

# Bonanza Creek Energy Inc.

# Archer

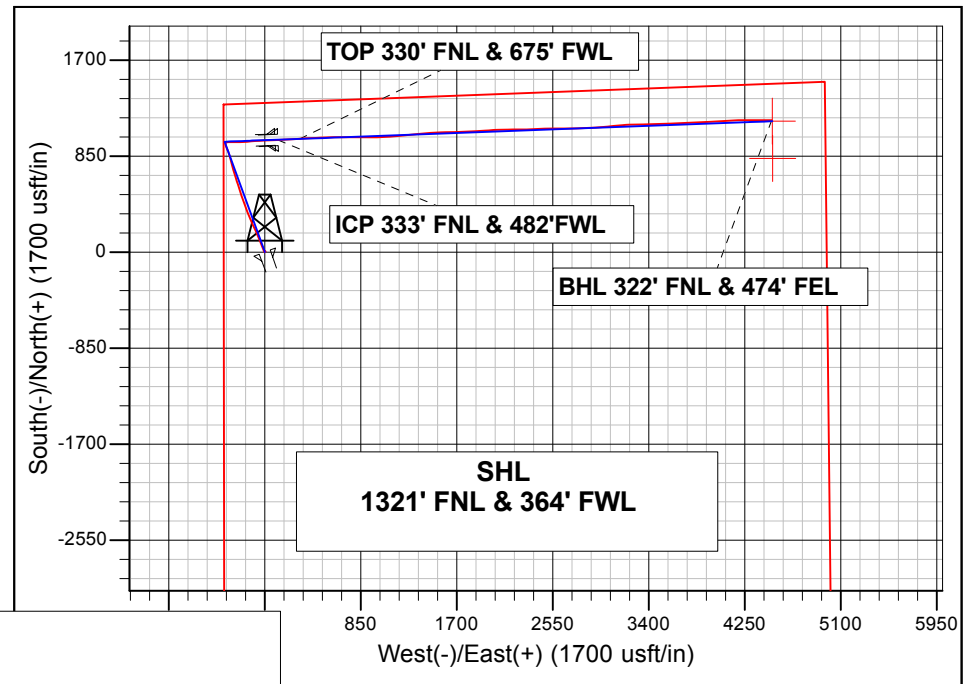
Bonanza Creek Energy Inc.  
Project: Weld Co., CO  
Site: Sec.2-T5N-R62W  
Well: State Antelope A11-U41-2HNC  
Wellbore: Wellbore #1  
Design: Design #4  
Lat: 40° 25' 59.315 N  
Long: 104° 17' 55.417 W  
Pad GL: 4647.0  
KB: WELL @ 4664.0usft (Original Well Elev)

## PROJECT DETAILS: Weld Co., CO

Geodetic System: US State Plane 1983  
Datum: North American Datum 1983  
Ellipsoid: GRS 1980  
Zone: Colorado Northern Zone

System Datum: Mean Sea Level

Projected Bottom Hole Location  
11050.00'MD 6260.64'TVD 1167.92'N & 4488.01'E OF SHL  
87.60 degree Incl @ 89.50 degree AZM

