

# **CRESTONE PEAK RESOURCES**

**ARAPAHOE COUNTY**

**SEC 2-T4S-R65W**

**PROPERTY RESERVE 4-65 3-4 1BH**

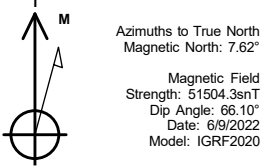
**OWB**

**Plan: PROPOSAL 1**

## **Standard Planning Report**

**12 August, 2022**

Project: ARAPAHOE COUNTY  
Site: SEC 2-T4S-R65W  
Well: PROPERTY RESERVE 4-6S 3-4 1BH  
Wellbore: OWB  
Design: PROPOSAL 1



WELL DETAILS: PROPERTY RESERVE 4-6S 3-4 1BH						
5631.91						
+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.00	0.00	1691920.83	3242233.00	39.729974°N	104.638752°W	

ANNOTATIONS										
MD	Inc	Azi	TVD	+N/-S	+E/-W	VSect	Departure	Annotation		
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	Start Build 2.00		
1229.92	20.60	352.99	1207.88	181.78	-22.35	65.94	183.15	Start 6547.80 hold at 1229.92 MD		
7777.72	20.60	352.99	7337.07	2468.18	-303.44	895.33	2486.77	Start DLS 10.00 TFO -83.18		
8652.17	90.00	270.27	7850.00	2662.11	-874.92	1496.83	3121.09	Start 9914.44 hold at 8652.17 MD		
18566.61	90.00	270.27	7850.00	2708.81	-10789.25	11124.10	13035.53	TD at 18566.61		

SECTION DETAILS										
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	
3	1229.92	20.60	352.99	1207.88	181.78	-22.35	2.00	352.99	65.94	
4	7777.72	20.60	352.99	7337.07	2468.18	-303.44	0.00	0.00	895.33	
5	8652.17	90.00	270.27	7850.00	2662.11	-874.92	10.00	-83.18	1496.83	LP-PROPERTY RESERVE 4-6S 3-4
6	18566.61	90.00	270.27	7850.00	2708.81	-10789.25	0.00	0.00	11124.10	PBHL-PROPERTY RESERVE 4-6S

DESIGN TARGET DETAILS										
Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape		
LP-PROPERTY RESERVE 4-6S 3-4 1BH	7850.00	2662.11	-874.92	1694574.51	3241332.89	39.737282°N	104.641863°W	Point		
- plan hits target center										
PBHL-PROPERTY RESERVE 4-6S 3-4 1BH	7850.00	2708.81	-10789.25	1694527.22	3231418.60	39.737404°N	104.677116°W	Point		
- plan hits target center										

PROJECT DETAILS: ARAPAHOE COUNTY

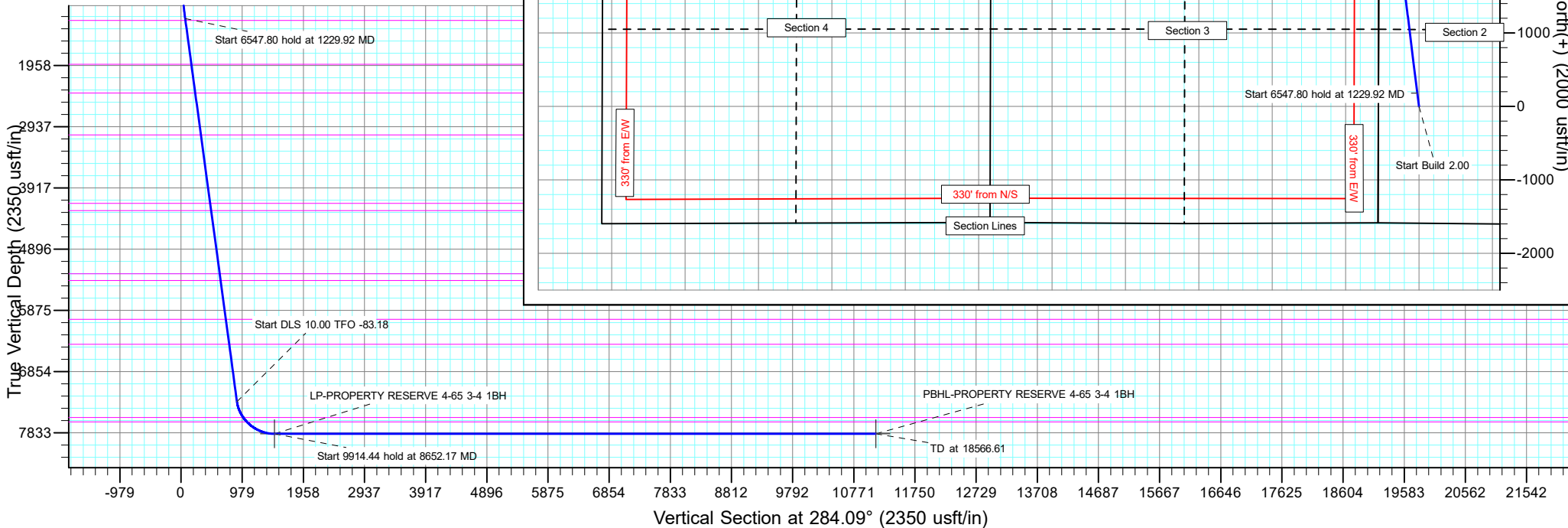
Geodetic System: US State Plane 1983  
Datum: North American Datum 1983  
Ellipsoid: GRS 1980  
Zone: Colorado Central Zone

