

**5D Plan Report**

Anadarko Petroleum

Field Name: *WATTENBURG_NAD83*
Site Name: *BROTEMARKLE 3N-13HZ PAD*
Well Name: *BROTEMARKLE 3N-13HZ*
Plan: *PLAN 1*



Plan Data for BROTEMARKLE 3N-13HZ

Field: WATTENBURG_NAD83

Map Unit: USFT Vertical Reference Datum (VRD): Mean Sea Level
Projected Coordinate System: NAD83 / Colorado North (ftUS)

Site: BROTEMARKLE 3N-13HZ PAD

Unit: USFeet TVD Reference:

Company Name: Anadarko Petroleum

Position: Northing: 1323520.33USft Latitude: 40.218881°
Easting: 3215741.70USft Longitude: -104.727427°

North Reference: True Grid Convergence: 0.50°

Elevation Above VRD: 0.00USft

Slot: BROTEMARKLE 3N-13HZ

Position:

Offset is from Site centre

+N/-S: 0.00USft Northing: 1323520.33USft Latitude: 40.218881°

+E/-W: -0.00USft Easting: 3215741.70USft Longitude: -104.727427°

Elevation Above VRD: 5032.00USft

Well: BROTEMARKLE 3N-13HZ

Type: Main-Well

File Number:

Vertical Section: Position offset of origin from Slot centre:

+N/-S: -0.00USft Azimuth: 359.83°

+E/-W: 0.00USft

Magnetic Parameters:

Model: Field Strength: Declination: Dip: Date:

BGGM 52750(nT) 8.54° 66.82° 2013-11-14

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	
1400.00	0.00	0.00	1400.00	0.00	0.00	0.00	0.00	0.0	0.00	0.00	
2200.17	16.00	231.07	2189.81	-69.77	-86.37	-69.51	2.00	231.1	2.00	0.00	
2947.52	16.00	231.07	2908.19	-199.24	-246.64	-198.51	0.00	0.0	0.00	0.00	
3747.69	0.00	0.00	3698.00	-269.01	-333.01	-268.02	2.00	180.0	-2.00	0.00	
6711.73	0.00	0.00	6662.04	-269.01	-333.01	-268.02	0.00	0.0	0.00	0.00	
7612.42	90.07	359.83	7235.00	304.63	-334.70	305.63	10.00	359.8	10.00	0.00	
11790.69	90.07	359.83	7230.00	4482.88	-347.05	4483.89	0.00	0.0	0.00	0.00	

Formation Point Information:

Name	TVD Elevation	MD
(USft)	(USft)	(USft)
FOX HILLS MARKER	1238.00	3811.00
PARKMAN	4064.00	985.00
SUSSEX	4448.00	601.00
SHARON SPRINGS	7119.00	-2070.00
NIOBRARA A	7175.00	-2126.00
NIOBRARA B	7227.00	-2178.00

Casing Point Information:

