

BONANZA CREEK ENERGY

WELD COUNTY

SEC 2-T5N-R62W

STATE ANTELOPE W-C-3HN

OWB

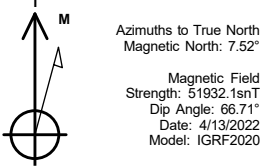
Design: FINAL SURVEY

Standard Survey Report

14 November, 2022

Project: WELD COUNTY
Site: SEC 2-T5N-R62W
Well: STATE ANTELOPE W-C-3HN
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

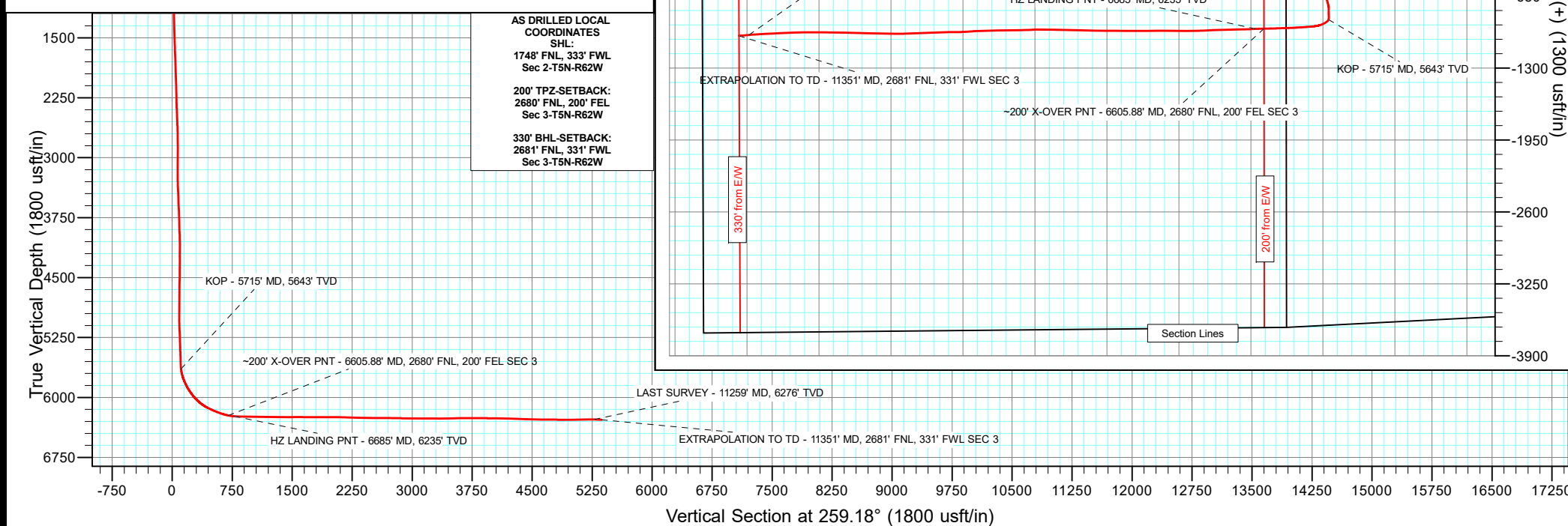
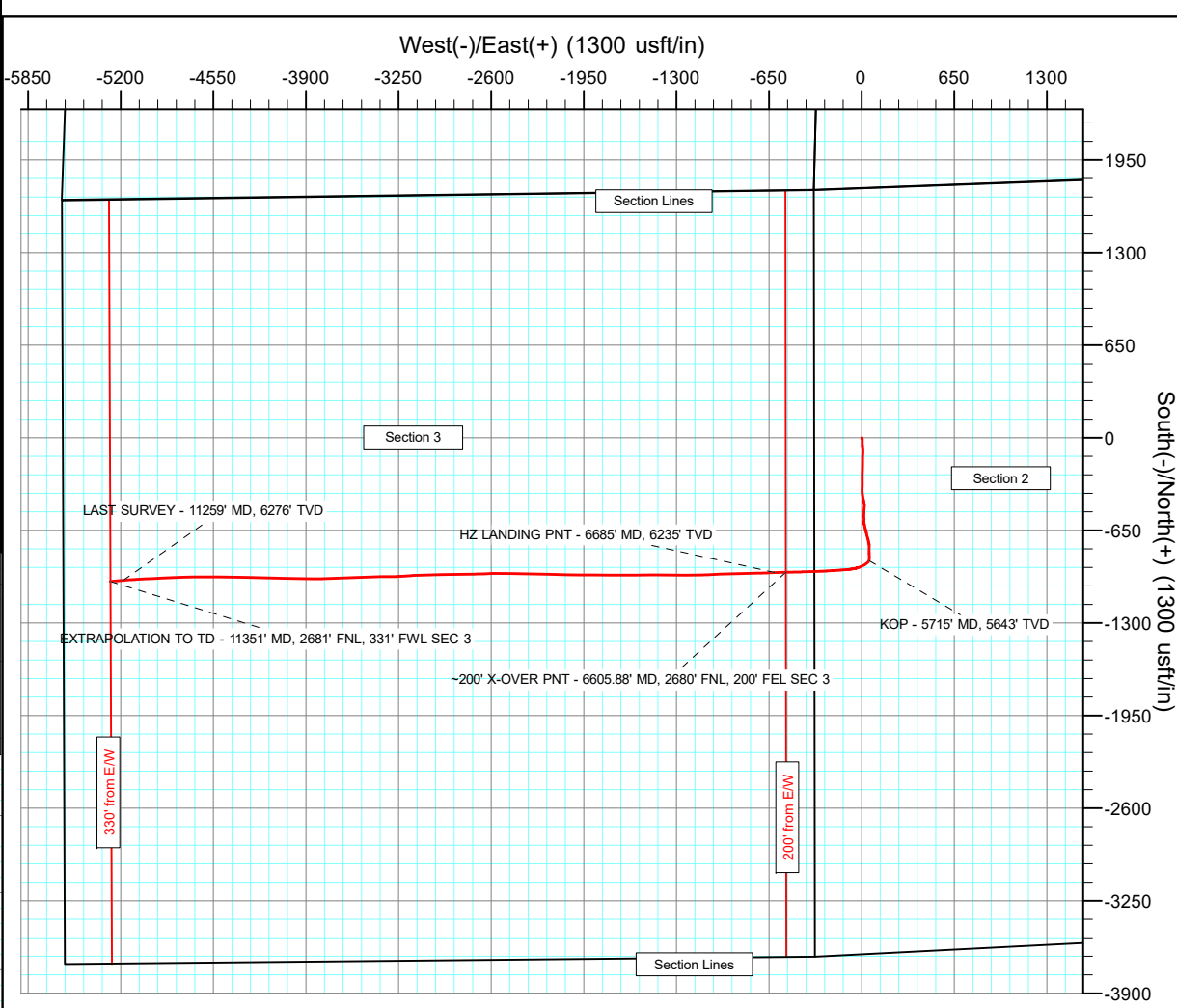
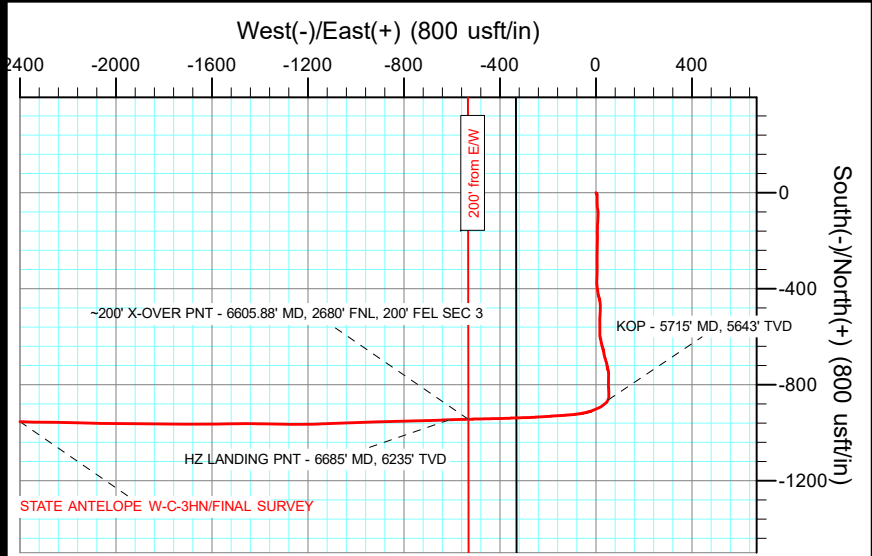


