

CRESTONE PEAK RESOURCES

WELD COUNTY

SEC 22-T1N-R68W

COSSLETT EAST 1D-22H-H168

OWB

Plan: PROPOSAL 1

Standard Planning Report

01 March, 2022

Project: WELD COUNTY
Site: SEC 22-T1N-R68W
Well: COSSLETT EAST 1D-22H-H168
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: 7.86°
Magnetic Field
Strength: 51667.4nT
Dip Angle: 66.31°
Date: 2/17/2022
Model: IGRF2020

WELL DETAILS: COSSLETT EAST 1D-22H-H168

	+N/-S	+E/-W	Northing	Easting	5183.00	Latitude	Longitude	Slot
	0.00	0.00	1257557.61	3144403.04		40.039231°N	104.984258°W	

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSec	Target
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	1100.00	0.00	0.00	1100.00	0.00	0.00	0.00	0.00	0.00	
3	2591.69	29.83	51.07	2525.19	238.58	295.34	2.00	51.07	-143.06	
4	7683.49	29.83	51.07	6942.18	1830.37	2265.83	0.00	0.00	-1097.55	
5	8766.45	90.00	180.19	7630.00	1285.35	2570.01	10.00	125.21	-487.89	LP-COSSLETT E 1D-H168
6	18458.39	90.00	180.19	7630.00	-8406.54	2537.40	0.00	0.00	8781.13	PBHL-COSSLETT E 1D-H168