System Datum: Mean Sea Level

SHL:  
1590' FSL, 553' FWL  
Sec 2-T4S-R65W

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

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



## Planning Report

<b>Database:</b>	EDT_32Bit_ODBC	<b>Local Co-ordinate Reference:</b>	Well PROPERTY RESERVE 4-65 3-4 1BH
<b>Company:</b>	CRESTONE PEAK RESOURCES	<b>TVD Reference:</b>	KB 25' @ 5656.91usft
<b>Project:</b>	ARAPAHOE COUNTY	<b>MD Reference:</b>	KB 25' @ 5656.91usft
<b>Site:</b>	SEC 2-T4S-R65W	<b>North Reference:</b>	True
<b>Well:</b>	PROPERTY RESERVE 4-65 3-4 1BH	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OWB		
<b>Design:</b>	PROPOSAL 1		

<b>Project</b>	ARAPAHOE COUNTY		
<b>Map System:</b>	US State Plane 1983	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	North American Datum 1983		
<b>Map Zone:</b>	Colorado 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 1BH					
Well Position	+N/-S	-3,609.55 usft	Northing:	1,691,920.83 usft	Latitude:	39.729974°N
	+E/-W	542.56 usft	Easting:	3,242,233.00 usft	Longitude:	104.638752°W
Position Uncertainty		0.00 usft	Wellhead Elevation:		Ground Level:	5,631.91 usft

<b>Wellbore</b>	OWB				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF2020	6/9/2022	7.62	66.10	51,504.31111705

<b>Design</b>	PROPOSAL 1			
<b>Audit Notes:</b>				
<b>Version:</b>	<b>Phase:</b>	PROTOTYPE	<b>Tie On Depth:</b>	0.00
<b>Vertical Section:</b>	<b>Depth From (TVD) (usft)</b>	<b>+N/-S (usft)</b>	<b>+E/-W (usft)</b>	<b>Direction (°)</b>
	0.00	0.00	0.00	284.09

<b>Plan Survey Tool Program</b>	<b>Date</b>	8/12/2022		
<b>Depth From (usft)</b>	<b>Depth To (usft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Remarks</b>
1	0.00	18,566.61	PROPOSAL 1 (OWB)	MWD OWSG
				OWSG MWD - Standard

<b>Plan Sections</b>										
<b>Measured Depth (usft)</b>	<b>Inclination (°)</b>	<b>Azimuth (°)</b>	<b>Vertical Depth (usft)</b>	<b>+N/-S (usft)</b>	<b>+E/-W (usft)</b>	<b>Dogleg Rate (°/100ft)</b>	<b>Build Rate (°/100ft)</b>	<b>Turn Rate (°/100ft)</b>	<b>TFO (°)</b>	<b>Target</b>
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,229.92	20.60	352.99	1,207.88	181.78	-22.35	2.00	2.00	0.00	352.99	
7,777.72	20.60	352.99	7,337.07	2,468.18	-303.44	0.00	0.00	0.00	0.00	
8,652.17	90.00	270.27	7,850.00	2,662.11	-874.92	10.00	7.94	-9.46	-83.18	LP-PROPERTY RESI
18,566.61	90.00	270.27	7,850.00	2,708.81	-10,789.25	0.00	0.00	0.00	0.00	PBHL-PROPERTY RI

