

# BONANZA CREEK ENERGY OPERATING

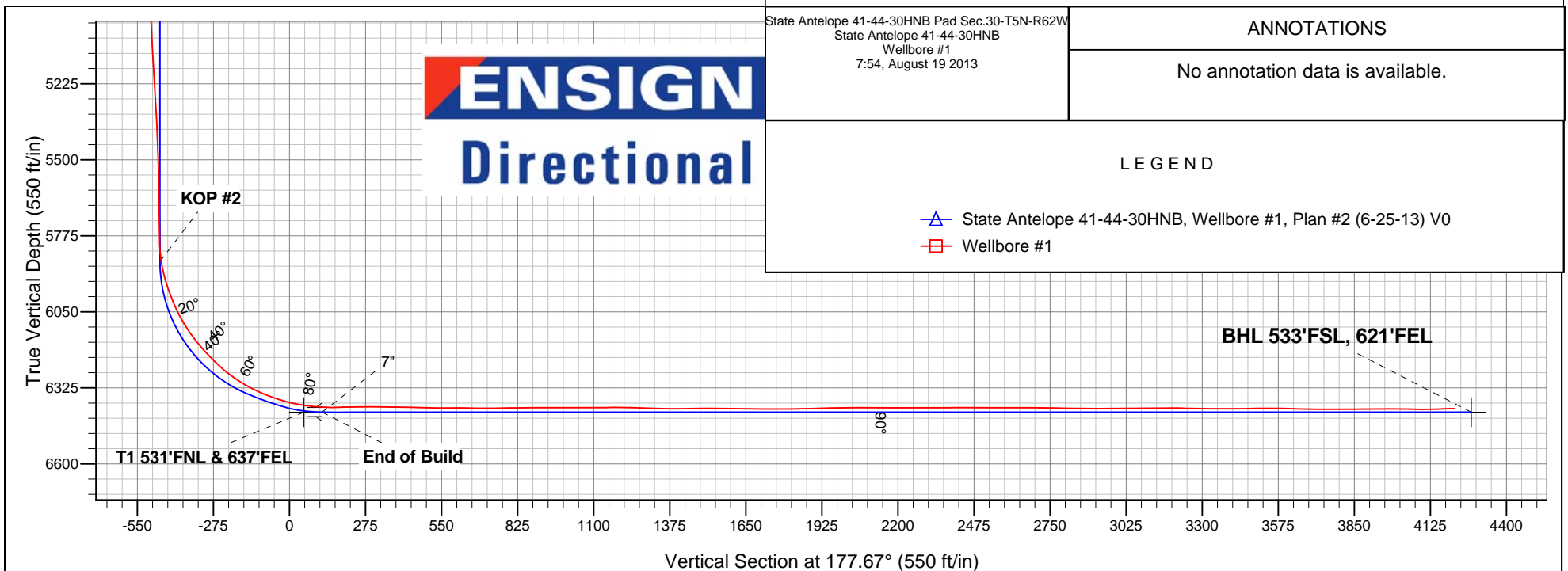
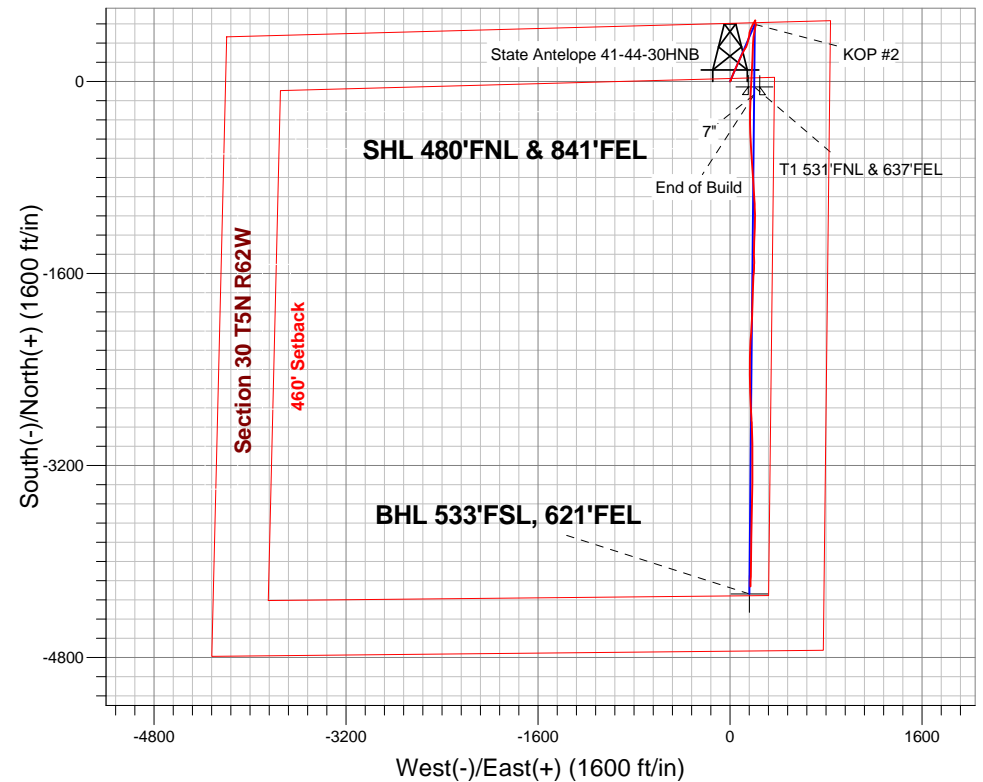
Well Name: **State Antelope 41-44-30HNB**

