

CRESTONE PEAK RESOURCES

**ARAPAHOE COUNTY
SEC 30-T4S-R64W
CHICO 4-65 25-26 3BH**

OWB

Plan: PROPOSAL 1

Standard Planning Report

20 February, 2023

Project: ARAPAHOE COUNTY
 Site: SEC 30-T4S-R64W
 Well: CHICO 4-65 25-26 3BH
 Wellbore: OWB
 Design: PROPOSAL 1



Azimuths to True North
 Magnetic North: 7.52°
 Magnetic Field
 Strength: 51406.2nT
 Dip Angle: 66.03°
 Date: 2/9/2023
 Model: IGRF2020

WELL DETAILS: CHICO 4-65 25-26 3BH

5766.00						
+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.00	0.00	1671377.53	3252836.87	39.673298°N	104.601775°W	

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSec	Target
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	900.00	0.00	0.00	900.00	0.00	0.00	0.00	0.00	0.00	
3	1109.95	4.20	213.88	1109.76	-6.38	-4.29	2.00	213.88	4.50	
4	7126.62	4.20	213.88	7110.29	-372.12	-249.89	0.00	0.00	262.08	
5	8003.40	90.00	270.28	7659.00	-402.86	-822.54	10.00	56.47	835.43	LP-CHICO 4-65 3BH
6	17872.26	90.00	270.28	7659.00	-354.38	-10691.28	0.00	0.00	10697.15	PBHL-CHICO 4-65 3BH

ANNOTATIONS

MD	Inc	Azi	TVD	+N/-S	+E/-W	VSec	Departure	Annotation
900.00	0.00	0.00	900.00	0.00	0.00	0.00	0.00	Start Build 2.00
1109.95	4.20	213.88	1109.76	-6.38	-4.29	4.50	7.89	Start 6016.67 hold at 1109.95 MD
7126.62	4.20	213.88	7110.29	-372.12	-249.89	262.08	448.24	Start DLS 10.00 TFO 56.47
8003.40	90.00	270.28	7659.00	-402.86	-822.54	835.43	1023.70	Start 9868.86 hold at 8003.40 MD
17872.26	90.00	270.28	7659.00	-354.38	-10691.28	10697.15	10892.56	TD at 17872.26