# Planning Report

<b>Database:</b>	EDT_32Bit_ODBC	<b>Local Co-ordinate Reference:</b>	Well PROPERTY RESERVE 4-65 3-4 1BH
<b>Company:</b>	CRESTONE PEAK RESOURCES	<b>TVD Reference:</b>	KB 25' @ 5656.91usft
<b>Project:</b>	ARAPAHOE COUNTY	<b>MD Reference:</b>	KB 25' @ 5656.91usft
<b>Site:</b>	SEC 2-T4S-R65W	<b>North Reference:</b>	True
<b>Well:</b>	PROPERTY RESERVE 4-65 3-4 1BH	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OWB		
<b>Design:</b>	PROPOSAL 1		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
24.00	0.00	0.00	24.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Denver</b>									
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Start Build 2.00</b>									
300.00	2.00	352.99	299.98	1.73	-0.21	0.63	2.00	2.00	0.00
400.00	4.00	352.99	399.84	6.93	-0.85	2.51	2.00	2.00	0.00
500.00	6.00	352.99	499.45	15.58	-1.91	5.65	2.00	2.00	0.00
600.00	8.00	352.99	598.70	27.67	-3.40	10.04	2.00	2.00	0.00
666.05	9.32	352.99	664.00	37.54	-4.62	13.62	2.00	2.00	0.00
<b>Arapahoe</b>									
700.00	10.00	352.99	697.47	43.20	-5.31	15.67	2.00	2.00	0.00
800.00	12.00	352.99	795.62	62.13	-7.64	22.54	2.00	2.00	0.00
900.00	14.00	352.99	893.06	84.46	-10.38	30.64	2.00	2.00	0.00
1,000.00	16.00	352.99	989.64	110.15	-13.54	39.96	2.00	2.00	0.00
1,100.00	18.00	352.99	1,085.27	139.17	-17.11	50.48	2.00	2.00	0.00
1,200.00	20.00	352.99	1,179.82	171.48	-21.08	62.20	2.00	2.00	0.00
1,229.92	20.60	352.99	1,207.88	181.78	-22.35	65.94	2.00	2.00	0.00
<b>Start 6547.80 hold at 1229.92 MD</b>									
1,263.17	20.60	352.99	1,239.00	193.39	-23.78	70.15	0.00	0.00	0.00
<b>Laramie-Fox Hills Formation</b>									
1,300.00	20.60	352.99	1,273.48	206.25	-25.36	74.82	0.00	0.00	0.00
1,400.00	20.60	352.99	1,367.08	241.17	-29.65	87.48	0.00	0.00	0.00
1,500.00	20.60	352.99	1,460.69	276.09	-33.94	100.15	0.00	0.00	0.00
1,600.00	20.60	352.99	1,554.30	311.01	-38.24	112.82	0.00	0.00	0.00
1,700.00	20.60	352.99	1,647.90	345.93	-42.53	125.48	0.00	0.00	0.00
1,800.00	20.60	352.99	1,741.51	380.84	-46.82	138.15	0.00	0.00	0.00
1,900.00	20.60	352.99	1,835.12	415.76	-51.11	150.82	0.00	0.00	0.00
2,000.00	20.60	352.99	1,928.73	450.68	-55.41	163.48	0.00	0.00	0.00
2,010.98	20.60	352.99	1,939.00	454.51	-55.88	164.87	0.00	0.00	0.00
<b>Pierre Formation</b>									
2,100.00	20.60	352.99	2,022.33	485.60	-59.70	176.15	0.00	0.00	0.00
2,200.00	20.60	352.99	2,115.94	520.52	-63.99	188.82	0.00	0.00	0.00
2,300.00	20.60	352.99	2,209.55	555.44	-68.29	201.48	0.00	0.00	0.00
2,400.00	20.60	352.99	2,303.15	590.36	-72.58	214.15	0.00	0.00	0.00
2,500.00	20.60	352.99	2,396.76	625.27	-76.87	226.82	0.00	0.00	0.00
2,502.39	20.60	352.99	2,399.00	626.11	-76.97	227.12	0.00	0.00	0.00
<b>Upper Pierre aquifer</b>									
2,600.00	20.60	352.99	2,490.37	660.19	-81.16	239.48	0.00	0.00	0.00
2,700.00	20.60	352.99	2,583.97	695.11	-85.46	252.15	0.00	0.00	0.00
2,800.00	20.60	352.99	2,677.58	730.03	-89.75	264.82	0.00	0.00	0.00
2,900.00	20.60	352.99	2,771.19	764.95	-94.04	277.48	0.00	0.00	0.00
3,000.00	20.60	352.99	2,864.79	799.87	-98.34	290.15	0.00	0.00	0.00
3,100.00	20.60	352.99	2,958.40	834.79	-102.63	302.82	0.00	0.00	0.00
3,200.00	20.60	352.99	3,052.01	869.71	-106.92	315.48	0.00	0.00	0.00
3,218.15	20.60	352.99	3,069.00	876.04	-107.70	317.78	0.00	0.00	0.00
<b>Base of Upper Pierre aquifer</b>									
3,300.00	20.60	352.99	3,145.62	904.62	-111.21	328.15	0.00	0.00	0.00
3,400.00	20.60	352.99	3,239.22	939.54	-115.51	340.82	0.00	0.00	0.00
3,500.00	20.60	352.99	3,332.83	974.46	-119.80	353.48	0.00	0.00	0.00
3,600.00	20.60	352.99	3,426.44	1,009.38	-124.09	366.15	0.00	0.00	0.00
3,700.00	20.60	352.99	3,520.04	1,044.30	-128.39	378.82	0.00	0.00	0.00

# Planning Report

<b>Database:</b>	EDT_32Bit_ODBC	<b>Local Co-ordinate Reference:</b>	Well PROPERTY RESERVE 4-65 3-4 1BH
<b>Company:</b>	CRESTONE PEAK RESOURCES	<b>TVD Reference:</b>	KB 25' @ 5656.91usft
<b>Project:</b>	ARAPAHOE COUNTY	<b>MD Reference:</b>	KB 25' @ 5656.91usft
<b>Site:</b>	SEC 2-T4S-R65W	<b>North Reference:</b>	True
<b>Well:</b>	PROPERTY RESERVE 4-65 3-4 1BH	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OWB		
<b>Design:</b>	PROPOSAL 1		

