

BONANZA CREEK ENERGY

WELD COUNTY

SEC 31-T5N-R62W

STATE ANTELOPE 34-31-30XRLNC

OWB

Design: FINAL SURVEY

Standard Survey Report

09 March, 2022

Project: WELD COUNTY
Site: SEC 31-T5N-R62W
Well: STATE ANTELOPE 34-31-30XRLNC
Wellbore: OWB
Design: FINAL SURVEY

PROJECT DETAILS: WELD COUNTY
Geodetic System: US State Plane 1983
Datum: North American Datum 1983
Ellipsoid: GRS 1980
Zone: Colorado Northern Zone
System Datum: Mean Sea Level



Azimuths to True North
Magnetic North: 7.57°
Magnetic Field
Strength: 51909.7nT
Dip Angle: 66.65°
Date: 1/13/2022
Model: IGRF2020

WELL DETAILS: STATE ANTELOPE 34-31-30XRLNC

		4552.00					
+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot	
0.00	0.00	1372564.84	3316061.45	40.350544°N	104.365968°W		

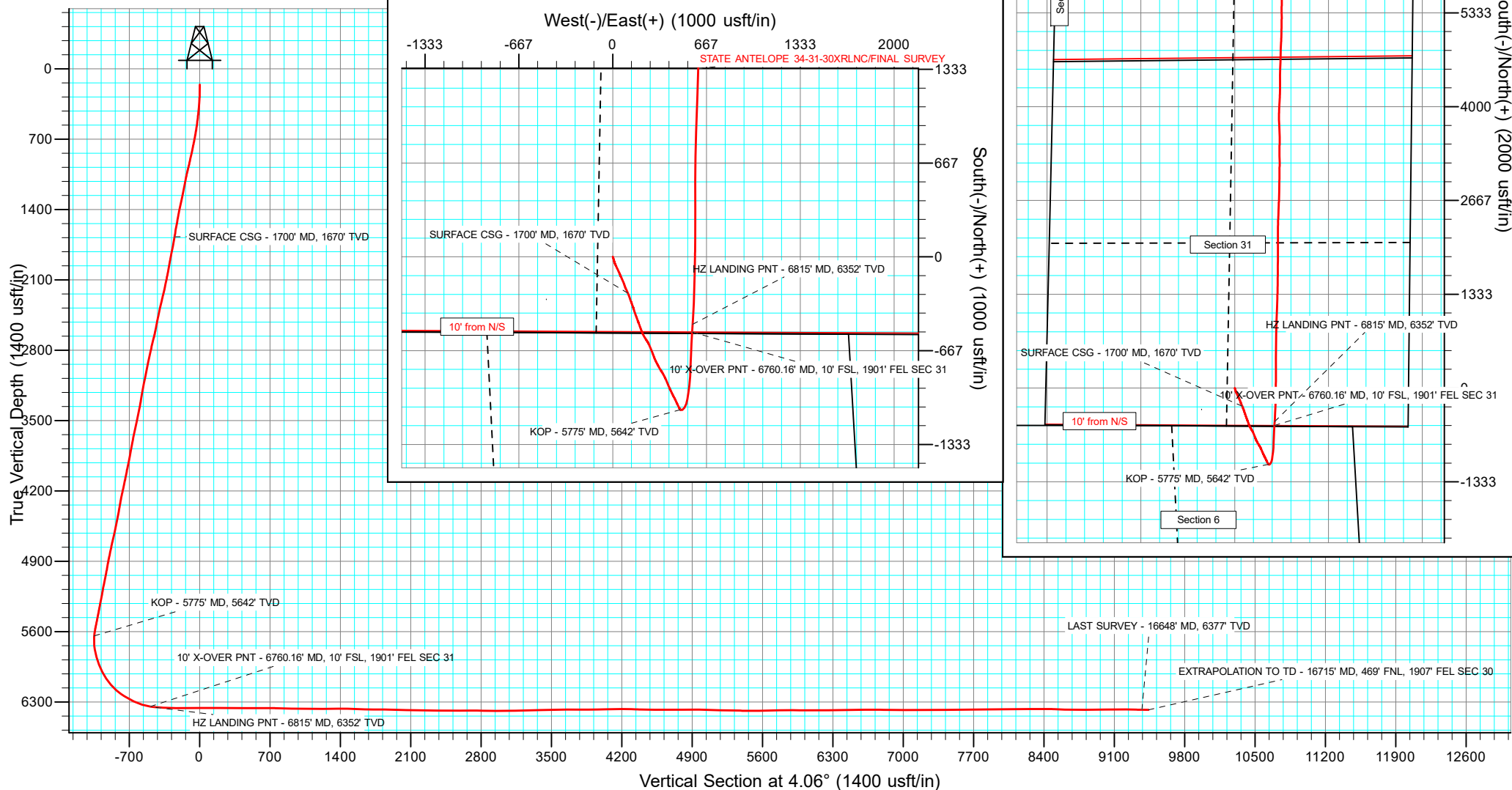
ANNOTATIONS

MD	Inc	Azi	TVD	+N/-S	+E/-W	VSect	Departure	Annotation
1700.00	11.25	156.54	1670.25	-257.75	107.83	-249.47	281.88	SURFACE CSG - 1700' MD, 1670' TVD
5775.00	9.61	138.73	5641.58	-1085.46	480.90	-1048.68	1192.44	KOP - 5775' MD, 5642' TVD
6760.16	80.48	3.90	6345.38	-533.33	563.86	-492.06	1777.11	10' X-OVER PNT - 6760.16' MD, 10' FSL, 1901' FEL SEC 31
6815.00	84.67	4.23	6352.43	-479.10	567.76	-437.69	1831.53	HZ LANDING PNT - 6815' MD, 6352' TVD
16648.00	88.82	357.69	6377.36	9349.94	671.18	9374.00	11662.83	LAST SURVEY - 16648' MD, 6377' TVD
16715.00	88.82	357.69	6378.74	9416.87	668.48	9440.57	11729.82	EXTRAPOLATION TO TD - 16715' MD, 469' FNL, 1907' FEL SEC 30

SHL:
540' FSL, 2472' FEL
Sec 31-T5N-R62W

~10' X-OVER PNT:
10' FSL, 1901' FEL
Sec 31-T5N-R62W

BHL:
469' FNL, 1907' FEL
Sec 30-T5N-R62W



Survey Report

Company:	BONANZA CREEK ENERGY	Local Co-ordinate Reference:	Well STATE ANTELOPE 34-31-30XRLNC
Project:	WELD COUNTY	TVD Reference:	KB 24' @ 4576.00usft
Site:	SEC 31-T5N-R62W	MD Reference:	KB 24' @ 4576.00usft
Well:	STATE ANTELOPE 34-31-30XRLNC	North Reference:	True
