



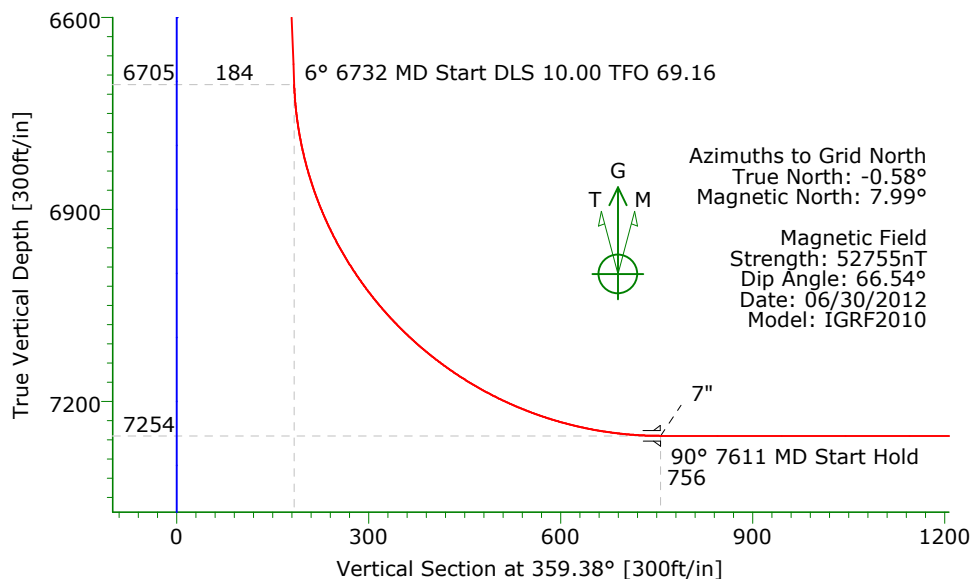
# CARRIZO OIL & GAS, INC.

Field: Niobrara COCZ'83  
Site: WEP 20 PAD  
Well: 1-20-11-3-64  
Wellpath: Original Hole  
Plan: Plan #1



## CASING DETAILS

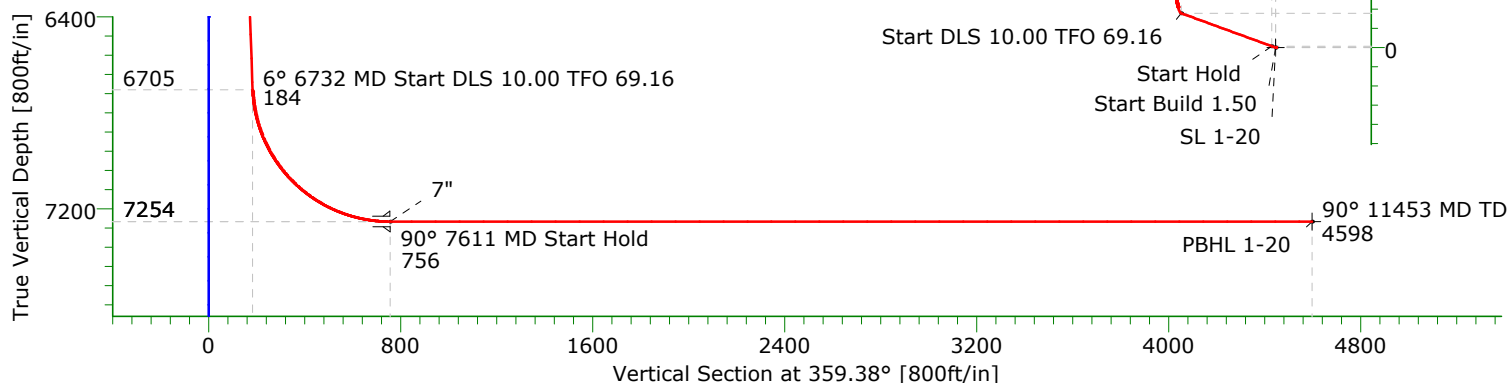
No.	TVD	MD	Name	Size
1	7254.00	7610.66	7"	7.000