Planned Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	
3,800.00	20.60	352.99	3,613.65	1,079.22	-132.68	391.48	0.00	0.00	0.00	
3,900.00	20.60	352.99	3,707.26	1,114.14	-136.97	404.15	0.00	0.00	0.00	
4,000.00	20.60	352.99	3,800.86	1,149.05	-141.27	416.82	0.00	0.00	0.00	
4,100.00	20.60	352.99	3,894.47	1,183.97	-145.56	429.48	0.00	0.00	0.00	
4,200.00	20.60	352.99	3,988.08	1,218.89	-149.85	442.15	0.00	0.00	0.00	
4,300.00	20.60	352.99	4,081.68	1,253.81	-154.14	454.82	0.00	0.00	0.00	
4,387.94	20.60	352.99	4,164.00	1,284.52	-157.92	465.96	0.00	0.00	0.00	
Larimer ("Parkman") sandstone										
4,400.00	20.60	352.99	4,175.29	1,288.73	-158.44	467.48	0.00	0.00	0.00	
4,500.00	20.60	352.99	4,268.90	1,323.65	-162.73	480.15	0.00	0.00	0.00	
4,510.79	20.60	352.99	4,279.00	1,327.42	-163.19	481.52	0.00	0.00	0.00	
Pierre Formation										
4,600.00	20.60	352.99	4,362.51	1,358.57	-167.02	492.82	0.00	0.00	0.00	
4,700.00	20.60	352.99	4,456.11	1,393.49	-171.32	505.48	0.00	0.00	0.00	
4,800.00	20.60	352.99	4,549.72	1,428.40	-175.61	518.15	0.00	0.00	0.00	
4,900.00	20.60	352.99	4,643.33	1,463.32	-179.90	530.82	0.00	0.00	0.00	
5,000.00	20.60	352.99	4,736.93	1,498.24	-184.19	543.48	0.00	0.00	0.00	
5,100.00	20.60	352.99	4,830.54	1,533.16	-188.49	556.15	0.00	0.00	0.00	
5,200.00	20.60	352.99	4,924.15	1,568.08	-192.78	568.82	0.00	0.00	0.00	
5,300.00	20.60	352.99	5,017.75	1,603.00	-197.07	581.48	0.00	0.00	0.00	
5,400.00	20.60	352.99	5,111.36	1,637.92	-201.37	594.15	0.00	0.00	0.00	
5,500.00	20.60	352.99	5,204.97	1,672.83	-205.66	606.82	0.00	0.00	0.00	
5,589.77	20.60	352.99	5,289.00	1,704.18	-209.51	618.19	0.00	0.00	0.00	
Terry ("Sussex") sandstone										
5,600.00	20.60	352.99	5,298.57	1,707.75	-209.95	619.48	0.00	0.00	0.00	
5,700.00	20.60	352.99	5,392.18	1,742.67	-214.24	632.15	0.00	0.00	0.00	
5,707.28	20.60	352.99	5,399.00	1,745.22	-214.56	633.07	0.00	0.00	0.00	
Pierre Formation										
5,800.00	20.60	352.99	5,485.79	1,777.59	-218.54	644.82	0.00	0.00	0.00	
5,900.00	20.60	352.99	5,579.40	1,812.51	-222.83	657.48	0.00	0.00	0.00	
6,000.00	20.60	352.99	5,673.00	1,847.43	-227.12	670.15	0.00	0.00	0.00	
6,100.00	20.60	352.99	5,766.61	1,882.35	-231.42	682.82	0.00	0.00	0.00	
6,200.00	20.60	352.99	5,860.22	1,917.27	-235.71	695.48	0.00	0.00	0.00	
6,300.00	20.60	352.99	5,953.82	1,952.18	-240.00	708.15	0.00	0.00	0.00	
6,369.63	20.60	352.99	6,019.00	1,976.50	-242.99	716.97	0.00	0.00	0.00	
Hygiene ("Shannon") sandstone										
6,400.00	20.60	352.99	6,047.43	1,987.10	-244.30	720.82	0.00	0.00	0.00	
6,500.00	20.60	352.99	6,141.04	2,022.02	-248.59	733.48	0.00	0.00	0.00	
6,600.00	20.60	352.99	6,234.64	2,056.94	-252.88	746.15	0.00	0.00	0.00	
6,700.00	20.60	352.99	6,328.25	2,091.86	-257.17	758.82	0.00	0.00	0.00	
6,796.95	20.60	352.99	6,419.00	2,125.71	-261.34	771.10	0.00	0.00	0.00	
Pierre Formation										
6,800.00	20.60	352.99	6,421.86	2,126.78	-261.47	771.48	0.00	0.00	0.00	
6,900.00	20.60	352.99	6,515.47	2,161.70	-265.76	784.15	0.00	0.00	0.00	
7,000.00	20.60	352.99	6,609.07	2,196.61	-270.05	796.82	0.00	0.00	0.00	
7,100.00	20.60	352.99	6,702.68	2,231.53	-274.35	809.48	0.00	0.00	0.00	
7,200.00	20.60	352.99	6,796.29	2,266.45	-278.64	822.15	0.00	0.00	0.00	
7,300.00	20.60	352.99	6,889.89	2,301.37	-282.93	834.82	0.00	0.00	0.00	
7,400.00	20.60	352.99	6,983.50	2,336.29	-287.22	847.48	0.00	0.00	0.00	
7,500.00	20.60	352.99	7,077.11	2,371.21	-291.52	860.15	0.00	0.00	0.00	
7,600.00	20.60	352.99	7,170.71	2,406.13	-295.81	872.82	0.00	0.00	0.00	
7,700.00	20.60	352.99	7,264.32	2,441.05	-300.10	885.48	0.00	0.00	0.00	
7,777.72	20.60	352.99	7,337.07	2,468.18	-303.44	895.33	0.00	0.00	0.00	