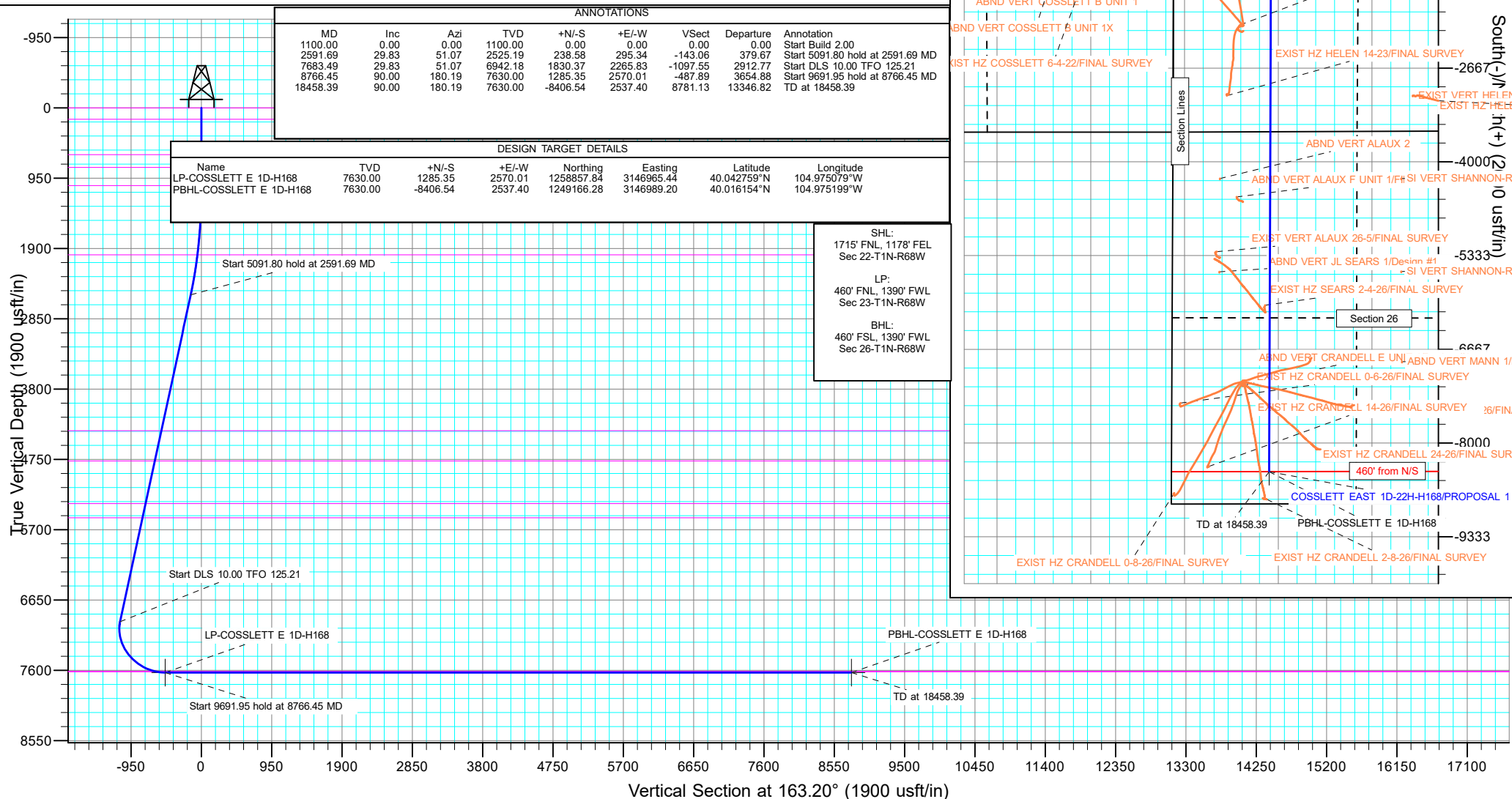
ANNOTATIONS

MD	Inc	Azi	TVD	+N/-S	+E/-W	VSec	Departure	Annotation
1100.00	0.00	0.00	1100.00	0.00	0.00	0.00	0.00	Start Build 2.00
2591.69	29.83	51.07	2525.19	238.58	295.34	-143.06	379.67	Start 5091.80 hold at 2591.69 MD
7683.49	29.83	51.07	6942.18	1830.37	2265.83	-1097.55	2912.77	Start DLS 10.00 TFO 125.21
8766.45	90.00	180.19	7630.00	1285.35	2570.01	-487.89	3654.88	Start 9691.95 hold at 8766.45 MD
18458.39	90.00	180.19	7630.00	-8406.54	2537.40	8781.13	13346.82	TD at 18458.39

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
LP-COSSLETT E 1D-H168	7630.00	1285.35	2570.01	1258857.84	3146965.44	40.042759°N	104.975079°W
PBHL-COSSLETT E 1D-H168	7630.00	-8406.54	2537.40	1249166.28	3146989.20	40.016154°N	104.975199°W

SHL:
1715' FNL, 1178' FEL
Sec 22-T1N-R68W
LP:
460' FNL, 1390' FWL
Sec 23-T1N-R68W
BHL:
460' FSL, 1390' FWL
Sec 26-T1N-R68W



Planning Report

Database:	EDT_32Bit_ODBC	Local Co-ordinate Reference:	Well COSSLETT EAST 1D-22H-H168
Company:	CRESTONE PEAK RESOURCES	TVD Reference:	KB 25' @ 5208.00usft
Project:	WELD COUNTY	MD Reference:	KB 25' @ 5208.00usft
Site:	SEC 22-T1N-R68W	North Reference:	True
Well:	COSSLETT EAST 1D-22H-H168	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 22-T1N-R68W			
Site Position:		Northing:	1,259,282.05 usft	Latitude:	40.043946°N
From:	Lat/Long	Easting:	3,145,574.24 usft	Longitude:	104.980039°W
Position Uncertainty:	0.00 usft	Slot Radius:	13.200 in	Grid Convergence:	0.34 °

Well	COSSLETT EAST 1D-22H-H168					
Well Position	+N/-S	-1,717.60 usft	Northing:	1,257,557.61 usft	Latitude:	40.039231°N
	+E/-W	-1,181.33 usft	Easting:	3,144,403.04 usft	Longitude:	104.984258°W
Position Uncertainty		0.00 usft	Wellhead Elevation:		Ground Level:	5,183.00 usft

Wellbore	OWB				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2020	2/17/2022	7.86	66.31	51,667.40664955

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	163.20

Plan Survey Tool Program	Date	3/1/2022			
Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks	
1	0.00	18,458.39	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	
1,100.00	0.00	0.00	1,100.00	0.00	0.00	0.00	0.00	0.00	0.00	
2,591.69	29.83	51.07	2,525.19	238.58	295.34	2.00	2.00	0.00	51.07	
7,683.49	29.83	51.07	6,942.18	1,830.37	2,265.83	0.00	0.00	0.00	0.00	
8,766.45	90.00	180.19	7,630.00	1,285.35	2,570.01	10.00	5.56	11.92	125.21	LP-COSSLETT E 1D-
18,458.39	90.00	180.19	7,630.00	-8,406.54	2,537.40	0.00	0.00	0.00	0.00	PBHL-COSSLETT E

