

# BONANZA CREEK ENERGY OPERATING

Well Name: **Pronghorn 44-41-7HNB**

Surface Location: Pronghorn 44-41-7HNB Pad Sec.7-T5N-R61W  
North American Datum 1983 , US State Plane 1983 , Colorado Northern Zone

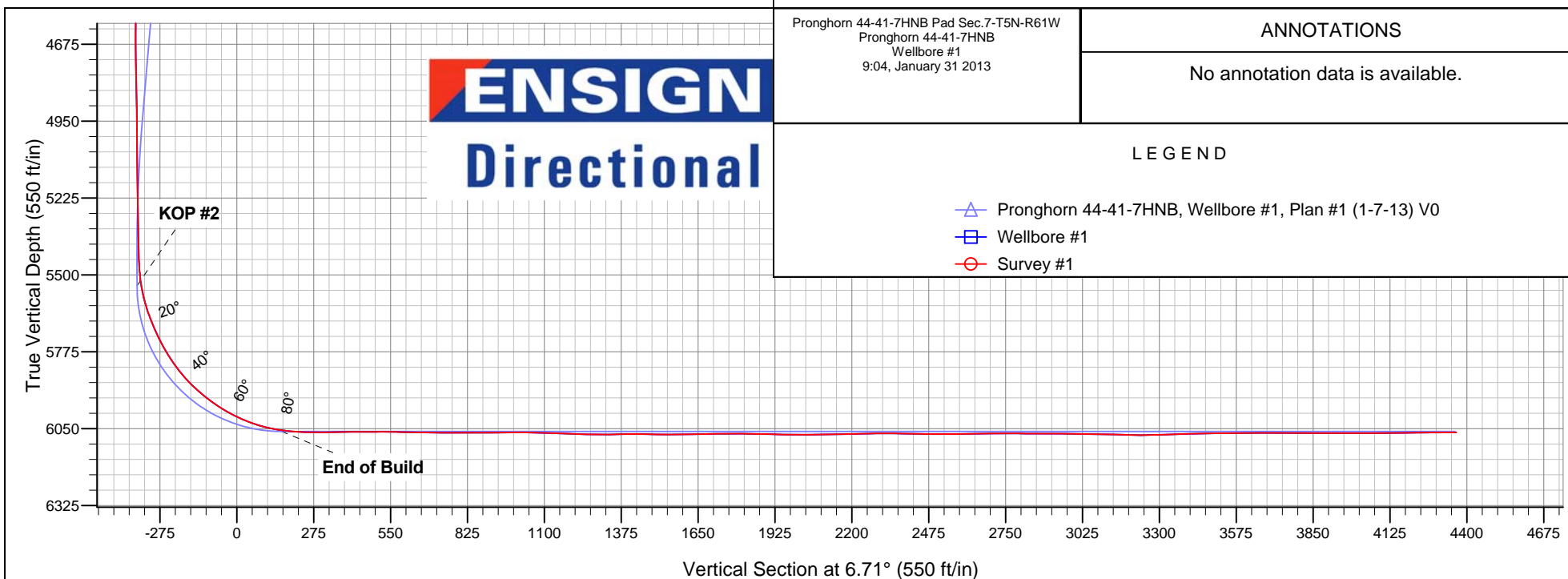
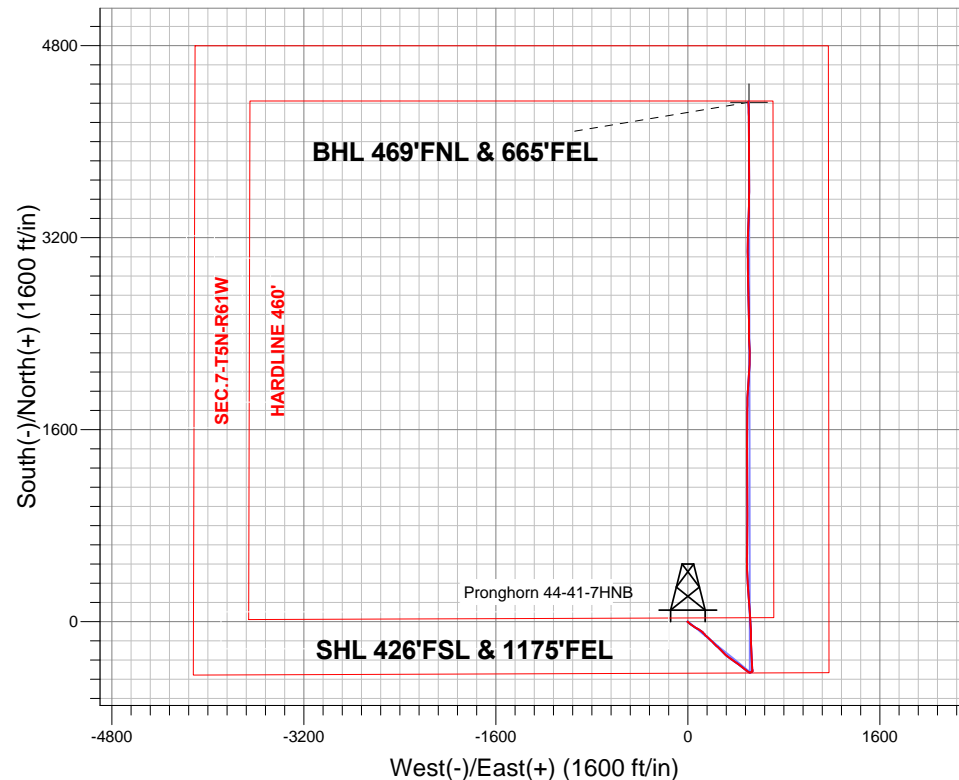
Ground Elevation: 4562.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	1394562.47	3348884.04	40.409710	-104.247100	

