

BONANZA CREEK ENERGY

WELD COUNTY

SEC 5-T5N-R61W

PRONGHORN K-5 FED 32N-20-04

OWB

Plan: PROPOSAL 1

Standard Planning Report

22 August, 2022

Project: WELD COUNTY
Site: SEC 5-T5N-R61W
Well: PRONGHORN K-5 FED 32N-20-04
Wellbore: OWB
Design: PROPOSAL 1

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: 7.45°
Magnetic Field
Strength: 51903.3snT
Dip Angle: 66.71°
Date: 8/22/2022
Model: IGRF2020

WELL DETAILS: PRONGHORN K-5 FED 32N-20-04

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.00	0.00	1404482.17	3353132.92	40.436771°N	104.231334°W	

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	700.00	0.00	0.00	700.00	0.00	0.00	0.00	0.00	0.00	
3	824.95	2.50	309.60	824.91	1.74	-2.10	2.00	309.60	1.77	
4	5530.73	2.50	309.60	5526.22	132.52	-160.20	0.00	0.00	134.74	
5	6414.87	90.00	0.19	6083.00	705.32	-177.04	10.00	50.62	707.72	LP-PRONGHORN K-5 04
6	16046.69	90.00	0.19	6083.00	10337.08	-144.41	0.00	0.00	10338.08	PBHL-PRONGHORN K-5 04

