

# **CRESTONE PEAK RESOURCES**

**ARAPAHOE COUNTY**

**SEC 2-T4S-R65W**

**PROPERTY RESERVE 4-65 3-4 4AH**

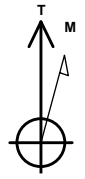
**OWB**

**Plan: PROPOSAL 1**

## **Standard Planning Report**

**17 August, 2022**

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



Azimuths to True North  
 Magnetic North: 7.62°  
 Magnetic Field  
 Strength: 51504.3nT  
 Dip Angle: 66.10°  
 Date: 6/9/2022  
 Model: IGRF2020

WELL DETAILS: PROPERTY RESERVE 4-65 3-4 4AH

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.00	0.00	1691881.13	3242233.38	39.729865°N	104.638752°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
240.84	2.82	242.33	240.78	-1.61	-3.07	3.09	3.46	Start 7069.89 hold at 240.84 MD
7310.73	2.82	242.33	7302.13	-162.93	-310.77	313.51	350.89	Start DLS 10.00 TFO 27.64
8185.77	90.00	269.95	7850.00	-175.92	-883.17	886.05	923.75	Start 9915.47 hold at 8185.77 MD
18101.25	90.00	269.95	7850.00	-184.58	-10798.64	10800.22	10839.22	TD at 18101.25

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	100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	
3	240.84	2.82	242.33	240.78	-1.61	-3.07	2.00	242.33	3.09	
4	7310.73	2.82	242.33	7302.13	-162.93	-310.77	0.00	0.00	313.51	
5	8185.77	90.00	269.95	7850.00	-175.92	-883.17	10.00	27.64	886.05	LP-PROPERTY RESERVE 4-65 3-4
6	18101.25	90.00	269.95	7850.00	-184.58	-10798.64	0.00	0.00	10800.22	PBHL-PROPERTY RESERVE 4-65

