

# **BONANZA CREEK ENERGY**

**WELD COUNTY**

**SEC 5-T5N-R61W**

**PRONGHORN K-5 FED 32N-12-01**

**OWB**

**Plan: PROPOSAL 1**

## **Standard Planning Report**

**22 August, 2022**

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: 51903.4nT  
Dip Angle: 66.71°  
Date: 8/22/2022  
Model: IGRF2020

WELL DETAILS: PRONGHORN K-5 FED 32N-12-01

4659.00						
+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.00	0.00	1404526.98	3353132.28	40.436894°N	104.231334°W	

## SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	V Sect	Target
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	
3	1488.75	27.78	272.04	1435.00	11.74	-329.86	2.00	272.04	135.25	
4	6177.59	27.78	272.04	5583.60	89.43	-2513.49	0.00	0.00	1030.57	
5	7069.00	90.00	0.19	6083.00	663.21	-2774.43	10.00	88.37	1660.39	LP-PRONGHORN K-5 01
6	13169.84	90.00	0.19	6083.00	6764.02	-2753.71	0.00	0.00	7303.07	PBHL-PRONGHORN K-5 01

---

---

ANNOTATIONS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Vsect	Departure	Annotation
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	Start Build 2.00
1488.75	27.78	272.04	1435.00	11.74	-329.86	135.25	330.07	Start 4688.83 hc
6177.59	27.78	272.04	5583.60	89.43	-2513.49	1030.57	2515.08	Start DLS 10.00
7069.00	90.00	0.19	6083.00	663.21	-2774.43	1660.39	3193.01	Start 6100.84 hc
13169.84	90.00	0.19	6083.00	6764.02	-2753.71	7303.07	9293.86	TD at 13169.84

