

# **CRESTONE PEAK RESOURCES**

**ARAPAHOE COUNTY**

**SEC 19-T4S-R64W**

**LUSSING TRUST 4-64 19-20 1BH**

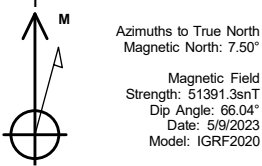
**OWB**

**Plan: PROPOSAL 1**

## **Standard Planning Report**

**11 May, 2023**

Project: ARAPAHOE COUNTY  
Site: SEC 19-T4S-R64W  
Well: LUSSING TRUST 4-64 19-20 1BH  
Wellbore: OWB  
Design: PROPOSAL 1



WELL DETAILS: LUSSING TRUST 4-64 19-20 1BH

5696.00						
+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.00	0.00	1678406.79	3252960.14	39.692591°N	104.601090°W	

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	500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	
3	935.66	8.71	293.32	933.98	13.09	-30.36	2.00	293.32	-29.76	
4	7049.04	8.71	293.32	6976.81	379.64	-880.83	0.00	0.00	-863.46	
5	8029.64	90.00	91.07	7629.00	406.90	-312.93	10.00	157.52	-294.91	LP-LT 4-64 19-20 1BH
6	13179.52	90.00	91.07	7629.00	310.82	4836.06	0.00	0.00	4845.01	MP-LT 4-64 19-20 1BH
7	13301.85	90.00	88.62	7629.00	311.15	4958.38	2.00	-90.00	4967.23	PBHL-LT 4-64 19-20 1BH
8	18165.54	90.00	88.62	7629.00	428.09	9820.67	0.00	0.00	9829.99	PBHL-LT 4-64 19-20 1BH

ANNOTATIONS

MD	Inc	Azi	TVD	+N/-S	+E/-W	VSect	Departure	Annotation
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	Start Build 2.00
935.66	8.71	293.32	933.98	13.09	-30.36	-29.76	33.06	Start 6113.38 hold at 935.66 MD
7049.04	8.71	293.32	6976.81	379.64	-880.83	-863.46	959.16	Start DLS 10.00 TFO 157.52
8029.64	90.00	91.07	7629.00	406.90	-312.93	-294.91	1544.10	Start 5149.89 hold at 8029.64 MD
13179.52	90.00	91.07	7629.00	310.82	4836.06	4845.01	6693.99	Start DLS 2.00 TFO -90.00
13301.85	90.00	88.62	7629.00	311.15	4958.38	4967.23	6816.32	Start 4863.69 hold at 13301.85 MD
18165.54	90.00	88.62	7629.00	428.09	9820.67	9829.99	11680.01	TD at 18165.54

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
LP-LT 4-64 19-20 1BH	7629.00	406.90	-312.93	1678810.56	3252643.21	39.693708°N	104.602202°W	Point
- plan hits target center								
MP-LT 4-64 19-20 1BH	7629.00	310.82	4836.06	1678765.44	3257792.84	39.693443°N	104.583905°W	Point
- plan hits target center								
PBHL-LT 4-64 19-20 1BH	7629.00	428.09	9820.67	1678932.02	3262775.99	39.693761°N	104.566192°W	Point
- plan hits target center								

