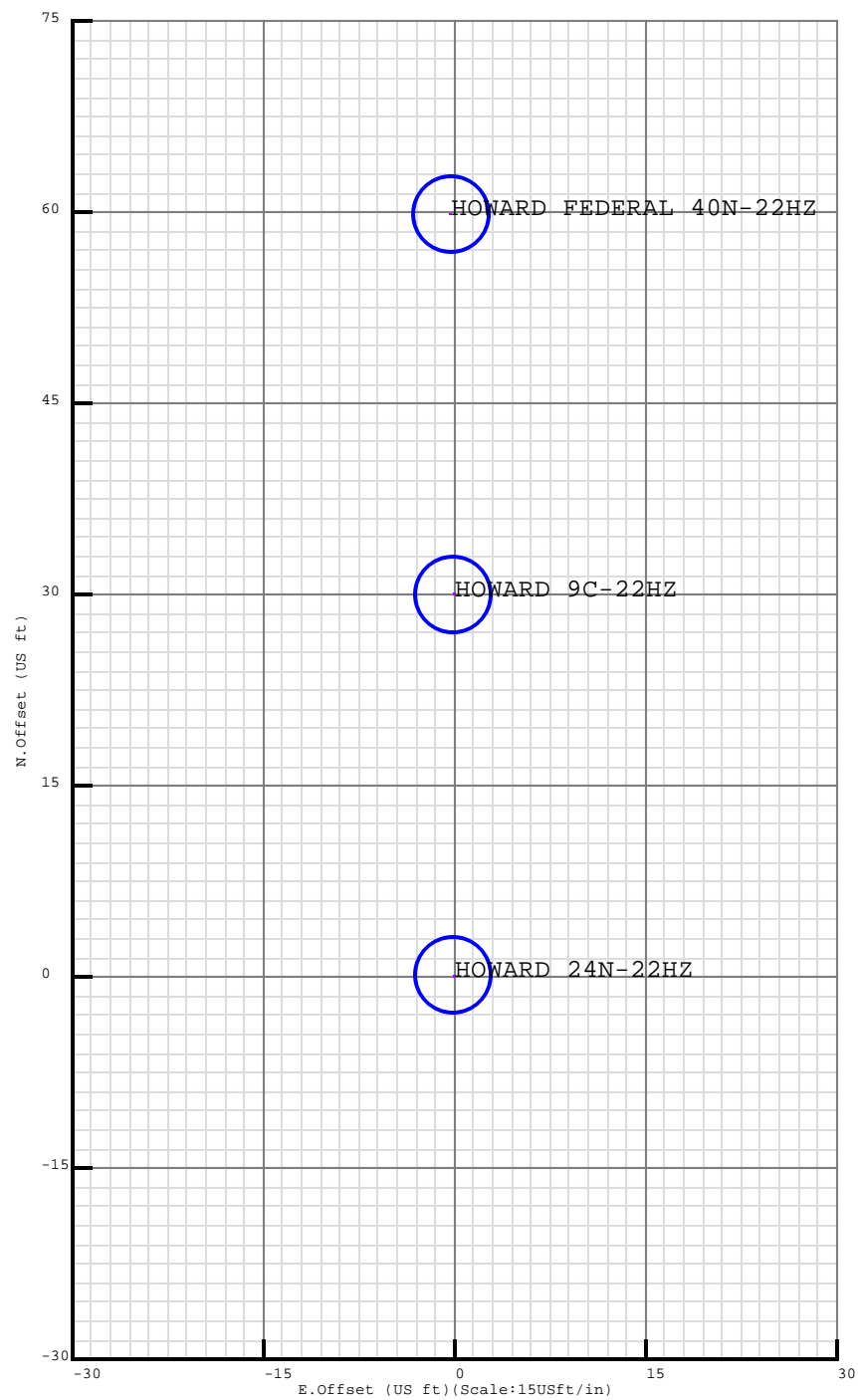


**5D Plan Report****ANADARKO**

**Field Name:** *WATTENBERG\_ANADARKO\_NAD83\_HOWARD PAD - OFFICE VERSION*  
**Site Name:** *HOWARD PAD*  
**Well Name:** *HOWARD 9C-22HZ*  
**Plan:** *PLAN 1*