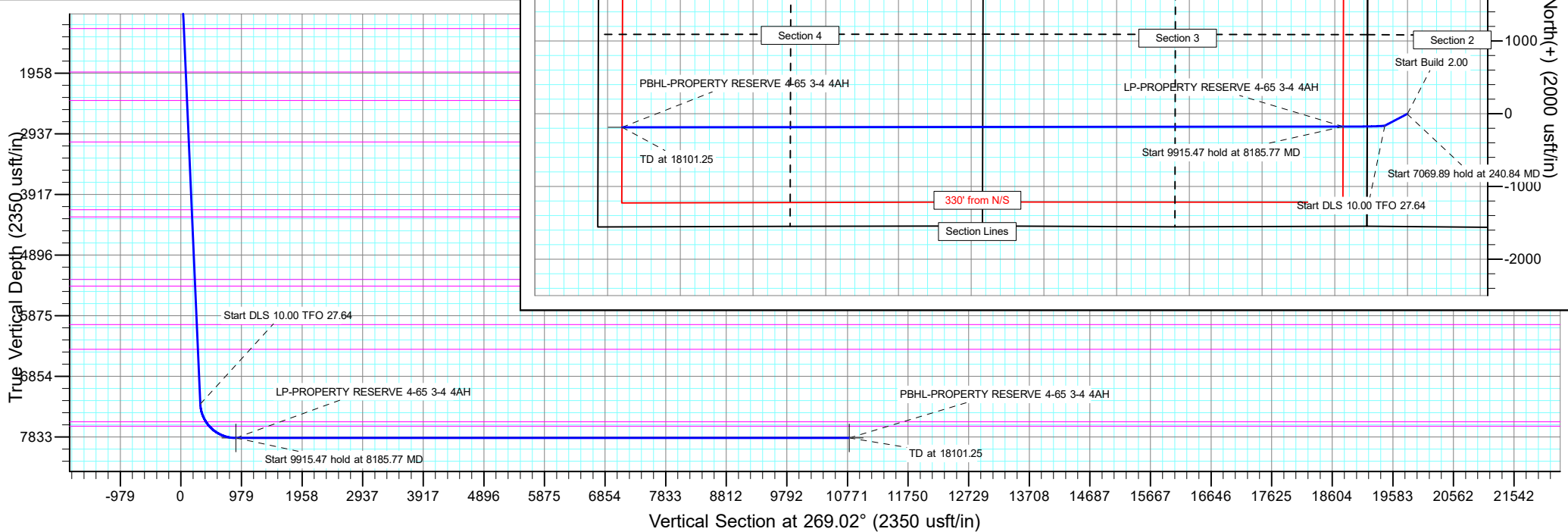
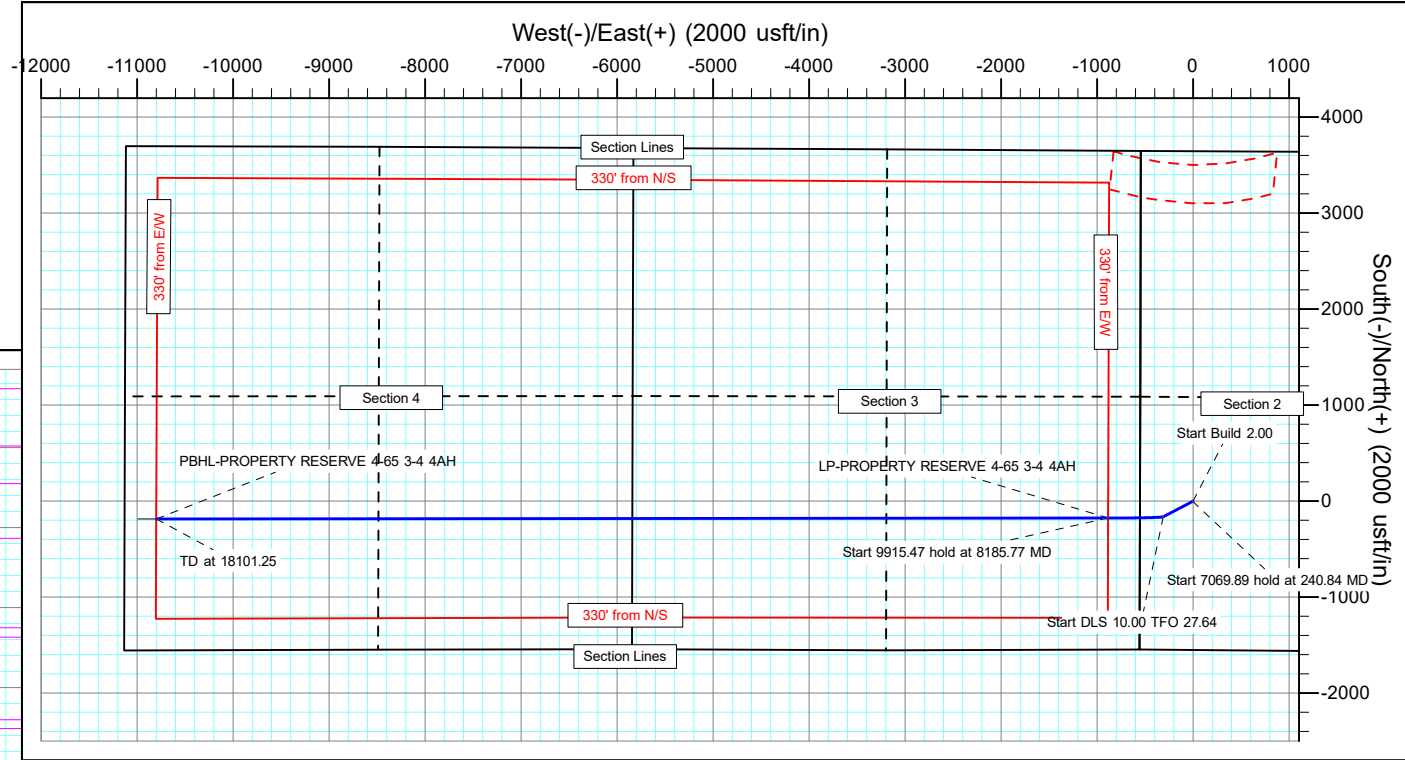
DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
LP-PROPERTY RESERVE 4-65 3-4 4AH - plan hits target center	7850.00	-175.92	-883.17	1691696.84	3241351.91	39.729382°N	104.641892°W	Point
PBHL-PROPERTY RESERVE 4-65 3-4 4AH - plan hits target center	7850.00	-184.58	-10798.64	1691594.18	3231437.01	39.729352°N	104.677145°W	Point

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:  
 1550' FSL, 553' FWL  
 Sec 2-T4S-R65W  
 LP:  
 1370' FSL, 330' FEL  
 Sec 3-T4S-R65W  
 BHL:  
 1370' FSL, 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 4AH
<b>Company:</b>	CRESTONE PEAK RESOURCES	<b>TVD Reference:</b>	KB 25' @ 5657.11usft
<b>Project:</b>	ARAPAHOE COUNTY	<b>MD Reference:</b>	KB 25' @ 5657.11usft
<b>Site:</b>	SEC 2-T4S-R65W	<b>North Reference:</b>	True
<b>Well:</b>	PROPERTY RESERVE 4-65 3-4 4AH	<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

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

<b>Well</b>	PROPERTY RESERVE 4-65 3-4 4AH					
<b>Well Position</b>	<b>+N/-S</b>	-3,649.25 usft	<b>Northing:</b>	1,691,881.12 usft	<b>Latitude:</b>	39.729865°N
	<b>+E/-W</b>	542.56 usft	<b>Easting:</b>	3,242,233.38 usft	<b>Longitude:</b>	104.638752°W
<b>Position Uncertainty</b>		0.00 usft	<b>Wellhead Elevation:</b>		<b>Ground Level:</b>	5,632.11 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	51,504.25178001

<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	269.02

<b>Plan Survey Tool Program</b>	<b>Date</b>	8/17/2022			
<b>Depth From (usft)</b>	<b>Depth To (usft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Remarks</b>	
1	0.00	18,101.25	PROPOSAL 1 (OWB)	MWD OWSG	
				OWSG MWD - Standard	

