

CRESTONE PEAK RESOURCES

WELD COUNTY

SEC 22-T1N-R68W

COSSLETT EAST 1F-22H-H168

OWB

Plan: PROPOSAL 1

Standard Planning Report

24 February, 2023

Project: WELD COUNTY
Site: SEC 22-T1N-R68W
Well: COSSLETT EAST 1F-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 1F-22H-H168

+N/-S	+E/-W	Northing	Easting	5183.00	Latitude	Longitude	Slot
0.00	0.00	1257557.73	3144422.92	40.039231°N	104.984187°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	900.00	0.00	0.00	900.00	0.00	0.00	0.00	0.00	0.00	
3	2495.20	31.90	57.31	2414.03	233.75	364.22	2.00	57.31	-89.44	
4	8152.30	31.90	57.31	7216.54	1848.56	2880.39	0.00	0.00	-707.31	
5	9219.06	90.00	180.19	7870.00	1298.54	3220.14	10.00	118.76	-72.56	LP-COSSLETT E 1F-H168
6	18923.75	90.00	180.19	7870.00	-8406.10	3187.23	0.00	0.00	8990.05	PBHL-COSSLETT E 1F-H168

ANNOTATIONS

MD	Inc	Azi	TVD	+N/-S	+E/-W	VSec	Departure	Annotation
900.00	0.00	0.00	900.00	0.00	0.00	0.00	0.00	Start Build 2.00
2495.20	31.90	57.31	2414.03	233.75	364.22	-89.44	432.77	Start 5657.10 hold at 2495.20 MD
8152.30	31.90	57.31	7216.54	1848.56	2880.39	-707.31	3422.54	Start DLS 10.00 TFO 118.76
9219.06	90.00	180.19	7870.00	1298.54	3220.14	-72.56	4184.79	Start 9704.70 hold at 9219.06 MD
18923.75	90.00	180.19	7870.00	-8406.10	3187.23	8990.05	13889.49	TD at 18923.75

