

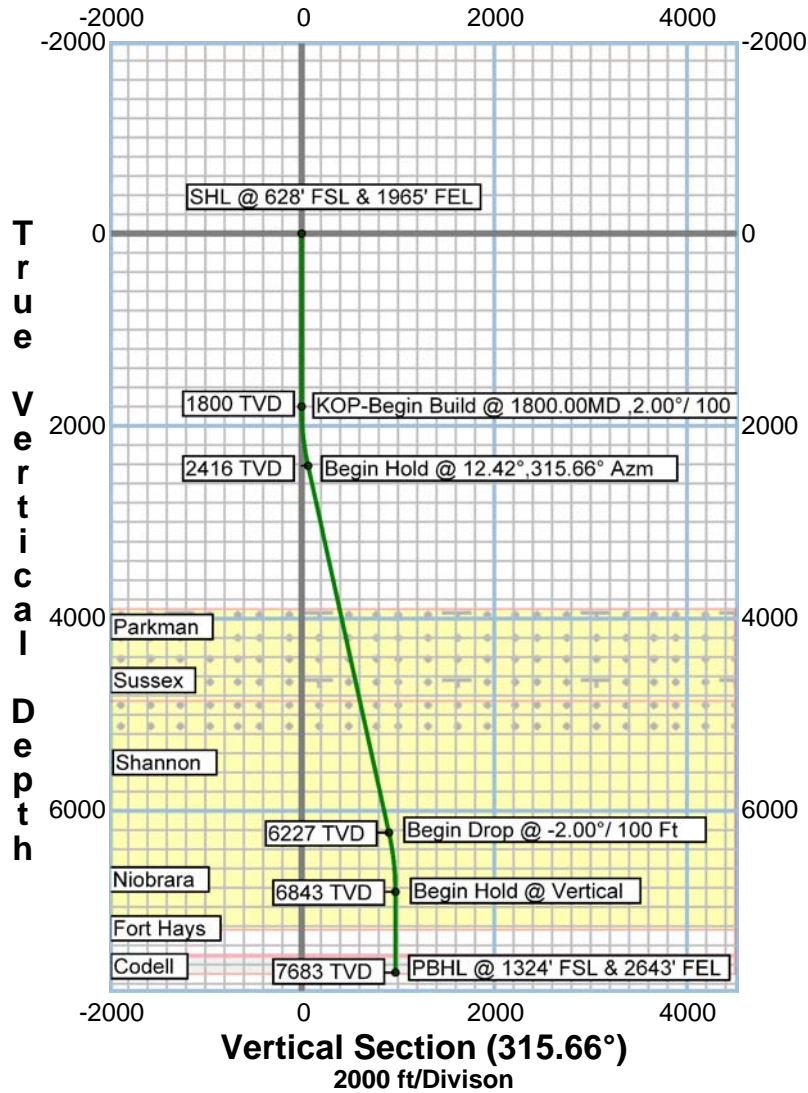


Job ID : Grant Brothers Pad  
 Company : Sundance Energy, Inc.  
 Lease/Well : Grant Bros 23-4 Ae  
 Location : Sec 23 T2N R68W  
 API JOB # : 05-123-xxxx  
 Rig Name : Cade 25  
 State/Province : CO  
 County/Parish : Weld  
 Country : USA