<b>Plan Sections</b>										
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	
240.84	2.82	242.33	240.78	-1.61	-3.07	2.00	2.00	0.00	242.33	
7,310.73	2.82	242.33	7,302.13	-162.93	-310.77	0.00	0.00	0.00	0.00	
8,185.77	90.00	269.95	7,850.00	-175.92	-883.17	10.00	9.96	3.16	27.64	LP-PROPERTY RESI
18,101.25	90.00	269.95	7,850.00	-184.58	-10,798.64	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 4AH
<b>Company:</b>	CRESTONE PEAK RESOURCES	<b>TVD Reference:</b>	KB 25' @ 5657.11usft
<b>Project:</b>	ARAPAHOE COUNTY	<b>MD Reference:</b>	KB 25' @ 5657.11usft
<b>Site:</b>	SEC 2-T4S-R65W	<b>North Reference:</b>	True
<b>Well:</b>	PROPERTY RESERVE 4-65 3-4 4AH	<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	
<b>Start Build 2.00</b>										
200.00	2.00	242.33	199.98	-0.81	-1.55	1.56	2.00	2.00	0.00	
240.84	2.82	242.33	240.78	-1.61	-3.07	3.09	2.00	2.00	0.00	
<b>Start 7069.89 hold at 240.84 MD</b>										
300.00	2.82	242.33	299.87	-2.96	-5.64	5.69	0.00	0.00	0.00	
400.00	2.82	242.33	399.75	-5.24	-9.99	10.08	0.00	0.00	0.00	
500.00	2.82	242.33	499.63	-7.52	-14.35	14.47	0.00	0.00	0.00	
600.00	2.82	242.33	599.51	-9.80	-18.70	18.86	0.00	0.00	0.00	
664.57	2.82	242.33	664.00	-11.28	-21.51	21.70	0.00	0.00	0.00	
<b>Arapahoe</b>										
700.00	2.82	242.33	699.39	-12.08	-23.05	23.25	0.00	0.00	0.00	
800.00	2.82	242.33	799.27	-14.37	-27.40	27.64	0.00	0.00	0.00	
900.00	2.82	242.33	899.15	-16.65	-31.75	32.03	0.00	0.00	0.00	
1,000.00	2.82	242.33	999.03	-18.93	-36.11	36.43	0.00	0.00	0.00	
1,100.00	2.82	242.33	1,098.91	-21.21	-40.46	40.82	0.00	0.00	0.00	
1,200.00	2.82	242.33	1,198.78	-23.49	-44.81	45.21	0.00	0.00	0.00	
1,240.26	2.82	242.33	1,239.00	-24.41	-46.56	46.97	0.00	0.00	0.00	
<b>Laramie-Fox Hills Formation</b>										
1,300.00	2.82	242.33	1,298.66	-25.77	-49.16	49.60	0.00	0.00	0.00	
1,400.00	2.82	242.33	1,398.54	-28.06	-53.52	53.99	0.00	0.00	0.00	
1,500.00	2.82	242.33	1,498.42	-30.34	-57.87	58.38	0.00	0.00	0.00	
1,600.00	2.82	242.33	1,598.30	-32.62	-62.22	62.77	0.00	0.00	0.00	
1,700.00	2.82	242.33	1,698.18	-34.90	-66.57	67.16	0.00	0.00	0.00	
1,800.00	2.82	242.33	1,798.06	-37.18	-70.93	71.55	0.00	0.00	0.00	
1,900.00	2.82	242.33	1,897.94	-39.47	-75.28	75.94	0.00	0.00	0.00	
1,941.11	2.82	242.33	1,939.00	-40.40	-77.07	77.75	0.00	0.00	0.00	
<b>Pierre Formation</b>										
2,000.00	2.82	242.33	1,997.82	-41.75	-79.63	80.33	0.00	0.00	0.00	
2,100.00	2.82	242.33	2,097.70	-44.03	-83.98	84.72	0.00	0.00	0.00	
2,200.00	2.82	242.33	2,197.58	-46.31	-88.34	89.11	0.00	0.00	0.00	
2,300.00	2.82	242.33	2,297.46	-48.59	-92.69	93.50	0.00	0.00	0.00	
2,400.00	2.82	242.33	2,397.33	-50.87	-97.04	97.90	0.00	0.00	0.00	
2,401.67	2.82	242.33	2,399.00	-50.91	-97.11	97.97	0.00	0.00	0.00	
<b>Upper Pierre aquifer</b>										
2,500.00	2.82	242.33	2,497.21	-53.16	-101.39	102.29	0.00	0.00	0.00	
2,600.00	2.82	242.33	2,597.09	-55.44	-105.74	106.68	0.00	0.00	0.00	
2,700.00	2.82	242.33	2,696.97	-57.72	-110.10	111.07	0.00	0.00	0.00	
2,800.00	2.82	242.33	2,796.85	-60.00	-114.45	115.46	0.00	0.00	0.00	
2,900.00	2.82	242.33	2,896.73	-62.28	-118.80	119.85	0.00	0.00	0.00	
3,000.00	2.82	242.33	2,996.61	-64.57	-123.15	124.24	0.00	0.00	0.00	
3,072.48	2.82	242.33	3,069.00	-66.22	-126.31	127.42	0.00	0.00	0.00	
<b>Base of Upper Pierre aquifer</b>										
3,100.00	2.82	242.33	3,096.49	-66.85	-127.51	128.63	0.00	0.00	0.00	
3,200.00	2.82	242.33	3,196.37	-69.13	-131.86	133.02	0.00	0.00	0.00	
3,300.00	2.82	242.33	3,296.25	-71.41	-136.21	137.41	0.00	0.00	0.00	
3,400.00	2.82	242.33	3,396.13	-73.69	-140.56	141.80	0.00	0.00	0.00	
3,500.00	2.82	242.33	3,496.01	-75.97	-144.92	146.19	0.00	0.00	0.00	
3,600.00	2.82	242.33	3,595.88	-78.26	-149.27	150.58	0.00	0.00	0.00	
3,700.00	2.82	242.33	3,695.76	-80.54	-153.62	154.97	0.00	0.00	0.00	