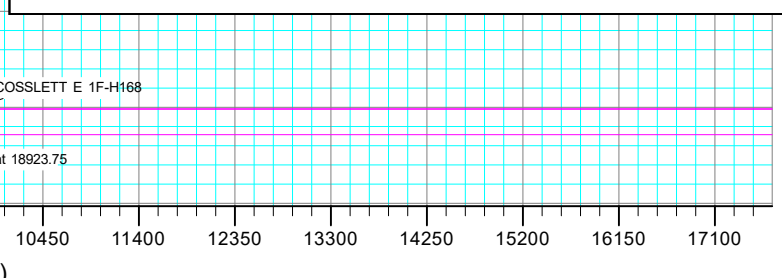
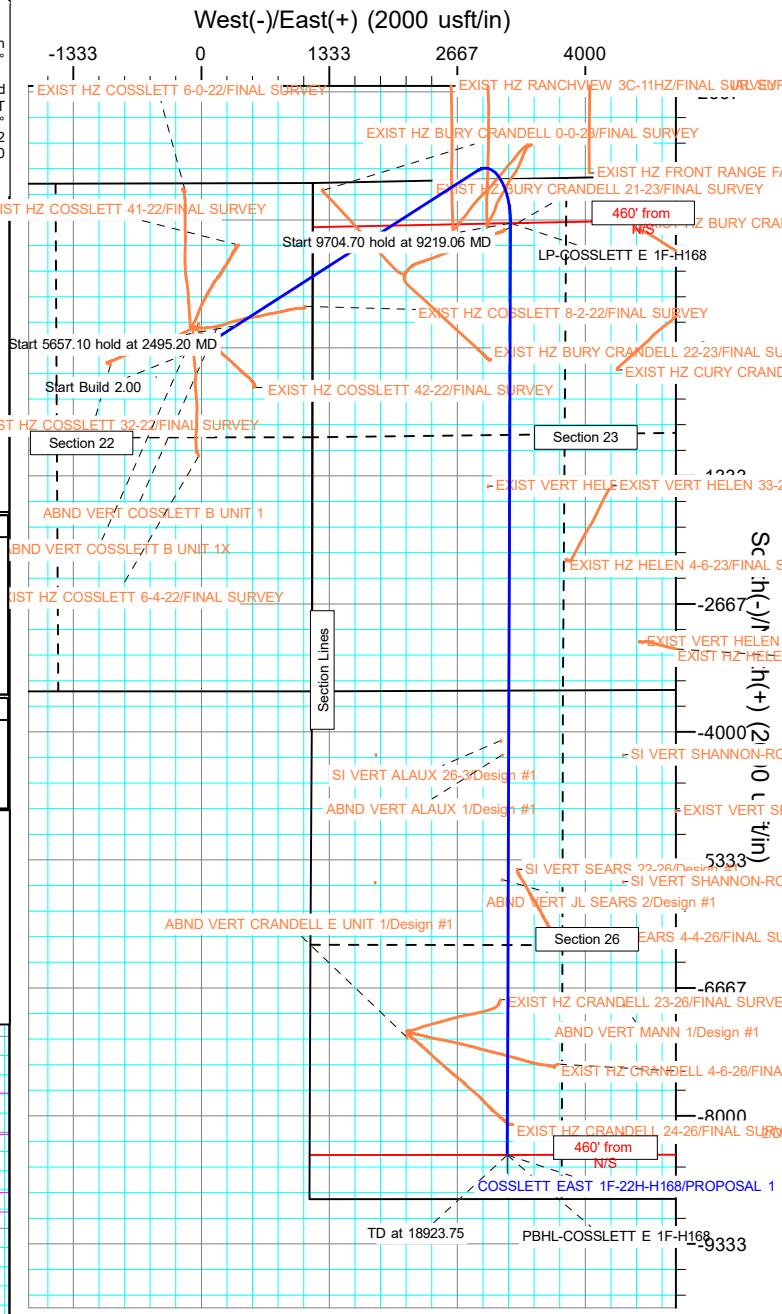
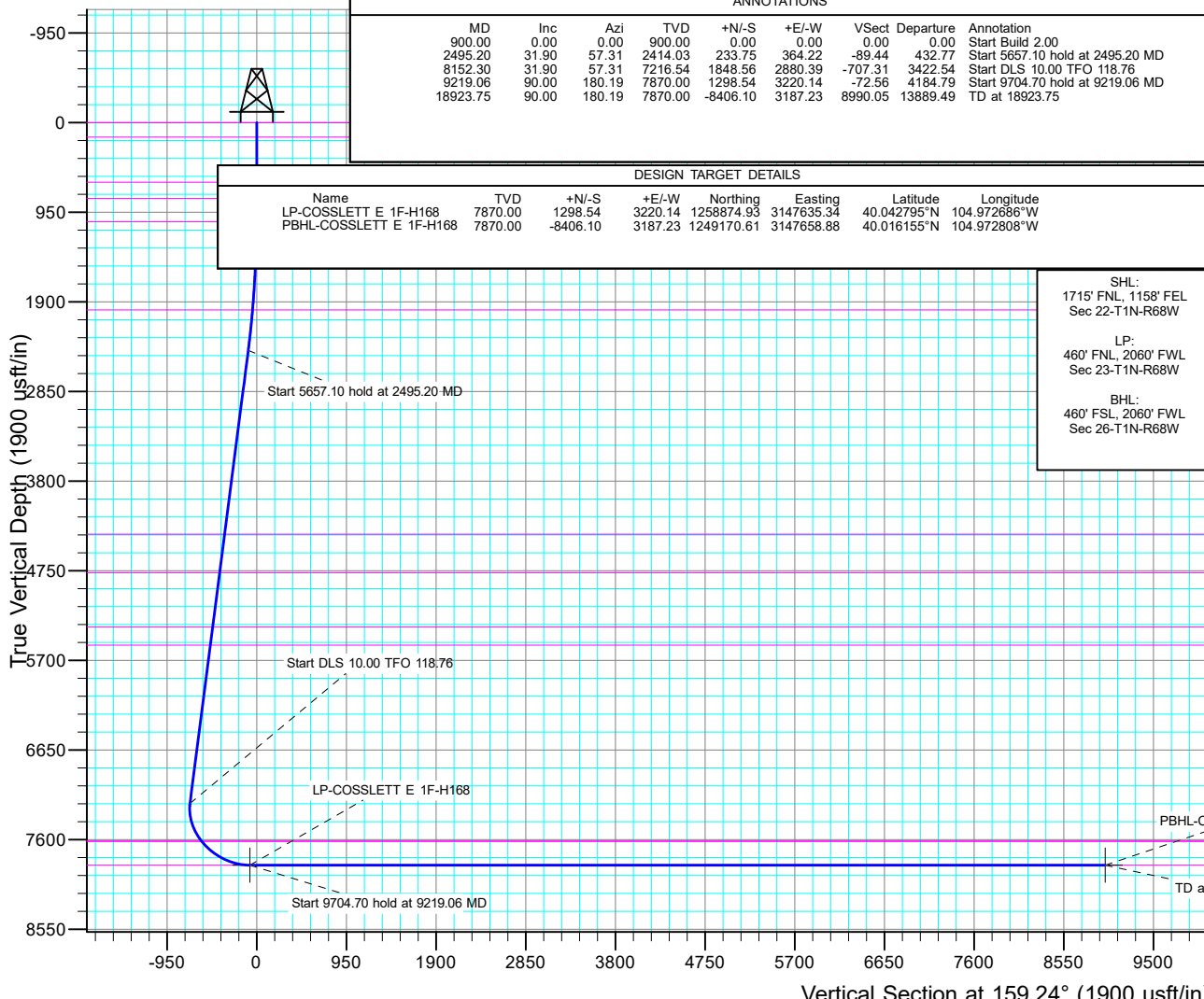
DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
LP-COSSLETT E 1F-H168	7870.00	1298.54	3220.14	1258874.93	3147635.34	40.042795°N	104.972686°W
PBHL-COSSLETT E 1F-H168	7870.00	-8406.10	3187.23	1249170.61	3147658.88	40.016155°N	104.972808°W

