

CRESTONE PEAK RESOURCES

ARAPAHOE COUNTY

SEC 2-T4S-R65W

PROPERTY RESERVE 4-65 3-4 1AH

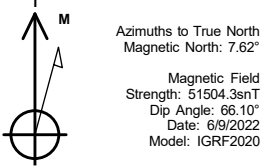
OWB

Plan: PROPOSAL 1

Standard Planning Report

12 August, 2022

Project: ARAPAHOE COUNTY
Site: SEC 2-T4S-R65W
Well: PROPERTY RESERVE 4-65 3-4 1AH
Wellbore: OWB
Design: PROPOSAL 1



WELL DETAILS: PROPERTY RESERVE 4-65 3-4 1AH						
			5631.81			
+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.00	0.00	1691940.87	3242233.09	39.730029°N	104.638751°W	

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	
1301.54	24.03	354.04	1266.62	246.96	-25.77	96.08	248.30	Start 6584.88 hold at 1301.54 MD	
7886.41	24.03	354.04	7280.76	2914.02	-304.10	1133.65	2929.85	Start DLS 10.00 TFO -83.94	
8759.46	90.00	270.67	7780.00	3141.85	-873.78	1744.87	3580.05	Start 9914.51 hold at 8759.46 MD	
18673.97	90.00	270.67	7780.00	3258.49	-10787.60	11268.99	13494.56	TD at 18673.97	

SECTION DETAILS									
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect
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	1301.54	24.03	354.04	1266.62	246.96	-25.77	2.00	354.04	96.08
4	7886.41	24.03	354.04	7280.76	2914.02	-304.10	0.00	0.00	1133.65
5	8759.46	90.00	270.67	7780.00	3141.85	-873.78	10.00	-83.94	1744.87
6	18673.97	90.00	270.67	7780.00	3258.49	-10787.60	0.00	0.00	11268.99

DESIGN TARGET DETAILS									
Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape	
LP-PROPERTY RESERVE 4-65 3-4 1AH	7780.00	3141.85	-873.78	1695074.28	3241329.57	39.738654°N	104.641858°W	Point	
- plan hits target center									
PBHL-PROPERTY RESERVE 4-65 3-4 1AH	7780.00	3258.49	-10787.60	1695096.93	3231415.13	39.738968°N	104.677110°W	Point	
- plan hits target center									

SHL:
1610' FSL, 553' FWL
Sec 2-T4S-R65W

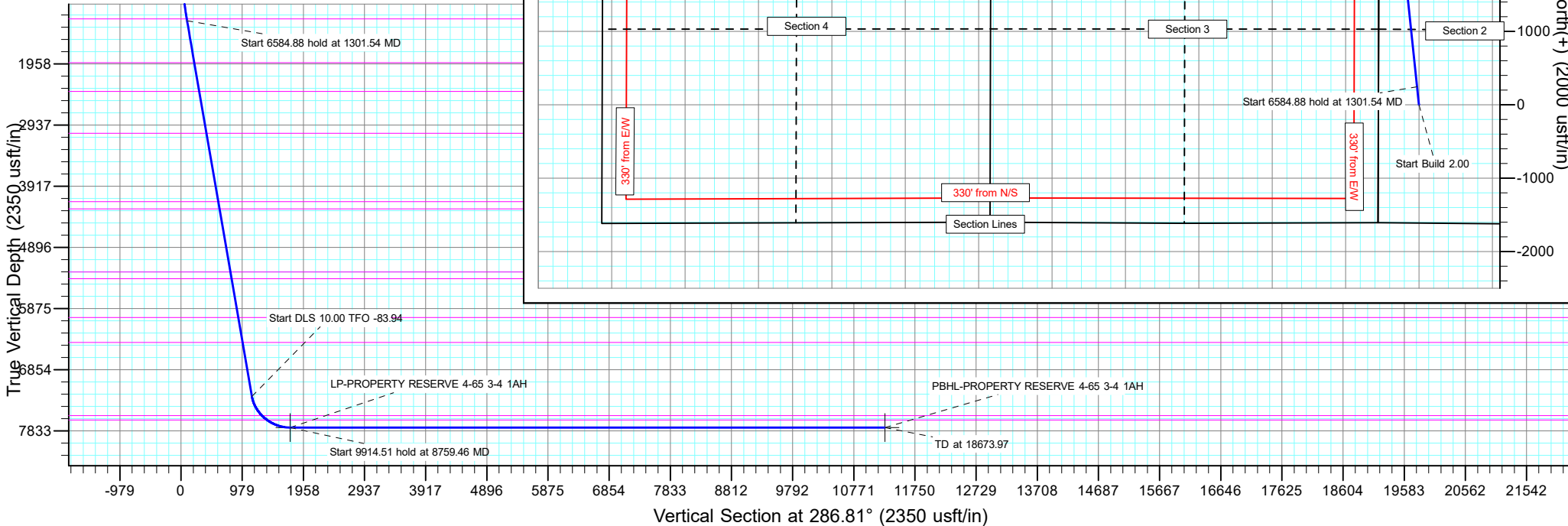
LP:
450' FNL, 330' FEL
Sec 3-T4S-R65W

BHL:
380' FNL, 330' FWL
Sec 4-T4S-R65W

PROJECT DETAILS: ARAPAHOE COUNTY

Geodetic System: US State Plane 1983
Datum: North American Datum 1983
Ellipsoid: GRS 1980
Zone: Colorado Central Zone