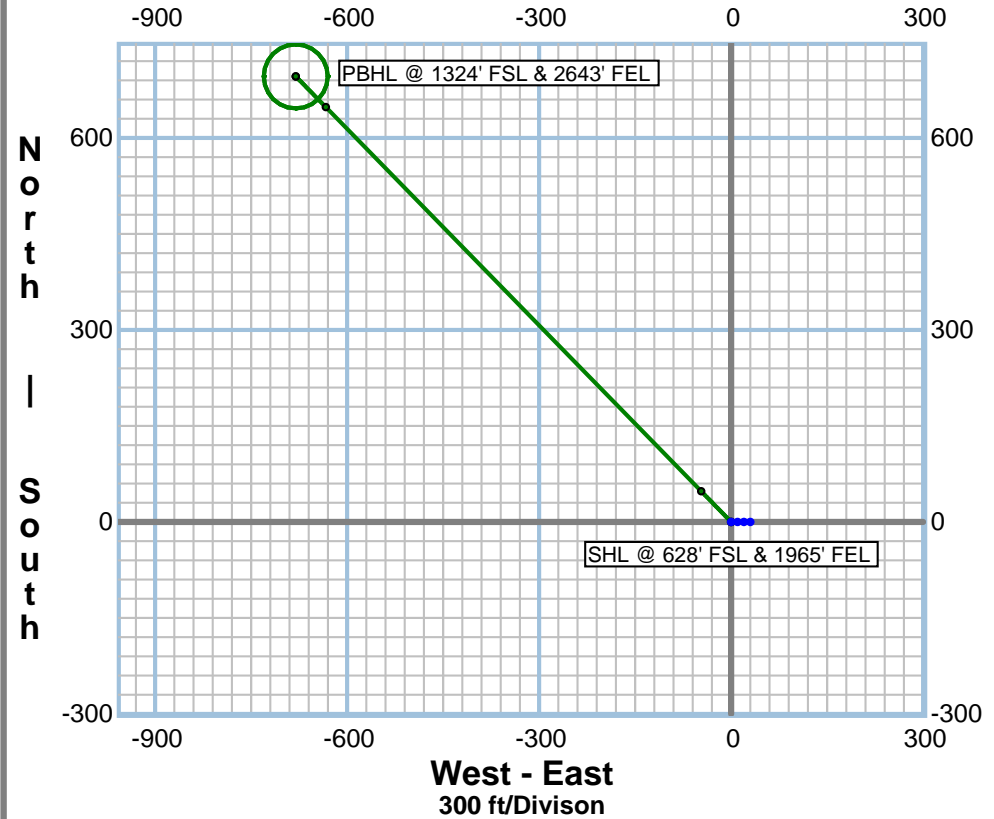
Latitude : 40°7'7.0824" N  
 Longitude : -104°58'4.6488" W  
 Northing : 1286508.75  
 Easting : 3148790.57  
 System Zone : US State Plane 1983  
 Projection Type : LAMBERT  
 Elevation (To MSL) : 4919 ft  
 RKB : 14 ft  
 Comment : Plan 2



### Vertical Section Plot



### Horizontal Plot



#### CRITICAL POINTS - GRANT BROTHERS 23-4 AE PROPOSAL

MD	Inc	Azm	TVD	EW	NS	VS	CI	Cldir	WR	BR	DLS
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1800.00	0.00	0.00	1800.00	0.00	0.00	0.00	0.00	0.04	0.00	0.00	0.00
2421.08	12.42	315.66	2416.23	-46.87	47.96	67.06	67.06	315.66	0.00	1.84	1.84
6322.97	12.42	315.66	6226.80	-633.40	648.17	906.27	906.27	315.66	0.00	0.00	0.00
6943.53	0.01	290.80	6842.51	-680.28	696.10	973.31	973.31	315.66	-2384.00	-1.91	2.00
7784.03	0.01	290.80	7683.01	-680.41	696.15	973.44	973.44	315.66	0.00	0.00	0.00