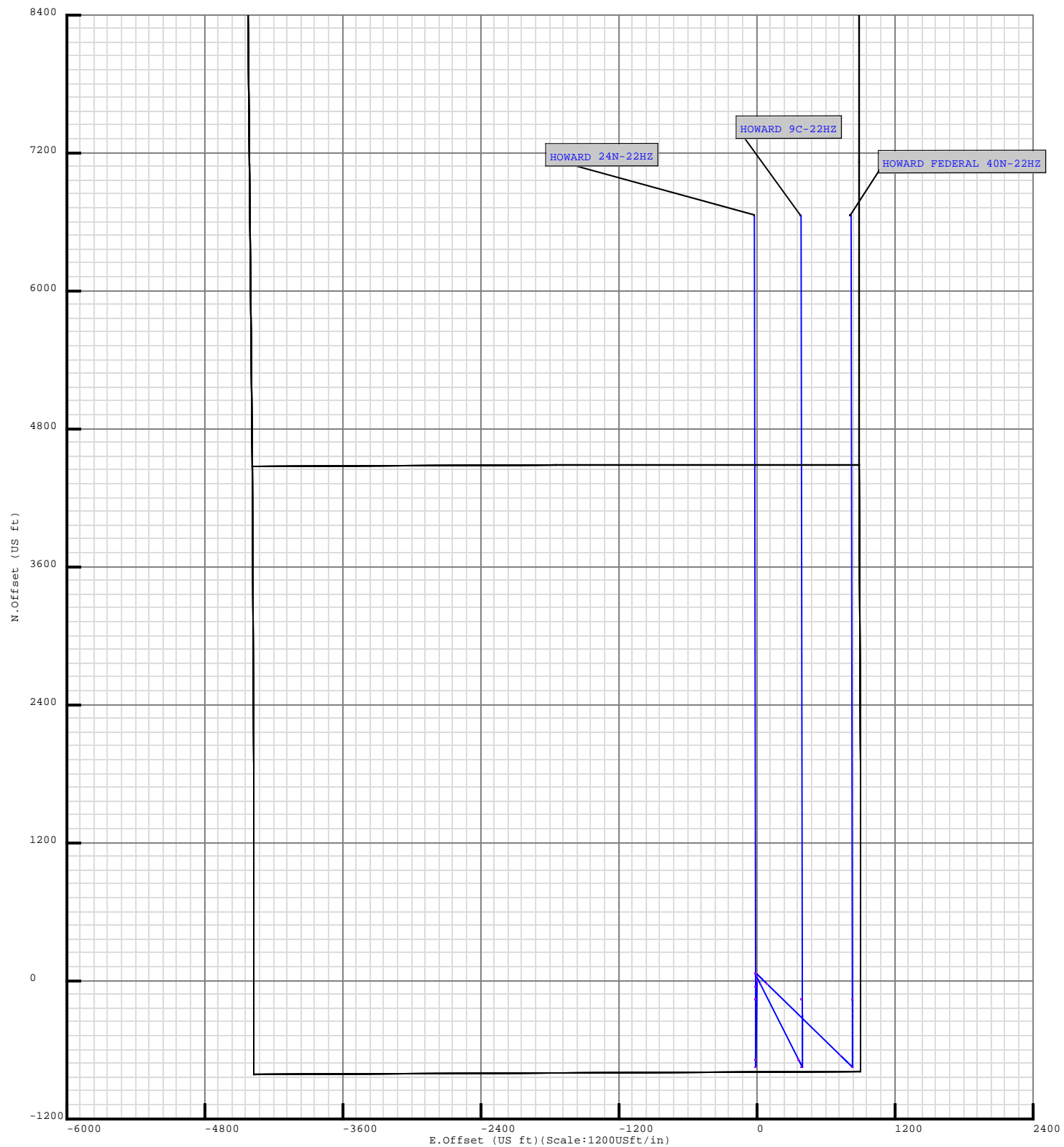
18 June 2013





Slot View

Site: HOWARD PAD



Site: HOWARD PAD

Spider Plot - Top Expanded



## Plan Data for HOWARD 9C-22HZ

Field: WATTENBERG\_ANADARKO\_NAD83\_HOWARD PAD - OFFICE VERSION

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

### Site: HOWARD PAD

Unit: USFeet TVD Reference:  
Company Name: ANADARKO  
Position: Northing: 1249685.42USft Latitude: 40.017055°  
Easting: 3176321.47USft Longitude: -104.870463°  
North Reference: True Grid Convergence: 0.41°  
Elevation Above VRD: 5052.00USft

