

# BONANZA CREEK ENERGY OPERATING

Well Name: **State Pronghorn 31-34-16HNB**

Surface Location: State Pronghorn P-16 Pad Sec.16-T5N-R61W  
 North American Datum 1983 , US State Plane 1983 , Colorado Northern Zone  
 Ground Elevation: 4629.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	1394030.26	3360031.80	40.407810	-104.207100	

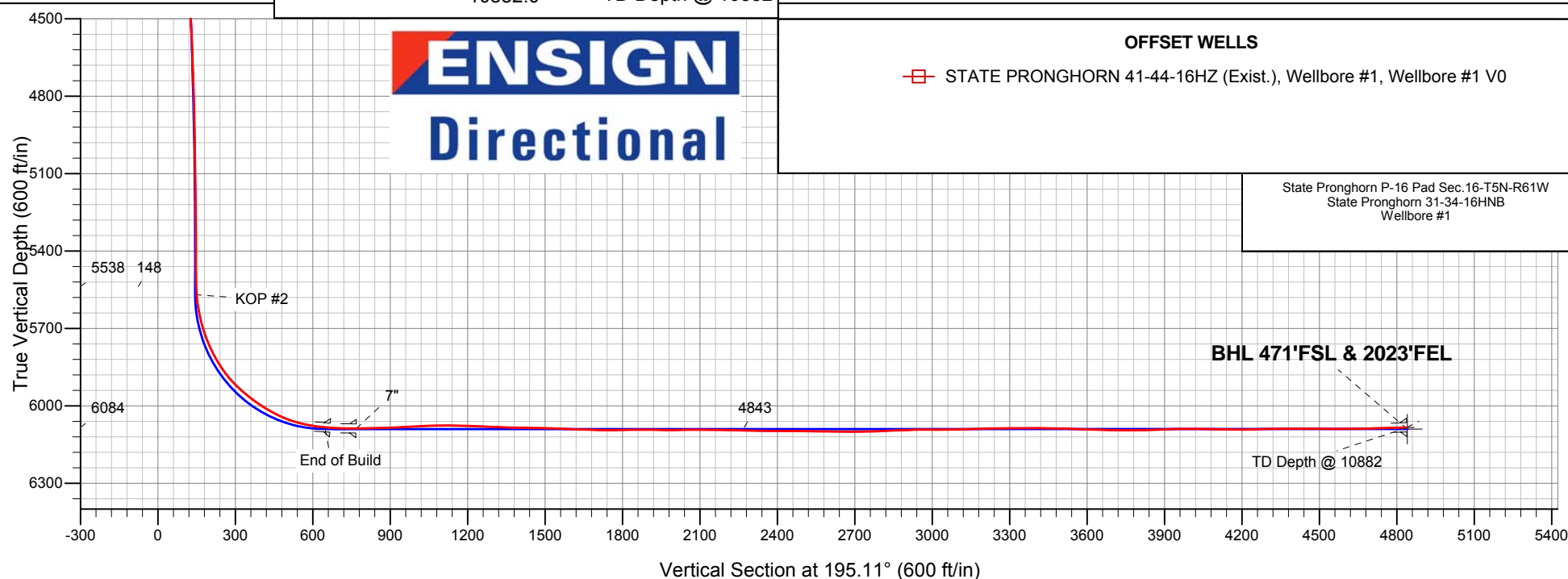
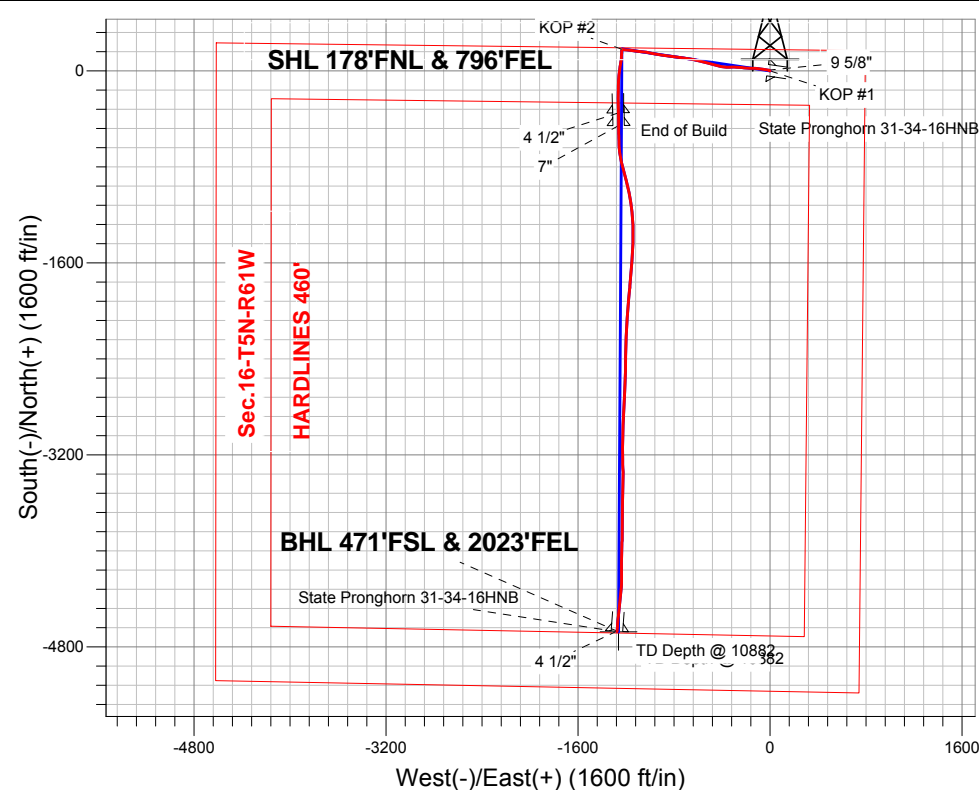
Ensign 128 - RKB 15' WELL @ 4644.0ft (Ensign 128 - RKB 15')