Planning Report

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Company:	CRESTONE PEAK RESOURCES	TVD Reference:	KB 25' @ 5208.00usft
Project:	WELD COUNTY	MD Reference:	KB 25' @ 5208.00usft
Site:	SEC 22-T1N-R68W	North Reference:	True
Well:	COSSLETT EAST 1D-22H-H168	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
Denver Formation									
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00
154.00	0.00	0.00	154.00	0.00	0.00	0.00	0.00	0.00	0.00
Laramie Formation									
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00
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
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
631.00	0.00	0.00	631.00	0.00	0.00	0.00	0.00	0.00	0.00
Fox Hills sandstone									
700.00	0.00	0.00	700.00	0.00	0.00	0.00	0.00	0.00	0.00
800.00	0.00	0.00	800.00	0.00	0.00	0.00	0.00	0.00	0.00
803.00	0.00	0.00	803.00	0.00	0.00	0.00	0.00	0.00	0.00
Pierre Formation									
900.00	0.00	0.00	900.00	0.00	0.00	0.00	0.00	0.00	0.00
1,000.00	0.00	0.00	1,000.00	0.00	0.00	0.00	0.00	0.00	0.00
1,049.00	0.00	0.00	1,049.00	0.00	0.00	0.00	0.00	0.00	0.00
Upper Pierre aquifer									
1,100.00	0.00	0.00	1,100.00	0.00	0.00	0.00	0.00	0.00	0.00
Start Build 2.00									
1,200.00	2.00	51.07	1,199.98	1.10	1.36	-0.66	2.00	2.00	0.00
1,300.00	4.00	51.07	1,299.84	4.39	5.43	-2.63	2.00	2.00	0.00
1,400.00	6.00	51.07	1,399.45	9.86	12.21	-5.91	2.00	2.00	0.00
1,500.00	8.00	51.07	1,498.70	17.52	21.69	-10.51	2.00	2.00	0.00
1,600.00	10.00	51.07	1,597.47	27.35	33.86	-16.40	2.00	2.00	0.00
1,700.00	12.00	51.07	1,695.62	39.34	48.70	-23.59	2.00	2.00	0.00
1,800.00	14.00	51.07	1,793.06	53.47	66.20	-32.07	2.00	2.00	0.00
1,900.00	16.00	51.07	1,889.64	69.74	86.33	-41.82	2.00	2.00	0.00
1,999.72	17.99	51.07	1,985.00	88.05	109.00	-52.80	2.00	2.00	0.00
Base of Upper Pierre aquifer									
2,000.00	18.00	51.07	1,985.27	88.11	109.07	-52.83	2.00	2.00	0.00
2,100.00	20.00	51.07	2,079.82	108.57	134.40	-65.10	2.00	2.00	0.00
2,200.00	22.00	51.07	2,173.17	131.09	162.27	-78.60	2.00	2.00	0.00
2,300.00	24.00	51.07	2,265.21	155.64	192.66	-93.33	2.00	2.00	0.00
2,400.00	26.00	51.07	2,355.84	182.19	225.54	-109.25	2.00	2.00	0.00
2,500.00	28.00	51.07	2,444.94	210.72	260.85	-126.36	2.00	2.00	0.00
2,591.69	29.83	51.07	2,525.19	238.58	295.34	-143.06	2.00	2.00	0.00
Start 5091.80 hold at 2591.69 MD									
2,600.00	29.83	51.07	2,532.40	241.18	298.56	-144.62	0.00	0.00	0.00
2,700.00	29.83	51.07	2,619.15	272.44	337.25	-163.36	0.00	0.00	0.00
2,800.00	29.83	51.07	2,705.89	303.70	375.95	-182.11	0.00	0.00	0.00
2,900.00	29.83	51.07	2,792.64	334.96	414.65	-200.86	0.00	0.00	0.00
3,000.00	29.83	51.07	2,879.39	366.22	453.35	-219.60	0.00	0.00	0.00
3,100.00	29.83	51.07	2,966.14	397.49	492.05	-238.35	0.00	0.00	0.00
3,200.00	29.83	51.07	3,052.88	428.75	530.75	-257.09	0.00	0.00	0.00
3,300.00	29.83	51.07	3,139.63	460.01	569.45	-275.84	0.00	0.00	0.00
3,400.00	29.83	51.07	3,226.38	491.27	608.15	-294.58	0.00	0.00	0.00
3,500.00	29.83	51.07	3,313.12	522.53	646.85	-313.33	0.00	0.00	0.00
3,600.00	29.83	51.07	3,399.87	553.80	685.55	-332.08	0.00	0.00	0.00
3,700.00	29.83	51.07	3,486.62	585.06	724.25	-350.82	0.00	0.00	0.00
3,800.00	29.83	51.07	3,573.37	616.32	762.95	-369.57	0.00	0.00	0.00