System Datum: Mean Sea Level



Planning Report

Database:	EDT_32Bit_ODBC	Local Co-ordinate Reference:	Well PROPERTY RESERVE 4-65 3-4 1AH
Company:	CRESTONE PEAK RESOURCES	TVD Reference:	KB 25' @ 5656.81usft
Project:	ARAPAHOE COUNTY	MD Reference:	KB 25' @ 5656.81usft
Site:	SEC 2-T4S-R65W	North Reference:	True
Well:	PROPERTY RESERVE 4-65 3-4 1AH	Survey Calculation Method:	Minimum Curvature
Wellbore:	OWB		
Design:	PROPOSAL 1		

Project	ARAPAHOE COUNTY		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	Colorado Central Zone		Using geodetic scale factor

Site		SEC 2-T4S-R65W			
Site Position:		Northing:	1,695,525.07 usft	Latitude:	39.739883°N
From:	Lat/Long	Easting:	3,241,656.33 usft	Longitude:	104.640681°W
Position Uncertainty:	0.00 usft	Slot Radius:	13.200 in	Grid Convergence:	0.54 °

Well	PROPERTY RESERVE 4-65 3-4 1AH					
Well Position	+N/-S	-3,589.51 usft	Northing:	1,691,940.86 usft	Latitude:	39.730029°N
	+E/-W	542.84 usft	Easting:	3,242,233.09 usft	Longitude:	104.638751°W
Position Uncertainty		0.00 usft	Wellhead Elevation:		Ground Level:	5,631.81 usft

Wellbore	OWB				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2020	6/9/2022	7.62	66.10	51,504.34115432

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	286.81

Plan Survey Tool Program	Date	8/12/2022		
Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks
1	0.00	18,673.97	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	
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,301.54	24.03	354.04	1,266.62	246.96	-25.77	2.00	2.00	0.00	354.04	
7,886.41	24.03	354.04	7,280.76	2,914.02	-304.10	0.00	0.00	0.00	0.00	
8,759.46	90.00	270.67	7,780.00	3,141.85	-873.78	10.00	7.56	-9.55	-83.94	LP-PROPERTY RESI
18,673.97	90.00	270.67	7,780.00	3,258.49	-10,787.60	0.00	0.00	0.00	0.00	PBHL-PROPERTY RI