SHL:
 1715' FNL, 1158' FEL
 Sec 22-T1N-R68W

LP:
 460' FNL, 2060' FWL
 Sec 23-T1N-R68W

BHL:
 460' FSL, 2060' FWL
 Sec 26-T1N-R68W



Planning Report

Database:	EDT_32Bit_ODBC	Local Co-ordinate Reference:	Well COSSLETT EAST 1F-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 1F-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 1F-22H-H168					
Well Position	+N/-S	-1,717.60 usft	Northing:	1,257,557.73 usft	Latitude:	40.039231°N
	+E/-W	-1,161.45 usft	Easting:	3,144,422.92 usft	Longitude:	104.984187°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	51,667.41415650

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	159.24

Plan Survey Tool Program	Date	2/24/2023			
Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks	
1	0.00	18,923.76 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	
900.00	0.00	0.00	900.00	0.00	0.00	0.00	0.00	0.00	0.00	
2,495.20	31.90	57.31	2,414.03	233.75	364.22	2.00	2.00	0.00	57.31	
8,152.30	31.90	57.31	7,216.54	1,848.56	2,880.39	0.00	0.00	0.00	0.00	
9,219.06	90.00	180.19	7,870.00	1,298.54	3,220.14	10.00	5.45	11.52	118.76	LP-COSSLETT E 1F-
18,923.76	90.00	180.19	7,870.00	-8,406.10	3,187.23	0.00	0.00	0.00	0.00	PBHL-COSSLETT E

Planning Report

Database:	EDT_32Bit_ODBC	Local Co-ordinate Reference:	Well COSLETT EAST 1F-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:	COSLETT EAST 1F-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	0.00
Denver Formation										
100.00	0.00	0.00	100.00	0.00	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	0.00
Laramie Formation										
200.00	0.00	0.00	200.00	0.00	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	0.00
400.00	0.00	0.00	400.00	0.00	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	0.00
600.00	0.00	0.00	600.00	0.00	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	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	0.00
800.00	0.00	0.00	800.00	0.00	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	0.00
Pierre Formation										
900.00	0.00	0.00	900.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Start Build 2.00										
1,000.00	2.00	57.31	999.98	0.94	1.47	-0.36	2.00	2.00	2.00	0.00
1,049.07	2.98	57.31	1,049.00	2.09	3.26	-0.80	2.00	2.00	2.00	0.00
Upper Pierre aquifer										
1,100.00	4.00	57.31	1,099.84	3.77	5.87	-1.44	2.00	2.00	2.00	0.00
1,200.00	6.00	57.31	1,199.45	8.48	13.21	-3.24	2.00	2.00	2.00	0.00
1,300.00	8.00	57.31	1,298.70	15.06	23.46	-5.76	2.00	2.00	2.00	0.00
1,400.00	10.00	57.31	1,397.47	23.51	36.63	-8.99	2.00	2.00	2.00	0.00
1,500.00	12.00	57.31	1,495.62	33.81	52.69	-12.94	2.00	2.00	2.00	0.00
1,600.00	14.00	57.31	1,593.06	45.96	71.62	-17.59	2.00	2.00	2.00	0.00
1,700.00	16.00	57.31	1,689.64	59.94	93.40	-22.93	2.00	2.00	2.00	0.00
1,800.00	18.00	57.31	1,785.27	75.73	118.00	-28.98	2.00	2.00	2.00	0.00
1,900.00	20.00	57.31	1,879.82	93.31	145.40	-35.70	2.00	2.00	2.00	0.00
2,000.00	22.00	57.31	1,973.17	112.67	175.56	-43.11	2.00	2.00	2.00	0.00
2,012.77	22.26	57.31	1,985.00	115.27	179.61	-44.10	2.00	2.00	2.00	0.00
Base of Upper Pierre aquifer										
2,100.00	24.00	57.31	2,065.21	133.77	208.44	-51.18	2.00	2.00	2.00	0.00
2,200.00	26.00	57.31	2,155.84	156.60	244.01	-59.92	2.00	2.00	2.00	0.00
2,300.00	28.00	57.31	2,244.94	181.12	282.21	-69.30	2.00	2.00	2.00	0.00
2,400.00	30.00	57.31	2,332.39	207.30	323.01	-79.32	2.00	2.00	2.00	0.00
2,495.20	31.90	57.31	2,414.03	233.75	364.22	-89.44	2.00	2.00	2.00	0.00
Start 5657.10 hold at 2495.20 MD										
2,500.00	31.90	57.31	2,418.11	235.12	366.35	-89.96	0.00	0.00	0.00	0.00
2,600.00	31.90	57.31	2,503.00	263.66	410.83	-100.88	0.00	0.00	0.00	0.00
2,700.00	31.90	57.31	2,587.90	292.20	455.31	-111.81	0.00	0.00	0.00	0.00
2,800.00	31.90	57.31	2,672.79	320.75	499.79	-122.73	0.00	0.00	0.00	0.00
2,900.00	31.90	57.31	2,757.68	349.29	544.26	-133.65	0.00	0.00	0.00	0.00
3,000.00	31.90	57.31	2,842.58	377.84	588.74	-144.57	0.00	0.00	0.00	0.00
3,100.00	31.90	57.31	2,927.47	406.38	633.22	-155.49	0.00	0.00	0.00	0.00
3,200.00	31.90	57.31	3,012.36	434.93	677.70	-166.42	0.00	0.00	0.00	0.00
3,300.00	31.90	57.31	3,097.26	463.47	722.18	-177.34	0.00	0.00	0.00	0.00
3,400.00	31.90	57.31	3,182.15	492.02	766.65	-188.26	0.00	0.00	0.00	0.00
3,500.00	31.90	57.31	3,267.04	520.56	811.13	-199.18	0.00	0.00	0.00	0.00
3,600.00	31.90	57.31	3,351.94	549.11	855.61	-210.10	0.00	0.00	0.00	0.00
3,700.00	31.90	57.31	3,436.83	577.65	900.09	-221.03	0.00	0.00	0.00	0.00
3,800.00	31.90	57.31	3,521.72	606.20	944.57	-231.95	0.00	0.00	0.00	0.00