WELL DETAILS: STATE ANTELOPE W-C-3HN

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.00	0.00	1402468.00	3334367.56	40.431960°N	104.298840°W	

ANNOTATIONS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Vsect	Departure	Annotation
5715.00	11.88	202.80	5643.45	-862.66	52.32	110.55	873.33	KOP - 5715' MD, 5643' TVD
6605.88	78.99	268.56	6224.51	-943.68	-531.74	699.43	1475.53	~200' X-OVER PNT - 6605.88' MD, 2680' FNL, 200' FEL SEC 3
6685.00	85.05	267.97	6235.30	-946.02	-610.05	776.79	1553.75	HZ LANDING PNT - 6685' MD, 6235' TVD
11259.00	88.01	265.42	6275.90	-1000.40	-5181.40	5277.08	6126.91	LAST SURVEY - 11259' MD, 6276' TVD
11351.00	88.01	265.42	6279.09	-1007.75	-5273.05	5368.48	6218.86	EXTRAPOLATION TO TD - 11351' MD, 2681' FNL, 331' FWL SEC 3



AS DRILLED LOCAL
COORDINATES
SHL:
1748' FNL, 333' FWL
Sec 2-T5N-R62W
200' TPZ-SETBACK:
2680' FNL, 200' FEL
Sec 3-T5N-R62W
330' BHL-SETBACK:
2681' FNL, 331' FWL
Sec 3-T5N-R62W

Survey Report

Company:	BONANZA CREEK ENERGY	Local Co-ordinate Reference:	Well STATE ANTELOPE W-C-3HN
Project:	WELD COUNTY	TVD Reference:	KB 25' @ 4671.00usft
Site:	SEC 2-T5N-R62W	MD Reference:	KB 25' @ 4671.00usft
Well:	STATE ANTELOPE W-C-3HN	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 2-T5N-R62W					
Site Position:		Northing:	1,404,201.39	usft	Latitude:	40.436731°N	
From:	Lat/Long	Easting:	3,334,009.19	usft	Longitude:	104.300043°W	
Position Uncertainty:	0.00	usft	Slot Radius:	13.200	in	Grid Convergence:	0.78

Well	STATE ANTELOPE W-C-3HN					
Well Position	+N/-S	0.00 usft	Northing:	1,402,468.01 usft	Latitude:	40.431960°N
	+E/-W	0.00 usft	Easting:	3,334,367.57 usft	Longitude:	104.298840°W
Position Uncertainty		0.00 usft	Wellhead Elevation:	usft	Ground Level:	4,646.00 usft

Wellbore	OWB				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2020	4/13/2022	7.52	66.71	51,932.10007776

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	259.18	

Survey Program	Date	11/14/2022			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
210.00	1,595.00	SURFACE SURVEY (OWB)	MWD OWSG	OWSG MWD - Standard	
1,770.00	11,351.00	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)	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
210.00	0.65	108.64	210.00	-0.38	1.13	-1.04	0.31	0.31	0.00	
302.00	2.90	148.40	301.95	-2.53	2.84	-2.32	2.65	2.45	43.22	
376.00	4.70	166.60	375.78	-7.07	4.53	-3.12	2.90	2.43	24.59	
463.00	7.16	178.70	462.32	-15.96	5.48	-2.38	3.16	2.83	13.91	
550.00	9.40	180.20	548.40	-28.49	5.57	-0.13	2.59	2.57	1.72	
637.00	11.30	180.10	633.98	-44.12	5.53	2.85	2.18	2.18	-0.11	
725.00	9.80	173.70	720.50	-60.19	6.34	5.07	2.16	-1.70	-7.27	
812.00	10.20	171.70	806.17	-75.17	8.27	5.99	0.61	0.46	-2.30	
899.00	8.50	179.50	892.02	-89.22	9.43	7.48	2.43	-1.95	8.97	