Planning Report

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<b>Company:</b>	CRESTONE PEAK RESOURCES	<b>TVD Reference:</b>	KB 25' @ 5657.11usft
<b>Project:</b>	ARAPAHOE COUNTY	<b>MD Reference:</b>	KB 25' @ 5657.11usft
<b>Site:</b>	SEC 2-T4S-R65W	<b>North Reference:</b>	True
<b>Well:</b>	PROPERTY RESERVE 4-65 3-4 4AH	<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	2.82	242.33	3,795.64	-82.82	-157.97	159.37	0.00	0.00	0.00	
3,900.00	2.82	242.33	3,895.52	-85.10	-162.33	163.76	0.00	0.00	0.00	
4,000.00	2.82	242.33	3,995.40	-87.38	-166.68	168.15	0.00	0.00	0.00	
4,100.00	2.82	242.33	4,095.28	-89.67	-171.03	172.54	0.00	0.00	0.00	
4,168.80	2.82	242.33	4,164.00	-91.23	-174.02	175.56	0.00	0.00	0.00	
<b>Larimer ("Parkman") sandstone</b>										
4,200.00	2.82	242.33	4,195.16	-91.95	-175.38	176.93	0.00	0.00	0.00	
4,283.94	2.82	242.33	4,279.00	-93.86	-179.04	180.61	0.00	0.00	0.00	
<b>Pierre Formation</b>										
4,300.00	2.82	242.33	4,295.04	-94.23	-179.73	181.32	0.00	0.00	0.00	
4,400.00	2.82	242.33	4,394.92	-96.51	-184.09	185.71	0.00	0.00	0.00	
4,500.00	2.82	242.33	4,494.80	-98.79	-188.44	190.10	0.00	0.00	0.00	
4,600.00	2.82	242.33	4,594.68	-101.07	-192.79	194.49	0.00	0.00	0.00	
4,700.00	2.82	242.33	4,694.56	-103.36	-197.14	198.88	0.00	0.00	0.00	
4,800.00	2.82	242.33	4,794.43	-105.64	-201.50	203.27	0.00	0.00	0.00	
4,900.00	2.82	242.33	4,894.31	-107.92	-205.85	207.66	0.00	0.00	0.00	
5,000.00	2.82	242.33	4,994.19	-110.20	-210.20	212.05	0.00	0.00	0.00	
5,100.00	2.82	242.33	5,094.07	-112.48	-214.55	216.44	0.00	0.00	0.00	
5,200.00	2.82	242.33	5,193.95	-114.76	-218.91	220.84	0.00	0.00	0.00	
5,295.16	2.82	242.33	5,289.00	-116.94	-223.05	225.01	0.00	0.00	0.00	
<b>Terry ("Sussex") sandstone</b>										
5,300.00	2.82	242.33	5,293.83	-117.05	-223.26	225.23	0.00	0.00	0.00	
5,400.00	2.82	242.33	5,393.71	-119.33	-227.61	229.62	0.00	0.00	0.00	
5,405.30	2.82	242.33	5,399.00	-119.45	-227.84	229.85	0.00	0.00	0.00	
<b>Pierre Formation</b>										
5,500.00	2.82	242.33	5,493.59	-121.61	-231.96	234.01	0.00	0.00	0.00	
5,600.00	2.82	242.33	5,593.47	-123.89	-236.32	238.40	0.00	0.00	0.00	
5,700.00	2.82	242.33	5,693.35	-126.17	-240.67	242.79	0.00	0.00	0.00	
5,800.00	2.82	242.33	5,793.23	-128.46	-245.02	247.18	0.00	0.00	0.00	
5,900.00	2.82	242.33	5,893.11	-130.74	-249.37	251.57	0.00	0.00	0.00	
6,000.00	2.82	242.33	5,992.99	-133.02	-253.72	255.96	0.00	0.00	0.00	
6,026.05	2.82	242.33	6,019.00	-133.61	-254.86	257.10	0.00	0.00	0.00	
<b>Hygiene ("Shannon") sandstone</b>										
6,100.00	2.82	242.33	6,092.86	-135.30	-258.08	260.35	0.00	0.00	0.00	
6,200.00	2.82	242.33	6,192.74	-137.58	-262.43	264.74	0.00	0.00	0.00	
6,300.00	2.82	242.33	6,292.62	-139.86	-266.78	269.13	0.00	0.00	0.00	
6,400.00	2.82	242.33	6,392.50	-142.15	-271.13	273.52	0.00	0.00	0.00	
6,426.53	2.82	242.33	6,419.00	-142.75	-272.29	274.69	0.00	0.00	0.00	
<b>Pierre Formation</b>										
6,500.00	2.82	242.33	6,492.38	-144.43	-275.49	277.91	0.00	0.00	0.00	
6,600.00	2.82	242.33	6,592.26	-146.71	-279.84	282.31	0.00	0.00	0.00	
6,700.00	2.82	242.33	6,692.14	-148.99	-284.19	286.70	0.00	0.00	0.00	
6,800.00	2.82	242.33	6,792.02	-151.27	-288.54	291.09	0.00	0.00	0.00	
6,900.00	2.82	242.33	6,891.90	-153.56	-292.90	295.48	0.00	0.00	0.00	
7,000.00	2.82	242.33	6,991.78	-155.84	-297.25	299.87	0.00	0.00	0.00	
7,100.00	2.82	242.33	7,091.66	-158.12	-301.60	304.26	0.00	0.00	0.00	
7,200.00	2.82	242.33	7,191.54	-160.40	-305.95	308.65	0.00	0.00	0.00	
7,300.00	2.82	242.33	7,291.41	-162.68	-310.31	313.04	0.00	0.00	0.00	
7,310.73	2.82	242.33	7,302.13	-162.93	-310.77	313.51	0.00	0.00	0.00	
<b>Start DLS 10.00 TFO 27.64</b>										
7,350.00	6.55	258.50	7,341.26	-163.82	-313.82	316.58	10.00	9.52	41.17	
7,400.00	11.50	263.51	7,390.63	-164.96	-321.58	324.35	10.00	9.88	10.02	
7,450.00	16.47	265.53	7,439.13	-166.07	-333.60	336.39	10.00	9.95	4.03	