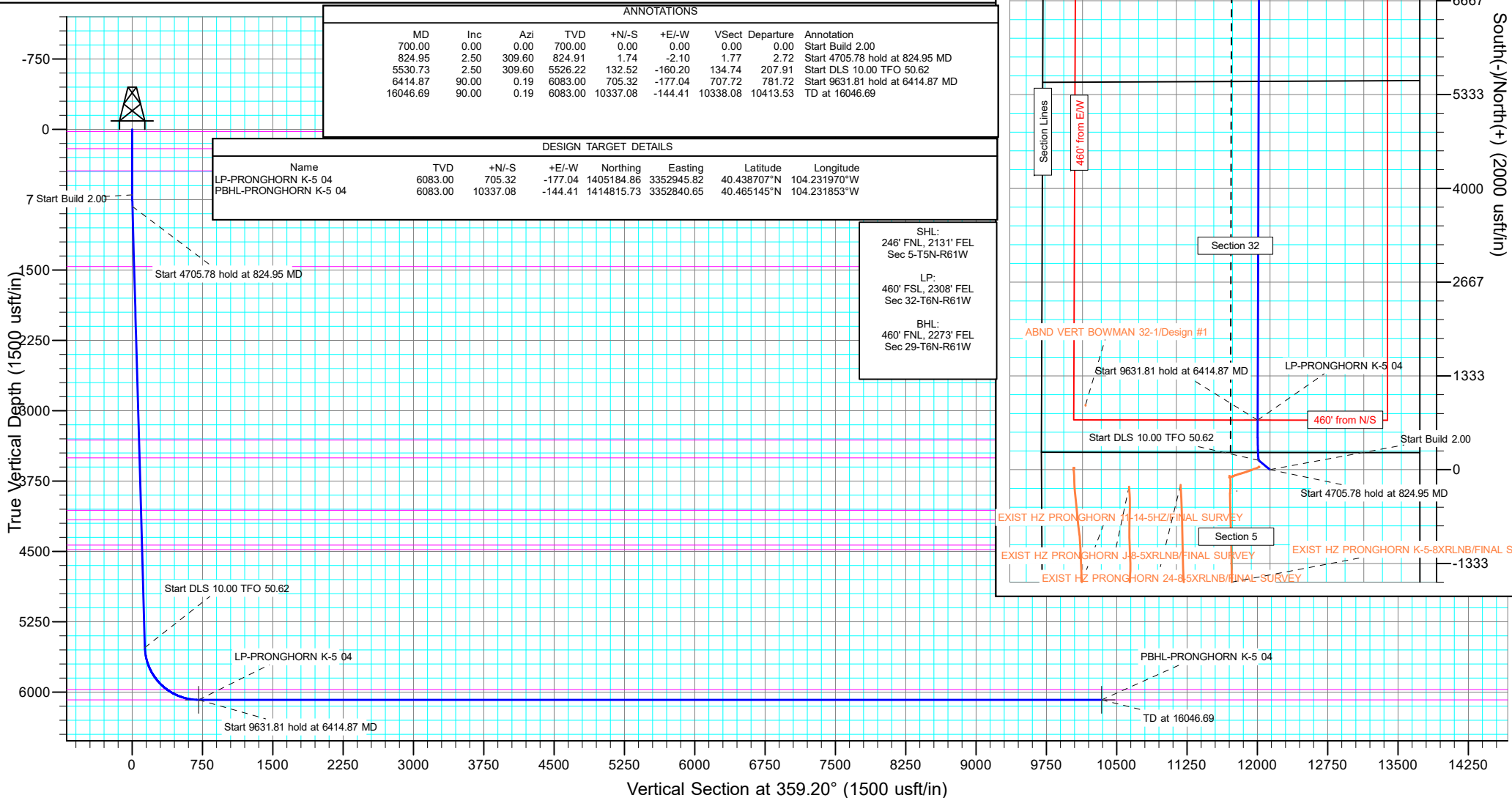
ANNOTATIONS

MD	Inc	Azi	TVD	+N/-S	+E/-W	VSect	Departure	Annotation
700.00	0.00	0.00	700.00	0.00	0.00	0.00	0.00	Start Build 2.00
824.95	2.50	309.60	824.91	1.74	-2.10	1.77	2.72	Start 4705.78 hold at 824.95 MD
5530.73	2.50	309.60	5526.22	132.52	-160.20	134.74	207.91	Start DLS 10.00 TFO 50.62
6414.87	90.00	0.19	6083.00	705.32	-177.04	707.72	781.72	Start 9631.81 hold at 6414.87 MD
16046.69	90.00	0.19	6083.00	10337.08	-144.41	10338.08	10413.53	TD at 16046.69