Planning Report

Database:	EDT_32Bit_ODBC	Local Co-ordinate Reference:	Well COSPLETT EAST 1F-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:	COSPLETT EAST 1F-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	31.90	57.31	3,606.62	634.74	989.04	-242.87	0.00	0.00	0.00
4,000.00	31.90	57.31	3,691.51	663.29	1,033.52	-253.79	0.00	0.00	0.00
4,100.00	31.90	57.31	3,776.40	691.83	1,078.00	-264.71	0.00	0.00	0.00
4,200.00	31.90	57.31	3,861.30	720.38	1,122.48	-275.64	0.00	0.00	0.00
4,300.00	31.90	57.31	3,946.19	748.92	1,166.96	-286.56	0.00	0.00	0.00
4,400.00	31.90	57.31	4,031.08	777.47	1,211.43	-297.48	0.00	0.00	0.00
4,500.00	31.90	57.31	4,115.98	806.01	1,255.91	-308.40	0.00	0.00	0.00
4,600.00	31.90	57.31	4,200.87	834.56	1,300.39	-319.32	0.00	0.00	0.00
4,700.00	31.90	57.31	4,285.76	863.10	1,344.87	-330.25	0.00	0.00	0.00
4,790.98	31.90	57.31	4,363.00	889.07	1,385.34	-340.18	0.00	0.00	0.00
Larimer sandstone									
4,800.00	31.90	57.31	4,370.66	891.65	1,389.35	-341.17	0.00	0.00	0.00
4,900.00	31.90	57.31	4,455.55	920.19	1,433.83	-352.09	0.00	0.00	0.00
5,000.00	31.90	57.31	4,540.44	948.74	1,478.30	-363.01	0.00	0.00	0.00
5,100.00	31.90	57.31	4,625.34	977.28	1,522.78	-373.93	0.00	0.00	0.00
5,200.00	31.90	57.31	4,710.23	1,005.83	1,567.26	-384.86	0.00	0.00	0.00
5,271.58	31.90	57.31	4,771.00	1,026.26	1,599.10	-392.67	0.00	0.00	0.00
Terry ("Sussex") sandstone									
5,300.00	31.90	57.31	4,795.12	1,034.37	1,611.74	-395.78	0.00	0.00	0.00
5,400.00	31.90	57.31	4,880.02	1,062.92	1,656.22	-406.70	0.00	0.00	0.00
5,500.00	31.90	57.31	4,964.91	1,091.46	1,700.69	-417.62	0.00	0.00	0.00
5,600.00	31.90	57.31	5,049.80	1,120.01	1,745.17	-428.54	0.00	0.00	0.00
5,700.00	31.90	57.31	5,134.70	1,148.55	1,789.65	-439.47	0.00	0.00	0.00
5,800.00	31.90	57.31	5,219.59	1,177.10	1,834.13	-450.39	0.00	0.00	0.00
5,900.00	31.90	57.31	5,304.48	1,205.64	1,878.61	-461.31	0.00	0.00	0.00
5,948.90	31.90	57.31	5,346.00	1,219.60	1,900.36	-466.65	0.00	0.00	0.00
Hygiene ("Shannon") sandstone									
6,000.00	31.90	57.31	5,389.38	1,234.19	1,923.08	-472.23	0.00	0.00	0.00
6,100.00	31.90	57.31	5,474.27	1,262.73	1,967.56	-483.15	0.00	0.00	0.00
6,176.25	31.90	57.31	5,539.00	1,284.50	2,001.48	-491.48	0.00	0.00	0.00
Pierre shale									
6,200.00	31.90	57.31	5,559.16	1,291.28	2,012.04	-494.08	0.00	0.00	0.00
6,300.00	31.90	57.31	5,644.06	1,319.82	2,056.52	-505.00	0.00	0.00	0.00
6,400.00	31.90	57.31	5,728.95	1,348.37	2,101.00	-515.92	0.00	0.00	0.00
6,500.00	31.90	57.31	5,813.85	1,376.91	2,145.47	-526.84	0.00	0.00	0.00
6,600.00	31.90	57.31	5,898.74	1,405.46	2,189.95	-537.76	0.00	0.00	0.00
6,700.00	31.90	57.31	5,983.63	1,434.00	2,234.43	-548.69	0.00	0.00	0.00
6,800.00	31.90	57.31	6,068.53	1,462.55	2,278.91	-559.61	0.00	0.00	0.00
6,900.00	31.90	57.31	6,153.42	1,491.09	2,323.39	-570.53	0.00	0.00	0.00
7,000.00	31.90	57.31	6,238.31	1,519.63	2,367.86	-581.45	0.00	0.00	0.00
7,100.00	31.90	57.31	6,323.21	1,548.18	2,412.34	-592.37	0.00	0.00	0.00
7,200.00	31.90	57.31	6,408.10	1,576.72	2,456.82	-603.30	0.00	0.00	0.00
7,300.00	31.90	57.31	6,492.99	1,605.27	2,501.30	-614.22	0.00	0.00	0.00
7,400.00	31.90	57.31	6,577.89	1,633.81	2,545.78	-625.14	0.00	0.00	0.00
7,500.00	31.90	57.31	6,662.78	1,662.36	2,590.26	-636.06	0.00	0.00	0.00
7,600.00	31.90	57.31	6,747.67	1,690.90	2,634.73	-646.98	0.00	0.00	0.00
7,700.00	31.90	57.31	6,832.57	1,719.45	2,679.21	-657.91	0.00	0.00	0.00
7,800.00	31.90	57.31	6,917.46	1,747.99	2,723.69	-668.83	0.00	0.00	0.00
7,900.00	31.90	57.31	7,002.35	1,776.54	2,768.17	-679.75	0.00	0.00	0.00
8,000.00	31.90	57.31	7,087.25	1,805.08	2,812.65	-690.67	0.00	0.00	0.00
8,100.00	31.90	57.31	7,172.14	1,833.63	2,857.12	-701.59	0.00	0.00	0.00
8,152.30	31.90	57.31	7,216.54	1,848.56	2,880.39	-707.31	0.00	0.00	0.00
Start DLS 10.00 TFO 118.76									
8,200.00	29.87	65.72	7,257.49	1,860.26	2,901.83	-710.64	10.00	-4.26	17.64