Surface Location: State Antelope 41-44-30HNB Pad Sec.30-T5N-R62W  
North American Datum 1983 , US State Plane 1983 , Colorado Northern Zone  
Ground Elevation: 4662.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	1382012.78	3317675.92	40.376420	-104.359740	
Ensign 128 RKB - 15' WELL @ 4677.0ft (Ensign 128 RKB - 15')						

## FINAL SURVEY

Projected Bottom Hole Location  
10863' MD 6400' TVD 4207' S & 172' E of SHL  
91.1 degree Incl @ 181.3 degree AZM





# **BONANZA CREEK ENERGY OPERATING**

**SEC.30-T5N-R62W**

**State Antelope 41-44-30HNB Pad Sec.30-T5N-R62W**

**State Antelope 41-44-30HNB**

**Wellbore #1**

**Design: Wellbore #1**

## **Standard Survey Report**

**19 August, 2013**



<b>Company:</b>	BONANZA CREEK ENERGY OPERATING	<b>Local Co-ordinate Reference:</b>	Well State Antelope 41-44-30HNB
<b>Project:</b>	SEC.30-T5N-R62W	<b>TVD Reference:</b>	WELL @ 4677.0ft (Ensign 128 RKB - 15')
<b>Site:</b>	State Antelope 41-44-30HNB Pad Sec.30-T5N-R62W	<b>MD Reference:</b>	WELL @ 4677.0ft (Ensign 128 RKB - 15')
<b>Well:</b>	State Antelope 41-44-30HNB	<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)
1,878.0	8.40	24.50	1,871.9	93.8	38.8	-92.1	0.45	-0.40	1.37
2,001.0	7.70	30.00	1,993.7	109.1	46.6	-107.1	0.85	-0.57	4.47
2,124.0	9.00	24.70	2,115.4	125.0	54.8	-122.7	1.23	1.06	-4.31
2,248.0	8.10	22.40	2,238.0	141.9	62.2	-139.2	0.78	-0.73	-1.85
2,370.0	8.00	23.00	2,358.8	157.6	68.8	-154.7	0.11	-0.08	0.49
2,493.0	8.40	25.90	2,480.6	173.6	76.0	-170.4	0.47	0.33	2.36
2,616.0	8.90	23.10	2,602.2	190.4	83.7	-186.9	0.53	0.41	-2.28
2,743.0	9.60	22.30	2,727.5	209.3	91.5	-205.4	0.56	0.55	-0.63
2,870.0	10.00	24.00	2,852.6	229.1	100.1	-224.9	0.39	0.31	1.34
2,997.0	9.10	29.30	2,977.9	248.0	109.5	-243.3	0.99	-0.71	4.17
3,124.0	8.90	33.20	3,103.3	265.0	119.7	-259.9	0.51	-0.16	3.07
3,251.0	7.70	31.50	3,229.0	280.4	129.6	-274.9	0.96	-0.94	-1.34
3,378.0	7.80	20.50	3,354.8	295.8	137.0	-289.9	1.17	0.08	-8.66
3,505.0	8.70	17.70	3,480.5	313.0	143.0	-306.9	0.78	0.71	-2.20
3,632.0	10.60	15.60	3,605.7	333.4	149.0	-327.0	1.52	1.50	-1.65
3,759.0	12.20	12.90	3,730.2	357.7	155.2	-351.1	1.33	1.26	-2.13
3,886.0	12.00	10.10	3,854.4	383.8	160.5	-376.9	0.49	-0.16	-2.20
4,013.0	10.90	8.90	3,978.9	408.7	164.7	-401.6	0.89	-0.87	-0.94