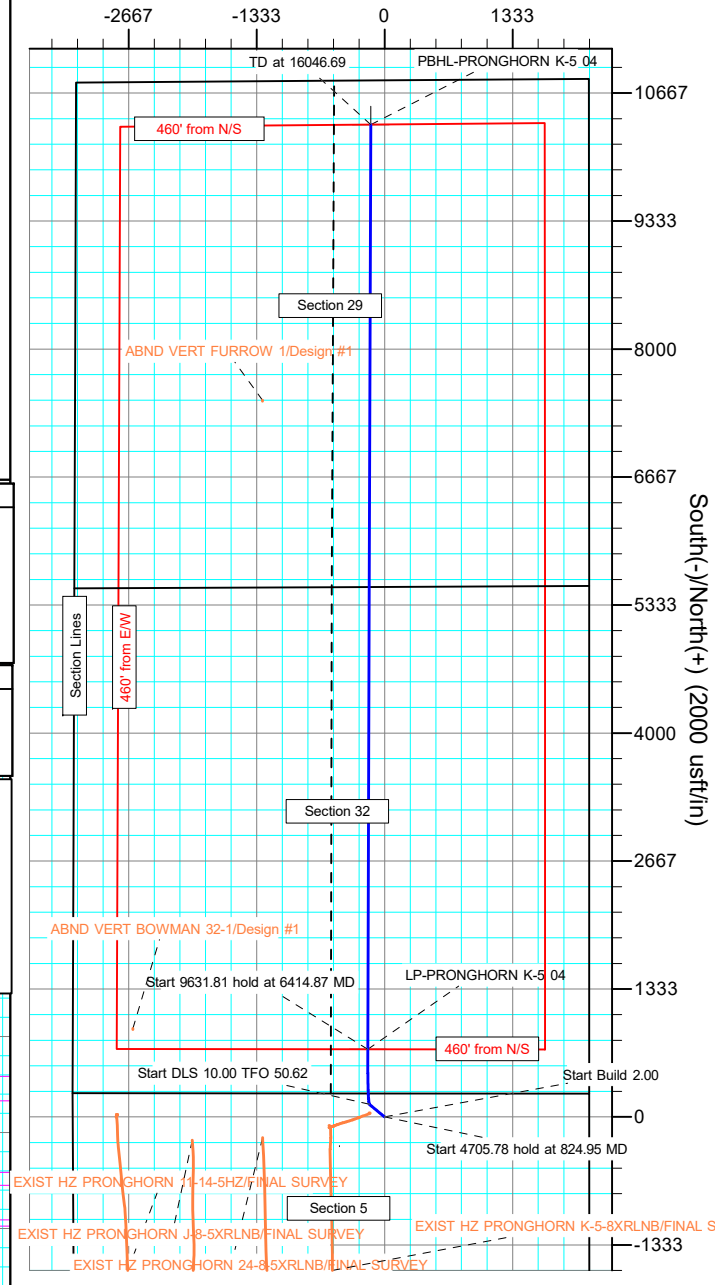
DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
LP-PRONGHORN K-5 04	6083.00	705.32	-177.04	1405184.86	3352945.82	40.438707°N	104.231970°W
PBHL-PRONGHORN K-5 04	6083.00	10337.08	-144.41	1414815.73	3352840.65	40.465145°N	104.231853°W

SHL:
246' FNL, 2131' FEL
Sec 5-T5N-R61W
LP:
460' FSL, 2308' FEL
Sec 32-T6N-R61W
BHL:
460' FNL, 2273' FEL
Sec 29-T6N-R61W



West(-)/East(+) (2000 usft/in)



