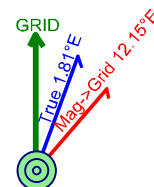






**Job Number:** 12xxx  
**Company:** Black Hills Plateau Productin Co.  
**Lease/Well:** Homer Deep Unit 7-23DH  
**Location:** Garfield County, CO  
**Rig Name:**  
**State/Country:** CO/ Garfield  
**Country:** USA  
**API Number:**

**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:** -1.80835 W  
**Date:** Friday, October 11, 2013

Calculated by HawkEye Software  
 Minimum Curvature Method  
 Vertical Section Plane 137.25°  
 Northing (US ft): 573220.45 Easting (US ft): 1189278.00  
 Latitude: 39°22'19.7021" N Longitude: -108°22'5.5708" W  
 Well Location: 1894 FSL, 2723 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
500.00	0.00	0.00	500.00	5184.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Mesaverde</b>										
859.00	0.00	0.00	859.00	4825.00	0.00	0.00	0.00	0.00	0.05	0.00
<b>Casing 10 3/4"</b>										
1000.00	0.00	0.00	1000.00	4684.00	0.00	0.00	0.00	0.00	0.04	0.00
1500.00	0.00	0.00	1500.00	4184.00	0.00	0.00	0.00	0.00	0.03	0.00
2000.00	0.00	0.00	2000.00	3684.00	0.00	0.00	0.00	0.00	0.02	0.00
2500.00	0.00	0.00	2500.00	3184.00	0.00	0.00	0.00	0.00	0.01	0.00
<b>Cameo</b>										
2895.00	0.00	0.00	2895.00	2789.00	0.00	0.00	0.00	0.00	0.01	0.00
3000.00	0.00	0.00	3000.00	2684.00	0.00	0.00	0.00	0.00	0.01	0.00
<b>Rollins</b>										
3214.00	0.00	0.00	3214.00	2470.00	0.00	0.01	0.00	0.01	0.01	0.00
<b>Cozzette</b>										
3383.00	0.00	0.00	3383.00	2301.00	0.00	0.01	0.00	0.01	0.01	0.00
3500.00	0.00	0.00	3500.00	2184.00	0.00	0.01	0.00	0.01	0.01	0.00
<b>Corcoran</b>										
3589.00	0.00	0.00	3589.00	2095.00	0.00	0.01	0.00	0.01	0.01	0.00
<b>Mancos</b>										
3797.00	0.00	0.00	3797.00	1887.00	0.00	0.01	0.00	0.01	0.01	0.00
4000.00	0.00	0.00	4000.00	1684.00	0.00	0.01	0.00	0.01	0.01	0.00
<b>Mancos A</b>										
4264.00	0.00	0.00	4264.00	1420.00	0.00	0.01	-0.01	0.01	0.01	0.00
4500.00	0.00	0.00	4500.00	1184.00	0.00	0.01	-0.01	0.01	0.01	0.00
<b>MOAB</b>										
5000.00	0.00	0.00	5000.00	684.00	0.00	0.01	-0.01	0.01	0.01	0.00
<b>Mancos B</b>										
5454.00	0.00	0.00	5454.00	230.00	0.00	0.01	-0.01	0.01	0.01	0.00
5500.00	0.00	0.00	5500.00	184.00	0.00	0.01	-0.01	0.01	0.01	0.00
<b>KOP-Begin Build @ 8.00°/ 100 Ft</b>										
5622.00	0.00	0.00	5622.00	62.00	0.00	0.01	-0.01	0.01	0.01	0.00
5682.00	4.80	90.00	5681.93	2.07	2.51	0.01	1.70	2.51	89.78	8.00
5742.00	9.60	90.00	5741.44	-57.44	10.03	0.01	6.80	10.03	89.95	8.00
5802.00	14.40	90.00	5800.11	-116.11	22.50	0.01	15.27	22.50	89.98	8.00
5862.00	19.20	90.00	5857.53	-173.53	39.84	0.01	27.03	39.84	89.99	8.00
5922.00	24.00	90.00	5913.30	-229.30	61.92	0.01	42.02	61.92	89.99	8.00
5982.00	28.80	90.00	5967.03	-283.03	88.59	0.01	60.13	88.59	89.99	8.00
6042.00	33.60	90.00	6018.34	-334.34	119.66	0.01	81.22	119.66	90.00	8.00
6102.00	38.40	90.00	6066.86	-382.86	154.92	0.01	105.15	154.92	90.00	8.00
6162.00	43.20	90.00	6112.27	-428.27	194.11	0.01	131.76	194.11	90.00	8.00
6222.00	48.00	90.00	6154.24	-470.24	236.97	0.01	160.85	236.97	90.00	8.00
6282.00	52.80	90.00	6192.47	-508.47	283.19	0.01	192.22	283.19	90.00	8.00
6342.00	57.60	90.00	6226.71	-542.71	332.44	0.01	225.65	332.44	90.00	8.00