PROJECT DETAILS: ARAPAHOE COUNTY

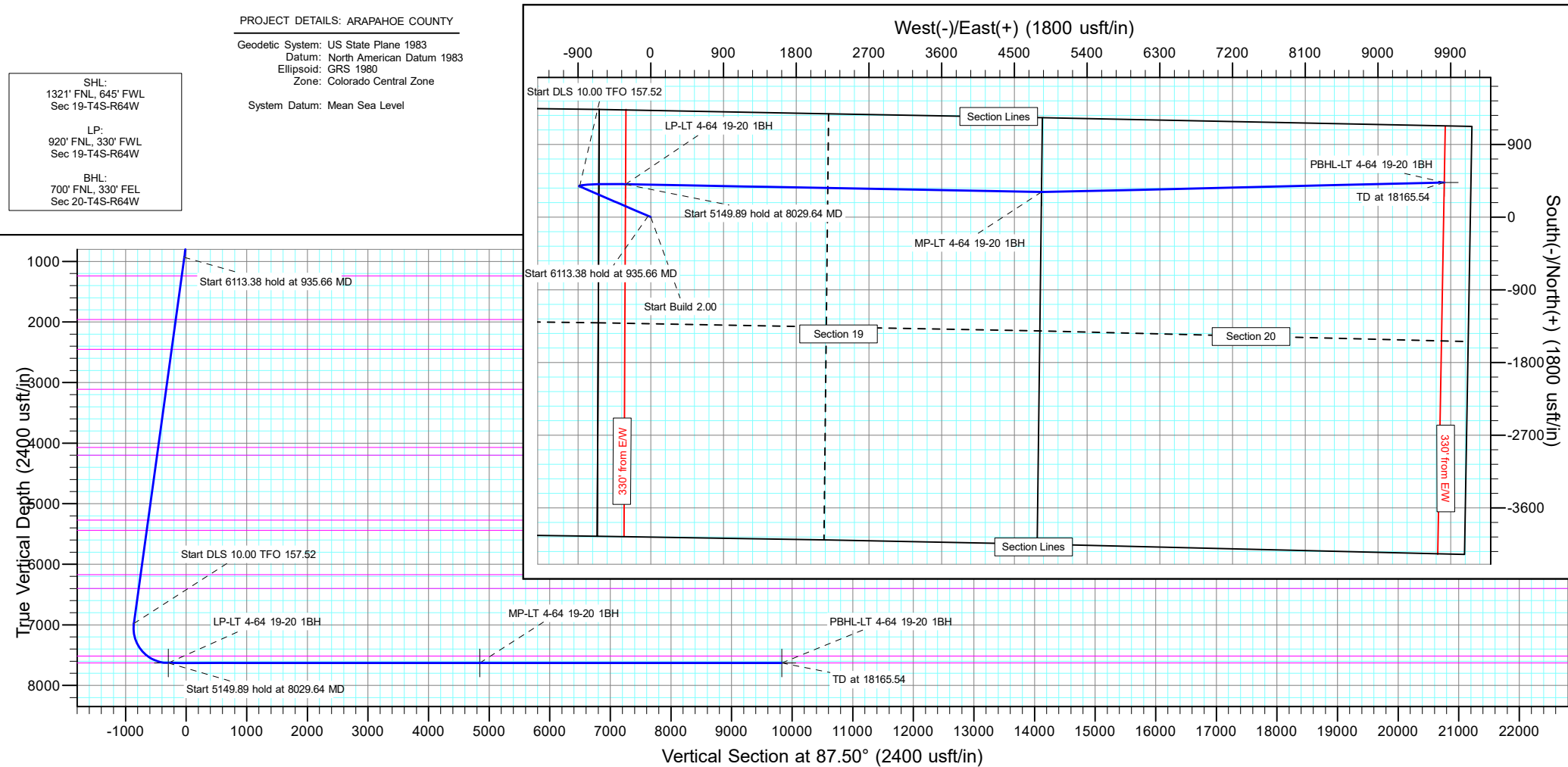
Geodetic System: US State Plane 1983  
Datum: North American Datum 1983  
Ellipsoid: GRS 1980  
Zone: Colorado Central Zone

System Datum: Mean Sea Level

SHL:  
1321' FNL, 645' FWL  
Sec 19-T4S-R64W

LP:  
920' FNL, 330' FWL  
Sec 19-T4S-R64W

BHL:  
700' FNL, 330' FEL  
Sec 20-T4S-R64W



## Planning Report

<b>Database:</b>	EDT_32Bit_ODBC	<b>Local Co-ordinate Reference:</b>	Well LUSSING TRUST 4-64 19-20 1BH
<b>Company:</b>	CRESTONE PEAK RESOURCES	<b>TVD Reference:</b>	KB 25' @ 5721.00usft
<b>Project:</b>	ARAPAHOE COUNTY	<b>MD Reference:</b>	KB 25' @ 5721.00usft
<b>Site:</b>	SEC 19-T4S-R64W	<b>North Reference:</b>	True
<b>Well:</b>	LUSSING TRUST 4-64 19-20 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 19-T4S-R64W			
Site Position:		Northing:	1,679,733.25 usft	Latitude:	39.696250°N
From:	Lat/Long	Easting:	3,252,308.22 usft	Longitude:	104.603360°W
Position Uncertainty:	0.00 usft	Slot Radius:	13.200 in	Grid Convergence:	0.57 °

Well	LUSSING TRUST 4-64 19-20 1BH					
Well Position	+N/-S	-1,332.85 usft	Northing:	1,678,406.78 usft	Latitude:	39.692591°N
	+E/-W	638.81 usft	Easting:	3,252,960.15 usft	Longitude:	104.601090°W
Position Uncertainty		0.00 usft	Wellhead Elevation:		Ground Level:	5,696.00 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	5/9/2023	7.50	66.04	51,391.29855571

<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	87.50

<b>Plan Survey Tool Program</b>	<b>Date</b>	5/11/2023		
<b>Depth From (usft)</b>	<b>Depth To (usft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Remarks</b>
1	0.00	18,165.54	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	
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00	
935.66	8.71	293.32	933.98	13.09	-30.36	2.00	2.00	0.00	293.32	
7,049.04	8.71	293.32	6,976.81	379.64	-880.83	0.00	0.00	0.00	0.00	
8,029.64	90.00	91.07	7,629.00	406.90	-312.93	10.00	8.29	16.09	157.52	LP-LT 4-64 19-20 1BH
13,179.52	90.00	91.07	7,629.00	310.82	4,836.06	0.00	0.00	0.00	0.00	MP-LT 4-64 19-20 1B
13,301.86	90.00	88.62	7,629.00	311.15	4,958.39	2.00	0.00	-2.00	-90.00	PBHL-LT 4-64 19-20
18,165.54	90.00	88.62	7,629.00	428.09	9,820.67	0.00	0.00	0.00	0.00	PBHL-LT 4-64 19-20