Planning Report

<b>Database:</b>	EDT_32Bit_ODBC	<b>Local Co-ordinate Reference:</b>	Well PROPERTY RESERVE 4-65 3-4 4AH
<b>Company:</b>	CRESTONE PEAK RESOURCES	<b>TVD Reference:</b>	KB 25' @ 5657.11usft
<b>Project:</b>	ARAPAHOE COUNTY	<b>MD Reference:</b>	KB 25' @ 5657.11usft
<b>Site:</b>	SEC 2-T4S-R65W	<b>North Reference:</b>	True
<b>Well:</b>	PROPERTY RESERVE 4-65 3-4 4AH	<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)
7,500.00	21.46	266.62	7,486.41	-167.16	-349.81	352.62	10.00	9.97	2.20
7,550.00	26.45	267.32	7,532.08	-168.22	-370.08	372.90	10.00	9.98	1.40
7,600.00	31.45	267.81	7,575.82	-169.24	-394.25	397.08	10.00	9.99	0.98
7,615.58	33.00	267.94	7,589.00	-169.55	-402.55	405.39	10.00	9.99	0.80
<b>Sharon Springs Member</b>									
7,650.00	36.44	268.18	7,617.29	-170.21	-422.14	424.99	10.00	9.99	0.70
7,700.00	41.44	268.47	7,656.17	-171.13	-453.55	456.40	10.00	9.99	0.58
7,703.79	41.82	268.49	7,659.00	-171.19	-456.06	458.92	10.00	9.99	0.52
<b>Niobrara Formation</b>									
7,750.00	46.44	268.71	7,692.16	-171.98	-488.22	491.09	10.00	9.99	0.47
7,800.00	51.43	268.91	7,724.99	-172.76	-525.90	528.77	10.00	10.00	0.40
7,850.00	56.43	269.08	7,754.42	-173.47	-566.29	569.18	10.00	10.00	0.35
7,900.00	61.43	269.24	7,780.22	-174.09	-609.10	611.99	10.00	10.00	0.31
7,950.00	66.43	269.38	7,802.18	-174.63	-654.00	656.89	10.00	10.00	0.28
8,000.00	71.43	269.51	7,820.15	-175.08	-700.64	703.53	10.00	10.00	0.26
8,050.00	76.43	269.63	7,833.99	-175.44	-748.67	751.56	10.00	10.00	0.25
8,100.00	81.42	269.75	7,843.59	-175.70	-797.72	800.61	10.00	10.00	0.24
8,150.00	86.42	269.87	7,848.88	-175.87	-847.42	850.31	10.00	10.00	0.23
8,185.77	90.00	269.95	7,850.00	-175.92	-883.17	886.05	10.00	10.00	0.23
<b>Start 9915.47 hold at 8185.77 MD</b>									
8,200.00	90.00	269.95	7,850.00	-175.93	-897.40	900.28	0.00	0.00	0.00
8,300.00	90.00	269.95	7,850.00	-176.02	-997.40	1,000.26	0.00	0.00	0.00
8,400.00	90.00	269.95	7,850.00	-176.11	-1,097.40	1,100.25	0.00	0.00	0.00
8,500.00	90.00	269.95	7,850.00	-176.20	-1,197.40	1,200.24	0.00	0.00	0.00
8,600.00	90.00	269.95	7,850.00	-176.28	-1,297.40	1,300.22	0.00	0.00	0.00
8,700.00	90.00	269.95	7,850.00	-176.37	-1,397.40	1,400.21	0.00	0.00	0.00
8,800.00	90.00	269.95	7,850.00	-176.46	-1,497.40	1,500.20	0.00	0.00	0.00
8,900.00	90.00	269.95	7,850.00	-176.55	-1,597.40	1,600.18	0.00	0.00	0.00
9,000.00	90.00	269.95	7,850.00	-176.63	-1,697.40	1,700.17	0.00	0.00	0.00
9,100.00	90.00	269.95	7,850.00	-176.72	-1,797.40	1,800.16	0.00	0.00	0.00
9,200.00	90.00	269.95	7,850.00	-176.81	-1,897.40	1,900.14	0.00	0.00	0.00
9,300.00	90.00	269.95	7,850.00	-176.90	-1,997.40	2,000.13	0.00	0.00	0.00
9,400.00	90.00	269.95	7,850.00	-176.98	-2,097.40	2,100.12	0.00	0.00	0.00
9,500.00	90.00	269.95	7,850.00	-177.07	-2,197.40	2,200.10	0.00	0.00	0.00
9,600.00	90.00	269.95	7,850.00	-177.16	-2,297.40	2,300.09	0.00	0.00	0.00
9,700.00	90.00	269.95	7,850.00	-177.24	-2,397.40	2,400.08	0.00	0.00	0.00
9,800.00	90.00	269.95	7,850.00	-177.33	-2,497.40	2,500.07	0.00	0.00	0.00
9,900.00	90.00	269.95	7,850.00	-177.42	-2,597.40	2,600.05	0.00	0.00	0.00
10,000.00	90.00	269.95	7,850.00	-177.51	-2,697.40	2,700.04	0.00	0.00	0.00
10,100.00	90.00	269.95	7,850.00	-177.59	-2,797.40	2,800.03	0.00	0.00	0.00
10,200.00	90.00	269.95	7,850.00	-177.68	-2,897.40	2,900.01	0.00	0.00	0.00