# Planning Report

<b>Database:</b>	EDT_32Bit_ODBC	<b>Local Co-ordinate Reference:</b>	Well PROPERTY RESERVE 4-65 3-4 1BH
<b>Company:</b>	CRESTONE PEAK RESOURCES	<b>TVD Reference:</b>	KB 25' @ 5656.91usft
<b>Project:</b>	ARAPAHOE COUNTY	<b>MD Reference:</b>	KB 25' @ 5656.91usft
<b>Site:</b>	SEC 2-T4S-R65W	<b>North Reference:</b>	True
<b>Well:</b>	PROPERTY RESERVE 4-65 3-4 1BH	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OWB		
<b>Design:</b>	PROPOSAL 1		

Planned Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	
<b>Start DLS 10.00 TFO -83.18</b>										
7,800.00	20.97	346.80	7,357.90	2,475.96	-304.83	898.57	10.00	1.69	-27.79	
7,850.00	22.58	334.00	7,404.36	2,493.31	-311.08	908.86	10.00	3.20	-25.60	
7,900.00	25.04	323.20	7,450.12	2,510.42	-321.64	923.26	10.00	4.94	-21.60	
7,950.00	28.15	314.43	7,494.85	2,527.16	-336.41	941.67	10.00	6.22	-17.54	
8,000.00	31.71	307.38	7,538.18	2,543.41	-355.28	963.93	10.00	7.12	-14.10	
8,050.00	35.59	301.67	7,579.81	2,559.03	-378.12	989.89	10.00	7.75	-11.42	
8,061.37	36.50	300.52	7,589.00	2,562.49	-383.85	996.28	10.00	8.05	-10.09	
<b>Sharon Springs Member</b>										
8,100.00	39.68	296.97	7,619.40	2,573.92	-404.75	1,019.34	10.00	8.24	-9.20	
8,150.00	43.94	293.03	7,656.67	2,587.96	-434.96	1,052.06	10.00	8.51	-7.88	
8,153.25	44.22	292.79	7,659.00	2,588.83	-437.04	1,054.29	10.00	8.65	-7.22	
<b>Niobrara Formation</b>										
8,200.00	48.31	289.66	7,691.32	2,601.03	-468.53	1,087.80	10.00	8.75	-6.70	
8,250.00	52.77	286.73	7,723.09	2,613.05	-505.20	1,126.29	10.00	8.92	-5.87	
8,300.00	57.29	284.12	7,751.74	2,623.92	-544.69	1,167.24	10.00	9.04	-5.21	
8,350.00	61.86	281.77	7,777.06	2,633.55	-586.70	1,210.33	10.00	9.14	-4.70	
8,400.00	66.47	279.61	7,798.84	2,641.88	-630.91	1,255.24	10.00	9.22	-4.32	
8,450.00	71.11	277.60	7,816.92	2,648.84	-676.98	1,301.62	10.00	9.27	-4.02	
8,500.00	75.76	275.70	7,831.18	2,654.38	-724.57	1,349.12	10.00	9.31	-3.81	
8,550.00	80.43	273.87	7,841.49	2,658.45	-773.31	1,397.39	10.00	9.34	-3.65	
8,600.00	85.11	272.10	7,847.78	2,661.03	-822.83	1,446.04	10.00	9.36	-3.55	
8,652.17	90.00	270.27	7,850.00	2,662.11	-874.92	1,496.83	10.00	9.37	-3.50	
<b>Start 9914.44 hold at 8652.17 MD</b>										
8,700.00	90.00	270.27	7,850.00	2,662.33	-922.75	1,543.27	0.00	0.00	0.00	
8,800.00	90.00	270.27	7,850.00	2,662.80	-1,022.75	1,640.38	0.00	0.00	0.00	
8,900.00	90.00	270.27	7,850.00	2,663.27	-1,122.75	1,737.48	0.00	0.00	0.00	
9,000.00	90.00	270.27	7,850.00	2,663.74	-1,222.75	1,834.59	0.00	0.00	0.00	
9,100.00	90.00	270.27	7,850.00	2,664.22	-1,322.75	1,931.69	0.00	0.00	0.00	
9,200.00	90.00	270.27	7,850.00	2,664.69	-1,422.75	2,028.79	0.00	0.00	0.00	
9,300.00	90.00	270.27	7,850.00	2,665.16	-1,522.74	2,125.90	0.00	0.00	0.00	
9,400.00	90.00	270.27	7,850.00	2,665.63	-1,622.74	2,223.00	0.00	0.00	0.00	
9,500.00	90.00	270.27	7,850.00	2,666.10	-1,722.74	2,320.10	0.00	0.00	0.00	
9,600.00	90.00	270.27	7,850.00	2,666.57	-1,822.74	2,417.21	0.00	0.00	0.00	
9,700.00	90.00	270.27	7,850.00	2,667.04	-1,922.74	2,514.31	0.00	0.00	0.00	
9,800.00	90.00	270.27	7,850.00	2,667.51	-2,022.74	2,611.41	0.00	0.00	0.00	
9,900.00	90.00	270.27	7,850.00	2,667.98	-2,122.74	2,708.52	0.00	0.00	0.00	
10,000.00	90.00	270.27	7,850.00	2,668.46	-2,222.74	2,805.62	0.00	0.00	0.00	
10,100.00	90.00	270.27	7,850.00	2,668.93	-2,322.74	2,902.72	0.00	0.00	0.00	
10,200.00	90.00	270.27	7,850.00	2,669.40	-2,422.73	2,999.83	0.00	0.00	0.00	
10,300.00	90.00	270.27	7,850.00	2,669.87	-2,522.73	3,096.93	0.00	0.00	0.00	
10,400.00	90.00	270.27	7,850.00	2,670.34	-2,622.73	3,194.03	0.00	0.00	0.00	
10,500.00	90.00	270.27	7,850.00	2,670.81	-2,722.73	3,291.14	0.00	0.00	0.00	
10,600.00	90.00	270.27	7,850.00	2,671.28	-2,822.73	3,388.24	0.00	0.00	0.00	
10,700.00	90.00	270.27	7,850.00	2,671.75	-2,922.73	3,485.34	0.00	0.00	0.00	
10,800.00	90.00	270.27	7,850.00	2,672.22	-3,022.73	3,582.45	0.00	0.00	0.00	
10,900.00	90.00	270.27	7,850.00	2,672.69	-3,122.73	3,679.55	0.00	0.00	0.00	
11,000.00	90.00	270.27	7,850.00	2,673.17	-3,222.73	3,776.66	0.00	0.00	0.00	
11,100.00	90.00	270.27	7,850.00	2,673.64	-3,322.72	3,873.76	0.00	0.00	0.00	
11,200.00	90.00	270.27	7,850.00	2,674.11	-3,422.72	3,970.86	0.00	0.00	0.00	
11,300.00	90.00	270.27	7,850.00	2,674.58	-3,522.72	4,067.97	0.00	0.00	0.00	
11,400.00	90.00	270.27	7,850.00	2,675.05	-3,622.72	4,165.07	0.00	0.00	0.00	
11,500.00	90.00	270.27	7,850.00	2,675.52	-3,722.72	4,262.17	0.00	0.00	0.00	