### Slot: HOWARD 9C-22HZ

Position:  
Offset is from Site centre  
+N/-S: 29.87USft Northing: 1249715.29USft Latitude: 40.017137°  
+E/-W: 0.00USft Easting: 3176321.26USft Longitude: -104.870463°  
Elevation Above VRD: 5052.00USft

### Plan Point Information:

DogLeg Severity Unit: °/100.00ft

MD	Inc	Az	TVD	Lat	Long	VSec	DLS	Toolface	Build	Turn
(USft)	(°)	(°)	(USft)	(°)	(°)	(USft)	(DLSU)	(°)	(DLSU)	(DLSU)
0.00	0.00	0.00	0.00	40.017137	-104.870463	0.00	0.00	0.0R	0.00	0.00
2500.00	0.00	0.00	2500.00	40.017137	-104.870463	0.00	0.00	0.0R	0.00	0.00
3097.94	11.96	153.14	3093.60	40.016985	-104.870363	-53.76	2.00	153.1R	2.00	0.00
6717.36	11.96	153.14	6634.48	40.015148	-104.869153	-702.29	0.00	0.0R	0.00	0.00
7315.30	0.00	0.00	7228.08	40.014996	-104.869053	-756.05	2.00	180.0R	-2.00	0.00
8221.50	90.62	359.91	7801.00	40.016586	-104.869056	-177.89	10.00	0.1L	10.00	0.00
15050.37	90.62	359.91	7727.01	40.035331	-104.869096	6638.66	0.00	0.0R	0.00	0.00

### Casing Point Information:

Name	MD	TVD
	(USft)	(USft)
9 5/8 in	877.00	877.00
7 in	8221.50	7801.00

### Target Set Information:

Name	TVD	Lat	Long
	(USft)	(°)	(°)
PBHL 7727.00	40.035331	-104.869096	

### LINER - 7215.30' MD

KOP - 7315.30' MD

### 7" CASING - 8221.50' MD

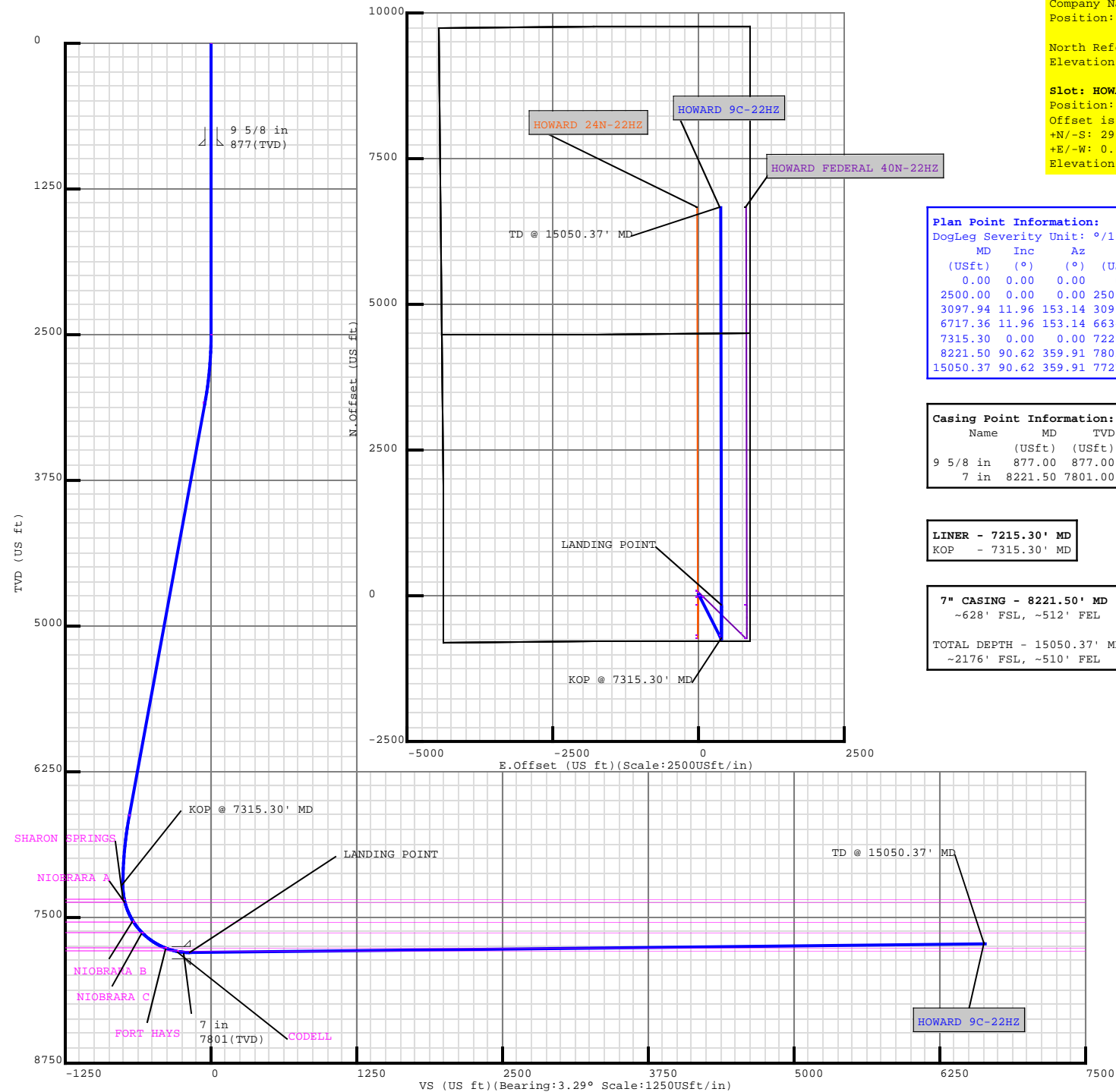
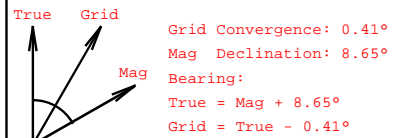
~628' FSL, ~512' FEL