Planning Report

Database:	EDT_32Bit_ODBC	Local Co-ordinate Reference:	Well COSSLETT EAST 1F-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 1F-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)
8,250.00	28.38	75.54	7,301.19	1,868.35	2,924.71	-710.10	10.00	-2.97	19.64
8,300.00	27.66	86.09	7,345.36	1,872.11	2,947.81	-705.42	10.00	-1.45	21.09
8,350.00	27.76	96.85	7,389.65	1,871.51	2,970.96	-696.66	10.00	0.20	21.53
8,400.00	28.67	107.26	7,433.74	1,866.56	2,993.99	-683.86	10.00	1.83	20.82
8,450.00	30.33	116.85	7,477.28	1,857.29	3,016.73	-667.14	10.00	3.31	19.19
8,500.00	32.61	125.39	7,519.94	1,843.78	3,038.99	-646.61	10.00	4.56	17.07
8,550.00	35.39	132.82	7,561.41	1,826.13	3,060.60	-622.44	10.00	5.57	14.87
8,600.00	38.58	139.24	7,601.36	1,804.46	3,081.41	-594.81	10.00	6.36	12.84
8,615.00	39.59	140.99	7,613.00	1,797.21	3,087.48	-585.87	10.00	6.78	11.66
Sharon Springs									
8,621.51	40.04	141.72	7,618.00	1,793.95	3,090.08	-581.90	10.00	6.90	11.30
Niobrara									
8,650.00	42.06	144.79	7,639.49	1,778.96	3,101.26	-563.92	10.00	7.08	10.75
8,700.00	45.78	149.61	7,675.51	1,749.80	3,119.99	-530.01	10.00	7.44	9.65
8,750.00	49.67	153.85	7,709.14	1,717.22	3,137.47	-493.35	10.00	7.79	8.48
8,800.00	53.71	157.62	7,740.14	1,681.45	3,153.55	-454.21	10.00	8.07	7.54
8,850.00	57.85	161.01	7,768.26	1,642.78	3,168.12	-412.89	10.00	8.28	6.78
8,900.00	62.07	164.10	7,793.29	1,601.50	3,181.06	-369.69	10.00	8.45	6.19
8,950.00	66.36	166.96	7,815.04	1,557.91	3,192.29	-324.96	10.00	8.57	5.72
9,000.00	70.69	169.64	7,833.34	1,512.36	3,201.70	-279.03	10.00	8.67	5.35
9,050.00	75.07	172.18	7,848.06	1,465.19	3,209.24	-232.26	10.00	8.75	5.08
9,100.00	79.47	174.62	7,859.08	1,416.76	3,214.83	-184.99	10.00	8.80	4.87
9,150.00	83.88	176.98	7,866.32	1,367.44	3,218.45	-137.58	10.00	8.84	4.73
9,200.00	88.31	179.31	7,869.72	1,317.60	3,220.06	-90.41	10.00	8.86	4.66
9,219.06	90.00	180.19	7,870.00	1,298.54	3,220.14	-72.56	10.00	8.86	4.63
Start 9704.70 hold at 9219.06 MD - CODELL									
9,300.00	90.00	180.19	7,870.00	1,217.60	3,219.87	3.02	0.00	0.00	0.00
9,400.00	90.00	180.19	7,870.00	1,117.60	3,219.53	96.41	0.00	0.00	0.00
9,500.00	90.00	180.19	7,870.00	1,017.60	3,219.19	189.79	0.00	0.00	0.00
9,600.00	90.00	180.19	7,870.00	917.60	3,218.85	283.18	0.00	0.00	0.00
9,700.00	90.00	180.19	7,870.00	817.60	3,218.51	376.56	0.00	0.00	0.00
9,800.00	90.00	180.19	7,870.00	717.60	3,218.17	469.94	0.00	0.00	0.00
9,900.00	90.00	180.19	7,870.00	617.60	3,217.83	563.33	0.00	0.00	0.00
10,000.00	90.00	180.19	7,870.00	517.60	3,217.49	656.71	0.00	0.00	0.00
10,100.00	90.00	180.19	7,870.00	417.60	3,217.15	750.09	0.00	0.00	0.00
10,200.00	90.00	180.19	7,870.00	317.60	3,216.81	843.48	0.00	0.00	0.00
10,300.00	90.00	180.19	7,870.00	217.60	3,216.48	936.86	0.00	0.00	0.00
10,400.00	90.00	180.19	7,870.00	117.61	3,216.14	1,030.25	0.00	0.00	0.00
10,500.00	90.00	180.19	7,870.00	17.61	3,215.80	1,123.63	0.00	0.00	0.00
10,600.00	90.00	180.19	7,870.00	-82.39	3,215.46	1,217.01	0.00	0.00	0.00
10,700.00	90.00	180.19	7,870.00	-182.39	3,215.12	1,310.40	0.00	0.00	0.00
10,800.00	90.00	180.19	7,870.00	-282.39	3,214.78	1,403.78	0.00	0.00	0.00
10,900.00	90.00	180.19	7,870.00	-382.39	3,214.44	1,497.16	0.00	0.00	0.00
11,000.00	90.00	180.19	7,870.00	-482.39	3,214.10	1,590.55	0.00	0.00	0.00
11,100.00	90.00	180.19	7,870.00	-582.39	3,213.76	1,683.93	0.00	0.00	0.00
11,200.00	90.00	180.19	7,870.00	-682.39	3,213.42	1,777.32	0.00	0.00	0.00
11,300.00	90.00	180.19	7,870.00	-782.39	3,213.08	1,870.70	0.00	0.00	0.00
11,400.00	90.00	180.19	7,870.00	-882.39	3,212.75	1,964.08	0.00	0.00	0.00
11,500.00	90.00	180.19	7,870.00	-982.39	3,212.41	2,057.47	0.00	0.00	0.00
11,600.00	90.00	180.19	7,870.00	-1,082.39	3,212.07	2,150.85	0.00	0.00	0.00
11,700.00	90.00	180.19	7,870.00	-1,182.39	3,211.73	2,244.23	0.00	0.00	0.00
11,800.00	90.00	180.19	7,870.00	-1,282.39	3,211.39	2,337.62	0.00	0.00	0.00
11,900.00	90.00	180.19	7,870.00	-1,382.39	3,211.05	2,431.00	0.00	0.00	0.00

