

# BONANZA CREEK ENERGY OPERATING

Well Name: **Pronghorn F-J-15HNB**

Surface Location: Pronghorn F-15 Pad Sec.15-T5N-R61W  
 North American Datum 1983 , US State Plane 1983 , Colorado Northern Zone  
 Ground Elevation: 4649.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	1393833.37	3362014.88	40.407190	-104.199990	

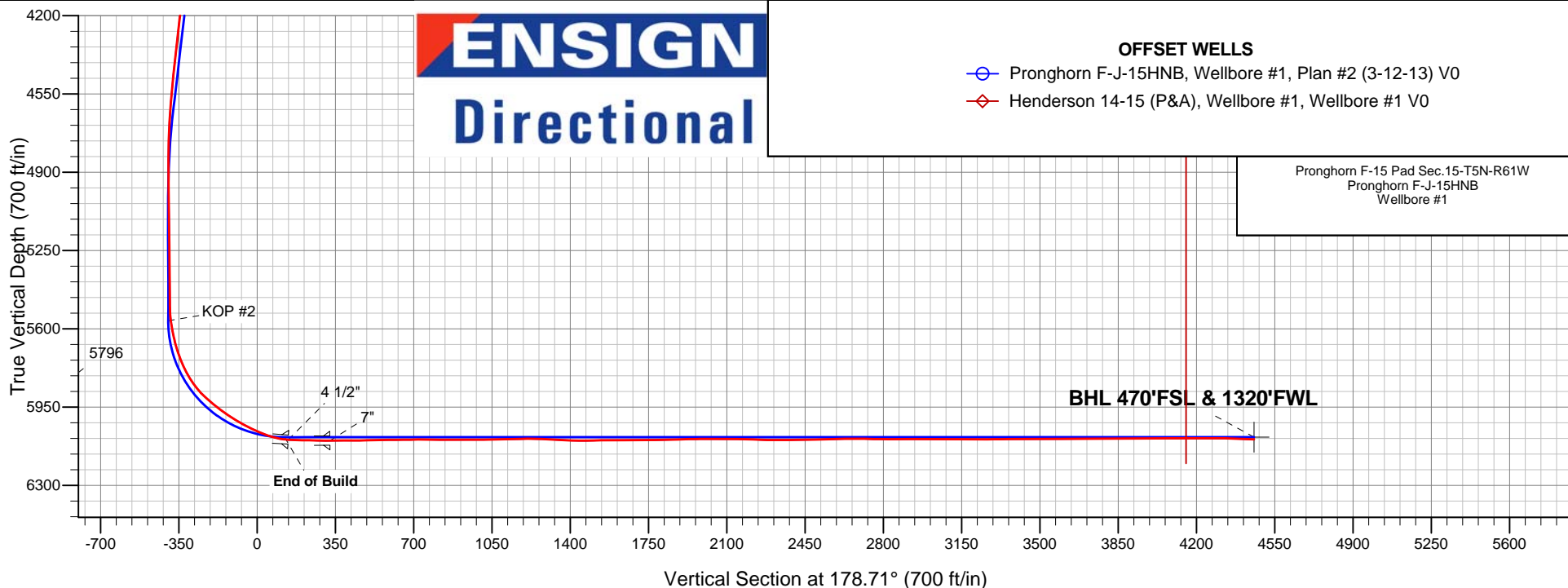
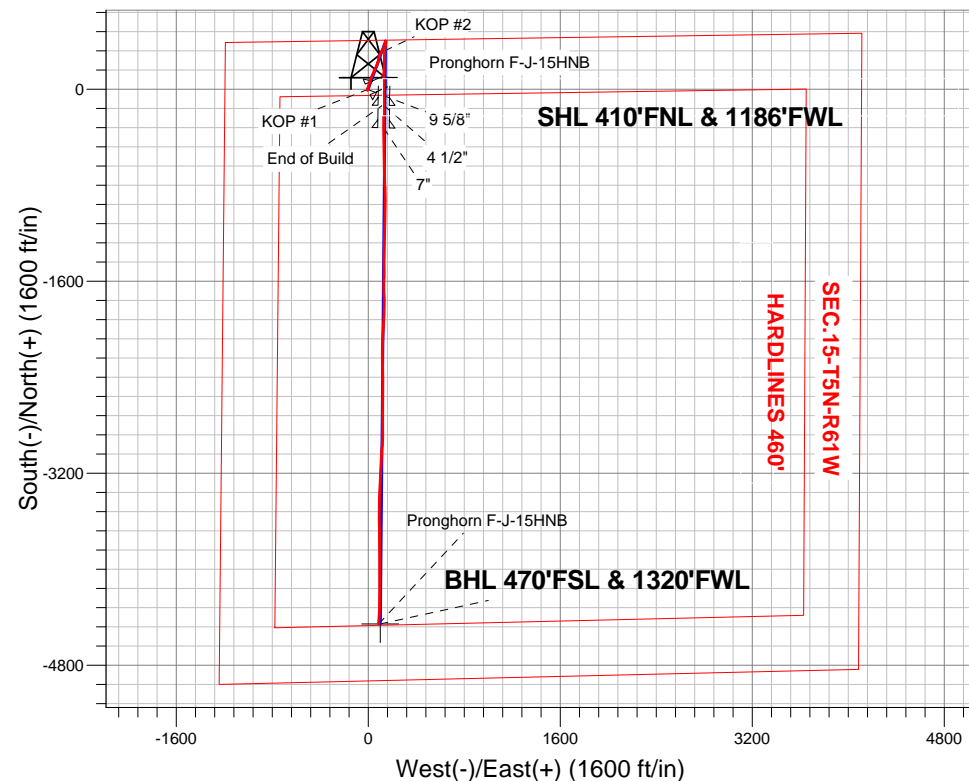
Ensign 128 RKB - 15' WELL @ 4664.0ft (Ensign 128 RKB - 15')

