

CRESTONE PEAK RESOURCES

WELD COUNTY

SEC 22-T1N-R68W

COSSLETT EAST 1E-22H-H168

OWB

Plan: PROPOSAL 1

Standard Planning Report

01 March, 2022

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



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

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.00	0.00	1257557.67	3144413.12	40.039231°N	104.984222°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	1000.00	0.00	0.00	1000.00	0.00	0.00	0.00	0.00	0.00	
3	2519.29	30.39	54.62	2449.07	227.84	320.85	2.00	54.62	-111.66	
4	8027.52	30.39	54.62	7200.68	1840.98	2592.54	0.00	0.00	-902.29	
5	9098.65	90.00	180.19	7870.00	1292.31	2909.92	10.00	121.67	-280.41	LP-COSSLETT E 1E-H168
6	18797.52	90.00	180.19	7870.00	-8406.50	2877.16	0.00	0.00	8885.23	PBHL-COSSLETT E 1E-H168

ANNOTATIONS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Vsect	Departure	Annotation
1000.00	0.00	0.00	1000.00	0.00	0.00	0.00	0.00	Start Build 2.00
2519.29	30.39	54.62	2449.07	227.84	320.85	-111.66	393.51	Start DLS 2.0 hold at 2519.29 M
8027.52	30.39	54.62	7200.68	1840.98	2592.54	-902.29	3179.70	Start 508.23 10.00 TFO 121.67
9098.65	90.00	180.19	7870.00	1292.31	2909.92	-280.41	3927.77	Start 9698.87 hold at 9098.65 M
18797.52	90.00	180.19	7870.00	-8406.50	2877.16	8885.23	13626.64	TD at 18797.52

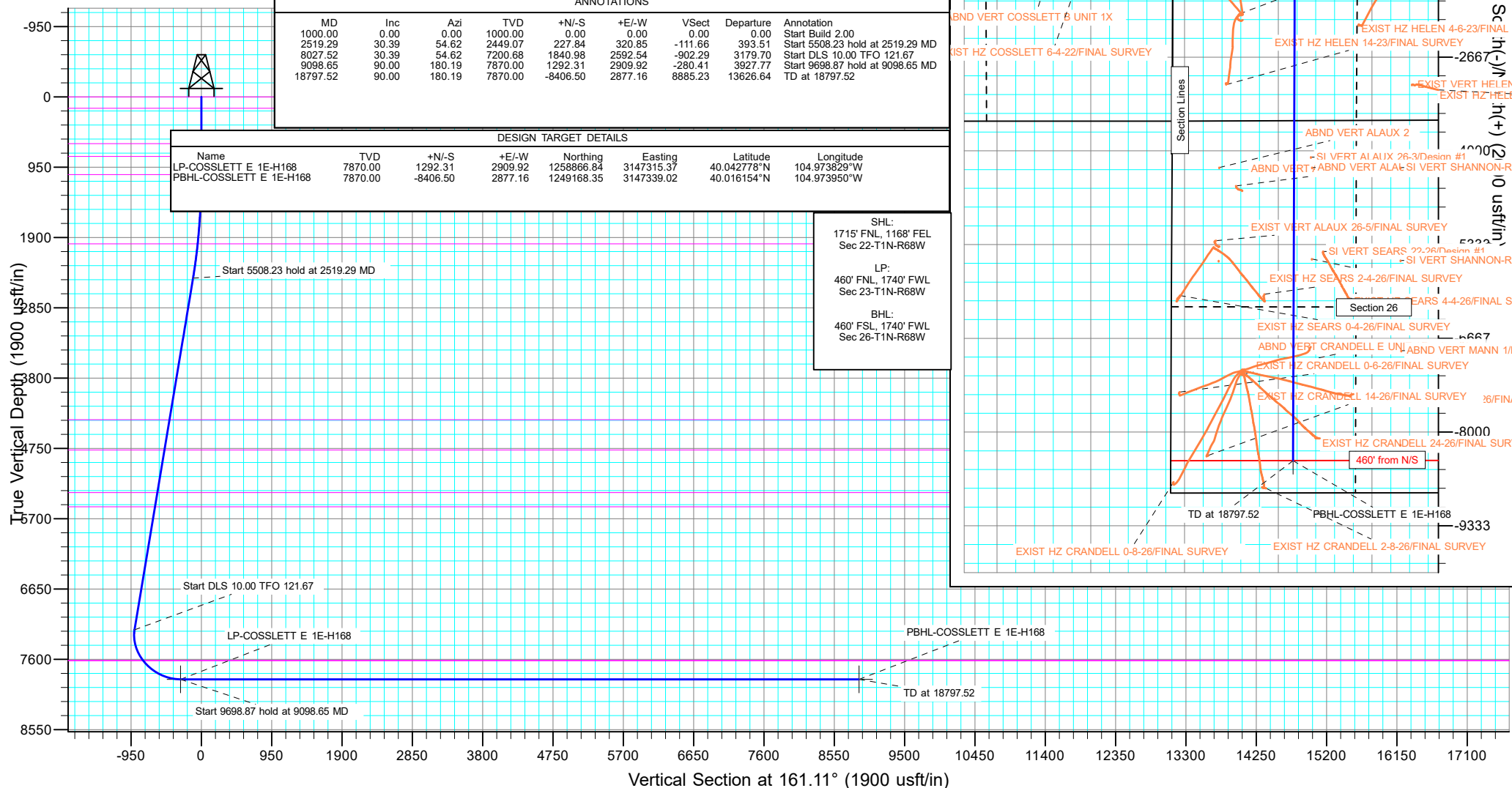
DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
LP-COSSLETT E 1E-H168	7870.00	1292.31	2909.92	1258866.84	3147315.37	40.042778°N	104.973829°W
PBHL-COSSLETT E 1E-H168	7870.00	-8406.50	2877.16	1249168.35	3147339.02	40.016154°N	104.973950°W

