

**5D Plan Report****ANADARKO**

Field Name: *WATTENBURG_NAD83*
Site Name: *GREENLEAF PAD*
Well Name: *GREENLEAF 15N-15HZ*
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	0.0R	0.00	0.00	
4000.00	0.00	0.00	4000.00	0.00	0.00	0.00	0.00	0.0R	0.00	0.00	
4951.99	19.04	58.72	4934.57	81.38	133.94	-80.82	2.00	58.7R	2.00	0.00	
5508.35	19.04	58.72	5460.49	175.62	289.06	-174.41	0.00	0.0R	0.00	0.00	
6460.35	0.00	0.00	6395.06	257.00	423.00	-255.23	2.00	180.0R	-2.00	0.00	
7364.83	90.45	179.76	6968.00	-320.43	425.39	322.21	10.00	179.8R	10.00	0.00	
11582.72	90.45	179.76	6935.00	-4538.16	442.87	4539.98	0.00	0.0R	0.00	0.00	

Plan Data for GREENLEAF 15N-15HZ

Field: WATTENBURG_NAD83

Map Unit: USFt Vertical Reference Datum (VRD):
Projected Coordinate System: NAD83 / Colorado North (ftUS)

Site: GREENLEAF PAD

Unit: USFeet TVD Reference:

Company Name: ANADARKO

Position: Northing: 1296828.47USft Latitude: 40.145053°
Easting: 3237966.22USft Longitude: -104.648763°
North Reference: Grid Grid Convergence: 0.55°
Elevation Above VRD: 4868.00USft

Slot: GREENLEAF 15N-15HZ

Position:
Offset is from Site centre
+N/-S: 23.14USft Northing: 1296851.61USft Latitude: 40.145116°
+E/-W: 19.63USft Easting: 3237985.85USft Longitude: -104.648692°
Elevation Above VRD: 4868.00USft

Well: GREENLEAF 15N-15HZ

Type: Main-Well

File Number:

Vertical Section: Position offset of origin from Slot centre:

+N/-S: -23.14USft Azimuth: 179.76°

+E/-W: -19.63USft

Magnetic Parameters:

Model: Field Strength: Declination: Dip: Date:
BGGM 52762(nT) 8.53° 66.78° 2013-07-08

Casing Point Information:

Name	MD	TVD
	(USft)	(USft)
9 5/8 in	750.00	750.00
7 in	7364.83	6968.00

LINER - 6360.35' MD

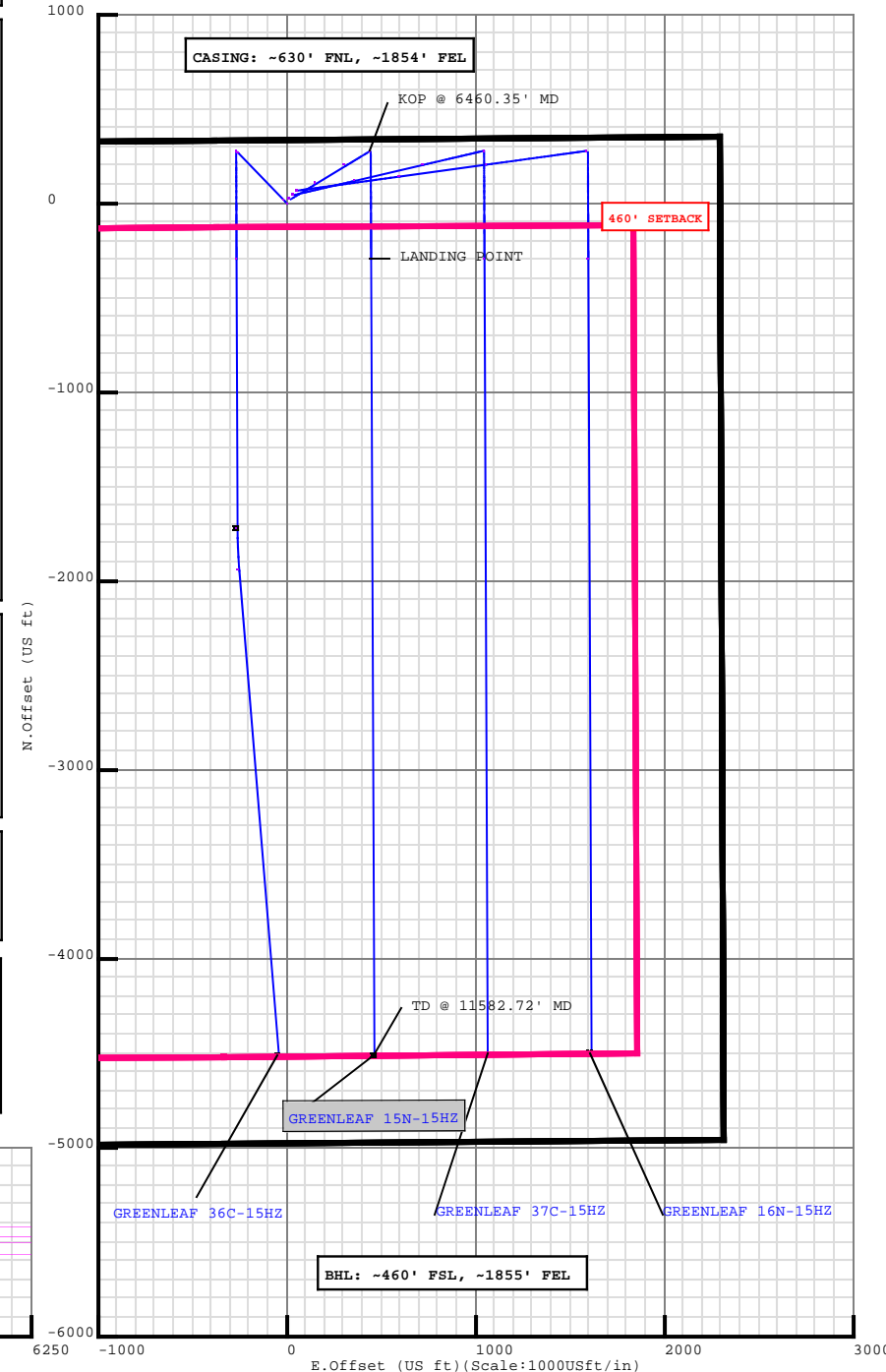
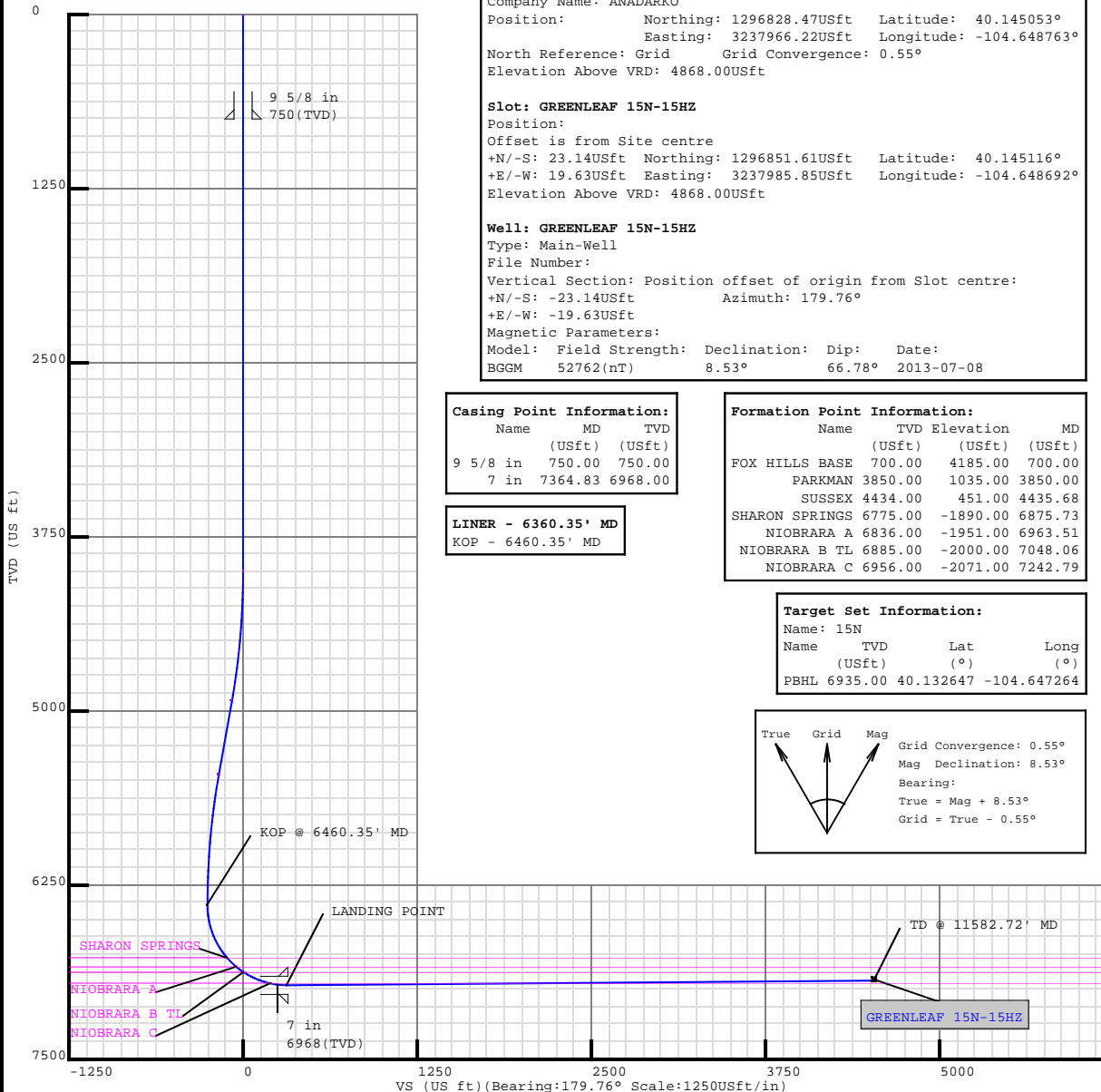
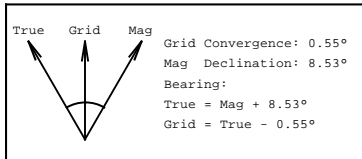
KOP - 6460.35' MD