Planning Report

Database:	EDT_32Bit_ODBC	Local Co-ordinate Reference:	Well COSSLETT EAST 1D-22H-H168
Company:	CRESTONE PEAK RESOURCES	TVD Reference:	KB 25' @ 5208.00usft
Project:	WELD COUNTY	MD Reference:	KB 25' @ 5208.00usft
Site:	SEC 22-T1N-R68W	North Reference:	True
Well:	COSSLETT EAST 1D-22H-H168	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)	
3,900.00	29.83	51.07	3,660.11	647.58	801.65	-388.31	0.00	0.00	0.00	
4,000.00	29.83	51.07	3,746.86	678.84	840.35	-407.06	0.00	0.00	0.00	
4,100.00	29.83	51.07	3,833.61	710.11	879.05	-425.80	0.00	0.00	0.00	
4,200.00	29.83	51.07	3,920.35	741.37	917.74	-444.55	0.00	0.00	0.00	
4,300.00	29.83	51.07	4,007.10	772.63	956.44	-463.29	0.00	0.00	0.00	
4,400.00	29.83	51.07	4,093.85	803.89	995.14	-482.04	0.00	0.00	0.00	
4,500.00	29.83	51.07	4,180.60	835.15	1,033.84	-500.79	0.00	0.00	0.00	
4,600.00	29.83	51.07	4,267.34	866.41	1,072.54	-519.53	0.00	0.00	0.00	
4,700.00	29.83	51.07	4,354.09	897.68	1,111.24	-538.28	0.00	0.00	0.00	
4,710.27	29.83	51.07	4,363.00	900.89	1,115.22	-540.20	0.00	0.00	0.00	
Larimer sandstone										
4,800.00	29.83	51.07	4,440.84	928.94	1,149.94	-557.02	0.00	0.00	0.00	
4,900.00	29.83	51.07	4,527.58	960.20	1,188.64	-575.77	0.00	0.00	0.00	
5,000.00	29.83	51.07	4,614.33	991.46	1,227.34	-594.51	0.00	0.00	0.00	
5,100.00	29.83	51.07	4,701.08	1,022.72	1,266.04	-613.26	0.00	0.00	0.00	
5,180.60	29.83	51.07	4,771.00	1,047.92	1,297.23	-628.37	0.00	0.00	0.00	
Terry ("Sussex") sandstone										
5,200.00	29.83	51.07	4,787.82	1,053.99	1,304.74	-632.01	0.00	0.00	0.00	
5,300.00	29.83	51.07	4,874.57	1,085.25	1,343.44	-650.75	0.00	0.00	0.00	
5,400.00	29.83	51.07	4,961.32	1,116.51	1,382.14	-669.50	0.00	0.00	0.00	
5,500.00	29.83	51.07	5,048.07	1,147.77	1,420.84	-688.24	0.00	0.00	0.00	
5,600.00	29.83	51.07	5,134.81	1,179.03	1,459.53	-706.99	0.00	0.00	0.00	
5,700.00	29.83	51.07	5,221.56	1,210.30	1,498.23	-725.73	0.00	0.00	0.00	
5,800.00	29.83	51.07	5,308.31	1,241.56	1,536.93	-744.48	0.00	0.00	0.00	
5,843.45	29.83	51.07	5,346.00	1,255.14	1,553.75	-752.63	0.00	0.00	0.00	
Hygiene ("Shannon") sandstone										
5,900.00	29.83	51.07	5,395.05	1,272.82	1,575.63	-763.23	0.00	0.00	0.00	
6,000.00	29.83	51.07	5,481.80	1,304.08	1,614.33	-781.97	0.00	0.00	0.00	
6,065.94	29.83	51.07	5,539.00	1,324.69	1,639.85	-794.33	0.00	0.00	0.00	
Pierre shale										
6,100.00	29.83	51.07	5,568.55	1,335.34	1,653.03	-800.72	0.00	0.00	0.00	
6,200.00	29.83	51.07	5,655.30	1,366.60	1,691.73	-819.46	0.00	0.00	0.00	
6,300.00	29.83	51.07	5,742.04	1,397.87	1,730.43	-838.21	0.00	0.00	0.00	
6,400.00	29.83	51.07	5,828.79	1,429.13	1,769.13	-856.95	0.00	0.00	0.00	
6,500.00	29.83	51.07	5,915.54	1,460.39	1,807.83	-875.70	0.00	0.00	0.00	
6,600.00	29.83	51.07	6,002.28	1,491.65	1,846.53	-894.45	0.00	0.00	0.00	
6,700.00	29.83	51.07	6,089.03	1,522.91	1,885.23	-913.19	0.00	0.00	0.00	
6,800.00	29.83	51.07	6,175.78	1,554.18	1,923.93	-931.94	0.00	0.00	0.00	
6,900.00	29.83	51.07	6,262.53	1,585.44	1,962.63	-950.68	0.00	0.00	0.00	
7,000.00	29.83	51.07	6,349.27	1,616.70	2,001.33	-969.43	0.00	0.00	0.00	
7,100.00	29.83	51.07	6,436.02	1,647.96	2,040.02	-988.17	0.00	0.00	0.00	
7,200.00	29.83	51.07	6,522.77	1,679.22	2,078.72	-1,006.92	0.00	0.00	0.00	
7,300.00	29.83	51.07	6,609.51	1,710.49	2,117.42	-1,025.67	0.00	0.00	0.00	
7,400.00	29.83	51.07	6,696.26	1,741.75	2,156.12	-1,044.41	0.00	0.00	0.00	
7,500.00	29.83	51.07	6,783.01	1,773.01	2,194.82	-1,063.16	0.00	0.00	0.00	
7,600.00	29.83	51.07	6,869.76	1,804.27	2,233.52	-1,081.90	0.00	0.00	0.00	
7,683.49	29.83	51.07	6,942.18	1,830.37	2,265.83	-1,097.55	0.00	0.00	0.00	
Start DLS 10.00 TFO 125.21										
7,700.00	28.91	53.86	6,956.57	1,835.31	2,272.25	-1,100.42	10.00	-5.59	16.91	
7,750.00	26.51	63.31	7,000.85	1,847.45	2,291.99	-1,106.35	10.00	-4.80	18.90	
7,800.00	24.84	74.20	7,045.94	1,855.33	2,312.08	-1,108.08	10.00	-3.35	21.79	
7,850.00	24.04	86.15	7,091.49	1,858.88	2,332.35	-1,105.62	10.00	-1.60	23.90	
7,900.00	24.20	98.40	7,137.15	1,858.06	2,352.67	-1,098.97	10.00	0.33	24.50	
7,950.00	25.32	110.06	7,182.58	1,852.89	2,372.86	-1,088.19	10.00	2.22	23.32	