## FINAL SURVEY

Projected Bottom Hole Location  
 10722' MD 6094' TVD 4456' S & 88' E of  
 SHL  
 88.1 degree Incl @ 182.6 degree AZM

### ANNOTATIONS

TVD	MD	Annotation
500.0	500.0	KOP #1
5795.5	5836.0	KOP #2
	10948.0	TD Depth @ 10,948'





## **Directional**

# **BONANZA CREEK ENERGY OPERATING**

**SEC.15-T5N-R61W**

**Pronghorn F-15 Pad Sec.15-T5N-R61W**

**Pronghorn F-J-15HNB**

**Wellbore #1**

**Survey: Survey #1**

## **Standard Survey Report**

**08 April, 2013**

<b>Company:</b>	BONANZA CREEK ENERGY OPERATING	<b>Local Co-ordinate Reference:</b>	Well Pronghorn F-J-15HNB
<b>Project:</b>	SEC.15-T5N-R61W	<b>TVD Reference:</b>	WELL @ 4664.0ft (Ensign 128 RKB - 15')
<b>Site:</b>	Pronghorn F-15 Pad Sec.15-T5N-R61W	<b>MD Reference:</b>	WELL @ 4664.0ft (Ensign 128 RKB - 15')
<b>Well:</b>	Pronghorn F-J-15HNB	<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.15-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	Pronghorn F-15 Pad Sec.15-T5N-R61W				
Site Position:		Northing:	1,393,833.38ft	Latitude:	40.407190
From:	Lat/Long	Easting:	3,362,014.88ft	Longitude:	-104.199990
Position Uncertainty:	0.0 ft	Slot Radius:	"	Grid Convergence:	0.84 °

Well	Pronghorn F-J-15HNB					
Well Position	+N/-S	0.0 ft	Northing:	1,393,833.37 ft	Latitude:	40.407190
	+E/-W	0.0 ft	Easting:	3,362,014.88 ft	Longitude:	-104.199990
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,649.0 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	3/12/2013	8.32	67.09	53,012

<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	178.71	

<b>Survey Program</b>	<b>Date</b>	4/8/2013			
<b>From (ft)</b>	<b>To (ft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>	
491.0	10,722.0	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	
432.0	0.88	245.60	432.0	-1.4	-3.0	1.3	0.20	0.20	0.00	
<b>9 5/8"</b>										
491.0	1.00	245.60	491.0	-1.8	-3.9	1.7	0.20	0.20	0.00	
500.0	0.99	242.41	500.0	-1.8	-4.0	1.7	0.63	-0.14	-35.40	
<b>KOP #1</b>										
615.0	1.10	202.20	615.0	-3.3	-5.3	3.2	0.63	0.10	-34.97	
739.0	0.80	170.90	738.9	-5.3	-5.6	5.1	0.47	-0.24	-25.24	
863.0	0.30	347.90	862.9	-5.8	-5.6	5.7	0.89	-0.40	142.74	
987.0	0.10	131.50	986.9	-5.6	-5.6	5.4	0.31	-0.16	115.81	
1,109.0	1.20	331.40	1,108.9	-4.5	-6.1	4.4	1.06	0.90	-131.23	
1,233.0	1.50	350.60	1,232.9	-1.8	-7.0	1.6	0.43	0.24	15.48	
1,357.0	2.70	23.40	1,356.8	2.5	-6.1	-2.6	1.33	0.97	26.45	