## Planning Report

<b>Database:</b>	EDT_32Bit_ODBC	<b>Local Co-ordinate Reference:</b>	Well PROPERTY RESERVE 4-65 3-4 1BH
<b>Company:</b>	CRESTONE PEAK RESOURCES	<b>TVD Reference:</b>	KB 25' @ 5656.91usft
<b>Project:</b>	ARAPAHOE COUNTY	<b>MD Reference:</b>	KB 25' @ 5656.91usft
<b>Site:</b>	SEC 2-T4S-R65W	<b>North Reference:</b>	True
<b>Well:</b>	PROPERTY RESERVE 4-65 3-4 1BH	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OWB		
<b>Design:</b>	PROPOSAL 1		

Planned Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	
11,600.00	90.00	270.27	7,850.00	2,675.99	-3,822.72	4,359.28	0.00	0.00	0.00	
11,700.00	90.00	270.27	7,850.00	2,676.46	-3,922.72	4,456.38	0.00	0.00	0.00	
11,800.00	90.00	270.27	7,850.00	2,676.93	-4,022.72	4,553.48	0.00	0.00	0.00	
11,900.00	90.00	270.27	7,850.00	2,677.41	-4,122.72	4,650.59	0.00	0.00	0.00	
12,000.00	90.00	270.27	7,850.00	2,677.88	-4,222.71	4,747.69	0.00	0.00	0.00	
12,100.00	90.00	270.27	7,850.00	2,678.35	-4,322.71	4,844.79	0.00	0.00	0.00	
12,200.00	90.00	270.27	7,850.00	2,678.82	-4,422.71	4,941.90	0.00	0.00	0.00	
12,300.00	90.00	270.27	7,850.00	2,679.29	-4,522.71	5,039.00	0.00	0.00	0.00	
12,400.00	90.00	270.27	7,850.00	2,679.76	-4,622.71	5,136.10	0.00	0.00	0.00	
12,500.00	90.00	270.27	7,850.00	2,680.23	-4,722.71	5,233.21	0.00	0.00	0.00	
12,600.00	90.00	270.27	7,850.00	2,680.70	-4,822.71	5,330.31	0.00	0.00	0.00	
12,700.00	90.00	270.27	7,850.00	2,681.17	-4,922.71	5,427.42	0.00	0.00	0.00	
12,800.00	90.00	270.27	7,850.00	2,681.65	-5,022.71	5,524.52	0.00	0.00	0.00	
12,900.00	90.00	270.27	7,850.00	2,682.12	-5,122.70	5,621.62	0.00	0.00	0.00	
13,000.00	90.00	270.27	7,850.00	2,682.59	-5,222.70	5,718.73	0.00	0.00	0.00	
13,100.00	90.00	270.27	7,850.00	2,683.06	-5,322.70	5,815.83	0.00	0.00	0.00	
13,200.00	90.00	270.27	7,850.00	2,683.53	-5,422.70	5,912.93	0.00	0.00	0.00	
13,300.00	90.00	270.27	7,850.00	2,684.00	-5,522.70	6,010.04	0.00	0.00	0.00	
13,400.00	90.00	270.27	7,850.00	2,684.47	-5,622.70	6,107.14	0.00	0.00	0.00	
13,500.00	90.00	270.27	7,850.00	2,684.94	-5,722.70	6,204.24	0.00	0.00	0.00	
13,600.00	90.00	270.27	7,850.00	2,685.41	-5,822.70	6,301.35	0.00	0.00	0.00	
13,700.00	90.00	270.27	7,850.00	2,685.88	-5,922.70	6,398.45	0.00	0.00	0.00	
13,800.00	90.00	270.27	7,850.00	2,686.36	-6,022.69	6,495.55	0.00	0.00	0.00	
13,900.00	90.00	270.27	7,850.00	2,686.83	-6,122.69	6,592.66	0.00	0.00	0.00	