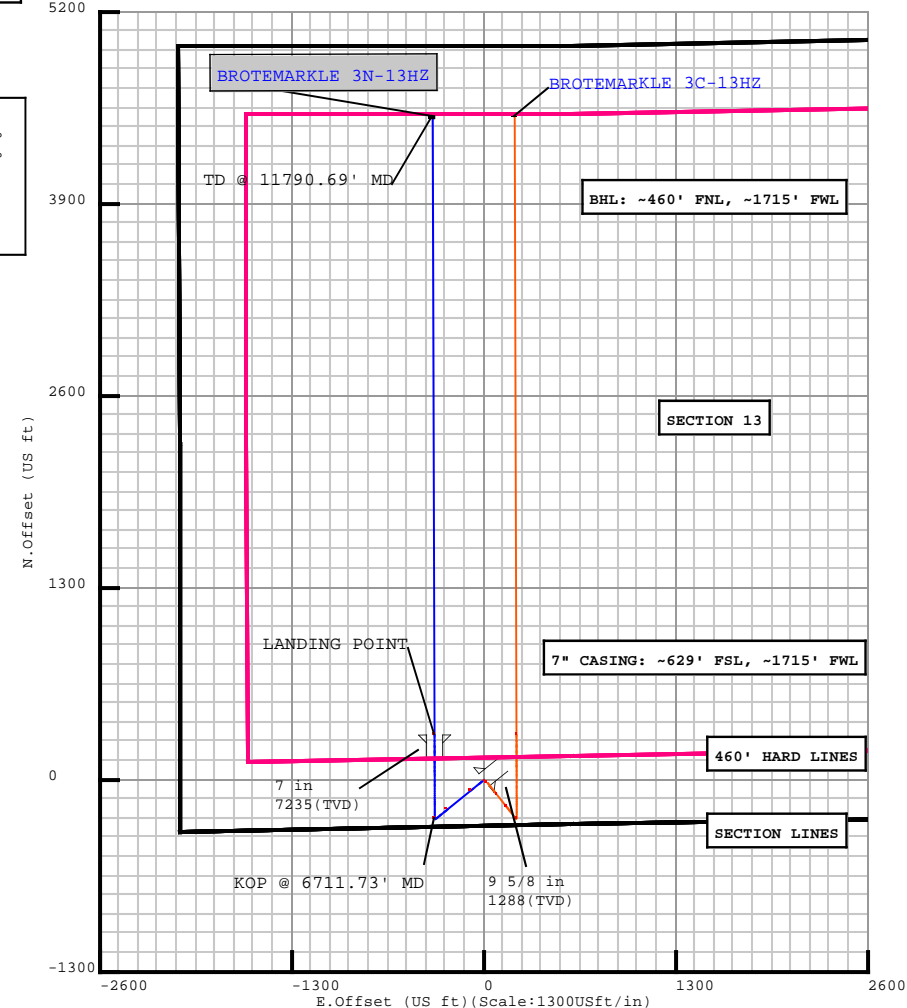
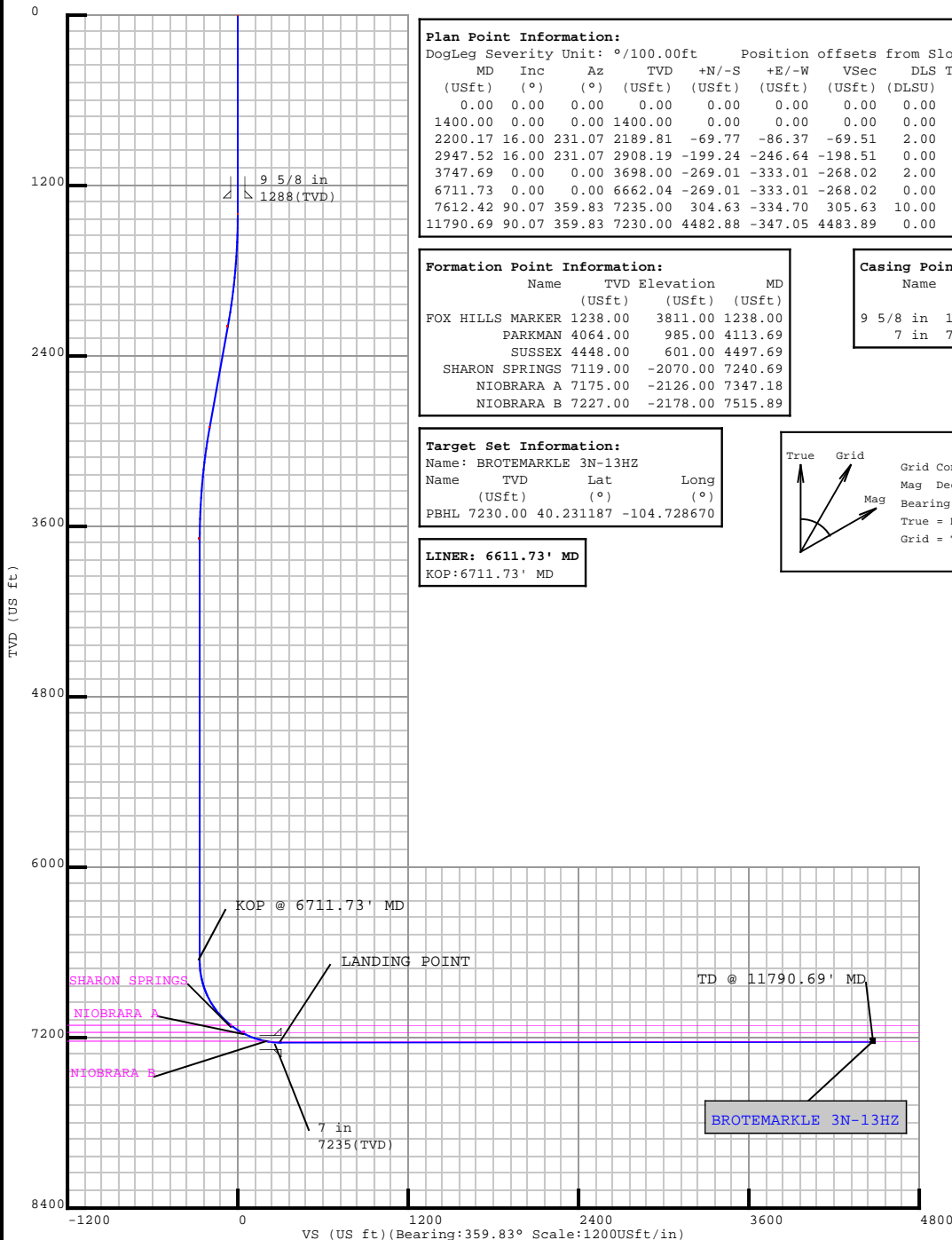
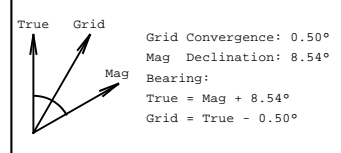
Name	MD	TVD
(USft)	(USft)	(USft)
9 5/8 in	1288.00	1288.00
7 in	7612.42	7235.00