Planning Report

Database:	EDT_32Bit_ODBC	Local Co-ordinate Reference:	Well PROPERTY RESERVE 4-65 3-4 1AH
Company:	CRESTONE PEAK RESOURCES	TVD Reference:	KB 25' @ 5656.81usft
Project:	ARAPAHOE COUNTY	MD Reference:	KB 25' @ 5656.81usft
Site:	SEC 2-T4S-R65W	North Reference:	True
Well:	PROPERTY RESERVE 4-65 3-4 1AH	Survey Calculation Method:	Minimum Curvature
Wellbore:	OWB		
Design:	PROPOSAL 1		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
24.00	0.00	0.00	24.00	0.00	0.00	0.00	0.00	0.00	0.00
Denver									
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00
Start Build 2.00									
200.00	2.00	354.04	199.98	1.74	-0.18	0.68	2.00	2.00	0.00
300.00	4.00	354.04	299.84	6.94	-0.72	2.70	2.00	2.00	0.00
400.00	6.00	354.04	399.45	15.61	-1.63	6.07	2.00	2.00	0.00
500.00	8.00	354.04	498.70	27.73	-2.89	10.79	2.00	2.00	0.00
600.00	10.00	354.04	597.47	43.29	-4.52	16.84	2.00	2.00	0.00
667.71	11.35	354.04	664.00	55.76	-5.82	21.69	2.00	2.00	0.00
Arapahoe									
700.00	12.00	354.04	695.62	62.26	-6.50	24.22	2.00	2.00	0.00
800.00	14.00	354.04	793.06	84.64	-8.83	32.93	2.00	2.00	0.00
900.00	16.00	354.04	889.64	110.38	-11.52	42.94	2.00	2.00	0.00
1,000.00	18.00	354.04	985.27	139.46	-14.55	54.25	2.00	2.00	0.00
1,100.00	20.00	354.04	1,079.82	171.84	-17.93	66.85	2.00	2.00	0.00
1,200.00	22.00	354.04	1,173.17	207.48	-21.65	80.71	2.00	2.00	0.00
1,271.37	23.43	354.04	1,239.00	234.88	-24.51	91.38	2.00	2.00	0.00
Laramie-Fox Hills Formation									
1,301.54	24.03	354.04	1,266.62	246.96	-25.77	96.08	2.00	2.00	0.00
Start 6584.88 hold at 1301.54 MD									
1,400.00	24.03	354.04	1,356.55	286.84	-29.93	111.59	0.00	0.00	0.00
1,500.00	24.03	354.04	1,447.88	327.34	-34.16	127.35	0.00	0.00	0.00
1,600.00	24.03	354.04	1,539.21	367.85	-38.39	143.10	0.00	0.00	0.00
1,700.00	24.03	354.04	1,630.55	408.35	-42.61	158.86	0.00	0.00	0.00
1,800.00	24.03	354.04	1,721.88	448.85	-46.84	174.62	0.00	0.00	0.00
1,900.00	24.03	354.04	1,813.21	489.35	-51.07	190.37	0.00	0.00	0.00
2,000.00	24.03	354.04	1,904.54	529.86	-55.29	206.13	0.00	0.00	0.00
2,037.73	24.03	354.04	1,939.00	545.14	-56.89	212.08	0.00	0.00	0.00
Pierre Formation									
2,100.00	24.03	354.04	1,995.88	570.36	-59.52	221.89	0.00	0.00	0.00
2,200.00	24.03	354.04	2,087.21	610.86	-63.75	237.64	0.00	0.00	0.00
2,300.00	24.03	354.04	2,178.54	651.37	-67.97	253.40	0.00	0.00	0.00
2,400.00	24.03	354.04	2,269.87	691.87	-72.20	269.16	0.00	0.00	0.00
2,500.00	24.03	354.04	2,361.21	732.37	-76.43	284.92	0.00	0.00	0.00
2,541.38	24.03	354.04	2,399.00	749.13	-78.18	291.44	0.00	0.00	0.00
Upper Pierre aquifer									
2,600.00	24.03	354.04	2,452.54	772.87	-80.65	300.67	0.00	0.00	0.00
2,700.00	24.03	354.04	2,543.87	813.38	-84.88	316.43	0.00	0.00	0.00
2,800.00	24.03	354.04	2,635.20	853.88	-89.11	332.19	0.00	0.00	0.00
2,900.00	24.03	354.04	2,726.54	894.38	-93.33	347.94	0.00	0.00	0.00
3,000.00	24.03	354.04	2,817.87	934.89	-97.56	363.70	0.00	0.00	0.00
3,100.00	24.03	354.04	2,909.20	975.39	-101.79	379.46	0.00	0.00	0.00
3,200.00	24.03	354.04	3,000.54	1,015.89	-106.01	395.21	0.00	0.00	0.00
3,274.96	24.03	354.04	3,069.00	1,046.25	-109.18	407.03	0.00	0.00	0.00
Base of Upper Pierre aquifer									
3,300.00	24.03	354.04	3,091.87	1,056.39	-110.24	410.97	0.00	0.00	0.00
3,400.00	24.03	354.04	3,183.20	1,096.90	-114.47	426.73	0.00	0.00	0.00
3,500.00	24.03	354.04	3,274.53	1,137.40	-118.69	442.48	0.00	0.00	0.00
3,600.00	24.03	354.04	3,365.87	1,177.90	-122.92	458.24	0.00	0.00	0.00
3,700.00	24.03	354.04	3,457.20	1,218.41	-127.15	474.00	0.00	0.00	0.00
3,800.00	24.03	354.04	3,548.53	1,258.91	-131.37	489.75	0.00	0.00	0.00