Planning Report

Database:	EDT_32Bit_ODBC	Local Co-ordinate Reference:	Well PRONGHORN K-5 FED 32N-20-04
Company:	BONANZA CREEK ENERGY	TVD Reference:	KB 25' @ 4684.00usft
Project:	WELD COUNTY	MD Reference:	KB 25' @ 4684.00usft
Site:	SEC 5-T5N-R61W	North Reference:	True
Well:	PRONGHORN K-5 FED 32N-20-04	Survey Calculation Method:	Minimum Curvature
Wellbore:	OWB		
Design:	PROPOSAL 1		

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 5-T5N-R61W			
Site Position:		Northing:	1,404,755.71 usft	Latitude:	40.437438°N
From:	Lat/Long	Easting:	3,355,259.77 usft	Longitude:	104.223680°W
Position Uncertainty:	0.00 usft	Slot Radius:	13.200 in	Grid Convergence:	0.82 °

Well	PRONGHORN K-5 FED 32N-20-04					
Well Position	+N/-S	-242.91 usft	Northing:	1,404,482.17 usft	Latitude:	40.436771°N
	+E/-W	-2,130.64 usft	Easting:	3,353,132.93 usft	Longitude:	104.231334°W
Position Uncertainty		0.00 usft	Wellhead Elevation:		Ground Level:	4,659.00 usft

Wellbore	OWB				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2020	8/22/2022	7.44	66.71	51,903.30450658

Design	PROPOSAL 1			
Audit Notes:				
Version:	Phase:	PROTOTYPE	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.00	0.00	0.00	359.20

Plan Survey Tool Program	Date	8/22/2022		
Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks
1	0.00	16,046.69	PROPOSAL 1 (OWB)	MWD OWSG
				OWSG MWD - Standard

Plan Sections										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
700.00	0.00	0.00	700.00	0.00	0.00	0.00	0.00	0.00	0.00	
824.95	2.50	309.60	824.91	1.74	-2.10	2.00	2.00	0.00	309.60	
5,530.73	2.50	309.60	5,526.22	132.52	-160.20	0.00	0.00	0.00	0.00	
6,414.87	90.00	0.19	6,083.00	705.32	-177.04	10.00	9.90	5.72	50.62	LP-PRONGHORN K-5
16,046.69	90.00	0.19	6,083.00	10,337.08	-144.41	0.00	0.00	0.00	0.00	PBHL-PRONGHORN

Planning Report

Database:	EDT_32Bit_ODBC	Local Co-ordinate Reference:	Well PRONGHORN K-5 FED 32N-20-04
Company:	BONANZA CREEK ENERGY	TVD Reference:	KB 25' @ 4684.00usft
Project:	WELD COUNTY	MD Reference:	KB 25' @ 4684.00usft
Site:	SEC 5-T5N-R61W	North Reference:	True
Well:	PRONGHORN K-5 FED 32N-20-04	Survey Calculation Method:	Minimum Curvature
Wellbore:	OWB		
Design:	PROPOSAL 1		

