

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

Field Name: *WATTENBURG_NAD83*
Site Name: *BERRY FARMS 41N-8HZ PAD*
Well Name: *BERRY FARMS 31C-8HZ*
Plan: *PLAN 1*





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	0.0	0.00			
1899.70	15.99	39.99	1889.36	84.96	71.27	-70.23	2.00	40.0	2.00	0.00			
2506.47	15.99	39.99	2472.64	213.04	178.73	-176.11	0.00	0.0	0.00	0.00			
3306.18	0.00	0.00	3262.00	298.00	250.00	-246.34	2.00	180.0	-2.00	0.00			
6620.22	0.00	0.00	6576.04	298.00	250.00	-246.34	0.00	0.0	0.00	0.00			
7519.07	89.88	270.70	7149.00	304.94	-321.76	325.46	10.00	270.7	10.00	0.00			
11997.02	89.88	270.70	7158.00	359.28	-4799.38	4803.41	0.00	0.0	0.00	0.00			

Plan Data for BERRY FARMS 31C-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 31C-8HZ

Position:

Offset is from Site centre

+N/-S: -29.87USft Northing: 1332263.23USft Latitude: 40.243936°
+E/-W: -0.28USft Easting: 3165843.78USft Longitude: -104.905896°
Elevation Above VRD: 4821.30USft

Well: BERRY FARMS 31C-8HZ

Type: Main-Well

File Number:

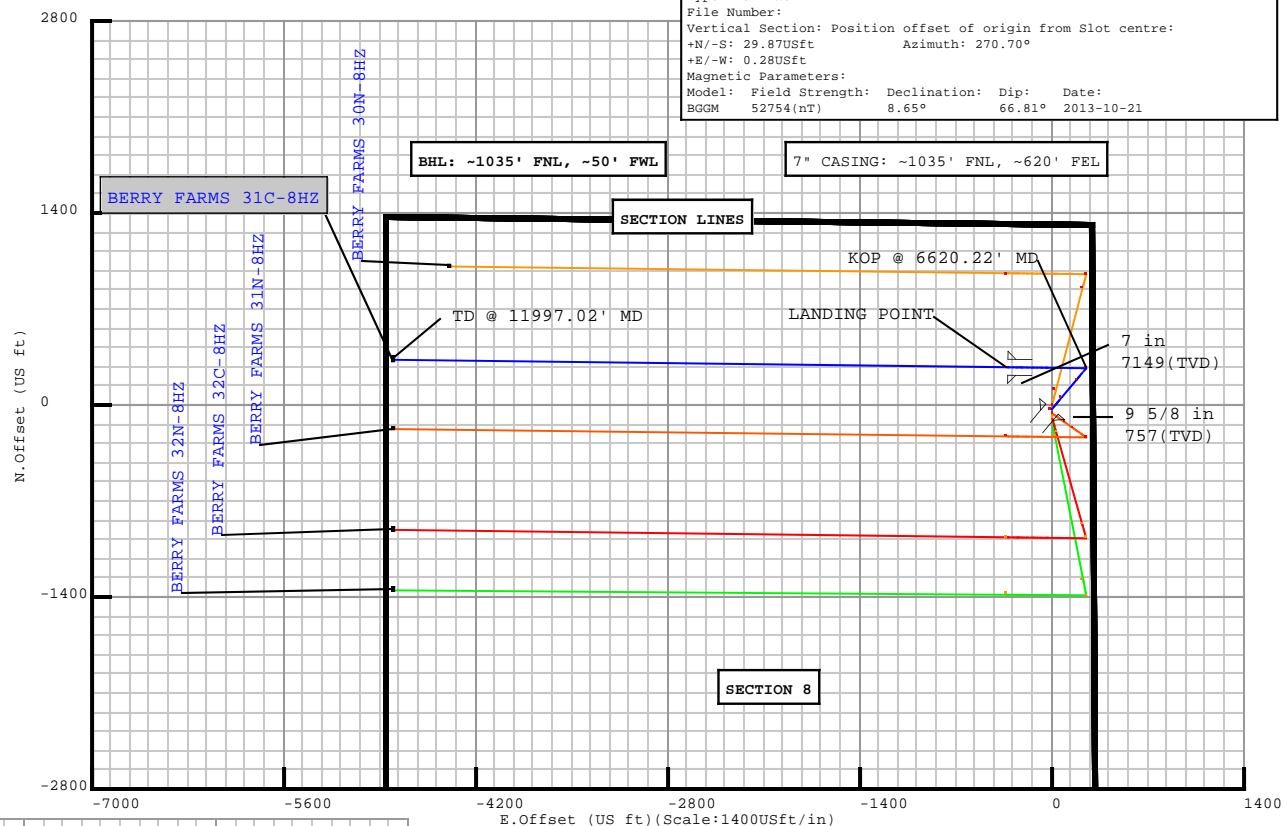
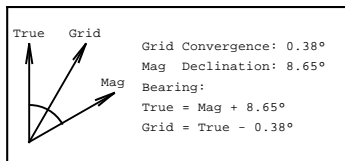
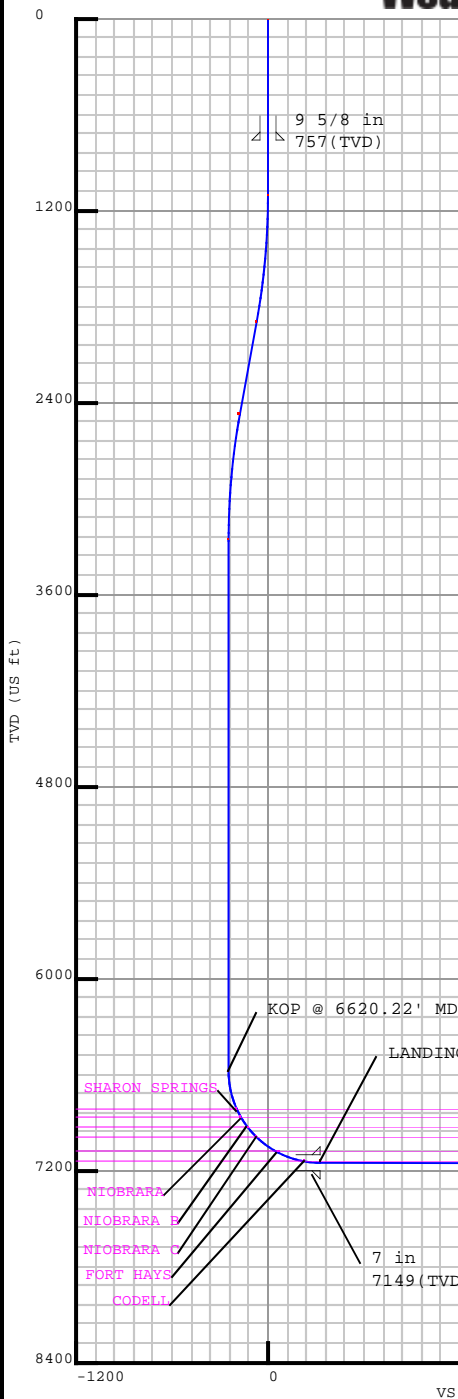
Vertical Section: Position offset of origin from Slot centre:

+N/-S: 29.87USft Azimuth: 270.70°

+E/-W: 0.28USft

Magnetic Parameters:

Model: Field Strength: Declination: Dip: Date:
BGGM 52754(nT) 8.65° 66.81° 2013-10-21



Target Set Information:

Name: BERRY FARMS 31C-8HZ			
Name	TVD	Lat	Long
(USft)		(°)	(°)
PBHL	7158.00	40.244921	-104.923089

Casing Point Information:

Name	MD	TVD
	(USft)	(USft)
9 5/8 in	757.00	757.00
7 in	7519.07	7149.00

LINER: 6520.22' MD

KOP: 6620.22' MD

Formation Point Information:

Name	TVD Elevation	MD
(USft)	(USft)	(USft)
FOX HILLS BASE	707.00	4131.30
SUSSEX	4124.00	714.30
SHANNON	4533.00	305.30
SHARON SPRINGS	6822.00	-1983.70
NIOBRARA	6873.00	-2034.70
NIOBRARA B	6930.00	-2091.70
NIOBRARA C	6993.00	-2154.70
FORT HAYS	7085.00	-2246.70
CODELL	7141.00	-2302.70

Plan Surveys for the BERRY FARMS 31C-8HZ

Site Name BERRY FARMS 41N-8HZ PAD	Units : US ft	North Reference : True	Convergence Angle : 0.38
	Position	Northing : 1332293.10 US ft	Latitude : 40.244018
		Easting : 3165843.86 US ft	Longitude : -104.905895
	Elevation above: 4821.00 US ft Comment :		
Slot Name BERRY FARMS 31C-8HZ	Position (Offsets relative to Site Centre)		
	+N / -S : -29.87 US ft	Northing : 1332263.23 US ft	Latitude : 40.243936
	+E / -W : -0.28 US ft	Easting : 3165843.78 US ft	Longitude : -104.905896
	Slot TVD Reference : Ground Elevation Elevation above : 4821.30 US ft Comment :		
Well Name BERRY FARMS 31C-8HZ	Type : Main well	UWI :	Plan : PLAN 1
	Rig Height Drill Floor : 17.00 US ft	Comment :	
	Relative to : 4838.30 US ft		
	Closure Distance : 4812.81 US ft	Closure Azimuth : 274.281°	
	Vertical Section (Position of Origin Relative to Slot)		
	+N / -S : 29.87 US ft	+E / -W : 0.28 US ft	Az : 270.70°
	Magnetic Parameters		
	Model : BGGM	Field Strength : 52754.2nT	Dec : 8.65°
			Dip : 66.81°
			Date : 21/Oct/2013

Target Set

Name : BERRY FARMS 31C-8HZ

Number of Targets : 1

Comment :

TargetName:	Position (Relative to centre)			
PBHL	+N / -S : 359.28US ft		Northing : 1332590.35 US ft	
	+E / -W : -4799.38 US ft		Easting : 3161042.10US ft	
Shape:	Longitude : -104°55'23.120400"			
Cuboid	TVD (Drill Floor) : 7158.00 US ft			
	Orientation	Azimuth : 0.00°	Inclination : 0.00°	
	Dimensions	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	757.00	0.00	0.00	757.00	0.00	0.00	40.243936	-104.905896
7 in	7519.07	89.88	270.70	7149.00	304.94	-321.76	40.244773	-104.907049

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	40.243936	-104.905896	0.00	0.00	-0.08	
707.00	0.00	0.00	707.00	0.00	0.00	40.243936	-104.905896	0.00	0.00	-0.08	FOX HILLS BASE :
757.00	0.00	0.00	757.00	0.00	0.00	40.243936	-104.905896	0.00	0.00	-0.08	9 5/8 in
1100.00	0.00	0.00	1100.00	0.00	0.00	40.243936	-104.905896	0.00	0.00	-0.08	
1899.70	15.99	39.99	1889.36	84.96	71.27	40.244169	-104.905641	2.00	39.99	-70.31	
2506.47	15.99	39.99	2472.64	213.04	178.73	40.244521	-104.905256	0.00	0.00	-176.19	
3306.18	0.00	0.00	3262.00	298.00	250.00	40.244754	-104.905000	2.00	180.00	-246.42	
4168.18	0.00	0.00	4124.00	298.00	250.00	40.244754	-104.905000	0.00	0.00	-246.42	SUSSEX :
4577.18	0.00	0.00	4533.00	298.00	250.00	40.244754	-104.905000	0.00	0.00	-246.42	SHANNON :
6620.22	0.00	0.00	6576.04	298.00	250.00	40.244754	-104.905000	0.00	0.00	-246.42	KOP @ 6620.22' MD
6874.44	25.42	270.70	6822.00	298.67	194.53	40.244756	-104.905199	10.00	270.70	-190.95	SHARON SPRINGS :
6932.40	31.22	270.70	6873.00	299.01	167.05	40.244757	-104.905298	10.00	0.00	-163.46	NIOBRARA :
7001.76	38.15	270.70	6930.00	299.49	127.60	40.244758	-104.905439	10.00	0.00	-124.01	NIOBRARA B :
7087.19	46.70	270.70	6993.00	300.18	70.03	40.244760	-104.905645	10.00	0.00	-66.44	NIOBRARA C :