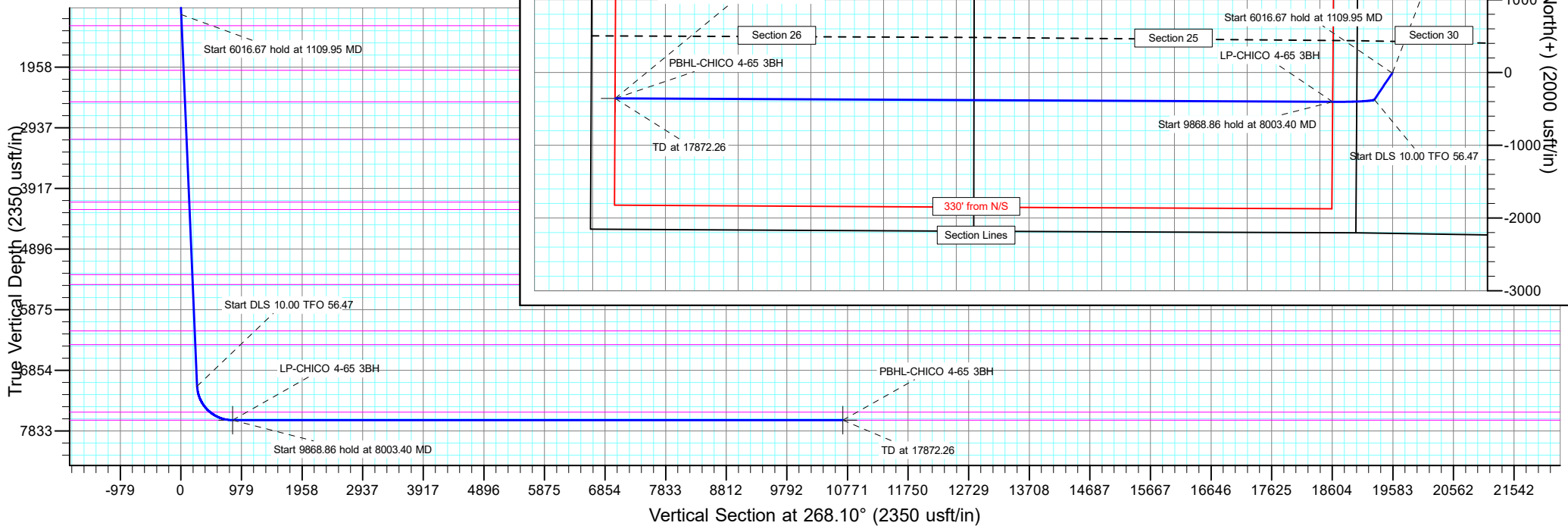
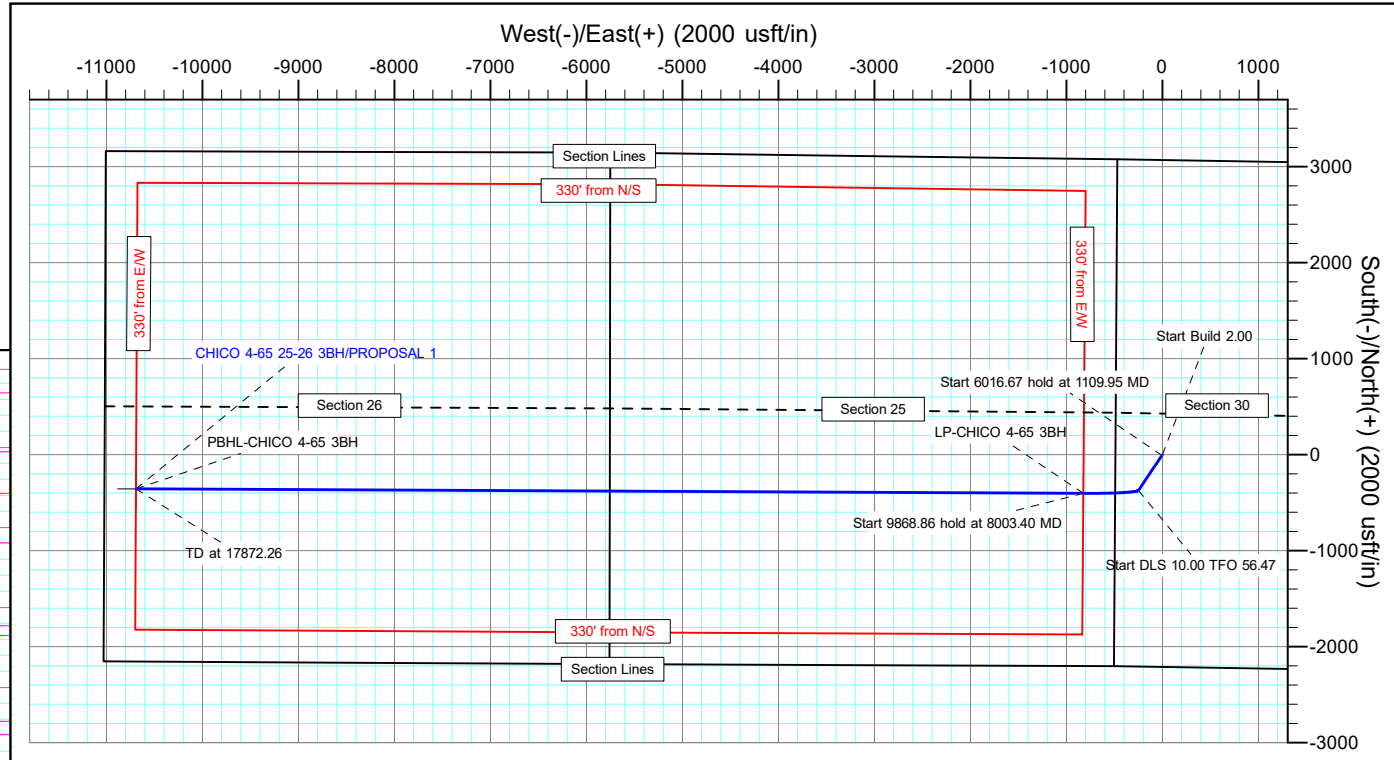
DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
LP-CHICO 4-65 3BH - plan hits target center	7659.00	-402.86	-822.54	1670966.56	3252018.37	39.672192°N	104.604697°W	Point
PBHL-CHICO 4-65 3BH - plan hits target center	7659.00	-354.38	-10691.28	1670917.47	3242149.77	39.672319°N	104.639755°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:
 2212' FSL, 490' FWL
 Sec 30-T4S-R64W
 LP:
 1800' FSL, 330' FEL
 Sec 25-T4S-R65W
 BHL:
 1800' FSL, 330' FWL
 Sec 26-T4S-R65W



Planning Report

Database:	EDT_32Bit_ODBC	Local Co-ordinate Reference:	Well CHICO 4-65 25-26 3BH
Company:	CRESTONE PEAK RESOURCES	TVD Reference:	KB 25' @ 5791.00usft
Project:	ARAPAHOE COUNTY	MD Reference:	KB 25' @ 5791.00usft
Site:	SEC 30-T4S-R64W	North Reference:	True
Well:	CHICO 4-65 25-26 3BH	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 30-T4S-R64W				
Site Position:		Northing:	1,669,168.52 usft	Latitude:	39.667247°N
From:	Lat/Long	Easting:	3,252,354.22 usft	Longitude:	104.603567°W
Position Uncertainty:	0.00 usft	Slot Radius:	13.200 in	Grid Convergence:	0.57 °