Wellbore:	OWB	Survey Calculation Method:	Minimum Curvature
Design:	FINAL SURVEY	Database:	EDT_32Bit_ODBC

Project	WELD COUNTY		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	Colorado Northern Zone		Using geodetic scale factor

Site		SEC 31-T5N-R62W			
Site Position:		Northing:	1,377,287.48 usft	Latitude:	40.363420°N
From:	Lat/Long	Easting:	3,318,522.58 usft	Longitude:	104.356920°W
Position Uncertainty:	0.00 usft	Slot Radius:	13.200 in	Grid Convergence:	0.74 °

Well	STATE ANTELOPE 34-31-30XRLNC					
Well Position	+N/-S	0.00 usft	Northing:	1,372,564.84 usft	Latitude:	40.350544°N
	+E/-W	0.00 usft	Easting:	3,316,061.45 usft	Longitude:	104.365968°W
Position Uncertainty		0.00 usft	Wellhead Elevation:	usft	Ground Level:	4,552.00 usft

Wellbore	OWB				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2020	1/13/2022	7.57	66.65	51,909.72415222

Design	FINAL SURVEY				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)	
	0.00	0.00	0.00	4.06	

Survey Program	Date	3/9/2022			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
249.00	1,640.00	SURFACE SURVEY (OWB)	MWD OWSG	OWSG MWD - Standard	
1,757.00	16,715.00	FINAL SURVEY (OWB)	MWD OWSG	OWSG MWD - Standard	

Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	
157.00	0.79	12.15	157.00	0.98	0.21	0.99	0.00	0.00	0.00	
249.00	1.67	150.85	248.99	0.43	1.00	0.50	2.52	0.96	150.76	
340.00	4.66	163.33	339.84	-4.27	2.70	-4.07	3.35	3.29	13.71	
413.00	5.80	163.85	412.54	-10.66	4.58	-10.30	1.56	1.56	0.71	
498.00	7.30	165.08	496.98	-20.00	7.17	-19.44	1.77	1.76	1.45	
583.00	8.97	165.56	581.12	-31.64	10.21	-30.83	1.97	1.96	0.56	
671.00	11.52	157.35	667.71	-46.39	15.30	-45.19	3.33	2.90	-9.33	
758.00	13.37	154.71	752.67	-63.51	22.95	-61.72	2.22	2.13	-3.03	
847.00	14.07	153.83	839.13	-82.52	32.11	-80.04	0.82	0.79	-0.99	
932.00	14.25	155.94	921.55	-101.34	40.94	-98.19	0.64	0.21	2.48	