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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
7246.83	62.66	270.70	7085.00	301.76	-59.80	40.244764	-104.906110	10.00	0.00	63.40	FORT HAYS :
7424.37	80.42	270.70	7141.00	303.80	-227.52	40.244770	-104.906711	10.00	0.00	231.13	CODELL :
7519.07	89.88	270.70	7149.00	304.94	-321.76	40.244773	-104.907049	10.00	0.00	325.38	LANDING POINT; 7 in
11997.02	89.88	270.70	7158.00	359.28	-4799.38	40.244921	-104.923089	0.00	0.00	4803.33	TD @ 11997.02' 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	-0.08			
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	-0.08			
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	-0.08			
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	-0.08			
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	-0.08			
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	-0.08			
600.00	0.00	0.00	600.00	0.00	0.00	0.00	0.00	-0.08			
700.00	0.00	0.00	700.00	0.00	0.00	0.00	0.00	-0.08			
707.00	0.00	0.00	707.00	0.00	0.00	0.00	0.00	-0.08			
757.00	0.00	0.00	757.00	0.00	0.00	0.00	0.00	-0.08			
800.00	0.00	0.00	800.00	0.00	0.00	0.00	0.00	-0.08			
900.00	0.00	0.00	900.00	0.00	0.00	0.00	0.00	-0.08			
1000.00	0.00	0.00	1000.00	0.00	0.00	0.00	0.00	-0.08			
1100.00	0.00	0.00	1100.00	0.00	0.00	0.00	0.00	-0.08			
1200.00	2.00	39.99	1199.98	1.34	1.12	2.00	39.99	-1.19			
1300.00	4.00	39.99	1299.84	5.35	4.49	2.00	0.00	-4.50			
1400.00	6.00	39.99	1399.45	12.02	10.09	2.00	0.00	-10.02			
1500.00	8.00	39.99	1498.70	21.36	17.92	2.00	0.00	-17.74			
1600.00	10.00	39.99	1597.47	33.34	27.97	2.00	0.00	-27.64			
1700.00	12.00	39.99	1695.62	47.96	40.24	2.00	0.00	-39.73			
1800.00	14.00	39.99	1793.06	65.19	54.69	2.00	0.00	-53.97			
1899.70	15.99	39.99	1889.36	84.96	71.27	2.00	0.00	-70.31			
1900.00	15.99	39.99	1889.64	85.02	71.33	0.00	0.00	-70.36			
2000.00	15.99	39.99	1985.77	106.13	89.04	0.00	0.00	-87.81			
2100.00	15.99	39.99	2081.90	127.24	106.74	0.00	0.00	-105.26			
2200.00	15.99	39.99	2178.03	148.35	124.45	0.00	0.00	-122.71			
2300.00	15.99	39.99	2274.16	169.46	142.16	0.00	0.00	-140.16			
2400.00	15.99	39.99	2370.29	190.57	159.87	0.00	0.00	-157.61			
2500.00	15.99	39.99	2466.42	211.68	177.58	0.00	0.00	-175.06			
2506.47	15.99	39.99	2472.64	213.04	178.73	0.00	0.00	-176.19			
2600.00	14.12	39.99	2562.95	231.66	194.34	2.00	180.00	-191.58			
2700.00	12.12	39.99	2660.33	249.05	208.94	2.00	180.00	-205.96			