Planned 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
24.00	0.00	0.00	24.00	0.00	0.00	0.00	0.00	0.00	0.00
Laramie-Fox Hills Formation									
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00
208.00	0.00	0.00	208.00	0.00	0.00	0.00	0.00	0.00	0.00
Pierre Formation									
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	0.00
443.00	0.00	0.00	443.00	0.00	0.00	0.00	0.00	0.00	0.00
Upper Pierre aquifer									
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00
600.00	0.00	0.00	600.00	0.00	0.00	0.00	0.00	0.00	0.00
700.00	0.00	0.00	700.00	0.00	0.00	0.00	0.00	0.00	0.00
Start Build 2.00									
800.00	2.00	309.60	799.98	1.11	-1.34	1.13	2.00	2.00	0.00
824.95	2.50	309.60	824.91	1.74	-2.10	1.77	2.00	2.00	0.00
Start 4705.78 hold at 824.95 MD									
900.00	2.50	309.60	899.89	3.82	-4.62	3.89	0.00	0.00	0.00
1,000.00	2.50	309.60	999.79	6.60	-7.98	6.71	0.00	0.00	0.00
1,100.00	2.50	309.60	1,099.70	9.38	-11.34	9.54	0.00	0.00	0.00
1,200.00	2.50	309.60	1,199.60	12.16	-14.70	12.36	0.00	0.00	0.00
1,300.00	2.50	309.60	1,299.51	14.94	-18.06	15.19	0.00	0.00	0.00
1,400.00	2.50	309.60	1,399.41	17.72	-21.42	18.02	0.00	0.00	0.00
1,463.65	2.50	309.60	1,463.00	19.49	-23.56	19.81	0.00	0.00	0.00
Base of Upper Pierre aquifer									
1,500.00	2.50	309.60	1,499.32	20.50	-24.78	20.84	0.00	0.00	0.00
1,600.00	2.50	309.60	1,599.22	23.28	-28.14	23.67	0.00	0.00	0.00
1,700.00	2.50	309.60	1,699.13	26.06	-31.50	26.49	0.00	0.00	0.00
1,800.00	2.50	309.60	1,799.03	28.83	-34.86	29.32	0.00	0.00	0.00
1,900.00	2.50	309.60	1,898.94	31.61	-38.22	32.14	0.00	0.00	0.00
2,000.00	2.50	309.60	1,998.84	34.39	-41.58	34.97	0.00	0.00	0.00
2,100.00	2.50	309.60	2,098.75	37.17	-44.94	37.80	0.00	0.00	0.00
2,200.00	2.50	309.60	2,198.65	39.95	-48.30	40.62	0.00	0.00	0.00
2,300.00	2.50	309.60	2,298.56	42.73	-51.66	43.45	0.00	0.00	0.00
2,400.00	2.50	309.60	2,398.46	45.51	-55.02	46.27	0.00	0.00	0.00
2,500.00	2.50	309.60	2,498.37	48.29	-58.38	49.10	0.00	0.00	0.00
2,600.00	2.50	309.60	2,598.27	51.07	-61.74	51.93	0.00	0.00	0.00
2,700.00	2.50	309.60	2,698.18	53.85	-65.10	54.75	0.00	0.00	0.00
2,800.00	2.50	309.60	2,798.08	56.63	-68.46	57.58	0.00	0.00	0.00
2,900.00	2.50	309.60	2,897.99	59.41	-71.82	60.40	0.00	0.00	0.00
3,000.00	2.50	309.60	2,997.89	62.19	-75.18	63.23	0.00	0.00	0.00
3,100.00	2.50	309.60	3,097.80	64.96	-78.54	66.06	0.00	0.00	0.00
3,200.00	2.50	309.60	3,197.70	67.74	-81.89	68.88	0.00	0.00	0.00
3,300.00	2.50	309.60	3,297.61	70.52	-85.25	71.71	0.00	0.00	0.00
3,315.41	2.50	309.60	3,313.00	70.95	-85.77	72.14	0.00	0.00	0.00
Larimer ("Parkman") sandstone									
3,400.00	2.50	309.60	3,397.51	73.30	-88.61	74.53	0.00	0.00	0.00
3,500.00	2.50	309.60	3,497.42	76.08	-91.97	77.36	0.00	0.00	0.00
3,505.59	2.50	309.60	3,503.00	76.24	-92.16	77.52	0.00	0.00	0.00
Pierre Formation									
3,600.00	2.50	309.60	3,597.32	78.86	-95.33	80.18	0.00	0.00	0.00
3,700.00	2.50	309.60	3,697.23	81.64	-98.69	83.01	0.00	0.00	0.00

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Company:	BONANZA CREEK ENERGY	TVD Reference:	KB 25' @ 4684.00usft
Project:	WELD COUNTY	MD Reference:	KB 25' @ 4684.00usft
Site:	SEC 5-T5N-R61W	North Reference:	True
Well:	PRONGHORN K-5 FED 32N-20-04	Survey Calculation Method:	Minimum Curvature
Wellbore:	OWB		
Design:	PROPOSAL 1		