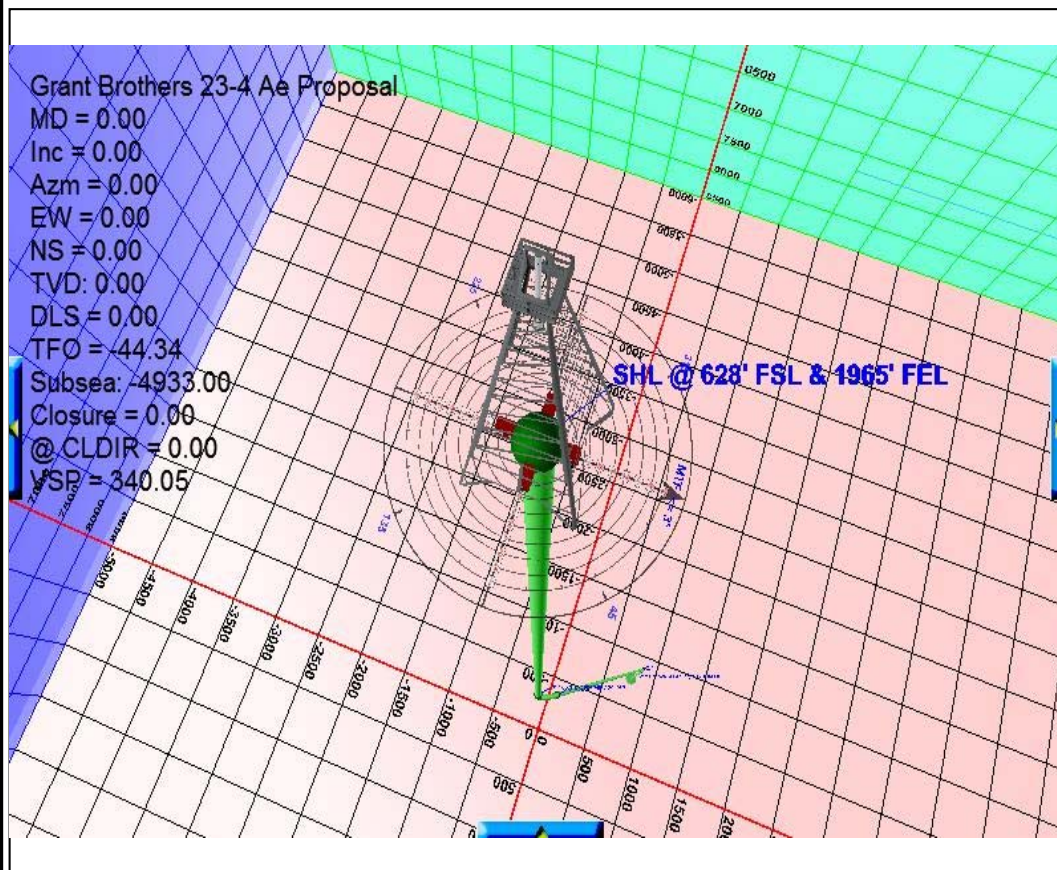


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 Company : Sundance Energy, Inc.  
 Lease/Well : Grant Bros 23-4 Ae  
 Location : Sec 23 T2N R68W  
 API JOB # : 05-123-xxxx  
 Rig Name : Cade 25  
 State/Province : CO  
 County/Parish : Weld  
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Latitude : 40°7'7.0824" N  
 Longitude : -104°58'4.6488" W  
 Northing : 1286508.75  
 Easting : 3148790.57  
 System Zone : US State Plane 1983  
 Projection Type : LAMBERT  
 Elevation (To MSL) : 4919 ft  
 RKB : 14 ft  
 Comment : Plan 2



TARGETS						LITHOLOGY					
SHAPE	NAME	Easting	Northing	Subsea TVD	EW	Name	Subsea Top	Subsea Bottom	Description	Dip_Angle	Dip_Direction
CIRCLE	Grant Brothers 23-54 Target	3149427.10	1287206.54	2745.00	640.71	Parkman	-1030.00	-530.00	Parkman	0.00	0.00
CIRCLE	Grant Brothers 23-4 Ae Target	148106.00	1287200.80	2750.00	-680.41	Sussex	-530.00	-72.00	Sussex	0.00	0.00
CIRCLE	Grant Brothers 23-2 Ae Target	149412.97	1288529.54	2759.00	634.51	Shannon	-72.00	2310.00	Shannon	0.00	0.00
CIRCLE	Grant Brothers 23-43 Target	3150081.13	1287870.58	2765.00	1298.71	Niobrara	2310.00	2570.00	Niobrara	0.00	0.00
						Fort Hays	2570.00	2590.00	Fort Hays	0.00	0.00
						Codell	2590.00	2750.00	Codell	0.00	0.00