10,300.00	90.00	269.95	7,850.00	-177.77	-2,997.40	3,000.00	0.00	0.00	0.00
10,400.00	90.00	269.95	7,850.00	-177.86	-3,097.40	3,099.99	0.00	0.00	0.00
10,500.00	90.00	269.95	7,850.00	-177.94	-3,197.40	3,199.97	0.00	0.00	0.00
10,600.00	90.00	269.95	7,850.00	-178.03	-3,297.40	3,299.96	0.00	0.00	0.00
10,700.00	90.00	269.95	7,850.00	-178.12	-3,397.40	3,399.95	0.00	0.00	0.00
10,800.00	90.00	269.95	7,850.00	-178.20	-3,497.40	3,499.93	0.00	0.00	0.00
10,900.00	90.00	269.95	7,850.00	-178.29	-3,597.40	3,599.92	0.00	0.00	0.00
11,000.00	90.00	269.95	7,850.00	-178.38	-3,697.40	3,699.91	0.00	0.00	0.00
11,100.00	90.00	269.95	7,850.00	-178.47	-3,797.40	3,799.89	0.00	0.00	0.00
11,200.00	90.00	269.95	7,850.00	-178.55	-3,897.40	3,899.88	0.00	0.00	0.00
11,300.00	90.00	269.95	7,850.00	-178.64	-3,997.40	3,999.87	0.00	0.00	0.00
11,400.00	90.00	269.95	7,850.00	-178.73	-4,097.40	4,099.85	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 4AH
<b>Company:</b>	CRESTONE PEAK RESOURCES	<b>TVD Reference:</b>	KB 25' @ 5657.11usft
<b>Project:</b>	ARAPAHOE COUNTY	<b>MD Reference:</b>	KB 25' @ 5657.11usft
<b>Site:</b>	SEC 2-T4S-R65W	<b>North Reference:</b>	True
<b>Well:</b>	PROPERTY RESERVE 4-65 3-4 4AH	<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)	
11,500.00	90.00	269.95	7,850.00	-178.82	-4,197.40	4,199.84	0.00	0.00	0.00	
11,600.00	90.00	269.95	7,850.00	-178.90	-4,297.40	4,299.83	0.00	0.00	0.00	
11,700.00	90.00	269.95	7,850.00	-178.99	-4,397.40	4,399.82	0.00	0.00	0.00	
11,800.00	90.00	269.95	7,850.00	-179.08	-4,497.40	4,499.80	0.00	0.00	0.00	
11,900.00	90.00	269.95	7,850.00	-179.17	-4,597.40	4,599.79	0.00	0.00	0.00	
12,000.00	90.00	269.95	7,850.00	-179.25	-4,697.40	4,699.78	0.00	0.00	0.00	
12,100.00	90.00	269.95	7,850.00	-179.34	-4,797.40	4,799.76	0.00	0.00	0.00	
12,200.00	90.00	269.95	7,850.00	-179.43	-4,897.40	4,899.75	0.00	0.00	0.00	
12,300.00	90.00	269.95	7,850.00	-179.51	-4,997.40	4,999.74	0.00	0.00	0.00	
12,400.00	90.00	269.95	7,850.00	-179.60	-5,097.40	5,099.72	0.00	0.00	0.00	
12,500.00	90.00	269.95	7,850.00	-179.69	-5,197.40	5,199.71	0.00	0.00	0.00	
12,600.00	90.00	269.95	7,850.00	-179.78	-5,297.40	5,299.70	0.00	0.00	0.00	
12,700.00	90.00	269.95	7,850.00	-179.86	-5,397.40	5,399.68	0.00	0.00	0.00	
12,800.00	90.00	269.95	7,850.00	-179.95	-5,497.40	5,499.67	0.00	0.00	0.00	
12,900.00	90.00	269.95	7,850.00	-180.04	-5,597.40	5,599.66	0.00	0.00	0.00	
13,000.00	90.00	269.95	7,850.00	-180.13	-5,697.40	5,699.64	0.00	0.00	0.00	
13,100.00	90.00	269.95	7,850.00	-180.21	-5,797.40	5,799.63	0.00	0.00	0.00	
13,200.00	90.00	269.95	7,850.00	-180.30	-5,897.40	5,899.62	0.00	0.00	0.00	
13,300.00	90.00	269.95	7,850.00	-180.39	-5,997.40	5,999.61	0.00	0.00	0.00	
13,400.00	90.00	269.95	7,850.00	-180.47	-6,097.40	6,099.59	0.00	0.00	0.00	
13,500.00	90.00	269.95	7,850.00	-180.56	-6,197.40	6,199.58	0.00	0.00	0.00	
13,600.00	90.00	269.95	7,850.00	-180.65	-6,297.40	6,299.57	0.00	0.00	0.00	
13,700.00	90.00	269.95	7,850.00	-180.74	-6,397.40	6,399.55	0.00	0.00	0.00	
13,800.00	90.00	269.95	7,850.00	-180.82	-6,497.40	6,499.54	0.00	0.00	0.00	
13,900.00	90.00	269.95	7,850.00	-180.91	-6,597.40	6,599.53	0.00	0.00	0.00	
14,000.00	90.00	269.95	7,850.00	-181.00	-6,697.40	6,699.51	0.00	0.00	0.00	
14,100.00	90.00	269.95	7,850.00	-181.09	-6,797.40	6,799.50	0.00	0.00	0.00	
14,200.00	90.00	269.95	7,850.00	-181.17	-6,897.40	6,899.49	0.00	0.00	0.00	