Formation Point Information:

Name	TVD	Elevation	MD
	(USft)	(USft)	(USft)
FOX HILLS BASE	700.00	4185.00	700.00
PARKMAN	3850.00	1035.00	3850.00
SUSSEX	4434.00	451.00	4435.68
SHARON SPRINGS	6775.00	-1890.00	6875.73
NIOBRARA A	6836.00	-1951.00	6963.51
NIOBRARA B TL	6885.00	-2000.00	7048.06
NIOBRARA C	6956.00	-2071.00	7242.79

Target Set Information:

Name	TVD	Lat	Long
	(USft)	(°)	(°)
PBHL	6935.00	40.132647	-104.647264



Plan Surveys for the GREENLEAF 15N-15HZ

Site Name GREENLEAF PAD	Units : US ft	North Reference : Grid	Convergence Angle : 0.55
	Position	Northing : 1296828.47 US ft	Latitude : 40.145053
		Easting : 3237966.22 US ft	Longitude : -104.648763
	Elevation above: 4868.00 US ft Comment :		
Slot Name GREENLEAF 15N-15HZ	Position (Offsets relative to Site Centre)		
	+N / -S : 23.14 US ft	Northing : 1296851.61 US ft	Latitude : 40.145116
	+E / -W : 19.63 US ft	Easting : 3237985.85 US ft	Longitude : -104.648692
	Slot TVD Reference : Ground Elevation Elevation above : 4868.00 US ft Comment :		
Well Name GREENLEAF 15N-15HZ	Type : Main well	UWI :	Plan : PLAN 1
	Rig Height <i>Drill Floor</i> : 17.00 US ft	Comment :	
	Relative to : 4885.00 US ft		
	Closure Distance : 4559.72 US ft	Closure Azimuth : 174.426°	
	Vertical Section (Position of Origin Relative to Slot)		
	+N / -S : -23.14 US ft	+E / -W : -19.63 US ft	Az : 179.76°
	Magnetic Parameters		
	Model : BGGM	Field Strength : 52762.8nT	Dec : 8.53°
			Dip : 66.78°
			Date : 08/Jul/2013