MAGNETICS INFORMATION :  
 Magnetic Model: C:\HawkEye\IGRF2005.MIF  
 Date for Magnetics: 05/31/2013  
 Latitude: 40°07'7.0824" N  
 Longitude: -104°58'4.6489" W  
 Magnetic Declination: 8.63  
 Total Correction(Mag to Grid): 8.28  
 Field Strength (nt): 52832  
 B-X Component (nt): 20634  
 B-Y Component (nt): 3131  
 B-Z Component (nt): 48536  
 B-Horz Component (nt): 20870  
 Dip Angle: 66.73

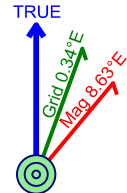
METHODS OF CORRECTIONS:  
 \* To correct from Magnetic North to True North use:  
 8.63°E --> TN = MN + 8.63  
 \* To correct from True North to Grid North use:  
 0.34°E --> GN = TN - 0.34 : True to Grid  
 \* To Correct from Magnetic North to Grid North use:  
 8.28°E --> GN = MN + 8.28 : Magnetic to Grid






**Job Number:** Grant Brothers Pad  
**Company:** Sundance Energy, Inc.  
**Lease/Well:** Grant Bros 23-4 Ae  
**Location:** Sec 23 T2N R68W  
**Rig Name:** Cade 25  
**State/County:** CO/ Weld  
**Country:** USA  
**API Number:** 05-123-xxxx

**Elevation :** 4919.00 ft  
**RKB:** 14.00 ft  
**Projection System:** US State Plane 1983  
**Projection Group:** Colorado Northern Zone  
**Projection Datum:** GRS80  
**Mag. Declination:** 8.63°  
**Grid Convergence:** 0.34377 E  
**Date:** Monday, June 24, 2013

Calculated by HawkEye Software  
 Minimum Curvature Method  
 Vertical Section Plane 315.66°  
 Northing (US ft): 1286508.75 Easting (US ft): 3148790.57  
 Latitude: 40°07'7.0824" N Longitude: -104°58'4.6489" W  
 Well Location: 647.06 FSL, 1966.11 FEL, Section 23, T2N, R68W, Meridian 06, Weld County, CO  
 Direction Reference: True North



Measured Depth (Ft)	INC Deg	AZM Deg	TVD (Ft)	NS (Ft)	EW (Ft)	VS (Ft)	DLS °/100Ft	Build Rate °/100Ft	Walk Rate °/100Ft	Latitude Dec. Deg	Longitude Dec. Deg
<b>SHL @ 628' FSL &amp; 1965' FEL</b>											
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	40.1186340	-104.9679580
<b>KOP-Begin Build @ 1800.00MD ,2.00°/ 100 Ft</b>											
1800.00	0.00	0.00	1800.00	0.00	0.00	0.00	0.00	0.00	0.00	40.1186340	-104.9679580