4,140.0	9.40	18.60	4,103.9	430.4	169.8	-423.1	1.79	-1.18	7.64
4,267.0	8.80	28.10	4,229.3	448.8	177.7	-441.1	1.27	-0.47	7.48
4,394.0	8.50	25.80	4,354.8	465.8	186.4	-457.8	0.36	-0.24	-1.81
4,521.0	8.10	31.60	4,480.5	481.8	195.1	-473.5	0.73	-0.31	4.57
4,648.0	7.20	32.10	4,606.4	496.2	204.1	-487.5	0.71	-0.71	0.39
4,775.0	3.40	28.60	4,732.8	506.3	210.1	-497.3	3.00	-2.99	-2.76
4,902.0	1.00	350.50	4,859.7	510.7	211.7	-501.6	2.11	-1.89	-30.00
5,028.0	1.80	194.20	4,985.7	509.8	211.0	-500.8	2.18	0.63	-124.05
5,155.0	3.50	178.40	5,112.6	504.0	210.7	-495.0	1.44	1.34	-12.44
5,282.0	3.50	178.90	5,239.3	496.3	210.8	-487.3	0.02	0.00	0.39
5,409.0	2.70	173.60	5,366.1	489.4	211.3	-480.4	0.67	-0.63	-4.17
5,536.0	1.80	164.10	5,493.0	484.5	212.1	-475.5	0.76	-0.71	-7.48
5,663.0	1.40	143.70	5,620.0	481.4	213.6	-472.3	0.54	-0.31	-16.06
5,790.0	1.10	114.00	5,747.0	479.6	215.6	-470.4	0.55	-0.24	-23.39
5,825.0	1.10	119.50	5,782.0	479.3	216.2	-470.1	0.30	0.00	15.71
5,857.0	2.90	178.70	5,813.9	478.3	216.5	-469.1	7.88	5.63	185.00
5,889.0	6.30	188.50	5,845.8	475.8	216.3	-466.6	10.87	10.63	30.63
5,921.0	9.40	191.40	5,877.5	471.5	215.5	-462.3	9.76	9.69	9.06
5,952.0	13.60	192.10	5,907.9	465.5	214.2	-456.3	13.56	13.55	2.26
5,984.0	17.20	192.10	5,938.7	457.1	212.5	-448.1	11.25	11.25	0.00
6,015.0	19.70	190.50	5,968.2	447.5	210.5	-438.6	8.23	8.06	-5.16
6,047.0	22.50	192.20	5,998.0	436.2	208.3	-427.4	8.96	8.75	5.31
6,079.0	24.30	193.10	6,027.4	423.8	205.5	-415.1	5.73	5.63	2.81
6,111.0	27.10	191.50	6,056.2	410.3	202.5	-401.7	9.01	8.75	-5.00
6,143.0	30.20	188.00	6,084.3	395.2	200.0	-386.7	11.01	9.69	-10.94
6,174.0	33.50	185.90	6,110.6	378.9	198.0	-370.5	11.23	10.65	-6.77
6,206.0	36.10	185.00	6,136.9	360.7	196.3	-352.5	8.28	8.13	-2.81
6,238.0	39.40	184.50	6,162.2	341.2	194.6	-333.0	10.36	10.31	-1.56
6,269.0	42.30	183.80	6,185.6	321.0	193.2	-312.9	9.47	9.35	-2.26
6,301.0	44.80	182.90	6,208.8	299.0	191.9	-290.9	8.05	7.81	-2.81
6,333.0	45.20	182.00	6,231.5	276.4	190.9	-268.4	2.35	1.25	-2.81
6,365.0	48.50	181.70	6,253.3	253.1	190.2	-245.1	10.34	10.31	-0.94
6,396.0	52.10	181.50	6,273.1	229.2	189.5	-221.3	11.62	11.61	-0.65
6,428.0	55.70	183.10	6,292.0	203.4	188.5	-195.5	11.95	11.25	5.00
6,460.0	58.70	183.30	6,309.3	176.5	187.0	-168.8	9.39	9.38	0.63