Well	CHICO 4-65 25-26 3BH					
Well Position	+N/-S	2,204.17 usft	Northing:	1,671,377.53 usft	Latitude:	39.673298°N
	+E/-W	504.44 usft	Easting:	3,252,836.87 usft	Longitude:	104.601775°W
Position Uncertainty		0.00 usft	Wellhead Elevation:		Ground Level:	5,766.00 usft

Wellbore	OWB				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2020	2/9/2023	7.52	66.03	51,406.18022849

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	268.10

Plan Survey Tool Program	Date	2/20/2023			
Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks	
1	0.00	17,872.26	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	
900.00	0.00	0.00	900.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,109.95	4.20	213.88	1,109.76	-6.38	-4.29	2.00	2.00	0.00	213.88	
7,126.62	4.20	213.88	7,110.29	-372.12	-249.89	0.00	0.00	0.00	0.00	
8,003.40	90.00	270.28	7,659.00	-402.86	-822.54	10.00	9.79	6.43	56.47	LP-CHICO 4-65 3BH
17,872.26	90.00	270.28	7,659.00	-354.38	-10,691.28	0.00	0.00	0.00	0.00	PBHL-CHICO 4-65 3E

Planning Report

Database:	EDT_32Bit_ODBC	Local Co-ordinate Reference:	Well CHICO 4-65 25-26 3BH
Company:	CRESTONE PEAK RESOURCES	TVD Reference:	KB 25' @ 5791.00usft
Project:	ARAPAHOE COUNTY	MD Reference:	KB 25' @ 5791.00usft
Site:	SEC 30-T4S-R64W	North Reference:	True
Well:	CHICO 4-65 25-26 3BH	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	0.00
24.00	0.00	0.00	24.00	0.00	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	0.00
200.00	0.00	0.00	200.00	0.00	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	0.00
400.00	0.00	0.00	400.00	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	0.00
600.00	0.00	0.00	600.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
689.00	0.00	0.00	689.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Arapahoe										
700.00	0.00	0.00	700.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
800.00	0.00	0.00	800.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
900.00	0.00	0.00	900.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Start Build 2.00										
1,000.00	2.00	213.88	999.98	-1.45	-0.97	1.02	2.00	2.00	2.00	0.00
1,109.95	4.20	213.88	1,109.76	-6.38	-4.29	4.50	2.00	2.00	2.00	0.00
Start 6016.67 hold at 1109.95 MD										
1,200.00	4.20	213.88	1,199.57	-11.86	-7.96	8.35	0.00	0.00	0.00	0.00
1,289.67	4.20	213.88	1,289.00	-17.31	-11.62	12.19	0.00	0.00	0.00	0.00
Laramie-Fox Hills Formation										
1,300.00	4.20	213.88	1,299.30	-17.94	-12.05	12.63	0.00	0.00	0.00	0.00
1,400.00	4.20	213.88	1,399.03	-24.02	-16.13	16.91	0.00	0.00	0.00	0.00
1,500.00	4.20	213.88	1,498.77	-30.09	-20.21	21.20	0.00	0.00	0.00	0.00
1,600.00	4.20	213.88	1,598.50	-36.17	-24.29	25.48	0.00	0.00	0.00	0.00
1,700.00	4.20	213.88	1,698.23	-42.25	-28.37	29.76	0.00	0.00	0.00	0.00
1,800.00	4.20	213.88	1,797.96	-48.33	-32.46	34.04	0.00	0.00	0.00	0.00
1,900.00	4.20	213.88	1,897.69	-54.41	-36.54	38.32	0.00	0.00	0.00	0.00
2,000.00	4.20	213.88	1,997.42	-60.49	-40.62	42.60	0.00	0.00	0.00	0.00
2,011.61	4.20	213.88	2,009.00	-61.19	-41.09	43.10	0.00	0.00	0.00	0.00
Pierre Formation										
2,100.00	4.20	213.88	2,097.15	-66.57	-44.70	46.88	0.00	0.00	0.00	0.00
2,200.00	4.20	213.88	2,196.89	-72.64	-48.78	51.16	0.00	0.00	0.00	0.00
2,300.00	4.20	213.88	2,296.62	-78.72	-52.87	55.44	0.00	0.00	0.00	0.00
2,400.00	4.20	213.88	2,396.35	-84.80	-56.95	59.73	0.00	0.00	0.00	0.00
2,500.00	4.20	213.88	2,496.08	-90.88	-61.03	64.01	0.00	0.00	0.00	0.00
2,522.98	4.20	213.88	2,519.00	-92.28	-61.97	64.99	0.00	0.00	0.00	0.00
Upper Pierre aquifer										
2,600.00	4.20	213.88	2,595.81	-96.96	-65.11	68.29	0.00	0.00	0.00	0.00
2,700.00	4.20	213.88	2,695.54	-103.04	-69.19	72.57	0.00	0.00	0.00	0.00
2,800.00	4.20	213.88	2,795.28	-109.12	-73.28	76.85	0.00	0.00	0.00	0.00
2,900.00	4.20	213.88	2,895.01	-115.20	-77.36	81.13	0.00	0.00	0.00	0.00
3,000.00	4.20	213.88	2,994.74	-121.27	-81.44	85.41	0.00	0.00	0.00	0.00
3,100.00	4.20	213.88	3,094.47	-127.35	-85.52	89.69	0.00	0.00	0.00	0.00
3,129.61	4.20	213.88	3,124.00	-129.15	-86.73	90.96	0.00	0.00	0.00	0.00
Base of Upper Pierre aquifer										
3,200.00	4.20	213.88	3,194.20	-133.43	-89.60	93.98	0.00	0.00	0.00	0.00
3,300.00	4.20	213.88	3,293.93	-139.51	-93.69	98.26	0.00	0.00	0.00	0.00
3,400.00	4.20	213.88	3,393.67	-145.59	-97.77	102.54	0.00	0.00	0.00	0.00
3,500.00	4.20	213.88	3,493.40	-151.67	-101.85	106.82	0.00	0.00	0.00	0.00
3,600.00	4.20	213.88	3,593.13	-157.75	-105.93	111.10	0.00	0.00	0.00	0.00
3,700.00	4.20	213.88	3,692.86	-163.82	-110.02	115.38	0.00	0.00	0.00	0.00
3,800.00	4.20	213.88	3,792.59	-169.90	-114.10	119.66	0.00	0.00	0.00	0.00