Planned 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)
3,800.00	2.50	309.60	3,797.13	84.42	-102.05	85.84	0.00	0.00	0.00
3,900.00	2.50	309.60	3,897.04	87.20	-105.41	88.66	0.00	0.00	0.00
4,000.00	2.50	309.60	3,996.94	89.98	-108.77	91.49	0.00	0.00	0.00
4,066.12	2.50	309.60	4,063.00	91.81	-110.99	93.36	0.00	0.00	0.00
Terry ("Sussex") sandstone									
4,100.00	2.50	309.60	4,096.85	92.76	-112.13	94.31	0.00	0.00	0.00
4,166.22	2.50	309.60	4,163.00	94.60	-114.36	96.18	0.00	0.00	0.00
Pierre Formation									
4,200.00	2.50	309.60	4,196.75	95.54	-115.49	97.14	0.00	0.00	0.00
4,300.00	2.50	309.60	4,296.66	98.31	-118.85	99.97	0.00	0.00	0.00
4,400.00	2.50	309.60	4,396.56	101.09	-122.21	102.79	0.00	0.00	0.00
4,436.47	2.50	309.60	4,433.00	102.11	-123.44	103.82	0.00	0.00	0.00
Hygiene ("Shannon") sandstone									
4,486.52	2.50	309.60	4,483.00	103.50	-125.12	105.24	0.00	0.00	0.00
Pierre Formation									
4,500.00	2.50	309.60	4,496.47	103.87	-125.57	105.62	0.00	0.00	0.00
4,600.00	2.50	309.60	4,596.37	106.65	-128.93	108.44	0.00	0.00	0.00
4,700.00	2.50	309.60	4,696.28	109.43	-132.29	111.27	0.00	0.00	0.00
4,800.00	2.50	309.60	4,796.18	112.21	-135.65	114.09	0.00	0.00	0.00
4,900.00	2.50	309.60	4,896.08	114.99	-139.01	116.92	0.00	0.00	0.00
5,000.00	2.50	309.60	4,995.99	117.77	-142.37	119.75	0.00	0.00	0.00
5,100.00	2.50	309.60	5,095.89	120.55	-145.73	122.57	0.00	0.00	0.00
5,200.00	2.50	309.60	5,195.80	123.33	-149.09	125.40	0.00	0.00	0.00
5,300.00	2.50	309.60	5,295.70	126.11	-152.45	128.22	0.00	0.00	0.00
5,400.00	2.50	309.60	5,395.61	128.89	-155.81	131.05	0.00	0.00	0.00
5,500.00	2.50	309.60	5,495.51	131.66	-159.17	133.88	0.00	0.00	0.00
5,530.73	2.50	309.60	5,526.22	132.52	-160.20	134.74	0.00	0.00	0.00
Start DLS 10.00 TFO 50.62									
5,550.00	4.01	331.42	5,545.45	133.38	-160.85	135.61	10.00	7.83	113.29
5,600.00	8.73	347.50	5,595.14	138.62	-162.51	140.88	10.00	9.44	32.16
5,650.00	13.65	352.21	5,644.17	148.17	-164.13	150.45	10.00	9.84	9.41
5,700.00	18.61	354.45	5,692.19	161.97	-165.70	164.27	10.00	9.92	4.47
5,750.00	23.59	355.76	5,738.82	179.90	-167.21	182.21	10.00	9.96	2.64
5,800.00	28.57	356.64	5,783.72	201.82	-168.65	204.16	10.00	9.97	1.76
5,850.00	33.56	357.28	5,826.53	227.58	-170.01	229.93	10.00	9.98	1.27
5,900.00	38.55	357.77	5,866.94	256.97	-171.27	259.34	10.00	9.98	0.98
5,950.00	43.55	358.16	5,904.64	289.78	-172.43	292.16	10.00	9.99	0.78
6,000.00	48.54	358.49	5,939.33	325.75	-173.48	328.14	10.00	9.99	0.65
6,050.00	53.54	358.77	5,970.76	364.60	-174.41	367.00	10.00	9.99	0.56
6,053.79	53.92	358.79	5,973.00	367.65	-174.47	370.06	10.00	9.99	0.52
Sharon Springs Member									
6,100.00	58.53	359.01	5,998.68	406.05	-175.21	408.46	10.00	9.99	0.49
6,150.00	63.53	359.23	6,022.89	449.77	-175.88	452.19	10.00	9.99	0.44
6,200.00	68.53	359.43	6,043.20	495.44	-176.41	497.86	10.00	9.99	0.40
6,250.00	73.52	359.62	6,059.46	542.71	-176.79	545.13	10.00	9.99	0.38
6,300.00	78.52	359.80	6,071.53	591.21	-177.04	593.63	10.00	9.99	0.36
6,350.00	83.52	359.97	6,079.33	640.58	-177.13	643.00	10.00	9.99	0.35
6,400.00	88.51	0.14	6,082.81	690.45	-177.08	692.85	10.00	9.99	0.34
6,414.87	90.00	0.19	6,083.00	705.32	-177.04	707.72	10.00	9.99	0.34
Start 9631.81 hold at 6414.87 MD - Niobrara Formation									
6,500.00	90.00	0.19	6,083.00	790.44	-176.75	792.84	0.00	0.00	0.00
6,600.00	90.00	0.19	6,083.00	890.44	-176.41	892.82	0.00	0.00	0.00
6,700.00	90.00	0.19	6,083.00	990.44	-176.07	992.81	0.00	0.00	0.00

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Project:	WELD COUNTY	MD Reference:	KB 25' @ 4684.00usft
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Well:	PRONGHORN K-5 FED 32N-20-04	Survey Calculation Method:	Minimum Curvature
Wellbore:	OWB		
Design:	PROPOSAL 1		