Planning Report

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Project:	WELD COUNTY	MD Reference:	KB 25' @ 5208.00usft
Site:	SEC 22-T1N-R68W	North Reference:	True
Well:	COSSLETT EAST 1D-22H-H168	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)	
8,000.00	27.26	120.48	7,227.43	1,843.41	2,392.79	-1,073.35	10.00	3.88	20.84	
8,050.00	29.87	129.42	7,271.36	1,829.69	2,412.28	-1,054.58	10.00	5.22	17.87	
8,100.00	32.99	136.92	7,314.04	1,811.83	2,431.21	-1,032.02	10.00	6.24	15.02	
8,150.00	36.48	143.21	7,355.14	1,789.97	2,449.42	-1,005.83	10.00	6.99	12.57	
8,200.00	40.26	148.50	7,394.34	1,764.28	2,466.78	-976.22	10.00	7.55	10.58	
8,250.00	44.24	153.00	7,431.36	1,734.95	2,483.15	-943.40	10.00	7.96	9.01	
8,300.00	48.37	156.90	7,465.90	1,702.20	2,498.40	-907.64	10.00	8.27	7.79	
8,350.00	52.62	160.32	7,497.71	1,666.28	2,512.43	-869.21	10.00	8.50	6.84	
8,400.00	56.95	163.37	7,526.53	1,627.47	2,525.13	-828.38	10.00	8.67	6.10	
8,450.00	61.36	166.13	7,552.17	1,586.07	2,536.39	-785.49	10.00	8.81	5.52	
8,500.00	65.81	168.67	7,574.41	1,542.38	2,546.14	-740.85	10.00	8.91	5.07	
8,550.00	70.31	171.03	7,593.09	1,496.74	2,554.30	-694.80	10.00	8.99	4.73	
8,600.00	74.83	173.26	7,608.07	1,449.50	2,560.80	-647.69	10.00	9.05	4.47	
8,620.03	76.65	174.13	7,613.00	1,430.21	2,562.94	-628.61	10.00	9.08	4.33	
Sharon Springs										
8,643.53	78.78	175.13	7,618.00	1,407.34	2,565.08	-606.10	10.00	9.09	4.26	
Niobrara										
8,650.00	79.37	175.40	7,619.23	1,401.01	2,565.61	-599.89	10.00	9.10	4.22	
8,700.00	83.93	177.48	7,626.48	1,351.65	2,568.67	-551.75	10.00	9.12	4.15	
8,750.00	88.50	179.52	7,629.78	1,301.80	2,569.97	-503.64	10.00	9.13	4.08	
8,766.45	90.00	180.19	7,630.00	1,285.35	2,570.01	-487.89	10.00	9.14	4.07	
Start 9691.95 hold at 8766.45 MD										
8,800.00	90.00	180.19	7,630.00	1,251.80	2,569.90	-455.80	0.00	0.00	0.00	
8,900.00	90.00	180.19	7,630.00	1,151.80	2,569.56	-360.16	0.00	0.00	0.00	
9,000.00	90.00	180.19	7,630.00	1,051.80	2,569.23	-264.53	0.00	0.00	0.00	
9,100.00	90.00	180.19	7,630.00	951.80	2,568.89	-168.89	0.00	0.00	0.00	
9,200.00	90.00	180.19	7,630.00	851.80	2,568.55	-73.25	0.00	0.00	0.00	
9,300.00	90.00	180.19	7,630.00	751.80	2,568.22	22.38	0.00	0.00	0.00	
9,400.00	90.00	180.19	7,630.00	651.80	2,567.88	118.02	0.00	0.00	0.00	
9,500.00	90.00	180.19	7,630.00	551.80	2,567.54	213.66	0.00	0.00	0.00	
9,600.00	90.00	180.19	7,630.00	451.80	2,567.21	309.29	0.00	0.00	0.00	
9,700.00	90.00	180.19	7,630.00	351.80	2,566.87	404.93	0.00	0.00	0.00	
9,800.00	90.00	180.19	7,630.00	251.80	2,566.53	500.57	0.00	0.00	0.00	
9,900.00	90.00	180.19	7,630.00	151.80	2,566.20	596.20	0.00	0.00	0.00	
10,000.00	90.00	180.19	7,630.00	51.80	2,565.86	691.84	0.00	0.00	0.00	
10,100.00	90.00	180.19	7,630.00	-48.19	2,565.52	787.47	0.00	0.00	0.00	
10,200.00	90.00	180.19	7,630.00	-148.19	2,565.19	883.11	0.00	0.00	0.00	
10,300.00	90.00	180.19	7,630.00	-248.19	2,564.85	978.75	0.00	0.00	0.00	
10,400.00	90.00	180.19	7,630.00	-348.19	2,564.51	1,074.38	0.00	0.00	0.00	
10,500.00	90.00	180.19	7,630.00	-448.19	2,564.18	1,170.02	0.00	0.00	0.00	
10,600.00	90.00	180.19	7,630.00	-548.19	2,563.84	1,265.66	0.00	0.00	0.00	
10,700.00	90.00	180.19	7,630.00	-648.19	2,563.51	1,361.29	0.00	0.00	0.00	
10,800.00	90.00	180.19	7,630.00	-748.19	2,563.17	1,456.93	0.00	0.00	0.00	
10,900.00	90.00	180.19	7,630.00	-848.19	2,562.83	1,552.57	0.00	0.00	0.00	
11,000.00	90.00	180.19	7,630.00	-948.19	2,562.50	1,648.20	0.00	0.00	0.00	
11,100.00	90.00	180.19	7,630.00	-1,048.19	2,562.16	1,743.84	0.00	0.00	0.00	
11,200.00	90.00	180.19	7,630.00	-1,148.19	2,561.82	1,839.47	0.00	0.00	0.00	
11,300.00	90.00	180.19	7,630.00	-1,248.19	2,561.49	1,935.11	0.00	0.00	0.00	
11,400.00	90.00	180.19	7,630.00	-1,348.19	2,561.15	2,030.75	0.00	0.00	0.00	
11,500.00	90.00	180.19	7,630.00	-1,448.19	2,560.81	2,126.38	0.00	0.00	0.00	
11,600.00	90.00	180.19	7,630.00	-1,548.19	2,560.48	2,222.02	0.00	0.00	0.00	
11,700.00	90.00	180.19	7,630.00	-1,648.19	2,560.14	2,317.66	0.00	0.00	0.00	
11,800.00	90.00	180.19	7,630.00	-1,748.19	2,559.80	2,413.29	0.00	0.00	0.00	