Planning Report

Database:	EDT_32Bit_ODBC	Local Co-ordinate Reference:	Well CHICO 4-65 25-26 3BH
Company:	CRESTONE PEAK RESOURCES	TVD Reference:	KB 25' @ 5791.00usft
Project:	ARAPAHOE COUNTY	MD Reference:	KB 25' @ 5791.00usft
Site:	SEC 30-T4S-R64W	North Reference:	True
Well:	CHICO 4-65 25-26 3BH	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	4.20	213.88	3,892.32	-175.98	-118.18	123.94	0.00	0.00	0.00	
4,000.00	4.20	213.88	3,992.05	-182.06	-122.26	128.23	0.00	0.00	0.00	
4,100.00	4.20	213.88	4,091.79	-188.14	-126.34	132.51	0.00	0.00	0.00	
4,147.34	4.20	213.88	4,139.00	-191.02	-128.28	134.53	0.00	0.00	0.00	
Larimer ("Parkman") sandstone										
4,200.00	4.20	213.88	4,191.52	-194.22	-130.43	136.79	0.00	0.00	0.00	
4,267.66	4.20	213.88	4,259.00	-198.33	-133.19	139.69	0.00	0.00	0.00	
Pierre Formation										
4,300.00	4.20	213.88	4,291.25	-200.30	-134.51	141.07	0.00	0.00	0.00	
4,400.00	4.20	213.88	4,390.98	-206.38	-138.59	145.35	0.00	0.00	0.00	
4,500.00	4.20	213.88	4,490.71	-212.45	-142.67	149.63	0.00	0.00	0.00	
4,600.00	4.20	213.88	4,590.44	-218.53	-146.75	153.91	0.00	0.00	0.00	
4,700.00	4.20	213.88	4,690.18	-224.61	-150.84	158.19	0.00	0.00	0.00	
4,800.00	4.20	213.88	4,789.91	-230.69	-154.92	162.48	0.00	0.00	0.00	
4,900.00	4.20	213.88	4,889.64	-236.77	-159.00	166.76	0.00	0.00	0.00	
5,000.00	4.20	213.88	4,989.37	-242.85	-163.08	171.04	0.00	0.00	0.00	
5,100.00	4.20	213.88	5,089.10	-248.93	-167.16	175.32	0.00	0.00	0.00	
5,200.00	4.20	213.88	5,188.83	-255.01	-171.25	179.60	0.00	0.00	0.00	
5,300.00	4.20	213.88	5,288.56	-261.08	-175.33	183.88	0.00	0.00	0.00	
5,320.49	4.20	213.88	5,309.00	-262.33	-176.17	184.76	0.00	0.00	0.00	
Terry ("Sussex") sandstone										
5,400.00	4.20	213.88	5,388.30	-267.16	-179.41	188.16	0.00	0.00	0.00	
5,480.92	4.20	213.88	5,469.00	-272.08	-182.71	191.63	0.00	0.00	0.00	
Pierre Formation										
5,500.00	4.20	213.88	5,488.03	-273.24	-183.49	192.44	0.00	0.00	0.00	
5,600.00	4.20	213.88	5,587.76	-279.32	-187.58	196.73	0.00	0.00	0.00	
5,700.00	4.20	213.88	5,687.49	-285.40	-191.66	201.01	0.00	0.00	0.00	
5,800.00	4.20	213.88	5,787.22	-291.48	-195.74	205.29	0.00	0.00	0.00	
5,900.00	4.20	213.88	5,886.95	-297.56	-199.82	209.57	0.00	0.00	0.00	
6,000.00	4.20	213.88	5,986.69	-303.63	-203.90	213.85	0.00	0.00	0.00	
6,100.00	4.20	213.88	6,086.42	-309.71	-207.99	218.13	0.00	0.00	0.00	
6,200.00	4.20	213.88	6,186.15	-315.79	-212.07	222.41	0.00	0.00	0.00	
6,232.94	4.20	213.88	6,219.00	-317.79	-213.41	223.82	0.00	0.00	0.00	
Hygiene ("Shannon") sandstone										
6,300.00	4.20	213.88	6,285.88	-321.87	-216.15	226.69	0.00	0.00	0.00	
6,400.00	4.20	213.88	6,385.61	-327.95	-220.23	230.98	0.00	0.00	0.00	
6,453.53	4.20	213.88	6,439.00	-331.20	-222.42	233.27	0.00	0.00	0.00	
Pierre Formation										
6,500.00	4.20	213.88	6,485.34	-334.03	-224.31	235.26	0.00	0.00	0.00	
6,600.00	4.20	213.88	6,585.08	-340.11	-228.40	239.54	0.00	0.00	0.00	
6,700.00	4.20	213.88	6,684.81	-346.19	-232.48	243.82	0.00	0.00	0.00	
6,800.00	4.20	213.88	6,784.54	-352.26	-236.56	248.10	0.00	0.00	0.00	
6,900.00	4.20	213.88	6,884.27	-358.34	-240.64	252.38	0.00	0.00	0.00	
7,000.00	4.20	213.88	6,984.00	-364.42	-244.72	256.66	0.00	0.00	0.00	
7,100.00	4.20	213.88	7,083.73	-370.50	-248.81	260.94	0.00	0.00	0.00	
7,126.62	4.20	213.88	7,110.29	-372.12	-249.89	262.08	0.00	0.00	0.00	
Start DLS 10.00 TFO 56.47										
7,150.00	5.83	233.46	7,133.57	-373.54	-251.32	263.56	10.00	6.96	83.73	
7,200.00	10.27	250.55	7,183.08	-376.53	-257.57	269.90	10.00	8.89	34.20	
7,250.00	15.06	257.15	7,231.85	-379.46	-268.11	280.54	10.00	9.59	13.19	
7,300.00	19.96	260.59	7,279.52	-382.31	-282.87	295.38	10.00	9.79	6.88	
7,350.00	24.89	262.71	7,325.72	-385.04	-301.74	314.33	10.00	9.87	4.24	
7,400.00	29.85	264.16	7,370.11	-387.64	-324.57	337.23	10.00	9.91	2.91	