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Site:	SEC 31-T5N-R62W	MD Reference:	KB 24' @ 4576.00usft
Well:	STATE ANTELOPE 34-31-30XRLNC	North Reference:	True
Wellbore:	OWB	Survey Calculation Method:	Minimum Curvature
Design:	FINAL SURVEY	Database:	EDT_32Bit_ODBC

Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
1,016.00	15.74	156.47	1,002.68	-121.23	49.70	-117.41	1.78	1.77	0.63
1,103.00	12.93	155.06	1,086.97	-140.88	58.52	-136.38	3.25	-3.23	-1.62
1,191.00	12.13	156.30	1,172.87	-158.27	66.39	-153.18	0.96	-0.91	1.41
1,280.00	13.01	157.35	1,259.74	-176.08	74.00	-170.40	1.02	0.99	1.18
1,369.00	13.81	160.51	1,346.31	-195.34	81.40	-189.09	1.22	0.90	3.55
1,458.00	12.05	160.34	1,433.05	-214.11	88.07	-207.33	1.98	-1.98	-0.19
1,547.00	11.26	153.83	1,520.22	-230.65	95.03	-223.35	1.72	-0.89	-7.31
1,640.00	11.34	154.54	1,611.41	-247.06	102.97	-239.15	0.17	0.09	0.76
1,700.00	11.25	156.54	1,670.25	-257.75	107.83	-249.47	0.67	-0.15	3.33
SURFACE CSG - 1700' MD, 1670' TVD									
1,757.00	11.18	158.46	1,726.16	-267.99	112.08	-259.39	0.67	-0.13	3.37
1,846.00	12.33	160.27	1,813.30	-284.97	118.45	-275.86	1.36	1.29	2.03
1,935.00	11.62	159.78	1,900.36	-302.32	124.76	-292.73	0.81	-0.80	-0.55
2,024.00	11.09	158.86	1,987.62	-318.72	130.94	-308.64	0.63	-0.60	-1.03
2,113.00	12.99	162.03	2,074.66	-336.22	137.12	-325.66	2.26	2.13	3.56
2,202.00	12.33	159.61	2,161.49	-354.64	143.51	-343.59	0.95	-0.74	-2.72
2,291.00	14.80	162.69	2,248.00	-374.40	150.21	-362.83	2.89	2.78	3.46
2,380.00	14.45	161.24	2,334.12	-395.77	157.16	-383.65	0.57	-0.39	-1.63
2,469.00	13.48	160.05	2,420.49	-416.03	164.27	-403.36	1.14	-1.09	-1.34
2,558.00	12.24	159.61	2,507.25	-434.63	171.10	-421.42	1.40	-1.39	-0.49
2,647.00	11.89	159.47	2,594.29	-452.06	177.60	-438.35	0.39	-0.39	-0.16
2,736.00	15.07	160.09	2,680.83	-471.53	184.76	-457.26	3.58	3.57	0.70
2,825.00	14.85	159.56	2,766.81	-493.09	192.68	-478.21	0.29	-0.25	-0.60
2,914.00	13.43	159.43	2,853.11	-513.46	200.30	-497.99	1.60	-1.60	-0.15
3,003.00	12.24	159.96	2,939.89	-532.00	207.16	-515.99	1.34	-1.34	0.60
3,092.00	13.30	153.52	3,026.69	-550.03	214.96	-533.42	1.99	1.19	-7.24
3,181.00	14.10	149.91	3,113.16	-568.57	224.96	-551.21	1.32	0.90	-4.06
3,270.00	12.95	145.95	3,199.69	-586.21	235.98	-568.03	1.66	-1.29	-4.45
3,360.00	11.14	145.28	3,287.70	-601.72	246.58	-582.75	2.02	-2.01	-0.74
3,449.00	12.90	155.73	3,374.76	-617.84	255.56	-598.20	3.14	1.98	11.74
3,538.00	13.48	156.87	3,461.41	-636.44	263.72	-616.17	0.71	0.65	1.28
3,627.00	13.39	157.93	3,547.98	-655.53	271.67	-634.65	0.29	-0.10	1.19
3,716.00	12.95	157.89	3,634.63	-674.32	279.29	-652.85	0.49	-0.49	-0.04
3,805.00	11.89	158.81	3,721.55	-692.11	286.36	-670.09	1.21	-1.19	1.03
3,894.00	11.09	160.66	3,808.77	-708.73	292.51	-686.24	0.99	-0.90	2.08
3,983.00	12.42	157.23	3,895.90	-725.63	299.05	-702.64	1.69	1.49	-3.85
4,072.00	14.01	152.95	3,982.54	-744.05	307.65	-720.40	2.10	1.79	-4.81
4,161.00	12.77	152.25	4,069.12	-762.36	317.13	-737.99	1.41	-1.39	-0.79
4,250.00	15.20	150.22	4,155.48	-781.19	327.51	-756.04	2.79	2.73	-2.28
4,339.00	14.41	150.18	4,241.52	-800.92	338.81	-774.92	0.89	-0.89	-0.04
4,428.00	11.84	145.99	4,328.19	-818.10	349.43	-791.31	3.08	-2.89	-4.71
4,517.00	13.21	151.37	4,415.07	-834.60	359.41	-807.06	2.02	1.54	6.04
4,606.00	12.11	153.39	4,501.91	-851.87	368.46	-823.64	1.33	-1.24	2.27