## FINAL SURVEY

Projected Bottom Hole Location  
 10882' MD 6084' TVD 4673' S & 1273' W  
 of SHL  
 91.2 degree Incl @ 183.6 degree AZM

### ANNOTATIONS

TVD	MD	Annotation
200.0	200.0	KOP #1
5538.2	5700.0	KOP #2
6083.8	10882.0	TD Depth @ 10882



### OFFSET WELLS

STATE PRONGHORN 41-44-16HZ (Exist.), Wellbore #1, Wellbore #1 V0

State Pronghorn P-16 Pad Sec.16-T5N-R61W  
 State Pronghorn 31-34-16HNB  
 Wellbore #1



## **Directional**

# **BONANZA CREEK ENERGY OPERATING**

**SEC.16-T5N-R61W**

**State Pronghorn P-16 Pad Sec.16-T5N-R61W**

**State Pronghorn 31-34-16HNB**

**Wellbore #1**

**Survey: Survey #1**

## **Standard Survey Report**

**02 April, 2013**

<b>Company:</b>	BONANZA CREEK ENERGY OPERATING	<b>Local Co-ordinate Reference:</b>	Well State Pronghorn 31-34-16HNB
<b>Project:</b>	SEC.16-T5N-R61W	<b>TVD Reference:</b>	WELL @ 4644.0ft (Ensign 128 - RKB 15')
<b>Site:</b>	State Pronghorn P-16 Pad Sec.16-T5N-R61W	<b>MD Reference:</b>	WELL @ 4644.0ft (Ensign 128 - RKB 15')
<b>Well:</b>	State Pronghorn 31-34-16HNB	<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

<b>Project</b>	SEC.16-T5N-R61W		
<b>Map System:</b>	US State Plane 1983	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	North American Datum 1983		Using Well Reference Point
<b>Map Zone:</b>	Colorado Northern Zone		Using geodetic scale factor

Site		State Pronghorn P-16 Pad Sec.16-T5N-R61W			
Site Position:		Northing:	1,394,030.27 ft	Latitude:	40.407810
From:	Lat/Long	Easting:	3,360,031.80 ft	Longitude:	-104.207100
Position Uncertainty:	0.0 ft	Slot Radius:	"	Grid Convergence:	0.84 °

Well	State Pronghorn 31-34-16HNB					
Well Position	+N/-S	0.0 ft	Northing:	1,394,030.26 ft	Latitude:	40.407810
	+E/-W	0.0 ft	Easting:	3,360,031.80 ft	Longitude:	-104.207100
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,629.0 ft

<b>Wellbore</b>	Wellbore #1				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF2010	1/7/2013	8.35	67.09	53,030

<b>Design</b>	Wellbore #1				
<b>Audit Notes:</b>					
<b>Version:</b>	1.0	<b>Phase:</b>	ACTUAL	<b>Tie On Depth:</b>	0.0
<b>Vertical Section:</b>	<b>Depth From (TVD) (ft)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Direction (°)</b>	
	0.0	0.0	0.0	195.11	

<b>Survey Program</b>	<b>Date</b>	4/2/2013			
<b>From (ft)</b>	<b>To (ft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>	
89.0	10,882.0	Survey #1 (Wellbore #1)	MWD	MWD - Standard	

<b>Survey</b>										
<b>Measured Depth (ft)</b>	<b>Inclination (°)</b>	<b>Azimuth (°)</b>	<b>Vertical Depth (ft)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Vertical Section (ft)</b>	<b>Dogleg Rate (°/100ft)</b>	<b>Build Rate (°/100ft)</b>	<b>Turn Rate (°/100ft)</b>	
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00	
89.0	0.70	5.40	89.0	0.5	0.1	-0.5	0.79	0.79	0.00	
200.0	1.49	313.53	200.0	2.2	-0.9	-1.9	1.07	0.71	-46.72	
<b>KOP #1</b>										
212.0	1.60	311.40	212.0	2.4	-1.2	-2.0	1.07	0.96	-17.77	
336.0	4.10	278.20	335.8	4.2	-6.9	-2.3	2.34	2.02	-26.77	
420.0	6.20	277.10	419.5	5.2	-14.3	-1.3	2.50	2.50	-1.31	
456.8	6.57	278.37	456.0	5.7	-18.4	-0.8	1.07	1.00	3.45	
<b>9 5/8"</b>										
490.0	6.90	279.40	489.0	6.3	-22.2	-0.3	1.07	1.00	3.10	
615.0	9.30	284.70	612.8	10.1	-39.4	0.5	2.01	1.92	4.24	
739.0	12.10	281.00	734.6	15.2	-61.9	1.5	2.32	2.26	-2.98	
863.0	14.90	272.90	855.2	18.4	-90.5	5.8	2.72	2.26	-6.53	