Planning Report

Database:	EDT_32Bit_ODBC	Local Co-ordinate Reference:	Well CHICO 4-65 25-26 3BH
Company:	CRESTONE PEAK RESOURCES	TVD Reference:	KB 25' @ 5791.00usft
Project:	ARAPAHOE COUNTY	MD Reference:	KB 25' @ 5791.00usft
Site:	SEC 30-T4S-R64W	North Reference:	True
Well:	CHICO 4-65 25-26 3BH	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)
7,450.00	34.81	265.24	7,412.35	-390.09	-351.19	363.92	10.00	9.93	2.15
7,500.00	39.79	266.07	7,452.11	-392.38	-381.39	394.18	10.00	9.95	1.67
7,550.00	44.77	266.75	7,489.09	-394.47	-414.95	427.79	10.00	9.96	1.35
7,600.00	49.75	267.31	7,523.02	-396.37	-451.61	464.50	10.00	9.97	1.13
7,609.35	50.68	267.41	7,529.00	-396.70	-458.79	471.68	10.00	9.97	1.03
Sharon Springs Member									
7,650.00	54.74	267.80	7,553.62	-398.04	-491.10	504.01	10.00	9.97	0.97
7,700.00	59.72	268.24	7,580.68	-399.49	-533.10	546.04	10.00	9.97	0.86
7,750.00	64.71	268.63	7,603.98	-400.70	-577.31	590.26	10.00	9.98	0.78
7,800.00	69.70	268.99	7,623.34	-401.66	-623.38	636.34	10.00	9.98	0.72
7,850.00	74.69	269.32	7,638.63	-402.36	-670.96	683.92	10.00	9.98	0.67
7,900.00	79.68	269.64	7,649.71	-402.80	-719.70	732.65	10.00	9.98	0.64
7,950.00	84.67	269.95	7,656.52	-402.97	-769.22	782.14	10.00	9.98	0.62
8,003.40	90.00	270.28	7,659.00	-402.86	-822.54	835.43	10.00	9.98	0.61
Start 9868.86 hold at 8003.40 MD - Niobrara Formation									
8,100.00	90.00	270.28	7,659.00	-402.39	-919.14	931.96	0.00	0.00	0.00
8,200.00	90.00	270.28	7,659.00	-401.89	-1,019.14	1,031.89	0.00	0.00	0.00
8,300.00	90.00	270.28	7,659.00	-401.40	-1,119.14	1,131.82	0.00	0.00	0.00
8,400.00	90.00	270.28	7,659.00	-400.91	-1,219.13	1,231.75	0.00	0.00	0.00
8,500.00	90.00	270.28	7,659.00	-400.42	-1,319.13	1,331.67	0.00	0.00	0.00
8,600.00	90.00	270.28	7,659.00	-399.93	-1,419.13	1,431.60	0.00	0.00	0.00
8,700.00	90.00	270.28	7,659.00	-399.44	-1,519.13	1,531.53	0.00	0.00	0.00
8,800.00	90.00	270.28	7,659.00	-398.95	-1,619.13	1,631.46	0.00	0.00	0.00
8,900.00	90.00	270.28	7,659.00	-398.46	-1,719.13	1,731.38	0.00	0.00	0.00
9,000.00	90.00	270.28	7,659.00	-397.96	-1,819.13	1,831.31	0.00	0.00	0.00
9,100.00	90.00	270.28	7,659.00	-397.47	-1,919.13	1,931.24	0.00	0.00	0.00
9,200.00	90.00	270.28	7,659.00	-396.98	-2,019.12	2,031.17	0.00	0.00	0.00
9,300.00	90.00	270.28	7,659.00	-396.49	-2,119.12	2,131.09	0.00	0.00	0.00
9,400.00	90.00	270.28	7,659.00	-396.00	-2,219.12	2,231.02	0.00	0.00	0.00
9,500.00	90.00	270.28	7,659.00	-395.51	-2,319.12	2,330.95	0.00	0.00	0.00
9,600.00	90.00	270.28	7,659.00	-395.02	-2,419.12	2,430.88	0.00	0.00	0.00
9,700.00	90.00	270.28	7,659.00	-394.53	-2,519.12	2,530.81	0.00	0.00	0.00
9,800.00	90.00	270.28	7,659.00	-394.03	-2,619.12	2,630.73	0.00	0.00	0.00
9,900.00	90.00	270.28	7,659.00	-393.54	-2,719.12	2,730.66	0.00	0.00	0.00
10,000.00	90.00	270.28	7,659.00	-393.05	-2,819.11	2,830.59	0.00	0.00	0.00
10,100.00	90.00	270.28	7,659.00	-392.56	-2,919.11	2,930.52	0.00	0.00	0.00
10,200.00	90.00	270.28	7,659.00	-392.07	-3,019.11	3,030.44	0.00	0.00	0.00
10,300.00	90.00	270.28	7,659.00	-391.58	-3,119.11	3,130.37	0.00	0.00	0.00
10,400.00	90.00	270.28	7,659.00	-391.09	-3,219.11	3,230.30	0.00	0.00	0.00
10,500.00	90.00	270.28	7,659.00	-390.59	-3,319.11	3,330.23	0.00	0.00	0.00
10,600.00	90.00	270.28	7,659.00	-390.10	-3,419.11	3,430.15	0.00	0.00	0.00
10,700.00	90.00	270.28	7,659.00	-389.61	-3,519.11	3,530.08	0.00	0.00	0.00
10,800.00	90.00	270.28	7,659.00	-389.12	-3,619.11	3,630.01	0.00	0.00	0.00
10,900.00	90.00	270.28	7,659.00	-388.63	-3,719.10	3,729.94	0.00	0.00	0.00
11,000.00	90.00	270.28	7,659.00	-388.14	-3,819.10	3,829.86	0.00	0.00	0.00
11,100.00	90.00	270.28	7,659.00	-387.65	-3,919.10	3,929.79	0.00	0.00	0.00
11,200.00	90.00	270.28	7,659.00	-387.16	-4,019.10	4,029.72	0.00	0.00	0.00
11,300.00	90.00	270.28	7,659.00	-386.66	-4,119.10	4,129.65	0.00	0.00	0.00
11,400.00	90.00	270.28	7,659.00	-386.17	-4,219.10	4,229.58	0.00	0.00	0.00
11,500.00	90.00	270.28	7,659.00	-385.68	-4,319.10	4,329.50	0.00	0.00	0.00
11,600.00	90.00	270.28	7,659.00	-385.19	-4,419.10	4,429.43	0.00	0.00	0.00
11,700.00	90.00	270.28	7,659.00	-384.70	-4,519.09	4,529.36	0.00	0.00	0.00
11,800.00	90.00	270.28	7,659.00	-384.21	-4,619.09	4,629.29	0.00	0.00	0.00
11,900.00	90.00	270.28	7,659.00	-383.72	-4,719.09	4,729.21	0.00	0.00	0.00