Planning Report

Database:	EDT_32Bit_ODBC	Local Co-ordinate Reference:	Well PROPERTY RESERVE 4-65 3-4 1AH
Company:	CRESTONE PEAK RESOURCES	TVD Reference:	KB 25' @ 5656.81usft
Project:	ARAPAHOE COUNTY	MD Reference:	KB 25' @ 5656.81usft
Site:	SEC 2-T4S-R65W	North Reference:	True
Well:	PROPERTY RESERVE 4-65 3-4 1AH	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	24.03	354.04	3,639.86	1,299.41	-135.60	505.51	0.00	0.00	0.00	
4,000.00	24.03	354.04	3,731.20	1,339.91	-139.83	521.27	0.00	0.00	0.00	
4,100.00	24.03	354.04	3,822.53	1,380.42	-144.05	537.03	0.00	0.00	0.00	
4,200.00	24.03	354.04	3,913.86	1,420.92	-148.28	552.78	0.00	0.00	0.00	
4,300.00	24.03	354.04	4,005.19	1,461.42	-152.51	568.54	0.00	0.00	0.00	
4,400.00	24.03	354.04	4,096.53	1,501.93	-156.73	584.30	0.00	0.00	0.00	
4,473.88	24.03	354.04	4,164.00	1,531.85	-159.86	595.94	0.00	0.00	0.00	
Larimer ("Parkman") sandstone										
4,500.00	24.03	354.04	4,187.86	1,542.43	-160.96	600.05	0.00	0.00	0.00	
4,599.79	24.03	354.04	4,279.00	1,582.85	-165.18	615.78	0.00	0.00	0.00	
Pierre Formation										
4,600.00	24.03	354.04	4,279.19	1,582.93	-165.19	615.81	0.00	0.00	0.00	
4,700.00	24.03	354.04	4,370.52	1,623.43	-169.41	631.57	0.00	0.00	0.00	
4,800.00	24.03	354.04	4,461.86	1,663.94	-173.64	647.32	0.00	0.00	0.00	
4,900.00	24.03	354.04	4,553.19	1,704.44	-177.87	663.08	0.00	0.00	0.00	
5,000.00	24.03	354.04	4,644.52	1,744.94	-182.10	678.84	0.00	0.00	0.00	
5,100.00	24.03	354.04	4,735.86	1,785.45	-186.32	694.59	0.00	0.00	0.00	
5,200.00	24.03	354.04	4,827.19	1,825.95	-190.55	710.35	0.00	0.00	0.00	
5,300.00	24.03	354.04	4,918.52	1,866.45	-194.78	726.11	0.00	0.00	0.00	
5,400.00	24.03	354.04	5,009.85	1,906.95	-199.00	741.86	0.00	0.00	0.00	
5,500.00	24.03	354.04	5,101.19	1,947.46	-203.23	757.62	0.00	0.00	0.00	
5,600.00	24.03	354.04	5,192.52	1,987.96	-207.46	773.38	0.00	0.00	0.00	
5,700.00	24.03	354.04	5,283.85	2,028.46	-211.68	789.14	0.00	0.00	0.00	
5,705.64	24.03	354.04	5,289.00	2,030.75	-211.92	790.02	0.00	0.00	0.00	
Terry ("Sussex") sandstone										
5,800.00	24.03	354.04	5,375.18	2,068.97	-215.91	804.89	0.00	0.00	0.00	
5,826.08	24.03	354.04	5,399.00	2,079.53	-217.01	809.00	0.00	0.00	0.00	
Pierre Formation										
5,900.00	24.03	354.04	5,466.52	2,109.47	-220.14	820.65	0.00	0.00	0.00	
6,000.00	24.03	354.04	5,557.85	2,149.97	-224.36	836.41	0.00	0.00	0.00	
6,100.00	24.03	354.04	5,649.18	2,190.47	-228.59	852.16	0.00	0.00	0.00	
6,200.00	24.03	354.04	5,740.51	2,230.98	-232.82	867.92	0.00	0.00	0.00	
6,300.00	24.03	354.04	5,831.85	2,271.48	-237.04	883.68	0.00	0.00	0.00	
6,400.00	24.03	354.04	5,923.18	2,311.98	-241.27	899.43	0.00	0.00	0.00	
6,500.00	24.03	354.04	6,014.51	2,352.49	-245.50	915.19	0.00	0.00	0.00	
6,504.91	24.03	354.04	6,019.00	2,354.48	-245.70	915.96	0.00	0.00	0.00	
Hygiene ("Shannon") sandstone										
6,600.00	24.03	354.04	6,105.85	2,392.99	-249.72	930.95	0.00	0.00	0.00	
6,700.00	24.03	354.04	6,197.18	2,433.49	-253.95	946.70	0.00	0.00	0.00	
6,800.00	24.03	354.04	6,288.51	2,473.99	-258.18	962.46	0.00	0.00	0.00	
6,900.00	24.03	354.04	6,379.84	2,514.50	-262.40	978.22	0.00	0.00	0.00	
6,942.87	24.03	354.04	6,419.00	2,531.86	-264.21	984.97	0.00	0.00	0.00	
Pierre Formation										
7,000.00	24.03	354.04	6,471.18	2,555.00	-266.63	993.98	0.00	0.00	0.00	
7,100.00	24.03	354.04	6,562.51	2,595.50	-270.86	1,009.73	0.00	0.00	0.00	
7,200.00	24.03	354.04	6,653.84	2,636.01	-275.08	1,025.49	0.00	0.00	0.00	
7,300.00	24.03	354.04	6,745.17	2,676.51	-279.31	1,041.25	0.00	0.00	0.00	
7,400.00	24.03	354.04	6,836.51	2,717.01	-283.54	1,057.00	0.00	0.00	0.00	
7,500.00	24.03	354.04	6,927.84	2,757.51	-287.76	1,072.76	0.00	0.00	0.00	
7,600.00	24.03	354.04	7,019.17	2,798.02	-291.99	1,088.52	0.00	0.00	0.00	
7,700.00	24.03	354.04	7,110.50	2,838.52	-296.22	1,104.27	0.00	0.00	0.00	
7,800.00	24.03	354.04	7,201.84	2,879.02	-300.44	1,120.03	0.00	0.00	0.00	
7,886.41	24.03	354.04	7,280.76	2,914.02	-304.10	1,133.65	0.00	0.00	0.00	