<b>Company:</b>	BONANZA CREEK ENERGY OPERATING	<b>Local Co-ordinate Reference:</b>	Well State Pronghorn 31-34-16HNB
<b>Project:</b>	SEC.16-T5N-R61W	<b>TVD Reference:</b>	WELL @ 4644.0ft (Ensign 128 - RKB 15')
<b>Site:</b>	State Pronghorn P-16 Pad Sec.16-T5N-R61W	<b>MD Reference:</b>	WELL @ 4644.0ft (Ensign 128 - RKB 15')
<b>Well:</b>	State Pronghorn 31-34-16HNB	<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)	
985.0	17.50	270.60	972.3	19.4	-124.6	13.7	2.19	2.13	-1.89	
1,109.0	18.50	274.00	1,090.2	21.0	-162.8	22.2	1.17	0.81	2.74	
1,233.0	19.40	277.50	1,207.5	25.1	-202.9	28.7	1.17	0.73	2.82	
1,357.0	17.10	271.70	1,325.3	28.3	-241.5	35.6	2.36	-1.85	-4.68	
1,480.0	15.00	276.10	1,443.5	30.5	-275.4	42.3	1.97	-1.71	3.58	
1,604.0	13.90	268.90	1,563.6	31.9	-306.3	49.0	1.70	-0.89	-5.81	
1,727.0	14.10	269.70	1,682.9	31.6	-336.0	57.1	0.23	0.16	0.65	
1,850.0	13.70	271.50	1,802.3	31.9	-365.6	64.5	0.48	-0.33	1.46	
1,972.0	14.40	278.90	1,920.7	34.6	-395.0	69.5	1.58	0.57	6.07	
2,095.0	15.00	284.20	2,039.7	40.9	-425.6	71.4	1.20	0.49	4.31	
2,219.0	14.60	286.10	2,159.6	49.1	-456.1	71.4	0.51	-0.32	1.53	
2,342.0	15.60	285.90	2,278.3	58.0	-486.9	70.9	0.81	0.81	-0.16	
2,465.0	15.30	284.20	2,396.9	66.5	-518.6	71.0	0.44	-0.24	-1.38	
2,589.0	15.80	283.80	2,516.3	74.5	-550.8	71.6	0.41	0.40	-0.32	
2,713.0	16.00	282.90	2,635.6	82.4	-583.9	72.7	0.26	0.16	-0.73	
2,840.0	15.10	282.60	2,757.9	89.9	-617.1	74.0	0.71	-0.71	-0.24	
2,968.0	13.10	278.40	2,882.1	95.6	-647.7	76.5	1.75	-1.56	-3.28	
3,094.0	12.30	277.10	3,005.0	99.4	-675.1	80.0	0.67	-0.63	-1.03	
3,241.0	13.70	281.30	3,148.2	104.7	-707.8	83.3	1.15	0.95	2.86	
3,349.0	17.50	279.90	3,252.2	110.0	-736.3	85.7	3.54	3.52	-1.30	
3,476.0	18.60	276.60	3,373.0	115.6	-775.2	90.4	1.18	0.87	-2.60	
3,603.0	18.60	276.80	3,493.3	120.4	-815.5	96.3	0.05	0.00	0.16	
3,730.0	17.30	277.80	3,614.2	125.3	-854.3	101.7	1.05	-1.02	0.79	
3,857.0	16.00	277.30	3,735.8	130.1	-890.4	106.4	1.03	-1.02	-0.39	
3,984.0	13.50	278.40	3,858.6	134.5	-922.4	110.5	1.98	-1.97	0.87	
4,111.0	14.40	279.90	3,981.9	139.4	-952.6	113.7	0.76	0.71	1.18	
4,238.0	14.20	282.00	4,105.0	145.3	-983.4	116.0	0.44	-0.16	1.65	
4,365.0	15.60	281.70	4,227.7	152.0	-1,015.4	117.8	1.10	1.10	-0.24	
4,492.0	15.20	275.90	4,350.1	157.2	-1,048.7	121.5	1.25	-0.31	-4.57	
4,619.0	17.10	277.10	4,472.1	161.2	-1,083.7	126.8	1.52	1.50	0.94	
4,746.0	16.00	277.10	4,593.8	165.7	-1,119.6	131.8	0.87	-0.87	0.00	
4,873.0	13.80	276.60	4,716.6	169.6	-1,152.1	136.5	1.74	-1.73	-0.39	
5,000.0	9.30	278.00	4,841.0	172.8	-1,177.3	140.0	3.55	-3.54	1.10	
5,127.0	6.30	275.50	4,966.8	174.9	-1,194.4	142.5	2.38	-2.36	-1.97	
5,254.0	5.10	273.80	5,093.1	175.9	-1,207.0	144.7	0.95	-0.94	-1.34	
5,381.0	4.90	280.10	5,219.7	177.2	-1,217.9	146.3	0.46	-0.16	4.96	
5,508.0	3.30	281.50	5,346.3	178.9	-1,226.9	147.0	1.26	-1.26	1.10	
5,626.0	1.50	273.30	5,464.2	179.7	-1,231.7	147.5	1.55	-1.53	-6.95	
5,636.0	1.10	278.40	5,474.2	179.7	-1,231.9	147.6	4.16	-4.00	51.00	
5,668.0	0.90	252.20	5,506.2	179.7	-1,232.5	147.7	1.54	-0.63	-81.88	
5,700.0	2.20	204.50	5,538.2	179.0	-1,233.0	148.5	5.40	4.06	-149.06	
KOP #2										
5,731.0	4.70	192.60	5,569.1	177.3	-1,233.5	150.3	8.35	8.06	-38.39	
5,763.0	7.80	188.00	5,601.0	173.8	-1,234.1	153.8	9.81	9.69	-14.38	
5,795.0	10.50	183.60	5,632.5	168.8	-1,234.6	158.8	8.71	8.44	-13.75	
5,827.0	13.60	181.70	5,663.8	162.1	-1,234.9	165.3	9.77	9.69	-5.94	
5,858.0	16.50	181.30	5,693.8	154.1	-1,235.1	173.2	9.36	9.35	-1.29	
5,890.0	19.80	182.70	5,724.2	144.1	-1,235.4	182.9	10.40	10.31	4.38	
5,922.0	23.10	183.60	5,754.0	132.4	-1,236.1	194.3	10.36	10.31	2.81	
5,954.0	25.80	184.30	5,783.1	119.2	-1,237.0	207.3	8.49	8.44	2.19	
5,985.0	29.10	184.70	5,810.6	105.0	-1,238.1	221.4	10.66	10.65	1.29	
6,017.0	32.10	186.20	5,838.1	88.7	-1,239.7	237.4	9.67	9.38	4.69	
6,049.0	36.00	188.70	5,864.6	71.0	-1,242.0	255.2	12.95	12.19	7.81	
6,081.0	40.00	189.60	5,889.8	51.5	-1,245.2	274.8	12.62	12.50	2.81	