SHL:
1715' FNL, 1168' FEL
Sec 22-T1N-R68W

LP:
460' FNL, 1740' FWL
Sec 23-T1N-R68W

BHL:
460' FSL, 1740' FWL
Sec 26-T1N-R68W



Planning Report

Database:	EDT_32Bit_ODBC	Local Co-ordinate Reference:	Well COSSLETT EAST 1E-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 1E-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 1E-22H-H168					
Well Position	+N/-S	-1,717.60 usft	Northing:	1,257,557.67 usft	Latitude:	40.039231°N
	+E/-W	-1,171.25 usft	Easting:	3,144,413.12 usft	Longitude:	104.984222°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	51,667.41045589

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	161.11

Plan Survey Tool Program	Date	3/1/2022			
Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks	
1	0.00	18,797.52	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	
1,000.00	0.00	0.00	1,000.00	0.00	0.00	0.00	0.00	0.00	0.00	
2,519.29	30.39	54.62	2,449.07	227.84	320.85	2.00	2.00	0.00	54.62	
8,027.52	30.39	54.62	7,200.68	1,840.98	2,592.54	0.00	0.00	0.00	0.00	
9,098.65	90.00	180.19	7,870.00	1,292.31	2,909.92	10.00	5.57	11.72	121.67	LP-COSSLETT E 1E-
18,797.52	90.00	180.19	7,870.00	-8,406.50	2,877.16	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 1E-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
Start Build 2.00									
1,049.00	0.98	54.62	1,049.00	0.24	0.34	-0.12	2.00	2.00	0.00
Upper Pierre aquifer									
1,100.00	2.00	54.62	1,099.98	1.01	1.42	-0.50	2.00	2.00	0.00
1,200.00	4.00	54.62	1,199.84	4.04	5.69	-1.98	2.00	2.00	0.00
1,300.00	6.00	54.62	1,299.45	9.09	12.80	-4.45	2.00	2.00	0.00
1,400.00	8.00	54.62	1,398.70	16.14	22.73	-7.91	2.00	2.00	0.00
1,500.00	10.00	54.62	1,497.47	25.20	35.49	-12.35	2.00	2.00	0.00
1,600.00	12.00	54.62	1,595.62	36.25	51.04	-17.76	2.00	2.00	0.00
1,700.00	14.00	54.62	1,693.06	49.27	69.38	-24.15	2.00	2.00	0.00
1,800.00	16.00	54.62	1,789.64	64.25	90.48	-31.49	2.00	2.00	0.00
1,900.00	18.00	54.62	1,885.27	81.18	114.32	-39.79	2.00	2.00	0.00
2,000.00	20.00	54.62	1,979.82	100.03	140.87	-49.03	2.00	2.00	0.00
2,005.52	20.11	54.62	1,985.00	101.13	142.41	-49.56	2.00	2.00	0.00
Base of Upper Pierre aquifer									
2,100.00	22.00	54.62	2,073.17	120.78	170.08	-59.19	2.00	2.00	0.00
2,200.00	24.00	54.62	2,165.21	143.40	201.94	-70.28	2.00	2.00	0.00
2,300.00	26.00	54.62	2,255.84	167.87	236.40	-82.27	2.00	2.00	0.00
2,400.00	28.00	54.62	2,344.94	194.15	273.41	-95.16	2.00	2.00	0.00
2,500.00	30.00	54.62	2,432.39	222.22	312.94	-108.91	2.00	2.00	0.00
2,519.29	30.39	54.62	2,449.07	227.84	320.85	-111.66	2.00	2.00	0.00
Start 5508.23 hold at 2519.29 MD									
2,600.00	30.39	54.62	2,518.69	251.47	354.13	-123.25	0.00	0.00	0.00
2,700.00	30.39	54.62	2,604.95	280.76	395.37	-137.60	0.00	0.00	0.00
2,800.00	30.39	54.62	2,691.22	310.04	436.62	-151.96	0.00	0.00	0.00
2,900.00	30.39	54.62	2,777.48	339.33	477.86	-166.31	0.00	0.00	0.00
3,000.00	30.39	54.62	2,863.75	368.62	519.10	-180.66	0.00	0.00	0.00
3,100.00	30.39	54.62	2,950.01	397.90	560.34	-195.02	0.00	0.00	0.00
3,200.00	30.39	54.62	3,036.27	427.19	601.58	-209.37	0.00	0.00	0.00
3,300.00	30.39	54.62	3,122.54	456.47	642.83	-223.72	0.00	0.00	0.00
3,400.00	30.39	54.62	3,208.80	485.76	684.07	-238.08	0.00	0.00	0.00
3,500.00	30.39	54.62	3,295.07	515.05	725.31	-252.43	0.00	0.00	0.00
3,600.00	30.39	54.62	3,381.33	544.33	766.55	-266.78	0.00	0.00	0.00
3,700.00	30.39	54.62	3,467.59	573.62	807.79	-281.14	0.00	0.00	0.00
3,800.00	30.39	54.62	3,553.86	602.90	849.03	-295.49	0.00	0.00	0.00