Ensign 128 - RKB 15' WELL @ 4577.0ft (Ensign 128 - RKB 15')

## FINAL SURVEY

Projected Bottom Hole Location  
10610' MD 6063' TVD 4333' N & 505' E of SHL  
90.6 degree Incl @ 359.2 degree AZM



Pronghorn 44-41-7HNB Pad Sec.7-T5N-R61W  
Pronghorn 44-41-7HNB  
Wellbore #1  
9:04, January 31 2013

### ANNOTATIONS

No annotation data is available.

### LEGEND

- Pronghorn 44-41-7HNB, Wellbore #1, Plan #1 (1-7-13) V0
- Wellbore #1
- Survey #1



# **BONANZA CREEK ENERGY OPERATING**

**SEC.7-T5N-R61W**

**Pronghorn 44-41-7HNB Pad Sec.7-T5N-R61W**

**Pronghorn 44-41-7HNB**

**Wellbore #1**

**Survey: Survey #1**

## **Standard Survey Report**

**31 January, 2013**

Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
88.0	0.70	218.60	88.0	-0.4	-0.3	-0.5	0.80	0.80	0.00
184.0	0.60	233.70	184.0	-1.2	-1.1	-1.3	0.21	-0.10	15.73
275.0	0.60	258.60	275.0	-1.6	-2.0	-1.8	0.28	0.00	27.36
368.0	0.80	289.60	368.0	-1.4	-3.0	-1.8	0.45	0.22	33.33
427.0	0.90	294.50	427.0	-1.1	-3.9	-1.5	0.21	0.17	8.31
522.0	0.90	346.70	522.0	-0.1	-4.7	-0.6	0.83	0.00	54.95
646.0	1.20	128.10	646.0	0.1	-3.9	-0.4	1.60	0.24	114.03
770.0	3.60	131.40	769.8	-3.3	0.0	-3.3	1.94	1.94	2.66
894.0	6.00	132.50	893.4	-10.2	7.7	-9.3	1.94	1.94	0.89
1,016.0	8.90	127.20	1,014.4	-20.3	20.0	-17.8	2.44	2.38	-4.34
1,140.0	10.80	127.40	1,136.5	-33.1	36.8	-28.6	1.53	1.53	0.16
1,264.0	11.90	119.50	1,258.1	-46.5	57.2	-39.5	1.53	0.89	-6.37

<b>Company:</b>	BONANZA CREEK ENERGY OPERATING	<b>Local Co-ordinate Reference:</b>	Well Pronghorn 44-41-7HNB
<b>Project:</b>	SEC.7-T5N-R61W	<b>TVD Reference:</b>	WELL @ 4577.0ft (Ensign 128 - RKB 15')
<b>Site:</b>	Pronghorn 44-41-7HNB Pad Sec.7-T5N-R61W	<b>MD Reference:</b>	WELL @ 4577.0ft (Ensign 128 - RKB 15')
<b>Well:</b>	Pronghorn 44-41-7HNB	<b>North Reference:</b>	True
<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Wellbore #1	<b>Database:</b>	Landmark

Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	
1,388.0	11.60	120.50	1,379.5	-59.1	79.1	-49.4	0.29	-0.24	0.81	
1,512.0	9.10	122.50	1,501.5	-70.7	98.1	-58.7	2.04	-2.02	1.61	
1,635.0	8.30	123.70	1,623.1	-80.8	113.7	-67.0	0.67	-0.65	0.98	
1,759.0	8.00	139.20	1,745.8	-92.3	126.7	-76.9	1.78	-0.24	12.50	
1,882.0	8.90	139.50	1,867.5	-106.1	138.5	-89.1	0.73	0.73	0.24	
2,005.0	10.90	133.40	1,988.6	-121.3	153.1	-102.6	1.83	1.63	-4.96	
2,127.0	10.20	132.30	2,108.6	-136.5	169.5	-115.7	0.60	-0.57	-0.90	
2,250.0	10.70	134.80	2,229.5	-151.9	185.7	-129.1	0.55	0.41	2.03	
2,373.0	9.60	132.30	2,350.6	-166.8	201.4	-142.1	0.96	-0.89	-2.03	
2,496.0	9.90	136.50	2,471.8	-181.4	216.2	-154.9	0.63	0.24	3.41	
2,619.0	10.60	132.80	2,592.9	-196.7	231.8	-168.3	0.78	0.57	-3.01	
2,744.0	9.20	133.90	2,716.0	-211.5	247.4	-181.1	1.13	-1.12	0.88	
2,871.0	7.80	130.70	2,841.6	-224.1	261.3	-192.1	1.16	-1.10	-2.52	
2,998.0	8.30	138.30	2,967.4	-236.6	273.9	-203.0	0.92	0.39	5.98	
3,126.0	8.30	137.60	3,094.0	-250.3	286.3	-215.1	0.08	0.00	-0.55	
3,252.0	10.10	132.50	3,218.4	-264.5	300.6	-227.5	1.57	1.43	-4.05	
3,380.0	12.20	130.50	3,344.0	-280.9	319.1	-241.6	1.67	1.64	-1.56	
3,508.0	13.00	128.40	3,468.9	-298.6	340.7	-256.7	0.72	0.63	-1.64	
3,634.0	13.50	124.70	3,591.5	-315.8	363.9	-271.1	0.78	0.40	-2.94	
3,761.0	13.50	124.60	3,715.0	-332.6	388.3	-285.0	0.02	0.00	-0.08	
3,888.0	12.70	126.30	3,838.7	-349.3	411.8	-298.8	0.70	-0.63	1.34	
4,016.0	12.40	127.40	3,963.7	-366.0	434.0	-312.7	0.30	-0.23	0.86	
4,142.0	11.50	125.40	4,086.9	-381.5	455.0	-325.7	0.79	-0.71	-1.59	
4,269.0	10.50	129.30	4,211.6	-396.1	474.3	-338.0	0.98	-0.79	3.07	
4,396.0	7.70	132.80	4,337.0	-409.3	489.5	-349.2	2.25	-2.20	2.76	
4,523.0	6.40	123.70	4,463.0	-419.0	501.6	-357.4	1.35	-1.02	-7.17	
4,650.0	4.20	105.00	4,589.5	-424.1	512.0	-361.3	2.18	-1.73	-14.72	
