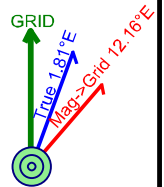




**Job Number:** 12xxx  
**Company:** Black Hills Plateau Productin Co.  
**Lease/Well:** Homer Deep Unit 7-23BH  
**Location:** Garfield County, CO  
**Rig Name:**  
**State/Country:** CO/ Garfield  
**Country:** USA  
**API Number:**

**Elevation:** 5669.00 ft     **RKB:** 15.00 ft  
**Projection System:** US State Plane 1927 (Exact solution)  
**Projection Group:** Colorado Central 502  
**Projection Datum:** CLARKE 1866  
**Mag. Declination:** 10.35°  
**Grid Convergence:** -1.80846 W  
**Date:** Friday, October 11, 2013

Calculated by HawkEye Software  
 Minimum Curvature Method  
 Vertical Section Plane 152.08°  
 Northing (US ft): 573220.45    Easting (US ft): 1189228.00  
 Latitude: 39°22'19.6865" N    Longitude: -108°22'6.2072" W  
 Well Location: 1894 FSL, 2673 FWL, Section 7, T8S, R98W, Meridian 06, Garfield County, CO  
 Direction Reference: Grid North



Measured Depth (Ft)	INC Deg	AZM Deg	TVD (Ft)	Subsea TVD (Ft)	EW (Ft)	NS (Ft)	VS (Ft)	Closure (Ft)	Closure Dir Deg	DLS %/100Ft
<b>Surface</b>										
0.00	0.00	0.00	0.00	5684.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Nudge - Build @ 2.00°/ 100 Ft</b>										
500.00	0.00	0.00	500.00	5184.00	0.00	0.00	0.00	0.00	0.00	0.00
560.00	1.20	190.00	560.00	5124.00	-0.11	-0.62	0.50	0.63	190.01	2.00
620.00	2.40	190.00	619.96	5064.04	-0.44	-2.47	1.98	2.51	190.00	2.00
680.00	3.60	190.00	679.88	5004.12	-0.98	-5.57	4.46	5.65	190.00	2.00
740.00	4.80	190.00	739.72	4944.28	-1.74	-9.89	7.93	10.05	190.00	2.00
<b>Begin Hold @ 5.00°, 190.00° Azm</b>										
750.00	5.00	190.00	749.68	4934.32	-1.89	-10.74	8.60	10.90	190.00	2.00
<b>Mesaverde</b>										
859.74	5.00	190.00	859.00	4825.00	-3.55	-20.15	16.14	20.47	190.00	0.00
<b>Casing 10 3/4"</b>										
1001.28	5.00	190.00	1000.01	4683.99	-5.70	-32.30	25.88	32.80	190.00	0.00
<b>Begin Drop @ -2.00°/ 100 Ft</b>										
1250.00	5.00	190.00	1247.78	4436.22	-9.46	-53.65	42.98	54.48	190.00	0.00
1310.00	3.80	190.00	1307.60	4376.40	-10.26	-58.18	46.61	59.08	190.00	2.00
1370.00	2.60	190.00	1367.51	4316.49	-10.84	-61.48	49.25	62.43	190.00	2.00
1430.00	1.40	190.00	1427.47	4256.53	-11.20	-63.54	50.90	64.52	190.00	2.00
1490.00	0.20	190.00	1487.46	4196.54	-11.35	-64.37	51.56	65.36	190.00	2.00
<b>Hold Vertical</b>										
1500.00	0.00	0.00	1497.46	4186.54	-11.35	-64.39	51.58	65.38	190.00	2.00
2000.00	0.00	0.00	1997.46	3686.54	-11.35	-64.39	51.58	65.38	190.00	0.00
2500.00	0.00	0.00	2497.46	3186.54	-11.35	-64.38	51.57	65.38	190.00	0.00
<b>Cameo</b>										
2897.54	0.00	0.00	2895.00	2789.00	-11.35	-64.38	51.57	65.38	190.00	0.00
3000.00	0.00	0.00	2997.46	2686.54	-11.35	-64.38	51.57	65.38	190.00	0.00
<b>Rollins</b>										
3216.54	0.00	0.00	3214.00	2470.00	-11.35	-64.38	51.57	65.38	190.00	0.00
<b>Cozette</b>										
3385.54	0.00	0.00	3383.00	2301.00	-11.35	-64.38	51.57	65.38	190.00	0.00
3500.00	0.00	0.00	3497.46	2186.54	-11.35	-64.38	51.57	65.38	190.00	0.00
<b>Corcoran</b>										
3591.54	0.00	0.00	3589.00	2095.00	-11.35	-64.38	51.57	65.38	190.00	0.00
<b>Mancos</b>										
3799.54	0.00	0.00	3797.00	1887.00	-11.35	-64.38	51.57	65.38	190.00	0.00
4000.00	0.00	0.00	3997.46	1686.54	-11.35	-64.38	51.57	65.38	190.00	0.00
<b>Mancos A</b>										
4266.54	0.00	0.00	4264.00	1420.00	-11.35	-64.38	51.57	65.38	190.00	0.00
4500.00	0.00	0.00	4497.46	1186.54	-11.35	-64.38	51.57	65.37	190.00	0.00
5000.00	0.00	0.00	4997.46	686.54	-11.35	-64.38	51.57	65.37	190.00	0.00
<b>MOAB</b>										
5002.54	0.00	0.00	5000.00	684.00	-11.35	-64.38	51.57	65.37	190.00	0.00
<b>KOP - Begin Build @ 8.00°/ 100 Ft</b>										
5323.00	0.00	0.00	5320.46	363.54	-11.35	-64.38	51.57	65.37	190.00	0.00