# Planning Report

<b>Database:</b>	EDT_32Bit_ODBC	<b>Local Co-ordinate Reference:</b>	Well LUSSING TRUST 4-64 19-20 1BH
<b>Company:</b>	CRESTONE PEAK RESOURCES	<b>TVD Reference:</b>	KB 25' @ 5721.00usft
<b>Project:</b>	ARAPAHOE COUNTY	<b>MD Reference:</b>	KB 25' @ 5721.00usft
<b>Site:</b>	SEC 19-T4S-R64W	<b>North Reference:</b>	True
<b>Well:</b>	LUSSING TRUST 4-64 19-20 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
Denver									
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
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
Start Build 2.00									
600.00	2.00	293.32	599.98	0.69	-1.60	-1.57	2.00	2.00	0.00
639.05	2.78	293.32	639.00	1.34	-3.10	-3.04	2.00	2.00	0.00
Arapahoe									
700.00	4.00	293.32	699.84	2.76	-6.41	-6.28	2.00	2.00	0.00
800.00	6.00	293.32	799.45	6.21	-14.41	-14.13	2.00	2.00	0.00
900.00	8.00	293.32	898.70	11.04	-25.60	-25.10	2.00	2.00	0.00
935.66	8.71	293.32	933.98	13.09	-30.36	-29.76	2.00	2.00	0.00
Start 6113.38 hold at 935.66 MD									
1,000.00	8.71	293.32	997.58	16.94	-39.31	-38.54	0.00	0.00	0.00
1,100.00	8.71	293.32	1,096.43	22.94	-53.22	-52.18	0.00	0.00	0.00
1,200.00	8.71	293.32	1,195.27	28.94	-67.14	-65.81	0.00	0.00	0.00
1,244.24	8.71	293.32	1,239.00	31.59	-73.29	-71.85	0.00	0.00	0.00
Laramie-Fox Hills Formation									
1,300.00	8.71	293.32	1,294.12	34.93	-81.05	-79.45	0.00	0.00	0.00
1,400.00	8.71	293.32	1,392.96	40.93	-94.96	-93.09	0.00	0.00	0.00
1,500.00	8.71	293.32	1,491.81	46.92	-108.87	-106.72	0.00	0.00	0.00
1,600.00	8.71	293.32	1,590.66	52.92	-122.78	-120.36	0.00	0.00	0.00
1,700.00	8.71	293.32	1,689.50	58.92	-136.69	-134.00	0.00	0.00	0.00
1,800.00	8.71	293.32	1,788.35	64.91	-150.61	-147.64	0.00	0.00	0.00
1,900.00	8.71	293.32	1,887.19	70.91	-164.52	-161.27	0.00	0.00	0.00
1,972.65	8.71	293.32	1,959.00	75.26	-174.62	-171.18	0.00	0.00	0.00
Pierre Formation									
2,000.00	8.71	293.32	1,986.04	76.90	-178.43	-174.91	0.00	0.00	0.00
2,100.00	8.71	293.32	2,084.89	82.90	-192.34	-188.55	0.00	0.00	0.00
2,200.00	8.71	293.32	2,183.73	88.90	-206.25	-202.19	0.00	0.00	0.00
2,300.00	8.71	293.32	2,282.58	94.89	-220.16	-215.82	0.00	0.00	0.00
2,400.00	8.71	293.32	2,381.42	100.89	-234.08	-229.46	0.00	0.00	0.00
2,468.37	8.71	293.32	2,449.00	104.99	-243.59	-238.78	0.00	0.00	0.00
Upper Pierre aquifer									
2,500.00	8.71	293.32	2,480.27	106.88	-247.99	-243.10	0.00	0.00	0.00
2,600.00	8.71	293.32	2,579.11	112.88	-261.90	-256.74	0.00	0.00	0.00
2,700.00	8.71	293.32	2,677.96	118.88	-275.81	-270.37	0.00	0.00	0.00
2,800.00	8.71	293.32	2,776.81	124.87	-289.72	-284.01	0.00	0.00	0.00
2,900.00	8.71	293.32	2,875.65	130.87	-303.63	-297.65	0.00	0.00	0.00
3,000.00	8.71	293.32	2,974.50	136.86	-317.55	-311.28	0.00	0.00	0.00
3,100.00	8.71	293.32	3,073.34	142.86	-331.46	-324.92	0.00	0.00	0.00
3,136.07	8.71	293.32	3,109.00	145.02	-336.48	-329.84	0.00	0.00	0.00
Base of Upper Pierre aquifer									
3,200.00	8.71	293.32	3,172.19	148.86	-345.37	-338.56	0.00	0.00	0.00
3,300.00	8.71	293.32	3,271.04	154.85	-359.28	-352.20	0.00	0.00	0.00
3,400.00	8.71	293.32	3,369.88	160.85	-373.19	-365.83	0.00	0.00	0.00
3,500.00	8.71	293.32	3,468.73	166.84	-387.10	-379.47	0.00	0.00	0.00
3,600.00	8.71	293.32	3,567.57	172.84	-401.02	-393.11	0.00	0.00	0.00
3,700.00	8.71	293.32	3,666.42	178.84	-414.93	-406.75	0.00	0.00	0.00