Survey Report

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Project:	WELD COUNTY	TVD Reference:	KB 24' @ 4576.00usft
Site:	SEC 31-T5N-R62W	MD Reference:	KB 24' @ 4576.00usft
Well:	STATE ANTELOPE 34-31-30XRLNC	North Reference:	True
Wellbore:	OWB	Survey Calculation Method:	Minimum Curvature
Design:	FINAL SURVEY	Database:	EDT_32Bit_ODBC

Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
4,696.00	14.27	155.86	4,589.53	-870.44	377.23	-841.54	2.48	2.40	2.74
4,785.00	14.36	157.62	4,675.77	-890.65	385.92	-861.09	0.50	0.10	1.98
4,874.00	12.99	156.92	4,762.24	-910.06	394.04	-879.88	1.55	-1.54	-0.79
4,963.00	13.83	156.21	4,848.81	-929.00	402.25	-898.18	0.96	0.94	-0.80
5,052.00	11.49	153.17	4,935.65	-946.64	410.54	-915.20	2.73	-2.63	-3.42
5,141.00	12.24	156.17	5,022.74	-963.18	418.36	-931.14	1.09	0.84	3.37
5,230.00	13.74	153.30	5,109.47	-981.26	426.92	-948.56	1.83	1.69	-3.22
5,319.00	11.75	150.66	5,196.27	-998.60	436.11	-965.21	2.33	-2.24	-2.97
5,408.00	13.17	154.32	5,283.17	-1,015.64	444.94	-981.58	1.82	1.60	4.11
5,497.00	11.80	156.61	5,370.07	-1,033.13	452.95	-998.46	1.64	-1.54	2.57
5,586.00	13.48	153.17	5,456.91	-1,050.74	461.25	-1,015.44	2.07	1.89	-3.87
5,675.00	13.08	153.75	5,543.53	-1,069.03	470.38	-1,033.04	0.47	-0.45	0.65
5,775.00	9.61	138.73	5,641.58	-1,085.46	480.90	-1,048.68	4.53	-3.47	-15.02
KOP - 5775' MD, 5642' TVD									
5,786.00	9.28	136.43	5,652.43	-1,086.79	482.11	-1,049.92	4.53	-2.97	-20.87
5,875.00	11.36	55.47	5,740.38	-1,087.02	494.34	-1,049.29	15.11	2.34	-90.97
5,964.00	17.28	39.04	5,826.61	-1,071.77	509.90	-1,032.97	8.01	6.65	-18.46
6,053.00	21.21	16.12	5,910.74	-1,045.99	522.72	-1,006.35	9.49	4.42	-25.75
6,142.00	25.98	9.82	5,992.29	-1,011.29	530.52	-971.18	6.06	5.36	-7.08
6,231.00	32.66	9.07	6,069.84	-968.32	537.64	-927.82	7.52	7.51	-0.84
6,321.00	43.75	6.28	6,140.46	-913.23	544.90	-872.35	12.47	12.32	-3.10
6,410.00	51.79	3.15	6,200.24	-847.61	550.19	-806.52	9.40	9.03	-3.52
6,499.00	58.29	2.32	6,251.21	-774.79	553.65	-733.64	7.34	7.30	-0.93
6,588.00	64.16	2.23	6,294.03	-696.88	556.74	-655.71	6.60	6.60	-0.10
6,677.00	73.13	1.92	6,326.41	-614.13	559.74	-572.95	10.08	10.08	-0.35
6,760.16	80.48	3.90	6,345.38	-533.33	563.86	-492.06	9.14	8.84	2.38
10' X-OVER PNT - 6760.16' MD, 10' FSL, 1901' FEL SEC 31									
6,766.00	81.00	4.03	6,346.32	-527.58	564.26	-486.30	9.14	8.85	2.31
6,815.00	84.67	4.23	6,352.43	-479.10	567.76	-437.69	7.51	7.49	0.41
HZ LANDING PNT - 6815' MD, 6352' TVD									
6,855.00	87.67	4.39	6,355.10	-439.30	570.76	-397.78	7.51	7.49	0.40
6,944.00	88.51	1.96	6,358.06	-350.50	575.68	-308.85	2.89	0.94	-2.73
7,033.00	89.00	1.79	6,360.00	-261.56	578.60	-219.94	0.58	0.55	-0.19
7,122.00	90.50	1.74	6,360.39	-172.61	581.34	-131.01	1.69	1.69	-0.06
7,211.00	91.12	0.95	6,359.13	-83.64	583.43	-42.12	1.13	0.70	-0.89
7,300.00	89.79	0.69	6,358.42	5.34	584.70	46.73	1.52	-1.49	-0.29
7,389.00	90.54	1.04	6,358.17	94.33	586.04	135.59	0.93	0.84	0.39
7,478.00	88.82	359.89	6,358.66	183.32	586.77	224.41	2.32	-1.93	-1.29
7,567.00	90.06	0.42	6,359.53	272.31	587.01	313.20	1.52	1.39	0.60
7,656.00	89.70	359.76	6,359.72	361.31	587.15	401.98	0.84	-0.40	-0.74
7,745.00	89.75	359.67	6,360.15	450.31	586.70	490.73	0.12	0.06	-0.10
7,835.00	89.66	0.55	6,360.61	540.31	586.88	580.51	0.98	-0.10	0.98
7,924.00	90.46	0.60	6,360.52	629.30	587.77	669.34	0.90	0.90	0.06
8,013.00	88.95	0.55	6,360.97	718.30	588.66	758.18	1.70	-1.70	-0.06