Target Set

Name : 15N

Number of Targets : 1

Comment :

TargetName:	Position (Relative to centre)			
PBHL	+N / -S : -4538.16US ft	Northing : 1292313.45 US ft	Latitude : 40°7'57.529200"	
Shape:	+E / -W : 442.87 US ft	Easting : 3238428.72US ft	Longitude : -104°38'50.150400"	
Cuboid	TVD (Drill Floor) : 6935.00 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	750.00	0.00	0.00	750.00	0.00	0.00	40.145116	-104.648692
7 in	7364.83	90.45	179.76	6968.00	-320.43	425.39	40.144225	-104.647181

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)	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	-23.06	
700.00	0.00	0.00	700.00	0.00	0.00	0.00	0.00	-23.06	FOX HILLS BASE :
750.00	0.00	0.00	750.00	0.00	0.00	0.00	0.00	-23.06	9 5/8 in
3850.00	0.00	0.00	3850.00	0.00	0.00	0.00	0.00	-23.06	PARKMAN :
4000.00	0.00	0.00	4000.00	0.00	0.00	0.00	0.00	-23.06	
4435.68	8.71	58.72	4434.00	17.17	28.26	2.00	58.72	-40.11	SUSSEX :
4951.99	19.04	58.72	4934.57	81.38	133.94	2.00	0.00	-103.88	
5508.35	19.04	58.72	5460.49	175.62	289.06	0.00	0.00	-197.47	
6460.35	0.00	0.00	6395.06	257.00	423.00	2.00	180.00	-278.29	KOP @ 6460.35' MD
6875.73	41.54	179.76	6775.00	112.91	423.60	10.00	179.76	-134.19	SHARON SPRINGS :
6963.51	50.32	179.76	6836.00	49.91	423.86	10.00	0.00	-71.19	NIOBRARA A :
7048.06	58.77	179.76	6885.00	-18.90	424.14	10.00	0.00	-2.38	NIOBRARA B TL :
7242.79	78.24	179.76	6956.00	-199.22	424.89	10.00	0.00	177.94	NIOBRARA C :
7364.83	90.45	179.76	6968.00	-320.43	425.39	10.00	0.00	299.15	LANDING POINT; 7 in
11582.72	90.45	179.76	6935.00	-4538.16	442.87	0.00	0.00	4516.92	TD @ 11582.72' MD