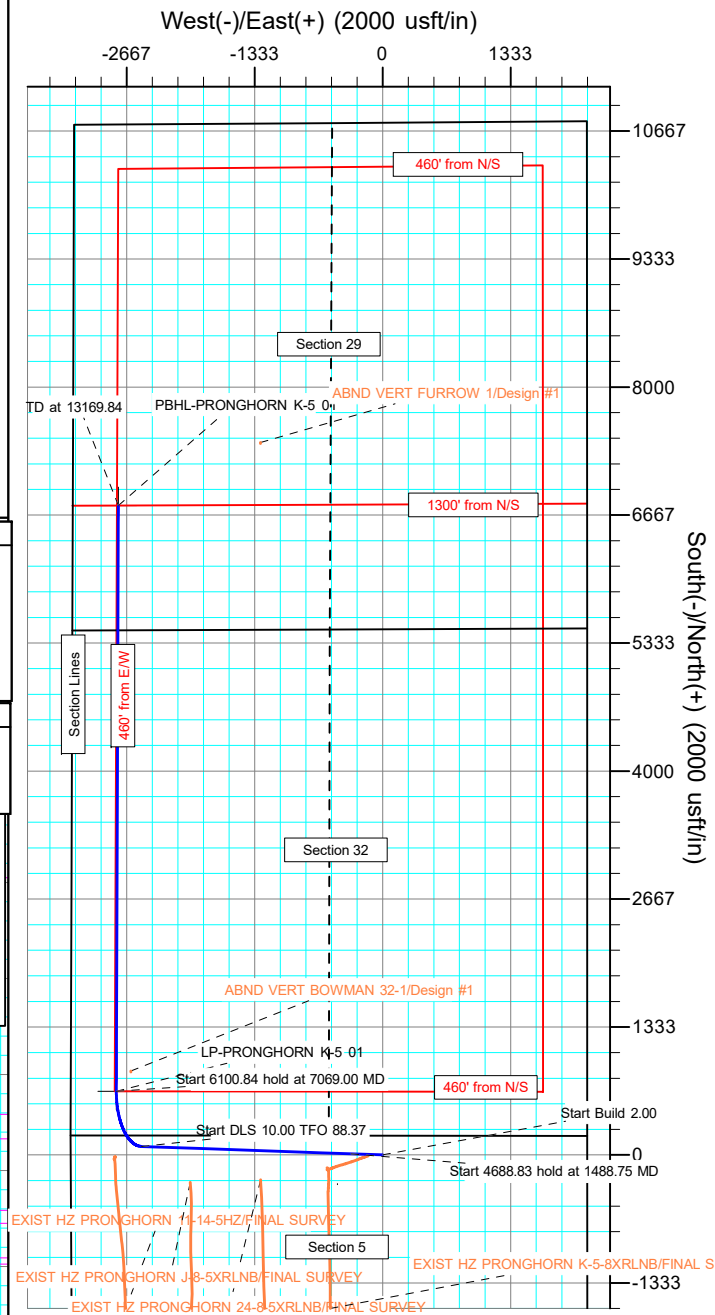
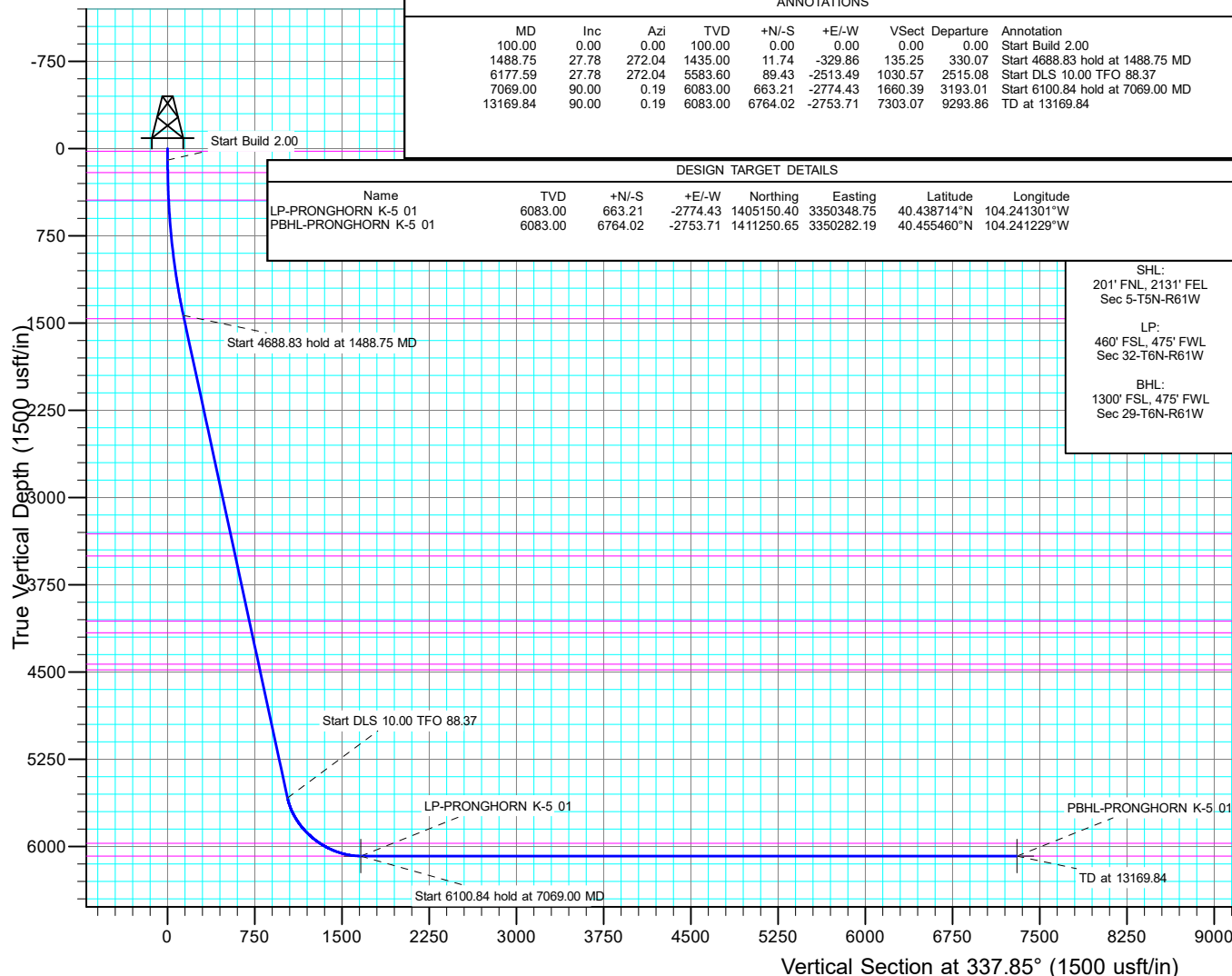
## DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
LP-PRONGHORN K-5 01	6083.00	663.21	-2774.43	1405150.40	3350348.75	40.438714°N	104.241301°W
PBHL-PRONGHORN K-5 01	6083.00	6764.02	-2753.71	1411250.65	3350282.19	40.455460°N	104.241229°W