FOX HILLS BASE :
9 5/8 in

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
2800.00	10.12	39.99	2758.45	263.83	221.34	2.00	180.00	-218.18	
2900.00	8.12	39.99	2857.18	275.98	231.53	2.00	180.00	-228.22	
3000.00	6.12	39.99	2956.40	285.48	239.50	2.00	180.00	-236.07	
3100.00	4.12	39.99	3056.00	292.32	245.24	2.00	180.00	-241.73	
3200.00	2.12	39.99	3155.84	296.49	248.74	2.00	180.00	-245.18	
3300.00	0.12	39.99	3255.82	298.00	250.00	2.00	180.00	-246.42	
3306.18	0.00	0.00	3262.00	298.00	250.00	2.00	180.00	-246.42	
3400.00	0.00	0.00	3355.82	298.00	250.00	0.00	0.00	-246.42	
3500.00	0.00	0.00	3455.82	298.00	250.00	0.00	0.00	-246.42	
3600.00	0.00	0.00	3555.82	298.00	250.00	0.00	0.00	-246.42	
3700.00	0.00	0.00	3655.82	298.00	250.00	0.00	0.00	-246.42	
3800.00	0.00	0.00	3755.82	298.00	250.00	0.00	0.00	-246.42	
3900.00	0.00	0.00	3855.82	298.00	250.00	0.00	0.00	-246.42	
4000.00	0.00	0.00	3955.82	298.00	250.00	0.00	0.00	-246.42	
4100.00	0.00	0.00	4055.82	298.00	250.00	0.00	0.00	-246.42	
4168.18	0.00	0.00	4124.00	298.00	250.00	0.00	0.00	-246.42	SUSSEX :
4200.00	0.00	0.00	4155.82	298.00	250.00	0.00	0.00	-246.42	
4300.00	0.00	0.00	4255.82	298.00	250.00	0.00	0.00	-246.42	
4400.00	0.00	0.00	4355.82	298.00	250.00	0.00	0.00	-246.42	
4500.00	0.00	0.00	4455.82	298.00	250.00	0.00	0.00	-246.42	
4577.18	0.00	0.00	4533.00	298.00	250.00	0.00	0.00	-246.42	SHANNON :
4600.00	0.00	0.00	4555.82	298.00	250.00	0.00	0.00	-246.42	
4700.00	0.00	0.00	4655.82	298.00	250.00	0.00	0.00	-246.42	
4800.00	0.00	0.00	4755.82	298.00	250.00	0.00	0.00	-246.42	
4900.00	0.00	0.00	4855.82	298.00	250.00	0.00	0.00	-246.42	
5000.00	0.00	0.00	4955.82	298.00	250.00	0.00	0.00	-246.42	
5100.00	0.00	0.00	5055.82	298.00	250.00	0.00	0.00	-246.42	
5200.00	0.00	0.00	5155.82	298.00	250.00	0.00	0.00	-246.42	
5300.00	0.00	0.00	5255.82	298.00	250.00	0.00	0.00	-246.42	
5400.00	0.00	0.00	5355.82	298.00	250.00	0.00	0.00	-246.42	
5500.00	0.00	0.00	5455.82	298.00	250.00	0.00	0.00	-246.42	
5600.00	0.00	0.00	5555.82	298.00	250.00	0.00	0.00	-246.42	
5700.00	0.00	0.00	5655.82	298.00	250.00	0.00	0.00	-246.42	
5800.00	0.00	0.00	5755.82	298.00	250.00	0.00	0.00	-246.42	
5900.00	0.00	0.00	5855.82	298.00	250.00	0.00	0.00	-246.42	
6000.00	0.00	0.00	5955.82	298.00	250.00	0.00	0.00	-246.42	
6100.00	0.00	0.00	6055.82	298.00	250.00	0.00	0.00	-246.42	
6200.00	0.00	0.00	6155.82	298.00	250.00	0.00	0.00	-246.42	
6300.00	0.00	0.00	6255.82	298.00	250.00	0.00	0.00	-246.42	
6400.00	0.00	0.00	6355.82	298.00	250.00	0.00	0.00	-246.42	
6500.00	0.00	0.00	6455.82	298.00	250.00	0.00	0.00	-246.42	