**Sidetrack off cement plug after drilling Pilot Hole to 8096' TVD**

## LEGEND

- 1-20-11-3-64 (Pilot Hole)
- Plan #1

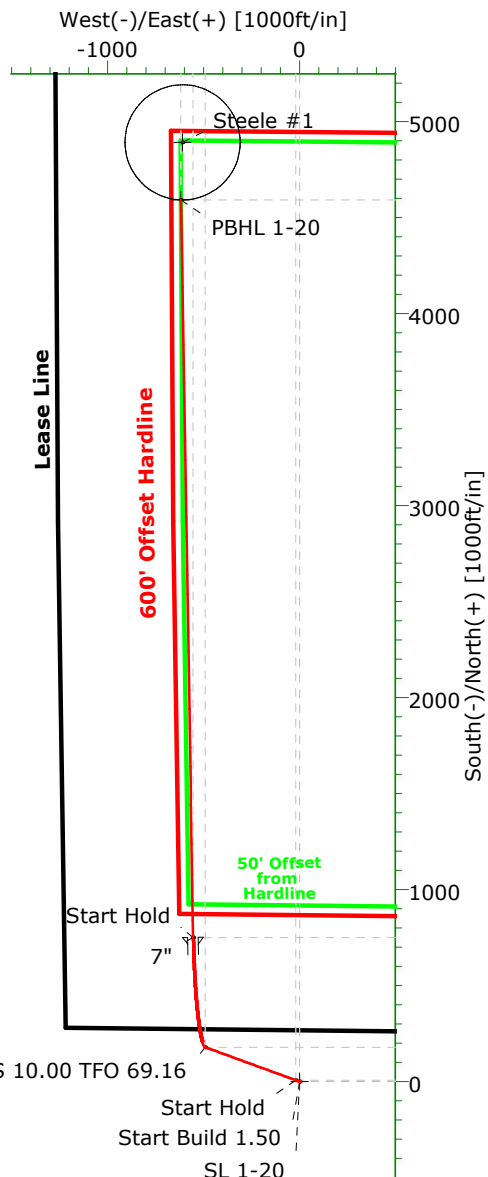


## TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
SL 1-20	0.00	0.00	0.00	1711140.60	3258823.06	39°46'56.200N104°34'44.765W		Point
Steele #1	0.00	4891.69	-608.53	1716032.29	3258214.53	39°47'44.601N104°34'51.925W		Circle (Radius: 300)
PBHL 1-20	7254.00	4591.81	-616.94	1715732.41	3258206.12	39°47'41.638N104°34'52.072W		Point

## SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec	Target
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	1540.00	0.00	0.00	1540.00	0.00	0.00	0.00	0.00	0.00	
3	1940.00	6.00	290.00	1939.27	7.16	-19.66	1.50	290.00	7.37	
4	6732.07	6.00	290.00	6705.09	178.48	-490.36	0.00	0.00	183.77	
5	7610.66	90.00	359.06	7254.00	750.07	-553.67	10.00	69.16	756.02	
6	11452.92	90.00	359.06	7254.00	4591.81	-616.94	0.00	0.00	4598.22	PBHL 1-20



**Company:** CARRIZO OIL & GAS, INC.  
**Field:** Niobrara COCZ'83  
**Site:** WEP 20 PAD  
**Well:** 1-20-11-3-64  
**Wellpath:** Original Hole

**Date:** 06/06/2012  
**Co-ordinate(NE) Reference:** Well: 1-20-11-3-64, Grid North  
**Vertical (TVD) Reference:** 5424'GL+17'KB 5441.0  
**Section (VS) Reference:** Well (0.00N,0.00E,359.38Azi)  
**Plan:** Plan #1

**Page:** 1

**Field:** Niobrara COCZ'83

**Map System:** US State Plane Coordinate System 1983  
**Geo Datum:** GRS 1980  
**Sys Datum:** Mean Sea Level

**Map Zone:** Colorado, Central Zone  
**Coordinate System:** Well Centre  
**Geomagnetic Model:** IGRF2010

**Site:** WEP 20 PAD  
S:20, T:3S, R:64W  
Adams County, CO

**Site Position:**  
**From:** Map  
**Position Uncertainty:** 0.00 ft  
**Ground Level:** 5424.00 ft

**Northing:** 1711130.11 ft  
**Easting:** 3258823.25 ft

**Latitude:** 39 46 56.096 N  
**Longitude:** 104 34 44.764 W  
**North Reference:** Grid  
**Grid Convergence:** 0.58 deg