14,000.00	90.00	270.27	7,850.00	2,687.30	-6,222.69	6,689.76	0.00	0.00	0.00	
14,100.00	90.00	270.27	7,850.00	2,687.77	-6,322.69	6,786.86	0.00	0.00	0.00	
14,200.00	90.00	270.27	7,850.00	2,688.24	-6,422.69	6,883.97	0.00	0.00	0.00	
14,300.00	90.00	270.27	7,850.00	2,688.71	-6,522.69	6,981.07	0.00	0.00	0.00	
14,400.00	90.00	270.27	7,850.00	2,689.18	-6,622.69	7,078.18	0.00	0.00	0.00	
14,500.00	90.00	270.27	7,850.00	2,689.65	-6,722.69	7,175.28	0.00	0.00	0.00	
14,600.00	90.00	270.27	7,850.00	2,690.12	-6,822.69	7,272.38	0.00	0.00	0.00	
14,700.00	90.00	270.27	7,850.00	2,690.60	-6,922.68	7,369.49	0.00	0.00	0.00	
14,800.00	90.00	270.27	7,850.00	2,691.07	-7,022.68	7,466.59	0.00	0.00	0.00	
14,900.00	90.00	270.27	7,850.00	2,691.54	-7,122.68	7,563.69	0.00	0.00	0.00	
15,000.00	90.00	270.27	7,850.00	2,692.01	-7,222.68	7,660.80	0.00	0.00	0.00	
15,100.00	90.00	270.27	7,850.00	2,692.48	-7,322.68	7,757.90	0.00	0.00	0.00	
15,200.00	90.00	270.27	7,850.00	2,692.95	-7,422.68	7,855.00	0.00	0.00	0.00	
15,300.00	90.00	270.27	7,850.00	2,693.42	-7,522.68	7,952.11	0.00	0.00	0.00	
15,400.00	90.00	270.27	7,850.00	2,693.89	-7,622.68	8,049.21	0.00	0.00	0.00	
15,500.00	90.00	270.27	7,850.00	2,694.36	-7,722.68	8,146.31	0.00	0.00	0.00	
15,600.00	90.00	270.27	7,850.00	2,694.84	-7,822.67	8,243.42	0.00	0.00	0.00	
15,700.00	90.00	270.27	7,850.00	2,695.31	-7,922.67	8,340.52	0.00	0.00	0.00	
15,800.00	90.00	270.27	7,850.00	2,695.78	-8,022.67	8,437.62	0.00	0.00	0.00	
15,900.00	90.00	270.27	7,850.00	2,696.25	-8,122.67	8,534.73	0.00	0.00	0.00	
16,000.00	90.00	270.27	7,850.00	2,696.72	-8,222.67	8,631.83	0.00	0.00	0.00	
16,100.00	90.00	270.27	7,850.00	2,697.19	-8,322.67	8,728.93	0.00	0.00	0.00	
16,200.00	90.00	270.27	7,850.00	2,697.66	-8,422.67	8,826.04	0.00	0.00	0.00	
16,300.00	90.00	270.27	7,850.00	2,698.13	-8,522.67	8,923.14	0.00	0.00	0.00	
16,400.00	90.00	270.27	7,850.00	2,698.60	-8,622.67	9,020.25	0.00	0.00	0.00	
16,500.00	90.00	270.27	7,850.00	2,699.07	-8,722.66	9,117.35	0.00	0.00	0.00	
16,600.00	90.00	270.27	7,850.00	2,699.55	-8,822.66	9,214.45	0.00	0.00	0.00	
16,700.00	90.00	270.27	7,850.00	2,700.02	-8,922.66	9,311.56	0.00	0.00	0.00	
16,800.00	90.00	270.27	7,850.00	2,700.49	-9,022.66	9,408.66	0.00	0.00	0.00	
16,900.00	90.00	270.27	7,850.00	2,700.96	-9,122.66	9,505.76	0.00	0.00	0.00	