Survey Report

Company:	BONANZA CREEK ENERGY	Local Co-ordinate Reference:	Well STATE ANTELOPE W-C-3HN
Project:	WELD COUNTY	TVD Reference:	KB 25' @ 4671.00usft
Site:	SEC 2-T5N-R62W	MD Reference:	KB 25' @ 4671.00usft
Well:	STATE ANTELOPE W-C-3HN	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)
986.00	10.70	185.00	977.80	-103.70	8.79	10.84	2.74	2.53	6.32
1,074.00	12.00	184.90	1,064.07	-120.95	7.29	15.54	1.48	1.48	-0.11
1,161.00	10.90	179.60	1,149.34	-138.19	6.58	19.48	1.75	-1.26	-6.09
1,248.00	9.20	181.80	1,235.01	-153.37	6.42	22.49	2.00	-1.95	2.53
1,335.00	7.30	178.50	1,321.10	-165.85	6.34	24.90	2.25	-2.18	-3.79
1,423.00	7.95	179.83	1,408.32	-177.52	6.51	26.93	0.77	0.74	1.51
1,510.00	9.00	180.50	1,494.37	-190.34	6.47	29.38	1.21	1.21	0.77
1,595.00	9.20	180.50	1,578.30	-203.79	6.35	32.02	0.24	0.24	0.00
1,770.00	9.93	182.36	1,750.87	-232.85	5.60	38.20	0.45	0.42	1.06
1,864.00	9.59	180.68	1,843.51	-248.78	5.18	41.61	0.47	-0.36	-1.79
1,958.00	9.40	179.86	1,936.22	-264.29	5.10	44.60	0.25	-0.20	-0.87
2,053.00	9.05	179.86	2,029.99	-279.51	5.14	47.42	0.37	-0.37	0.00
2,149.00	8.59	180.10	2,124.86	-294.23	5.15	50.18	0.48	-0.48	0.25
2,338.00	7.44	177.63	2,312.01	-320.58	5.63	54.65	0.64	-0.61	-1.31
2,432.00	10.09	184.09	2,404.90	-334.87	5.29	57.66	3.00	2.82	6.87
2,527.00	9.79	182.69	2,498.48	-351.24	4.32	61.69	0.41	-0.32	-1.47
2,622.00	9.27	182.53	2,592.17	-366.95	3.60	65.34	0.55	-0.55	-0.17
2,717.00	10.00	173.48	2,685.83	-382.79	4.20	67.73	1.77	0.77	-9.53
2,812.00	9.59	173.12	2,779.45	-398.85	6.09	68.89	0.44	-0.43	-0.38
2,907.00	8.52	171.48	2,873.26	-413.66	8.08	69.72	1.16	-1.13	-1.73
3,001.00	7.50	167.45	2,966.34	-426.54	10.44	69.81	1.24	-1.09	-4.29
3,120.00	6.50	162.44	3,084.46	-440.54	14.16	68.79	0.98	-0.84	-4.21
3,214.00	8.03	172.39	3,177.70	-452.12	16.64	68.53	2.10	1.63	10.59
3,309.00	7.52	169.75	3,271.83	-464.82	18.62	68.96	0.66	-0.54	-2.78
3,403.00	9.81	184.44	3,364.76	-478.86	19.10	71.13	3.37	2.44	15.63
3,498.00	9.99	184.22	3,458.35	-495.14	17.86	75.40	0.19	0.19	-0.23
3,593.00	10.23	181.72	3,551.87	-511.79	17.00	79.37	0.53	0.25	-2.63
3,688.00	10.38	181.31	3,645.34	-528.78	16.56	83.00	0.18	0.16	-0.43
3,784.00	9.53	180.44	3,739.89	-545.37	16.30	86.37	0.90	-0.89	-0.91
3,878.00	8.83	179.30	3,832.69	-560.37	16.32	89.16	0.77	-0.74	-1.21
3,973.00	8.53	180.23	3,926.60	-574.71	16.39	91.79	0.35	-0.32	0.98
4,068.00	7.60	181.32	4,020.66	-588.03	16.21	94.46	0.99	-0.98	1.15
4,162.00	8.77	167.47	4,113.71	-601.24	17.62	95.55	2.43	1.24	-14.73
4,256.00	7.75	167.22	4,206.73	-614.42	20.58	95.12	1.09	-1.09	-0.27
4,351.00	9.95	169.26	4,300.60	-628.73	23.53	94.91	2.34	2.32	2.15
4,446.00	8.97	160.11	4,394.31	-643.76	27.58	93.76	1.89	-1.03	-9.63
4,540.00	11.06	169.74	4,486.88	-659.53	31.68	92.69	2.84	2.22	10.24
4,635.00	9.43	167.03	4,580.36	-676.08	35.05	92.49	1.79	-1.72	-2.85
4,824.00	9.51	162.13	4,766.79	-706.03	43.31	89.99	0.43	0.04	-2.59
4,919.00	9.84	172.69	4,860.45	-721.55	46.75	89.52	1.90	0.35	11.12
5,012.00	7.52	162.31	4,952.38	-735.23	49.62	89.28	3.00	-2.49	-11.16
5,107.00	8.49	171.59	5,046.46	-748.09	52.53	88.83	1.70	1.02	9.77
5,201.00	10.57	183.63	5,139.16	-763.57	53.00	91.28	3.05	2.21	12.81