**Well:** 1-20-11-3-64  
Centered on 2-20

**Slot Name:** 1-20

**Well Position:** +N/-S 10.49 ft  
+E/-W -0.19 ft  
**Position Uncertainty:** 0.00 ft

**Northing:** 1711140.60 ft  
**Easting :** 3258823.06 ft

**Latitude:** 39 46 56.200 N  
**Longitude:** 104 34 44.765 W

**Wellpath:** Original Hole

**Drilled From:** Surface  
**Tie-on Depth:** 0.00 ft  
**Above System Datum:** Mean Sea Level  
**Declination:** 8.57 deg  
**Mag Dip Angle:** 66.54 deg

**+N/-S**  
ft  
ft  
ft

**Direction**  
deg

**Current Datum:** 5424'GL+17'KB  
**Magnetic Data:** 06/30/2012  
**Field Strength:** 52755 nT  
**Vertical Section:** Depth From (TVD)  
ft

**Height** 5441.00 ft

0.00 0.00 0.00 359.38

**Plan:** Plan #1

**Date Composed:** 06/06/2012  
**Version:** 1  
**Tied-to:** From Surface

**Principal:** No

#### Plan Section Information

MD ft	Incl deg	Azim deg	TVD ft	+N/-S ft	+E/-W ft	DLS deg/100ft	Build deg/100ft	Turn deg/100ft	TFO deg	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
1540.00	0.00	0.00	1540.00	0.00	0.00	0.00	0.00	0.00	0.00	
1940.00	6.00	290.00	1939.27	7.16	-19.66	1.50	1.50	0.00	290.00	
6732.07	6.00	290.00	6705.09	178.48	-490.36	0.00	0.00	0.00	0.00	
7610.66	90.00	359.06	7254.00	750.07	-553.67	10.00	9.56	7.86	69.16	
11452.92	90.00	359.06	7254.00	4591.81	-616.94	0.00	0.00	0.00	0.00	PBHL 1-20

#### Survey

MD ft	Incl deg	Azim deg	TVD ft	+N/-S ft	+E/-W ft	VS ft	DLS deg/100ft	Build deg/100ft	Turn deg/100ft	Tool/Comment
1540.00	0.00	0.00	1540.00	0.00	0.00	0.00	0.00	0.00	0.00	
1600.00	0.90	290.00	1600.00	0.16	-0.44	0.17	1.50	1.50	0.00	
1700.00	2.40	290.00	1699.95	1.15	-3.15	1.18	1.50	1.50	0.00	
1800.00	3.90	290.00	1799.80	3.03	-8.31	3.12	1.50	1.50	0.00	
1900.00	5.40	290.00	1899.47	5.80	-15.93	5.97	1.50	1.50	0.00	
1940.00	6.00	290.00	1939.27	7.16	-19.66	7.37	1.50	1.50	0.00	
2000.00	6.00	290.00	1998.94	9.30	-25.56	9.58	0.00	0.00	0.00	
2100.00	6.00	290.00	2098.39	12.88	-35.38	13.26	0.00	0.00	0.00	
2200.00	6.00	290.00	2197.85	16.45	-45.20	16.94	0.00	0.00	0.00	
2300.00	6.00	290.00	2297.30	20.03	-55.02	20.62	0.00	0.00	0.00	
2400.00	6.00	290.00	2396.75	23.60	-64.85	24.30	0.00	0.00	0.00	
2500.00	6.00	290.00	2496.20	27.18	-74.67	27.98	0.00	0.00	0.00	
2600.00	6.00	290.00	2595.65	30.75	-84.49	31.66	0.00	0.00	0.00	
2700.00	6.00	290.00	2695.11	34.33	-94.31	35.35	0.00	0.00	0.00	
2800.00	6.00	290.00	2794.56	37.90	-104.14	39.03	0.00	0.00	0.00	

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**Section (VS) Reference:** Well (0.00N,0.00E,359.38Azi)  
**Plan:** Plan #1