Planning Report

Database:	EDT_32Bit_ODBC	Local Co-ordinate Reference:	Well COSSLETT EAST 1D-22H-H168
Company:	CRESTONE PEAK RESOURCES	TVD Reference:	KB 25' @ 5208.00usft
Project:	WELD COUNTY	MD Reference:	KB 25' @ 5208.00usft
Site:	SEC 22-T1N-R68W	North Reference:	True
Well:	COSSLETT EAST 1D-22H-H168	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)
11,900.00	90.00	180.19	7,630.00	-1,848.18	2,559.47	2,508.93	0.00	0.00	0.00
12,000.00	90.00	180.19	7,630.00	-1,948.18	2,559.13	2,604.56	0.00	0.00	0.00
12,100.00	90.00	180.19	7,630.00	-2,048.18	2,558.80	2,700.20	0.00	0.00	0.00
12,200.00	90.00	180.19	7,630.00	-2,148.18	2,558.46	2,795.84	0.00	0.00	0.00
12,300.00	90.00	180.19	7,630.00	-2,248.18	2,558.12	2,891.47	0.00	0.00	0.00
12,400.00	90.00	180.19	7,630.00	-2,348.18	2,557.79	2,987.11	0.00	0.00	0.00
12,500.00	90.00	180.19	7,630.00	-2,448.18	2,557.45	3,082.75	0.00	0.00	0.00
12,600.00	90.00	180.19	7,630.00	-2,548.18	2,557.11	3,178.38	0.00	0.00	0.00
12,700.00	90.00	180.19	7,630.00	-2,648.18	2,556.78	3,274.02	0.00	0.00	0.00
12,800.00	90.00	180.19	7,630.00	-2,748.18	2,556.44	3,369.66	0.00	0.00	0.00
12,900.00	90.00	180.19	7,630.00	-2,848.18	2,556.10	3,465.29	0.00	0.00	0.00
13,000.00	90.00	180.19	7,630.00	-2,948.18	2,555.77	3,560.93	0.00	0.00	0.00
13,100.00	90.00	180.19	7,630.00	-3,048.18	2,555.43	3,656.56	0.00	0.00	0.00
13,200.00	90.00	180.19	7,630.00	-3,148.18	2,555.09	3,752.20	0.00	0.00	0.00
13,300.00	90.00	180.19	7,630.00	-3,248.18	2,554.76	3,847.84	0.00	0.00	0.00
13,400.00	90.00	180.19	7,630.00	-3,348.18	2,554.42	3,943.47	0.00	0.00	0.00
13,500.00	90.00	180.19	7,630.00	-3,448.18	2,554.09	4,039.11	0.00	0.00	0.00
13,600.00	90.00	180.19	7,630.00	-3,548.17	2,553.75	4,134.75	0.00	0.00	0.00
13,700.00	90.00	180.19	7,630.00	-3,648.17	2,553.41	4,230.38	0.00	0.00	0.00
13,800.00	90.00	180.19	7,630.00	-3,748.17	2,553.08	4,326.02	0.00	0.00	0.00
13,900.00	90.00	180.19	7,630.00	-3,848.17	2,552.74	4,421.66	0.00	0.00	0.00
14,000.00	90.00	180.19	7,630.00	-3,948.17	2,552.40	4,517.29	0.00	0.00	0.00
14,100.00	90.00	180.19	7,630.00	-4,048.17	2,552.07	4,612.93	0.00	0.00	0.00
14,200.00	90.00	180.19	7,630.00	-4,148.17	2,551.73	4,708.56	0.00	0.00	0.00
14,300.00	90.00	180.19	7,630.00	-4,248.17	2,551.39	4,804.20	0.00	0.00	0.00