4,777.0	2.60	77.80	4,716.3	-424.7	519.3	-361.1	1.76	-1.26	-21.42	
4,904.0	1.80	50.20	4,843.2	-422.8	523.6	-358.7	1.03	-0.63	-21.73	
5,031.0	0.60	87.10	4,970.2	-421.5	525.8	-357.1	1.08	-0.94	29.06	
5,158.0	1.20	57.10	5,097.1	-420.7	527.6	-356.2	0.59	0.47	-23.62	
5,285.0	1.60	68.50	5,224.1	-419.4	530.4	-354.5	0.38	0.31	8.98	
5,413.0	1.70	51.40	5,352.1	-417.5	533.5	-352.3	0.39	0.08	-13.36	
5,476.0	2.20	55.80	5,415.0	-416.3	535.3	-350.8	0.83	0.79	6.98	
5,507.0	2.40	47.90	5,446.0	-415.5	536.2	-350.0	1.21	0.65	-25.48	
5,539.0	4.00	16.10	5,477.9	-414.0	537.0	-348.3	7.29	5.00	-99.38	
5,571.0	6.70	0.10	5,509.8	-411.0	537.4	-345.4	9.56	8.44	-50.00	
5,603.0	9.80	357.60	5,541.5	-406.5	537.2	-340.8	9.75	9.69	-7.81	
5,635.0	13.00	354.10	5,572.8	-400.1	536.8	-334.6	10.23	10.00	-10.94	
5,666.0	16.30	355.50	5,602.8	-392.3	536.1	-327.0	10.71	10.65	4.52	
5,698.0	19.00	357.80	5,633.3	-382.7	535.5	-317.4	8.71	8.44	7.19	
5,730.0	21.90	356.90	5,663.3	-371.5	535.0	-306.4	9.12	9.06	-2.81	
5,762.0	23.90	357.10	5,692.8	-359.1	534.3	-294.1	6.25	6.25	0.63	
5,793.0	26.10	357.30	5,720.9	-346.0	533.7	-281.2	7.10	7.10	0.65	
5,825.0	28.50	356.90	5,749.3	-331.3	533.0	-266.7	7.52	7.50	-1.25	
5,856.0	31.20	356.20	5,776.2	-315.9	532.0	-251.5	8.78	8.71	-2.26	
5,888.0	34.00	356.10	5,803.1	-298.7	530.9	-234.6	8.75	8.75	-0.31	
5,919.0	36.90	356.60	5,828.4	-280.8	529.7	-216.9	9.40	9.35	1.61	
5,951.0	39.80	357.10	5,853.5	-260.9	528.6	-197.4	9.11	9.06	1.56	
5,983.0	43.30	357.60	5,877.4	-239.8	527.7	-176.4	10.99	10.94	1.56	
6,014.0	46.40	358.40	5,899.4	-217.9	526.9	-154.8	10.16	10.00	2.58	
6,046.0	49.80	359.60	5,920.8	-194.1	526.5	-131.2	10.99	10.63	3.75	
6,078.0	52.60	359.20	5,940.8	-169.2	526.2	-106.5	8.80	8.75	-1.25	
6,110.0	55.10	359.90	5,959.7	-143.3	526.0	-80.8	8.01	7.81	2.19	