Survey Report

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Site:	SEC 31-T5N-R62W	MD Reference:	KB 24' @ 4576.00usft
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Wellbore:	OWB	Survey Calculation Method:	Minimum Curvature
Design:	FINAL SURVEY	Database:	EDT_32Bit_ODBC

Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	
8,102.00	88.16	1.83	6,363.22	807.25	590.51	847.03	1.69	-0.89	1.44	
8,191.00	88.42	1.48	6,365.87	896.17	593.08	935.91	0.49	0.29	-0.39	
8,280.00	90.15	2.27	6,366.99	985.11	595.99	1,024.84	2.14	1.94	0.89	
8,369.00	90.81	1.96	6,366.24	1,074.05	599.28	1,113.78	0.82	0.74	-0.35	
8,458.00	90.32	2.10	6,365.36	1,162.99	602.43	1,202.72	0.57	-0.55	0.16	
8,547.00	90.01	2.05	6,365.11	1,251.93	605.65	1,291.67	0.35	-0.35	-0.06	
8,636.00	90.01	0.99	6,365.09	1,340.89	608.01	1,380.58	1.19	0.00	-1.19	
8,725.00	87.94	0.99	6,366.68	1,429.86	609.55	1,469.43	2.33	-2.33	0.00	
8,814.00	87.80	0.73	6,369.99	1,518.79	610.88	1,558.23	0.33	-0.16	-0.29	
8,903.00	88.78	1.08	6,372.65	1,607.74	612.29	1,647.06	1.17	1.10	0.39	
8,992.00	89.48	0.42	6,374.00	1,696.72	613.45	1,735.90	1.08	0.79	-0.74	
9,081.00	90.41	0.24	6,374.08	1,785.72	613.97	1,824.71	1.06	1.04	-0.20	
9,170.00	88.16	0.42	6,375.19	1,874.70	614.48	1,913.51	2.54	-2.53	0.20	
9,259.00	88.38	0.29	6,377.88	1,963.66	615.03	2,002.28	0.29	0.25	-0.15	
9,349.00	87.72	359.80	6,380.94	2,053.61	615.10	2,092.01	0.91	-0.73	-0.54	
9,438.00	89.31	0.42	6,383.25	2,142.57	615.27	2,180.76	1.92	1.79	0.70	
9,527.00	89.31	359.63	6,384.32	2,231.57	615.31	2,269.53	0.89	0.00	-0.89	
9,616.00	89.79	1.88	6,385.02	2,320.55	616.48	2,358.38	2.58	0.54	2.53	
9,705.00	89.84	1.70	6,385.31	2,409.51	619.26	2,447.31	0.21	0.06	-0.20	
9,794.00	90.01	2.01	6,385.42	2,498.46	622.14	2,536.24	0.40	0.19	0.35	
9,883.00	90.15	2.49	6,385.30	2,587.39	625.64	2,625.20	0.56	0.16	0.54	
9,972.00	89.57	1.88	6,385.52	2,676.32	629.03	2,714.15	0.95	-0.65	-0.69	