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Project:	WELD COUNTY	MD Reference:	KB 25' @ 5208.00usft
Site:	SEC 22-T1N-R68W	North Reference:	True
Well:	COSSLETT EAST 1E-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	30.39	54.62	3,640.12	632.19	890.28	-309.84	0.00	0.00	0.00	
4,000.00	30.39	54.62	3,726.38	661.48	931.52	-324.20	0.00	0.00	0.00	
4,100.00	30.39	54.62	3,812.65	690.76	972.76	-338.55	0.00	0.00	0.00	
4,200.00	30.39	54.62	3,898.91	720.05	1,014.00	-352.90	0.00	0.00	0.00	
4,300.00	30.39	54.62	3,985.18	749.33	1,055.24	-367.26	0.00	0.00	0.00	
4,400.00	30.39	54.62	4,071.44	778.62	1,096.48	-381.61	0.00	0.00	0.00	
4,500.00	30.39	54.62	4,157.70	807.91	1,137.73	-395.96	0.00	0.00	0.00	
4,600.00	30.39	54.62	4,243.97	837.19	1,178.97	-410.32	0.00	0.00	0.00	
4,700.00	30.39	54.62	4,330.23	866.48	1,220.21	-424.67	0.00	0.00	0.00	
4,737.99	30.39	54.62	4,363.00	877.60	1,235.88	-430.12	0.00	0.00	0.00	
Larimer sandstone										
4,800.00	30.39	54.62	4,416.49	895.76	1,261.45	-439.02	0.00	0.00	0.00	
4,900.00	30.39	54.62	4,502.76	925.05	1,302.69	-453.38	0.00	0.00	0.00	
5,000.00	30.39	54.62	4,589.02	954.34	1,343.94	-467.73	0.00	0.00	0.00	
5,100.00	30.39	54.62	4,675.29	983.62	1,385.18	-482.09	0.00	0.00	0.00	
5,200.00	30.39	54.62	4,761.55	1,012.91	1,426.42	-496.44	0.00	0.00	0.00	
5,210.96	30.39	54.62	4,771.00	1,016.12	1,430.94	-498.01	0.00	0.00	0.00	
Terry ("Sussex") sandstone										
5,300.00	30.39	54.62	4,847.81	1,042.19	1,467.66	-510.79	0.00	0.00	0.00	
5,400.00	30.39	54.62	4,934.08	1,071.48	1,508.90	-525.15	0.00	0.00	0.00	
5,500.00	30.39	54.62	5,020.34	1,100.77	1,550.14	-539.50	0.00	0.00	0.00	
5,600.00	30.39	54.62	5,106.60	1,130.05	1,591.39	-553.85	0.00	0.00	0.00	
5,700.00	30.39	54.62	5,192.87	1,159.34	1,632.63	-568.21	0.00	0.00	0.00	
5,800.00	30.39	54.62	5,279.13	1,188.62	1,673.87	-582.56	0.00	0.00	0.00	
5,877.52	30.39	54.62	5,346.00	1,211.32	1,705.84	-593.69	0.00	0.00	0.00	
Hygiene ("Shannon") sandstone										