<b>Company:</b>	BONANZA CREEK ENERGY OPERATING	<b>Local Co-ordinate Reference:</b>	Well Pronghorn F-J-15HNB
<b>Project:</b>	SEC.15-T5N-R61W	<b>TVD Reference:</b>	WELL @ 4664.0ft (Ensign 128 RKB - 15')
<b>Site:</b>	Pronghorn F-15 Pad Sec.15-T5N-R61W	<b>MD Reference:</b>	WELL @ 4664.0ft (Ensign 128 RKB - 15')
<b>Well:</b>	Pronghorn F-J-15HNB	<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)
1,481.0	4.70	16.40	1,480.5	10.1	-3.5	-10.1	1.65	1.61	-5.65
1,604.0	6.00	20.80	1,603.0	20.9	0.2	-20.9	1.11	1.06	3.58
1,727.0	7.30	22.90	1,725.2	34.1	5.5	-34.0	1.08	1.06	1.71
1,850.0	7.70	17.10	1,847.1	49.2	11.0	-48.9	0.70	0.33	-4.72
1,973.0	8.30	11.70	1,968.9	65.8	15.2	-65.4	0.78	0.49	-4.39
2,097.0	8.40	19.70	2,091.6	83.1	20.1	-82.6	0.94	0.08	6.45
2,219.0	7.50	22.40	2,212.5	98.8	26.1	-98.2	0.80	-0.74	2.21
2,343.0	7.00	24.00	2,335.5	113.2	32.3	-112.4	0.43	-0.40	1.29
2,466.0	6.70	22.70	2,457.6	126.7	38.1	-125.8	0.27	-0.24	-1.06
2,589.0	7.20	20.40	2,579.7	140.5	43.6	-139.5	0.47	0.41	-1.87
2,714.0	7.00	23.80	2,703.7	154.8	49.4	-153.7	0.37	-0.16	2.72
2,840.0	6.50	32.20	2,828.8	167.9	56.3	-166.6	0.88	-0.40	6.67
2,967.0	5.60	29.20	2,955.1	179.4	63.1	-177.9	0.75	-0.71	-2.36
3,094.0	6.60	18.70	3,081.4	191.7	68.5	-190.1	1.18	0.79	-8.27
3,222.0	7.70	18.70	3,208.4	206.8	73.6	-205.1	0.86	0.86	0.00
3,349.0	10.20	18.50	3,333.9	225.5	79.9	-223.6	1.97	1.97	-0.16
3,476.0	11.30	11.10	3,458.6	248.4	85.8	-246.4	1.39	0.87	-5.83
3,603.0	10.30	15.50	3,583.4	271.5	91.3	-269.4	1.02	-0.79	3.46
3,730.0	8.10	22.60	3,708.8	290.7	97.7	-288.5	1.95	-1.73	5.59
3,857.0	7.70	28.70	3,834.6	306.5	105.3	-304.0	0.73	-0.31	4.80
3,984.0	7.70	37.90	3,960.4	320.6	114.6	-318.0	0.97	0.00	7.24
4,111.0	8.10	28.50	4,086.2	335.2	124.1	-332.3	1.06	0.31	-7.40
4,238.0	6.80	22.60	4,212.1	350.0	131.2	-347.0	1.19	-1.02	-4.65
4,365.0	6.50	17.80	4,338.3	363.8	136.3	-360.6	0.50	-0.24	-3.78
4,492.0	6.50	12.00	4,464.5	377.7	140.0	-374.4	0.52	0.00	-4.57
4,619.0	4.70	8.50	4,590.9	389.9	142.3	-386.6	1.44	-1.42	-2.76
4,746.0	2.30	1.30	4,717.6	397.5	143.1	-394.2	1.92	-1.89	-5.67
4,873.0	0.50	82.70	4,844.6	400.2	143.7	-396.8	1.79	-1.42	64.09
5,000.0	0.70	146.50	4,971.6	399.6	144.7	-396.2	0.52	0.16	50.24
5,126.0	0.80	184.60	5,097.6	398.1	145.1	-394.7	0.40	0.08	30.24
5,254.0	0.80	143.10	5,225.6	396.5	145.5	-393.1	0.44	0.00	-32.42
5,381.0	0.40	156.30	5,352.5	395.4	146.2	-392.0	0.33	-0.31	10.39
5,487.0	0.70	141.60	5,458.5	394.5	146.8	-391.1	0.31	0.28	-13.87
5,509.0	0.40	158.80	5,480.5	394.3	146.9	-390.9	1.54	-1.36	78.18
5,541.0	1.90	191.50	5,512.5	393.7	146.8	-390.3	4.93	4.69	102.19
5,572.0	4.70	190.50	5,543.5	392.0	146.5	-388.6	9.03	9.03	-3.23
5,604.0	8.00	187.50	5,575.3	388.5	146.0	-385.1	10.36	10.31	-9.38
5,636.0	11.00	186.30	5,606.8	383.2	145.3	-379.8	9.39	9.38	-3.75
5,668.0	13.10	185.70	5,638.1	376.6	144.6	-373.2	6.57	6.56	-1.88
5,700.0	15.10	187.80	5,669.2	368.8	143.7	-365.5	6.45	6.25	6.56
5,732.0	17.90	188.90	5,699.8	359.8	142.4	-356.5	8.80	8.75	3.44
5,763.0	20.90	188.20	5,729.1	349.7	140.9	-346.4	9.71	9.68	-2.26
5,795.0	23.70	187.10	5,758.7	337.6	139.2	-334.4	8.85	8.75	-3.44
5,827.0	27.20	184.10	5,787.6	323.9	137.9	-320.8	11.65	10.94	-9.38
5,836.0	28.30	183.88	5,795.5	319.8	137.6	-316.6	12.31	12.25	-2.45
KOP #2									
5,858.0	31.00	183.40	5,814.7	308.9	137.0	-305.7	12.31	12.26	-2.18
5,890.0	35.00	183.10	5,841.5	291.5	136.0	-288.4	12.51	12.50	-0.94
5,922.0	39.40	182.60	5,867.0	272.2	135.0	-269.1	13.78	13.75	-1.56
5,953.0	43.90	182.20	5,890.1	251.6	134.1	-248.5	14.54	14.52	-1.29
5,985.0	48.10	182.00	5,912.4	228.6	133.3	-225.5	13.13	13.13	-0.63
6,017.0	50.70	180.60	5,933.2	204.3	132.8	-201.3	8.78	8.13	-4.38
6,049.0	52.10	182.40	5,953.1	179.3	132.1	-176.3	6.20	4.38	5.63
6,081.0	54.00	183.10	5,972.4	153.8	130.9	-150.8	6.19	5.94	2.19