SHL:  
201' FNL, 2131' FEL  
Sec 5-T5N-R61W

LP:  
460' FSL, 475' FWL  
Sec 32-T6N-R61W

BHL:  
1300' FSL, 475' FWL  
Sec 29-T6N-R61W



## Planning Report

<b>Database:</b>	EDT_32Bit_ODBC	<b>Local Co-ordinate Reference:</b>	Well PRONGHORN K-5 FED 32N-12-01
<b>Company:</b>	BONANZA CREEK ENERGY	<b>TVD Reference:</b>	KB 25' @ 4684.00usft
<b>Project:</b>	WELD COUNTY	<b>MD Reference:</b>	KB 25' @ 4684.00usft
<b>Site:</b>	SEC 5-T5N-R61W	<b>North Reference:</b>	True
<b>Well:</b>	PRONGHORN K-5 FED 32N-12-01	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OWB		
<b>Design:</b>	PROPOSAL 1		

<b>Project</b>	WELD COUNTY		
<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		Using geodetic scale factor

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

<b>Well</b>	PRONGHORN K-5 FED 32N-12-01		
<b>Well Position</b>	<b>+N/-S</b>	-198.10 usft	<b>Northing:</b> 1,404,526.98 usft
	<b>+E/-W</b>	-2,130.64 usft	<b>Easting:</b> 3,353,132.29 usft
<b>Position Uncertainty</b>	0.00 usft	<b>Wellhead Elevation:</b>	<b>Latitude:</b> 40.436894°N
			<b>Longitude:</b> 104.231334°W
			<b>Ground Level:</b> 4,659.00 usft

<b>Wellbore</b>	OWB		
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>
	IGRF2020	8/22/2022	7.44
			<b>Dip Angle (°)</b> 66.71
			<b>Field Strength (nT)</b> 51,903.36851083

<b>Design</b>	PROPOSAL 1		
<b>Audit Notes:</b>			
<b>Version:</b>	<b>Phase:</b>	PROTOTYPE	<b>Tie On Depth:</b> 0.00
<b>Vertical Section:</b>	<b>Depth From (TVD) (usft)</b>	<b>+N/-S (usft)</b>	<b>+E/-W (usft)</b>
	0.00	0.00	0.00
			<b>Direction (°)</b> 337.85

<b>Plan Survey Tool Program</b>	<b>Date</b>	8/22/2022		
<b>Depth From (usft)</b>	<b>Depth To (usft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Remarks</b>
1	0.00	13,169.84	PROPOSAL 1 (OWB)	MWD OWSG
				OWSG MWD - Standard

<b>Plan Sections</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>Dogleg Rate (°/100ft)</b>	<b>Build Rate (°/100ft)</b>	<b>Turn Rate (°/100ft)</b>	<b>TFO (°)</b>	<b>Target</b>
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,488.75	27.78	272.04	1,435.00	11.74	-329.86	2.00	2.00	0.00	272.04	
6,177.59	27.78	272.04	5,583.60	89.43	-2,513.49	0.00	0.00	0.00	0.00	
7,069.00	90.00	0.19	6,083.00	663.21	-2,774.43	10.00	6.98	9.89	88.37	LP-PRONGHORN K-5
13,169.84	90.00	0.19	6,083.00	6,764.02	-2,753.71	0.00	0.00	0.00	0.00	PBHL-PRONGHORN