**Company:** BONANZA CREEK ENERGY OPERATING  
**Project:** SEC.16-T5N-R61W  
**Site:** State Pronghorn P-16 Pad Sec.16-T5N-R61W  
**Well:** State Pronghorn 31-34-16HNB  
**Wellbore:** Wellbore #1  
**Design:** Wellbore #1

**Local Co-ordinate Reference:** Well State Pronghorn 31-34-16HNB  
**TVD Reference:** WELL @ 4644.0ft (Ensign 128 - RKB 15')  
**MD Reference:** WELL @ 4644.0ft (Ensign 128 - RKB 15')  
**North Reference:** True  
**Survey Calculation Method:** Minimum Curvature  
**Database:** 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)
6,113.0	44.10	189.40	5,913.6	30.4	-1,248.7	296.1	12.82	12.81	-0.63
6,144.0	47.70	187.80	5,935.2	8.4	-1,252.0	318.2	12.19	11.61	-5.16
6,176.0	51.10	186.60	5,956.0	-15.7	-1,255.1	342.3	11.00	10.63	-3.75
6,208.0	53.70	186.10	5,975.5	-40.9	-1,257.9	367.3	8.22	8.13	-1.56
6,239.0	56.20	184.10	5,993.3	-66.2	-1,260.1	392.3	9.64	8.06	-6.45
6,271.0	59.20	183.10	6,010.4	-93.2	-1,261.8	418.8	9.74	9.38	-3.13
6,303.0	62.20	182.40	6,026.1	-121.0	-1,263.1	446.1	9.57	9.38	-2.19
6,335.0	66.00	181.30	6,040.1	-149.8	-1,264.1	474.1	12.27	11.88	-3.44
6,366.0	69.80	180.30	6,051.7	-178.5	-1,264.5	501.9	12.62	12.26	-3.23
6,398.0	73.80	179.40	6,061.7	-208.9	-1,264.4	531.2	12.78	12.50	-2.81
6,430.0	77.40	178.90	6,069.7	-239.9	-1,263.9	561.0	11.35	11.25	-1.56
6,461.0	80.30	179.60	6,075.7	-270.3	-1,263.5	590.3	9.61	9.35	2.26
6,493.0	82.80	179.00	6,080.4	-301.9	-1,263.1	620.7	8.03	7.81	-1.88
6,525.0	85.10	179.60	6,083.7	-333.8	-1,262.8	651.3	7.43	7.19	1.88
6,529.8	85.51	179.49	6,084.1	-338.5	-1,262.7	655.9	8.72	8.44	-2.19
<b>T1 531'FNL &amp; 2030'FEL</b>									
6,541.9	86.53	179.23	6,085.0	-350.6	-1,262.6	667.6	8.72	8.44	-2.19
<b>4 1/2"</b>									
6,557.0	87.80	178.90	6,085.7	-365.7	-1,262.3	682.1	8.72	8.44	-2.18
6,588.0	88.40	178.00	6,086.7	-396.7	-1,261.5	711.7	3.49	1.94	-2.90
6,607.0	88.80	179.60	6,087.2	-415.7	-1,261.1	730.0	8.68	2.11	8.42
6,646.9	89.93	179.29	6,087.7	-455.6	-1,260.7	768.4	2.92	2.82	-0.77
<b>7"</b>									
6,685.0	91.00	179.00	6,087.3	-493.6	-1,260.1	805.0	2.92	2.82	-0.77
6,716.0	91.20	179.00	6,086.7	-524.6	-1,259.6	834.8	0.65	0.65	0.00
6,747.0	91.80	177.80	6,085.9	-555.6	-1,258.7	864.5	4.33	1.94	-3.87
6,779.0	92.20	177.60	6,084.8	-587.6	-1,257.5	895.0	1.40	1.25	-0.63
6,811.0	92.70	176.20	6,083.5	-619.5	-1,255.7	925.4	4.64	1.56	-4.38
6,842.0	92.70	175.30	6,082.0	-650.4	-1,253.4	954.6	2.90	0.00	-2.90
6,874.0	92.70	173.80	6,080.5	-682.2	-1,250.4	984.5	4.68	0.00	-4.69
6,906.0	92.40	171.80	6,079.1	-713.9	-1,246.4	1,014.1	6.31	-0.94	-6.25
6,938.0	92.10	169.20	6,077.8	-745.4	-1,241.1	1,043.1	8.17	-0.94	-8.13
6,977.0	91.70	166.00	6,076.5	-783.5	-1,232.7	1,077.7	8.26	-1.03	-8.21
7,008.0	90.00	164.60	6,076.1	-813.5	-1,224.9	1,104.6	7.10	-5.48	-4.52
7,040.0	89.30	164.80	6,076.2	-844.3	-1,216.4	1,132.2	2.28	-2.19	0.63
7,072.0	89.10	164.40	6,076.7	-875.2	-1,207.9	1,159.8	1.40	-0.63	-1.25
7,104.0	88.60	164.30	6,077.3	-906.0	-1,199.3	1,187.3	1.59	-1.56	-0.31
7,135.0	87.90	166.40	6,078.3	-936.0	-1,191.5	1,214.2	7.14	-2.26	6.77
7,167.0	87.80	166.70	6,079.5	-967.1	-1,184.0	1,242.2	0.99	-0.31	0.94
7,199.0	87.80	167.80	6,080.7	-998.3	-1,177.0	1,270.5	3.43	0.00	3.44
7,231.0	88.00	169.40	6,081.9	-1,029.6	-1,170.7	1,299.1	5.04	0.63	5.00
7,263.0	88.20	170.40	6,082.9	-1,061.1	-1,165.0	1,328.1	3.19	0.63	3.13
7,294.0	88.50	172.00	6,083.8	-1,091.7	-1,160.3	1,356.4	5.25	0.97	5.16
7,326.0	89.00	173.20	6,084.5	-1,123.4	-1,156.2	1,385.9	4.06	1.56	3.75
7,358.0	89.30	173.20	6,085.0	-1,155.2	-1,152.4	1,415.6	0.94	0.94	0.00
7,390.0	89.30	174.10	6,085.4	-1,187.0	-1,148.9	1,445.4	2.81	0.00	2.81
7,422.0	88.90	174.50	6,085.9	-1,218.9	-1,145.7	1,475.3	1.77	-1.25	1.25
7,453.0	88.50	176.00	6,086.6	-1,249.7	-1,143.1	1,504.5	5.01	-1.29	4.84
7,485.0	88.10	178.30	6,087.6	-1,281.7	-1,141.5	1,534.9	7.29	-1.25	7.19
7,517.0	87.40	178.20	6,088.8	-1,313.6	-1,140.5	1,565.5	2.21	-2.19	-0.31
7,549.0	87.90	179.00	6,090.1	-1,345.6	-1,139.8	1,596.2	2.95	1.56	2.50
7,580.0	88.50	180.30	6,091.1	-1,376.6	-1,139.6	1,626.0	4.62	1.94	4.19
7,612.0	88.10	182.70	6,092.0	-1,408.6	-1,140.4	1,657.1	7.60	-1.25	7.50
7,644.0	88.40	182.40	6,093.0	-1,440.5	-1,141.8	1,688.3	1.33	0.94	-0.94