Target Set Information:

Name: BROTEMARKLE 3N-13HZ			
Name	TVD	Lat	Long
(USft)	(°)	(°)	(°)
PBHL	7230.00	40.231187	-104.728670

LINER: 6611.73' MD

KOP: 6711.73' MD



Plan Surveys for the BROTEMARKLE 3N-13HZ

Site Name BROTEMARKLE 3N-13HZ PAD	Units : US ft	North Reference : True	Convergence Angle : 0.50
	Position	Northing : 1323520.33 US ft	Latitude : 40.218881
		Easting : 3215741.70 US ft	Longitude : -104.727427
	Elevation above: 5032.00 US ft Comment :		
Slot Name BROTEMARKLE 3N-13HZ	Position (Offsets relative to Site Centre)		
	+N / -S : 0.00 US ft	Northing : 1323520.33 US ft	Latitude : 40.218881
	+E / -W : -0.00 US ft	Easting : 3215741.70 US ft	Longitude : -104.727427
	Slot TVD Reference : Ground Elevation Elevation above : 5032.00 US ft Comment :		
Well Name BROTEMARKLE 3N-13HZ	Type : Main well	UWI :	Plan : PLAN 1
	Rig Height Drill Floor : 17.00 US ft	Comment :	
	Relative to : 5049.00 US ft		
	Closure Distance : 4496.3 US ft	Closure Azimuth : 355.573°	
	Vertical Section (Position of Origin Relative to Slot)		
	+N / -S : -0.00 US ft	+E / -W : 0.00 US ft	Az : 359.83°
Magnetic Parameters			
Model : BGGM	Field Strength : 52750.4nT	Dec : 8.54°	Dip : 66.82°
			Date : 14/Nov/2013