14,400.00	90.00	180.19	7,630.00	-4,348.17	2,551.06	4,899.84	0.00	0.00	0.00
14,500.00	90.00	180.19	7,630.00	-4,448.17	2,550.72	4,995.47	0.00	0.00	0.00
14,600.00	90.00	180.19	7,630.00	-4,548.17	2,550.38	5,091.11	0.00	0.00	0.00
14,700.00	90.00	180.19	7,630.00	-4,648.17	2,550.05	5,186.75	0.00	0.00	0.00
14,800.00	90.00	180.19	7,630.00	-4,748.17	2,549.71	5,282.38	0.00	0.00	0.00
14,900.00	90.00	180.19	7,630.00	-4,848.17	2,549.37	5,378.02	0.00	0.00	0.00
15,000.00	90.00	180.19	7,630.00	-4,948.17	2,549.04	5,473.65	0.00	0.00	0.00
15,100.00	90.00	180.19	7,630.00	-5,048.17	2,548.70	5,569.29	0.00	0.00	0.00
15,200.00	90.00	180.19	7,630.00	-5,148.17	2,548.37	5,664.93	0.00	0.00	0.00
15,300.00	90.00	180.19	7,630.00	-5,248.17	2,548.03	5,760.56	0.00	0.00	0.00
15,400.00	90.00	180.19	7,630.00	-5,348.16	2,547.69	5,856.20	0.00	0.00	0.00
15,500.00	90.00	180.19	7,630.00	-5,448.16	2,547.36	5,951.84	0.00	0.00	0.00
15,600.00	90.00	180.19	7,630.00	-5,548.16	2,547.02	6,047.47	0.00	0.00	0.00
15,700.00	90.00	180.19	7,630.00	-5,648.16	2,546.68	6,143.11	0.00	0.00	0.00
15,800.00	90.00	180.19	7,630.00	-5,748.16	2,546.35	6,238.75	0.00	0.00	0.00
15,900.00	90.00	180.19	7,630.00	-5,848.16	2,546.01	6,334.38	0.00	0.00	0.00
16,000.00	90.00	180.19	7,630.00	-5,948.16	2,545.67	6,430.02	0.00	0.00	0.00
16,100.00	90.00	180.19	7,630.00	-6,048.16	2,545.34	6,525.65	0.00	0.00	0.00
16,200.00	90.00	180.19	7,630.00	-6,148.16	2,545.00	6,621.29	0.00	0.00	0.00
16,300.00	90.00	180.19	7,630.00	-6,248.16	2,544.66	6,716.93	0.00	0.00	0.00
16,400.00	90.00	180.19	7,630.00	-6,348.16	2,544.33	6,812.56	0.00	0.00	0.00
16,500.00	90.00	180.19	7,630.00	-6,448.16	2,543.99	6,908.20	0.00	0.00	0.00
16,600.00	90.00	180.19	7,630.00	-6,548.16	2,543.66	7,003.84	0.00	0.00	0.00
16,700.00	90.00	180.19	7,630.00	-6,648.16	2,543.32	7,099.47	0.00	0.00	0.00
16,800.00	90.00	180.19	7,630.00	-6,748.16	2,542.98	7,195.11	0.00	0.00	0.00
16,900.00	90.00	180.19	7,630.00	-6,848.16	2,542.65	7,290.75	0.00	0.00	0.00
17,000.00	90.00	180.19	7,630.00	-6,948.16	2,542.31	7,386.38	0.00	0.00	0.00
17,100.00	90.00	180.19	7,630.00	-7,048.16	2,541.97	7,482.02	0.00	0.00	0.00
17,200.00	90.00	180.19	7,630.00	-7,148.15	2,541.64	7,577.65	0.00	0.00	0.00