<b>Company:</b>	BONANZA CREEK ENERGY OPERATING	<b>Local Co-ordinate Reference:</b>	Well State Pronghorn 31-34-16HNB
<b>Project:</b>	SEC.16-T5N-R61W	<b>TVD Reference:</b>	WELL @ 4644.0ft (Ensign 128 - RKB 15')
<b>Site:</b>	State Pronghorn P-16 Pad Sec.16-T5N-R61W	<b>MD Reference:</b>	WELL @ 4644.0ft (Ensign 128 - RKB 15')
<b>Well:</b>	State Pronghorn 31-34-16HNB	<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)
7,676.0	89.30	182.50	6,093.7	-1,472.5	-1,143.2	1,719.5	2.83	2.81	0.31
7,708.0	90.00	183.40	6,093.9	-1,504.4	-1,144.9	1,750.8	3.56	2.19	2.81
7,739.0	90.70	184.10	6,093.7	-1,535.4	-1,146.9	1,781.2	3.19	2.26	2.26
7,771.0	91.00	184.10	6,093.2	-1,567.3	-1,149.2	1,812.6	0.94	0.94	0.00
7,803.0	90.60	184.10	6,092.8	-1,599.2	-1,151.5	1,844.0	1.25	-1.25	0.00
7,835.0	90.20	183.80	6,092.5	-1,631.1	-1,153.7	1,875.4	1.56	-1.25	-0.94
7,867.0	89.40	185.40	6,092.6	-1,663.0	-1,156.2	1,906.9	5.59	-2.50	5.00
7,898.0	88.70	184.50	6,093.2	-1,693.9	-1,158.9	1,937.4	3.68	-2.26	-2.90
7,930.0	89.40	184.80	6,093.7	-1,725.8	-1,161.5	1,968.9	2.38	2.19	0.94
7,962.0	90.60	184.70	6,093.7	-1,757.7	-1,164.1	2,000.3	3.76	3.75	-0.31
7,994.0	90.30	184.30	6,093.4	-1,789.6	-1,166.7	2,031.8	1.56	-0.94	-1.25
8,026.0	89.80	186.10	6,093.4	-1,821.4	-1,169.6	2,063.3	5.84	-1.56	5.63
8,057.0	89.80	185.70	6,093.5	-1,852.3	-1,172.7	2,093.9	1.29	0.00	-1.29
8,089.0	90.40	184.70	6,093.5	-1,884.1	-1,175.6	2,125.4	3.64	1.88	-3.13
8,121.0	90.20	184.80	6,093.3	-1,916.0	-1,178.3	2,156.9	0.70	-0.63	0.31
8,153.0	89.40	185.40	6,093.4	-1,947.9	-1,181.1	2,188.4	3.12	-2.50	1.88
8,185.0	88.60	184.10	6,094.0	-1,979.8	-1,183.8	2,219.9	4.77	-2.50	-4.06
8,216.0	88.80	183.80	6,094.7	-2,010.7	-1,185.9	2,250.3	1.16	0.65	-0.97
8,248.0	88.80	183.40	6,095.3	-2,042.6	-1,187.9	2,281.6	1.25	0.00	-1.25
8,280.0	88.50	182.70	6,096.1	-2,074.6	-1,189.6	2,312.9	2.38	-0.94	-2.19
8,312.0	88.50	184.10	6,096.9	-2,106.5	-1,191.5	2,344.3	4.37	0.00	4.38
8,344.0	89.20	184.10	6,097.6	-2,138.4	-1,193.8	2,375.7	2.19	2.19	0.00
8,375.0	89.90	183.10	6,097.8	-2,169.4	-1,195.8	2,406.0	3.94	2.26	-3.23
8,407.0	90.50	182.00	6,097.7	-2,201.3	-1,197.2	2,437.3	3.92	1.88	-3.44