# Planning Report

<b>Database:</b>	EDT_32Bit_ODBC	<b>Local Co-ordinate Reference:</b>	Well PRONGHORN K-5 FED 32N-12-01
<b>Company:</b>	BONANZA CREEK ENERGY	<b>TVD Reference:</b>	KB 25' @ 4684.00usft
<b>Project:</b>	WELD COUNTY	<b>MD Reference:</b>	KB 25' @ 4684.00usft
<b>Site:</b>	SEC 5-T5N-R61W	<b>North Reference:</b>	True
<b>Well:</b>	PRONGHORN K-5 FED 32N-12-01	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OWB		
<b>Design:</b>	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
<b>Laramie-Fox Hills Formation</b>									
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Start Build 2.00</b>									
200.00	2.00	272.04	199.98	0.06	-1.74	0.72	2.00	2.00	0.00
208.03	2.16	272.04	208.00	0.07	-2.04	0.83	2.00	2.00	0.00
<b>Pierre Formation</b>									
300.00	4.00	272.04	299.84	0.25	-6.97	2.86	2.00	2.00	0.00
400.00	6.00	272.04	399.45	0.56	-15.68	6.43	2.00	2.00	0.00
443.82	6.88	272.04	443.00	0.73	-20.59	8.44	2.00	2.00	0.00
<b>Upper Pierre aquifer</b>									
500.00	8.00	272.04	498.70	0.99	-27.86	11.42	2.00	2.00	0.00
600.00	10.00	272.04	597.47	1.55	-43.50	17.83	2.00	2.00	0.00
700.00	12.00	272.04	695.62	2.23	-62.56	25.65	2.00	2.00	0.00
800.00	14.00	272.04	793.06	3.03	-85.04	34.87	2.00	2.00	0.00
900.00	16.00	272.04	889.64	3.95	-110.91	45.47	2.00	2.00	0.00
1,000.00	18.00	272.04	985.27	4.99	-140.12	57.45	2.00	2.00	0.00
1,100.00	20.00	272.04	1,079.82	6.14	-172.66	70.79	2.00	2.00	0.00
1,200.00	22.00	272.04	1,173.17	7.42	-208.47	85.48	2.00	2.00	0.00
1,300.00	24.00	272.04	1,265.21	8.81	-247.52	101.49	2.00	2.00	0.00
1,400.00	26.00	272.04	1,355.84	10.31	-289.75	118.80	2.00	2.00	0.00
1,488.75	27.78	272.04	1,435.00	11.74	-329.86	135.25	2.00	2.00	0.00
<b>Start 4688.83 hold at 1488.75 MD</b>									
1,500.00	27.78	272.04	1,444.95	11.92	-335.10	137.40	0.00	0.00	0.00
1,520.40	27.78	272.04	1,463.00	12.26	-344.60	141.29	0.00	0.00	0.00
<b>Base of Upper Pierre aquifer</b>									
1,600.00	27.78	272.04	1,533.43	13.58	-381.67	156.49	0.00	0.00	0.00
1,700.00	27.78	272.04	1,621.90	15.24	-428.24	175.59	0.00	0.00	0.00
1,800.00	27.78	272.04	1,710.38	16.89	-474.81	194.68	0.00	0.00	0.00
1,900.00	27.78	272.04	1,798.86	18.55	-521.38	213.77	0.00	0.00	0.00
2,000.00	27.78	272.04	1,887.34	20.21	-567.95	232.87	0.00	0.00	0.00
2,100.00	27.78	272.04	1,975.82	21.86	-614.52	251.96	0.00	0.00	0.00
2,200.00	27.78	272.04	2,064.30	23.52	-661.10	271.06	0.00	0.00	0.00
2,300.00	27.78	272.04	2,152.77	25.18	-707.67	290.15	0.00	0.00	0.00
2,400.00	27.78	272.04	2,241.25	26.84	-754.24	309.25	0.00	0.00	0.00
2,500.00	27.78	272.04	2,329.73	28.49	-800.81	328.34	0.00	0.00	0.00
2,600.00	27.78	272.04	2,418.21	30.15	-847.38	347.44	0.00	0.00	0.00
2,700.00	27.78	272.04	2,506.69	31.81	-893.95	366.53	0.00	0.00	0.00
2,800.00	27.78	272.04	2,595.17	33.46	-940.52	385.63	0.00	0.00	0.00
2,900.00	27.78	272.04	2,683.64	35.12	-987.09	404.72	0.00	0.00	0.00
3,000.00	27.78	272.04	2,772.12	36.78	-1,033.66	423.82	0.00	0.00	0.00
3,100.00	27.78	272.04	2,860.60	38.43	-1,080.23	442.91	0.00	0.00	0.00
3,200.00	27.78	272.04	2,949.08	40.09	-1,126.80	462.01	0.00	0.00	0.00
3,300.00	27.78	272.04	3,037.56	41.75	-1,173.37	481.10	0.00	0.00	0.00
3,400.00	27.78	272.04	3,126.04	43.41	-1,219.94	500.20	0.00	0.00	0.00
3,500.00	27.78	272.04	3,214.51	45.06	-1,266.52	519.29	0.00	0.00	0.00
3,600.00	27.78	272.04	3,302.99	46.72	-1,313.09	538.39	0.00	0.00	0.00
3,611.31	27.78	272.04	3,313.00	46.91	-1,318.35	540.55	0.00	0.00	0.00
<b>Larimer ("Parkman") sandstone</b>									
3,700.00	27.78	272.04	3,391.47	48.38	-1,359.66	557.48	0.00	0.00	0.00
3,800.00	27.78	272.04	3,479.95	50.03	-1,406.23	576.57	0.00	0.00	0.00
3,826.05	27.78	272.04	3,503.00	50.46	-1,418.36	581.55	0.00	0.00	0.00