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<b>Site:</b>	Pronghorn F-15 Pad Sec.15-T5N-R61W	<b>MD Reference:</b>	WELL @ 4664.0ft (Ensign 128 RKB - 15')
<b>Well:</b>	Pronghorn F-J-15HNB	<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)	
6,112.0	56.50	182.20	5,990.0	128.3	129.7	-125.4	8.41	8.06	-2.90	
6,144.0	59.20	182.40	6,007.1	101.3	128.6	-98.4	8.45	8.44	0.63	
6,176.0	61.10	180.60	6,023.0	73.5	127.9	-70.6	7.68	5.94	-5.63	
6,207.0	62.60	178.20	6,037.6	46.2	128.2	-43.3	8.37	4.84	-7.74	
6,239.0	64.50	179.60	6,051.9	17.6	128.7	-14.7	7.11	5.94	4.38	
6,271.0	67.30	179.90	6,064.9	-11.7	128.9	14.5	8.79	8.75	0.94	
6,303.0	71.00	179.60	6,076.3	-41.5	129.0	44.4	11.60	11.56	-0.94	
6,335.0	74.90	178.00	6,085.7	-72.1	129.6	75.0	13.09	12.19	-5.00	
6,366.0	80.40	179.70	6,092.3	-102.4	130.2	105.3	18.53	17.74	5.48	
6,398.0	86.30	180.80	6,096.0	-134.2	130.1	137.1	18.75	18.44	3.44	
6,399.0	86.36	180.79	6,096.1	-135.2	130.1	138.1	6.37	6.25	-1.25	
4 1/2"										
6,430.0	88.30	180.40	6,097.6	-166.1	129.8	169.0	6.37	6.25	-1.25	
6,462.0	88.50	180.80	6,098.4	-198.1	129.4	201.0	1.40	0.63	1.25	
6,494.0	89.30	179.20	6,099.1	-230.1	129.4	233.0	5.59	2.50	-5.00	
6,527.0	89.10	180.40	6,099.5	-263.1	129.5	265.9	3.69	-0.61	3.64	
6,586.0	90.21	181.08	6,099.9	-322.1	128.8	324.9	2.21	1.88	1.16	
7"										
6,596.0	90.40	181.20	6,099.8	-332.1	128.6	334.9	2.21	1.88	1.16	
6,627.0	90.40	179.40	6,099.6	-363.1	128.4	365.9	5.81	0.00	-5.81	
6,658.0	90.00	178.20	6,099.5	-394.1	129.1	396.9	4.08	-1.29	-3.87	
6,689.0	90.20	178.30	6,099.4	-425.1	130.0	427.9	0.72	0.65	0.32	
6,720.0	90.50	178.00	6,099.3	-456.0	131.0	458.9	1.37	0.97	-0.97	
6,753.0	90.90	179.20	6,098.9	-489.0	131.8	491.9	3.83	1.21	3.64	
6,785.0	91.10	179.90	6,098.3	-521.0	132.1	523.9	2.27	0.63	2.19	
6,816.0	91.20	179.90	6,097.7	-552.0	132.1	554.9	0.32	0.32	0.00	
6,849.0	91.30	180.10	6,097.0	-585.0	132.1	587.8	0.68	0.30	0.61	
6,882.0	90.60	179.60	6,096.4	-618.0	132.2	620.8	2.61	-2.12	-1.52	
6,914.0	90.70	178.50	6,096.0	-650.0	132.7	652.8	3.45	0.31	-3.44	
6,947.0	90.70	178.20	6,095.6	-683.0	133.7	685.8	0.91	0.00	-0.91	
6,980.0	90.50	177.80	6,095.3	-716.0	134.8	718.8	1.36	-0.61	-1.21	
7,012.0	89.80	177.80	6,095.2	-747.9	136.1	750.8	2.19	-2.19	0.00	
7,045.0	89.00	176.40	6,095.6	-780.9	137.7	783.8	4.89	-2.42	-4.24	
7,078.0	89.40	178.70	6,096.0	-813.9	139.1	816.8	7.07	1.21	6.97	
7,111.0	89.40	178.20	6,096.4	-846.8	140.0	849.8	1.52	0.00	-1.52	
7,144.0	89.80	178.70	6,096.6	-879.8	140.9	882.8	1.94	1.21	1.52	
7,176.0	90.00	179.70	6,096.6	-911.8	141.4	914.8	3.19	0.63	3.13	
7,209.0	91.00	180.60	6,096.4	-944.8	141.3	947.8	4.08	3.03	2.73	
7,242.0	91.00	180.80	6,095.8	-977.8	140.9	980.7	0.61	0.00	0.61	
7,275.0	90.30	181.20	6,095.4	-1,010.8	140.3	1,013.7	2.44	-2.12	1.21	
7,307.0	90.70	180.80	6,095.1	-1,042.8	139.8	1,045.7	1.77	1.25	-1.25	
7,340.0	91.00	180.80	6,094.6	-1,075.8	139.3	1,078.7	0.91	0.91	0.00	
7,373.0	91.70	180.80	6,093.9	-1,108.8	138.8	1,111.6	2.12	2.12	0.00	
7,406.0	91.20	182.20	6,093.0	-1,141.8	138.0	1,144.6	4.50	-1.52	4.24	
7,438.0	90.70	182.90	6,092.5	-1,173.7	136.5	1,176.5	2.69	-1.56	2.19	
7,471.0	90.70	182.70	6,092.1	-1,206.7	134.9	1,209.4	0.61	0.00	-0.61	
7,504.0	89.20	181.00	6,092.1	-1,239.7	133.9	1,242.4	6.87	-4.55	-5.15	
7,537.0	87.10	179.90	6,093.2	-1,272.6	133.6	1,275.3	7.18	-6.36	-3.33	
7,569.0	86.80	179.20	6,094.9	-1,304.6	133.9	1,307.3	2.38	-0.94	-2.19	
7,602.0	87.10	181.00	6,096.6	-1,337.6	133.8	1,340.2	5.52	0.91	5.45	
7,635.0	87.60	181.00	6,098.2	-1,370.5	133.2	1,373.2	1.52	1.52	0.00	
7,667.0	88.30	181.00	6,099.3	-1,402.5	132.7	1,405.1	2.19	2.19	0.00	
7,700.0	89.30	180.60	6,100.0	-1,435.5	132.2	1,438.1	3.26	3.03	-1.21	
7,733.0	90.40	180.80	6,100.1	-1,468.5	131.8	1,471.1	3.39	3.33	0.61	