10,061.00	89.31	1.66	6,386.39	2,765.28	631.78	2,803.07	0.38	-0.29	-0.25	
10,150.00	90.15	1.35	6,386.81	2,854.24	634.12	2,891.98	1.01	0.94	-0.35	
10,239.00	89.93	0.69	6,386.74	2,943.23	635.70	2,980.86	0.78	-0.25	-0.74	
10,328.00	89.97	0.42	6,386.82	3,032.23	636.56	3,069.69	0.31	0.04	-0.30	
10,417.00	91.03	0.99	6,386.05	3,121.21	637.66	3,158.53	1.35	1.19	0.64	
10,506.00	91.38	359.89	6,384.17	3,210.19	638.34	3,247.33	1.30	0.39	-1.24	
10,595.00	92.05	359.01	6,381.51	3,299.15	637.49	3,336.00	1.24	0.75	-0.99	
10,685.00	91.65	0.42	6,378.60	3,389.09	637.04	3,425.70	1.63	-0.44	1.57	
10,774.00	90.68	1.66	6,376.79	3,478.06	638.66	3,514.55	1.77	-1.09	1.39	
10,863.00	89.84	359.10	6,376.39	3,567.05	639.25	3,603.36	3.03	-0.94	-2.88	
10,952.00	90.19	358.66	6,376.37	3,656.03	637.51	3,691.99	0.63	0.39	-0.49	
11,041.00	90.06	356.41	6,376.17	3,744.94	633.68	3,780.41	2.53	-0.15	-2.53	
11,130.00	90.32	358.61	6,375.88	3,833.85	629.81	3,868.83	2.49	0.29	2.47	
11,219.00	91.43	2.14	6,374.52	3,922.82	630.39	3,957.62	4.16	1.25	3.97	
11,308.00	91.38	3.29	6,372.34	4,011.70	634.61	4,046.56	1.29	-0.06	1.29	
11,397.00	91.52	2.54	6,370.08	4,100.55	639.13	4,135.52	0.86	0.16	-0.84	
11,486.00	88.73	2.10	6,369.89	4,189.47	642.74	4,224.47	3.17	-3.13	-0.49	
11,575.00	88.51	0.77	6,372.03	4,278.41	644.96	4,313.34	1.51	-0.25	-1.49	
11,664.00	88.29	0.29	6,374.52	4,367.37	645.79	4,402.14	0.59	-0.25	-0.54	
11,753.00	89.17	359.85	6,376.49	4,456.35	645.90	4,490.90	1.11	0.99	-0.49	
11,842.00	89.62	2.01	6,377.43	4,545.33	647.34	4,579.76	2.48	0.51	2.43	

Survey Report

Company:	BONANZA CREEK ENERGY	Local Co-ordinate Reference:	Well STATE ANTELOPE 34-31-30XRLNC
Project:	WELD COUNTY	TVD Reference:	KB 24' @ 4576.00usft
Site:	SEC 31-T5N-R62W	MD Reference:	KB 24' @ 4576.00usft
Well:	STATE ANTELOPE 34-31-30XRLNC	North Reference:	True
Wellbore:	OWB	Survey Calculation Method:	Minimum Curvature
Design:	FINAL SURVEY	Database:	EDT_32Bit_ODBC

Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
11,931.00	90.23	1.74	6,377.55	4,634.28	650.25	4,668.69	0.75	0.69	-0.30
12,020.00	90.59	1.04	6,376.91	4,723.25	652.41	4,757.59	0.88	0.40	-0.79
12,110.00	89.79	2.23	6,376.61	4,813.21	654.98	4,847.51	1.59	-0.89	1.32
12,198.00	90.68	2.84	6,376.25	4,901.12	658.87	4,935.48	1.23	1.01	0.69
12,288.00	88.47	1.96	6,376.92	4,991.04	662.64	5,025.43	2.64	-2.46	-0.98
12,377.00	88.07	1.57	6,379.61	5,079.95	665.38	5,114.32	0.63	-0.45	-0.44
12,466.00	88.47	0.91	6,382.29	5,168.89	667.30	5,203.17	0.87	0.45	-0.74
12,555.00	89.00	0.02	6,384.26	5,257.87	668.03	5,291.97	1.16	0.60	-1.00
12,644.00	89.00	359.89	6,385.81	5,346.85	667.96	5,380.73	0.15	0.00	-0.15
12,733.00	89.35	0.20	6,387.09	5,435.84	668.03	5,469.50	0.53	0.39	0.35
12,822.00	90.32	0.38	6,387.35	5,524.84	668.48	5,558.31	1.11	1.09	0.20
12,911.00	92.05	0.29	6,385.51	5,613.82	669.00	5,647.10	1.95	1.94	-0.10
13,000.00	90.77	0.60	6,383.32	5,702.78	669.69	5,735.89	1.48	-1.44	0.35
13,089.00	91.43	0.69	6,381.61	5,791.76	670.69	5,824.72	0.75	0.74	0.10
13,178.00	89.26	0.55	6,381.07	5,880.75	671.65	5,913.55	2.44	-2.44	-0.16
13,267.00	89.09	359.14	6,382.35	5,969.74	671.41	6,002.30	1.60	-0.19	-1.58
13,356.00	89.97	359.36	6,383.08	6,058.73	670.25	6,090.98	1.02	0.99	0.25
13,445.00	89.97	357.51	6,383.13	6,147.69	667.82	6,179.55	2.08	0.00	-2.08
13,534.00	90.90	0.11	6,382.46	6,236.66	665.97	6,268.16	3.10	1.04	2.92
13,623.00	91.78	359.76	6,380.37	6,325.63	665.87	6,356.91	1.06	0.99	-0.39
13,712.00	90.50	0.95	6,378.60	6,414.61	666.42	6,445.70	1.96	-1.44	1.34
13,801.00	90.68	0.11	6,377.69	6,503.60	667.24	6,534.52	0.97	0.20	-0.94
13,890.00	90.85	359.50	6,376.50	6,592.59	666.94	6,623.27	0.71	0.19	-0.69
13,979.00	89.22	0.02	6,376.44	6,681.59	666.57	6,712.02	1.92	-1.83	0.58
14,068.00	89.00	359.94	6,377.83	6,770.58	666.54	6,800.78	0.26	-0.25	-0.09
14,157.00	89.09	0.02	6,379.31	6,859.57	666.50	6,889.54	0.14	0.10	0.09
14,246.00	90.10	0.20	6,379.94	6,948.56	666.68	6,978.33	1.15	1.13	0.20
14,335.00	90.06	359.80	6,379.82	7,037.56	666.68	7,067.10	0.45	-0.04	-0.45
14,424.00	91.03	359.14	6,378.97	7,126.55	665.85	7,155.81	1.32	1.09	-0.74
14,514.00	90.46	0.16	6,377.80	7,216.54	665.30	7,245.54	1.30	-0.63	1.13
14,603.00	90.59	359.28	6,376.98	7,305.54	664.87	7,334.28	1.00	0.15	-0.99
14,691.00	89.35	0.02	6,377.03	7,393.53	664.33	7,422.01	1.64	-1.41	0.84
14,781.00	89.57	0.24	6,377.88	7,483.53	664.53	7,511.80	0.35	0.24	0.24
14,870.00	90.54	0.77	6,377.79	7,572.52	665.32	7,600.63	1.24	1.09	0.60
14,959.00	91.03	0.20	6,376.57	7,661.51	666.07	7,689.44	0.84	0.55	-0.64
15,048.00	92.09	359.58	6,374.15	7,750.48	665.90	7,778.17	1.38	1.19	-0.70
15,137.00	89.62	0.07	6,372.82	7,839.46	665.63	7,866.91	2.83	-2.78	0.55
15,226.00	90.32	0.86	6,372.87	7,928.45	666.35	7,955.74	1.19	0.79	0.89
15,315.00	91.65	0.95	6,371.34	8,017.43	667.76	8,044.59	1.50	1.49	0.10
15,404.00	89.31	0.42	6,370.59	8,106.41	668.82	8,133.42	2.70	-2.63	-0.60
15,493.00	90.46	1.48	6,370.77	8,195.40	670.30	8,222.29	1.76	1.29	1.19
15,582.00	91.16	0.69	6,369.51	8,284.37	671.98	8,311.16	1.19	0.79	-0.89
15,671.00	89.22	1.43	6,369.22	8,373.35	673.63	8,400.03	2.33	-2.18	0.83
15,760.00	88.78	0.64	6,370.77	8,462.32	675.24	8,488.89	1.02	-0.49	-0.89