Planning Report

Database:	EDT_32Bit_ODBC	Local Co-ordinate Reference:	Well COSSLETT EAST 1F-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 1F-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)	
12,000.00	90.00	180.19	7,870.00	-1,482.39	3,210.71	2,524.39	0.00	0.00	0.00	
12,100.00	90.00	180.19	7,870.00	-1,582.38	3,210.37	2,617.77	0.00	0.00	0.00	
12,200.00	90.00	180.19	7,870.00	-1,682.38	3,210.03	2,711.15	0.00	0.00	0.00	
12,300.00	90.00	180.19	7,870.00	-1,782.38	3,209.69	2,804.54	0.00	0.00	0.00	
12,400.00	90.00	180.19	7,870.00	-1,882.38	3,209.35	2,897.92	0.00	0.00	0.00	
12,500.00	90.00	180.19	7,870.00	-1,982.38	3,209.01	2,991.30	0.00	0.00	0.00	
12,600.00	90.00	180.19	7,870.00	-2,082.38	3,208.68	3,084.69	0.00	0.00	0.00	
12,700.00	90.00	180.19	7,870.00	-2,182.38	3,208.34	3,178.07	0.00	0.00	0.00	
12,800.00	90.00	180.19	7,870.00	-2,282.38	3,208.00	3,271.46	0.00	0.00	0.00	
12,900.00	90.00	180.19	7,870.00	-2,382.38	3,207.66	3,364.84	0.00	0.00	0.00	
13,000.00	90.00	180.19	7,870.00	-2,482.38	3,207.32	3,458.22	0.00	0.00	0.00	
13,100.00	90.00	180.19	7,870.00	-2,582.38	3,206.98	3,551.61	0.00	0.00	0.00	
13,200.00	90.00	180.19	7,870.00	-2,682.38	3,206.64	3,644.99	0.00	0.00	0.00	
13,300.00	90.00	180.19	7,870.00	-2,782.38	3,206.30	3,738.37	0.00	0.00	0.00	
13,400.00	90.00	180.19	7,870.00	-2,882.38	3,205.96	3,831.76	0.00	0.00	0.00	
13,500.00	90.00	180.19	7,870.00	-2,982.38	3,205.62	3,925.14	0.00	0.00	0.00	
13,600.00	90.00	180.19	7,870.00	-3,082.38	3,205.28	4,018.53	0.00	0.00	0.00	
13,700.00	90.00	180.19	7,870.00	-3,182.38	3,204.94	4,111.91	0.00	0.00	0.00	
13,800.00	90.00	180.19	7,870.00	-3,282.38	3,204.61	4,205.29	0.00	0.00	0.00	
13,900.00	90.00	180.19	7,870.00	-3,382.37	3,204.27	4,298.68	0.00	0.00	0.00	
14,000.00	90.00	180.19	7,870.00	-3,482.37	3,203.93	4,392.06	0.00	0.00	0.00	
14,100.00	90.00	180.19	7,870.00	-3,582.37	3,203.59	4,485.44	0.00	0.00	0.00	
14,200.00	90.00	180.19	7,870.00	-3,682.37	3,203.25	4,578.83	0.00	0.00	0.00	
14,300.00	90.00	180.19	7,870.00	-3,782.37	3,202.91	4,672.21	0.00	0.00	0.00	
14,400.00	90.00	180.19	7,870.00	-3,882.37	3,202.57	4,765.60	0.00	0.00	0.00	
14,500.00	90.00	180.19	7,870.00	-3,982.37	3,202.23	4,858.98	0.00	0.00	0.00	
14,600.00	90.00	180.19	7,870.00	-4,082.37	3,201.89	4,952.36	0.00	0.00	0.00	
14,700.00	90.00	180.19	7,870.00	-4,182.37	3,201.55	5,045.75	0.00	0.00	0.00	
14,800.00	90.00	180.19	7,870.00	-4,282.37	3,201.21	5,139.13	0.00	0.00	0.00	
14,900.00	90.00	180.19	7,870.00	-4,382.37	3,200.87	5,232.51	0.00	0.00	0.00	
15,000.00	90.00	180.19	7,870.00	-4,482.37	3,200.54	5,325.90	0.00	0.00	0.00	
15,100.00	90.00	180.19	7,870.00	-4,582.37	3,200.20	5,419.28	0.00	0.00	0.00	
15,200.00	90.00	180.19	7,870.00	-4,682.37	3,199.86	5,512.67	0.00	0.00	0.00	
15,300.00	90.00	180.19	7,870.00	-4,782.37	3,199.52	5,606.05	0.00	0.00	0.00	
15,400.00	90.00	180.19	7,870.00	-4,882.37	3,199.18	5,699.43	0.00	0.00	0.00	
15,500.00	90.00	180.19	7,870.00	-4,982.37	3,198.84	5,792.82	0.00	0.00	0.00	
15,600.00	90.00	180.19	7,870.00	-5,082.36	3,198.50	5,886.20	0.00	0.00	0.00	
15,700.00	90.00	180.19	7,870.00	-5,182.36	3,198.16	5,979.58	0.00	0.00	0.00	
15,800.00	90.00	180.19	7,870.00	-5,282.36	3,197.82	6,072.97	0.00	0.00	0.00	
15,900.00	90.00	180.19	7,870.00	-5,382.36	3,197.48	6,166.35	0.00	0.00	0.00	
16,000.00	90.00	180.19	7,870.00	-5,482.36	3,197.14	6,259.74	0.00	0.00	0.00	
16,100.00	90.00	180.19	7,870.00	-5,582.36	3,196.81	6,353.12	0.00	0.00	0.00	
16,200.00	90.00	180.19	7,870.00	-5,682.36	3,196.47	6,446.50	0.00	0.00	0.00	
16,300.00	90.00	180.19	7,870.00	-5,782.36	3,196.13	6,539.89	0.00	0.00	0.00	
16,400.00	90.00	180.19	7,870.00	-5,882.36	3,195.79	6,633.27	0.00	0.00	0.00	
16,500.00	90.00	180.19	7,870.00	-5,982.36	3,195.45	6,726.65	0.00	0.00	0.00	
16,600.00	90.00	180.19	7,870.00	-6,082.36	3,195.11	6,820.04	0.00	0.00	0.00	
16,700.00	90.00	180.19	7,870.00	-6,182.36	3,194.77	6,913.42	0.00	0.00	0.00	
16,800.00	90.00	180.19	7,870.00	-6,282.36	3,194.43	7,006.81	0.00	0.00	0.00	
16,900.00	90.00	180.19	7,870.00	-6,382.36	3,194.09	7,100.19	0.00	0.00	0.00	
17,000.00	90.00	180.19	7,870.00	-6,482.36	3,193.75	7,193.57	0.00	0.00	0.00	
17,100.00	90.00	180.19	7,870.00	-6,582.36	3,193.41	7,286.96	0.00	0.00	0.00	
17,200.00	90.00	180.19	7,870.00	-6,682.36	3,193.07	7,380.34	0.00	0.00	0.00	
17,300.00	90.00	180.19	7,870.00	-6,782.36	3,192.74	7,473.72	0.00	0.00	0.00	