Planning Report

Database:	EDT_32Bit_ODBC	Local Co-ordinate Reference:	Well CHICO 4-65 25-26 3BH
Company:	CRESTONE PEAK RESOURCES	TVD Reference:	KB 25' @ 5791.00usft
Project:	ARAPAHOE COUNTY	MD Reference:	KB 25' @ 5791.00usft
Site:	SEC 30-T4S-R64W	North Reference:	True
Well:	CHICO 4-65 25-26 3BH	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)	
12,000.00	90.00	270.28	7,659.00	-383.23	-4,819.09	4,829.14	0.00	0.00	0.00	
12,100.00	90.00	270.28	7,659.00	-382.73	-4,919.09	4,929.07	0.00	0.00	0.00	
12,200.00	90.00	270.28	7,659.00	-382.24	-5,019.09	5,029.00	0.00	0.00	0.00	
12,300.00	90.00	270.28	7,659.00	-381.75	-5,119.09	5,128.92	0.00	0.00	0.00	
12,400.00	90.00	270.28	7,659.00	-381.26	-5,219.09	5,228.85	0.00	0.00	0.00	
12,500.00	90.00	270.28	7,659.00	-380.77	-5,319.08	5,328.78	0.00	0.00	0.00	
12,600.00	90.00	270.28	7,659.00	-380.28	-5,419.08	5,428.71	0.00	0.00	0.00	
12,700.00	90.00	270.28	7,659.00	-379.79	-5,519.08	5,528.63	0.00	0.00	0.00	
12,800.00	90.00	270.28	7,659.00	-379.30	-5,619.08	5,628.56	0.00	0.00	0.00	
12,900.00	90.00	270.28	7,659.00	-378.80	-5,719.08	5,728.49	0.00	0.00	0.00	
13,000.00	90.00	270.28	7,659.00	-378.31	-5,819.08	5,828.42	0.00	0.00	0.00	
13,100.00	90.00	270.28	7,659.00	-377.82	-5,919.08	5,928.34	0.00	0.00	0.00	
13,200.00	90.00	270.28	7,659.00	-377.33	-6,019.08	6,028.27	0.00	0.00	0.00	
13,300.00	90.00	270.28	7,659.00	-376.84	-6,119.07	6,128.20	0.00	0.00	0.00	
13,400.00	90.00	270.28	7,659.00	-376.35	-6,219.07	6,228.13	0.00	0.00	0.00	
13,500.00	90.00	270.28	7,659.00	-375.86	-6,319.07	6,328.06	0.00	0.00	0.00	
13,600.00	90.00	270.28	7,659.00	-375.37	-6,419.07	6,427.98	0.00	0.00	0.00	
13,700.00	90.00	270.28	7,659.00	-374.87	-6,519.07	6,527.91	0.00	0.00	0.00	
13,800.00	90.00	270.28	7,659.00	-374.38	-6,619.07	6,627.84	0.00	0.00	0.00	
13,900.00	90.00	270.28	7,659.00	-373.89	-6,719.07	6,727.77	0.00	0.00	0.00	
14,000.00	90.00	270.28	7,659.00	-373.40	-6,819.07	6,827.69	0.00	0.00	0.00	
14,100.00	90.00	270.28	7,659.00	-372.91	-6,919.07	6,927.62	0.00	0.00	0.00	
14,200.00	90.00	270.28	7,659.00	-372.42	-7,019.06	7,027.55	0.00	0.00	0.00	
14,300.00	90.00	270.28	7,659.00	-371.93	-7,119.06	7,127.48	0.00	0.00	0.00	
14,400.00	90.00	270.28	7,659.00	-371.44	-7,219.06	7,227.40	0.00	0.00	0.00	
14,500.00	90.00	270.28	7,659.00	-370.94	-7,319.06	7,327.33	0.00	0.00	0.00	
14,600.00	90.00	270.28	7,659.00	-370.45	-7,419.06	7,427.26	0.00	0.00	0.00	
14,700.00	90.00	270.28	7,659.00	-369.96	-7,519.06	7,527.19	0.00	0.00	0.00	
14,800.00	90.00	270.28	7,659.00	-369.47	-7,619.06	7,627.11	0.00	0.00	0.00	
14,900.00	90.00	270.28	7,659.00	-368.98	-7,719.06	7,727.04	0.00	0.00	0.00	
15,000.00	90.00	270.28	7,659.00	-368.49	-7,819.05	7,826.97	0.00	0.00	0.00	
15,100.00	90.00	270.28	7,659.00	-368.00	-7,919.05	7,926.90	0.00	0.00	0.00	
15,200.00	90.00	270.28	7,659.00	-367.50	-8,019.05	8,026.83	0.00	0.00	0.00	
15,300.00	90.00	270.28	7,659.00	-367.01	-8,119.05	8,126.75	0.00	0.00	0.00	
15,400.00	90.00	270.28	7,659.00	-366.52	-8,219.05	8,226.68	0.00	0.00	0.00	
15,500.00	90.00	270.28	7,659.00	-366.03	-8,319.05	8,326.61	0.00	0.00	0.00	
15,600.00	90.00	270.28	7,659.00	-365.54	-8,419.05	8,426.54	0.00	0.00	0.00	
15,700.00	90.00	270.28	7,659.00	-365.05	-8,519.05	8,526.46	0.00	0.00	0.00	
15,800.00	90.00	270.28	7,659.00	-364.56	-8,619.04	8,626.39	0.00	0.00	0.00	
15,900.00	90.00	270.28	7,659.00	-364.07	-8,719.04	8,726.32	0.00	0.00	0.00	
16,000.00	90.00	270.28	7,659.00	-363.57	-8,819.04	8,826.25	0.00	0.00	0.00	
16,100.00	90.00	270.28	7,659.00	-363.08	-8,919.04	8,926.17	0.00	0.00	0.00	
16,200.00	90.00	270.28	7,659.00	-362.59	-9,019.04	9,026.10	0.00	0.00	0.00	
16,300.00	90.00	270.28	7,659.00	-362.10	-9,119.04	9,126.03	0.00	0.00	0.00	
16,400.00	90.00	270.28	7,659.00	-361.61	-9,219.04	9,225.96	0.00	0.00	0.00	
16,500.00	90.00	270.28	7,659.00	-361.12	-9,319.04	9,325.88	0.00	0.00	0.00	
16,600.00	90.00	270.28	7,659.00	-360.63	-9,419.04	9,425.81	0.00	0.00	0.00	
16,700.00	90.00	270.28	7,659.00	-360.14	-9,519.03	9,525.74	0.00	0.00	0.00	
16,800.00	90.00	270.28	7,659.00	-359.64	-9,619.03	9,625.67	0.00	0.00	0.00	
16,900.00	90.00	270.28	7,659.00	-359.15	-9,719.03	9,725.59	0.00	0.00	0.00	
17,000.00	90.00	270.28	7,659.00	-358.66	-9,819.03	9,825.52	0.00	0.00	0.00	
17,100.00	90.00	270.28	7,659.00	-358.17	-9,919.03	9,925.45	0.00	0.00	0.00	
17,200.00	90.00	270.28	7,659.00	-357.68	-10,019.03	10,025.38	0.00	0.00	0.00	
17,300.00	90.00	270.28	7,659.00	-357.19	-10,119.03	10,125.31	0.00	0.00	0.00	