TOTAL DEPTH - 15050.37' MD

~2176' FSL, ~510' FEL

### Formation Point Information:

Name	TVD	Elevation	MD
	(USft)	(USft)	(USft)
SUSSEX	4817.00	260.00	4859.56
SHANNON	5357.00	-280.00	5411.54
SHARON SPRINGS	7348.00	-2271.00	7436.11
NIOBRARA A	7373.00	-2296.00	7461.81
NIOBRARA B	7540.00	-2463.00	7645.13
NIOBRARA C	7639.00	-2562.00	7773.53
FORT HAYS	7764.00	-2687.00	8008.15
CODELL	7794.00	-2717.00	8125.40



## HOWARD 9C-22HZ

Field Name  WATTENBERG_ANADAR KO_NAD83_HOWARD PAD - OFFICE VERSION	Map Units : US ft		Company Name : ANADARKO						
	Vertical Reference Datum (VRD) : Mean Sea Level								
	Projected Coordinate System : NAD83 / Colorado North (ftUS)								
	Comment :								
Site Name  HOWARD PAD	Units : US ft		North Reference : True		Convergence Angle : 0.41				
	Position	Northing : 1249685.42 US ft		Latitude : 40.017055					
		Easting : 3176321.47 US ft		Longitude : -104.870463					
	Elevation above Mean Sea Level:5052.00 US ft								
Comment :									
Slot Name  HOWARD 9C-22HZ	Position (Offsets relative to Site Centre)								
	+N / -S : 29.87 US ft		Northing :1249715.29 US ft		Latitude : 40.017137				
	+E / -W : 0.00 US ft		Easting :3176321.26 US ft		Longitude : -104.870463				
	Slot TVD Reference : Ground Elevation								
	Elevation above Mean Sea Level : 5052.00 US ft								
	Comment :								
Well Name  HOWARD 9C-22HZ	Type : Main well		UWI :		Plan : PLAN 1				
	Rig Height		Drill Floor : 25.00 US ft		Comment :				
	Relative to Mean Sea Level: 5077.00 US ft								
	Closure Distance : 6638.66 US ft		Closure Azimuth : 3.30539°						
	Vertical Section (Position of Origin Relative to Slot )								
	+N / -S : -29.87 US ft		+E / -W : -0.00 US ft		Az :3.29°				
	Magnetic Parameters								
	Model : BGGM		Field Strength : 52679.0nT		Dec : 8.65°		Dip : 66.65°		Date : 17/Jun/2013