# Planning Report

<b>Database:</b>	EDT_32Bit_ODBC	<b>Local Co-ordinate Reference:</b>	Well LUSSING TRUST 4-64 19-20 1BH
<b>Company:</b>	CRESTONE PEAK RESOURCES	<b>TVD Reference:</b>	KB 25' @ 5721.00usft
<b>Project:</b>	ARAPAHOE COUNTY	<b>MD Reference:</b>	KB 25' @ 5721.00usft
<b>Site:</b>	SEC 19-T4S-R64W	<b>North Reference:</b>	True
<b>Well:</b>	LUSSING TRUST 4-64 19-20 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	8.71	293.32	3,765.27	184.83	-428.84	-420.38	0.00	0.00	0.00
3,900.00	8.71	293.32	3,864.11	190.83	-442.75	-434.02	0.00	0.00	0.00
4,000.00	8.71	293.32	3,962.96	196.82	-456.66	-447.66	0.00	0.00	0.00
4,100.00	8.71	293.32	4,061.80	202.82	-470.57	-461.29	0.00	0.00	0.00
4,107.28	8.71	293.32	4,069.00	203.26	-471.59	-462.29	0.00	0.00	0.00
Larimer ("Parkman") sandstone									
4,200.00	8.71	293.32	4,160.65	208.82	-484.49	-474.93	0.00	0.00	0.00
4,238.80	8.71	293.32	4,199.00	211.14	-489.88	-480.22	0.00	0.00	0.00
Pierre Formation									
4,300.00	8.71	293.32	4,259.50	214.81	-498.40	-488.57	0.00	0.00	0.00
4,400.00	8.71	293.32	4,358.34	220.81	-512.31	-502.21	0.00	0.00	0.00
4,500.00	8.71	293.32	4,457.19	226.80	-526.22	-515.84	0.00	0.00	0.00
4,600.00	8.71	293.32	4,556.03	232.80	-540.13	-529.48	0.00	0.00	0.00
4,700.00	8.71	293.32	4,654.88	238.80	-554.04	-543.12	0.00	0.00	0.00
4,800.00	8.71	293.32	4,753.72	244.79	-567.96	-556.76	0.00	0.00	0.00
4,900.00	8.71	293.32	4,852.57	250.79	-581.87	-570.39	0.00	0.00	0.00
5,000.00	8.71	293.32	4,951.42	256.78	-595.78	-584.03	0.00	0.00	0.00
5,100.00	8.71	293.32	5,050.26	262.78	-609.69	-597.67	0.00	0.00	0.00
5,200.00	8.71	293.32	5,149.11	268.78	-623.60	-611.31	0.00	0.00	0.00
5,300.00	8.71	293.32	5,247.95	274.77	-637.51	-624.94	0.00	0.00	0.00
5,321.29	8.71	293.32	5,269.00	276.05	-640.48	-627.85	0.00	0.00	0.00
Terry ("Sussex") sandstone									
5,400.00	8.71	293.32	5,346.80	280.77	-651.43	-638.58	0.00	0.00	0.00
5,493.28	8.71	293.32	5,439.00	286.36	-664.40	-651.30	0.00	0.00	0.00
Pierre Formation									
5,500.00	8.71	293.32	5,445.65	286.76	-665.34	-652.22	0.00	0.00	0.00
5,600.00	8.71	293.32	5,544.49	292.76	-679.25	-665.85	0.00	0.00	0.00
5,700.00	8.71	293.32	5,643.34	298.76	-693.16	-679.49	0.00	0.00	0.00
5,800.00	8.71	293.32	5,742.18	304.75	-707.07	-693.13	0.00	0.00	0.00
5,900.00	8.71	293.32	5,841.03	310.75	-720.98	-706.77	0.00	0.00	0.00
6,000.00	8.71	293.32	5,939.88	316.74	-734.89	-720.40	0.00	0.00	0.00
6,100.00	8.71	293.32	6,038.72	322.74	-748.81	-734.04	0.00	0.00	0.00
6,200.00	8.71	293.32	6,137.57	328.74	-762.72	-747.68	0.00	0.00	0.00
6,231.80	8.71	293.32	6,169.00	330.64	-767.14	-752.01	0.00	0.00	0.00
Hygiene ("Shannon") sandstone									
6,300.00	8.71	293.32	6,236.41	334.73	-776.63	-761.32	0.00	0.00	0.00
6,400.00	8.71	293.32	6,335.26	340.73	-790.54	-774.95	0.00	0.00	0.00
6,464.48	8.71	293.32	6,399.00	344.59	-799.51	-783.75	0.00	0.00	0.00
Pierre Formation									
6,500.00	8.71	293.32	6,434.11	346.72	-804.45	-788.59	0.00	0.00	0.00
6,600.00	8.71	293.32	6,532.95	352.72	-818.36	-802.23	0.00	0.00	0.00
6,700.00	8.71	293.32	6,631.80	358.72	-832.28	-815.86	0.00	0.00	0.00
6,800.00	8.71	293.32	6,730.64	364.71	-846.19	-829.50	0.00	0.00	0.00
6,900.00	8.71	293.32	6,829.49	370.71	-860.10	-843.14	0.00	0.00	0.00
7,000.00	8.71	293.32	6,928.34	376.70	-874.01	-856.78	0.00	0.00	0.00
7,049.04	8.71	293.32	6,976.81	379.64	-880.83	-863.46	0.00	0.00	0.00
Start DLS 10.00 TFO 157.52									
7,100.00	4.45	319.28	7,027.43	382.67	-885.67	-868.17	10.00	-8.37	50.95
7,150.00	3.89	32.61	7,077.33	385.57	-886.02	-868.39	10.00	-1.11	146.66
7,200.00	7.78	65.93	7,127.07	388.39	-882.01	-864.26	10.00	7.76	66.63
7,250.00	12.48	75.87	7,176.28	391.09	-873.68	-855.82	10.00	9.40	19.88
7,300.00	17.35	80.36	7,224.59	393.66	-861.09	-843.13	10.00	9.74	8.99
7,350.00	22.27	82.92	7,271.62	396.07	-844.32	-826.27	10.00	9.85	5.12