8,439.0	90.80	183.40	6,097.3	-2,233.3	-1,198.7	2,468.5	4.47	0.94	4.38
8,470.0	89.60	181.80	6,097.2	-2,264.3	-1,200.1	2,498.8	6.45	-3.87	-5.16
8,502.0	88.90	181.00	6,097.6	-2,296.3	-1,200.9	2,529.9	3.32	-2.19	-2.50
8,534.0	88.10	180.10	6,098.5	-2,328.2	-1,201.2	2,560.8	3.76	-2.50	-2.81
8,565.0	88.60	180.60	6,099.4	-2,359.2	-1,201.4	2,590.8	2.28	1.61	1.61
8,597.0	89.60	180.40	6,099.9	-2,391.2	-1,201.7	2,621.8	3.19	3.13	-0.63
8,629.0	90.10	179.90	6,100.0	-2,423.2	-1,201.7	2,652.7	2.21	1.56	-1.56
8,661.0	89.60	181.10	6,100.0	-2,455.2	-1,202.0	2,683.6	4.06	-1.56	3.75
8,692.0	90.60	182.20	6,100.0	-2,486.2	-1,202.9	2,713.8	4.80	3.23	3.55
8,724.0	91.20	183.10	6,099.5	-2,518.2	-1,204.4	2,745.0	3.38	1.88	2.81
8,756.0	91.30	182.20	6,098.8	-2,550.1	-1,205.9	2,776.3	2.83	0.31	-2.81
8,788.0	92.60	182.70	6,097.7	-2,582.1	-1,207.2	2,807.5	4.35	4.06	1.56
8,819.0	93.00	181.30	6,096.2	-2,613.0	-1,208.3	2,837.6	4.69	1.29	-4.52
8,851.0	92.20	182.40	6,094.7	-2,645.0	-1,209.3	2,868.7	4.25	-2.50	3.44
8,883.0	91.50	183.10	6,093.7	-2,676.9	-1,210.9	2,900.0	3.09	-2.19	2.19
8,915.0	91.40	182.20	6,092.9	-2,708.9	-1,212.4	2,931.2	2.83	-0.31	-2.81
8,946.0	91.30	181.80	6,092.2	-2,739.8	-1,213.4	2,961.4	1.33	-0.32	-1.29
8,978.0	89.90	182.40	6,091.8	-2,771.8	-1,214.6	2,992.6	4.76	-4.38	1.88
9,010.0	89.30	182.70	6,092.1	-2,803.8	-1,216.0	3,023.8	2.10	-1.88	0.94
9,042.0	90.10	182.40	6,092.2	-2,835.8	-1,217.5	3,055.0	2.67	2.50	-0.94
9,073.0	91.10	183.10	6,091.9	-2,866.7	-1,219.0	3,085.3	3.94	3.23	2.26
9,105.0	91.10	182.70	6,091.3	-2,898.7	-1,220.6	3,116.6	1.25	0.00	-1.25
9,137.0	91.90	182.40	6,090.4	-2,930.6	-1,222.0	3,147.8	2.67	2.50	-0.94
9,168.0	92.40	182.50	6,089.3	-2,961.6	-1,223.3	3,178.0	1.64	1.61	0.32
9,200.0	91.90	182.90	6,088.1	-2,993.5	-1,224.8	3,209.3	2.00	-1.56	1.25
9,232.0	90.80	182.00	6,087.3	-3,025.5	-1,226.2	3,240.5	4.44	-3.44	-2.81
9,264.0	90.20	180.60	6,087.0	-3,057.5	-1,226.9	3,271.6	4.76	-1.88	-4.38
9,295.0	90.70	181.50	6,086.8	-3,088.5	-1,227.5	3,301.6	3.32	1.61	2.90
9,327.0	89.80	180.60	6,086.7	-3,120.5	-1,228.1	3,332.7	3.98	-2.81	-2.81
9,359.0	89.40	179.00	6,086.9	-3,152.5	-1,228.0	3,363.5	5.15	-1.25	-5.00