Plan Archive				
Plan Folder	Date	Comment	Plans	
P1	17/Jun/2013		Plan PLAN 1	Date 17/Jun/2013 Comment

Target Set	
<b>Name :</b> 9C-22HZ	<b>Number of Targets :</b> 1

## 5D Plan Report

## Target Set

## Comment :

TargetName:	Position (Relative to Slot centre)			
PBHL	+N / -S : 6627.62US ft		Northing : 1256345.46 US ft	Latitude : 40°2'7.191600"
Shape:	+E / -W : 382.77 US ft		Easting : 3176656.97US ft	Longitude : -104°52'8.745600"
Cuboid	TVD (Drill Floor) : 7727.00 US ft			
	Orientation	Azimuth : 0.00°	Inclination : 0.00°	
	Dimensions	Length : 1.00 US ft	Breadth : 1.00 US ft	Height : 1.00 US ft

## Casing Points (Relative to Slot centre, TVD relative to Drill Floor )

Name	MD (US ft)	Inc (°)	Az (°)	TVD (US ft)	N.Offset (US ft)	E.Offset (US ft)
9 5/8 in	877.00	0.00	0.00	877.00	0.00	0.00
7 in	8221.50	90.62	359.91	7801.00	-200.84	394.05

## Well path created using minimum curvature

## Salient Points (Relative to Slot 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)	Comment
0.00	0.00	0.00	0.00	0.00	0.00	0.00	
877.00	0.00	0.00	877.00	0.00	0.00	0.00	9 5/8 in
2500.00	0.00	0.00	2500.00	0.00	0.00	0.00	
3097.94	11.96	153.14	3093.60	-55.47	28.09	2.00	
4859.56	11.96	153.14	4817.00	-381.11	193.00	0.00	SUSSEX :
5411.54	11.96	153.14	5357.00	-483.15	244.67	0.00	SHANNON :
6717.36	11.96	153.14	6634.48	-724.54	366.91	0.00	
7315.30	0.00	0.00	7228.08	-780.00	395.00	2.00	KOP @ 7315.30' MD
7436.11	12.08	359.91	7348.00	-767.31	394.98	10.00	SHARON SPRINGS :
7461.81	14.65	359.91	7373.00	-761.37	394.97	10.00	NIOBRARA A :
7645.13	32.98	359.91	7540.00	-687.66	394.85	10.00	NIOBRARA B :
7773.53	45.82	359.91	7639.00	-606.33	394.72	10.00	NIOBRARA C :
8008.15	69.29	359.91	7764.00	-409.71	394.39	10.00	FORT HAYS :
8125.40	81.01	359.91	7794.00	-296.57	394.20	10.00	CODELL :
8221.50	90.62	359.91	7801.00	-200.84	394.05	10.00	7 in
8221.50	90.62	359.91	7801.00	-200.84	394.05	0.00	LANDING POINT
15050.37	90.62	359.91	7727.01	6627.61	382.77	0.00	TD @ 15050.37' MD