Measured Depth (Ft)	INC Deg	AZM Deg	TVD (Ft)	Subsea TVD (Ft)	EW (Ft)	NS (Ft)	VS (Ft)	Closure (Ft)	Closure Dir Deg	DLS %/100Ft
5383.00	4.80	190.00	5380.39	303.61	-11.79	-66.85	53.55	67.88	190.00	8.00
5443.00	9.60	190.00	5439.90	244.10	-13.09	-74.26	59.48	75.40	190.00	8.00
<b>Mancos B</b>										
5457.33	10.75	190.00	5454.00	230.00	-13.53	-76.75	61.48	77.93	190.00	8.00
5503.00	14.40	190.00	5498.57	185.43	-15.26	-86.54	69.32	87.87	190.00	8.00
5563.00	19.20	190.00	5556.00	128.00	-18.27	-103.61	83.00	105.21	190.00	8.00
5623.00	24.00	190.00	5611.77	72.23	-22.11	-125.36	100.42	127.29	190.00	8.00
5683.00	28.80	190.00	5665.49	18.51	-26.74	-151.62	121.45	153.96	190.00	8.00
5743.00	33.60	190.00	5716.80	-32.80	-32.13	-182.22	145.97	185.03	190.00	8.00
5803.00	38.40	190.00	5765.33	-81.33	-38.25	-216.94	173.78	220.29	190.00	8.00
5863.00	43.20	190.00	5810.73	-126.73	-45.06	-255.54	204.70	259.48	190.00	8.00
<b>Begin Hold @ 45.00°,190.00° Azm</b>										
5885.50	45.00	190.00	5826.89	-142.89	-47.78	-270.96	217.05	275.14	190.00	8.00
6385.50	45.00	190.00	6180.44	-496.44	-109.17	-619.14	495.96	628.70	190.00	0.00
<b>Casing 7 5/8"</b>										
6582.87	45.00	190.00	6320.01	-636.01	-133.41	-756.59	606.05	768.26	190.00	0.00
<b>Niobrara</b>										
6795.00	45.00	190.00	6470.00	-786.00	-159.45	-904.30	724.38	918.26	190.00	0.00
6885.50	45.00	190.00	6534.00	-850.00	-170.57	-967.33	774.87	982.25	190.00	0.00
<b>Build and Turn @ 8.00°/100 Ft</b>										
7138.50	45.00	190.00	6712.90	-1028.90	-201.63	-1143.51	915.99	1161.15	190.00	0.00
7198.50	48.08	184.93	6754.17	-1070.17	-207.24	-1186.66	951.50	1204.62	189.91	8.00
7258.50	51.37	180.34	6792.97	-1108.97	-209.30	-1232.37	990.92	1250.01	189.64	8.00
7318.50	54.82	176.16	6829.00	-1145.00	-207.80	-1280.30	1033.97	1297.05	189.22	8.00
7378.50	58.40	172.33	6862.03	-1178.03	-202.74	-1330.11	1080.36	1345.48	188.67	8.00
7438.50	62.09	168.79	6891.81	-1207.81	-194.18	-1381.47	1129.75	1395.05	188.00	8.00
7498.50	65.86	165.49	6918.14	-1234.14	-182.16	-1434.01	1181.80	1445.53	187.24	8.00
7558.50	69.69	162.37	6940.83	-1256.83	-166.77	-1487.35	1236.14	1496.67	186.40	8.00
7618.50	73.58	159.41	6959.73	-1275.73	-148.11	-1541.14	1292.40	1548.24	185.49	8.00
7678.50	77.52	156.56	6974.70	-1290.70	-126.33	-1594.98	1350.18	1599.98	184.53	8.00
7738.50	81.47	153.80	6985.64	-1301.64	-101.56	-1648.51	1409.07	1651.63	183.53	8.00
7798.50	85.45	151.10	6992.47	-1308.47	-73.99	-1701.34	1468.66	1702.95	182.49	8.00
7858.50	89.44	148.42	6995.15	-1311.15	-43.81	-1753.11	1528.53	1753.65	181.43	8.00
<b>Target - Hold @ 91.57°,147.00° Azm</b>										