Survey Report

Company:	BONANZA CREEK ENERGY	Local Co-ordinate Reference:	Well STATE ANTELOPE W-C-3HN
Project:	WELD COUNTY	TVD Reference:	KB 25' @ 4671.00usft
Site:	SEC 2-T5N-R62W	MD Reference:	KB 25' @ 4671.00usft
Well:	STATE ANTELOPE W-C-3HN	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)
5,296.00	11.94	179.56	5,232.34	-782.09	52.52	95.22	1.67	1.44	-4.28
5,391.00	10.83	180.47	5,325.46	-800.84	52.53	98.74	1.18	-1.17	0.96
5,486.00	11.97	175.28	5,418.59	-819.59	53.26	101.53	1.61	1.20	-5.46
5,581.00	10.66	180.23	5,511.75	-838.19	54.04	104.26	1.72	-1.38	5.21
5,676.00	10.30	180.61	5,605.16	-855.47	53.91	107.63	0.39	-0.38	0.40
5,715.00	11.88	202.80	5,643.45	-862.66	52.32	110.55	11.58	4.04	56.90
KOP - 5715' MD, 5643' TVD									
5,770.00	16.09	222.88	5,696.84	-873.47	44.93	119.83	11.58	7.66	36.51
5,865.00	22.76	239.34	5,786.45	-892.53	20.12	147.78	9.02	7.02	17.33
5,960.00	29.80	251.66	5,871.64	-909.36	-18.17	188.55	9.34	7.41	12.97
6,055.00	35.85	261.64	5,951.49	-920.85	-68.18	239.83	8.53	6.37	10.51
6,150.00	44.48	266.32	6,024.04	-927.04	-129.05	300.78	9.62	9.08	4.93
6,245.00	54.85	265.80	6,085.44	-932.04	-201.19	372.58	10.92	10.92	-0.55
6,340.00	63.45	267.85	6,134.11	-936.49	-282.55	453.32	9.24	9.05	2.16
6,435.00	68.13	267.99	6,173.06	-939.63	-369.11	538.93	4.93	4.93	0.15
6,529.00	71.89	268.89	6,205.19	-942.02	-457.40	626.10	4.10	4.00	0.96
6,605.88	78.99	268.56	6,224.51	-943.68	-531.74	699.43	9.24	9.23	-0.43
~200' X-OVER PNT - 6605.88' MD, 2680' FNL, 200' FEL SEC 3									
6,624.00	80.66	268.48	6,227.71	-944.15	-549.57	717.03	9.24	9.23	-0.42
6,685.00	85.05	267.97	6,235.30	-946.02	-610.05	776.79	7.24	7.19	-0.83
HZ LANDING PNT - 6685' MD, 6235' TVD									