## 5D Plan Report

Interpolated Points (Relative to Slot 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)	
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	
200.00	0.00	0.00	200.00	0.00	0.00	0.00	
300.00	0.00	0.00	300.00	0.00	0.00	0.00	
400.00	0.00	0.00	400.00	0.00	0.00	0.00	
500.00	0.00	0.00	500.00	0.00	0.00	0.00	
600.00	0.00	0.00	600.00	0.00	0.00	0.00	
700.00	0.00	0.00	700.00	0.00	0.00	0.00	
800.00	0.00	0.00	800.00	0.00	0.00	0.00	
900.00	0.00	0.00	900.00	0.00	0.00	0.00	
1000.00	0.00	0.00	1000.00	0.00	0.00	0.00	
1100.00	0.00	0.00	1100.00	0.00	0.00	0.00	
1200.00	0.00	0.00	1200.00	0.00	0.00	0.00	
1300.00	0.00	0.00	1300.00	0.00	0.00	0.00	
1400.00	0.00	0.00	1400.00	0.00	0.00	0.00	
1500.00	0.00	0.00	1500.00	0.00	0.00	0.00	
1600.00	0.00	0.00	1600.00	0.00	0.00	0.00	
1700.00	0.00	0.00	1700.00	0.00	0.00	0.00	
1800.00	0.00	0.00	1800.00	0.00	0.00	0.00	
1900.00	0.00	0.00	1900.00	0.00	0.00	0.00	
2000.00	0.00	0.00	2000.00	0.00	0.00	0.00	
2100.00	0.00	0.00	2100.00	0.00	0.00	0.00	
2200.00	0.00	0.00	2200.00	0.00	0.00	0.00	
2300.00	0.00	0.00	2300.00	0.00	0.00	0.00	
2400.00	0.00	0.00	2400.00	0.00	0.00	0.00	
2500.00	0.00	0.00	2500.00	0.00	0.00	0.00	
2600.00	2.00	153.14	2599.98	-1.56	0.79	2.00	
2700.00	4.00	153.14	2699.84	-6.23	3.15	2.00	
2800.00	6.00	153.14	2799.45	-14.00	7.09	2.00	
2900.00	8.00	153.14	2898.70	-24.87	12.60	2.00	
3000.00	10.00	153.14	2997.47	-38.83	19.66	2.00	
3097.94	11.96	153.14	3093.60	-55.47	28.09	2.00	
3100.00	11.96	153.14	3095.62	-55.85	28.28	0.00	
3200.00	11.96	153.14	3193.45	-74.33	37.64	0.00	
3300.00	11.96	153.14	3291.28	-92.82	47.00	0.00	
3400.00	11.96	153.14	3389.11	-111.31	56.37	0.00	
3500.00	11.96	153.14	3486.94	-129.79	65.73	0.00	
3600.00	11.96	153.14	3584.77	-148.28	75.09	0.00	
3700.00	11.96	153.14	3682.60	-166.76	84.45	0.00	
3800.00	11.96	153.14	3780.43	-185.25	93.81	0.00	
3900.00	11.96	153.14	3878.26	-203.73	103.17	0.00	

## 5D Plan Report

Interpolated Points (Relative to Slot 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)	
4000.00	11.96	153.14	3976.09	-222.22	112.53	0.00	
4100.00	11.96	153.14	4073.92	-240.70	121.90	0.00	
4200.00	11.96	153.14	4171.75	-259.19	131.26	0.00	
4300.00	11.96	153.14	4269.58	-277.68	140.62	0.00	
4400.00	11.96	153.14	4367.41	-296.16	149.98	0.00	
4500.00	11.96	153.14	4465.24	-314.65	159.34	0.00	
4600.00	11.96	153.14	4563.07	-333.13	168.70	0.00	
4700.00	11.96	153.14	4660.90	-351.62	178.06	0.00	
4800.00	11.96	153.14	4758.73	-370.10	187.42	0.00	
4900.00	11.96	153.14	4856.56	-388.59	196.79	0.00	
5000.00	11.96	153.14	4954.39	-407.07	206.15	0.00	
5100.00	11.96	153.14	5052.22	-425.56	215.51	0.00	
5200.00	11.96	153.14	5150.05	-444.04	224.87	0.00	
5300.00	11.96	153.14	5247.88	-462.53	234.23	0.00	
5400.00	11.96	153.14	5345.71	-481.02	243.59	0.00	
5500.00	11.96	153.14	5443.54	-499.50	252.95	0.00	
5600.00	11.96	153.14	5541.37	-517.99	262.31	0.00	
5700.00	11.96	153.14	5639.20	-536.47	271.68	0.00	
5800.00	11.96	153.14	5737.03	-554.96	281.04	0.00	
5900.00	11.96	153.14	5834.86	-573.44	290.40	0.00	
6000.00	11.96	153.14	5932.68	-591.93	299.76	0.00	
6100.00	11.96	153.14	6030.51	-610.41	309.12	0.00	
6200.00	11.96	153.14	6128.34	-628.90	318.48	0.00	
6300.00	11.96	153.14	6226.17	-647.39	327.84	0.00	
6400.00	11.96	153.14	6324.00	-665.87	337.20	0.00	
6500.00	11.96	153.14	6421.83	-684.36	346.57	0.00	
6600.00	11.96	153.14	6519.66	-702.84	355.93	0.00	
6700.00	11.96	153.14	6617.49	-721.33	365.29	0.00	
6717.36	11.96	153.14	6634.48	-724.54	366.91	0.00	
6800.00	10.31	153.14	6715.56	-738.77	374.12	2.00	
6900.00	8.31	153.14	6814.24	-753.20	381.43	2.00	
7000.00	6.31	153.14	6913.42	-764.54	387.17	2.00	
7100.00	4.31	153.14	7012.99	-772.79	391.35	2.00	
7200.00	2.31	153.14	7112.82	-777.93	393.95	2.00	
7300.00	0.31	153.14	7212.78	-779.97	394.98	2.00	
7315.30	0.00	0.00	7228.08	-780.00	395.00	2.00	KOP @ 7315.30' MD
7400.00	8.47	359.91	7312.48	-773.75	394.99	10.00	
7500.00	18.47	359.91	7409.60	-750.49	394.95	10.00	
7600.00	28.47	359.91	7501.21	-710.71	394.89	10.00	
7700.00	38.47	359.91	7584.52	-655.63	394.80	10.00	
7800.00	48.47	359.91	7657.00	-586.92	394.68	10.00	