Planning Report

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Company:	CRESTONE PEAK RESOURCES	TVD Reference:	KB 25' @ 5656.81usft
Project:	ARAPAHOE COUNTY	MD Reference:	KB 25' @ 5656.81usft
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Well:	PROPERTY RESERVE 4-65 3-4 1AH	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)	
Start DLS 10.00 TFO -83.94										
7,900.00	24.21	350.75	7,293.16	2,919.52	-304.83	1,135.94	10.00	1.32	-24.26	
7,950.00	25.45	339.19	7,338.57	2,939.70	-310.30	1,147.01	10.00	2.48	-23.11	
8,000.00	27.51	328.95	7,383.34	2,959.65	-320.08	1,162.14	10.00	4.11	-20.49	
8,050.00	30.20	320.21	7,427.15	2,979.21	-334.09	1,181.21	10.00	5.40	-17.48	
8,100.00	33.39	312.89	7,469.66	2,998.26	-352.23	1,204.08	10.00	6.37	-14.65	
8,150.00	36.94	306.76	7,510.54	3,016.62	-374.36	1,230.57	10.00	7.10	-12.25	
8,200.00	40.75	301.60	7,549.48	3,034.18	-400.31	1,260.49	10.00	7.63	-10.32	
8,250.00	44.76	297.20	7,586.19	3,050.79	-429.89	1,293.61	10.00	8.02	-8.81	
8,253.96	45.09	296.88	7,589.00	3,052.06	-432.38	1,296.36	10.00	8.19	-8.12	
Sharon Springs Member										
8,300.00	48.92	293.39	7,620.40	3,066.32	-462.86	1,329.67	10.00	8.32	-7.58	
8,350.00	53.19	290.03	7,651.82	3,080.67	-498.99	1,368.40	10.00	8.53	-6.71	
8,362.13	54.24	289.28	7,659.00	3,083.95	-508.19	1,378.16	10.00	8.65	-6.23	
Niobrara Formation										
8,400.00	57.54	287.04	7,680.24	3,093.71	-537.98	1,409.50	10.00	8.72	-5.91	
8,450.00	61.95	284.32	7,705.43	3,105.36	-579.56	1,452.66	10.00	8.83	-5.43	
8,500.00	66.42	281.82	7,727.20	3,115.52	-623.39	1,497.56	10.00	8.93	-5.00	
8,550.00	70.92	279.49	7,745.38	3,124.11	-669.15	1,543.85	10.00	9.00	-4.67	
8,600.00	75.45	277.27	7,759.84	3,131.07	-716.49	1,591.18	10.00	9.06	-4.42	
8,650.00	80.00	275.15	7,770.47	3,136.35	-765.04	1,639.19	10.00	9.10	-4.24	
8,700.00	84.57	273.09	7,777.18	3,139.90	-814.45	1,687.51	10.00	9.13	-4.13	
8,750.00	89.14	271.06	7,779.93	3,141.71	-864.32	1,735.78	10.00	9.14	-4.06	
8,759.46	90.00	270.67	7,780.00	3,141.85	-873.78	1,744.87	10.00	9.14	-4.05	
Start 9914.51 hold at 8759.46 MD										
8,800.00	90.00	270.67	7,780.00	3,142.33	-914.32	1,783.81	0.00	0.00	0.00	
8,900.00	90.00	270.67	7,780.00	3,143.50	-1,014.31	1,879.88	0.00	0.00	0.00	
9,000.00	90.00	270.67	7,780.00	3,144.68	-1,114.30	1,975.94	0.00	0.00	0.00	
9,100.00	90.00	270.67	7,780.00	3,145.86	-1,214.30	2,072.00	0.00	0.00	0.00	
9,200.00	90.00	270.67	7,780.00	3,147.03	-1,314.29	2,168.06	0.00	0.00	0.00	
9,300.00	90.00	270.67	7,780.00	3,148.21	-1,414.28	2,264.13	0.00	0.00	0.00	
9,400.00	90.00	270.67	7,780.00	3,149.39	-1,514.28	2,360.19	0.00	0.00	0.00	
9,500.00	90.00	270.67	7,780.00	3,150.56	-1,614.27	2,456.25	0.00	0.00	0.00	
9,600.00	90.00	270.67	7,780.00	3,151.74	-1,714.26	2,552.31	0.00	0.00	0.00	
9,700.00	90.00	270.67	7,780.00	3,152.92	-1,814.26	2,648.38	0.00	0.00	0.00	
9,800.00	90.00	270.67	7,780.00	3,154.09	-1,914.25	2,744.44	0.00	0.00	0.00	
9,900.00	90.00	270.67	7,780.00	3,155.27	-2,014.24	2,840.50	0.00	0.00	0.00	
10,000.00	90.00	270.67	7,780.00	3,156.44	-2,114.23	2,936.56	0.00	0.00	0.00	
10,100.00	90.00	270.67	7,780.00	3,157.62	-2,214.23	3,032.63	0.00	0.00	0.00	
10,200.00	90.00	270.67	7,780.00	3,158.80	-2,314.22	3,128.69	0.00	0.00	0.00	
10,300.00	90.00	270.67	7,780.00	3,159.97	-2,414.21	3,224.75	0.00	0.00	0.00	
10,400.00	90.00	270.67	7,780.00	3,161.15	-2,514.21	3,320.81	0.00	0.00	0.00	
10,500.00	90.00	270.67	7,780.00	3,162.33	-2,614.20	3,416.88	0.00	0.00	0.00	
10,600.00	90.00	270.67	7,780.00	3,163.50	-2,714.19	3,512.94	0.00	0.00	0.00	
10,700.00	90.00	270.67	7,780.00	3,164.68	-2,814.19	3,609.00	0.00	0.00	0.00	
10,800.00	90.00	270.67	7,780.00	3,165.86	-2,914.18	3,705.06	0.00	0.00	0.00	
10,900.00	90.00	270.67	7,780.00	3,167.03	-3,014.17	3,801.13	0.00	0.00	0.00	
11,000.00	90.00	270.67	7,780.00	3,168.21	-3,114.17	3,897.19	0.00	0.00	0.00	
11,100.00	90.00	270.67	7,780.00	3,169.39	-3,214.16	3,993.25	0.00	0.00	0.00	
11,200.00	90.00	270.67	7,780.00	3,170.56	-3,314.15	4,089.31	0.00	0.00	0.00	
11,300.00	90.00	270.67	7,780.00	3,171.74	-3,414.14	4,185.38	0.00	0.00	0.00	
11,400.00	90.00	270.67	7,780.00	3,172.92	-3,514.14	4,281.44	0.00	0.00	0.00	
11,500.00	90.00	270.67	7,780.00	3,174.09	-3,614.13	4,377.50	0.00	0.00	0.00	