# Planning Report

<b>Database:</b>	EDT_32Bit_ODBC	<b>Local Co-ordinate Reference:</b>	Well LUSSING TRUST 4-64 19-20 1BH
<b>Company:</b>	CRESTONE PEAK RESOURCES	<b>TVD Reference:</b>	KB 25' @ 5721.00usft
<b>Project:</b>	ARAPAHOE COUNTY	<b>MD Reference:</b>	KB 25' @ 5721.00usft
<b>Site:</b>	SEC 19-T4S-R64W	<b>North Reference:</b>	True
<b>Well:</b>	LUSSING TRUST 4-64 19-20 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)	
7,400.00	27.22	84.59	7,317.01	398.32	-823.52	-805.39	10.00	9.90	3.34	
7,450.00	32.19	85.78	7,360.42	400.38	-798.84	-780.64	10.00	9.93	2.37	
7,500.00	37.16	86.68	7,401.53	402.23	-770.46	-752.21	10.00	9.95	1.80	
7,550.00	42.14	87.39	7,440.01	403.87	-738.61	-720.32	10.00	9.96	1.43	
7,600.00	47.13	87.98	7,475.58	405.28	-703.52	-685.20	10.00	9.97	1.18	
7,650.00	52.11	88.48	7,507.97	406.45	-665.46	-647.13	10.00	9.97	1.00	
7,659.93	53.10	88.57	7,514.00	406.65	-657.57	-639.24	10.00	9.97	0.92	
Sharon Springs Member										
7,700.00	57.10	88.92	7,536.92	407.37	-624.72	-606.39	10.00	9.98	0.86	
7,750.00	62.09	89.31	7,562.22	408.03	-581.62	-563.30	10.00	9.98	0.78	
7,800.00	67.08	89.66	7,583.67	408.44	-536.48	-518.18	10.00	9.98	0.71	
7,850.00	72.07	89.99	7,601.12	408.58	-489.63	-471.38	10.00	9.98	0.66	
7,900.00	77.06	90.30	7,614.42	408.45	-441.45	-423.25	10.00	9.98	0.62	
7,950.00	82.05	90.60	7,623.48	408.06	-392.30	-374.16	10.00	9.98	0.60	
8,000.00	87.04	90.90	7,628.24	407.40	-342.55	-324.48	10.00	9.98	0.58	
8,029.64	90.00	91.07	7,629.00	406.90	-312.93	-294.91	10.00	9.98	0.58	
Start 5149.89 hold at 8029.64 MD - Niobrara Formation										
8,100.00	90.00	91.07	7,629.00	405.58	-242.58	-224.68	0.00	0.00	0.00	
8,200.00	90.00	91.07	7,629.00	403.72	-142.59	-124.88	0.00	0.00	0.00	
8,300.00	90.00	91.07	7,629.00	401.85	-42.61	-25.07	0.00	0.00	0.00	
8,400.00	90.00	91.07	7,629.00	399.99	57.37	74.74	0.00	0.00	0.00	
8,500.00	90.00	91.07	7,629.00	398.12	157.35	174.54	0.00	0.00	0.00	
8,600.00	90.00	91.07	7,629.00	396.26	257.34	274.35	0.00	0.00	0.00	
8,700.00	90.00	91.07	7,629.00	394.39	357.32	374.16	0.00	0.00	0.00	
8,800.00	90.00	91.07	7,629.00	392.52	457.30	473.96	0.00	0.00	0.00	
8,900.00	90.00	91.07	7,629.00	390.66	557.28	573.77	0.00	0.00	0.00	
9,000.00	90.00	91.07	7,629.00	388.79	657.27	673.58	0.00	0.00	0.00	
9,100.00	90.00	91.07	7,629.00	386.93	757.25	773.38	0.00	0.00	0.00	
9,200.00	90.00	91.07	7,629.00	385.06	857.23	873.19	0.00	0.00	0.00	
9,300.00	90.00	91.07	7,629.00	383.20	957.22	972.99	0.00	0.00	0.00	
9,400.00	90.00	91.07	7,629.00	381.33	1,057.20	1,072.80	0.00	0.00	0.00	
9,500.00	90.00	91.07	7,629.00	379.47	1,157.18	1,172.61	0.00	0.00	0.00	
9,600.00	90.00	91.07	7,629.00	377.60	1,257.16	1,272.41	0.00	0.00	0.00	
9,700.00	90.00	91.07	7,629.00	375.73	1,357.15	1,372.22	0.00	0.00	0.00	
9,800.00	90.00	91.07	7,629.00	373.87	1,457.13	1,472.03	0.00	0.00	0.00	
9,900.00	90.00	91.07	7,629.00	372.00	1,557.11	1,571.83	0.00	0.00	0.00	
10,000.00	90.00	91.07	7,629.00	370.14	1,657.09	1,671.64	0.00	0.00	0.00	
10,100.00	90.00	91.07	7,629.00	368.27	1,757.08	1,771.45	0.00	0.00	0.00	
10,200.00	90.00	91.07	7,629.00	366.41	1,857.06	1,871.25	0.00	0.00	0.00	
10,300.00	90.00	91.07	7,629.00	364.54	1,957.04	1,971.06	0.00	0.00	0.00	
10,400.00	90.00	91.07	7,629.00	362.68	2,057.02	2,070.87	0.00	0.00	0.00	
10,500.00	90.00	91.07	7,629.00	360.81	2,157.01	2,170.67	0.00	0.00	0.00	
10,600.00	90.00	91.07	7,629.00	358.94	2,256.99	2,270.48	0.00	0.00	0.00	
10,700.00	90.00	91.07	7,629.00	357.08	2,356.97	2,370.29	0.00	0.00	0.00	
10,800.00	90.00	91.07	7,629.00	355.21	2,456.95	2,470.09	0.00	0.00	0.00	
10,900.00	90.00	91.07	7,629.00	353.35	2,556.94	2,569.90	0.00	0.00	0.00	
11,000.00	90.00	91.07	7,629.00	351.48	2,656.92	2,669.71	0.00	0.00	0.00	
11,100.00	90.00	91.07	7,629.00	349.62	2,756.90	2,769.51	0.00	0.00	0.00	
11,200.00	90.00	91.07	7,629.00	347.75	2,856.88	2,869.32	0.00	0.00	0.00	
11,300.00	90.00	91.07	7,629.00	345.89	2,956.87	2,969.12	0.00	0.00	0.00	
11,400.00	90.00	91.07	7,629.00	344.02	3,056.85	3,068.93	0.00	0.00	0.00	
11,500.00	90.00	91.07	7,629.00	342.15	3,156.83	3,168.74	0.00	0.00	0.00	
11,600.00	90.00	91.07	7,629.00	340.29	3,256.81	3,268.54	0.00	0.00	0.00	
11,700.00	90.00	91.07	7,629.00	338.42	3,356.80	3,368.35	0.00	0.00	0.00	