## 5D Plan Report

Interpolated Points (Relative to Slot 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)	
7900.00	58.47	359.91	7716.45	-506.67	394.55	10.00	LANDING POINT
8000.00	68.47	359.91	7761.06	-417.31	394.40	10.00	
8100.00	78.47	359.91	7789.48	-321.57	394.25	10.00	
8200.00	88.47	359.91	7800.83	-222.34	394.08	10.00	
8221.50	90.62	359.91	7801.00	-200.84	394.05	10.00	
8300.00	90.62	359.91	7800.15	-122.35	393.92	0.00	
8400.00	90.62	359.91	7799.07	-22.35	393.75	0.00	
8500.00	90.62	359.91	7797.99	77.64	393.59	0.00	
8600.00	90.62	359.91	7796.90	177.63	393.42	0.00	
8700.00	90.62	359.91	7795.82	277.63	393.26	0.00	
8800.00	90.62	359.91	7794.74	377.62	393.09	0.00	
8900.00	90.62	359.91	7793.65	477.62	392.93	0.00	
9000.00	90.62	359.91	7792.57	577.61	392.76	0.00	
9100.00	90.62	359.91	7791.49	677.60	392.60	0.00	
9200.00	90.62	359.91	7790.40	777.60	392.43	0.00	
9300.00	90.62	359.91	7789.32	877.59	392.27	0.00	
9400.00	90.62	359.91	7788.24	977.59	392.10	0.00	
9500.00	90.62	359.91	7787.15	1077.58	391.93	0.00	
9600.00	90.62	359.91	7786.07	1177.57	391.77	0.00	
9700.00	90.62	359.91	7784.98	1277.57	391.60	0.00	
9800.00	90.62	359.91	7783.90	1377.56	391.44	0.00	
9900.00	90.62	359.91	7782.82	1477.56	391.27	0.00	
10000.00	90.62	359.91	7781.73	1577.55	391.11	0.00	
10100.00	90.62	359.91	7780.65	1677.54	390.94	0.00	
10200.00	90.62	359.91	7779.57	1777.54	390.78	0.00	
10300.00	90.62	359.91	7778.48	1877.53	390.61	0.00	
10400.00	90.62	359.91	7777.40	1977.53	390.45	0.00	
10500.00	90.62	359.91	7776.32	2077.52	390.28	0.00	
10600.00	90.62	359.91	7775.23	2177.51	390.12	0.00	
10700.00	90.62	359.91	7774.15	2277.51	389.95	0.00	
10800.00	90.62	359.91	7773.07	2377.50	389.79	0.00	
10900.00	90.62	359.91	7771.98	2477.50	389.62	0.00	
11000.00	90.62	359.91	7770.90	2577.49	389.46	0.00	
11100.00	90.62	359.91	7769.82	2677.48	389.29	0.00	
11200.00	90.62	359.91	7768.73	2777.48	389.13	0.00	
11300.00	90.62	359.91	7767.65	2877.47	388.96	0.00	
11400.00	90.62	359.91	7766.57	2977.47	388.80	0.00	
11500.00	90.62	359.91	7765.48	3077.46	388.63	0.00	
11600.00	90.62	359.91	7764.40	3177.45	388.47	0.00	
11700.00	90.62	359.91	7763.31	3277.45	388.30	0.00	
11800.00	90.62	359.91	7762.23	3377.44	388.14	0.00	