Target Set**Name :** BROTEMARKLE 3N-13HZ**Number of Targets :** 1**Comment :**

TargetName:	Position (Relative to centre)			
PBHL	+N / -S : 4482.88US ft +E / -W : -347.05 US ft TVD (Drill Floor) : 7230.00 US ft			
Shape:	Northing : 1328000.02 US ft Easting : 3215355.61US ft Latitude : 40°13'52.273200" Longitude : -104°43'43.212000"			
Cuboid	Orientation Dimensions			
	Azimuth : 0.00°	Inclination : 0.00°		
	Length : 20.00 US ft	Breadth : 20.00 US ft	Height : 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	1288.00	0.00	0.00	1288.00	0.00	0.00	40.218881	-104.727427
7 in	7612.42	90.07	359.83	7235.00	304.64	-334.70	40.219717	-104.728626

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	40.218881	-104.727427	0.00	0.00	0.00	
1238.00	0.00	0.00	1238.00	0.00	0.00	40.218881	-104.727427	0.00	0.00	0.00	FOX HILLS MARKER :
1288.00	0.00	0.00	1288.00	0.00	0.00	40.218881	-104.727427	0.00	0.00	0.00	9 5/8 in
1400.00	0.00	0.00	1400.00	0.00	0.00	40.218881	-104.727427	0.00	0.00	0.00	
2200.17	16.00	231.07	2189.81	-69.77	-86.37	40.218689	-104.727736	2.00	231.07	-69.51	
2947.52	16.00	231.07	2908.19	-199.24	-246.64	40.218334	-104.728310	0.00	0.00	-198.50	
3747.69	0.00	0.00	3698.00	-269.01	-333.01	40.218143	-104.728619	2.00	180.00	-268.01	
4113.69	0.00	0.00	4064.00	-269.01	-333.01	40.218143	-104.728619	0.00	0.00	-268.01	PARKMAN :
4497.69	0.00	0.00	4448.00	-269.01	-333.01	40.218143	-104.728619	0.00	0.00	-268.01	SUSSEX :
6711.73	0.00	0.00	6662.04	-269.01	-333.01	40.218143	-104.728619	0.00	0.00	-268.01	KOP @ 6711.73' MD
7240.69	52.90	359.83	7119.00	-41.69	-333.68	40.218767	-104.728622	10.00	359.83	-40.70	SHARON SPRINGS :
7347.18	63.54	359.83	7175.00	48.70	-333.95	40.219015	-104.728623	10.00	0.00	49.69	NIOBRARA A :
7515.89	80.42	359.83	7227.00	208.55	-334.42	40.219453	-104.728625	10.00	0.00	209.55	NIOBRARA B :
7612.42	90.07	359.83	7235.00	304.63	-334.70	40.219717	-104.728626	10.00	0.00	305.63	LANDING POINT

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
7612.42	90.07	359.83	7235.00	304.64	-334.70	40.219717	-104.728626	0.00	0.00	305.63	7 in
11790.69	90.07	359.83	7230.00	4482.88	-347.05	40.231187	-104.728670	0.00	0.00	4483.90	TD @ 11790.69' 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	
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	
1238.00	0.00	0.00	1238.00	0.00	0.00		0.00	0.00		0.00	FOX HILLS MARKER : 9 5/8 in
1288.00	0.00	0.00	1288.00	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	2.00	231.07	1499.98	-1.10	-1.36		2.00	231.07		-1.09	
1600.00	4.00	231.07	1599.84	-4.39	-5.43		2.00	0.00		-4.36	
1700.00	6.00	231.07	1699.45	-9.86	-12.21		2.00	0.00		-9.82	
1800.00	8.00	231.07	1798.70	-17.52	-21.69		2.00	0.00		-17.45	
1900.00	10.00	231.07	1897.47	-27.35	-33.86		2.00	0.00		-27.24	
2000.00	12.00	231.07	1995.62	-39.34	-48.70		2.00	0.00		-39.19	
2100.00	14.00	231.07	2093.06	-53.47	-66.20		2.00	0.00		-53.27	
2200.00	16.00	231.07	2189.64	-69.74	-86.33		2.00	0.00		-69.48	
2200.17	16.00	231.07	2189.81	-69.77	-86.37		0.00	0.00		-69.51	
2300.00	16.00	231.07	2285.77	-87.06	-107.77		0.00	0.00		-86.74	
2400.00	16.00	231.07	2381.89	-104.39	-129.22		0.00	0.00		-104.00	
2500.00	16.00	231.07	2478.02	-121.71	-150.67		0.00	0.00		-121.26	
2600.00	16.00	231.07	2574.14	-139.03	-172.11		0.00	0.00		-138.52	
2700.00	16.00	231.07	2670.27	-156.36	-193.56		0.00	0.00		-155.78	
2800.00	16.00	231.07	2766.39	-173.68	-215.01		0.00	0.00		-173.04	
2900.00	16.00	231.07	2862.51	-191.01	-236.45		0.00	0.00		-190.30	
2947.52	16.00	231.07	2908.19	-199.24	-246.64		0.00	0.00		-198.50	
3000.00	14.95	231.07	2958.77	-208.04	-257.54		2.00	180.00		-207.27	