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
6600.00	0.00	0.00	6555.82	298.00	250.00	0.00	0.00	-246.42	
6620.22	0.00	0.00	6576.04	298.00	250.00	0.00	0.00	-246.42	KOP @ 6620.22' MD
6700.00	7.98	270.70	6655.56	298.07	244.46	10.00	270.70	-240.88	
6800.00	17.98	270.70	6752.88	298.34	222.03	10.00	0.00	-218.45	
6874.44	25.42	270.70	6822.00	298.67	194.53	10.00	0.00	-190.95	SHARON SPRINGS :
6900.00	27.98	270.70	6844.83	298.81	183.04	10.00	0.00	-179.46	
6932.40	31.22	270.70	6873.00	299.01	167.05	10.00	0.00	-163.46	NIOBRARA :
7000.00	37.98	270.70	6928.62	299.47	128.69	10.00	0.00	-125.10	
7001.76	38.15	270.70	6930.00	299.49	127.60	10.00	0.00	-124.01	NIOBRARA B :
7087.19	46.70	270.70	6993.00	300.18	70.03	10.00	0.00	-66.44	NIOBRARA C :
7100.00	47.98	270.70	7001.68	300.30	60.61	10.00	0.00	-57.01	
7200.00	57.98	270.70	7061.82	301.27	-19.13	10.00	0.00	22.73	
7246.83	62.66	270.70	7085.00	301.76	-59.80	10.00	0.00	63.40	FORT HAYS :
7300.00	67.98	270.70	7107.20	302.35	-108.09	10.00	0.00	111.70	
7400.00	77.98	270.70	7136.43	303.51	-203.58	10.00	0.00	207.19	
7424.37	80.42	270.70	7141.00	303.80	-227.52	10.00	0.00	231.13	CODELL :
7500.00	87.98	270.70	7148.64	304.71	-302.70	10.00	0.00	306.32	
7519.07	89.88	270.70	7149.00	304.94	-321.76	10.00	0.00	325.38	LANDING POINT; 7 in
7600.00	89.88	270.70	7149.16	305.92	-402.69	0.00	0.00	406.31	
7700.00	89.88	270.70	7149.36	307.14	-502.68	0.00	0.00	506.31	
7800.00	89.88	270.70	7149.56	308.35	-602.67	0.00	0.00	606.31	
7900.00	89.88	270.70	7149.76	309.56	-702.66	0.00	0.00	706.31	
8000.00	89.88	270.70	7149.96	310.78	-802.66	0.00	0.00	806.31	
8100.00	89.88	270.70	7150.16	311.99	-902.65	0.00	0.00	906.31	
8200.00	89.88	270.70	7150.37	313.20	-1002.64	0.00	0.00	1006.31	
8300.00	89.88	270.70	7150.57	314.42	-1102.63	0.00	0.00	1106.31	
8400.00	89.88	270.70	7150.77	315.63	-1202.63	0.00	0.00	1206.31	
8500.00	89.88	270.70	7150.97	316.84	-1302.62	0.00	0.00	1306.31	
8600.00	89.88	270.70	7151.17	318.06	-1402.61	0.00	0.00	1406.31	
8700.00	89.88	270.70	7151.37	319.27	-1502.60	0.00	0.00	1506.31	
8800.00	89.88	270.70	7151.57	320.48	-1602.60	0.00	0.00	1606.31	
8900.00	89.88	270.70	7151.77	321.70	-1702.59	0.00	0.00	1706.31	
9000.00	89.88	270.70	7151.97	322.91	-1802.58	0.00	0.00	1806.31	
9100.00	89.88	270.70	7152.18	324.13	-1902.57	0.00	0.00	1906.31	
9200.00	89.88	270.70	7152.38	325.34	-2002.57	0.00	0.00	2006.31	
9300.00	89.88	270.70	7152.58	326.55	-2102.56	0.00	0.00	2106.31	
9400.00	89.88	270.70	7152.78	327.77	-2202.55	0.00	0.00	2206.31	
9500.00	89.88	270.70	7152.98	328.98	-2302.54	0.00	0.00	2306.31	
9600.00	89.88	270.70	7153.18	330.19	-2402.54	0.00	0.00	2406.31	
9700.00	89.88	270.70	7153.38	331.41	-2502.53	0.00	0.00	2506.31	
9800.00	89.88	270.70	7153.58	332.62	-2602.52	0.00	0.00	2606.31	