Planning Report

Database:	EDT_32Bit_ODBC	Local Co-ordinate Reference:	Well COSSLETT EAST 1F-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 1F-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)	
17,400.00	90.00	180.19	7,870.00	-6,882.35	3,192.40	7,567.11	0.00	0.00	0.00	
17,500.00	90.00	180.19	7,870.00	-6,982.35	3,192.06	7,660.49	0.00	0.00	0.00	
17,600.00	90.00	180.19	7,870.00	-7,082.35	3,191.72	7,753.88	0.00	0.00	0.00	
17,700.00	90.00	180.19	7,870.00	-7,182.35	3,191.38	7,847.26	0.00	0.00	0.00	
17,800.00	90.00	180.19	7,870.00	-7,282.35	3,191.04	7,940.64	0.00	0.00	0.00	
17,900.00	90.00	180.19	7,870.00	-7,382.35	3,190.70	8,034.03	0.00	0.00	0.00	
18,000.00	90.00	180.19	7,870.00	-7,482.35	3,190.36	8,127.41	0.00	0.00	0.00	
18,100.00	90.00	180.19	7,870.00	-7,582.35	3,190.02	8,220.79	0.00	0.00	0.00	
18,200.00	90.00	180.19	7,870.00	-7,682.35	3,189.68	8,314.18	0.00	0.00	0.00	
18,300.00	90.00	180.19	7,870.00	-7,782.35	3,189.34	8,407.56	0.00	0.00	0.00	
18,400.00	90.00	180.19	7,870.00	-7,882.35	3,189.00	8,500.95	0.00	0.00	0.00	
18,500.00	90.00	180.19	7,870.00	-7,982.35	3,188.67	8,594.33	0.00	0.00	0.00	
18,600.00	90.00	180.19	7,870.00	-8,082.35	3,188.33	8,687.71	0.00	0.00	0.00	
18,700.00	90.00	180.19	7,870.00	-8,182.35	3,187.99	8,781.10	0.00	0.00	0.00	
18,800.00	90.00	180.19	7,870.00	-8,282.35	3,187.65	8,874.48	0.00	0.00	0.00	
18,900.00	90.00	180.19	7,870.00	-8,382.35	3,187.31	8,967.86	0.00	0.00	0.00	
18,923.76	90.00	180.19	7,870.00	-8,406.10	3,187.23	8,990.05	0.00	0.00	0.00	
TD at 18923.75										

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 1F-H1 - plan hits target center - Point	0.00	0.00	7,870.00	1,298.54	3,220.14	1,258,874.93	3,147,635.34	40.042795°N	104.972686°W	
PBHL-COSSLETT E 1F- - plan hits target center - Point	0.00	0.00	7,870.00	-8,406.10	3,187.23	1,249,170.61	3,147,658.88	40.016155°N	104.972808°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				
1,049.07	1,049.00	Upper Pierre aquifer				
2,012.77	1,985.00	Base of Upper Pierre aquifer				
4,790.98	4,363.00	Larimer sandstone				
5,271.58	4,771.00	Terry ("Sussex") sandstone				
5,948.90	5,346.00	Hygiene ("Shannon") sandstone				
6,176.25	5,539.00	Pierre shale				
8,615.00	7,613.00	Sharon Springs				
8,621.51	7,618.00	Niobrara				
9,219.06	7,870.00	CODELL		0.00		

Planning Report

Database:	EDT_32Bit_ODBC	Local Co-ordinate Reference:	Well COSSLETT EAST 1F-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 1F-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)	
900.00	900.00	0.00	0.00	Start Build 2.00
2,495.20	2,414.03	233.75	364.22	Start 5657.10 hold at 2495.20 MD
8,152.30	7,216.54	1,848.56	2,880.39	Start DLS 10.00 TFO 118.76
9,219.06	7,870.00	1,298.54	3,220.14	Start 9704.70 hold at 9219.06 MD
18,923.76	7,870.00	-8,406.10	3,187.23	TD at 18923.75