5,900.00	30.39	54.62	5,365.40	1,217.91	1,715.11	-596.91	0.00	0.00	0.00	
6,000.00	30.39	54.62	5,451.66	1,247.20	1,756.35	-611.27	0.00	0.00	0.00	
6,100.00	30.39	54.62	5,537.92	1,276.48	1,797.60	-625.62	0.00	0.00	0.00	
6,101.25	30.39	54.62	5,539.00	1,276.85	1,798.11	-625.80	0.00	0.00	0.00	
Pierre shale										
6,200.00	30.39	54.62	5,624.19	1,305.77	1,838.84	-639.97	0.00	0.00	0.00	
6,300.00	30.39	54.62	5,710.45	1,335.05	1,880.08	-654.33	0.00	0.00	0.00	
6,400.00	30.39	54.62	5,796.72	1,364.34	1,921.32	-668.68	0.00	0.00	0.00	
6,500.00	30.39	54.62	5,882.98	1,393.63	1,962.56	-683.03	0.00	0.00	0.00	
6,600.00	30.39	54.62	5,969.24	1,422.91	2,003.80	-697.39	0.00	0.00	0.00	
6,700.00	30.39	54.62	6,055.51	1,452.20	2,045.05	-711.74	0.00	0.00	0.00	
6,800.00	30.39	54.62	6,141.77	1,481.48	2,086.29	-726.09	0.00	0.00	0.00	
6,900.00	30.39	54.62	6,228.03	1,510.77	2,127.53	-740.45	0.00	0.00	0.00	
7,000.00	30.39	54.62	6,314.30	1,540.06	2,168.77	-754.80	0.00	0.00	0.00	
7,100.00	30.39	54.62	6,400.56	1,569.34	2,210.01	-769.15	0.00	0.00	0.00	
7,200.00	30.39	54.62	6,486.83	1,598.63	2,251.26	-783.51	0.00	0.00	0.00	
7,300.00	30.39	54.62	6,573.09	1,627.91	2,292.50	-797.86	0.00	0.00	0.00	
7,400.00	30.39	54.62	6,659.35	1,657.20	2,333.74	-812.21	0.00	0.00	0.00	
7,500.00	30.39	54.62	6,745.62	1,686.49	2,374.98	-826.57	0.00	0.00	0.00	
7,600.00	30.39	54.62	6,831.88	1,715.77	2,416.22	-840.92	0.00	0.00	0.00	
7,700.00	30.39	54.62	6,918.14	1,745.06	2,457.46	-855.27	0.00	0.00	0.00	
7,800.00	30.39	54.62	7,004.41	1,774.34	2,498.71	-869.63	0.00	0.00	0.00	
7,900.00	30.39	54.62	7,090.67	1,803.63	2,539.95	-883.98	0.00	0.00	0.00	
8,000.00	30.39	54.62	7,176.94	1,832.92	2,581.19	-898.34	0.00	0.00	0.00	
8,027.52	30.39	54.62	7,200.68	1,840.98	2,592.54	-902.29	0.00	0.00	0.00	
Start DLS 10.00 TFO 121.67										
8,050.00	29.26	58.54	7,220.18	1,847.14	2,601.86	-905.09	10.00	-5.00	17.42	
8,100.00	27.22	68.20	7,264.25	1,857.77	2,622.92	-908.34	10.00	-4.08	19.32	