# Planning Report

<b>Database:</b>	EDT_32Bit_ODBC	<b>Local Co-ordinate Reference:</b>	Well PRONGHORN K-5 FED 32N-12-01
<b>Company:</b>	BONANZA CREEK ENERGY	<b>TVD Reference:</b>	KB 25' @ 4684.00usft
<b>Project:</b>	WELD COUNTY	<b>MD Reference:</b>	KB 25' @ 4684.00usft
<b>Site:</b>	SEC 5-T5N-R61W	<b>North Reference:</b>	True
<b>Well:</b>	PRONGHORN K-5 FED 32N-12-01	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OWB		
<b>Design:</b>	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)	
<b>Pierre Formation</b>										
3,900.00	27.78	272.04	3,568.43	51.69	-1,452.80	595.67	0.00	0.00	0.00	
4,000.00	27.78	272.04	3,656.91	53.35	-1,499.37	614.76	0.00	0.00	0.00	
4,100.00	27.78	272.04	3,745.38	55.00	-1,545.94	633.86	0.00	0.00	0.00	
4,200.00	27.78	272.04	3,833.86	56.66	-1,592.51	652.95	0.00	0.00	0.00	
4,300.00	27.78	272.04	3,922.34	58.32	-1,639.08	672.05	0.00	0.00	0.00	
4,400.00	27.78	272.04	4,010.82	59.97	-1,685.65	691.14	0.00	0.00	0.00	
4,458.98	27.78	272.04	4,063.00	60.95	-1,713.12	702.40	0.00	0.00	0.00	
<b>Terry ("Sussex") sandstone</b>										
4,500.00	27.78	272.04	4,099.30	61.63	-1,732.22	710.24	0.00	0.00	0.00	
4,572.00	27.78	272.04	4,163.00	62.82	-1,765.75	723.99	0.00	0.00	0.00	
<b>Pierre Formation</b>										
4,600.00	27.78	272.04	4,187.78	63.29	-1,778.79	729.33	0.00	0.00	0.00	
4,700.00	27.78	272.04	4,276.25	64.95	-1,825.36	748.43	0.00	0.00	0.00	
4,800.00	27.78	272.04	4,364.73	66.60	-1,871.94	767.52	0.00	0.00	0.00	
4,877.16	27.78	272.04	4,433.00	67.88	-1,907.87	782.26	0.00	0.00	0.00	
<b>Hygiene ("Shannon") sandstone</b>										
4,900.00	27.78	272.04	4,453.21	68.26	-1,918.51	786.62	0.00	0.00	0.00	
4,933.67	27.78	272.04	4,483.00	68.82	-1,934.19	793.05	0.00	0.00	0.00	
<b>Pierre Formation</b>										
5,000.00	27.78	272.04	4,541.69	69.92	-1,965.08	805.71	0.00	0.00	0.00	
5,100.00	27.78	272.04	4,630.17	71.57	-2,011.65	824.81	0.00	0.00	0.00	
5,200.00	27.78	272.04	4,718.65	73.23	-2,058.22	843.90	0.00	0.00	0.00	
5,300.00	27.78	272.04	4,807.12	74.89	-2,104.79	863.00	0.00	0.00	0.00	
5,400.00	27.78	272.04	4,895.60	76.54	-2,151.36	882.09	0.00	0.00	0.00	
5,500.00	27.78	272.04	4,984.08	78.20	-2,197.93	901.19	0.00	0.00	0.00	
5,600.00	27.78	272.04	5,072.56	79.86	-2,244.50	920.28	0.00	0.00	0.00	
5,700.00	27.78	272.04	5,161.04	81.52	-2,291.07	939.37	0.00	0.00	0.00	
5,800.00	27.78	272.04	5,249.52	83.17	-2,337.64	958.47	0.00	0.00	0.00	
5,900.00	27.78	272.04	5,337.99	84.83	-2,384.21	977.56	0.00	0.00	0.00	
6,000.00	27.78	272.04	5,426.47	86.49	-2,430.78	996.66	0.00	0.00	0.00	
6,100.00	27.78	272.04	5,514.95	88.14	-2,477.36	1,015.75	0.00	0.00	0.00	
6,177.59	27.78	272.04	5,583.60	89.43	-2,513.49	1,030.57	0.00	0.00	0.00	
<b>Start DLS 10.00 TFO 88.37</b>										
6,200.00	27.92	276.83	5,603.42	90.24	-2,523.92	1,035.25	10.00	0.65	21.37	
6,250.00	28.83	287.18	5,647.44	95.19	-2,547.07	1,048.57	10.00	1.82	20.72	
6,300.00	30.47	296.74	5,690.91	104.47	-2,569.93	1,065.78	10.00	3.29	19.11	
6,350.00	32.74	305.25	5,733.51	117.98	-2,592.31	1,086.74	10.00	4.54	17.02	
6,400.00	35.52	312.67	5,774.92	135.65	-2,614.04	1,111.29	10.00	5.55	14.85	
6,450.00	38.69	319.09	5,814.80	157.31	-2,634.97	1,139.25	10.00	6.34	12.84	
6,500.00	42.16	324.65	5,852.87	182.83	-2,654.92	1,170.40	10.00	6.95	11.11	
6,550.00	45.87	329.48	5,888.84	211.99	-2,673.76	1,204.51	10.00	7.41	9.67	
6,600.00	49.75	333.73	5,922.42	244.58	-2,691.32	1,241.32	10.00	7.77	8.50	
6,650.00	53.78	337.51	5,953.37	280.34	-2,707.49	1,280.54	10.00	8.05	7.56	
6,684.39	56.61	339.89	5,973.00	306.65	-2,717.74	1,308.77	10.00	8.23	6.91	
<b>Sharon Springs Member</b>										
6,700.00	57.91	340.92	5,981.44	319.02	-2,722.14	1,321.88	10.00	8.33	6.59	
6,750.00	62.12	344.03	6,006.43	360.30	-2,735.15	1,365.03	10.00	8.43	6.22	
6,800.00	66.40	346.90	6,028.14	403.89	-2,746.44	1,409.65	10.00	8.56	5.75	
6,850.00	70.73	349.59	6,046.41	449.44	-2,755.90	1,455.41	10.00	8.66	5.38	
6,900.00	75.09	352.14	6,061.10	496.61	-2,763.47	1,501.96	10.00	8.73	5.10	
6,950.00	79.49	354.59	6,072.10	545.05	-2,769.10	1,548.94	10.00	8.79	4.90	
7,000.00	83.90	356.97	6,079.33	594.37	-2,772.73	1,595.99	10.00	8.82	4.76	