Survey Report

Company:	BONANZA CREEK ENERGY	Local Co-ordinate Reference:	Well STATE ANTELOPE 34-31-30XRLNC
Project:	WELD COUNTY	TVD Reference:	KB 24' @ 4576.00usft
Site:	SEC 31-T5N-R62W	MD Reference:	KB 24' @ 4576.00usft
Well:	STATE ANTELOPE 34-31-30XRLNC	North Reference:	True
Wellbore:	OWB	Survey Calculation Method:	Minimum Curvature
Design:	FINAL SURVEY	Database:	EDT_32Bit_ODBC

Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
15,849.00	88.29	0.38	6,373.05	8,551.29	676.03	8,577.69	0.62	-0.55	-0.29
15,938.00	87.76	0.16	6,376.11	8,640.23	676.45	8,666.44	0.64	-0.60	-0.25
16,027.00	89.70	0.99	6,378.09	8,729.20	677.34	8,755.25	2.37	2.18	0.93
16,116.00	91.12	0.95	6,377.45	8,818.18	678.85	8,844.12	1.60	1.60	-0.04
16,206.00	90.85	0.51	6,375.90	8,908.16	679.99	8,933.95	0.57	-0.30	-0.49
16,295.00	90.68	359.28	6,374.71	8,997.15	679.83	9,022.71	1.40	-0.19	-1.38
16,384.00	91.83	358.61	6,372.76	9,086.12	678.19	9,111.33	1.50	1.29	-0.75
16,473.00	88.29	358.92	6,372.67	9,175.08	676.27	9,199.94	3.99	-3.98	0.35
16,562.00	88.38	358.35	6,375.26	9,264.02	674.15	9,288.50	0.65	0.10	-0.64
16,648.00	88.82	357.69	6,377.36	9,349.94	671.18	9,374.00	0.92	0.51	-0.77
LAST SURVEY - 16648' MD, 6377' TVD									
16,715.00	88.82	357.69	6,378.74	9,416.87	668.48	9,440.57	0.00	0.00	0.00
EXTRAPOLATION TO TD - 16715' MD, 469' FNL, 1907' FEL SEC 30									

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
- hit/miss target									
- Shape									
ST ANTELOPE 34-30XF	0.00	0.00	6,360.00	-533.33	556.35	1,372,038.69	3,316,624.55	40.349080°N	104.363972°W
- actual wellpath misses target center by 16.33usft at 6762.00usft MD (6345.68 TVD, -531.52 N, 563.98 E)									
- Point									
ST ANTELOPE 34-30XF	0.00	0.00	6,371.00	9,417.42	682.06	1,381,989.81	3,316,623.00	40.376394°N	104.363520°W
- actual wellpath misses target center by 15.63usft at 16714.84usft MD (6378.74 TVD, 9416.71 N, 668.49 E)									
- Point									

Design Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
1,700.00	1,670.25	-257.75	107.83	SURFACE CSG - 1700' MD, 1670' TVD	
5,775.00	5,641.58	-1,085.46	480.90	KOP - 5775' MD, 5642' TVD	
6,760.16	6,345.38	-533.33	563.86	10' X-OVER PNT - 6760.16' MD, 10' FSL, 1901' FEL SEC 31	
6,815.00	6,352.43	-479.10	567.76	HZ LANDING PNT - 6815' MD, 6352' TVD	
16,648.00	6,377.36	9,349.94	671.18	LAST SURVEY - 16648' MD, 6377' TVD	
16,715.00	6,378.74	9,416.87	668.48	EXTRAPOLATION TO TD - 16715' MD, 469' FNL, 1907' FEL SEC 30	

Checked By: _____	Approved By: _____	Date: _____
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