**Page:** 2

**Survey**

MD ft	Incl deg	Azim deg	TVD ft	+N/-S ft	+E/-W ft	VS ft	DLS deg/100ft	Build deg/100ft	Turn deg/100ft	Tool/Comment
2900.00	6.00	290.00	2894.01	41.48	-113.96	42.71	0.00	0.00	0.00	
3000.00	6.00	290.00	2993.46	45.05	-123.78	46.39	0.00	0.00	0.00	
3100.00	6.00	290.00	3092.91	48.63	-133.60	50.07	0.00	0.00	0.00	
3200.00	6.00	290.00	3192.37	52.20	-143.43	53.75	0.00	0.00	0.00	
3300.00	6.00	290.00	3291.82	55.78	-153.25	57.43	0.00	0.00	0.00	
3400.00	6.00	290.00	3391.27	59.35	-163.07	61.11	0.00	0.00	0.00	
3500.00	6.00	290.00	3490.72	62.93	-172.89	64.80	0.00	0.00	0.00	
3600.00	6.00	290.00	3590.18	66.50	-182.72	68.48	0.00	0.00	0.00	
3700.00	6.00	290.00	3689.63	70.08	-192.54	72.16	0.00	0.00	0.00	
3800.00	6.00	290.00	3789.08	73.65	-202.36	75.84	0.00	0.00	0.00	
3900.00	6.00	290.00	3888.53	77.23	-212.18	79.52	0.00	0.00	0.00	
4000.00	6.00	290.00	3987.98	80.80	-222.01	83.20	0.00	0.00	0.00	
4100.00	6.00	290.00	4087.44	84.38	-231.83	86.88	0.00	0.00	0.00	
4200.00	6.00	290.00	4186.89	87.95	-241.65	90.56	0.00	0.00	0.00	
4300.00	6.00	290.00	4286.34	91.53	-251.47	94.24	0.00	0.00	0.00	
4400.00	6.00	290.00	4385.79	95.10	-261.30	97.93	0.00	0.00	0.00	
4500.00	6.00	290.00	4485.25	98.68	-271.12	101.61	0.00	0.00	0.00	
4600.00	6.00	290.00	4584.70	102.25	-280.94	105.29	0.00	0.00	0.00	
4700.00	6.00	290.00	4684.15	105.83	-290.76	108.97	0.00	0.00	0.00	
4800.00	6.00	290.00	4783.60	109.40	-300.59	112.65	0.00	0.00	0.00	
4900.00	6.00	290.00	4883.05	112.98	-310.41	116.33	0.00	0.00	0.00	
5000.00	6.00	290.00	4982.51	116.55	-320.23	120.01	0.00	0.00	0.00	
5100.00	6.00	290.00	5081.96	120.13	-330.05	123.69	0.00	0.00	0.00	
5200.00	6.00	290.00	5181.41	123.70	-339.88	127.37	0.00	0.00	0.00	
5300.00	6.00	290.00	5280.86	127.28	-349.70	131.06	0.00	0.00	0.00	
5400.00	6.00	290.00	5380.32	130.85	-359.52	134.74	0.00	0.00	0.00	
5500.00	6.00	290.00	5479.77	134.43	-369.34	138.42	0.00	0.00	0.00	
5600.00	6.00	290.00	5579.22	138.00	-379.17	142.10	0.00	0.00	0.00	
5700.00	6.00	290.00	5678.67	141.58	-388.99	145.78	0.00	0.00	0.00	
5800.00	6.00	290.00	5778.12	145.15	-398.81	149.46	0.00	0.00	0.00	
5900.00	6.00	290.00	5877.58	148.73	-408.63	153.14	0.00	0.00	0.00	
6000.00	6.00	290.00	5977.03	152.31	-418.45	156.82	0.00	0.00	0.00	
6100.00	6.00	290.00	6076.48	155.88	-428.28	160.51	0.00	0.00	0.00	
6200.00	6.00	290.00	6175.93	159.46	-438.10	164.19	0.00	0.00	0.00	
6300.00	6.00	290.00	6275.38	163.03	-447.92	167.87	0.00	0.00	0.00	
6400.00	6.00	290.00	6374.84	166.61	-457.74	171.55	0.00	0.00	0.00	
6500.00	6.00	290.00	6474.29	170.18	-467.57	175.23	0.00	0.00	0.00	
6600.00	6.00	290.00	6573.74	173.76	-477.39	178.91	0.00	0.00	0.00	
6700.00	6.00	290.00	6673.19	177.33	-487.21	182.59	0.00	0.00	0.00	
6732.07	6.00	290.00	6705.09	178.48	-490.36	183.77	0.00	0.00	0.00	
6750.00	6.85	304.20	6722.91	179.40	-492.13	184.71	10.00	4.71	79.21	
6800.00	10.54	327.20	6772.34	184.92	-497.07	190.29	10.00	7.38	46.00	
6850.00	15.00	337.56	6821.10	194.75	-502.02	200.17	10.00	8.93	20.73	
6900.00	19.72	343.16	6868.81	208.81	-506.93	214.28	10.00	9.44	11.19	
6950.00	24.54	346.64	6915.11	227.00	-511.78	232.52	10.00	9.65	6.97	
7000.00	29.43	349.03	6959.66	249.17	-516.52	254.75	10.00	9.76	4.78	
7050.00	34.34	350.80	7002.10	275.17	-521.11	280.79	10.00	9.83	3.52	
7100.00	39.27	352.16	7042.12	304.79	-525.53	310.46	10.00	9.87	2.73	
7150.00	44.22	353.27	7079.42	337.80	-529.74	343.51	10.00	9.89	2.21	
7200.00	49.17	354.19	7113.70	373.96	-533.70	379.71	10.00	9.91	1.85	
7250.00	54.13	354.99	7144.71	412.98	-537.38	418.77	10.00	9.92	1.59	
7300.00	59.10	355.69	7172.22	454.58	-540.77	460.41	10.00	9.93	1.40	
7350.00	64.07	356.32	7196.00	498.44	-543.83	504.29	10.00	9.94	1.26	
7400.00	69.04	356.90	7215.89	544.21	-546.53	550.10	10.00	9.94	1.16	