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<b>Project:</b>	SEC.30-T5N-R62W	<b>TVD Reference:</b>	WELL @ 4677.0ft (Ensign 128 RKB - 15')
<b>Site:</b>	State Antelope 41-44-30HNB Pad Sec.30-T5N-R62W	<b>MD Reference:</b>	WELL @ 4677.0ft (Ensign 128 RKB - 15')
<b>Well:</b>	State Antelope 41-44-30HNB	<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)
6,491.0	62.40	183.40	6,324.6	149.6	185.4	-141.9	11.94	11.94	0.32
6,523.0	66.60	183.10	6,338.3	120.8	183.8	-113.2	13.15	13.13	-0.94
6,555.0	68.70	182.90	6,350.5	91.2	182.2	-83.7	6.59	6.56	-0.63
6,587.0	69.60	182.60	6,361.9	61.3	180.8	-53.9	2.95	2.81	-0.94
6,618.0	73.80	182.70	6,371.6	31.9	179.4	-24.6	13.55	13.55	0.32
6,650.0	76.90	182.90	6,379.7	1.0	177.9	6.2	9.71	9.69	0.63
6,682.0	80.20	182.20	6,386.1	-30.3	176.5	37.5	10.53	10.31	-2.19
6,698.1	81.66	182.20	6,388.6	-46.2	175.9	53.4	9.06	9.06	0.00
T1 531'FNL & 637'FEL									
6,714.0	83.10	182.20	6,390.7	-61.9	175.3	69.0	9.06	9.06	0.00
6,748.0	85.50	182.60	6,394.1	-95.7	173.9	102.7	7.16	7.06	1.18
6,813.0	90.80	182.60	6,396.2	-160.6	170.9	167.4	8.15	8.15	0.00
6,845.0	91.50	182.70	6,395.5	-192.6	169.4	199.3	2.21	2.19	0.31
6,877.0	91.30	181.50	6,394.8	-224.5	168.3	231.2	3.80	-0.63	-3.75
6,909.0	90.90	180.60	6,394.1	-256.5	167.7	263.1	3.08	-1.25	-2.81
6,940.0	90.50	179.80	6,393.8	-287.5	167.6	294.1	2.89	-1.29	-2.58
6,972.0	89.90	179.90	6,393.7	-319.5	167.7	326.1	1.90	-1.88	0.31
7,004.0	88.70	179.40	6,394.0	-351.5	167.9	358.1	4.06	-3.75	-1.56
7,036.0	88.50	179.10	6,394.8	-383.5	168.3	390.0	1.13	-0.63	-0.94
7,067.0	88.30	178.20	6,395.7	-414.5	169.0	421.0	2.97	-0.65	-2.90
7,099.0	88.50	177.80	6,396.6	-446.5	170.1	453.0	1.40	0.63	-1.25
7,131.0	88.60	177.30	6,397.4	-478.4	171.5	485.0	1.59	0.31	-1.56
7,163.0	88.90	176.90	6,398.1	-510.4	173.1	517.0	1.56	0.94	-1.25
7,195.0	89.90	176.60	6,398.4	-542.3	174.9	549.0	3.26	3.13	-0.94