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
9900.00	89.88	270.70	7153.78	333.83	-2702.51	0.00	0.00	2706.31	
10000.00	89.88	270.70	7153.98	335.05	-2802.51	0.00	0.00	2806.31	
10100.00	89.88	270.70	7154.19	336.26	-2902.50	0.00	0.00	2906.31	
10200.00	89.88	270.70	7154.39	337.48	-3002.49	0.00	0.00	3006.31	
10300.00	89.88	270.70	7154.59	338.69	-3102.48	0.00	0.00	3106.31	
10400.00	89.88	270.70	7154.79	339.90	-3202.48	0.00	0.00	3206.31	
10500.00	89.88	270.70	7154.99	341.12	-3302.47	0.00	0.00	3306.31	
10600.00	89.88	270.70	7155.19	342.33	-3402.46	0.00	0.00	3406.31	
10700.00	89.88	270.70	7155.39	343.54	-3502.45	0.00	0.00	3506.31	
10800.00	89.88	270.70	7155.59	344.76	-3602.45	0.00	0.00	3606.31	
10900.00	89.88	270.70	7155.79	345.97	-3702.44	0.00	0.00	3706.31	
11000.00	89.88	270.70	7156.00	347.18	-3802.43	0.00	0.00	3806.31	
11100.00	89.88	270.70	7156.20	348.40	-3902.42	0.00	0.00	3906.31	
11200.00	89.88	270.70	7156.40	349.61	-4002.42	0.00	0.00	4006.31	
11300.00	89.88	270.70	7156.60	350.82	-4102.41	0.00	0.00	4106.31	
11400.00	89.88	270.70	7156.80	352.04	-4202.40	0.00	0.00	4206.31	
11500.00	89.88	270.70	7157.00	353.25	-4302.39	0.00	0.00	4306.31	
11600.00	89.88	270.70	7157.20	354.47	-4402.38	0.00	0.00	4406.31	
11700.00	89.88	270.70	7157.40	355.68	-4502.38	0.00	0.00	4506.30	
11800.00	89.88	270.70	7157.60	356.89	-4602.37	0.00	0.00	4606.30	
11900.00	89.88	270.70	7157.80	358.11	-4702.36	0.00	0.00	4706.30	
11997.02	89.88	270.70	7158.00	359.28	-4799.38	0.00	0.00	4803.33	TD @ 11997.02' 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	4168.18	4124.00	
SHANNON	4577.18	4533.00	
SHARON SPRINGS	6874.44	6822.00	
NIOBRARA	6932.40	6873.00	
NIOBRARA B	7001.76	6930.00	
NIOBRARA C	7087.19	6993.00	
FORT HAYS	7246.83	7085.00	
CODELL	7424.37	7141.00	