1820.00	0.40	315.67	1820.00	0.05	-0.05	0.07	2.00	2.00	-221.65	40.1186341	-104.9679582
1840.00	0.80	315.66	1840.00	0.20	-0.20	0.28	2.00	2.00	-0.03	40.1186345	-104.9679587
1860.00	1.20	315.66	1860.00	0.45	-0.44	0.63	2.00	2.00	-0.01	40.1186352	-104.9679596
1880.00	1.60	315.66	1879.99	0.80	-0.78	1.12	2.00	2.00	0.00	40.1186362	-104.9679608
1900.00	2.00	315.66	1899.98	1.25	-1.22	1.75	2.00	2.00	0.00	40.1186374	-104.9679624
1920.00	2.40	315.66	1919.96	1.80	-1.76	2.51	2.00	2.00	0.00	40.1186389	-104.9679643
1940.00	2.80	315.66	1939.94	2.45	-2.39	3.42	2.00	2.00	0.00	40.1186407	-104.9679666
1960.00	3.20	315.66	1959.92	3.20	-3.12	4.47	2.00	2.00	0.00	40.1186428	-104.9679692
1980.00	3.60	315.66	1979.88	4.04	-3.95	5.65	2.00	2.00	0.00	40.1186451	-104.9679721
2000.00	4.00	315.66	1999.84	4.99	-4.88	6.98	2.00	2.00	0.00	40.1186477	-104.9679755
2020.00	4.40	315.66	2019.78	6.04	-5.90	8.44	2.00	2.00	0.00	40.1186506	-104.9679791
2040.00	4.80	315.66	2039.72	7.19	-7.02	10.05	2.00	2.00	0.00	40.1186537	-104.9679831
2060.00	5.20	315.66	2059.64	8.43	-8.24	11.79	2.00	2.00	0.00	40.1186572	-104.9679875
2080.00	5.60	315.66	2079.55	9.78	-9.56	13.67	2.00	2.00	0.00	40.1186608	-104.9679922
2100.00	6.00	315.66	2099.45	11.23	-10.97	15.70	2.00	2.00	0.00	40.1186648	-104.9679972
2120.00	6.40	315.66	2119.33	12.77	-12.48	17.86	2.00	2.00	0.00	40.1186691	-104.9680026
2140.00	6.80	315.66	2139.20	14.42	-14.08	20.15	2.00	2.00	0.00	40.1186736	-104.9680084
2160.00	7.20	315.66	2159.05	16.16	-15.79	22.59	2.00	2.00	0.00	40.1186784	-104.9680145
2180.00	7.60	315.66	2178.89	18.00	-17.59	25.17	2.00	2.00	0.00	40.1186834	-104.9680209
2200.00	8.00	315.66	2198.70	19.94	-19.49	27.88	2.00	2.00	0.00	40.1186887	-104.9680277
2220.00	8.40	315.66	2218.50	21.98	-21.48	30.73	2.00	2.00	0.00	40.1186943	-104.9680348
2240.00	8.80	315.66	2238.27	24.12	-23.57	33.72	2.00	2.00	0.00	40.1187002	-104.9680423
2260.00	9.20	315.66	2258.03	26.36	-25.76	36.85	2.00	2.00	0.00	40.1187064	-104.9680501
2280.00	9.60	315.66	2277.76	28.70	-28.04	40.12	2.00	2.00	0.00	40.1187128	-104.9680583