7,226.0	90.80	176.90	6,398.2	-573.3	176.7	580.0	3.06	2.90	0.97
7,258.0	89.90	176.20	6,398.0	-605.2	178.6	612.0	3.56	-2.81	-2.19
7,290.0	89.10	176.40	6,398.3	-637.1	180.7	644.0	2.58	-2.50	0.63
7,322.0	89.40	176.20	6,398.7	-669.1	182.7	676.0	1.13	0.94	-0.63
7,353.0	90.00	175.70	6,398.9	-700.0	184.9	706.9	2.52	1.94	-1.61
7,385.0	90.70	175.40	6,398.7	-731.9	187.4	738.9	2.38	2.19	-0.94
7,417.0	90.70	175.50	6,398.3	-763.8	189.9	770.9	0.31	0.00	0.31
7,448.0	90.80	175.50	6,397.9	-794.7	192.4	801.9	0.32	0.32	0.00
7,480.0	90.70	176.80	6,397.5	-826.6	194.5	833.8	4.07	-0.31	4.06
7,512.0	90.70	176.60	6,397.1	-858.6	196.4	865.8	0.62	0.00	-0.63
7,544.0	89.90	177.10	6,396.9	-890.5	198.1	897.8	2.95	-2.50	1.56
7,576.0	89.60	176.80	6,397.1	-922.5	199.8	929.8	1.33	-0.94	-0.94
7,607.0	90.10	176.90	6,397.2	-953.4	201.5	960.8	1.64	1.61	0.32
7,639.0	90.40	176.90	6,397.0	-985.4	203.3	992.8	0.94	0.94	0.00
7,671.0	90.60	177.50	6,396.7	-1,017.3	204.8	1,024.8	1.98	0.63	1.88
7,702.0	90.60	177.60	6,396.4	-1,048.3	206.2	1,055.8	0.32	0.00	0.32
7,734.0	89.70	176.90	6,396.3	-1,080.3	207.7	1,087.8	3.56	-2.81	-2.19
7,766.0	89.10	178.40	6,396.7	-1,112.2	209.0	1,119.8	5.05	-1.88	4.69
7,798.0	90.70	180.10	6,396.7	-1,144.2	209.4	1,151.8	7.30	5.00	5.31
7,830.0	90.70	182.20	6,396.3	-1,176.2	208.8	1,183.7	6.56	0.00	6.56
7,862.0	89.50	182.90	6,396.3	-1,208.2	207.4	1,215.6	4.34	-3.75	2.19
7,893.0	88.00	182.70	6,397.0	-1,239.1	205.8	1,246.5	4.88	-4.84	-0.65
7,925.0	87.90	182.40	6,398.1	-1,271.1	204.4	1,278.4	0.99	-0.31	-0.94
7,957.0	87.90	182.20	6,399.3	-1,303.0	203.1	1,310.2	0.62	0.00	-0.63
7,989.0	88.00	181.50	6,400.4	-1,335.0	202.1	1,342.1	2.21	0.31	-2.19
8,020.0	89.20	181.30	6,401.2	-1,366.0	201.3	1,373.0	3.92	3.87	-0.65
8,052.0	90.70	180.60	6,401.2	-1,398.0	200.8	1,405.0	5.17	4.69	-2.19
8,084.0	91.00	179.80	6,400.7	-1,430.0	200.7	1,437.0	2.67	0.94	-2.50
8,115.0	91.10	178.70	6,400.2	-1,461.0	201.1	1,467.9	3.56	0.32	-3.55