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<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)	
7,766.0	91.10	181.30	6,099.7	-1,501.5	131.2	1,504.0	2.61	2.12	1.52	
7,799.0	91.30	179.90	6,099.0	-1,534.5	130.9	1,537.0	4.28	0.61	-4.24	
7,831.0	90.50	180.10	6,098.5	-1,566.4	130.9	1,569.0	2.58	-2.50	0.63	
7,864.0	90.30	180.60	6,098.2	-1,599.4	130.7	1,602.0	1.63	-0.61	1.52	
7,897.0	90.30	180.60	6,098.1	-1,632.4	130.3	1,635.0	0.00	0.00	0.00	
7,930.0	90.20	180.10	6,097.9	-1,665.4	130.1	1,667.9	1.55	-0.30	-1.52	
7,962.0	89.70	178.50	6,097.9	-1,697.4	130.5	1,699.9	5.24	-1.56	-5.00	
7,995.0	90.10	178.20	6,098.0	-1,730.4	131.4	1,732.9	1.52	1.21	-0.91	
8,028.0	90.70	179.20	6,097.8	-1,763.4	132.2	1,765.9	3.53	1.82	3.03	
8,061.0	91.80	180.30	6,097.1	-1,796.4	132.3	1,798.9	4.71	3.33	3.33	
8,093.0	91.90	179.70	6,096.0	-1,828.4	132.3	1,830.9	1.90	0.31	-1.88	
8,126.0	91.70	180.60	6,095.0	-1,861.4	132.3	1,863.9	2.79	-0.61	2.73	
8,159.0	91.30	183.30	6,094.1	-1,894.3	131.1	1,896.8	8.27	-1.21	8.18	
8,192.0	90.90	184.50	6,093.5	-1,927.3	128.9	1,929.7	3.83	-1.21	3.64	
8,225.0	91.30	183.40	6,092.9	-1,960.2	126.6	1,962.5	3.55	1.21	-3.33	
8,257.0	90.10	184.00	6,092.5	-1,992.1	124.6	1,994.4	4.19	-3.75	1.88	
8,288.0	89.00	182.20	6,092.7	-2,023.1	122.9	2,025.3	6.80	-3.55	-5.81	
8,320.0	90.20	182.90	6,092.9	-2,055.0	121.5	2,057.2	4.34	3.75	2.19	
8,352.0	90.70	183.30	6,092.7	-2,087.0	119.7	2,089.1	2.00	1.56	1.25	
8,384.0	89.00	181.70	6,092.8	-2,118.9	118.3	2,121.1	7.30	-5.31	-5.00	
8,416.0	88.50	181.30	6,093.5	-2,150.9	117.5	2,153.0	2.00	-1.56	-1.25	
8,448.0	88.70	181.00	6,094.2	-2,182.9	116.8	2,185.0	1.13	0.63	-0.94	
8,479.0	88.20	179.40	6,095.1	-2,213.9	116.7	2,216.0	5.41	-1.61	-5.16	
8,511.0	88.00	178.30	6,096.1	-2,245.9	117.4	2,247.9	3.49	-0.63	-3.44	
8,543.0	88.70	178.50	6,097.1	-2,277.8	118.3	2,279.9	2.27	2.19	0.63	
8,575.0	90.00	179.40	6,097.4	-2,309.8	118.9	2,311.9	4.94	4.06	2.81	