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
3100.00	12.95	231.07	3055.81	-223.19	-276.30	2.00	180.00	-222.37	
3200.00	10.95	231.07	3153.64	-236.21	-292.41	2.00	180.00	-235.34	
3300.00	8.95	231.07	3252.13	-247.07	-305.85	2.00	180.00	-246.16	
3400.00	6.95	231.07	3351.16	-255.76	-316.62	2.00	180.00	-254.82	
3500.00	4.95	231.07	3450.62	-262.28	-324.68	2.00	180.00	-261.31	
3600.00	2.95	231.07	3550.37	-266.62	-330.05	2.00	180.00	-265.63	
3700.00	0.95	231.07	3650.31	-268.76	-332.70	2.00	180.00	-267.76	
3747.69	0.00	0.00	3698.00	-269.01	-333.01	2.00	180.00	-268.01	
3800.00	0.00	0.00	3750.31	-269.01	-333.01	0.00	0.00	-268.01	
3900.00	0.00	0.00	3850.31	-269.01	-333.01	0.00	0.00	-268.01	
4000.00	0.00	0.00	3950.31	-269.01	-333.01	0.00	0.00	-268.01	
4100.00	0.00	0.00	4050.31	-269.01	-333.01	0.00	0.00	-268.01	
4113.69	0.00	0.00	4064.00	-269.01	-333.01	0.00	0.00	-268.01	PARKMAN :
4200.00	0.00	0.00	4150.31	-269.01	-333.01	0.00	0.00	-268.01	
4300.00	0.00	0.00	4250.31	-269.01	-333.01	0.00	0.00	-268.01	
4400.00	0.00	0.00	4350.31	-269.01	-333.01	0.00	0.00	-268.01	
4497.69	0.00	0.00	4448.00	-269.01	-333.01	0.00	0.00	-268.01	SUSSEX :
4500.00	0.00	0.00	4450.31	-269.01	-333.01	0.00	0.00	-268.01	
4600.00	0.00	0.00	4550.31	-269.01	-333.01	0.00	0.00	-268.01	
4700.00	0.00	0.00	4650.31	-269.01	-333.01	0.00	0.00	-268.01	
4800.00	0.00	0.00	4750.31	-269.01	-333.01	0.00	0.00	-268.01	
4900.00	0.00	0.00	4850.31	-269.01	-333.01	0.00	0.00	-268.01	
5000.00	0.00	0.00	4950.31	-269.01	-333.01	0.00	0.00	-268.01	
5100.00	0.00	0.00	5050.31	-269.01	-333.01	0.00	0.00	-268.01	
5200.00	0.00	0.00	5150.31	-269.01	-333.01	0.00	0.00	-268.01	
5300.00	0.00	0.00	5250.31	-269.01	-333.01	0.00	0.00	-268.01	
5400.00	0.00	0.00	5350.31	-269.01	-333.01	0.00	0.00	-268.01	
5500.00	0.00	0.00	5450.31	-269.01	-333.01	0.00	0.00	-268.01	
5600.00	0.00	0.00	5550.31	-269.01	-333.01	0.00	0.00	-268.01	
5700.00	0.00	0.00	5650.31	-269.01	-333.01	0.00	0.00	-268.01	
5800.00	0.00	0.00	5750.31	-269.01	-333.01	0.00	0.00	-268.01	
5900.00	0.00	0.00	5850.31	-269.01	-333.01	0.00	0.00	-268.01	
6000.00	0.00	0.00	5950.31	-269.01	-333.01	0.00	0.00	-268.01	
6100.00	0.00	0.00	6050.31	-269.01	-333.01	0.00	0.00	-268.01	
6200.00	0.00	0.00	6150.31	-269.01	-333.01	0.00	0.00	-268.01	
6300.00	0.00	0.00	6250.31	-269.01	-333.01	0.00	0.00	-268.01	
6400.00	0.00	0.00	6350.31	-269.01	-333.01	0.00	0.00	-268.01	
6500.00	0.00	0.00	6450.31	-269.01	-333.01	0.00	0.00	-268.01	
6600.00	0.00	0.00	6550.31	-269.01	-333.01	0.00	0.00	-268.01	
6700.00	0.00	0.00	6650.31	-269.01	-333.01	0.00	0.00	-268.01	
6711.73	0.00	0.00	6662.04	-269.01	-333.01	0.00	0.00	-268.01	KOP @ 6711.73' MD