Planning Report

Database:	EDT_32Bit_ODBC	Local Co-ordinate Reference:	Well PROPERTY RESERVE 4-65 3-4 1AH
Company:	CRESTONE PEAK RESOURCES	TVD Reference:	KB 25' @ 5656.81usft
Project:	ARAPAHOE COUNTY	MD Reference:	KB 25' @ 5656.81usft
Site:	SEC 2-T4S-R65W	North Reference:	True
Well:	PROPERTY RESERVE 4-65 3-4 1AH	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)	
11,600.00	90.00	270.67	7,780.00	3,175.27	-3,714.12	4,473.56	0.00	0.00	0.00	
11,700.00	90.00	270.67	7,780.00	3,176.44	-3,814.12	4,569.63	0.00	0.00	0.00	
11,800.00	90.00	270.67	7,780.00	3,177.62	-3,914.11	4,665.69	0.00	0.00	0.00	
11,900.00	90.00	270.67	7,780.00	3,178.80	-4,014.10	4,761.75	0.00	0.00	0.00	
12,000.00	90.00	270.67	7,780.00	3,179.97	-4,114.10	4,857.81	0.00	0.00	0.00	
12,100.00	90.00	270.67	7,780.00	3,181.15	-4,214.09	4,953.88	0.00	0.00	0.00	
12,200.00	90.00	270.67	7,780.00	3,182.33	-4,314.08	5,049.94	0.00	0.00	0.00	
12,300.00	90.00	270.67	7,780.00	3,183.50	-4,414.08	5,146.00	0.00	0.00	0.00	
12,400.00	90.00	270.67	7,780.00	3,184.68	-4,514.07	5,242.06	0.00	0.00	0.00	
12,500.00	90.00	270.67	7,780.00	3,185.86	-4,614.06	5,338.13	0.00	0.00	0.00	
12,600.00	90.00	270.67	7,780.00	3,187.03	-4,714.05	5,434.19	0.00	0.00	0.00	
12,700.00	90.00	270.67	7,780.00	3,188.21	-4,814.05	5,530.25	0.00	0.00	0.00	
12,800.00	90.00	270.67	7,780.00	3,189.39	-4,914.04	5,626.31	0.00	0.00	0.00	
12,900.00	90.00	270.67	7,780.00	3,190.56	-5,014.03	5,722.38	0.00	0.00	0.00	
13,000.00	90.00	270.67	7,780.00	3,191.74	-5,114.03	5,818.44	0.00	0.00	0.00	
13,100.00	90.00	270.67	7,780.00	3,192.92	-5,214.02	5,914.50	0.00	0.00	0.00	
13,200.00	90.00	270.67	7,780.00	3,194.09	-5,314.01	6,010.56	0.00	0.00	0.00	
13,300.00	90.00	270.67	7,780.00	3,195.27	-5,414.01	6,106.63	0.00	0.00	0.00	
13,400.00	90.00	270.67	7,780.00	3,196.45	-5,514.00	6,202.69	0.00	0.00	0.00	
13,500.00	90.00	270.67	7,780.00	3,197.62	-5,613.99	6,298.75	0.00	0.00	0.00	
13,600.00	90.00	270.67	7,780.00	3,198.80	-5,713.99	6,394.81	0.00	0.00	0.00	
13,700.00	90.00	270.67	7,780.00	3,199.97	-5,813.98	6,490.87	0.00	0.00	0.00	
13,800.00	90.00	270.67	7,780.00	3,201.15	-5,913.97	6,586.94	0.00	0.00	0.00	
13,900.00	90.00	270.67	7,780.00	3,202.33	-6,013.96	6,683.00	0.00	0.00	0.00	
14,000.00	90.00	270.67	7,780.00	3,203.50	-6,113.96	6,779.06	0.00	0.00	0.00	