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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	-23.06	
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	-23.06	
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	-23.06	
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	-23.06	
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	-23.06	
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	-23.06	
600.00	0.00	0.00	600.00	0.00	0.00	0.00	0.00	-23.06	
700.00	0.00	0.00	700.00	0.00	0.00	0.00	0.00	-23.06	FOX HILLS BASE :
750.00	0.00	0.00	750.00	0.00	0.00	0.00	0.00	-23.06	9 5/8 in
800.00	0.00	0.00	800.00	0.00	0.00	0.00	0.00	-23.06	
900.00	0.00	0.00	900.00	0.00	0.00	0.00	0.00	-23.06	
1000.00	0.00	0.00	1000.00	0.00	0.00	0.00	0.00	-23.06	
1100.00	0.00	0.00	1100.00	0.00	0.00	0.00	0.00	-23.06	
1200.00	0.00	0.00	1200.00	0.00	0.00	0.00	0.00	-23.06	
1300.00	0.00	0.00	1300.00	0.00	0.00	0.00	0.00	-23.06	
1400.00	0.00	0.00	1400.00	0.00	0.00	0.00	0.00	-23.06	
1500.00	0.00	0.00	1500.00	0.00	0.00	0.00	0.00	-23.06	
1600.00	0.00	0.00	1600.00	0.00	0.00	0.00	0.00	-23.06	
1700.00	0.00	0.00	1700.00	0.00	0.00	0.00	0.00	-23.06	
1800.00	0.00	0.00	1800.00	0.00	0.00	0.00	0.00	-23.06	
1900.00	0.00	0.00	1900.00	0.00	0.00	0.00	0.00	-23.06	
2000.00	0.00	0.00	2000.00	0.00	0.00	0.00	0.00	-23.06	
2100.00	0.00	0.00	2100.00	0.00	0.00	0.00	0.00	-23.06	
2200.00	0.00	0.00	2200.00	0.00	0.00	0.00	0.00	-23.06	
2300.00	0.00	0.00	2300.00	0.00	0.00	0.00	0.00	-23.06	
2400.00	0.00	0.00	2400.00	0.00	0.00	0.00	0.00	-23.06	
2500.00	0.00	0.00	2500.00	0.00	0.00	0.00	0.00	-23.06	
2600.00	0.00	0.00	2600.00	0.00	0.00	0.00	0.00	-23.06	
2700.00	0.00	0.00	2700.00	0.00	0.00	0.00	0.00	-23.06	
2800.00	0.00	0.00	2800.00	0.00	0.00	0.00	0.00	-23.06	
2900.00	0.00	0.00	2900.00	0.00	0.00	0.00	0.00	-23.06	
3000.00	0.00	0.00	3000.00	0.00	0.00	0.00	0.00	-23.06	
3100.00	0.00	0.00	3100.00	0.00	0.00	0.00	0.00	-23.06	
3200.00	0.00	0.00	3200.00	0.00	0.00	0.00	0.00	-23.06	
3300.00	0.00	0.00	3300.00	0.00	0.00	0.00	0.00	-23.06	
3400.00	0.00	0.00	3400.00	0.00	0.00	0.00	0.00	-23.06	
3500.00	0.00	0.00	3500.00	0.00	0.00	0.00	0.00	-23.06	
3600.00	0.00	0.00	3600.00	0.00	0.00	0.00	0.00	-23.06	
3700.00	0.00	0.00	3700.00	0.00	0.00	0.00	0.00	-23.06	
3800.00	0.00	0.00	3800.00	0.00	0.00	0.00	0.00	-23.06	
3850.00	0.00	0.00	3850.00	0.00	0.00	0.00	0.00	-23.06	PARKMAN :