Planning Report

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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)	
8,150.00	25.93	79.01	7,308.99	1,864.10	2,644.28	-907.41	10.00	-2.59	21.63	
8,200.00	25.50	90.51	7,354.07	1,866.09	2,665.78	-902.33	10.00	-0.86	23.00	
8,250.00	25.98	101.98	7,399.14	1,863.72	2,687.27	-893.13	10.00	0.96	22.96	
8,300.00	27.31	112.74	7,443.85	1,857.01	2,708.58	-879.88	10.00	2.67	21.52	
8,350.00	29.39	122.33	7,487.88	1,846.01	2,729.53	-862.68	10.00	4.16	19.18	
8,400.00	32.07	130.61	7,530.87	1,830.79	2,749.99	-841.67	10.00	5.35	16.56	
8,450.00	35.20	137.66	7,572.51	1,811.49	2,769.78	-816.99	10.00	6.27	14.08	
8,500.00	38.68	143.63	7,612.48	1,788.24	2,788.77	-788.85	10.00	6.96	11.95	
8,500.67	38.73	143.71	7,613.00	1,787.91	2,789.02	-788.45	10.00	7.25	11.01	
Sharon Springs										
8,507.10	39.20	144.41	7,618.00	1,784.63	2,791.39	-784.59	10.00	7.29	10.89	
Niobrara										
8,550.00	42.43	148.74	7,650.47	1,761.22	2,806.80	-757.45	10.00	7.52	10.10	
8,600.00	46.37	153.15	7,686.20	1,730.64	2,823.73	-723.03	10.00	7.88	8.81	
8,650.00	50.45	157.00	7,719.39	1,696.74	2,839.45	-685.86	10.00	8.17	7.71	
8,700.00	54.65	160.42	7,749.79	1,659.76	2,853.82	-646.22	10.00	8.40	6.84	
8,750.00	58.94	163.50	7,777.17	1,619.99	2,866.75	-604.41	10.00	8.57	6.16	
8,800.00	63.29	166.31	7,801.32	1,577.73	2,878.13	-560.74	10.00	8.71	5.62	
8,850.00	67.70	168.91	7,822.06	1,533.30	2,887.87	-515.56	10.00	8.81	5.20	
8,900.00	72.14	171.35	7,839.23	1,487.05	2,895.90	-469.20	10.00	8.89	4.88	
8,950.00	76.61	173.68	7,852.69	1,439.32	2,902.16	-422.02	10.00	8.94	4.64	
9,000.00	81.10	175.91	7,862.35	1,390.48	2,906.60	-374.37	10.00	8.99	4.47	
9,050.00	85.61	178.10	7,868.14	1,340.90	2,909.19	-326.62	10.00	9.01	4.37	
9,098.65	90.00	180.19	7,870.00	1,292.31	2,909.92	-280.41	10.00	9.02	4.31	
Start 9698.87 hold at 9098.65 MD										
9,100.00	90.00	180.19	7,870.00	1,290.96	2,909.91	-279.13	0.00	0.00	0.00	
9,200.00	90.00	180.19	7,870.00	1,190.96	2,909.57	-184.63	0.00	0.00	0.00	
9,300.00	90.00	180.19	7,870.00	1,090.96	2,909.24	-90.13	0.00	0.00	0.00	
9,400.00	90.00	180.19	7,870.00	990.96	2,908.90	4.37	0.00	0.00	0.00	
9,500.00	90.00	180.19	7,870.00	890.96	2,908.56	98.88	0.00	0.00	0.00	
9,600.00	90.00	180.19	7,870.00	790.96	2,908.22	193.38	0.00	0.00	0.00	
9,700.00	90.00	180.19	7,870.00	690.96	2,907.88	287.88	0.00	0.00	0.00	
9,800.00	90.00	180.19	7,870.00	590.96	2,907.55	382.38	0.00	0.00	0.00	
9,900.00	90.00	180.19	7,870.00	490.96	2,907.21	476.88	0.00	0.00	0.00	
10,000.00	90.00	180.19	7,870.00	390.96	2,906.87	571.39	0.00	0.00	0.00	
10,100.00	90.00	180.19	7,870.00	290.96	2,906.53	665.89	0.00	0.00	0.00	
10,200.00	90.00	180.19	7,870.00	190.96	2,906.20	760.39	0.00	0.00	0.00	
10,300.00	90.00	180.19	7,870.00	90.97	2,905.86	854.89	0.00	0.00	0.00	
10,400.00	90.00	180.19	7,870.00	-9.03	2,905.52	949.39	0.00	0.00	0.00	
10,500.00	90.00	180.19	7,870.00	-109.03	2,905.18	1,043.90	0.00	0.00	0.00	
10,600.00	90.00	180.19	7,870.00	-209.03	2,904.85	1,138.40	0.00	0.00	0.00	
10,700.00	90.00	180.19	7,870.00	-309.03	2,904.51	1,232.90	0.00	0.00	0.00	
10,800.00	90.00	180.19	7,870.00	-409.03	2,904.17	1,327.40	0.00	0.00	0.00	
10,900.00	90.00	180.19	7,870.00	-509.03	2,903.83	1,421.91	0.00	0.00	0.00	
11,000.00	90.00	180.19	7,870.00	-609.03	2,903.49	1,516.41	0.00	0.00	0.00	
11,100.00	90.00	180.19	7,870.00	-709.03	2,903.16	1,610.91	0.00	0.00	0.00	
11,200.00	90.00	180.19	7,870.00	-809.03	2,902.82	1,705.41	0.00	0.00	0.00	
11,300.00	90.00	180.19	7,870.00	-909.03	2,902.48	1,799.91	0.00	0.00	0.00	
11,400.00	90.00	180.19	7,870.00	-1,009.03	2,902.14	1,894.42	0.00	0.00	0.00	
11,500.00	90.00	180.19	7,870.00	-1,109.03	2,901.81	1,988.92	0.00	0.00	0.00	
11,600.00	90.00	180.19	7,870.00	-1,209.03	2,901.47	2,083.42	0.00	0.00	0.00	
11,700.00	90.00	180.19	7,870.00	-1,309.03	2,901.13	2,177.92	0.00	0.00	0.00	
11,800.00	90.00	180.19	7,870.00	-1,409.03	2,900.79	2,272.43	0.00	0.00	0.00	