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<b>Well:</b>	Pronghorn 44-41-7HNB	<b>North Reference:</b>	True
<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Wellbore #1	<b>Database:</b>	Landmark

## Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
6,142.0	57.90	359.10	5,977.4	-116.6	525.8	-54.4	8.99	8.75	-2.50
6,173.0	61.40	358.40	5,993.0	-89.9	525.2	-27.9	11.46	11.29	-2.26
6,205.0	64.70	357.10	6,007.5	-61.4	524.1	0.3	10.93	10.31	-4.06
6,237.0	68.00	356.80	6,020.4	-32.1	522.5	29.2	10.35	10.31	-0.94
6,268.0	71.00	356.20	6,031.2	-3.2	520.7	57.7	9.85	9.68	-1.94
6,300.0	74.70	355.90	6,040.6	27.3	518.6	87.8	11.60	11.56	-0.94
6,332.0	78.10	355.50	6,048.2	58.4	516.3	118.3	10.69	10.63	-1.25
6,364.0	80.80	355.20	6,054.0	89.7	513.8	149.2	8.49	8.44	-0.94
6,395.0	83.70	356.10	6,058.2	120.3	511.4	179.3	9.79	9.35	2.90
6,427.0	86.40	356.60	6,061.0	152.1	509.4	210.7	8.58	8.44	1.56
6,458.0	89.10	357.10	6,062.2	183.1	507.7	241.2	8.86	8.71	1.61
6,490.0	89.30	356.10	6,062.6	215.0	505.8	272.7	3.19	0.63	-3.13
6,510.0	89.40	356.10	6,062.9	235.0	504.4	292.3	0.50	0.50	0.00
6,589.0	91.50	356.20	6,062.2	313.8	499.1	370.0	2.66	2.66	0.13
6,620.0	90.60	355.40	6,061.7	344.7	496.9	400.4	3.88	-2.90	-2.58
6,651.0	89.40	356.10	6,061.7	375.6	494.6	430.8	4.48	-3.87	2.26
6,681.0	90.50	357.30	6,061.7	405.5	492.8	460.4	5.43	3.67	4.00
6,712.0	90.50	358.70	6,061.4	436.5	491.8	491.0	4.52	0.00	4.52
6,743.0	90.00	359.60	6,061.3	467.5	491.3	521.8	3.32	-1.61	2.90
6,775.0	89.60	0.30	6,061.4	499.5	491.3	553.5	2.52	-1.25	2.19
6,807.0	88.60	1.20	6,061.9	531.5	491.7	585.4	4.20	-3.13	2.81
6,838.0	88.70	0.60	6,062.6	562.5	492.2	616.2	1.96	0.32	-1.94
6,870.0	89.10	0.10	6,063.2	594.5	492.4	648.0	2.00	1.25	-1.56
6,902.0	89.50	1.20	6,063.6	626.5	492.7	679.8	3.66	1.25	3.44
6,934.0	89.10	0.10	6,064.0	658.5	493.1	711.6	3.66	-1.25	-3.44
6,966.0	89.10	0.60	6,064.5	690.5	493.3	743.4	1.56	0.00	1.56
6,997.0	89.40	0.30	6,064.9	721.5	493.5	774.2	1.37	0.97	-0.97
7,029.0	90.00	359.20	6,065.1	753.5	493.4	806.0	3.92	1.88	-3.44
7,061.0	90.80	0.30	6,064.9	785.5	493.3	837.8	4.25	2.50	3.44
7,093.0	90.70	1.30	6,064.5	817.5	493.7	869.6	3.14	-0.31	3.13
7,125.0	90.30	1.20	6,064.2	849.5	494.4	901.4	1.29	-1.25	-0.31
7,156.0	90.00	359.40	6,064.1	880.5	494.6	932.2	5.89	-0.97	-5.81
7,188.0	90.70	0.50	6,063.9	912.5	494.5	964.0	4.07	2.19	3.44
7,220.0	90.60	1.50	6,063.5	944.5	495.1	995.9	3.14	-0.31	3.13
7,252.0	89.50	1.00	6,063.5	976.4	495.8	1,027.7	3.78	-3.44	-1.56
7,283.0	88.50	1.20	6,064.1	1,007.4	496.4	1,058.6	3.29	-3.23	0.65
7,315.0	88.40	359.60	6,064.9	1,039.4	496.6	1,090.4	5.01	-0.31	-5.00
7,347.0	88.20	359.20	6,065.9	1,071.4	496.3	1,122.1	1.40	-0.63	-1.25
7,378.0	88.00	358.70	6,066.9	1,102.4	495.7	1,152.8	1.74	-0.65	-1.61
7,410.0	88.10	359.60	6,068.0	1,134.4	495.2	1,184.5	2.83	0.31	2.81
7,442.0	88.00	359.90	6,069.1	1,166.3	495.1	1,216.2	0.99	-0.31	0.94
7,474.0	88.50	359.40	6,070.1	1,198.3	494.9	1,248.0	2.21	1.56	-1.56
7,505.0	88.90	358.90	6,070.8	1,229.3	494.4	1,278.7	2.07	1.29	-1.61
7,537.0	90.70	359.40	6,070.9	1,261.3	494.0	1,310.4	5.84	5.63	1.56
7,569.0	91.00	0.10	6,070.4	1,293.3	493.8	1,342.2	2.38	0.94	2.19
7,601.0	90.90	359.40	6,069.9	1,325.3	493.7	1,373.9	2.21	-0.31	-2.19
7,632.0	90.70	358.90	6,069.4	1,356.3	493.2	1,404.7	1.74	-0.65	-1.61
7,664.0	89.70	358.90	6,069.3	1,388.3	492.6	1,436.4	3.13	-3.13	0.00
7,696.0	88.80	358.50	6,069.7	1,420.3	491.9	1,468.0	3.08	-2.81	-1.25
7,728.0	88.80	359.40	6,070.4	1,452.3	491.3	1,499.7	2.81	0.00	2.81
7,759.0	89.30	359.40	6,070.9	1,483.3	491.0	1,530.5	1.61	1.61	0.00
7,791.0	90.40	359.80	6,071.0	1,515.3	490.7	1,562.2	3.66	3.44	1.25
7,823.0	91.00	1.00	6,070.6	1,547.2	491.0	1,594.0	4.19	1.88	3.75
7,855.0	91.30	1.50	6,070.0	1,579.2	491.7	1,625.9	1.82	0.94	1.56