**Company:** CARRIZO OIL & GAS, INC.  
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**Date:** 06/06/2012  
**Co-ordinate(NE) Reference:** Well: 1-20-11-3-64, Grid North  
**Vertical (TVD) Reference:** 5424'GL+17"KB 5441.0  
**Section (VS) Reference:** Well (0.00N,0.00E,359.38Azi)  
**Plan:** Plan #1

**Page:** 3

**Survey**

MD ft	Incl deg	Azim deg	TVD ft	+N/-S ft	+E/-W ft	VS ft	DLS deg/100ft	Build deg/100ft	Turn deg/100ft	Tool/Comment
7450.00	74.01	357.44	7231.73	591.57	-548.87	597.47	10.00	9.95	1.09	
7500.00	78.99	357.96	7243.40	640.13	-550.81	646.05	10.00	9.95	1.03	
7550.00	83.96	358.46	7250.81	689.54	-552.35	695.47	10.00	9.95	1.00	
7600.00	88.94	358.95	7253.90	739.41	-553.48	745.36	10.00	9.95	0.98	
7610.66	90.00	359.06	7254.00	750.07	-553.67	756.02	10.00	9.95	0.98	7"
7700.00	90.00	359.06	7254.00	839.40	-555.14	845.36	0.00	0.00	0.00	
7800.00	90.00	359.06	7254.00	939.38	-556.78	945.35	0.00	0.00	0.00	
7900.00	90.00	359.06	7254.00	1039.37	-558.43	1045.35	0.00	0.00	0.00	
8000.00	90.00	359.06	7254.00	1139.36	-560.08	1145.35	0.00	0.00	0.00	
8100.00	90.00	359.06	7254.00	1239.34	-561.72	1245.35	0.00	0.00	0.00	
8200.00	90.00	359.06	7254.00	1339.33	-563.37	1345.35	0.00	0.00	0.00	
8300.00	90.00	359.06	7254.00	1439.32	-565.02	1445.35	0.00	0.00	0.00	
8400.00	90.00	359.06	7254.00	1539.30	-566.66	1545.35	0.00	0.00	0.00	
8500.00	90.00	359.06	7254.00	1639.29	-568.31	1645.34	0.00	0.00	0.00	
8600.00	90.00	359.06	7254.00	1739.28	-569.96	1745.34	0.00	0.00	0.00	
8700.00	90.00	359.06	7254.00	1839.26	-571.60	1845.34	0.00	0.00	0.00	
8800.00	90.00	359.06	7254.00	1939.25	-573.25	1945.34	0.00	0.00	0.00	
8900.00	90.00	359.06	7254.00	2039.24	-574.90	2045.34	0.00	0.00	0.00	
9000.00	90.00	359.06	7254.00	2139.22	-576.55	2145.34	0.00	0.00	0.00	
9100.00	90.00	359.06	7254.00	2239.21	-578.19	2245.33	0.00	0.00	0.00	
9200.00	90.00	359.06	7254.00	2339.20	-579.84	2345.33	0.00	0.00	0.00	
9300.00	90.00	359.06	7254.00	2439.18	-581.49	2445.33	0.00	0.00	0.00	
9400.00	90.00	359.06	7254.00	2539.17	-583.13	2545.33	0.00	0.00	0.00	
9500.00	90.00	359.06	7254.00	2639.15	-584.78	2645.33	0.00	0.00	0.00	
9600.00	90.00	359.06	7254.00	2739.14	-586.43	2745.33	0.00	0.00	0.00	