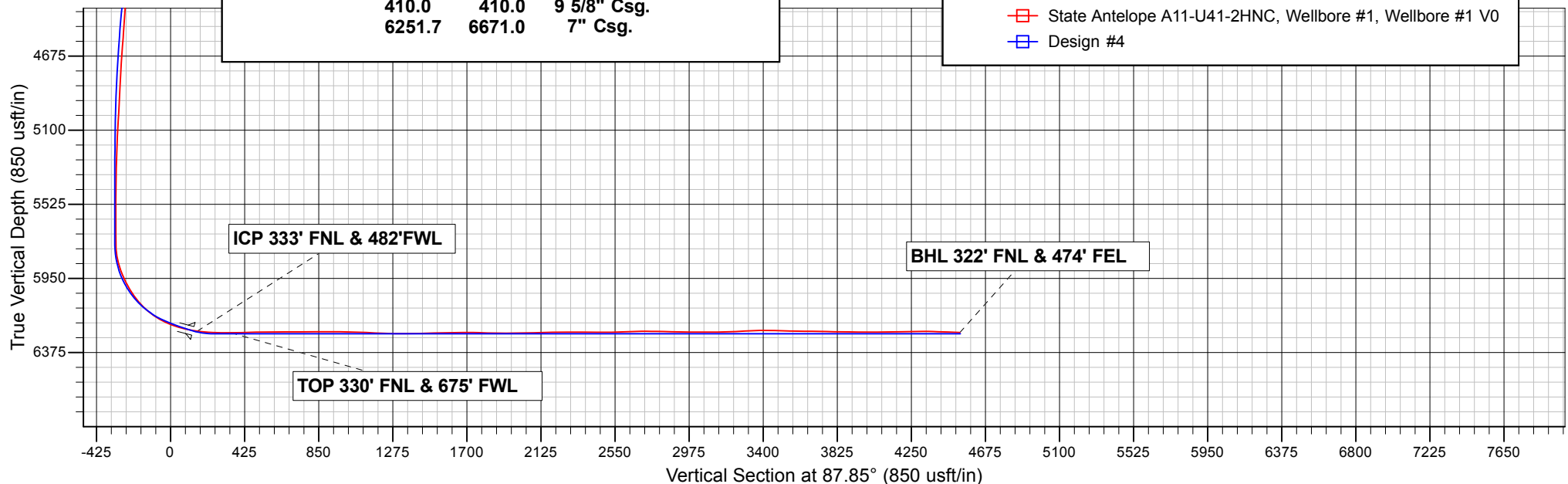


## CASING DETAILS

TVD	MD	Name
410.0	410.0	9 5/8" Csg.
6251.7	6671.0	7" Csg.

## LEGEND

- State Antelope A11-U41-2HNC, Wellbore #1, Wellbore #1 V0
- Design #4



# **Bonanza Creek Energy Inc.**

**Weld Co., CO**

**Sec.2-T5N-R62W**

**State Antelope A11-U41-2HNC**

**Wellbore #1**

**Survey: Survey #1**

## **Standard Survey Report**

**05 May, 2015**

# **Archer**

<b>Company:</b>	Bonanza Creek Energy Inc.	<b>Local Co-ordinate Reference:</b>	Well State Antelope A11-U41-2HNC
<b>Project:</b>	Weld Co., CO	<b>TVD Reference:</b>	WELL @ 4664.0usft (Original Well Elev)
<b>Site:</b>	Sec.2-T5N-R62W	<b>MD Reference:</b>	WELL @ 4664.0usft (Original Well Elev)
<b>Well:</b>	State Antelope A11-U41-2HNC	<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>	EDMDBBW

<b>Project</b>	Weld Co., CO		
<b>Map System:</b>	US State Plane 1983	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	North American Datum 1983		
<b>Map Zone:</b>	Colorado Northern Zone		

Site		Sec.2-T5N-R62W			
Site Position:		Northing:	1,402,901.96 usft	Latitude:	40° 25' 59.318 N
From:	Lat/Long	Easting:	3,334,557.68 usft	Longitude:	104° 17' 53.290 W
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.78 °

Well		State Antelope A11-U41-2HNC				
Well Position	+N/-S	0.0 usft	Northing:	1,402,899.36 usft	Latitude:	40° 25' 59.315 N
	+E/-W	0.0 usft	Easting:	3,334,393.18 usft	Longitude:	104° 17' 55.417 W
Position Uncertainty		0.0 usft	Wellhead Elevation:	usft	Ground Level:	4,647.0 usft

<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	2015/02/25	8.11	67.02	52,808

Design	Wellbore #1			
Audit Notes:				
Version:	1.0	Phase:	ACTUAL	Tie On Depth: 0.0
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.0	0.0	0.0	87.85

<b>Survey Program</b>	<b>Date</b>	2015/05/05		
<b>From (usft)</b>	<b>To (usft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>
504.0	11,050.0	Survey #1 (Wellbore #1)	MWD	MWD - Standard