Measured Depth (Ft)	INC Deg	AZM Deg	TVD (Ft)	NS (Ft)	EW (Ft)	VS (Ft)	DLS %/100Ft	Build Rate %/100Ft	Walk Rate %/100Ft	Latitude Dec. Deg	Longitude Dec. Deg
2300.00	10.00	315.66	2297.47	31.13	-30.42	43.52	2.00	2.00	0.00	40.1187195	-104.9680668
2320.00	10.40	315.66	2317.15	33.66	-32.89	47.07	2.00	2.00	0.00	40.1187264	-104.9680756
2340.00	10.80	315.66	2336.81	36.29	-35.47	50.75	2.00	2.00	0.00	40.1187336	-104.9680848
2360.00	11.20	315.66	2356.44	39.02	-38.13	54.56	2.00	2.00	0.00	40.1187411	-104.9680944
2380.00	11.60	315.66	2376.05	41.85	-40.90	58.51	2.00	2.00	0.00	40.1187489	-104.9681042
2400.00	12.00	315.66	2395.62	44.78	-43.75	62.60	2.00	2.00	0.00	40.1187569	-104.9681145
2420.00	12.40	315.66	2415.17	47.80	-46.71	66.83	2.00	2.00	0.00	40.1187652	-104.9681250
<b>Begin Hold @ 12.42°,315.66° Azm</b>											
2421.08	12.42	315.66	2416.23	47.96	-46.87	67.06	1.84	1.84	0.00	40.1187657	-104.9681256
 <b>Parkman</b>											
3943.48	12.42	315.66	3903.00	282.15	-275.72	394.49	0.00	0.00	0.00	40.1194085	-104.9689439
 <b>Sussex</b>											
4455.46	12.42	315.66	4403.00	360.90	-352.68	504.61	0.00	0.00	0.00	40.1196247	-104.9692191
 <b>Shannon</b>											
4924.44	12.42	315.66	4861.00	433.04	-423.17	605.48	0.00	0.00	0.00	40.1198227	-104.9694712
<b>Begin Drop @ -2.00%/ 100 Ft</b>											
6322.97	12.42	315.66	6226.80	648.17	-633.40	906.27	0.00	0.00	0.00	40.1204133	-104.9702229
6342.97	12.02	315.66	6246.35	651.20	-636.36	910.50	2.00	-2.00	0.00	40.1204216	-104.9702335
6362.97	11.62	315.66	6265.92	654.13	-639.22	914.60	2.00	-2.00	0.00	40.1204296	-104.9702437
6382.97	11.22	315.66	6285.53	656.96	-641.99	918.56	2.00	-2.00	0.00	40.1204374	-104.9702536
6402.97	10.82	315.66	6305.16	659.69	-644.66	922.38	2.00	-2.00	0.00	40.1204449	-104.9702632
6422.97	10.42	315.66	6324.82	662.33	-647.24	926.07	2.00	-2.00	0.00	40.1204522	-104.9702724
6442.97	10.02	315.66	6344.50	664.87	-649.72	929.61	2.00	-2.00	0.00	40.1204591	-104.9702813
6462.97	9.62	315.65	6364.21	667.30	-652.10	933.03	2.00	-2.00	0.00	40.1204658	-104.9702898
6482.97	9.22	315.65	6383.94	669.65	-654.39	936.30	2.00	-2.00	-0.01	40.1204723	-104.9702980
6502.97	8.82	315.65	6403.69	671.89	-656.58	939.43	2.00	-2.00	-0.01	40.1204784	-104.9703058
6522.97	8.42	315.65	6423.46	674.03	-658.68	942.43	2.00	-2.00	-0.01	40.1204843	-104.9703133
6542.97	8.02	315.65	6443.26	676.08	-660.68	945.29	2.00	-2.00	-0.01	40.1204899	-104.9703205
6562.97	7.62	315.65	6463.07	678.02	-662.58	948.01	2.00	-2.00	-0.01	40.1204952	-104.9703273
6582.97	7.22	315.65	6482.90	679.87	-664.39	950.60	2.00	-2.00	-0.01	40.1205003	-104.9703337
6602.97	6.82	315.64	6502.75	681.62	-666.10	953.04	2.00	-2.00	-0.01	40.1205051	-104.9703398
6622.97	6.42	315.64	6522.62	683.27	-667.71	955.35	2.00	-2.00	-0.01	40.1205096	-104.9703456
6642.97	6.02	315.64	6542.50	684.81	-669.22	957.51	2.00	-2.00	-0.01	40.1205139	-104.9703510
6662.97	5.62	315.64	6562.40	686.26	-670.64	959.54	2.00	-2.00	-0.01	40.1205179	-104.9703561
6682.97	5.22	315.63	6582.31	687.62	-671.96	961.43	2.00	-2.00	-0.02	40.1205216	-104.9703608
6702.97	4.82	315.63	6602.23	688.87	-673.19	963.18	2.00	-2.00	-0.02	40.1205250	-104.9703652
6722.97	4.42	315.63	6622.17	690.02	-674.31	964.79	2.00	-2.00	-0.02	40.1205282	-104.9703692
6742.97	4.02	315.62	6642.11	691.07	-675.34	966.26	2.00	-2.00	-0.03	40.1205311	-104.9703729
6762.97	3.62	315.61	6662.07	692.02	-676.27	967.59	2.00	-2.00	-0.03	40.1205337	-104.9703762
6782.97	3.22	315.61	6682.03	692.87	-677.11	968.79	2.00	-2.00	-0.04	40.1205360	-104.9703792
6802.97	2.82	315.60	6702.01	693.63	-677.84	969.84	2.00	-2.00	-0.05	40.1205381	-104.9703818
6822.97	2.42	315.58	6721.99	694.28	-678.48	970.76	2.00	-2.00	-0.07	40.1205399	-104.9703841