# Planning Report

<b>Database:</b>	EDT_32Bit_ODBC	<b>Local Co-ordinate Reference:</b>	Well LUSSING TRUST 4-64 19-20 1BH
<b>Company:</b>	CRESTONE PEAK RESOURCES	<b>TVD Reference:</b>	KB 25' @ 5721.00usft
<b>Project:</b>	ARAPAHOE COUNTY	<b>MD Reference:</b>	KB 25' @ 5721.00usft
<b>Site:</b>	SEC 19-T4S-R64W	<b>North Reference:</b>	True
<b>Well:</b>	LUSSING TRUST 4-64 19-20 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)
11,800.00	90.00	91.07	7,629.00	336.56	3,456.78	3,468.16	0.00	0.00	0.00
11,900.00	90.00	91.07	7,629.00	334.69	3,556.76	3,567.96	0.00	0.00	0.00
12,000.00	90.00	91.07	7,629.00	332.83	3,656.75	3,667.77	0.00	0.00	0.00
12,100.00	90.00	91.07	7,629.00	330.96	3,756.73	3,767.58	0.00	0.00	0.00
12,200.00	90.00	91.07	7,629.00	329.10	3,856.71	3,867.38	0.00	0.00	0.00
12,300.00	90.00	91.07	7,629.00	327.23	3,956.69	3,967.19	0.00	0.00	0.00
12,400.00	90.00	91.07	7,629.00	325.36	4,056.68	4,067.00	0.00	0.00	0.00
12,500.00	90.00	91.07	7,629.00	323.50	4,156.66	4,166.80	0.00	0.00	0.00
12,600.00	90.00	91.07	7,629.00	321.63	4,256.64	4,266.61	0.00	0.00	0.00
12,700.00	90.00	91.07	7,629.00	319.77	4,356.62	4,366.42	0.00	0.00	0.00
12,800.00	90.00	91.07	7,629.00	317.90	4,456.61	4,466.22	0.00	0.00	0.00
12,900.00	90.00	91.07	7,629.00	316.04	4,556.59	4,566.03	0.00	0.00	0.00
13,000.00	90.00	91.07	7,629.00	314.17	4,656.57	4,665.84	0.00	0.00	0.00
13,100.00	90.00	91.07	7,629.00	312.30	4,756.55	4,765.64	0.00	0.00	0.00
13,179.52	90.00	91.07	7,629.00	310.82	4,836.06	4,845.01	0.00	0.00	0.00
Start DLS 2.00 TFO -90.00									
13,200.00	90.00	90.66	7,629.00	310.51	4,856.54	4,865.45	2.00	0.00	-2.00
13,301.86	90.00	88.62	7,629.00	311.15	4,958.39	4,967.23	2.00	0.00	-2.00
Start 4863.69 hold at 13301.85 MD									
13,400.00	90.00	88.62	7,629.00	313.51	5,056.50	5,065.36	0.00	0.00	0.00
13,500.00	90.00	88.62	7,629.00	315.91	5,156.47	5,165.34	0.00	0.00	0.00
13,600.00	90.00	88.62	7,629.00	318.32	5,256.44	5,265.32	0.00	0.00	0.00
13,700.00	90.00	88.62	7,629.00	320.72	5,356.42	5,365.30	0.00	0.00	0.00
13,800.00	90.00	88.62	7,629.00	323.13	5,456.39	5,465.28	0.00	0.00	0.00