9700.00	90.00	359.06	7254.00	2839.13	-588.07	2845.32	0.00	0.00	0.00	
9800.00	90.00	359.06	7254.00	2939.11	-589.72	2945.32	0.00	0.00	0.00	
9900.00	90.00	359.06	7254.00	3039.10	-591.37	3045.32	0.00	0.00	0.00	
10000.00	90.00	359.06	7254.00	3139.09	-593.01	3145.32	0.00	0.00	0.00	
10100.00	90.00	359.06	7254.00	3239.07	-594.66	3245.32	0.00	0.00	0.00	
10200.00	90.00	359.06	7254.00	3339.06	-596.31	3345.32	0.00	0.00	0.00	
10300.00	90.00	359.06	7254.00	3439.05	-597.95	3445.31	0.00	0.00	0.00	
10400.00	90.00	359.06	7254.00	3539.03	-599.60	3545.31	0.00	0.00	0.00	
10500.00	90.00	359.06	7254.00	3639.02	-601.25	3645.31	0.00	0.00	0.00	
10600.00	90.00	359.06	7254.00	3739.01	-602.89	3745.31	0.00	0.00	0.00	
10700.00	90.00	359.06	7254.00	3838.99	-604.54	3845.31	0.00	0.00	0.00	
10800.00	90.00	359.06	7254.00	3938.98	-606.19	3945.31	0.00	0.00	0.00	
10900.00	90.00	359.06	7254.00	4038.96	-607.83	4045.31	0.00	0.00	0.00	
11000.00	90.00	359.06	7254.00	4138.95	-609.48	4145.30	0.00	0.00	0.00	
11100.00	90.00	359.06	7254.00	4238.94	-611.13	4245.30	0.00	0.00	0.00	
11200.00	90.00	359.06	7254.00	4338.92	-612.77	4345.30	0.00	0.00	0.00	
11300.00	90.00	359.06	7254.00	4438.91	-614.42	4445.30	0.00	0.00	0.00	
11400.00	90.00	359.06	7254.00	4538.90	-616.07	4545.30	0.00	0.00	0.00	
11452.92	90.00	359.06	7254.00	4591.81	-616.94	4598.22	0.00	0.00	0.00	PBHL 1-20

**Targets**

Name	Description Dip.	Dir.	TVD ft	+N/-S ft	+E/-W ft	Map Northing ft	Map Easting ft	<--- Latitude ---> Deg Min Sec			<--- Longitude ---> Deg Min Sec		
SL 1-20			0.00	0.00	0.00	1711140.603258823.06		39	46	56.200 N	104	34	44.765 W
Steele #1 -Circle (Radius: 300)			0.00	4891.69	-608.53	1716032.293258214.53		39	47	44.601 N	104	34	51.925 W

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**Plan:** Plan #1

**Time:** 15:03:05  
**Page:** 4

#### Targets

Name	Description Dip.	Dir.	TVD ft	+N/-S ft	+E/-W ft	Map Northing ft	Map Easting ft	<---- Latitude ----> Deg Min Sec	<--- Longitude ---> Deg Min Sec
PBHL 1-20			7254.00	4591.81	-616.94	1715732.41	3258206.12	39 47 41.638 N	104 34 52.072 W

#### Casing Points

MD ft	TVD ft	Diameter in	Hole Size in	Name
7610.66	7254.00	7.000	8.750	7"