.00	-104.93	
7000.00	49.92	270.69	6811.46	956.46	45.93	10.00	0.00	-34.41	
7023.14	52.24	270.69	6826.00	956.67	27.93	10.00	0.00	-16.40	SHARON SPRINGS :
7100.00	59.92	270.69	6868.85	957.44	-35.80	10.00	0.00	47.33	
7100.29	59.95	270.69	6869.00	957.44	-36.05	10.00	0.00	47.58	NIOBRARA A :
7200.00	69.92	270.69	6911.18	958.53	-126.25	10.00	0.00	137.79	
7293.57	79.28	270.69	6936.00	959.61	-216.35	10.00	0.00	227.90	NIOBRARA B :
7300.00	79.92	270.69	6937.16	959.69	-222.68	10.00	0.00	234.22	
7399.21	89.85	270.69	6946.00	960.87	-321.37	10.00	0.00	332.92	LANDING POINT; 7 in
7400.00	89.85	270.69	6946.00	960.88	-322.15	0.00	0.00	333.70	
7500.00	89.85	270.69	6946.27	962.09	-422.15	0.00	0.00	433.70	
7600.00	89.85	270.69	6946.54	963.29	-522.14	0.00	0.00	533.70	
7700.00	89.85	270.69	6946.81	964.49	-622.13	0.00	0.00	633.70	
7800.00	89.85	270.69	6947.08	965.70	-722.12	0.00	0.00	733.70	
7900.00	89.85	270.69	6947.35	966.90	-822.11	0.00	0.00	833.70	
8000.00	89.85	270.69	6947.62	968.10	-922.11	0.00	0.00	933.70	
8100.00	89.85	270.69	6947.89	969.30	-1022.10	0.00	0.00	1033.70	
8200.00	89.85	270.69	6948.16	970.51	-1122.09	0.00	0.00	1133.70	
8300.00	89.85	270.69	6948.43	971.71	-1222.08	0.00	0.00	1233.70	
8400.00	89.85	270.69	6948.70	972.91	-1322.08	0.00	0.00	1333.70	
8500.00	89.85	270.69	6948.97	974.12	-1422.07	0.00	0.00	1433.70	
8600.00	89.85	270.69	6949.24	975.32	-1522.06	0.00	0.00	1533.70	
8700.00	89.85	270.69	6949.51	976.52	-1622.05	0.00	0.00	1633.70	
8800.00	89.85	270.69	6949.78	977.72	-1722.05	0.00	0.00	1733.70	
8900.00	89.85	270.69	6950.05	978.93	-1822.04	0.00	0.00	1833.70	
9000.00	89.85	270.69	6950.32	980.13	-1922.03	0.00	0.00	1933.70	
9100.00	89.85	270.69	6950.60	981.33	-2022.02	0.00	0.00	2033.70	
9200.00	89.85	270.69	6950.87	982.54	-2122.02	0.00	0.00	2133.70	
9300.00	89.85	270.69	6951.14	983.74	-2222.01	0.00	0.00	2233.70	
9400.00	89.85	270.69	6951.41	984.94	-2322.00	0.00	0.00	2333.70	
9500.00	89.85	270.69	6951.68	986.15	-2421.99	0.00	0.00	2433.70	
9600.00	89.85	270.69	6951.95	987.35	-2521.99	0.00	0.00	2533.70	
9700.00	89.85	270.69	6952.22	988.55	-2621.98	0.00	0.00	2633.70	
9800.00	89.85	270.69	6952.49	989.75	-2721.97	0.00	0.00	2733.70	
9900.00	89.85	270.69	6952.76	990.96	-2821.96	0.00	0.00	2833.70	
10000.00	89.85	270.69	6953.03	992.16	-2921.96	0.00	0.00	2933.69	
10100.00	89.85	270.69	6953.30	993.36	-3021.95	0.00	0.00	3033.69	
10200.00	89.85	270.69	6953.57	994.57	-3121.94	0.00	0.00	3133.69	
10300.00	89.85	270.69	6953.84	995.77	-3221.93	0.00	0.00	3233.69	
10400.00	89.85	270.69	6954.11	996.97	-3321.92	0.00	0.00	3333.69	
10500.00	89.85	270.69	6954.38	998.17	-3421.92	0.00	0.00	3433.69	

## 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
10600.00	89.85	270.69	6954.65	999.38	-3521.91	0.00	0.00	3533.69	
10700.00	89.85	270.69	6954.92	1000.58	-3621.90	0.00	0.00	3633.69	
10800.00	89.85	270.69	6955.19	1001.78	-3721.89	0.00	0.00	3733.69	
10900.00	89.85	270.69	6955.46	1002.99	-3821.89	0.00	0.00	3833.69	
11000.00	89.85	270.69	6955.73	1004.19	-3921.88	0.00	0.00	3933.69	
11100.00	89.85	270.69	6956.00	1005.39	-4021.87	0.00	0.00	4033.69	
11200.00	89.85	270.69	6956.27	1006.60	-4121.86	0.00	0.00	4133.69	
11300.00	89.85	270.69	6956.54	1007.80	-4221.86	0.00	0.00	4233.69	
11400.00	89.85	270.69	6956.81	1009.00	-4321.85	0.00	0.00	4333.69	
11468.46	89.85	270.69	6957.00	1009.82	-4390.31	0.00	0.00	4402.15	TD @ 11468.46' MD

Formation Points (Relative to centre, TVD relative to Drill Floor )			
Name	MD (US ft)	TVD (US ft)	
FOX HILLS BASE	707.00	707.00	
SUSSEX	4223.71	4124.00	
SHANNON	4649.07	4533.00	
SHARON SPRINGS	7023.14	6826.00	
NIOBRARA A	7100.29	6869.00	
NIOBRARA B	7293.57	6936.00	