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
6800.00	8.83	359.83	6749.96	-262.22	-333.03	10.00	359.83	-261.23	
6900.00	18.83	359.83	6846.94	-238.35	-333.10	10.00	0.00	-237.36	
7000.00	28.83	359.83	6938.30	-198.01	-333.22	10.00	0.00	-197.01	
7100.00	38.83	359.83	7021.27	-142.41	-333.38	10.00	0.00	-141.41	
7200.00	48.83	359.83	7093.32	-73.25	-333.59	10.00	0.00	-72.25	
7240.69	52.90	359.83	7119.00	-41.69	-333.68	10.00	0.00	-40.70	SHARON SPRINGS : 100 ft
7300.00	58.83	359.83	7152.27	7.37	-333.83	10.00	0.00	8.37	
7347.18	63.54	359.83	7175.00	48.70	-333.95	10.00	0.00	49.69	NIOBRARA A : 100 ft
7400.00	68.83	359.83	7196.32	97.00	-334.09	10.00	0.00	98.00	
7500.00	78.83	359.83	7224.14	192.92	-334.37	10.00	0.00	193.92	
7515.89	80.42	359.83	7227.00	208.55	-334.42	10.00	0.00	209.55	NIOBRARA B : 100 ft
7600.00	88.83	359.83	7234.88	292.22	-334.67	10.00	0.00	293.21	
7612.42	90.07	359.83	7235.00	304.63	-334.70	10.00	0.00	305.63	LANDING POINT
7612.42	90.07	359.83	7235.00	304.64	-334.70	0.00	0.00	305.63	7 in
7700.00	90.07	359.83	7234.89	392.22	-334.96	0.00	0.00	393.21	
7800.00	90.07	359.83	7234.77	492.22	-335.26	0.00	0.00	493.21	
7900.00	90.07	359.83	7234.65	592.22	-335.55	0.00	0.00	593.21	
8000.00	90.07	359.83	7234.53	692.22	-335.85	0.00	0.00	693.21	
8100.00	90.07	359.83	7234.41	792.21	-336.14	0.00	0.00	793.21	
8200.00	90.07	359.83	7234.29	892.21	-336.44	0.00	0.00	893.21	
8300.00	90.07	359.83	7234.18	992.21	-336.73	0.00	0.00	993.21	
8400.00	90.07	359.83	7234.06	1092.21	-337.03	0.00	0.00	1093.21	
8500.00	90.07	359.83	7233.94	1192.21	-337.33	0.00	0.00	1193.21	
8600.00	90.07	359.83	7233.82	1292.21	-337.62	0.00	0.00	1293.21	
8700.00	90.07	359.83	7233.70	1392.21	-337.92	0.00	0.00	1393.21	
8800.00	90.07	359.83	7233.58	1492.21	-338.21	0.00	0.00	1493.21	
8900.00	90.07	359.83	7233.46	1592.21	-338.51	0.00	0.00	1593.21	
9000.00	90.07	359.83	7233.34	1692.21	-338.80	0.00	0.00	1693.21	
9100.00	90.07	359.83	7233.22	1792.21	-339.10	0.00	0.00	1793.21	
9200.00	90.07	359.83	7233.10	1892.21	-339.39	0.00	0.00	1893.21	
9300.00	90.07	359.83	7232.98	1992.21	-339.69	0.00	0.00	1993.21	
9400.00	90.07	359.83	7232.86	2092.21	-339.98	0.00	0.00	2093.21	
9500.00	90.07	359.83	7232.74	2192.21	-340.28	0.00	0.00	2193.21	
9600.00	90.07	359.83	7232.62	2292.21	-340.58	0.00	0.00	2293.21	
9700.00	90.07	359.83	7232.50	2392.21	-340.87	0.00	0.00	2393.21	
9800.00	90.07	359.83	7232.38	2492.21	-341.17	0.00	0.00	2493.21	
9900.00	90.07	359.83	7232.26	2592.21	-341.46	0.00	0.00	2593.21	
10000.00	90.07	359.83	7232.14	2692.21	-341.76	0.00	0.00	2693.21	
10100.00	90.07	359.83	7232.02	2792.20	-342.05	0.00	0.00	2793.21	
10200.00	90.07	359.83	7231.90	2892.20	-342.35	0.00	0.00	2893.21	
10300.00	90.07	359.83	7231.78	2992.20	-342.64	0.00	0.00	2993.21	