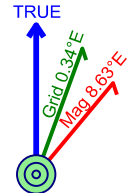
Measured Depth (Ft)	INC Deg	AZM Deg	TVD (Ft)	NS (Ft)	EW (Ft)	VS (Ft)	DLS %/100Ft	Build Rate %/100Ft	Walk Rate %/100Ft	Latitude Dec. Deg	Longitude Dec. Deg
6842.97	2.02	315.56	6741.97	694.83	-679.03	971.53	2.00	-2.00	-0.09	40.1205414	-104.9703861
6862.97	1.62	315.54	6761.96	695.29	-679.47	972.17	2.00	-2.00	-0.14	40.1205426	-104.9703877
6882.97	1.22	315.49	6781.95	695.64	-679.82	972.66	2.00	-2.00	-0.23	40.1205436	-104.9703889
6902.97	0.82	315.40	6801.95	695.89	-680.07	973.02	2.00	-2.00	-0.46	40.1205443	-104.9703898
6922.97	0.42	315.13	6821.95	696.05	-680.22	973.23	2.00	-2.00	-1.35	40.1205447	-104.9703903
6942.97	0.02	304.24	6841.95	696.10	-680.28	973.31	2.00	-2.00	-54.42	40.1205449	-104.9703905
<b>Begin Hold @ Vertical</b>											
6943.53	0.01	290.80	6842.51	696.10	-680.28	973.31	2.00	-1.91	-2384.00	40.1205449	-104.9703905
<b>Niobrara</b>											
7344.02	0.01	290.80	7243.00	696.13	-680.34	973.37	0.00	0.00	0.00	40.1205449	-104.9703908
<b>Fort Hays</b>											
7604.02	0.01	290.80	7503.00	696.14	-680.38	973.41	0.00	0.00	0.00	40.1205450	-104.9703909
<b>Codell</b>											
7624.02	0.01	290.80	7523.00	696.14	-680.38	973.41	0.00	0.00	0.00	40.1205450	-104.9703909
<b>Grant Brothers 23-4 Ae Target</b>											
7784.02	0.01	290.80	7683.00	696.15	-680.41	973.44	0.00	0.00	0.00	40.1205450	-104.9703910
<b>PBHL @ 1324' FSL &amp; 2643' FEL</b>											
7784.03	0.01	290.80	7683.01	696.15	-680.41	973.44	2.29	0.00	0.00	40.1205450	-104.9703910
<b>TARGET DATA</b>											
Name	Shape	Easting (Ft)	Northing (Ft)	Subsea (Ft)	TVD (Ft)	NS (Ft)	EW (Ft)	Side A (Ft)	Side B (Ft)	Dia. (Ft)	
Grant Brothers 23-4 Ae Target	CIRCLE	3148106.0	1287200.8	2750.0	7684.0	696.1	-680.4	100.0	200.0	100.0	
<b>LITHOLOGY DATA</b>											
Name	Description	Pattern	TVD Top (Ft)	TVD Bottom (Ft)	Dip Angle (deg)	Dip Direction (deg)					
Parkman	Parkman	SANDSTON	3903	4403	0.0	0.0					
Sussex	Sussex	SANDSTON	4403	4861	0.0	0.0					
Shannon	Shannon	SANDSTON	4861	7243	0.0	0.0					
Niobrara	Niobrara	CHALK	7243	7503	0.0	0.0					
Fort Hays	Fort Hays	LIMESTON	7503	7523	0.0	0.0					
Codell	Codell	SANDSTON	7523	7683	0.0	0.0					