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<b>Project:</b>	SEC.7-T5N-R61W	<b>TVD Reference:</b>	WELL @ 4577.0ft (Ensign 128 - RKB 15')
<b>Site:</b>	Pronghorn 44-41-7HNB Pad Sec.7-T5N-R61W	<b>MD Reference:</b>	WELL @ 4577.0ft (Ensign 128 - RKB 15')
<b>Well:</b>	Pronghorn 44-41-7HNB	<b>North Reference:</b>	True
<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Wellbore #1	<b>Database:</b>	Landmark

## Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
7,887.0	91.40	1.00	6,069.2	1,611.2	492.4	1,657.7	1.59	0.31	-1.56
7,918.0	90.90	0.60	6,068.6	1,642.2	492.8	1,688.6	2.07	-1.61	-1.29
7,950.0	90.60	1.00	6,068.2	1,674.2	493.2	1,720.4	1.56	-0.94	1.25
7,982.0	89.70	0.30	6,068.1	1,706.2	493.6	1,752.2	3.56	-2.81	-2.19
8,014.0	90.00	0.80	6,068.2	1,738.2	493.9	1,784.0	1.82	0.94	1.56
8,045.0	89.60	1.90	6,068.3	1,769.2	494.6	1,814.9	3.78	-1.29	3.55
8,077.0	89.10	1.30	6,068.6	1,801.2	495.5	1,846.8	2.44	-1.56	-1.88
8,109.0	89.10	0.30	6,069.2	1,833.2	496.0	1,878.6	3.12	0.00	-3.13
8,140.0	89.00	1.30	6,069.7	1,864.2	496.4	1,909.4	3.24	-0.32	3.23
8,172.0	88.70	2.20	6,070.3	1,896.1	497.4	1,941.3	2.96	-0.94	2.81
8,204.0	88.70	4.00	6,071.0	1,928.1	499.1	1,973.2	5.62	0.00	5.63
8,236.0	89.10	4.50	6,071.6	1,960.0	501.5	2,005.2	2.00	1.25	1.56
8,267.0	90.40	3.80	6,071.8	1,990.9	503.7	2,036.1	4.76	4.19	-2.26
8,299.0	90.50	4.90	6,071.5	2,022.8	506.2	2,068.1	3.45	0.31	3.44
8,331.0	90.70	3.40	6,071.2	2,054.7	508.5	2,100.1	4.73	0.63	-4.69
8,363.0	91.20	3.30	6,070.7	2,086.7	510.4	2,132.0	1.59	1.56	-0.31
8,395.0	91.60	3.30	6,069.9	2,118.6	512.2	2,164.0	1.25	1.25	0.00
8,426.0	91.50	1.50	6,069.0	2,149.6	513.5	2,194.9	5.81	-0.32	-5.81
8,458.0	90.90	0.30	6,068.4	2,181.5	514.0	2,226.7	4.19	-1.88	-3.75
8,490.0	91.10	359.20	6,067.8	2,213.5	513.9	2,258.4	3.49	0.63	-3.44
8,521.0	90.60	359.40	6,067.4	2,244.5	513.5	2,289.2	1.74	-1.61	0.65
8,553.0	90.00	358.20	6,067.2	2,276.5	512.8	2,320.9	4.19	-1.88	-3.75
8,585.0	89.70	357.30	6,067.3	2,308.5	511.5	2,352.5	2.96	-0.94	-2.81
8,616.0	88.90	358.00	6,067.7	2,339.5	510.3	2,383.1	3.43	-2.58	2.26
8,648.0	88.90	357.80	6,068.3	2,371.4	509.1	2,414.7	0.62	0.00	-0.63
8,680.0	89.00	359.60	6,068.9	2,403.4	508.4	2,446.4	5.63	0.31	5.63
8,712.0	88.90	358.50	6,069.4	2,435.4	507.8	2,478.1	3.45	-0.31	-3.44