## Planning Report

<b>Database:</b>	EDT_32Bit_ODBC	<b>Local Co-ordinate Reference:</b>	Well PROPERTY RESERVE 4-65 3-4 1BH
<b>Company:</b>	CRESTONE PEAK RESOURCES	<b>TVD Reference:</b>	KB 25' @ 5656.91usft
<b>Project:</b>	ARAPAHOE COUNTY	<b>MD Reference:</b>	KB 25' @ 5656.91usft
<b>Site:</b>	SEC 2-T4S-R65W	<b>North Reference:</b>	True
<b>Well:</b>	PROPERTY RESERVE 4-65 3-4 1BH	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OWB		
<b>Design:</b>	PROPOSAL 1		

Planned Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	
17,000.00	90.00	270.27	7,850.00	2,701.43	-9,222.66	9,602.87	0.00	0.00	0.00	
17,100.00	90.00	270.27	7,850.00	2,701.90	-9,322.66	9,699.97	0.00	0.00	0.00	
17,200.00	90.00	270.27	7,850.00	2,702.37	-9,422.66	9,797.07	0.00	0.00	0.00	
17,300.00	90.00	270.27	7,850.00	2,702.84	-9,522.66	9,894.18	0.00	0.00	0.00	
17,400.00	90.00	270.27	7,850.00	2,703.31	-9,622.65	9,991.28	0.00	0.00	0.00	
17,500.00	90.00	270.27	7,850.00	2,703.79	-9,722.65	10,088.38	0.00	0.00	0.00	
17,600.00	90.00	270.27	7,850.00	2,704.26	-9,822.65	10,185.49	0.00	0.00	0.00	
17,700.00	90.00	270.27	7,850.00	2,704.73	-9,922.65	10,282.59	0.00	0.00	0.00	
17,800.00	90.00	270.27	7,850.00	2,705.20	-10,022.65	10,379.69	0.00	0.00	0.00	
17,900.00	90.00	270.27	7,850.00	2,705.67	-10,122.65	10,476.80	0.00	0.00	0.00	
18,000.00	90.00	270.27	7,850.00	2,706.14	-10,222.65	10,573.90	0.00	0.00	0.00	
18,100.00	90.00	270.27	7,850.00	2,706.61	-10,322.65	10,671.01	0.00	0.00	0.00	
18,200.00	90.00	270.27	7,850.00	2,707.08	-10,422.65	10,768.11	0.00	0.00	0.00	
18,300.00	90.00	270.27	7,850.00	2,707.55	-10,522.64	10,865.21	0.00	0.00	0.00	
18,400.00	90.00	270.27	7,850.00	2,708.03	-10,622.64	10,962.32	0.00	0.00	0.00	
18,500.00	90.00	270.27	7,850.00	2,708.50	-10,722.64	11,059.42	0.00	0.00	0.00	
18,566.61	90.00	270.27	7,850.00	2,708.81	-10,789.25	11,124.10	0.00	0.00	0.00	
TD at 18566.61										

Design Targets										
Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude	
PBHL-PROPERTY RES - plan hits target center - Point	0.00	0.00	7,850.00	2,708.81	-10,789.25	1,694,527.22	3,231,418.60	39.737404°N	104.677116°W	
LP-PROPERTY RESER - plan hits target center - Point	0.00	0.00	7,850.00	2,662.11	-874.92	1,694,574.51	3,241,332.89	39.737282°N	104.641863°W	



## Planning Report

<b>Database:</b>	EDT_32Bit_ODBC	<b>Local Co-ordinate Reference:</b>	Well PROPERTY RESERVE 4-65 3-4 1BH
<b>Company:</b>	CRESTONE PEAK RESOURCES	<b>TVD Reference:</b>	KB 25' @ 5656.91usft
<b>Project:</b>	ARAPAHOE COUNTY	<b>MD Reference:</b>	KB 25' @ 5656.91usft
<b>Site:</b>	SEC 2-T4S-R65W	<b>North Reference:</b>	True
<b>Well:</b>	PROPERTY RESERVE 4-65 3-4 1BH	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OWB		
<b>Design:</b>	PROPOSAL 1		

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
24.00	24.00	Denver				
666.05	664.00	Arapahoe				
1,263.17	1,239.00	Laramie-Fox Hills Formation				
2,010.98	1,939.00	Pierre Formation				
2,502.39	2,399.00	Upper Pierre aquifer				
3,218.15	3,069.00	Base of Upper Pierre aquifer				
4,387.94	4,164.00	Larimer ("Parkman") sandstone				
4,510.79	4,279.00	Pierre Formation				
5,589.77	5,289.00	Terry ("Sussex") sandstone				
5,707.28	5,399.00	Pierre Formation				
6,369.63	6,019.00	Hygiene ("Shannon") sandstone				
6,796.95	6,419.00	Pierre Formation				
8,061.37	7,589.00	Sharon Springs Member				
8,153.25	7,659.00	Niobrara Formation				

Plan Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
200.00	200.00	0.00	0.00	Start Build 2.00	
1,229.92	1,207.88	181.78	-22.35	Start 6547.80 hold at 1229.92 MD	
7,777.72	7,337.07	2,468.18	-303.44	Start DLS 10.00 TFO -83.18	
8,652.17	7,850.00	2,662.11	-874.92	Start 9914.44 hold at 8652.17 MD	
18,566.61	7,850.00	2,708.81	-10,789.25	TD at 18566.61	