Planned 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)	
6,800.00	90.00	0.19	6,083.00	1,090.44	-175.73	1,092.79	0.00	0.00	0.00	
6,900.00	90.00	0.19	6,083.00	1,190.44	-175.39	1,192.78	0.00	0.00	0.00	
7,000.00	90.00	0.19	6,083.00	1,290.44	-175.06	1,292.76	0.00	0.00	0.00	
7,100.00	90.00	0.19	6,083.00	1,390.44	-174.72	1,392.75	0.00	0.00	0.00	
7,200.00	90.00	0.19	6,083.00	1,490.44	-174.38	1,492.73	0.00	0.00	0.00	
7,300.00	90.00	0.19	6,083.00	1,590.44	-174.04	1,592.72	0.00	0.00	0.00	
7,400.00	90.00	0.19	6,083.00	1,690.44	-173.70	1,692.70	0.00	0.00	0.00	
7,500.00	90.00	0.19	6,083.00	1,790.44	-173.36	1,792.69	0.00	0.00	0.00	
7,600.00	90.00	0.19	6,083.00	1,890.44	-173.02	1,892.67	0.00	0.00	0.00	
7,700.00	90.00	0.19	6,083.00	1,990.44	-172.69	1,992.66	0.00	0.00	0.00	
7,800.00	90.00	0.19	6,083.00	2,090.44	-172.35	2,092.64	0.00	0.00	0.00	
7,900.00	90.00	0.19	6,083.00	2,190.44	-172.01	2,192.63	0.00	0.00	0.00	
8,000.00	90.00	0.19	6,083.00	2,290.44	-171.67	2,292.61	0.00	0.00	0.00	
8,100.00	90.00	0.19	6,083.00	2,390.44	-171.33	2,392.60	0.00	0.00	0.00	
8,200.00	90.00	0.19	6,083.00	2,490.43	-170.99	2,492.58	0.00	0.00	0.00	
8,300.00	90.00	0.19	6,083.00	2,590.43	-170.65	2,592.57	0.00	0.00	0.00	
8,400.00	90.00	0.19	6,083.00	2,690.43	-170.31	2,692.55	0.00	0.00	0.00	
8,500.00	90.00	0.19	6,083.00	2,790.43	-169.98	2,792.54	0.00	0.00	0.00	
8,600.00	90.00	0.19	6,083.00	2,890.43	-169.64	2,892.52	0.00	0.00	0.00	
8,700.00	90.00	0.19	6,083.00	2,990.43	-169.30	2,992.51	0.00	0.00	0.00	
8,800.00	90.00	0.19	6,083.00	3,090.43	-168.96	3,092.49	0.00	0.00	0.00	
8,900.00	90.00	0.19	6,083.00	3,190.43	-168.62	3,192.48	0.00	0.00	0.00	
9,000.00	90.00	0.19	6,083.00	3,290.43	-168.28	3,292.46	0.00	0.00	0.00	
9,100.00	90.00	0.19	6,083.00	3,390.43	-167.94	3,392.45	0.00	0.00	0.00	
9,200.00	90.00	0.19	6,083.00	3,490.43	-167.60	3,492.43	0.00	0.00	0.00	
9,300.00	90.00	0.19	6,083.00	3,590.43	-167.27	3,592.41	0.00	0.00	0.00	
9,400.00	90.00	0.19	6,083.00	3,690.43	-166.93	3,692.40	0.00	0.00	0.00	
9,500.00	90.00	0.19	6,083.00	3,790.43	-166.59	3,792.38	0.00	0.00	0.00	
9,600.00	90.00	0.19	6,083.00	3,890.43	-166.25	3,892.37	0.00	0.00	0.00	
9,700.00	90.00	0.19	6,083.00	3,990.43	-165.91	3,992.35	0.00	0.00	0.00	
9,800.00	90.00	0.19	6,083.00	4,090.43	-165.57	4,092.34	0.00	0.00	0.00	
9,900.00	90.00	0.19	6,083.00	4,190.43	-165.23	4,192.32	0.00	0.00	0.00	
10,000.00	90.00	0.19	6,083.00	4,290.42	-164.89	4,292.31	0.00	0.00	0.00	
10,100.00	90.00	0.19	6,083.00	4,390.42	-164.56	4,392.29	0.00	0.00	0.00	
10,200.00	90.00	0.19	6,083.00	4,490.42	-164.22	4,492.28	0.00	0.00	0.00	
10,300.00	90.00	0.19	6,083.00	4,590.42	-163.88	4,592.26	0.00	0.00	0.00	
10,400.00	90.00	0.19	6,083.00	4,690.42	-163.54	4,692.25	0.00	0.00	0.00	
10,500.00	90.00	0.19	6,083.00	4,790.42	-163.20	4,792.23	0.00	0.00	0.00	
10,600.00	90.00	0.19	6,083.00	4,890.42	-162.86	4,892.22	0.00	0.00	0.00	
10,700.00	90.00	0.19	6,083.00	4,990.42	-162.52	4,992.20	0.00	0.00	0.00	
10,800.00	90.00	0.19	6,083.00	5,090.42	-162.18	5,092.19	0.00	0.00	0.00	
10,900.00	90.00	0.19	6,083.00	5,190.42	-161.85	5,192.17	0.00	0.00	0.00	
11,000.00	90.00	0.19	6,083.00	5,290.42	-161.51	5,292.16	0.00	0.00	0.00	
11,100.00	90.00	0.19	6,083.00	5,390.42	-161.17	5,392.14	0.00	0.00	0.00	
11,200.00	90.00	0.19	6,083.00	5,490.42	-160.83	5,492.13	0.00	0.00	0.00	
11,300.00	90.00	0.19	6,083.00	5,590.42	-160.49	5,592.11	0.00	0.00	0.00	
11,400.00	90.00	0.19	6,083.00	5,690.42	-160.15	5,692.10	0.00	0.00	0.00	
11,500.00	90.00	0.19	6,083.00	5,790.42	-159.81	5,792.08	0.00	0.00	0.00	
11,600.00	90.00	0.19	6,083.00	5,890.42	-159.48	5,892.07	0.00	0.00	0.00	
11,700.00	90.00	0.19	6,083.00	5,990.41	-159.14	5,992.05	0.00	0.00	0.00	
11,800.00	90.00	0.19	6,083.00	6,090.41	-158.80	6,092.04	0.00	0.00	0.00	
11,900.00	90.00	0.19	6,083.00	6,190.41	-158.46	6,192.02	0.00	0.00	0.00	
12,000.00	90.00	0.19	6,083.00	6,290.41	-158.12	6,292.01	0.00	0.00	0.00	
12,100.00	90.00	0.19	6,083.00	6,390.41	-157.78	6,391.99	0.00	0.00	0.00	