14,100.00	90.00	270.67	7,780.00	3,204.68	-6,213.95	6,875.12	0.00	0.00	0.00	
14,200.00	90.00	270.67	7,780.00	3,205.86	-6,313.94	6,971.19	0.00	0.00	0.00	
14,300.00	90.00	270.67	7,780.00	3,207.03	-6,413.94	7,067.25	0.00	0.00	0.00	
14,400.00	90.00	270.67	7,780.00	3,208.21	-6,513.93	7,163.31	0.00	0.00	0.00	
14,500.00	90.00	270.67	7,780.00	3,209.39	-6,613.92	7,259.37	0.00	0.00	0.00	
14,600.00	90.00	270.67	7,780.00	3,210.56	-6,713.92	7,355.44	0.00	0.00	0.00	
14,700.00	90.00	270.67	7,780.00	3,211.74	-6,813.91	7,451.50	0.00	0.00	0.00	
14,800.00	90.00	270.67	7,780.00	3,212.92	-6,913.90	7,547.56	0.00	0.00	0.00	
14,900.00	90.00	270.67	7,780.00	3,214.09	-7,013.90	7,643.62	0.00	0.00	0.00	
15,000.00	90.00	270.67	7,780.00	3,215.27	-7,113.89	7,739.69	0.00	0.00	0.00	
15,100.00	90.00	270.67	7,780.00	3,216.45	-7,213.88	7,835.75	0.00	0.00	0.00	
15,200.00	90.00	270.67	7,780.00	3,217.62	-7,313.87	7,931.81	0.00	0.00	0.00	
15,300.00	90.00	270.67	7,780.00	3,218.80	-7,413.87	8,027.87	0.00	0.00	0.00	
15,400.00	90.00	270.67	7,780.00	3,219.98	-7,513.86	8,123.94	0.00	0.00	0.00	
15,500.00	90.00	270.67	7,780.00	3,221.15	-7,613.85	8,220.00	0.00	0.00	0.00	
15,600.00	90.00	270.67	7,780.00	3,222.33	-7,713.85	8,316.06	0.00	0.00	0.00	
15,700.00	90.00	270.67	7,780.00	3,223.50	-7,813.84	8,412.12	0.00	0.00	0.00	
15,800.00	90.00	270.67	7,780.00	3,224.68	-7,913.83	8,508.19	0.00	0.00	0.00	
15,900.00	90.00	270.67	7,780.00	3,225.86	-8,013.83	8,604.25	0.00	0.00	0.00	
16,000.00	90.00	270.67	7,780.00	3,227.03	-8,113.82	8,700.31	0.00	0.00	0.00	
16,100.00	90.00	270.67	7,780.00	3,228.21	-8,213.81	8,796.37	0.00	0.00	0.00	
16,200.00	90.00	270.67	7,780.00	3,229.39	-8,313.81	8,892.44	0.00	0.00	0.00	
16,300.00	90.00	270.67	7,780.00	3,230.56	-8,413.80	8,988.50	0.00	0.00	0.00	
16,400.00	90.00	270.67	7,780.00	3,231.74	-8,513.79	9,084.56	0.00	0.00	0.00	
16,500.00	90.00	270.67	7,780.00	3,232.92	-8,613.78	9,180.62	0.00	0.00	0.00	
16,600.00	90.00	270.67	7,780.00	3,234.09	-8,713.78	9,276.69	0.00	0.00	0.00	
16,700.00	90.00	270.67	7,780.00	3,235.27	-8,813.77	9,372.75	0.00	0.00	0.00	
16,800.00	90.00	270.67	7,780.00	3,236.45	-8,913.76	9,468.81	0.00	0.00	0.00	
16,900.00	90.00	270.67	7,780.00	3,237.62	-9,013.76	9,564.87	0.00	0.00	0.00	