<b>Survey</b>									
<b>Measured Depth (usft)</b>	<b>Inclination (°)</b>	<b>Azimuth (°)</b>	<b>Vertical Depth (usft)</b>	<b>+N/-S (usft)</b>	<b>+E/-W (usft)</b>	<b>Vertical Section (usft)</b>	<b>Dogleg Rate (°/100usft)</b>	<b>Build Rate (°/100usft)</b>	<b>Turn Rate (°/100usft)</b>
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
<b>First Archer Survey</b>									
504.0	0.60	34.00	504.0	2.2	1.5	1.6	0.12	0.12	0.00
597.0	0.70	25.50	597.0	3.1	2.0	2.1	0.15	0.11	-9.14
688.0	0.70	32.20	688.0	4.1	2.5	2.7	0.09	0.00	7.36
780.0	0.80	48.10	780.0	5.0	3.3	3.5	0.25	0.11	17.28
872.0	0.90	45.30	872.0	5.9	4.3	4.5	0.12	0.11	-3.04
963.0	1.10	212.10	963.0	5.7	4.3	4.6	2.18	0.22	183.30
1,055.0	1.10	207.00	1,054.9	4.1	3.5	3.6	0.11	0.00	-5.54
1,146.0	0.70	204.20	1,145.9	2.9	2.8	3.0	0.44	-0.44	-3.08
1,238.0	0.90	221.60	1,237.9	1.8	2.1	2.2	0.34	0.22	18.91
1,330.0	0.90	242.00	1,329.9	0.9	1.0	1.1	0.35	0.00	22.17
1,422.0	0.60	252.80	1,421.9	0.4	-0.1	-0.1	0.36	-0.33	11.74

<b>Company:</b>	Bonanza Creek Energy Inc.	<b>Local Co-ordinate Reference:</b>	Well State Antelope A11-U41-2HNC
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<b>Site:</b>	Sec.2-T5N-R62W	<b>MD Reference:</b>	WELL @ 4664.0usft (Original Well Elev)
<b>Well:</b>	State Antelope A11-U41-2HNC	<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>	EDMDBBW

Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
1,513.0	0.50	225.30	1,512.9	0.0	-0.8	-0.8	0.31	-0.11	-30.22
1,606.0	0.40	194.50	1,605.9	-0.6	-1.2	-1.2	0.28	-0.11	-33.12
1,696.0	0.40	168.60	1,695.9	-1.2	-1.2	-1.2	0.20	0.00	-28.78
1,788.0	1.50	321.00	1,787.9	-0.6	-1.9	-1.9	2.03	1.20	165.65
1,879.0	2.70	327.00	1,878.8	2.2	-3.8	-3.7	1.34	1.32	6.59
1,964.0	3.70	332.10	1,963.7	6.3	-6.2	-5.9	1.22	1.18	6.00
2,049.0	5.30	336.90	2,048.4	12.3	-9.0	-8.5	1.93	1.88	5.65
2,133.0	6.60	339.70	2,132.0	20.4	-12.2	-11.4	1.59	1.55	3.33
2,218.0	7.20	334.70	2,216.4	29.8	-16.2	-15.1	1.00	0.71	-5.88
2,303.0	8.20	335.50	2,300.6	40.1	-21.0	-19.5	1.18	1.18	0.94
2,388.0	11.50	339.70	2,384.3	53.6	-26.4	-24.4	3.97	3.88	4.94
2,473.0	12.50	338.40	2,467.5	70.1	-32.8	-30.1	1.22	1.18	-1.53
2,558.0	14.20	336.80	2,550.2	88.2	-40.2	-36.9	2.05	2.00	-1.88
2,643.0	16.10	340.70	2,632.2	108.9	-48.2	-44.1	2.54	2.24	4.59
2,728.0	17.30	337.00	2,713.6	131.7	-57.1	-52.1	1.89	1.41	-4.35
2,813.0	19.20	336.30	2,794.3	156.1	-67.6	-61.7	2.25	2.24	-0.82
2,898.0	19.80	338.10	2,874.5	182.3	-78.6	-71.7	1.00	0.71	2.12
2,983.0	20.20	335.40	2,954.3	209.0	-90.1	-82.2	1.18	0.47	-3.18
3,068.0	21.40	333.40	3,033.8	236.2	-103.2	-94.2	1.64	1.41	-2.35
3,153.0	20.80	335.70	3,113.1	263.8	-116.3	-106.3	1.20	-0.71	2.71
3,238.0	20.00	336.10	3,192.8	290.9	-128.4	-117.4	0.96	-0.94	0.47
3,323.0	23.20	337.30	3,271.8	319.6	-140.8	-128.7	3.80	3.76	1.41
3,410.0	25.80	338.70	3,351.0	353.1	-154.3	-140.9	3.06	2.99	1.61
3,496.0	26.90	340.60	3,428.0	388.8	-167.5	-152.8	1.61	1.28	2.21
3,581.0	28.80	339.50	3,503.2	426.2	-181.1	-165.0	2.32	2.24	-1.29
3,666.0	28.30	341.30	3,577.8	464.4	-194.7	-177.2	1.17	-0.59	2.12
3,751.0	25.70	341.30	3,653.6	501.0	-207.1	-188.1	3.06	-3.06	0.00
3,836.0	25.00	341.30	3,730.4	535.4	-218.7	-198.5	0.82	-0.82	0.00
3,922.0	22.40	342.00	3,809.1	568.3	-229.6	-208.2	3.04	-3.02	0.81
4,009.0	21.20	342.80	3,889.9	599.0	-239.4	-216.8	1.42	-1.38	0.92
4,095.0	19.40	341.90	3,970.6	627.5	-248.5	-224.7	2.12	-2.09	-1.05
4,185.0	18.90	343.30	4,055.6	655.6	-257.3	-232.5	0.75	-0.56	1.56
4,270.0	19.60	340.40	4,135.8	682.3	-266.0	-240.2	1.39	0.82	-3.41
4,357.0	17.50	342.80	4,218.3	708.5	-274.8	-248.0	2.57	-2.41	2.76
4,444.0	18.00	345.90	4,301.2	734.0	-281.9	-254.2	1.23	0.57	3.56
4,529.0	16.70	348.00	4,382.3	758.7	-287.7	-259.0	1.70	-1.53	2.47
4,613.0	17.80	344.70	4,462.5	782.9	-293.6	-264.0	1.75	1.31	-3.93
4,698.0	17.40	343.50	4,543.5	807.6	-300.6	-270.1	0.64	-0.47	-1.41
4,783.0	15.40	345.20	4,625.1	830.7	-307.1	-275.7	2.42	-2.35	2.00
4,868.0	15.20	341.40	4,707.1	852.2	-313.5	-281.3	1.20	-0.24	-4.47
4,954.0	13.00	344.70	4,790.5	872.2	-319.7	-286.7	2.72	-2.56	3.84
5,040.0	9.60	343.30	4,874.8	888.4	-324.3	-290.7	3.97	-3.95	-1.63
5,124.0	8.40	333.70	4,957.8	900.6	-329.0	-295.0	2.28	-1.43	-11.43
5,210.0	7.40	332.40	5,042.9	911.2	-334.4	-300.0	1.18	-1.16	-1.51
5,297.0	7.60	337.90	5,129.2	921.5	-339.1	-304.3	0.86	0.23	6.32
5,382.0	7.30	339.60	5,213.5	931.7	-343.1	-307.9	0.44	-0.35	2.00
5,469.0	6.80	348.90	5,299.8	942.0	-346.1	-310.5	1.43	-0.57	10.69
5,554.0	6.40	347.30	5,384.3	951.5	-348.1	-312.1	0.52	-0.47	-1.88
5,638.0	3.60	346.30	5,467.9	958.7	-349.7	-313.5	3.33	-3.33	-1.19
5,723.0	2.20	357.20	5,552.8	962.9	-350.4	-314.1	1.76	-1.65	12.82
5,808.0	1.00	355.40	5,637.8	965.3	-350.6	-314.1	1.41	-1.41	-2.12
5,908.0	1.50	2.30	5,737.8	967.4	-350.6	-314.0	0.52	0.50	6.90
5,950.0	4.60	60.60	5,779.7	968.8	-349.1	-312.5	9.57	7.38	138.81
5,993.0	10.50	75.20	5,822.3	970.7	-343.8	-307.1	14.32	13.72	33.95

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<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Wellbore #1	<b>Database:</b>	EDMDBBW

Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
6,035.0	15.40	82.70	5,863.2	972.4	-334.6	-297.9	12.31	11.67	17.86
6,078.0	19.40	89.70	5,904.3	973.1	-321.8	-285.0	10.48	9.30	16.28
6,120.0	23.10	87.60	5,943.4	973.5	-306.5	-269.8	8.99	8.81	-5.00
6,163.0	27.60	88.80	5,982.3	974.1	-288.1	-251.4	10.53	10.47	2.79
6,205.0	33.40	90.20	6,018.4	974.2	-266.8	-230.1	13.91	13.81	3.33
6,247.0	36.00	91.70	6,053.0	973.8	-242.9	-206.2	6.52	6.19	3.57
6,289.0	40.70	88.50	6,085.9	973.8	-216.9	-180.2	12.14	11.19	-7.62
6,332.0	45.40	85.90	6,117.3	975.3	-187.6	-150.9	11.68	10.93	-6.05
6,374.0	50.70	84.50	6,145.4	977.9	-156.5	-119.7	12.86	12.62	-3.33
6,416.0	56.20	84.40	6,170.4	981.2	-122.9	-86.0	13.10	13.10	-0.24
6,459.0	61.90	86.60	6,192.5	984.0	-86.2	-49.2	13.96	13.26	5.12
6,501.0	68.50	87.60	6,210.1	986.0	-48.1	-11.1	15.86	15.71	2.38
6,543.0	72.70	87.30	6,224.0	987.7	-8.5	28.5	10.02	10.00	-0.71
6,586.0	75.10	87.30	6,236.0	989.7	32.7	69.8	5.58	5.58	0.00
6,628.0	77.90	88.00	6,245.8	991.3	73.5	110.7	6.86	6.67	1.67
ICP 333' FNL & 482'FWL - 7" Csg.									
6,671.0	83.20	87.40	6,252.8	993.0	115.9	153.1	12.40	12.33	-1.40
6,713.0	85.50	87.90	6,257.0	994.8	157.7	194.9	5.60	5.48	1.19
6,736.0	86.20	86.90	6,258.6	995.8	180.6	217.8	5.30	3.04	-4.35
6,832.0	89.60	86.40	6,262.1	1,001.4	276.3	313.7	3.58	3.54	-0.52
TOP 330' FNL & 675' FWL									
6,865.0	90.54	86.44	6,262.1	1,003.5	309.3	346.7	2.86	2.86	0.11
6,923.0	92.20	86.50	6,260.7	1,007.0	367.1	404.7	2.86	2.86	0.11
7,010.0	91.00	87.30	6,258.3	1,011.7	454.0	491.6	1.66	-1.38	0.92
7,095.0	90.20	88.90	6,257.4	1,014.6	538.9	576.6	2.10	-0.94	1.88
7,179.0	90.60	88.20	6,256.8	1,016.7	622.9	660.6	0.96	0.48	-0.83
7,265.0	89.90	89.50	6,256.4	1,018.4	708.9	746.6	1.72	-0.81	1.51
7,350.0	90.40	91.90	6,256.2	1,017.4	793.9	831.5	2.88	0.59	2.82
7,435.0	90.20	90.60	6,255.8	1,015.5	878.8	916.3	1.55	-0.24	-1.53
7,520.0	88.70	88.80	6,256.6	1,016.0	963.8	1,001.3	2.76	-1.76	-2.12
7,605.0	87.20	86.60	6,259.6	1,019.4	1,048.7	1,086.2	3.13	-1.76	-2.59
7,692.0	87.70	86.10	6,263.5	1,024.9	1,135.4	1,173.1	0.81	0.57	-0.57
7,777.0	88.30	84.40	6,266.5	1,031.9	1,220.1	1,257.9	2.12	0.71	-2.00
7,862.0	90.40	84.10	6,267.4	1,040.4	1,304.6	1,342.8	2.50	2.47	-0.35
7,946.0	91.60	84.80	6,266.0	1,048.6	1,388.2	1,426.6	1.65	1.43	0.83
8,031.0	91.20	85.50	6,263.9	1,055.8	1,472.9	1,511.5	0.95	-0.47	0.82
8,116.0	91.70	88.10	6,261.7	1,060.5	1,557.7	1,596.4	3.11	0.59	3.06
8,200.0	90.30	89.30	6,260.3	1,062.4	1,641.7	1,680.4	2.19	-1.67	1.43
8,285.0	88.30	88.60	6,261.3	1,064.0	1,726.7	1,765.4	2.49	-2.35	-0.82
8,372.0	89.00	87.60	6,263.3	1,066.8	1,813.6	1,852.3	1.40	0.80	-1.15
8,457.0	89.80	85.20	6,264.2	1,072.2	1,898.4	1,937.3	2.98	0.94	-2.82
8,542.0	91.30	86.90	6,263.4	1,078.0	1,983.2	2,022.3	2.67	1.76	2.00
8,626.0	91.60	87.90	6,261.3	1,081.8	2,067.1	2,106.2	1.24	0.36	1.19
8,711.0	90.80	88.60	6,259.5	1,084.4	2,152.0	2,191.2	1.25	-0.94	0.82
8,797.0	90.80	90.20	6,258.3	1,085.3	2,238.0	2,277.2	1.86	0.00	1.86
8,882.0	88.90	88.30	6,258.5	1,086.5	2,323.0	2,362.1	3.16	-2.24	-2.24
8,966.0	89.80	87.80	6,259.5	1,089.3	2,406.9	2,446.1	1.23	1.07	-0.60
9,051.0	90.90	87.50	6,259.0	1,092.8	2,491.9	2,531.1	1.34	1.29	-0.35
9,136.0	92.80	90.10	6,256.2	1,094.6	2,576.8	2,616.0	3.79	2.24	3.06
9,223.0	90.50	89.50	6,253.7	1,094.9	2,663.8	2,703.0	2.73	-2.64	-0.69
9,308.0	88.40	89.10	6,254.5	1,095.9	2,748.7	2,787.9	2.51	-2.47	-0.47
9,393.0	89.40	87.90	6,256.2	1,098.1	2,833.7	2,872.9	1.84	1.18	-1.41
9,477.0	89.00	86.70	6,257.3	1,102.1	2,917.6	2,956.9	1.51	-0.48	-1.43
9,562.0	89.60	85.20	6,258.4	1,108.1	3,002.4	3,041.8	1.90	0.71	-1.76