## 5D Plan Report

Interpolated Points (Relative to Slot 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)	
11900.00	90.62	359.91	7761.15	3477.44	387.97	0.00	
12000.00	90.62	359.91	7760.06	3577.43	387.81	0.00	
12100.00	90.62	359.91	7758.98	3677.42	387.64	0.00	
12200.00	90.62	359.91	7757.90	3777.42	387.48	0.00	
12300.00	90.62	359.91	7756.81	3877.41	387.31	0.00	
12400.00	90.62	359.91	7755.73	3977.41	387.15	0.00	
12500.00	90.62	359.91	7754.65	4077.40	386.98	0.00	
12600.00	90.62	359.91	7753.56	4177.39	386.82	0.00	
12700.00	90.62	359.91	7752.48	4277.39	386.65	0.00	
12800.00	90.62	359.91	7751.40	4377.38	386.49	0.00	
12900.00	90.62	359.91	7750.31	4477.38	386.32	0.00	
13000.00	90.62	359.91	7749.23	4577.37	386.16	0.00	
13100.00	90.62	359.91	7748.15	4677.36	385.99	0.00	
13200.00	90.62	359.91	7747.06	4777.36	385.83	0.00	
13300.00	90.62	359.91	7745.98	4877.35	385.66	0.00	
13400.00	90.62	359.91	7744.89	4977.35	385.50	0.00	
13500.00	90.62	359.91	7743.81	5077.34	385.33	0.00	
13600.00	90.62	359.91	7742.73	5177.33	385.17	0.00	
13700.00	90.62	359.91	7741.64	5277.33	385.00	0.00	
13800.00	90.62	359.91	7740.56	5377.32	384.84	0.00	
13900.00	90.62	359.91	7739.48	5477.32	384.67	0.00	
14000.00	90.62	359.91	7738.39	5577.31	384.51	0.00	
14100.00	90.62	359.91	7737.31	5677.30	384.34	0.00	
14200.00	90.62	359.91	7736.23	5777.30	384.18	0.00	
14300.00	90.62	359.91	7735.14	5877.29	384.01	0.00	
14400.00	90.62	359.91	7734.06	5977.29	383.84	0.00	
14500.00	90.62	359.91	7732.98	6077.28	383.68	0.00	
14600.00	90.62	359.91	7731.89	6177.27	383.51	0.00	
14700.00	90.62	359.91	7730.81	6277.27	383.35	0.00	
14800.00	90.62	359.91	7729.73	6377.26	383.18	0.00	
14900.00	90.62	359.91	7728.64	6477.26	383.02	0.00	
15000.00	90.62	359.91	7727.56	6577.25	382.85	0.00	
15050.37	90.62	359.91	7727.01	6627.61	382.77	0.00	TD @ 15050.37' MD

Formation Points (Relative to Slot centre, TVD relative to Drill Floor )								
Name	MD (US ft)	Inc (°)	Az (°)	TVD (US ft)	N.Offset (US ft)	E.Offset (US ft)	F.Dip (°)	F.Dir (°)
SUSSEX	4859.56	11.96	153.14	4817.00	-381.11	193.00	0	0
SHANNON	5411.54	11.96	153.14	5357.00	-483.15	244.67	0	0
SHARON SPRINGS	7436.11	12.08	359.91	7348.00	-767.31	394.98	0	0
NIOBRARA A	7461.81	14.65	359.91	7373.00	-761.37	394.97	0	0

## 5D Plan Report

Formation Points (Relative to Slot centre, TVD relative to Drill Floor )									
Name	MD (US ft)	Inc (°)	Az (°)	TVD (US ft)	N.Offset (US ft)	E.Offset (US ft)	F.Dip (°)	F.Dir (°)	
NIOBRARA B	7645.13	32.98	359.91	7540.00	-687.66	394.85	0	0	
NIOBRARA C	7773.53	45.82	359.91	7639.00	-606.33	394.72	0	0	
FORT HAYS	8008.15	69.29	359.91	7764.00	-409.71	394.39	0	0	
CODELL	8125.40	81.01	359.91	7794.00	-296.57	394.20	0	0	