Planning Report

Database:	EDT_32Bit_ODBC	Local Co-ordinate Reference:	Well COSSLETT EAST 1E-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 1E-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	7,870.00	-1,509.03	2,900.46	2,366.93	0.00	0.00	0.00
12,000.00	90.00	180.19	7,870.00	-1,609.02	2,900.12	2,461.43	0.00	0.00	0.00
12,100.00	90.00	180.19	7,870.00	-1,709.02	2,899.78	2,555.93	0.00	0.00	0.00
12,200.00	90.00	180.19	7,870.00	-1,809.02	2,899.44	2,650.43	0.00	0.00	0.00
12,300.00	90.00	180.19	7,870.00	-1,909.02	2,899.10	2,744.94	0.00	0.00	0.00
12,400.00	90.00	180.19	7,870.00	-2,009.02	2,898.77	2,839.44	0.00	0.00	0.00
12,500.00	90.00	180.19	7,870.00	-2,109.02	2,898.43	2,933.94	0.00	0.00	0.00
12,600.00	90.00	180.19	7,870.00	-2,209.02	2,898.09	3,028.44	0.00	0.00	0.00
12,700.00	90.00	180.19	7,870.00	-2,309.02	2,897.75	3,122.95	0.00	0.00	0.00
12,800.00	90.00	180.19	7,870.00	-2,409.02	2,897.42	3,217.45	0.00	0.00	0.00
12,900.00	90.00	180.19	7,870.00	-2,509.02	2,897.08	3,311.95	0.00	0.00	0.00
13,000.00	90.00	180.19	7,870.00	-2,609.02	2,896.74	3,406.45	0.00	0.00	0.00
13,100.00	90.00	180.19	7,870.00	-2,709.02	2,896.40	3,500.95	0.00	0.00	0.00
13,200.00	90.00	180.19	7,870.00	-2,809.02	2,896.06	3,595.46	0.00	0.00	0.00
13,300.00	90.00	180.19	7,870.00	-2,909.02	2,895.73	3,689.96	0.00	0.00	0.00
13,400.00	90.00	180.19	7,870.00	-3,009.02	2,895.39	3,784.46	0.00	0.00	0.00
13,500.00	90.00	180.19	7,870.00	-3,109.02	2,895.05	3,878.96	0.00	0.00	0.00
13,600.00	90.00	180.19	7,870.00	-3,209.02	2,894.71	3,973.46	0.00	0.00	0.00
13,700.00	90.00	180.19	7,870.00	-3,309.02	2,894.38	4,067.97	0.00	0.00	0.00
13,800.00	90.00	180.19	7,870.00	-3,409.01	2,894.04	4,162.47	0.00	0.00	0.00
13,900.00	90.00	180.19	7,870.00	-3,509.01	2,893.70	4,256.97	0.00	0.00	0.00
14,000.00	90.00	180.19	7,870.00	-3,609.01	2,893.36	4,351.47	0.00	0.00	0.00
14,100.00	90.00	180.19	7,870.00	-3,709.01	2,893.03	4,445.98	0.00	0.00	0.00
14,200.00	90.00	180.19	7,870.00	-3,809.01	2,892.69	4,540.48	0.00	0.00	0.00
14,300.00	90.00	180.19	7,870.00	-3,909.01	2,892.35	4,634.98	0.00	0.00	0.00
14,400.00	90.00	180.19	7,870.00	-4,009.01	2,892.01	4,729.48	0.00	0.00	0.00