# Planning Report

<b>Database:</b>	EDT_32Bit_ODBC	<b>Local Co-ordinate Reference:</b>	Well PRONGHORN K-5 FED 32N-12-01
<b>Company:</b>	BONANZA CREEK ENERGY	<b>TVD Reference:</b>	KB 25' @ 4684.00usft
<b>Project:</b>	WELD COUNTY	<b>MD Reference:</b>	KB 25' @ 4684.00usft
<b>Site:</b>	SEC 5-T5N-R61W	<b>North Reference:</b>	True
<b>Well:</b>	PRONGHORN K-5 FED 32N-12-01	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OWB		
<b>Design:</b>	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)
7,050.00	88.32	359.31	6,082.72	644.22	-2,774.35	1,642.77	10.00	8.84	4.68
7,069.00	90.00	0.19	6,083.00	663.21	-2,774.43	1,660.39	10.00	8.85	4.66
Start 6100.84 hold at 7069.00 MD - Niobrara Formation									
7,100.00	90.00	0.19	6,083.00	694.21	-2,774.33	1,689.06	0.00	0.00	0.00
7,200.00	90.00	0.19	6,083.00	794.21	-2,773.99	1,781.55	0.00	0.00	0.00
7,300.00	90.00	0.19	6,083.00	894.21	-2,773.65	1,874.04	0.00	0.00	0.00
7,400.00	90.00	0.19	6,083.00	994.21	-2,773.31	1,966.53	0.00	0.00	0.00
7,500.00	90.00	0.19	6,083.00	1,094.21	-2,772.97	2,059.02	0.00	0.00	0.00
7,600.00	90.00	0.19	6,083.00	1,194.21	-2,772.63	2,151.51	0.00	0.00	0.00
7,700.00	90.00	0.19	6,083.00	1,294.21	-2,772.29	2,244.01	0.00	0.00	0.00
7,800.00	90.00	0.19	6,083.00	1,394.21	-2,771.95	2,336.50	0.00	0.00	0.00
7,900.00	90.00	0.19	6,083.00	1,494.21	-2,771.61	2,428.99	0.00	0.00	0.00
8,000.00	90.00	0.19	6,083.00	1,594.21	-2,771.27	2,521.48	0.00	0.00	0.00
8,100.00	90.00	0.19	6,083.00	1,694.21	-2,770.93	2,613.97	0.00	0.00	0.00
8,200.00	90.00	0.19	6,083.00	1,794.21	-2,770.59	2,706.46	0.00	0.00	0.00
8,300.00	90.00	0.19	6,083.00	1,894.21	-2,770.25	2,798.95	0.00	0.00	0.00
8,400.00	90.00	0.19	6,083.00	1,994.20	-2,769.91	2,891.44	0.00	0.00	0.00
8,500.00	90.00	0.19	6,083.00	2,094.20	-2,769.57	2,983.93	0.00	0.00	0.00
8,600.00	90.00	0.19	6,083.00	2,194.20	-2,769.23	3,076.42	0.00	0.00	0.00
8,700.00	90.00	0.19	6,083.00	2,294.20	-2,768.89	3,168.91	0.00	0.00	0.00
8,800.00	90.00	0.19	6,083.00	2,394.20	-2,768.55	3,261.40	0.00	0.00	0.00
8,900.00	90.00	0.19	6,083.00	2,494.20	-2,768.21	3,353.89	0.00	0.00	0.00
9,000.00	90.00	0.19	6,083.00	2,594.20	-2,767.87	3,446.38	0.00	0.00	0.00
9,100.00	90.00	0.19	6,083.00	2,694.20	-2,767.53	3,538.87	0.00	0.00	0.00