<b>Company:</b>	BONANZA CREEK ENERGY OPERATING	<b>Local Co-ordinate Reference:</b>	Well State Pronghorn 31-34-16HNB
<b>Project:</b>	SEC.16-T5N-R61W	<b>TVD Reference:</b>	WELL @ 4644.0ft (Ensign 128 - RKB 15')
<b>Site:</b>	State Pronghorn P-16 Pad Sec.16-T5N-R61W	<b>MD Reference:</b>	WELL @ 4644.0ft (Ensign 128 - RKB 15')
<b>Well:</b>	State Pronghorn 31-34-16HNB	<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)
9,391.0	89.60	179.00	6,087.2	-3,184.4	-1,227.4	3,394.3	0.63	0.63	0.00
9,422.0	90.60	179.90	6,087.1	-3,215.4	-1,227.1	3,424.1	4.34	3.23	2.90
9,454.0	90.00	178.70	6,086.9	-3,247.4	-1,226.7	3,454.9	4.19	-1.88	-3.75
9,486.0	89.30	178.50	6,087.1	-3,279.4	-1,225.9	3,485.6	2.28	-2.19	-0.63
9,518.0	88.40	178.20	6,087.8	-3,311.4	-1,225.0	3,516.2	2.96	-2.81	-0.94
9,549.0	87.60	178.70	6,088.9	-3,342.4	-1,224.2	3,545.9	3.04	-2.58	1.61
9,581.0	87.80	181.50	6,090.2	-3,374.3	-1,224.2	3,576.8	8.77	0.63	8.75
9,613.0	87.80	181.80	6,091.4	-3,406.3	-1,225.1	3,607.9	0.94	0.00	0.94
9,645.0	87.80	180.10	6,092.6	-3,438.3	-1,225.7	3,638.9	5.31	0.00	-5.31
9,676.0	88.50	179.60	6,093.6	-3,469.3	-1,225.6	3,668.8	2.77	2.26	-1.61
9,708.0	89.30	179.90	6,094.2	-3,501.3	-1,225.5	3,699.6	2.67	2.50	0.94
9,740.0	89.50	180.80	6,094.6	-3,533.3	-1,225.7	3,730.6	2.88	0.63	2.81
9,772.0	89.90	182.50	6,094.7	-3,565.2	-1,226.6	3,761.7	5.46	1.25	5.31
9,803.0	90.60	182.40	6,094.6	-3,596.2	-1,227.9	3,791.9	2.28	2.26	-0.32
9,835.0	91.20	181.30	6,094.1	-3,628.2	-1,228.9	3,823.1	3.92	1.88	-3.44
9,867.0	92.00	180.10	6,093.2	-3,660.2	-1,229.3	3,854.1	4.51	2.50	-3.75
9,899.0	92.30	181.50	6,092.0	-3,692.1	-1,229.8	3,885.1	4.47	0.94	4.38
9,931.0	92.20	179.70	6,090.7	-3,724.1	-1,230.1	3,916.0	5.63	-0.31	-5.63
9,962.0	91.90	180.30	6,089.6	-3,755.1	-1,230.1	3,945.9	2.16	-0.97	1.94
9,994.0	90.70	179.70	6,088.9	-3,787.1	-1,230.1	3,976.8	4.19	-3.75	-1.88
10,026.0	89.30	180.80	6,088.9	-3,819.1	-1,230.2	4,007.7	5.56	-4.38	3.44
10,057.0	88.80	180.40	6,089.4	-3,850.1	-1,230.6	4,037.7	2.07	-1.61	-1.29
10,089.0	88.50	182.00	6,090.2	-3,882.1	-1,231.2	4,068.8	5.09	-0.94	5.00
10,121.0	88.60	181.00	6,091.0	-3,914.0	-1,232.1	4,099.9	3.14	0.31	-3.13
10,153.0	89.30	182.40	6,091.6	-3,946.0	-1,233.0	4,131.0	4.89	2.19	4.38
10,185.0	89.90	183.10	6,091.8	-3,978.0	-1,234.6	4,162.3	2.88	1.88	2.19
10,216.0	90.30	181.30	6,091.7	-4,009.0	-1,235.8	4,192.5	5.95	1.29	-5.81
10,248.0	90.90	181.10	6,091.4	-4,041.0	-1,236.4	4,223.5	1.98	1.88	-0.63
10,280.0	91.40	180.40	6,090.8	-4,072.9	-1,236.8	4,254.5	2.69	1.56	-2.19
10,312.0	92.00	179.90	6,089.8	-4,104.9	-1,236.9	4,285.4	2.44	1.88	-1.56
10,343.0	91.20	179.00	6,088.9	-4,135.9	-1,236.6	4,315.3	3.88	-2.58	-2.90
10,375.0	90.40	178.90	6,088.5	-4,167.9	-1,236.0	4,346.0	2.52	-2.50	-0.31
10,407.0	90.00	179.90	6,088.4	-4,199.9	-1,235.7	4,376.8	3.37	-1.25	3.13
10,439.0	89.60	180.80	6,088.5	-4,231.9	-1,235.9	4,407.8	3.08	-1.25	2.81
10,470.0	90.00	182.40	6,088.6	-4,262.9	-1,236.8	4,437.9	5.32	1.29	5.16
10,502.0	89.50	183.10	6,088.7	-4,294.9	-1,238.3	4,469.2	2.69	-1.56	2.19
10,534.0	88.90	183.80	6,089.2	-4,326.8	-1,240.2	4,500.5	2.88	-1.88	2.19
10,565.0	90.00	185.70	6,089.5	-4,357.7	-1,242.8	4,531.0	7.08	3.55	6.13
10,597.0	90.60	186.80	6,089.3	-4,389.5	-1,246.3	4,562.6	3.92	1.88	3.44
10,629.0	90.50	186.10	6,089.0	-4,421.3	-1,249.9	4,594.2	2.21	-0.31	-2.19
10,660.0	90.50	186.40	6,088.7	-4,452.1	-1,253.2	4,624.9	0.97	0.00	0.97
10,692.0	90.70	186.40	6,088.4	-4,483.9	-1,256.8	4,656.5	0.63	0.63	0.00
10,724.0	91.50	186.80	6,087.8	-4,515.7	-1,260.5	4,688.1	2.79	2.50	1.25
10,756.0	91.70	185.00	6,086.9	-4,547.5	-1,263.8	4,719.7	5.66	0.63	-5.63
10,787.0	91.50	185.00	6,086.0	-4,578.4	-1,266.5	4,750.2	0.65	-0.65	0.00
10,819.0	91.70	185.00	6,085.1	-4,610.2	-1,269.3	4,781.7	0.63	0.63	0.00
10,832.0	91.20	183.60	6,084.8	-4,623.2	-1,270.2	4,794.5	11.43	-3.85	-10.77
10,877.0	91.20	183.60	6,083.9	-4,668.1	-1,273.1	4,838.6	0.00	0.00	0.00
4 1/2"									
10,882.0	91.20	183.60	6,083.8	-4,673.1	-1,273.4	4,843.5	0.00	0.00	0.00
TD Depth @ 10882 - BHL 470'FSL & 2011'FEL									