14,500.00	90.00	180.19	7,870.00	-4,109.01	2,891.67	4,823.98	0.00	0.00	0.00
14,600.00	90.00	180.19	7,870.00	-4,209.01	2,891.34	4,918.49	0.00	0.00	0.00
14,700.00	90.00	180.19	7,870.00	-4,309.01	2,891.00	5,012.99	0.00	0.00	0.00
14,800.00	90.00	180.19	7,870.00	-4,409.01	2,890.66	5,107.49	0.00	0.00	0.00
14,900.00	90.00	180.19	7,870.00	-4,509.01	2,890.32	5,201.99	0.00	0.00	0.00
15,000.00	90.00	180.19	7,870.00	-4,609.01	2,889.99	5,296.50	0.00	0.00	0.00
15,100.00	90.00	180.19	7,870.00	-4,709.01	2,889.65	5,391.00	0.00	0.00	0.00
15,200.00	90.00	180.19	7,870.00	-4,809.01	2,889.31	5,485.50	0.00	0.00	0.00
15,300.00	90.00	180.19	7,870.00	-4,909.01	2,888.97	5,580.00	0.00	0.00	0.00
15,400.00	90.00	180.19	7,870.00	-5,009.01	2,888.63	5,674.50	0.00	0.00	0.00
15,500.00	90.00	180.19	7,870.00	-5,109.00	2,888.30	5,769.01	0.00	0.00	0.00
15,600.00	90.00	180.19	7,870.00	-5,209.00	2,887.96	5,863.51	0.00	0.00	0.00
15,700.00	90.00	180.19	7,870.00	-5,309.00	2,887.62	5,958.01	0.00	0.00	0.00
15,800.00	90.00	180.19	7,870.00	-5,409.00	2,887.28	6,052.51	0.00	0.00	0.00
15,900.00	90.00	180.19	7,870.00	-5,509.00	2,886.95	6,147.02	0.00	0.00	0.00
16,000.00	90.00	180.19	7,870.00	-5,609.00	2,886.61	6,241.52	0.00	0.00	0.00
16,100.00	90.00	180.19	7,870.00	-5,709.00	2,886.27	6,336.02	0.00	0.00	0.00
16,200.00	90.00	180.19	7,870.00	-5,809.00	2,885.93	6,430.52	0.00	0.00	0.00
16,300.00	90.00	180.19	7,870.00	-5,909.00	2,885.60	6,525.02	0.00	0.00	0.00
16,400.00	90.00	180.19	7,870.00	-6,009.00	2,885.26	6,619.53	0.00	0.00	0.00
16,500.00	90.00	180.19	7,870.00	-6,109.00	2,884.92	6,714.03	0.00	0.00	0.00
16,600.00	90.00	180.19	7,870.00	-6,209.00	2,884.58	6,808.53	0.00	0.00	0.00
16,700.00	90.00	180.19	7,870.00	-6,309.00	2,884.24	6,903.03	0.00	0.00	0.00
16,800.00	90.00	180.19	7,870.00	-6,409.00	2,883.91	6,997.53	0.00	0.00	0.00
16,900.00	90.00	180.19	7,870.00	-6,509.00	2,883.57	7,092.04	0.00	0.00	0.00
17,000.00	90.00	180.19	7,870.00	-6,609.00	2,883.23	7,186.54	0.00	0.00	0.00
17,100.00	90.00	180.19	7,870.00	-6,709.00	2,882.89	7,281.04	0.00	0.00	0.00
17,200.00	90.00	180.19	7,870.00	-6,809.00	2,882.56	7,375.54	0.00	0.00	0.00