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
3900.00	0.00	0.00	3900.00	0.00	0.00	0.00	0.00	-23.06	
4000.00	0.00	0.00	4000.00	0.00	0.00	0.00	0.00	-23.06	
4100.00	2.00	58.72	4099.98	0.91	1.49	2.00	58.72	-23.96	
4200.00	4.00	58.72	4199.84	3.62	5.96	2.00	0.00	-26.66	
4300.00	6.00	58.72	4299.45	8.15	13.41	2.00	0.00	-31.15	
4400.00	8.00	58.72	4398.70	14.48	23.83	2.00	0.00	-37.43	
4435.68	8.71	58.72	4434.00	17.17	28.26	2.00	0.00	-40.11	SUSSEX :
4500.00	10.00	58.72	4497.47	22.60	37.20	2.00	0.00	-45.50	
4600.00	12.00	58.72	4595.62	32.51	53.50	2.00	0.00	-55.34	
4700.00	14.00	58.72	4693.06	44.19	72.73	2.00	0.00	-66.94	
4800.00	16.00	58.72	4789.64	57.62	94.84	2.00	0.00	-80.28	
4900.00	18.00	58.72	4885.27	72.80	119.83	2.00	0.00	-95.36	
4951.99	19.04	58.72	4934.57	81.38	133.94	2.00	0.00	-103.88	
5000.00	19.04	58.72	4979.95	89.51	147.33	0.00	0.00	-111.95	
5100.00	19.04	58.72	5074.48	106.45	175.21	0.00	0.00	-128.77	
5200.00	19.04	58.72	5169.01	123.39	203.09	0.00	0.00	-145.60	
5300.00	19.04	58.72	5263.54	140.33	230.97	0.00	0.00	-162.42	
5400.00	19.04	58.72	5358.07	157.27	258.85	0.00	0.00	-179.24	
5500.00	19.04	58.72	5452.59	174.21	286.73	0.00	0.00	-196.06	
5508.35	19.04	58.72	5460.49	175.62	289.06	0.00	0.00	-197.47	
5600.00	17.21	58.72	5547.59	190.42	313.42	2.00	180.00	-212.17	
5700.00	15.21	58.72	5643.61	204.92	337.27	2.00	180.00	-226.56	
5800.00	13.21	58.72	5740.54	217.66	358.25	2.00	180.00	-239.21	
5900.00	11.21	58.72	5838.28	228.64	376.32	2.00	180.00	-250.12	
6000.00	9.21	58.72	5936.69	237.84	391.46	2.00	180.00	-259.26	
6100.00	7.21	58.72	6035.66	245.25	403.66	2.00	180.00	-266.62	
6200.00	5.21	58.72	6135.07	250.86	412.90	2.00	180.00	-272.19	
6300.00	3.21	58.72	6234.80	254.67	419.17	2.00	180.00	-275.97	
6400.00	1.21	58.72	6334.72	256.67	422.46	2.00	180.00	-277.96	
6460.35	0.00	0.00	6395.06	257.00	423.00	2.00	180.00	-278.29	KOP @ 6460.35' MD
6500.00	3.97	179.76	6434.68	255.63	423.01	10.00	179.76	-276.91	
6600.00	13.97	179.76	6533.33	240.07	423.07	10.00	0.00	-261.35	
6700.00	23.97	179.76	6627.79	207.61	423.20	10.00	0.00	-228.89	
6800.00	33.97	179.76	6715.17	159.24	423.41	10.00	0.00	-180.53	
6875.73	41.54	179.76	6775.00	112.91	423.60	10.00	0.00	-134.19	SHARON SPRINGS :
6900.00	43.97	179.76	6792.82	96.44	423.67	10.00	0.00	-117.72	
6963.51	50.32	179.76	6836.00	49.91	423.86	10.00	0.00	-71.19	NIOBRARA A :
7000.00	53.97	179.76	6858.39	21.10	423.98	10.00	0.00	-42.39	
7048.06	58.77	179.76	6885.00	-18.90	424.14	10.00	0.00	-2.38	NIOBRARA B TL :
7100.00	63.97	179.76	6909.88	-64.47	424.33	10.00	0.00	43.19	
7200.00	73.97	179.76	6945.73	-157.69	424.72	10.00	0.00	136.41	