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
10400.00	90.07	359.83	7231.66	3092.20	-342.94	0.00	0.00	3093.21	
10500.00	90.07	359.83	7231.54	3192.20	-343.23	0.00	0.00	3193.21	
10600.00	90.07	359.83	7231.42	3292.20	-343.53	0.00	0.00	3293.21	
10700.00	90.07	359.83	7231.30	3392.20	-343.83	0.00	0.00	3393.21	
10800.00	90.07	359.83	7231.18	3492.20	-344.12	0.00	0.00	3493.21	
10900.00	90.07	359.83	7231.07	3592.20	-344.42	0.00	0.00	3593.21	
11000.00	90.07	359.83	7230.95	3692.20	-344.71	0.00	0.00	3693.21	
11100.00	90.07	359.83	7230.83	3792.20	-345.01	0.00	0.00	3793.21	
11200.00	90.07	359.83	7230.71	3892.20	-345.30	0.00	0.00	3893.21	
11300.00	90.07	359.83	7230.59	3992.20	-345.60	0.00	0.00	3993.21	
11400.00	90.07	359.83	7230.47	4092.20	-345.89	0.00	0.00	4093.21	
11500.00	90.07	359.83	7230.35	4192.20	-346.19	0.00	0.00	4193.21	
11600.00	90.07	359.83	7230.23	4292.20	-346.48	0.00	0.00	4293.21	
11700.00	90.07	359.83	7230.11	4392.20	-346.78	0.00	0.00	4393.21	
11790.69	90.07	359.83	7230.00	4482.88	-347.05	0.00	0.00	4483.90	TD @ 11790.69' MD

Formation Points (Relative to centre, TVD relative to Drill Floor)		
Name	MD (US ft)	TVD (US ft)
FOX HILLS MARKER	1238.00	1238.00
PARKMAN	4113.69	4064.00
SUSSEX	4497.69	4448.00
SHARON SPRINGS	7240.69	7119.00
NIOBRARA A	7347.18	7175.00
NIOBRARA B	7515.89	7227.00