6,718.00	87.42	267.70	6,237.46	-947.26	-642.96	809.34	7.24	7.19	-0.82
6,813.00	89.26	268.76	6,240.22	-950.20	-737.87	903.12	2.23	1.94	1.12
6,907.00	89.45	268.42	6,241.27	-952.51	-831.83	995.84	0.41	0.20	-0.36
7,097.00	89.73	267.97	6,242.63	-958.49	-1,021.73	1,183.49	0.28	0.15	-0.24
7,191.00	89.10	267.52	6,243.59	-962.19	-1,115.65	1,276.44	0.82	-0.67	-0.48
7,286.00	89.07	269.61	6,245.11	-964.57	-1,210.61	1,370.15	2.20	-0.03	2.20
7,381.00	90.25	270.70	6,245.67	-964.31	-1,305.60	1,463.41	1.69	1.24	1.15
7,476.00	90.42	271.37	6,245.12	-962.60	-1,400.58	1,556.38	0.73	0.18	0.71
7,571.00	88.98	268.78	6,245.62	-962.47	-1,495.57	1,649.66	3.12	-1.52	-2.73
7,666.00	89.97	270.02	6,246.49	-963.47	-1,590.56	1,743.14	1.67	1.04	1.31
7,760.00	89.66	269.84	6,246.79	-963.58	-1,684.56	1,835.49	0.38	-0.33	-0.19
7,855.00	90.06	270.31	6,247.02	-963.46	-1,779.56	1,928.78	0.65	0.42	0.49
7,949.00	90.57	270.36	6,246.51	-962.91	-1,873.55	2,021.00	0.55	0.54	0.05
8,044.00	88.31	270.12	6,247.43	-962.51	-1,968.54	2,114.23	2.39	-2.38	-0.25
8,138.00	88.44	271.33	6,250.10	-961.32	-2,062.50	2,206.29	1.29	0.14	1.29
8,233.00	88.65	271.43	6,252.51	-959.04	-2,157.44	2,299.11	0.24	0.22	0.11
8,328.00	88.51	271.28	6,254.87	-956.79	-2,252.38	2,391.95	0.22	-0.15	-0.16
8,422.00	88.81	269.72	6,257.06	-955.97	-2,346.35	2,484.09	1.69	0.32	-1.66
8,516.00	90.30	272.68	6,257.79	-954.00	-2,440.31	2,576.01	3.53	1.59	3.15
8,610.00	89.94	269.84	6,257.60	-951.93	-2,534.28	2,667.92	3.05	-0.38	-3.02
8,705.00	89.15	267.64	6,258.35	-954.02	-2,629.25	2,761.59	2.46	-0.83	-2.32
8,894.00	89.29	269.33	6,260.93	-959.02	-2,818.16	2,948.08	0.90	0.07	0.89
8,989.00	89.48	269.32	6,261.94	-960.14	-2,913.14	3,041.59	0.20	0.20	-0.01