14,300.00	90.00	269.95	7,850.00	-181.26	-6,997.40	6,999.47	0.00	0.00	0.00	
14,400.00	90.00	269.95	7,850.00	-181.35	-7,097.40	7,099.46	0.00	0.00	0.00	
14,500.00	90.00	269.95	7,850.00	-181.44	-7,197.40	7,199.45	0.00	0.00	0.00	
14,600.00	90.00	269.95	7,850.00	-181.52	-7,297.40	7,299.43	0.00	0.00	0.00	
14,700.00	90.00	269.95	7,850.00	-181.61	-7,397.40	7,399.42	0.00	0.00	0.00	
14,800.00	90.00	269.95	7,850.00	-181.70	-7,497.40	7,499.41	0.00	0.00	0.00	
14,900.00	90.00	269.95	7,850.00	-181.78	-7,597.40	7,599.39	0.00	0.00	0.00	
15,000.00	90.00	269.95	7,850.00	-181.87	-7,697.40	7,699.38	0.00	0.00	0.00	
15,100.00	90.00	269.95	7,850.00	-181.96	-7,797.40	7,799.37	0.00	0.00	0.00	
15,200.00	90.00	269.95	7,850.00	-182.05	-7,897.40	7,899.36	0.00	0.00	0.00	
15,300.00	90.00	269.95	7,850.00	-182.13	-7,997.40	7,999.34	0.00	0.00	0.00	
15,400.00	90.00	269.95	7,850.00	-182.22	-8,097.40	8,099.33	0.00	0.00	0.00	
15,500.00	90.00	269.95	7,850.00	-182.31	-8,197.40	8,199.32	0.00	0.00	0.00	
15,600.00	90.00	269.95	7,850.00	-182.40	-8,297.40	8,299.30	0.00	0.00	0.00	
15,700.00	90.00	269.95	7,850.00	-182.48	-8,397.40	8,399.29	0.00	0.00	0.00	
15,800.00	90.00	269.95	7,850.00	-182.57	-8,497.40	8,499.28	0.00	0.00	0.00	
15,900.00	90.00	269.95	7,850.00	-182.66	-8,597.40	8,599.26	0.00	0.00	0.00	
16,000.00	90.00	269.95	7,850.00	-182.74	-8,697.40	8,699.25	0.00	0.00	0.00	
16,100.00	90.00	269.95	7,850.00	-182.83	-8,797.40	8,799.24	0.00	0.00	0.00	
16,200.00	90.00	269.95	7,850.00	-182.92	-8,897.40	8,899.22	0.00	0.00	0.00	
16,300.00	90.00	269.95	7,850.00	-183.01	-8,997.40	8,999.21	0.00	0.00	0.00	
16,400.00	90.00	269.95	7,850.00	-183.09	-9,097.40	9,099.20	0.00	0.00	0.00	
16,500.00	90.00	269.95	7,850.00	-183.18	-9,197.40	9,199.18	0.00	0.00	0.00	
16,600.00	90.00	269.95	7,850.00	-183.27	-9,297.40	9,299.17	0.00	0.00	0.00	
16,700.00	90.00	269.95	7,850.00	-183.36	-9,397.40	9,399.16	0.00	0.00	0.00	
16,800.00	90.00	269.95	7,850.00	-183.44	-9,497.40	9,499.14	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 4AH
<b>Company:</b>	CRESTONE PEAK RESOURCES	<b>TVD Reference:</b>	KB 25' @ 5657.11usft
<b>Project:</b>	ARAPAHOE COUNTY	<b>MD Reference:</b>	KB 25' @ 5657.11usft
<b>Site:</b>	SEC 2-T4S-R65W	<b>North Reference:</b>	True
<b>Well:</b>	PROPERTY RESERVE 4-65 3-4 4AH	<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)
16,900.00	90.00	269.95	7,850.00	-183.53	-9,597.40	9,599.13	0.00	0.00	0.00
17,000.00	90.00	269.95	7,850.00	-183.62	-9,697.40	9,699.12	0.00	0.00	0.00
17,100.00	90.00	269.95	7,850.00	-183.71	-9,797.40	9,799.11	0.00	0.00	0.00
17,200.00	90.00	269.95	7,850.00	-183.79	-9,897.40	9,899.09	0.00	0.00	0.00
17,300.00	90.00	269.95	7,850.00	-183.88	-9,997.40	9,999.08	0.00	0.00	0.00
17,400.00	90.00	269.95	7,850.00	-183.97	-10,097.40	10,099.07	0.00	0.00	0.00
17,500.00	90.00	269.95	7,850.00	-184.05	-10,197.40	10,199.05	0.00	0.00	0.00
17,600.00	90.00	269.95	7,850.00	-184.14	-10,297.40	10,299.04	0.00	0.00	0.00
17,700.00	90.00	269.95	7,850.00	-184.23	-10,397.40	10,399.03	0.00	0.00	0.00
17,800.00	90.00	269.95	7,850.00	-184.32	-10,497.40	10,499.01	0.00	0.00	0.00
17,900.00	90.00	269.95	7,850.00	-184.40	-10,597.40	10,599.00	0.00	0.00	0.00
18,000.00	90.00	269.95	7,850.00	-184.49	-10,697.40	10,698.99	0.00	0.00	0.00
18,101.25	90.00	269.95	7,850.00	-184.58	-10,798.64	10,800.22	0.00	0.00	0.00
<b>TD at 18101.25</b>									