Planning Report

Database:	EDT_32Bit_ODBC	Local Co-ordinate Reference:	Well PROPERTY RESERVE 4-65 3-4 1AH
Company:	CRESTONE PEAK RESOURCES	TVD Reference:	KB 25' @ 5656.81usft
Project:	ARAPAHOE COUNTY	MD Reference:	KB 25' @ 5656.81usft
Site:	SEC 2-T4S-R65W	North Reference:	True
Well:	PROPERTY RESERVE 4-65 3-4 1AH	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)	
17,000.00	90.00	270.67	7,780.00	3,238.80	-9,113.75	9,660.94	0.00	0.00	0.00	
17,100.00	90.00	270.67	7,780.00	3,239.98	-9,213.74	9,757.00	0.00	0.00	0.00	
17,200.00	90.00	270.67	7,780.00	3,241.15	-9,313.74	9,853.06	0.00	0.00	0.00	
17,300.00	90.00	270.67	7,780.00	3,242.33	-9,413.73	9,949.12	0.00	0.00	0.00	
17,400.00	90.00	270.67	7,780.00	3,243.51	-9,513.72	10,045.19	0.00	0.00	0.00	
17,500.00	90.00	270.67	7,780.00	3,244.68	-9,613.72	10,141.25	0.00	0.00	0.00	
17,600.00	90.00	270.67	7,780.00	3,245.86	-9,713.71	10,237.31	0.00	0.00	0.00	
17,700.00	90.00	270.67	7,780.00	3,247.03	-9,813.70	10,333.37	0.00	0.00	0.00	
17,800.00	90.00	270.67	7,780.00	3,248.21	-9,913.69	10,429.44	0.00	0.00	0.00	
17,900.00	90.00	270.67	7,780.00	3,249.39	-10,013.69	10,525.50	0.00	0.00	0.00	
18,000.00	90.00	270.67	7,780.00	3,250.56	-10,113.68	10,621.56	0.00	0.00	0.00	
18,100.00	90.00	270.67	7,780.00	3,251.74	-10,213.67	10,717.62	0.00	0.00	0.00	
18,200.00	90.00	270.67	7,780.00	3,252.92	-10,313.67	10,813.68	0.00	0.00	0.00	
18,300.00	90.00	270.67	7,780.00	3,254.09	-10,413.66	10,909.75	0.00	0.00	0.00	
18,400.00	90.00	270.67	7,780.00	3,255.27	-10,513.65	11,005.81	0.00	0.00	0.00	
18,500.00	90.00	270.67	7,780.00	3,256.45	-10,613.65	11,101.87	0.00	0.00	0.00	
18,600.00	90.00	270.67	7,780.00	3,257.62	-10,713.64	11,197.93	0.00	0.00	0.00	
18,673.97	90.00	270.67	7,780.00	3,258.49	-10,787.60	11,268.99	0.00	0.00	0.00	
TD at 18673.97										

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-PROPERTY RESER	0.00	0.00	7,780.00	3,141.85	-873.78	1,695,074.28	3,241,329.57	39.738654°N	104.641858°W
- plan hits target center									
- Point									
PBHL-PROPERTY RES	0.00	0.00	7,780.00	3,258.49	-10,787.60	1,695,096.93	3,231,415.13	39.738968°N	104.677110°W
- plan hits target center									
- Point									

Planning Report

Database:	EDT_32Bit_ODBC	Local Co-ordinate Reference:	Well PROPERTY RESERVE 4-65 3-4 1AH
Company:	CRESTONE PEAK RESOURCES	TVD Reference:	KB 25' @ 5656.81usft
Project:	ARAPAHOE COUNTY	MD Reference:	KB 25' @ 5656.81usft
Site:	SEC 2-T4S-R65W	North Reference:	True
Well:	PROPERTY RESERVE 4-65 3-4 1AH	Survey Calculation Method:	Minimum Curvature
Wellbore:	OWB		
Design:	PROPOSAL 1		

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
24.00	24.00	Denver				
667.71	664.00	Arapahoe				
1,271.37	1,239.00	Laramie-Fox Hills Formation				
2,037.73	1,939.00	Pierre Formation				
2,541.38	2,399.00	Upper Pierre aquifer				
3,274.96	3,069.00	Base of Upper Pierre aquifer				
4,473.88	4,164.00	Larimer ("Parkman") sandstone				
4,599.79	4,279.00	Pierre Formation				
5,705.64	5,289.00	Terry ("Sussex") sandstone				
5,826.08	5,399.00	Pierre Formation				
6,504.91	6,019.00	Hygiene ("Shannon") sandstone				
6,942.87	6,419.00	Pierre Formation				
8,253.96	7,589.00	Sharon Springs Member				
8,362.13	7,659.00	Niobrara Formation				

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
1,301.54	1,266.62	246.96	-25.77	Start 6584.88 hold at 1301.54 MD
7,886.41	7,280.76	2,914.02	-304.10	Start DLS 10.00 TFO -83.94
8,759.46	7,780.00	3,141.85	-873.78	Start 9914.51 hold at 8759.46 MD
18,673.97	7,780.00	3,258.49	-10,787.60	TD at 18673.97