9,200.00	90.00	0.19	6,083.00	2,794.20	-2,767.19	3,631.36	0.00	0.00	0.00
9,300.00	90.00	0.19	6,083.00	2,894.20	-2,766.85	3,723.85	0.00	0.00	0.00
9,400.00	90.00	0.19	6,083.00	2,994.20	-2,766.51	3,816.34	0.00	0.00	0.00
9,500.00	90.00	0.19	6,083.00	3,094.20	-2,766.18	3,908.83	0.00	0.00	0.00
9,600.00	90.00	0.19	6,083.00	3,194.20	-2,765.84	4,001.32	0.00	0.00	0.00
9,700.00	90.00	0.19	6,083.00	3,294.20	-2,765.50	4,093.81	0.00	0.00	0.00
9,800.00	90.00	0.19	6,083.00	3,394.20	-2,765.16	4,186.30	0.00	0.00	0.00
9,900.00	90.00	0.19	6,083.00	3,494.20	-2,764.82	4,278.79	0.00	0.00	0.00
10,000.00	90.00	0.19	6,083.00	3,594.20	-2,764.48	4,371.28	0.00	0.00	0.00
10,100.00	90.00	0.19	6,083.00	3,694.19	-2,764.14	4,463.77	0.00	0.00	0.00
10,200.00	90.00	0.19	6,083.00	3,794.19	-2,763.80	4,556.26	0.00	0.00	0.00
10,300.00	90.00	0.19	6,083.00	3,894.19	-2,763.46	4,648.75	0.00	0.00	0.00
10,400.00	90.00	0.19	6,083.00	3,994.19	-2,763.12	4,741.24	0.00	0.00	0.00
10,500.00	90.00	0.19	6,083.00	4,094.19	-2,762.78	4,833.73	0.00	0.00	0.00
10,600.00	90.00	0.19	6,083.00	4,194.19	-2,762.44	4,926.22	0.00	0.00	0.00
10,700.00	90.00	0.19	6,083.00	4,294.19	-2,762.10	5,018.71	0.00	0.00	0.00
10,800.00	90.00	0.19	6,083.00	4,394.19	-2,761.76	5,111.20	0.00	0.00	0.00
10,900.00	90.00	0.19	6,083.00	4,494.19	-2,761.42	5,203.69	0.00	0.00	0.00
11,000.00	90.00	0.19	6,083.00	4,594.19	-2,761.08	5,296.18	0.00	0.00	0.00
11,100.00	90.00	0.19	6,083.00	4,694.19	-2,760.74	5,388.67	0.00	0.00	0.00
11,200.00	90.00	0.19	6,083.00	4,794.19	-2,760.40	5,481.16	0.00	0.00	0.00
11,300.00	90.00	0.19	6,083.00	4,894.19	-2,760.06	5,573.65	0.00	0.00	0.00
11,400.00	90.00	0.19	6,083.00	4,994.19	-2,759.72	5,666.14	0.00	0.00	0.00
11,500.00	90.00	0.19	6,083.00	5,094.19	-2,759.38	5,758.63	0.00	0.00	0.00
11,600.00	90.00	0.19	6,083.00	5,194.19	-2,759.04	5,851.12	0.00	0.00	0.00
11,700.00	90.00	0.19	6,083.00	5,294.19	-2,758.70	5,943.61	0.00	0.00	0.00
11,800.00	90.00	0.19	6,083.00	5,394.19	-2,758.36	6,036.10	0.00	0.00	0.00
11,900.00	90.00	0.19	6,083.00	5,494.18	-2,758.02	6,128.59	0.00	0.00	0.00
12,000.00	90.00	0.19	6,083.00	5,594.18	-2,757.68	6,221.08	0.00	0.00	0.00
12,100.00	90.00	0.19	6,083.00	5,694.18	-2,757.34	6,313.57	0.00	0.00	0.00