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<b>Well:</b>	State Antelope 41-44-30HNB	<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)
8,147.0	90.90	179.20	6,399.6	-1,493.0	201.7	1,499.9	1.68	-0.63	1.56
8,179.0	89.70	181.20	6,399.4	-1,524.9	201.6	1,531.9	7.29	-3.75	6.25
8,211.0	89.10	183.10	6,399.8	-1,556.9	200.4	1,563.8	6.23	-1.88	5.94
8,243.0	88.70	183.60	6,400.4	-1,588.9	198.5	1,595.6	2.00	-1.25	1.56
8,274.0	89.30	183.80	6,400.9	-1,619.8	196.5	1,626.5	2.04	1.94	0.65
8,306.0	89.40	182.60	6,401.3	-1,651.7	194.7	1,658.3	3.76	0.31	-3.75
8,338.0	89.50	182.60	6,401.6	-1,683.7	193.3	1,690.2	0.31	0.31	0.00
8,370.0	89.70	182.60	6,401.8	-1,715.7	191.8	1,722.1	0.63	0.63	0.00
8,401.0	90.20	182.00	6,401.8	-1,746.6	190.6	1,753.0	2.52	1.61	-1.94
8,433.0	90.20	181.70	6,401.7	-1,778.6	189.5	1,784.9	0.94	0.00	-0.94
8,464.0	90.70	181.30	6,401.5	-1,809.6	188.7	1,815.8	2.07	1.61	-1.29
8,496.0	90.70	181.20	6,401.1	-1,841.6	188.0	1,847.7	0.31	0.00	-0.31
8,528.0	91.40	180.80	6,400.5	-1,873.6	187.5	1,879.7	2.52	2.19	-1.25
8,560.0	92.20	180.80	6,399.5	-1,905.6	187.0	1,911.6	2.50	2.50	0.00
8,591.0	91.90	181.90	6,398.4	-1,936.5	186.3	1,942.5	3.68	-0.97	3.55
8,623.0	91.10	183.40	6,397.6	-1,968.5	184.8	1,974.4	5.31	-2.50	4.69
8,655.0	89.80	184.20	6,397.3	-2,000.4	182.7	2,006.2	4.77	-4.06	2.50
8,687.0	89.80	184.30	6,397.4	-2,032.3	180.3	2,038.0	0.31	0.00	0.31
8,719.0	90.10	183.80	6,397.4	-2,064.3	178.1	2,069.8	1.82	0.94	-1.56
8,751.0	90.30	184.00	6,397.3	-2,096.2	175.9	2,101.6	0.88	0.63	0.63
8,782.0	89.90	183.40	6,397.3	-2,127.1	173.9	2,132.4	2.33	-1.29	-1.94
8,813.0	89.90	183.10	6,397.3	-2,158.1	172.1	2,163.3	0.97	0.00	-0.97
8,845.0	90.10	182.90	6,397.3	-2,190.0	170.5	2,195.2	0.88	0.63	-0.63
8,877.0	90.30	182.60	6,397.2	-2,222.0	168.9	2,227.0	1.13	0.63	-0.94
8,909.0	89.60	181.50	6,397.2	-2,254.0	167.8	2,258.9	4.07	-2.19	-3.44