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
<b>Begin Hold @ 60.00° 90.00° Azm</b>										
6372.00	60.00	90.00	6242.24	-558.24	358.10	0.01	243.07	358.10	90.00	8.00
 <b>Casing 7 5/8"</b>										
6527.52	60.00	90.00	6320.00	-636.00	492.78	0.01	334.49	492.78	90.00	0.00
 <b>Niobrara</b>										
6827.52	60.00	90.00	6470.01	-786.01	752.59	0.01	510.85	752.59	90.00	0.00
6872.00	60.00	90.00	6492.24	-808.24	791.11	0.01	537.00	791.11	90.00	0.00
7372.00	60.00	90.00	6742.24	-1058.24	1224.12	0.01	830.93	1224.12	90.00	0.00
<b>Build and Turn @ 8.00°/100 Ft</b>										
7693.00	60.00	90.00	6902.74	-1218.74	1502.12	0.01	1019.63	1502.12	90.00	0.00
7753.00	61.69	95.15	6931.99	-1247.99	1554.43	-2.36	1056.88	1554.44	90.09	8.00
7813.00	63.57	100.12	6959.59	-1275.59	1607.22	-9.45	1097.92	1607.24	90.34	8.00
7873.00	65.61	104.93	6985.35	-1301.35	1660.09	-21.22	1142.46	1660.23	90.73	8.00
7933.00	67.80	109.58	7009.09	-1325.09	1712.69	-37.58	1190.17	1713.10	91.26	8.00
7993.00	70.11	114.09	7030.64	-1346.64	1764.65	-58.42	1240.74	1765.61	91.90	8.00
8053.00	72.54	118.46	7049.86	-1365.86	1815.59	-83.58	1293.80	1817.51	92.64	8.00
8113.00	75.06	122.71	7066.60	-1382.60	1865.17	-112.90	1348.98	1868.58	93.46	8.00
8173.00	77.66	126.87	7080.75	-1396.75	1913.03	-146.17	1405.90	1918.61	94.37	8.00
8233.00	80.32	130.94	7092.22	-1408.22	1958.84	-183.15	1464.16	1967.39	95.34	8.00
8293.00	83.02	134.95	7100.91	-1416.91	2002.28	-223.59	1523.34	2014.73	96.37	8.00
8353.00	85.76	138.91	7106.77	-1422.77	2043.05	-267.20	1583.03	2060.45	97.45	8.00
8413.00	88.52	142.84	7109.77	-1425.77	2080.85	-313.68	1642.82	2104.36	98.57	8.00
8473.00	91.29	146.76	7109.87	-1425.87	2115.42	-362.69	1702.28	2146.29	99.73	8.00
<b>Target - Hold @ 91.45° 147.00° Azm</b>										
8476.57	91.45	147.00	7109.78	-1425.78	2117.37	-365.68	1705.80	2148.72	99.80	8.00
8976.57	91.45	147.00	7097.11	-1413.11	2389.62	-784.87	2198.42	2515.21	108.18	0.00
9476.57	91.45	147.00	7084.43	-1400.43	2661.87	-1204.06	2691.05	2921.52	114.34	0.00
9976.57	91.45	147.00	7071.76	-1387.76	2934.12	-1623.25	3183.67	3353.20	118.95	0.00
10476.57	91.45	147.00	7059.08	-1375.08	3206.37	-2042.44	3676.29	3801.62	122.50	0.00
10976.57	91.45	147.00	7046.41	-1362.41	3478.62	-2461.63	4168.92	4261.50	125.28	0.00
11476.57	91.45	147.00	7033.73	-1349.73	3750.87	-2880.81	4661.54	4729.49	127.53	0.00
11976.57	91.45	147.00	7021.06	-1337.06	4023.12	-3300.00	5154.16	5203.41	129.36	0.00
12476.57	91.45	147.00	7008.38	-1324.38	4295.37	-3719.19	5646.78	5681.77	130.89	0.00
12976.57	91.45	147.00	6995.71	-1311.71	4567.62	-4138.38	6139.41	6163.55	132.18	0.00
13476.57	91.45	147.00	6983.03	-1299.03	4839.87	-4557.57	6632.03	6647.99	133.28	0.00
13976.57	91.45	147.00	6970.36	-1286.36	5112.12	-4976.76	7124.65	7134.55	134.23	0.00
14476.57	91.45	147.00	6957.68	-1273.68	5384.36	-5395.95	7617.28	7622.84	135.06	0.00
14976.57	91.45	147.00	6945.00	-1261.00	5656.61	-5815.14	8109.90	8112.53	135.79	0.00
15476.57	91.45	147.00	6932.33	-1248.33	5928.86	-6234.33	8602.52	8603.39	136.44	0.00
15976.57	91.45	147.00	6919.65	-1235.65	6201.11	-6653.52	9095.15	9095.22	137.02	0.00
<b>Proposed End of 7-23DH Lateral</b>										
16199.44	91.45	147.00	6914.00	-1230.00	6322.47	-6840.37	9314.73	9314.73	137.25	0.00
<b>TARGET DATA</b>										
Name	Shape	Latitude	Longitude	Subsea (Ft)	TVD (Ft)	NS (Ft)	EW (Ft)	Side A (Ft)	Side B (Ft)	Diameter (Ft)
7-23DH BHL	CYLINDER	39°21'14.0889"	-108°20'42.3715"	-1230.0	-6914.0	-6840.4	6322.5	-	-	100.0
7-23DH Landing	CYLINDER	39°22'13.8860"	-108°21'37.2017"	-1825.0	-7509.0	-658.4	2208.2	-	-	100.0
<b>CASING DATA</b>										
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	29.7	6.9	8.5	6320.0	6320.0					



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

Elevation (To MSL) : 5669 ft  
RKB : 15 ft  
North Reference : Grid North  
Latitude : 39°22'19.7021" N  
Longitude : -108°22'5.5708" W