8,743.0	89.80	358.90	6,069.8	2,466.4	507.1	2,508.8	3.18	2.90	1.29
8,775.0	90.30	0.50	6,069.8	2,498.4	507.0	2,540.6	5.24	1.56	5.00
8,807.0	90.90	0.60	6,069.4	2,530.4	507.3	2,572.4	1.90	1.88	0.31
8,839.0	91.40	359.80	6,068.8	2,562.4	507.4	2,604.2	2.95	1.56	-2.50
8,870.0	90.40	359.60	6,068.3	2,593.4	507.2	2,634.9	3.29	-3.23	-0.65
8,902.0	90.60	358.50	6,068.0	2,625.4	506.7	2,666.6	3.49	0.63	-3.44
8,934.0	90.90	358.50	6,067.6	2,657.4	505.9	2,698.3	0.94	0.94	0.00
8,966.0	90.00	358.40	6,067.4	2,689.4	505.0	2,730.0	2.83	-2.81	-0.31
8,997.0	90.30	358.00	6,067.3	2,720.3	504.0	2,760.6	1.61	0.97	-1.29
9,029.0	89.60	358.20	6,067.3	2,752.3	503.0	2,792.3	2.28	-2.19	0.63
9,061.0	89.60	357.60	6,067.5	2,784.3	501.8	2,823.9	1.87	0.00	-1.88
9,092.0	89.30	358.50	6,067.8	2,815.3	500.7	2,854.5	3.06	-0.97	2.90
9,124.0	89.70	358.40	6,068.1	2,847.3	499.9	2,886.2	1.29	1.25	-0.31
9,156.0	89.60	359.40	6,068.3	2,879.3	499.3	2,917.9	3.14	-0.31	3.13
9,188.0	90.00	359.40	6,068.4	2,911.3	498.9	2,949.6	1.25	1.25	0.00
9,220.0	90.20	359.90	6,068.3	2,943.3	498.7	2,981.4	1.68	0.63	1.56
9,251.0	89.70	0.80	6,068.4	2,974.3	498.9	3,012.2	3.32	-1.61	2.90
9,283.0	89.10	1.20	6,068.7	3,006.3	499.5	3,044.0	2.25	-1.88	1.25
9,315.0	88.50	359.20	6,069.4	3,038.2	499.6	3,075.8	6.52	-1.88	-6.25
9,347.0	88.20	358.20	6,070.3	3,070.2	498.9	3,107.5	3.26	-0.94	-3.13
9,378.0	88.50	359.40	6,071.2	3,101.2	498.2	3,138.2	3.99	0.97	3.87
9,410.0	88.60	0.10	6,072.0	3,133.2	498.1	3,169.9	2.21	0.31	2.19
9,442.0	89.10	0.50	6,072.6	3,165.2	498.2	3,201.7	2.00	1.56	1.25
9,474.0	89.80	1.20	6,073.0	3,197.2	498.7	3,233.6	3.09	2.19	2.19
9,505.0	90.70	1.50	6,072.8	3,228.2	499.4	3,264.4	3.06	2.90	0.97
9,537.0	91.50	3.10	6,072.2	3,260.1	500.7	3,296.3	5.59	2.50	5.00
9,569.0	92.00	3.10	6,071.2	3,292.1	502.5	3,328.2	1.56	1.56	0.00

<b>Company:</b>	BONANZA CREEK ENERGY OPERATING	<b>Local Co-ordinate Reference:</b>	Well Pronghorn 44-41-7HNB
<b>Project:</b>	SEC.7-T5N-R61W	<b>TVD Reference:</b>	WELL @ 4577.0ft (Ensign 128 - RKB 15')
<b>Site:</b>	Pronghorn 44-41-7HNB Pad Sec.7-T5N-R61W	<b>MD Reference:</b>	WELL @ 4577.0ft (Ensign 128 - RKB 15')
<b>Well:</b>	Pronghorn 44-41-7HNB	<b>North Reference:</b>	True
<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Wellbore #1	<b>Database:</b>	Landmark

Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
9,600.0	91.90	2.40	6,070.2	3,323.0	503.9	3,359.2	2.28	-0.32	-2.26
9,632.0	91.30	2.00	6,069.3	3,355.0	505.2	3,391.0	2.25	-1.88	-1.25
9,664.0	91.30	2.40	6,068.6	3,387.0	506.4	3,422.9	1.25	0.00	1.25
9,696.0	91.50	1.30	6,067.8	3,418.9	507.4	3,454.8	3.49	0.63	-3.44
9,727.0	91.50	0.80	6,067.0	3,449.9	508.0	3,485.6	1.61	0.00	-1.61
9,759.0	91.10	1.20	6,066.2	3,481.9	508.6	3,517.5	1.77	-1.25	1.25
9,791.0	90.20	0.10	6,065.9	3,513.9	508.9	3,549.3	4.44	-2.81	-3.44
9,822.0	90.20	0.80	6,065.8	3,544.9	509.2	3,580.1	2.26	0.00	2.26
9,854.0	90.80	0.80	6,065.5	3,576.9	509.6	3,611.9	1.88	1.88	0.00
9,886.0	90.60	0.50	6,065.1	3,608.9	510.0	3,643.8	1.13	-0.63	-0.94
9,918.0	90.00	359.80	6,064.9	3,640.9	510.1	3,675.6	2.88	-1.88	-2.19
9,949.0	90.30	359.80	6,064.8	3,671.9	510.0	3,706.3	0.97	0.97	0.00
9,981.0	89.80	0.50	6,064.8	3,703.9	510.0	3,738.1	2.69	-1.56	2.19
10,013.0	89.90	359.60	6,064.9	3,735.9	510.1	3,769.9	2.83	0.31	-2.81
10,045.0	90.00	359.90	6,064.9	3,767.9	509.9	3,801.7	0.99	0.31	0.94
10,076.0	89.10	359.20	6,065.2	3,798.9	509.7	3,832.4	3.68	-2.90	-2.26
10,108.0	88.80	359.10	6,065.8	3,830.9	509.2	3,864.1	0.99	-0.94	-0.31
10,140.0	89.20	0.60	6,066.3	3,862.9	509.1	3,895.9	4.85	1.25	4.69
10,172.0	89.60	359.10	6,066.7	3,894.9	509.0	3,927.7	4.85	1.25	-4.69
10,203.0	90.10	359.20	6,066.7	3,925.9	508.6	3,958.4	1.64	1.61	0.32
10,235.0	91.00	359.80	6,066.4	3,957.9	508.3	3,990.1	3.38	2.81	1.88
10,267.0	90.40	0.10	6,066.0	3,989.9	508.3	4,021.9	2.10	-1.88	0.94
10,299.0	90.60	359.60	6,065.8	4,021.9	508.2	4,053.7	1.68	0.63	-1.56
10,330.0	89.90	359.60	6,065.6	4,052.9	508.0	4,084.4	2.26	-2.26	0.00
10,362.0	90.00	359.40	6,065.6	4,084.9	507.7	4,116.2	0.70	0.31	-0.63
10,394.0	90.20	359.40	6,065.6	4,116.8	507.4	4,147.9	0.63	0.63	0.00
10,426.0	90.90	359.20	6,065.3	4,148.8	507.0	4,179.7	2.28	2.19	-0.63
10,457.0	91.50	0.30	6,064.6	4,179.8	506.8	4,210.4	4.04	1.94	3.55
10,489.0	90.40	358.70	6,064.1	4,211.8	506.6	4,242.2	6.07	-3.44	-5.00
10,521.0	90.00	359.20	6,064.0	4,243.8	506.0	4,273.9	2.00	-1.25	1.56
10,552.0	90.60	359.20	6,063.8	4,274.8	505.5	4,304.6	1.94	1.94	0.00
10,610.0	90.60	359.20	6,063.2	4,332.8	504.7	4,362.1	0.00	0.00	0.00

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
- hit/miss target									
- Shape									
BHL 470'FNL & 660'F	0.00	0.00	6,060.0	4,328.1	509.5	1,398,897.11	3,349,332.35	40.421590	-104.245270
- survey misses target center by 5.8ft at 10605.2ft MD (6063.3 TVD, 4328.0 N, 504.8 E)									
- Point									

Checked By: _____	Approved By: _____	Date: _____
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