8,940.0	89.90	181.50	6,397.4	-2,285.0	167.0	2,289.9	0.97	0.97	0.00
8,972.0	89.80	181.00	6,397.5	-2,317.0	166.3	2,321.8	1.59	-0.31	-1.56
9,004.0	90.40	181.00	6,397.4	-2,348.9	165.7	2,353.7	1.88	1.88	0.00
9,036.0	91.00	180.80	6,397.0	-2,380.9	165.2	2,385.7	1.98	1.88	-0.63
9,067.0	89.90	179.80	6,396.8	-2,411.9	165.0	2,416.7	4.80	-3.55	-3.23
9,099.0	90.50	179.90	6,396.7	-2,443.9	165.1	2,448.6	1.90	1.88	0.31
9,131.0	89.30	178.70	6,396.7	-2,475.9	165.5	2,480.6	5.30	-3.75	-3.75
9,162.0	89.60	178.50	6,397.0	-2,506.9	166.3	2,511.6	1.16	0.97	-0.65
9,194.0	89.80	178.20	6,397.2	-2,538.9	167.2	2,543.6	1.13	0.63	-0.94
9,226.0	89.90	178.00	6,397.3	-2,570.9	168.3	2,575.6	0.70	0.31	-0.63
9,258.0	90.70	177.80	6,397.1	-2,602.9	169.4	2,607.6	2.58	2.50	-0.63
9,290.0	89.70	177.60	6,397.0	-2,634.8	170.7	2,639.6	3.19	-3.13	-0.63
9,321.0	89.40	177.60	6,397.2	-2,665.8	172.0	2,670.6	0.97	-0.97	0.00
9,353.0	89.30	177.50	6,397.6	-2,697.8	173.4	2,702.6	0.44	-0.31	-0.31
9,385.0	89.20	176.90	6,398.0	-2,729.7	174.9	2,734.6	1.90	-0.31	-1.88
9,417.0	88.90	176.20	6,398.5	-2,761.7	176.9	2,766.6	2.38	-0.94	-2.19
9,448.0	89.00	176.10	6,399.1	-2,792.6	179.0	2,797.6	0.46	0.32	-0.32
9,480.0	89.30	177.30	6,399.6	-2,824.5	180.8	2,829.6	3.87	0.94	3.75
9,512.0	89.60	178.50	6,399.9	-2,856.5	182.0	2,861.6	3.87	0.94	3.75
9,543.0	90.00	178.70	6,400.0	-2,887.5	182.7	2,892.6	1.44	1.29	0.65
9,575.0	90.00	178.00	6,400.0	-2,919.5	183.6	2,924.6	2.19	0.00	-2.19
9,607.0	89.70	178.00	6,400.1	-2,951.5	184.8	2,956.6	0.94	-0.94	0.00
9,639.0	90.00	178.20	6,400.2	-2,983.5	185.8	2,988.6	1.13	0.94	0.63
9,671.0	90.20	178.90	6,400.1	-3,015.5	186.6	3,020.6	2.28	0.63	2.19
9,702.0	90.70	179.80	6,399.9	-3,046.5	187.0	3,051.5	3.32	1.61	2.90
9,734.0	91.10	179.90	6,399.4	-3,078.4	187.1	3,083.5	1.29	1.25	0.31
9,766.0	91.00	180.50	6,398.8	-3,110.4	187.0	3,115.5	1.90	-0.31	1.88
9,798.0	90.70	179.40	6,398.3	-3,142.4	187.0	3,147.4	3.56	-0.94	-3.44