**Job Number:** Grant Brothers Pad  
**Company:** Sundance Energy, Inc.  
**Lease/Well:** Grant Bros 23-4 Ae  
**Location:** Sec 23 T2N R68W  
**Rig Name:** Cade 25  
**State/County:** CO/ Weld  
**Country:** USA  
**API Number:** 05-123-xxxx

**Elevation :** 4919.00 ft  
**RKB:** 14.00 ft  
**Projection System:** US State Plane 1983  
**Projection Group:** Colorado Northern Zone  
**Projection Datum:** GRS80  
**Mag. Declination:** 8.63°  
**Grid Convergence:** 0.34377 E  
**Date:** Monday, June 24, 2013

Calculated by HawkEye Software  
 Minimum Curvature Method  
 Vertical Section Plane 315.66°  
 Northing (US ft): 1286508.75 Easting (US ft): 3148790.57  
 Latitude: 40°07'7.0824" N Longitude: -104°58'4.6489" W  
 Well Location: 647.06 FSL, 1966.11 FEL, Section 23, T2N, R68W, Meridian 06, Weld County, CO  
 Direction Reference: True North



Measured Depth (Ft)	INC Deg	AZM Deg	TVD (Ft)	NS (Ft)	EW (Ft)	VS (Ft)	DLS °/100Ft	Build Rate °/100Ft	Walk Rate °/100Ft	Latitude Dec. Deg	Longitude Dec. Deg
<b>SHL @ 628' FSL &amp; 1965' FEL</b>											
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	40.1186340	-104.9679580
<b>KOP-Begin Build @ 1800.00MD ,2.00°/ 100 Ft</b>											
1800.00	0.00	0.00	1800.00	0.00	0.00	0.00	0.00	0.00	0.00	40.1186340	-104.9679580
<b>Begin Hold @ 12.42°,315.66° Azm</b>											
2421.08	12.42	315.66	2416.23	47.97	-46.87	67.06	1.84	1.84	0.00	40.1187657	-104.9681256
<b>Parkman</b>											
3943.47	12.42	315.66	3902.99	282.15	-275.72	394.49	0.00	0.00	0.00	40.1194085	-104.9689439
<b>Sussex</b>											
4455.46	12.42	315.66	4403.00	360.90	-352.68	504.61	0.00	0.00	0.00	40.1196247	-104.9692191
<b>Shannon</b>											
4924.44	12.42	315.66	4861.00	433.04	-423.18	605.48	0.01	0.00	0.00	40.1198228	-104.9694712
<b>Begin Drop @ -2.00°/ 100 Ft</b>											
6322.97	12.42	315.66	6226.80	648.17	-633.40	906.27	0.00	0.00	0.00	40.1204133	-104.9702229
<b>Begin Hold @ Vertical</b>											
6943.53	0.01	290.80	6842.51	696.10	-680.28	973.31	2.00	-2.00	-118.30	40.1205449	-104.9703905
<b>Niobrara</b>											
7344.02	0.01	290.80	7243.00	696.13	-680.34	973.37	0.05	0.00	0.00	40.1205449	-104.9703908
<b>Fort Hays</b>											
7604.02	0.01	290.80	7503.00	696.14	-680.38	973.41	0.00	0.00	0.00	40.1205450	-104.9703909
<b>Codell</b>											
7624.02	0.01	290.80	7523.00	696.14	-680.38	973.42	0.00	0.00	0.00	40.1205450	-104.9703909
<b>Grant Brothers 23-4 Ae Target</b>											
7784.02	0.01	290.80	7683.00	696.15	-680.41	973.44	0.00	0.00	0.00	40.1205450	-104.9703910
<b>PBHL @ 1324' FSL &amp; 2643' FEL</b>											
7784.03	0.01	290.80	7683.01	696.15	-680.41	973.44	2.27	0.00	0.00	40.1205450	-104.9703910

**TARGET DATA**

Name	Shape	Easting (Ft)	Northing (Ft)	Subsea (Ft)	TVD (Ft)	NS (Ft)	EW (Ft)	Side A (Ft)	Side B (Ft)	Dia. (Ft)
Grant Brothers 23-4 Ae Target	CIRCLE	3148106.0	1287200.8	2750.0	7684.0	696.1	-680.4	100.0	200.0	100.0

LITHOLOGY DATA

Name	Description	Pattern	TVD Top (Ft)	TVD Bottom (Ft)	Dip Angle (deg)	Dip Direction (deg)
Parkman	Parkman	SANDSTON	3903	4403	0.0	0.0
Sussex	Sussex	SANDSTON	4403	4861	0.0	0.0
Shannon	Shannon	SANDSTON	4861	7243	0.0	0.0
Niobrara	Niobrara	CHALK	7243	7503	0.0	0.0
Fort Hays	Fort Hays	LIMESTON	7503	7523	0.0	0.0
Codell	Codell	SANDSTON	7523	7683	0.0	0.0