7890.51	91.57	147.00	6994.86	-1310.86	-26.72	-1780.16	1560.45	1780.37	180.86	8.00
8390.51	91.57	147.00	6981.16	-1297.16	245.50	-2199.34	2058.30	2213.00	173.63	0.00
8890.51	91.57	147.00	6967.47	-1283.47	517.72	-2618.52	2556.15	2669.21	168.82	0.00
9390.51	91.57	147.00	6953.77	-1269.77	789.93	-3037.70	3053.99	3138.73	165.42	0.00
9890.51	91.57	147.00	6940.07	-1256.07	1062.15	-3456.88	3551.84	3616.37	162.92	0.00
10390.51	91.57	147.00	6926.37	-1242.37	1334.37	-3876.05	4049.69	4099.31	161.00	0.00
10890.51	91.57	147.00	6912.67	-1228.67	1606.59	-4295.23	4547.54	4585.86	159.49	0.00
11390.51	91.57	147.00	6898.97	-1214.97	1878.80	-4714.41	5045.39	5074.99	158.27	0.00
11890.51	91.57	147.00	6885.27	-1201.27	2151.02	-5133.59	5543.24	5566.02	157.27	0.00
12390.51	91.57	147.00	6871.57	-1187.57	2423.24	-5552.77	6041.09	6058.49	156.42	0.00
12890.51	91.57	147.00	6857.87	-1173.87	2695.46	-5971.94	6538.94	6552.07	155.71	0.00
13390.51	91.57	147.00	6844.17	-1160.17	2967.67	-6391.12	7036.79	7046.52	155.09	0.00
13890.51	91.57	147.00	6830.47	-1146.47	3239.89	-6810.30	7534.64	7541.69	154.56	0.00
14390.51	91.57	147.00	6816.78	-1132.78	3512.11	-7229.48	8032.48	8037.43	154.09	0.00
14890.51	91.57	147.00	6803.08	-1119.08	3784.32	-7648.65	8530.33	8533.64	153.68	0.00
15390.51	91.57	147.00	6789.38	-1105.38	4056.54	-8067.83	9028.18	9030.25	153.31	0.00
15890.51	91.57	147.00	6775.68	-1091.68	4328.76	-8487.01	9526.03	9527.20	152.98	0.00
16390.51	91.57	147.00	6761.98	-1077.98	4600.98	-8906.19	10023.88	10024.43	152.68	0.00
16890.51	91.57	147.00	6748.28	-1064.28	4873.19	-9325.37	10521.73	10521.90	152.41	0.00
17390.51	91.57	147.00	6734.58	-1050.58	5145.41	-9744.54	11019.58	11019.59	152.16	0.00
<b>Proposed End of 7-23BH Lateral</b>										
17585.20	91.57	147.00	6729.25	-1045.25	5251.41	-9907.76	11213.43	11213.43	152.08	0.00

**TARGET DATA**

Name	Shape	Latitude	Longitude	Subsea (Ft)	TVD (Ft)	NS (Ft)	EW (Ft)	Side A (Ft)	Side B (Ft)	Diameter (Ft)
7-23BH BHL	CYLINDER	39°20'43.4375"	-108°20'55.4132"	-1045.0	-6729.0	-9907.8	5251.3	-	-	100.0
7-23BH Landing	CYLINDER	39°22'4.2139"	-108°22'9.6416"	-1310.0	-6994.0	-1556.1	-319.0	-	-	100.0

**CASING DATA**

Size (in)	Weight (Lbs/Ft)	ID (in)	OD (in)	Top TVD (Ft)	Set TVD (Ft)
10 3/4	40.5	10.1	11.8	1000.0	1000.0
7 5/8	20.0	7.1	8.5	6320.0	6320.0



Job ID : 12xxx  
 Company : Black Hills Plateau Productin Co.  
 Lease/Well : Homer Deep Unit 7-23BH  
 Location : Garfield County, CO  
 Rig Name :

Elevation (To MSL) : 5669 ft  
 RKB : 15 ft  
 North Reference : Grid North  
 Latitude : 39°22'19.6865" N  
 Longitude : -108°22'6.2072" W