Survey Report

Company:	BONANZA CREEK ENERGY	Local Co-ordinate Reference:	Well STATE ANTELOPE W-C-3HN
Project:	WELD COUNTY	TVD Reference:	KB 25' @ 4671.00usft
Site:	SEC 2-T5N-R62W	MD Reference:	KB 25' @ 4671.00usft
Well:	STATE ANTELOPE W-C-3HN	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)
9,177.00	90.02	267.99	6,262.77	-964.55	-3,101.09	3,227.02	0.76	0.29	-0.71
9,272.00	89.13	265.19	6,263.47	-970.20	-3,195.90	3,321.21	3.09	-0.94	-2.95
9,367.00	91.69	270.28	6,262.79	-973.95	-3,290.79	3,415.12	6.00	2.69	5.36
9,461.00	90.74	268.50	6,260.80	-974.95	-3,384.76	3,507.60	2.15	-1.01	-1.89
9,556.00	90.81	267.68	6,259.51	-978.12	-3,479.70	3,601.45	0.87	0.07	-0.86
9,650.00	90.36	267.52	6,258.55	-982.06	-3,573.61	3,694.43	0.51	-0.48	-0.17
9,745.00	89.58	268.56	6,258.60	-985.31	-3,668.55	3,788.29	1.37	-0.82	1.09
9,841.00	89.56	267.54	6,259.32	-988.57	-3,764.49	3,883.14	1.06	-0.02	-1.06
9,935.00	89.45	271.11	6,260.13	-989.68	-3,858.47	3,975.65	3.80	-0.12	3.80
10,030.00	89.33	271.10	6,261.15	-987.85	-3,953.44	4,068.60	0.13	-0.13	-0.01
10,218.00	88.22	271.16	6,265.16	-984.14	-4,141.36	4,252.48	0.59	-0.59	0.03
10,313.00	88.10	271.19	6,268.22	-982.19	-4,236.29	4,345.36	0.13	-0.13	0.03
10,408.00	88.07	271.33	6,271.39	-980.11	-4,331.21	4,438.20	0.15	-0.03	0.15
10,502.00	87.71	271.23	6,274.85	-978.01	-4,425.13	4,530.05	0.40	-0.38	-0.11
10,597.00	89.31	269.80	6,277.32	-977.15	-4,520.09	4,623.16	2.26	1.68	-1.51
10,691.00	90.80	270.92	6,277.23	-976.56	-4,614.08	4,715.37	1.98	1.59	1.19
10,785.00	88.61	268.24	6,277.71	-977.25	-4,708.06	4,807.81	3.68	-2.33	-2.85
10,975.00	90.65	267.55	6,278.94	-984.23	-4,897.92	4,995.61	1.13	1.07	-0.36
11,070.00	90.99	266.93	6,277.58	-988.81	-4,992.80	5,089.66	0.74	0.36	-0.65
11,164.00	91.53	266.79	6,275.52	-993.95	-5,086.63	5,182.79	0.59	0.57	-0.15
11,259.00	88.01	265.42	6,275.90	-1,000.40	-5,181.40	5,277.08	3.98	-3.71	-1.44
LAST SURVEY - 11259' MD, 6276' TVD									
11,351.00	88.01	265.42	6,279.09	-1,007.75	-5,273.05	5,368.48	0.00	0.00	0.00
EXTRAPOLATION TO TD - 11351' MD, 2681' FNL, 331' FWL SEC 3									

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									
LP-STATE ANTELOPE \	0.00	0.00	6,240.00	-954.49	-531.74	1,401,506.44	3,333,848.82	40.429340°N	104.300750°W
- actual wellpath misses target center by 18.62usft at 6608.89usft MD (6225.08 TVD, -943.76 N, -534.70 E)									
- Point									
PBHL-STATE ANTELOP	0.00	0.00	6,280.00	-1,004.96	-5,273.71	1,401,391.74	3,329,108.15	40.429200°N	104.317783°W
- actual wellpath misses target center by 3.00usft at 11351.00usft MD (6279.09 TVD, -1007.75 N, -5273.05 E)									
- Point									

Survey Report

Company:	BONANZA CREEK ENERGY	Local Co-ordinate Reference:	Well STATE ANTELOPE W-C-3HN
Project:	WELD COUNTY	TVD Reference:	KB 25' @ 4671.00usft
Site:	SEC 2-T5N-R62W	MD Reference:	KB 25' @ 4671.00usft
Well:	STATE ANTELOPE W-C-3HN	North Reference:	True
Wellbore:	OWB	Survey Calculation Method:	Minimum Curvature
Design:	FINAL SURVEY	Database:	EDT_32Bit_ODBC

Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
5,715.00	5,643.45	-862.66	52.32	KOP - 5715' MD, 5643' TVD
6,605.88	6,224.51	-943.68	-531.74	~200' X-OVER PNT - 6605.88' MD, 2680' FNL, 200' FEL SEC 3
6,685.00	6,235.30	-946.02	-610.05	HZ LANDING PNT - 6685' MD, 6235' TVD
11,259.00	6,275.90	-1,000.40	-5,181.40	LAST SURVEY - 11259' MD, 6276' TVD
11,351.00	6,279.09	-1,007.75	-5,273.05	EXTRAPOLATION TO TD - 11351' MD, 2681' FNL, 331' FWL SEC 3

Checked By: _____ Approved By: _____ Date: _____