Planning Report

Database:	EDT_32Bit_ODBC	Local Co-ordinate Reference:	Well PRONGHORN K-5 FED 32N-20-04
Company:	BONANZA CREEK ENERGY	TVD Reference:	KB 25' @ 4684.00usft
Project:	WELD COUNTY	MD Reference:	KB 25' @ 4684.00usft
Site:	SEC 5-T5N-R61W	North Reference:	True
Well:	PRONGHORN K-5 FED 32N-20-04	Survey Calculation Method:	Minimum Curvature
Wellbore:	OWB		
Design:	PROPOSAL 1		

Planned 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)	
12,200.00	90.00	0.19	6,083.00	6,490.41	-157.44	6,491.98	0.00	0.00	0.00	
12,300.00	90.00	0.19	6,083.00	6,590.41	-157.10	6,591.96	0.00	0.00	0.00	
12,400.00	90.00	0.19	6,083.00	6,690.41	-156.77	6,691.95	0.00	0.00	0.00	
12,500.00	90.00	0.19	6,083.00	6,790.41	-156.43	6,791.93	0.00	0.00	0.00	
12,600.00	90.00	0.19	6,083.00	6,890.41	-156.09	6,891.92	0.00	0.00	0.00	
12,700.00	90.00	0.19	6,083.00	6,990.41	-155.75	6,991.90	0.00	0.00	0.00	
12,800.00	90.00	0.19	6,083.00	7,090.41	-155.41	7,091.89	0.00	0.00	0.00	
12,900.00	90.00	0.19	6,083.00	7,190.41	-155.07	7,191.87	0.00	0.00	0.00	
13,000.00	90.00	0.19	6,083.00	7,290.41	-154.73	7,291.86	0.00	0.00	0.00	
13,100.00	90.00	0.19	6,083.00	7,390.41	-154.39	7,391.84	0.00	0.00	0.00	
13,200.00	90.00	0.19	6,083.00	7,490.41	-154.06	7,491.83	0.00	0.00	0.00	
13,300.00	90.00	0.19	6,083.00	7,590.41	-153.72	7,591.81	0.00	0.00	0.00	
13,400.00	90.00	0.19	6,083.00	7,690.41	-153.38	7,691.80	0.00	0.00	0.00	
13,500.00	90.00	0.19	6,083.00	7,790.40	-153.04	7,791.78	0.00	0.00	0.00	
13,600.00	90.00	0.19	6,083.00	7,890.40	-152.70	7,891.77	0.00	0.00	0.00	
13,700.00	90.00	0.19	6,083.00	7,990.40	-152.36	7,991.75	0.00	0.00	0.00	
13,800.00	90.00	0.19	6,083.00	8,090.40	-152.02	8,091.74	0.00	0.00	0.00	
13,900.00	90.00	0.19	6,083.00	8,190.40	-151.68	8,191.72	0.00	0.00	0.00	
14,000.00	90.00	0.19	6,083.00	8,290.40	-151.35	8,291.71	0.00	0.00	0.00	
14,100.00	90.00	0.19	6,083.00	8,390.40	-151.01	8,391.69	0.00	0.00	0.00	
14,200.00	90.00	0.19	6,083.00	8,490.40	-150.67	8,491.68	0.00	0.00	0.00	
14,300.00	90.00	0.19	6,083.00	8,590.40	-150.33	8,591.66	0.00	0.00	0.00	
14,400.00	90.00	0.19	6,083.00	8,690.40	-149.99	8,691.65	0.00	0.00	0.00	
14,500.00	90.00	0.19	6,083.00	8,790.40	-149.65	8,791.63	0.00	0.00	0.00	
14,600.00	90.00	0.19	6,083.00	8,890.40	-149.31	8,891.62	0.00	0.00	0.00	
14,700.00	90.00	0.19	6,083.00	8,990.40	-148.97	8,991.60	0.00	0.00	0.00	
14,800.00	90.00	0.19	6,083.00	9,090.40	-148.64	9,091.59	0.00	0.00	0.00	
14,900.00	90.00	0.19	6,083.00	9,190.40	-148.30	9,191.57	0.00	0.00	0.00	
15,000.00	90.00	0.19	6,083.00	9,290.40	-147.96	9,291.56	0.00	0.00	0.00	
15,100.00	90.00	0.19	6,083.00	9,390.40	-147.62	9,391.54	0.00	0.00	0.00	
15,200.00	90.00	0.19	6,083.00	9,490.39	-147.28	9,491.53	0.00	0.00	0.00	
15,300.00	90.00	0.19	6,083.00	9,590.39	-146.94	9,591.51	0.00	0.00	0.00	
15,400.00	90.00	0.19	6,083.00	9,690.39	-146.60	9,691.50	0.00	0.00	0.00	
15,500.00	90.00	0.19	6,083.00	9,790.39	-146.27	9,791.48	0.00	0.00	0.00	
15,600.00	90.00	0.19	6,083.00	9,890.39	-145.93	9,891.47	0.00	0.00	0.00	
15,700.00	90.00	0.19	6,083.00	9,990.39	-145.59	9,991.45	0.00	0.00	0.00	
15,800.00	90.00	0.19	6,083.00	10,090.39	-145.25	10,091.44	0.00	0.00	0.00	
15,900.00	90.00	0.19	6,083.00	10,190.39	-144.91	10,191.42	0.00	0.00	0.00	
16,000.00	90.00	0.19	6,083.00	10,290.39	-144.57	10,291.41	0.00	0.00	0.00	
16,046.69	90.00	0.19	6,083.00	10,337.08	-144.41	10,338.08	0.00	0.00	0.00	
TD at 16046.69										

Planning Report

Database:	EDT_32Bit_ODBC	Local Co-ordinate Reference:	Well PRONGHORN K-5 FED 32N-20-04
Company:	BONANZA CREEK ENERGY	TVD Reference:	KB 25' @ 4684.00usft
Project:	WELD COUNTY	MD Reference:	KB 25' @ 4684.00usft
Site:	SEC 5-T5N-R61W	North Reference:	True
Well:	PRONGHORN K-5 FED 32N-20-04	Survey Calculation Method:	Minimum Curvature
Wellbore:	OWB		
Design:	PROPOSAL 1		

Design Targets									
Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
LP-PRONGHORN K-5 0 - plan hits target center - Point	0.00	0.00	6,083.00	705.32	-177.04	1,405,184.86	3,352,945.82	40.438707°N	104.231970°W
PBHL-PRONGHORN K- - plan hits target center - Point	0.00	0.00	6,083.00	10,337.08	-144.41	1,414,815.73	3,352,840.65	40.465145°N	104.231853°W

Formations					
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
24.00	24.00	Laramie-Fox Hills Formation			
208.00	208.00	Pierre Formation			
443.00	443.00	Upper Pierre aquifer			
1,463.65	1,463.00	Base of Upper Pierre aquifer			
3,315.41	3,313.00	Larimer ("Parkman") sandstone			
3,505.59	3,503.00	Pierre Formation			
4,066.12	4,063.00	Terry ("Sussex") sandstone			
4,166.22	4,163.00	Pierre Formation			
4,436.47	4,433.00	Hygiene ("Shannon") sandstone			
4,486.52	4,483.00	Pierre Formation			
6,053.79	5,973.00	Sharon Springs Member			
6,414.87	6,083.00	Niobrara Formation			

Plan Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
700.00	700.00	0.00	0.00	Start Build 2.00
824.95	824.91	1.74	-2.10	Start 4705.78 hold at 824.95 MD
5,530.73	5,526.22	132.52	-160.20	Start DLS 10.00 TFO 50.62
6,414.87	6,083.00	705.32	-177.04	Start 9631.81 hold at 6414.87 MD
16,046.69	6,083.00	10,337.08	-144.41	TD at 16046.69