<b>Company:</b>	BONANZA CREEK ENERGY OPERATING	<b>Local Co-ordinate Reference:</b>	Well State Pronghorn 31-34-16HNB
<b>Project:</b>	SEC.16-T5N-R61W	<b>TVD Reference:</b>	WELL @ 4644.0ft (Ensign 128 - RKB 15')
<b>Site:</b>	State Pronghorn P-16 Pad Sec.16-T5N-R61W	<b>MD Reference:</b>	WELL @ 4644.0ft (Ensign 128 - RKB 15')
<b>Well:</b>	State Pronghorn 31-34-16HNB	<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

## Design Targets

Target Name	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- hit/miss target	(°)	(°)	(ft)	(ft)	(ft)	(ft)	(ft)		
- Shape									
BHL 470'FSL & 2011'I	0.00	0.00	6,090.0	-4,674.1	-1,261.8	1,389,338.48	3,358,838.33	40.394980	-104.211630
- survey misses target center by 13.2ft at 10882.0ft MD (6083.8 TVD, -4673.1 N, -1273.4 E)									
- Point									

## Casing Points

Measured Depth	Vertical Depth	Name	Casing Diameter	Hole Diameter
(ft)	(ft)		(")	(")
456.8	456.0	9 5/8"	9-5/8	12-1/4
6,646.9	6,087.7	7"	7	8-3/4
6,541.9	6,085.0	4 1/2"	4-1/2	6
10,877.0	6,083.9	4 1/2"	4-1/2	6

## Survey Annotations

Measured Depth	Vertical Depth	Local Coordinates		Comment
(ft)	(ft)	+N/-S (ft)	+E/-W (ft)	
200.0	200.0	2.2	-0.9	KOP #1
5,700.0	5,538.2	179.0	-1,233.0	KOP #2
10,882.0	6,083.8	-4,673.1	-1,273.4	TD Depth @ 10882

Checked By: \_\_\_\_\_ Approved By: \_\_\_\_\_ Date: \_\_\_\_\_