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<b>Project:</b>	Weld Co., CO	<b>TVD Reference:</b>	WELL @ 4664.0usft (Original Well Elev)
<b>Site:</b>	Sec.2-T5N-R62W	<b>MD Reference:</b>	WELL @ 4664.0usft (Original Well Elev)
<b>Well:</b>	State Antelope A11-U41-2HNC	<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>	EDMDBBW

Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
9,647.0	90.50	84.20	6,258.3	1,116.0	3,087.0	3,126.7	1.58	1.06	-1.18	
9,731.0	92.80	85.10	6,255.9	1,123.8	3,170.6	3,210.5	2.94	2.74	1.07	
9,816.0	92.80	87.80	6,251.7	1,129.0	3,255.3	3,295.4	3.17	0.00	3.18	
9,903.0	91.30	89.20	6,248.6	1,131.3	3,342.2	3,382.3	2.36	-1.72	1.61	
9,988.0	88.40	88.70	6,248.8	1,132.9	3,427.2	3,467.3	3.46	-3.41	-0.59	
10,073.0	87.90	88.60	6,251.6	1,134.9	3,512.1	3,552.2	0.60	-0.59	-0.12	
10,158.0	89.80	88.20	6,253.3	1,137.2	3,597.1	3,637.2	2.28	2.24	-0.47	
10,242.0	88.50	86.90	6,254.5	1,140.8	3,681.0	3,721.2	2.19	-1.55	-1.55	
10,328.0	89.60	87.50	6,256.0	1,145.0	3,766.9	3,807.2	1.46	1.28	0.70	
10,413.0	88.90	87.90	6,257.1	1,148.4	3,851.8	3,892.2	0.95	-0.82	0.47	
10,500.0	89.80	86.60	6,258.1	1,152.6	3,938.7	3,979.2	1.82	1.03	-1.49	
10,585.0	89.60	85.10	6,258.5	1,158.8	4,023.5	4,064.1	1.78	-0.24	-1.76	
10,670.0	91.40	86.80	6,257.8	1,164.8	4,108.2	4,149.1	2.91	2.12	2.00	
10,754.0	91.80	89.20	6,255.4	1,167.7	4,192.2	4,233.0	2.90	0.48	2.86	
10,839.0	90.00	90.40	6,254.1	1,168.0	4,277.1	4,317.9	2.54	-2.12	1.41	
10,924.0	88.00	90.50	6,255.6	1,167.3	4,362.1	4,402.8	2.36	-2.35	0.12	
Last Archer Survey										
10,983.0	87.60	89.50	6,257.8	1,167.3	4,421.1	4,461.8	1.82	-0.68	-1.69	
BHL 322' FNL & 474' FEL - State Antelope A11-U41-2HNC tgt										
11,050.0	87.60	89.50	6,260.6	1,167.9	4,488.0	4,528.7	0.00	0.00	0.00	

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")	
6,671.0	6,252.8	7" Csg.	7	8-3/4	

Survey Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
504.0	504.0	2.2	1.5	First Archer Survey	
6,671.0	6,252.8	993.0	115.9	ICP 333' FNL & 482'FWL	
6,865.0	6,262.1	1,003.5	309.3	TOP 330' FNL & 675' FWL	
10,983.0	6,257.8	1,167.3	4,421.1	Last Archer Survey	
11,050.0	6,260.6	1,167.9	4,488.0	BHL 322' FNL & 474' FEL	

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