8,607.0	90.40	179.00	6,097.3	-2,341.8	119.3	2,343.9	1.77	1.25	-1.25	
8,638.0	90.50	178.00	6,097.1	-2,372.8	120.1	2,374.9	3.24	0.32	-3.23	
8,670.0	90.60	177.80	6,096.8	-2,404.8	121.3	2,406.9	0.70	0.31	-0.63	
8,702.0	91.00	178.90	6,096.3	-2,436.8	122.2	2,438.9	3.66	1.25	3.44	
8,734.0	91.50	180.60	6,095.6	-2,468.8	122.4	2,470.9	5.54	1.56	5.31	
8,766.0	91.50	181.20	6,094.8	-2,500.8	121.8	2,502.9	1.87	0.00	1.88	
8,797.0	90.90	181.30	6,094.1	-2,531.7	121.2	2,533.8	1.96	-1.94	0.32	
8,829.0	91.10	179.90	6,093.6	-2,563.7	120.8	2,565.8	4.42	0.63	-4.38	
8,861.0	91.20	180.10	6,092.9	-2,595.7	120.8	2,597.8	0.70	0.31	0.63	
8,893.0	91.50	180.40	6,092.2	-2,627.7	120.7	2,629.8	1.33	0.94	0.94	
8,924.0	90.20	180.80	6,091.7	-2,658.7	120.4	2,660.7	4.39	-4.19	1.29	
8,956.0	88.80	180.10	6,092.0	-2,690.7	120.1	2,692.7	4.89	-4.38	-2.19	
8,988.0	89.00	179.70	6,092.6	-2,722.7	120.2	2,724.7	1.40	0.63	-1.25	
9,020.0	89.30	180.30	6,093.1	-2,754.7	120.2	2,756.7	2.10	0.94	1.88	
9,052.0	89.70	179.40	6,093.4	-2,786.7	120.3	2,788.7	3.08	1.25	-2.81	
9,083.0	89.70	179.00	6,093.5	-2,817.7	120.7	2,819.7	1.29	0.00	-1.29	
9,115.0	89.60	180.40	6,093.7	-2,849.7	120.9	2,851.7	4.39	-0.31	4.38	
9,146.0	90.10	180.60	6,093.8	-2,880.7	120.6	2,882.7	1.74	1.61	0.65	
9,178.0	90.40	182.70	6,093.7	-2,912.7	119.7	2,914.6	6.63	0.94	6.56	
9,210.0	90.60	184.10	6,093.4	-2,944.6	117.8	2,946.5	4.42	0.63	4.38	
9,242.0	90.80	184.30	6,093.0	-2,976.5	115.4	2,978.4	0.88	0.63	0.63	
9,274.0	90.00	182.20	6,092.8	-3,008.5	113.6	3,010.3	7.02	-2.50	-6.56	
9,305.0	89.30	183.10	6,093.0	-3,039.4	112.2	3,041.2	3.68	-2.26	2.90	
9,337.0	89.10	183.80	6,093.4	-3,071.4	110.3	3,073.1	2.27	-0.63	2.19	
9,369.0	89.40	183.80	6,093.8	-3,103.3	108.1	3,105.0	0.94	0.94	0.00	
9,401.0	89.70	184.00	6,094.1	-3,135.2	106.0	3,136.8	1.13	0.94	0.63	
9,432.0	89.80	183.80	6,094.2	-3,166.2	103.9	3,167.7	0.72	0.32	-0.65	
9,464.0	90.00	182.00	6,094.3	-3,198.1	102.2	3,199.6	5.66	0.63	-5.63	