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
LP-PROPERTY RESER - hit/miss target - Shape - Point	0.00	0.00	7,850.00	-175.92	-883.17	1,691,696.84	3,241,351.91	39.729382°N	104.641892°W
PBHL-PROPERTY RES - plan hits target center - Point	0.00	0.00	7,850.00	-184.58	-10,798.64	1,691,594.18	3,231,437.01	39.729352°N	104.677145°W

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
24.00	24.00	Denver				
664.57	664.00	Arapahoe				
1,240.26	1,239.00	Laramie-Fox Hills Formation				
1,941.11	1,939.00	Pierre Formation				
2,401.67	2,399.00	Upper Pierre aquifer				
3,072.48	3,069.00	Base of Upper Pierre aquifer				
4,168.80	4,164.00	Larimer ("Parkman") sandstone				
4,283.94	4,279.00	Pierre Formation				
5,295.16	5,289.00	Terry ("Sussex") sandstone				
5,405.30	5,399.00	Pierre Formation				
6,026.05	6,019.00	Hygiene ("Shannon") sandstone				
6,426.53	6,419.00	Pierre Formation				
7,615.58	7,589.00	Sharon Springs Member				
7,703.79	7,659.00	Niobrara Formation				

## Planning Report

<b>Database:</b>	EDT_32Bit_ODBC	<b>Local Co-ordinate Reference:</b>	Well PROPERTY RESERVE 4-65 3-4 4AH
<b>Company:</b>	CRESTONE PEAK RESOURCES	<b>TVD Reference:</b>	KB 25' @ 5657.11usft
<b>Project:</b>	ARAPAHOE COUNTY	<b>MD Reference:</b>	KB 25' @ 5657.11usft
<b>Site:</b>	SEC 2-T4S-R65W	<b>North Reference:</b>	True
<b>Well:</b>	PROPERTY RESERVE 4-65 3-4 4AH	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	OWB		
<b>Design:</b>	PROPOSAL 1		

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	
240.84	240.78	-1.61	-3.07	Start 7069.89 hold at 240.84 MD	
7,310.73	7,302.13	-162.93	-310.77	Start DLS 10.00 TFO 27.64	
8,185.77	7,850.00	-175.92	-883.17	Start 9915.47 hold at 8185.77 MD	
18,101.25	7,850.00	-184.58	-10,798.64	TD at 18101.25	