<b>Company:</b>	BONANZA CREEK ENERGY OPERATING	<b>Local Co-ordinate Reference:</b>	Well State Antelope 41-44-30HNB
<b>Project:</b>	SEC.30-T5N-R62W	<b>TVD Reference:</b>	WELL @ 4677.0ft (Ensign 128 RKB - 15')
<b>Site:</b>	State Antelope 41-44-30HNB Pad Sec.30-T5N-R62W	<b>MD Reference:</b>	WELL @ 4677.0ft (Ensign 128 RKB - 15')
<b>Well:</b>	State Antelope 41-44-30HNB	<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)
9,829.0	89.60	179.10	6,398.2	-3,173.4	187.4	3,178.4	3.68	-3.55	-0.97
9,861.0	88.90	179.90	6,398.6	-3,205.4	187.7	3,210.4	3.32	-2.19	2.50
9,893.0	88.80	179.40	6,399.3	-3,237.4	187.9	3,242.4	1.59	-0.31	-1.56
9,925.0	88.90	178.90	6,399.9	-3,269.4	188.3	3,274.4	1.59	0.31	-1.56
9,957.0	89.00	179.90	6,400.5	-3,301.4	188.7	3,306.4	3.14	0.31	3.13
9,988.0	89.20	180.30	6,401.0	-3,332.4	188.6	3,337.3	1.44	0.65	1.29
10,020.0	89.80	180.30	6,401.3	-3,364.4	188.5	3,369.3	1.88	1.88	0.00
10,052.0	90.40	181.30	6,401.2	-3,396.4	188.0	3,401.2	3.64	1.88	3.13
10,083.0	90.70	181.30	6,400.9	-3,427.4	187.3	3,432.2	0.97	0.97	0.00
10,115.0	91.30	181.30	6,400.4	-3,459.4	186.6	3,464.1	1.88	1.88	0.00
10,147.0	91.10	181.70	6,399.7	-3,491.4	185.7	3,496.0	1.40	-0.63	1.25
10,179.0	90.20	181.90	6,399.3	-3,523.3	184.7	3,527.9	2.88	-2.81	0.63
10,211.0	89.50	182.00	6,399.4	-3,555.3	183.6	3,559.8	2.21	-2.19	0.31
10,242.0	88.50	182.40	6,400.0	-3,586.3	182.5	3,590.7	3.47	-3.23	1.29
10,274.0	88.60	181.90	6,400.8	-3,618.3	181.3	3,622.6	1.59	0.31	-1.56
10,306.0	88.70	181.30	6,401.5	-3,650.2	180.4	3,654.6	1.90	0.31	-1.88
10,337.0	88.90	180.80	6,402.2	-3,681.2	179.8	3,685.5	1.74	0.65	-1.61
10,369.0	89.20	180.60	6,402.7	-3,713.2	179.4	3,717.4	1.13	0.94	-0.63
10,401.0	90.10	181.00	6,402.9	-3,745.2	179.0	3,749.4	3.08	2.81	1.25
10,432.0	90.30	181.90	6,402.8	-3,776.2	178.2	3,780.3	2.97	0.65	2.90
10,464.0	89.90	181.30	6,402.7	-3,808.2	177.3	3,812.2	2.25	-1.25	-1.88
10,496.0	89.90	181.20	6,402.8	-3,840.2	176.6	3,844.2	0.31	0.00	-0.31
10,528.0	90.80	181.00	6,402.6	-3,872.2	176.0	3,876.1	2.88	2.81	-0.63
10,559.0	91.50	180.80	6,402.0	-3,903.2	175.5	3,907.1	2.35	2.26	-0.65
10,591.0	90.80	179.80	6,401.3	-3,935.2	175.3	3,939.0	3.81	-2.19	-3.13
10,623.0	89.00	178.90	6,401.4	-3,967.2	175.7	3,971.0	6.29	-5.63	-2.81
10,655.0	88.10	179.90	6,402.2	-3,999.1	176.0	4,003.0	4.20	-2.81	3.13
10,686.0	88.80	179.90	6,403.0	-4,030.1	176.1	4,034.0	2.26	2.26	0.00
10,718.0	89.60	181.00	6,403.5	-4,062.1	175.8	4,065.9	4.25	2.50	3.44
10,750.0	91.00	182.60	6,403.3	-4,094.1	174.8	4,097.8	6.64	4.38	5.00
10,782.0	91.80	182.20	6,402.5	-4,126.1	173.5	4,129.7	2.79	2.50	-1.25
10,813.0	91.70	181.30	6,401.6	-4,157.0	172.5	4,160.6	2.92	-0.32	-2.90
10,845.0	91.20	181.00	6,400.8	-4,189.0	171.9	4,192.5	1.82	-1.56	-0.94
10,863.0	91.10	181.30	6,400.4	-4,207.0	171.5	4,210.5	1.76	-0.56	1.67
BHL 470'FSL, 631'FEL									

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, 631'FE	0.00	0.00	6,413.0	-4,269.7	161.6	1,377,745.70	3,317,892.43	40.364700	-104.359160
- actual wellpath misses target center by 64.7ft at 10863.0ft MD (6400.4 TVD, -4207.0 N, 171.5 E)									
- Point									
T1 531'FNL & 637'FEI	0.00	0.00	6,413.0	-43.7	203.4	1,381,971.71	3,317,879.85	40.376300	-104.359010
- actual wellpath misses target center by 36.8ft at 6698.1ft MD (6388.6 TVD, -46.2 N, 175.9 E)									
- Point									

Checked By: _____	Approved By: _____	Date: _____
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