<b>Company:</b>	BONANZA CREEK ENERGY OPERATING	<b>Local Co-ordinate Reference:</b>	Well Pronghorn F-J-15HNB
<b>Project:</b>	SEC.15-T5N-R61W	<b>TVD Reference:</b>	WELL @ 4664.0ft (Ensign 128 RKB - 15')
<b>Site:</b>	Pronghorn F-15 Pad Sec.15-T5N-R61W	<b>MD Reference:</b>	WELL @ 4664.0ft (Ensign 128 RKB - 15')
<b>Well:</b>	Pronghorn F-J-15HNB	<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)	
9,496.0	90.00	182.60	6,094.3	-3,230.1	100.9	3,231.5	1.88	0.00	1.88	
9,528.0	90.20	181.70	6,094.2	-3,262.1	99.7	3,263.5	2.88	0.63	-2.81	
9,559.0	90.20	182.70	6,094.1	-3,293.0	98.6	3,294.4	3.23	0.00	3.23	
9,591.0	90.60	183.40	6,093.9	-3,325.0	96.9	3,326.3	2.52	1.25	2.19	
9,623.0	90.90	182.90	6,093.5	-3,356.9	95.1	3,358.2	1.82	0.94	-1.56	
9,655.0	90.40	182.90	6,093.1	-3,388.9	93.5	3,390.1	1.56	-1.56	0.00	
9,686.0	90.20	181.20	6,092.9	-3,419.9	92.4	3,421.1	5.52	-0.65	-5.48	
9,718.0	89.90	180.30	6,092.9	-3,451.9	91.9	3,453.1	2.96	-0.94	-2.81	
9,750.0	90.00	180.40	6,092.9	-3,483.9	91.8	3,485.1	0.44	0.31	0.31	
9,782.0	90.10	179.70	6,092.9	-3,515.9	91.7	3,517.0	2.21	0.31	-2.19	
9,813.0	90.30	180.40	6,092.8	-3,546.9	91.7	3,548.0	2.35	0.65	2.26	
9,845.0	90.10	179.90	6,092.7	-3,578.9	91.6	3,580.0	1.68	-0.63	-1.56	
9,877.0	90.30	179.40	6,092.6	-3,610.9	91.8	3,612.0	1.68	0.63	-1.56	
9,909.0	90.50	178.30	6,092.4	-3,642.9	92.5	3,644.0	3.49	0.63	-3.44	
9,941.0	90.50	179.70	6,092.1	-3,674.9	93.0	3,676.0	4.37	0.00	4.38	
9,972.0	90.70	180.10	6,091.8	-3,705.9	93.1	3,707.0	1.44	0.65	1.29	
10,004.0	90.70	178.90	6,091.4	-3,737.9	93.3	3,739.0	3.75	0.00	-3.75	
10,036.0	90.00	178.30	6,091.2	-3,769.8	94.1	3,771.0	2.88	-2.19	-1.88	
10,067.0	90.00	180.30	6,091.2	-3,800.8	94.5	3,802.0	6.45	0.00	6.45	
10,099.0	90.00	179.70	6,091.2	-3,832.8	94.5	3,834.0	1.88	0.00	-1.88	
10,131.0	90.30	179.60	6,091.1	-3,864.8	94.7	3,866.0	0.99	0.94	-0.31	
10,163.0	90.80	180.60	6,090.8	-3,896.8	94.6	3,898.0	3.49	1.56	3.13	
10,195.0	90.10	179.20	6,090.5	-3,928.8	94.7	3,930.0	4.89	-2.19	-4.38	
10,226.0	89.70	178.50	6,090.6	-3,959.8	95.3	3,961.0	2.60	-1.29	-2.26	
10,258.0	89.70	178.90	6,090.7	-3,991.8	96.0	3,993.0	1.25	0.00	1.25	