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
7242.79	78.24	179.76	6956.00	-199.22	424.89	10.00	0.00	177.94	NIOBRARA C :
7300.00	83.97	179.76	6964.84	-255.71	425.12	10.00	0.00	234.44	
7364.83	90.45	179.76	6968.00	-320.43	425.39	10.00	0.00	299.15	LANDING POINT; 7 in
7400.00	90.45	179.76	6967.73	-355.60	425.54	0.00	0.00	334.32	
7500.00	90.45	179.76	6966.94	-455.60	425.95	0.00	0.00	434.32	
7600.00	90.45	179.76	6966.16	-555.59	426.37	0.00	0.00	534.32	
7700.00	90.45	179.76	6965.38	-655.59	426.78	0.00	0.00	634.31	
7800.00	90.45	179.76	6964.60	-755.59	427.20	0.00	0.00	734.31	
7900.00	90.45	179.76	6963.81	-855.58	427.61	0.00	0.00	834.31	
8000.00	90.45	179.76	6963.03	-955.58	428.02	0.00	0.00	934.30	
8100.00	90.45	179.76	6962.25	-1055.57	428.44	0.00	0.00	1034.30	
8200.00	90.45	179.76	6961.47	-1155.57	428.85	0.00	0.00	1134.30	
8300.00	90.45	179.76	6960.68	-1255.57	429.27	0.00	0.00	1234.30	
8400.00	90.45	179.76	6959.90	-1355.56	429.68	0.00	0.00	1334.29	
8500.00	90.45	179.76	6959.12	-1455.56	430.10	0.00	0.00	1434.29	
8600.00	90.45	179.76	6958.34	-1555.55	430.51	0.00	0.00	1534.29	
8700.00	90.45	179.76	6957.55	-1655.55	430.92	0.00	0.00	1634.28	
8800.00	90.45	179.76	6956.77	-1755.55	431.34	0.00	0.00	1734.28	
8900.00	90.45	179.76	6955.99	-1855.54	431.75	0.00	0.00	1834.28	
9000.00	90.45	179.76	6955.21	-1955.54	432.17	0.00	0.00	1934.27	
9100.00	90.45	179.76	6954.43	-2055.53	432.58	0.00	0.00	2034.27	
9200.00	90.45	179.76	6953.64	-2155.53	433.00	0.00	0.00	2134.27	
9300.00	90.45	179.76	6952.86	-2255.53	433.41	0.00	0.00	2234.26	
9400.00	90.45	179.76	6952.08	-2355.52	433.82	0.00	0.00	2334.26	
9500.00	90.45	179.76	6951.30	-2455.52	434.24	0.00	0.00	2434.26	
9600.00	90.45	179.76	6950.51	-2555.52	434.65	0.00	0.00	2534.26	
9700.00	90.45	179.76	6949.73	-2655.51	435.07	0.00	0.00	2634.25	
9800.00	90.45	179.76	6948.95	-2755.51	435.48	0.00	0.00	2734.25	
9900.00	90.45	179.76	6948.17	-2855.50	435.90	0.00	0.00	2834.25	
10000.00	90.45	179.76	6947.38	-2955.50	436.31	0.00	0.00	2934.24	
10100.00	90.45	179.76	6946.60	-3055.50	436.72	0.00	0.00	3034.24	
10200.00	90.45	179.76	6945.82	-3155.49	437.14	0.00	0.00	3134.24	
10300.00	90.45	179.76	6945.04	-3255.49	437.55	0.00	0.00	3234.23	
10400.00	90.45	179.76	6944.25	-3355.48	437.97	0.00	0.00	3334.23	
10500.00	90.45	179.76	6943.47	-3455.48	438.38	0.00	0.00	3434.23	
10600.00	90.45	179.76	6942.69	-3555.48	438.80	0.00	0.00	3534.23	
10700.00	90.45	179.76	6941.91	-3655.47	439.21	0.00	0.00	3634.22	
10800.00	90.45	179.76	6941.13	-3755.47	439.62	0.00	0.00	3734.22	
10900.00	90.45	179.76	6940.34	-3855.46	440.04	0.00	0.00	3834.22	
11000.00	90.45	179.76	6939.56	-3955.46	440.45	0.00	0.00	3934.21	
11100.00	90.45	179.76	6938.78	-4055.46	440.87	0.00	0.00	4034.21	

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
11200.00	90.45	179.76	6938.00	-4155.45	441.28	0.00	0.00	4134.21	
11300.00	90.45	179.76	6937.21	-4255.45	441.70	0.00	0.00	4234.20	
11400.00	90.45	179.76	6936.43	-4355.44	442.11	0.00	0.00	4334.20	
11500.00	90.45	179.76	6935.65	-4455.44	442.52	0.00	0.00	4434.20	
11582.72	90.45	179.76	6935.00	-4538.16	442.87	0.00	0.00	4516.92	TD @ 11582.72' MD

Formation Points (Relative to centre, TVD relative to Drill Floor)		
Name	MD (US ft)	TVD (US ft)
FOX HILLS BASE	700.00	700.00
PARKMAN	3850.00	3850.00
SUSSEX	4435.68	4434.00
SHARON SPRINGS	6875.73	6775.00
NIOBRARA A	6963.51	6836.00
NIOBRARA B TL	7048.06	6885.00
NIOBRARA C	7242.79	6956.00