13,900.00	90.00	88.62	7,629.00	325.53	5,556.36	5,565.26	0.00	0.00	0.00
14,000.00	90.00	88.62	7,629.00	327.94	5,656.33	5,665.24	0.00	0.00	0.00
14,100.00	90.00	88.62	7,629.00	330.34	5,756.30	5,765.22	0.00	0.00	0.00
14,200.00	90.00	88.62	7,629.00	332.74	5,856.27	5,865.21	0.00	0.00	0.00
14,300.00	90.00	88.62	7,629.00	335.15	5,956.24	5,965.19	0.00	0.00	0.00
14,400.00	90.00	88.62	7,629.00	337.55	6,056.21	6,065.17	0.00	0.00	0.00
14,500.00	90.00	88.62	7,629.00	339.96	6,156.18	6,165.15	0.00	0.00	0.00
14,600.00	90.00	88.62	7,629.00	342.36	6,256.16	6,265.13	0.00	0.00	0.00
14,700.00	90.00	88.62	7,629.00	344.77	6,356.13	6,365.11	0.00	0.00	0.00
14,800.00	90.00	88.62	7,629.00	347.17	6,456.10	6,465.09	0.00	0.00	0.00
14,900.00	90.00	88.62	7,629.00	349.57	6,556.07	6,565.07	0.00	0.00	0.00
15,000.00	90.00	88.62	7,629.00	351.98	6,656.04	6,665.05	0.00	0.00	0.00
15,100.00	90.00	88.62	7,629.00	354.38	6,756.01	6,765.03	0.00	0.00	0.00
15,200.00	90.00	88.62	7,629.00	356.79	6,855.98	6,865.02	0.00	0.00	0.00
15,300.00	90.00	88.62	7,629.00	359.19	6,955.95	6,965.00	0.00	0.00	0.00
15,400.00	90.00	88.62	7,629.00	361.60	7,055.92	7,064.98	0.00	0.00	0.00
15,500.00	90.00	88.62	7,629.00	364.00	7,155.89	7,164.96	0.00	0.00	0.00
15,600.00	90.00	88.62	7,629.00	366.40	7,255.87	7,264.94	0.00	0.00	0.00
15,700.00	90.00	88.62	7,629.00	368.81	7,355.84	7,364.92	0.00	0.00	0.00
15,800.00	90.00	88.62	7,629.00	371.21	7,455.81	7,464.90	0.00	0.00	0.00
15,900.00	90.00	88.62	7,629.00	373.62	7,555.78	7,564.88	0.00	0.00	0.00
16,000.00	90.00	88.62	7,629.00	376.02	7,655.75	7,664.86	0.00	0.00	0.00
16,100.00	90.00	88.62	7,629.00	378.43	7,755.72	7,764.84	0.00	0.00	0.00
16,200.00	90.00	88.62	7,629.00	380.83	7,855.69	7,864.82	0.00	0.00	0.00
16,300.00	90.00	88.62	7,629.00	383.23	7,955.66	7,964.81	0.00	0.00	0.00
16,400.00	90.00	88.62	7,629.00	385.64	8,055.63	8,064.79	0.00	0.00	0.00
16,500.00	90.00	88.62	7,629.00	388.04	8,155.61	8,164.77	0.00	0.00	0.00
16,600.00	90.00	88.62	7,629.00	390.45	8,255.58	8,264.75	0.00	0.00	0.00
16,700.00	90.00	88.62	7,629.00	392.85	8,355.55	8,364.73	0.00	0.00	0.00
16,800.00	90.00	88.62	7,629.00	395.26	8,455.52	8,464.71	0.00	0.00	0.00