10,290.0	90.50	180.80	6,090.7	-4,023.8	96.1	4,025.0	6.44	2.50	5.94	
10,321.0	91.20	180.60	6,090.2	-4,054.8	95.8	4,055.9	2.35	2.26	-0.65	
10,353.0	90.30	180.80	6,089.8	-4,086.8	95.4	4,087.9	2.88	-2.81	0.63	
10,385.0	89.60	180.10	6,089.8	-4,118.8	95.1	4,119.9	3.09	-2.19	-2.19	
10,417.0	89.60	178.90	6,090.1	-4,150.8	95.4	4,151.9	3.75	0.00	-3.75	
10,448.0	90.20	179.70	6,090.1	-4,181.8	95.8	4,182.9	3.23	1.94	2.58	
10,480.0	90.50	180.60	6,089.9	-4,213.8	95.7	4,214.9	2.96	0.94	2.81	
10,512.0	90.50	181.70	6,089.6	-4,245.8	95.0	4,246.9	3.44	0.00	3.44	
10,543.0	90.10	181.70	6,089.5	-4,276.8	94.1	4,277.8	1.29	-1.29	0.00	
10,575.0	89.40	181.30	6,089.6	-4,308.8	93.3	4,309.8	2.52	-2.19	-1.25	
10,607.0	87.90	181.50	6,090.4	-4,340.7	92.5	4,341.7	4.73	-4.69	0.63	
10,638.0	87.80	182.60	6,091.5	-4,371.7	91.4	4,372.7	3.56	-0.32	3.55	
10,670.0	88.10	182.60	6,092.7	-4,403.6	89.9	4,404.6	0.94	0.94	0.00	
10,721.1	88.10	182.60	6,094.4	-4,454.6	87.6	4,455.5	0.00	0.00	0.00	
<b>BHL 470'FSL &amp; 1333'FWL</b>										
10,722.0	88.10	182.60	6,094.4	-4,455.6	87.6	4,456.4	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'FSL & 1333'	0.00	0.00	6,085.0	-4,455.5	100.3	1,389,379.98	3,362,180.46	40.394960	-104.199630	
- survey misses target center by 15.8ft at 10721.1ft MD (6094.4 TVD, -4454.6 N, 87.6 E)										
- Point										

<b>Company:</b>	BONANZA CREEK ENERGY OPERATING	<b>Local Co-ordinate Reference:</b>	Well Pronghorn F-J-15HNB
<b>Project:</b>	SEC.15-T5N-R61W	<b>TVD Reference:</b>	WELL @ 4664.0ft (Ensign 128 RKB - 15')
<b>Site:</b>	Pronghorn F-15 Pad Sec.15-T5N-R61W	<b>MD Reference:</b>	WELL @ 4664.0ft (Ensign 128 RKB - 15')
<b>Well:</b>	Pronghorn F-J-15HNB	<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

#### Casing Points

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")
432.0	432.0	9 5/8"	9-5/8	12-1/4
6,586.0	6,099.9	7"	7	8-3/4
6,399.0	6,096.1	4 1/2"	4-1/2	6

#### Survey Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
500.0	500.0	-1.8	-4.0	KOP #1
5,836.0	5,795.5	319.8	137.6	KOP #2
10,948.0				TD Depth @ 10,948'

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