Planning Report

Database:	EDT_32Bit_ODBC	Local Co-ordinate Reference:	Well COSSLETT EAST 1D-22H-H168
Company:	CRESTONE PEAK RESOURCES	TVD Reference:	KB 25' @ 5208.00usft
Project:	WELD COUNTY	MD Reference:	KB 25' @ 5208.00usft
Site:	SEC 22-T1N-R68W	North Reference:	True
Well:	COSSLETT EAST 1D-22H-H168	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)	
17,300.00	90.00	180.19	7,630.00	-7,248.15	2,541.30	7,673.29	0.00	0.00	0.00	
17,400.00	90.00	180.19	7,630.00	-7,348.15	2,540.96	7,768.93	0.00	0.00	0.00	
17,500.00	90.00	180.19	7,630.00	-7,448.15	2,540.63	7,864.56	0.00	0.00	0.00	
17,600.00	90.00	180.19	7,630.00	-7,548.15	2,540.29	7,960.20	0.00	0.00	0.00	
17,700.00	90.00	180.19	7,630.00	-7,648.15	2,539.95	8,055.84	0.00	0.00	0.00	
17,800.00	90.00	180.19	7,630.00	-7,748.15	2,539.62	8,151.47	0.00	0.00	0.00	
17,900.00	90.00	180.19	7,630.00	-7,848.15	2,539.28	8,247.11	0.00	0.00	0.00	
18,000.00	90.00	180.19	7,630.00	-7,948.15	2,538.94	8,342.75	0.00	0.00	0.00	
18,100.00	90.00	180.19	7,630.00	-8,048.15	2,538.61	8,438.38	0.00	0.00	0.00	
18,200.00	90.00	180.19	7,630.00	-8,148.15	2,538.27	8,534.02	0.00	0.00	0.00	
18,300.00	90.00	180.19	7,630.00	-8,248.15	2,537.94	8,629.65	0.00	0.00	0.00	
18,400.00	90.00	180.19	7,630.00	-8,348.15	2,537.60	8,725.29	0.00	0.00	0.00	
18,458.39	90.00	180.19	7,630.00	-8,406.54	2,537.40	8,781.13	0.00	0.00	0.00	
TD at 18458.39										

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-COSSLETT E 1D-H1 - plan hits target center - Point	0.00	0.00	7,630.00	1,285.35	2,570.01	1,258,857.84	3,146,965.44	40.042759°N	104.975079°W
PBHL-COSSLETT E 1D - plan hits target center - Point	0.00	0.00	7,630.00	-8,406.54	2,537.40	1,249,166.28	3,146,989.20	40.016154°N	104.975199°W

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
0.00	0.00	Denver Formation				
154.00	154.00	Laramie Formation				
631.00	631.00	Fox Hills sandstone				
803.00	803.00	Pierre Formation				
1,049.00	1,049.00	Upper Pierre aquifer				
1,999.72	1,985.00	Base of Upper Pierre aquifer				
4,710.27	4,363.00	Larimer sandstone				
5,180.60	4,771.00	Terry ("Sussex") sandstone				
5,843.45	5,346.00	Hygiene ("Shannon") sandstone				
6,065.94	5,539.00	Pierre shale				
8,620.03	7,613.00	Sharon Springs				
8,643.53	7,618.00	Niobrara				

Planning Report

Database:	EDT_32Bit_ODBC	Local Co-ordinate Reference:	Well COSSLETT EAST 1D-22H-H168
Company:	CRESTONE PEAK RESOURCES	TVD Reference:	KB 25' @ 5208.00usft
Project:	WELD COUNTY	MD Reference:	KB 25' @ 5208.00usft
Site:	SEC 22-T1N-R68W	North Reference:	True
Well:	COSSLETT EAST 1D-22H-H168	Survey Calculation Method:	Minimum Curvature
Wellbore:	OWB		
Design:	PROPOSAL 1		

Plan Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
1,100.00	1,100.00	0.00	0.00	Start Build 2.00
2,591.69	2,525.19	238.58	295.34	Start 5091.80 hold at 2591.69 MD
7,683.49	6,942.18	1,830.37	2,265.83	Start DLS 10.00 TFO 125.21
8,766.45	7,630.00	1,285.35	2,570.01	Start 9691.95 hold at 8766.45 MD
18,458.39	7,630.00	-8,406.54	2,537.40	TD at 18458.39