## Planning Report

<b>Database:</b>	EDT_32Bit_ODBC	<b>Local Co-ordinate Reference:</b>	Well LUSSING TRUST 4-64 19-20 1BH
<b>Company:</b>	CRESTONE PEAK RESOURCES	<b>TVD Reference:</b>	KB 25' @ 5721.00usft
<b>Project:</b>	ARAPAHOE COUNTY	<b>MD Reference:</b>	KB 25' @ 5721.00usft
<b>Site:</b>	SEC 19-T4S-R64W	<b>North Reference:</b>	True
<b>Well:</b>	LUSSING TRUST 4-64 19-20 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)
16,900.00	90.00	88.62	7,629.00	397.66	8,555.49	8,564.69	0.00	0.00	0.00
17,000.00	90.00	88.62	7,629.00	400.06	8,655.46	8,664.67	0.00	0.00	0.00
17,100.00	90.00	88.62	7,629.00	402.47	8,755.43	8,764.65	0.00	0.00	0.00
17,200.00	90.00	88.62	7,629.00	404.87	8,855.40	8,864.63	0.00	0.00	0.00
17,300.00	90.00	88.62	7,629.00	407.28	8,955.37	8,964.62	0.00	0.00	0.00
17,400.00	90.00	88.62	7,629.00	409.68	9,055.35	9,064.60	0.00	0.00	0.00
17,500.00	90.00	88.62	7,629.00	412.09	9,155.32	9,164.58	0.00	0.00	0.00
17,600.00	90.00	88.62	7,629.00	414.49	9,255.29	9,264.56	0.00	0.00	0.00
17,700.00	90.00	88.62	7,629.00	416.89	9,355.26	9,364.54	0.00	0.00	0.00
17,800.00	90.00	88.62	7,629.00	419.30	9,455.23	9,464.52	0.00	0.00	0.00
17,900.00	90.00	88.62	7,629.00	421.70	9,555.20	9,564.50	0.00	0.00	0.00
18,000.00	90.00	88.62	7,629.00	424.11	9,655.17	9,664.48	0.00	0.00	0.00
18,100.00	90.00	88.62	7,629.00	426.51	9,755.14	9,764.46	0.00	0.00	0.00
18,165.54	90.00	88.62	7,629.00	428.09	9,820.67	9,829.99	0.00	0.00	0.00
TD at 18165.54									

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-LT 4-64 19-20 1BH - plan hits target center - Point	0.00	0.00	7,629.00	428.09	9,820.67	1,678,932.02	3,262,775.99	39.693761°N	104.566192°W
MP-LT 4-64 19-20 1BH - plan hits target center - Point	0.00	0.00	7,629.00	310.82	4,836.06	1,678,765.44	3,257,792.84	39.693443°N	104.583905°W
LP-LT 4-64 19-20 1BH - plan hits target center - Point	0.00	0.00	7,629.00	406.90	-312.93	1,678,810.56	3,252,643.21	39.693708°N	104.602202°W



## Planning Report

<b>Database:</b>	EDT_32Bit_ODBC	<b>Local Co-ordinate Reference:</b>	Well LUSSING TRUST 4-64 19-20 1BH
<b>Company:</b>	CRESTONE PEAK RESOURCES	<b>TVD Reference:</b>	KB 25' @ 5721.00usft
<b>Project:</b>	ARAPAHOE COUNTY	<b>MD Reference:</b>	KB 25' @ 5721.00usft
<b>Site:</b>	SEC 19-T4S-R64W	<b>North Reference:</b>	True
<b>Well:</b>	LUSSING TRUST 4-64 19-20 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				
639.05	639.00	Arapahoe				
1,244.24	1,239.00	Laramie-Fox Hills Formation				
1,972.65	1,959.00	Pierre Formation				
2,468.37	2,449.00	Upper Pierre aquifer				
3,136.07	3,109.00	Base of Upper Pierre aquifer				
4,107.28	4,069.00	Larimer ("Parkman") sandstone				
4,238.80	4,199.00	Pierre Formation				
5,321.29	5,269.00	Terry ("Sussex") sandstone				
5,493.28	5,439.00	Pierre Formation				
6,231.80	6,169.00	Hygiene ("Shannon") sandstone				
6,464.48	6,399.00	Pierre Formation				
7,659.93	7,514.00	Sharon Springs Member				
8,029.64	7,629.00	Niobrara Formation				

Plan Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
500.00	500.00	0.00	0.00	Start Build 2.00	
935.66	933.98	13.09	-30.36	Start 6113.38 hold at 935.66 MD	
7,049.04	6,976.81	379.64	-880.83	Start DLS 10.00 TFO 157.52	
8,029.64	7,629.00	406.90	-312.93	Start 5149.89 hold at 8029.64 MD	
13,179.52	7,629.00	310.82	4,836.06	Start DLS 2.00 TFO -90.00	
13,301.86	7,629.00	311.15	4,958.39	Start 4863.69 hold at 13301.85 MD	
18,165.54	7,629.00	428.09	9,820.67	TD at 18165.54	