## Planning Report

<b>Database:</b>	EDT_32Bit_ODBC	<b>Local Co-ordinate Reference:</b>	Well PRONGHORN K-5 FED 32N-12-01
<b>Company:</b>	BONANZA CREEK ENERGY	<b>TVD Reference:</b>	KB 25' @ 4684.00usft
<b>Project:</b>	WELD COUNTY	<b>MD Reference:</b>	KB 25' @ 4684.00usft
<b>Site:</b>	SEC 5-T5N-R61W	<b>North Reference:</b>	True
<b>Well:</b>	PRONGHORN K-5 FED 32N-12-01	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OWB		
<b>Design:</b>	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	5,794.18	-2,757.00	6,406.06	0.00	0.00	0.00	
12,300.00	90.00	0.19	6,083.00	5,894.18	-2,756.66	6,498.55	0.00	0.00	0.00	
12,400.00	90.00	0.19	6,083.00	5,994.18	-2,756.32	6,591.04	0.00	0.00	0.00	
12,500.00	90.00	0.19	6,083.00	6,094.18	-2,755.99	6,683.53	0.00	0.00	0.00	
12,600.00	90.00	0.19	6,083.00	6,194.18	-2,755.65	6,776.02	0.00	0.00	0.00	
12,700.00	90.00	0.19	6,083.00	6,294.18	-2,755.31	6,868.52	0.00	0.00	0.00	
12,800.00	90.00	0.19	6,083.00	6,394.18	-2,754.97	6,961.01	0.00	0.00	0.00	
12,900.00	90.00	0.19	6,083.00	6,494.18	-2,754.63	7,053.50	0.00	0.00	0.00	
13,000.00	90.00	0.19	6,083.00	6,594.18	-2,754.29	7,145.99	0.00	0.00	0.00	
13,100.00	90.00	0.19	6,083.00	6,694.18	-2,753.95	7,238.48	0.00	0.00	0.00	
13,169.84	90.00	0.19	6,083.00	6,764.02	-2,753.71	7,303.07	0.00	0.00	0.00	
TD at 13169.84										

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
PBHL-PRONGHORN K- - plan hits target center - Point	0.00	0.00	6,083.00	6,764.02	-2,753.71	1,411,250.66	3,350,282.20	40.455460°N	104.241229°W
LP-PRONGHORN K-5 0 - plan hits target center - Point	0.00	0.00	6,083.00	663.21	-2,774.43	1,405,150.41	3,350,348.75	40.438714°N	104.241301°W

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
24.00	24.00	Laramie-Fox Hills Formation				
208.03	208.00	Pierre Formation				
443.82	443.00	Upper Pierre aquifer				
1,520.40	1,463.00	Base of Upper Pierre aquifer				
3,611.31	3,313.00	Larimer ("Parkman") sandstone				
3,826.05	3,503.00	Pierre Formation				
4,458.98	4,063.00	Terry ("Sussex") sandstone				
4,572.00	4,163.00	Pierre Formation				
4,877.16	4,433.00	Hygiene ("Shannon") sandstone				
4,933.67	4,483.00	Pierre Formation				
6,684.39	5,973.00	Sharon Springs Member				
7,069.00	6,083.00	Niobrara Formation				

## Planning Report

<b>Database:</b>	EDT_32Bit_ODBC	<b>Local Co-ordinate Reference:</b>	Well PRONGHORN K-5 FED 32N-12-01
<b>Company:</b>	BONANZA CREEK ENERGY	<b>TVD Reference:</b>	KB 25' @ 4684.00usft
<b>Project:</b>	WELD COUNTY	<b>MD Reference:</b>	KB 25' @ 4684.00usft
<b>Site:</b>	SEC 5-T5N-R61W	<b>North Reference:</b>	True
<b>Well:</b>	PRONGHORN K-5 FED 32N-12-01	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OWB		
<b>Design:</b>	PROPOSAL 1		

Plan Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
100.00	100.00	0.00	0.00	Start Build 2.00
1,488.75	1,435.00	11.74	-329.86	Start 4688.83 hold at 1488.75 MD
6,177.59	5,583.60	89.43	-2,513.49	Start DLS 10.00 TFO 88.37
7,069.00	6,083.00	663.21	-2,774.43	Start 6100.84 hold at 7069.00 MD
13,169.84	6,083.00	6,764.02	-2,753.71	TD at 13169.84