Planning Report

Database:	EDT_32Bit_ODBC	Local Co-ordinate Reference:	Well CHICO 4-65 25-26 3BH
Company:	CRESTONE PEAK RESOURCES	TVD Reference:	KB 25' @ 5791.00usft
Project:	ARAPAHOE COUNTY	MD Reference:	KB 25' @ 5791.00usft
Site:	SEC 30-T4S-R64W	North Reference:	True
Well:	CHICO 4-65 25-26 3BH	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)
17,400.00	90.00	270.28	7,659.00	-356.70	-10,219.03	10,225.23	0.00	0.00	0.00
17,500.00	90.00	270.28	7,659.00	-356.21	-10,319.02	10,325.16	0.00	0.00	0.00
17,600.00	90.00	270.28	7,659.00	-355.71	-10,419.02	10,425.09	0.00	0.00	0.00
17,700.00	90.00	270.28	7,659.00	-355.22	-10,519.02	10,525.02	0.00	0.00	0.00
17,800.00	90.00	270.28	7,659.00	-354.73	-10,619.02	10,624.94	0.00	0.00	0.00
17,872.26	90.00	270.28	7,659.00	-354.38	-10,691.28	10,697.15	0.00	0.00	0.00
TD at 17872.26									

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-CHICO 4-65 3BH - plan hits target center - Point	0.00	0.00	7,659.00	-354.38	-10,691.28	1,670,917.47	3,242,149.77	39.672319°N	104.639755°W
LP-CHICO 4-65 3BH - plan hits target center - Point	0.00	0.00	7,659.00	-402.86	-822.54	1,670,966.56	3,252,018.37	39.672192°N	104.604697°W

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
24.00	24.00	Denver				
689.00	689.00	Arapahoe				
1,289.67	1,289.00	Laramie-Fox Hills Formation				
2,011.61	2,009.00	Pierre Formation				
2,522.98	2,519.00	Upper Pierre aquifer				
3,129.61	3,124.00	Base of Upper Pierre aquifer				
4,147.34	4,139.00	Larimer ("Parkman") sandstone				
4,267.66	4,259.00	Pierre Formation				
5,320.49	5,309.00	Terry ("Sussex") sandstone				
5,480.92	5,469.00	Pierre Formation				
6,232.94	6,219.00	Hygiene ("Shannon") sandstone				
6,453.53	6,439.00	Pierre Formation				
7,609.35	7,529.00	Sharon Springs Member				
8,003.40	7,659.00	Niobrara Formation				

Plan Annotations				
Measured Depth (usft)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Comment
900.00	900.00	0.00	0.00	Start Build 2.00
1,109.95	1,109.76	-6.38	-4.29	Start 6016.67 hold at 1109.95 MD
7,126.62	7,110.29	-372.12	-249.89	Start DLS 10.00 TFO 56.47
8,003.40	7,659.00	-402.86	-822.54	Start 9868.86 hold at 8003.40 MD
17,872.26	7,659.00	-354.38	-10,691.28	TD at 17872.26