Planning Report

Database:	EDT_32Bit_ODBC	Local Co-ordinate Reference:	Well COSSLETT EAST 1E-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 1E-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	7,870.00	-6,908.99	2,882.22	7,470.05	0.00	0.00	0.00	
17,400.00	90.00	180.19	7,870.00	-7,008.99	2,881.88	7,564.55	0.00	0.00	0.00	
17,500.00	90.00	180.19	7,870.00	-7,108.99	2,881.54	7,659.05	0.00	0.00	0.00	
17,600.00	90.00	180.19	7,870.00	-7,208.99	2,881.21	7,753.55	0.00	0.00	0.00	
17,700.00	90.00	180.19	7,870.00	-7,308.99	2,880.87	7,848.05	0.00	0.00	0.00	
17,800.00	90.00	180.19	7,870.00	-7,408.99	2,880.53	7,942.56	0.00	0.00	0.00	
17,900.00	90.00	180.19	7,870.00	-7,508.99	2,880.19	8,037.06	0.00	0.00	0.00	
18,000.00	90.00	180.19	7,870.00	-7,608.99	2,879.85	8,131.56	0.00	0.00	0.00	
18,100.00	90.00	180.19	7,870.00	-7,708.99	2,879.52	8,226.06	0.00	0.00	0.00	
18,200.00	90.00	180.19	7,870.00	-7,808.99	2,879.18	8,320.57	0.00	0.00	0.00	
18,300.00	90.00	180.19	7,870.00	-7,908.99	2,878.84	8,415.07	0.00	0.00	0.00	
18,400.00	90.00	180.19	7,870.00	-8,008.99	2,878.50	8,509.57	0.00	0.00	0.00	
18,500.00	90.00	180.19	7,870.00	-8,108.99	2,878.17	8,604.07	0.00	0.00	0.00	
18,600.00	90.00	180.19	7,870.00	-8,208.99	2,877.83	8,698.57	0.00	0.00	0.00	
18,700.00	90.00	180.19	7,870.00	-8,308.99	2,877.49	8,793.08	0.00	0.00	0.00	
18,797.52	90.00	180.19	7,870.00	-8,406.50	2,877.16	8,885.23	0.00	0.00	0.00	
TD at 18797.52										

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
- hit/miss target									
- Shape									
LP-COSSLETT E 1E-H1	0.00	0.00	7,870.00	1,292.31	2,909.92	1,258,866.84	3,147,315.37	40.042778°N	104.973829°W
- plan hits target center									
- Point									
PBHL-COSSLETT E 1E	0.00	0.00	7,870.00	-8,406.50	2,877.16	1,249,168.35	3,147,339.02	40.016154°N	104.973950°W
- plan hits target center									
- Point									

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				
2,005.52	1,985.00	Base of Upper Pierre aquifer				
4,737.99	4,363.00	Larimer sandstone				
5,210.96	4,771.00	Terry ("Sussex") sandstone				
5,877.52	5,346.00	Hygiene ("Shannon") sandstone				
6,101.25	5,539.00	Pierre shale				
8,500.67	7,613.00	Sharon Springs				
8,507.10	7,618.00	Niobrara				

Planning Report

Database:	EDT_32Bit_ODBC	Local Co-ordinate Reference:	Well COSSLETT EAST 1E-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 1E-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)	
1,000.00	1,000.00	0.00	0.00	Start Build 2.00
2,519.29	2,449.07	227.84	320.85	Start 5508.23 hold at 2519.29 MD
8,027.52	7,200.68	1,840.98	2,592.54	Start DLS 10.00 TFO 121.67
9,098.65	7,870.00	1,292.31	2,909.92	Start 9698.87 hold at 9098.65 MD
18,797.52	7,870.00	-8,406.50	2,877.16	TD at 18797.52