

CRESTONE PEAK RESOURCES

ARAPAHOE COUNTY

SEC 35-T4S-R65W

STATE PIKES 4-65 36-31-32 1AH

OWB

Design: FINAL SURVEY

Standard Survey Report

23 February, 2022

Project: ARAPAHOE COUNTY
Site: SEC 35-T4S-R65W
Well: STATE PIKES 4-65 36-31-32 1AH
Wellbore: OWB
Design: FINAL SURVEY

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



Azimuths to True North
 Magnetic North: 7.65°

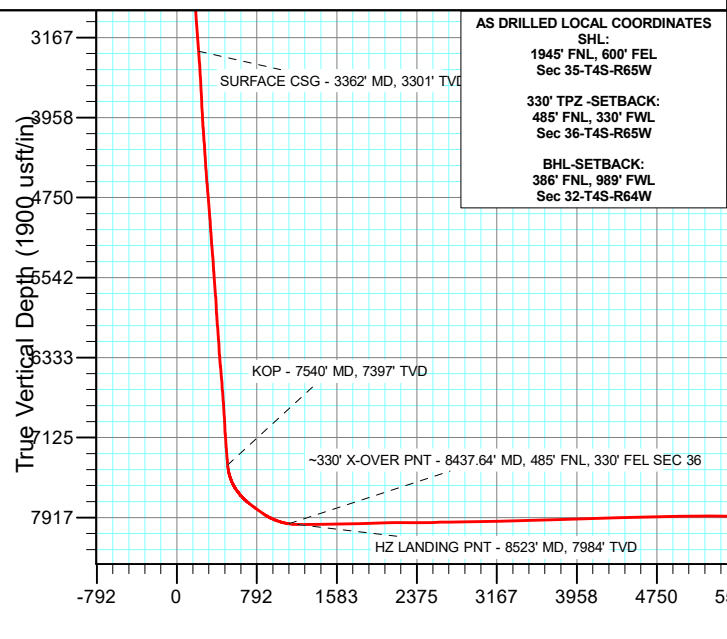
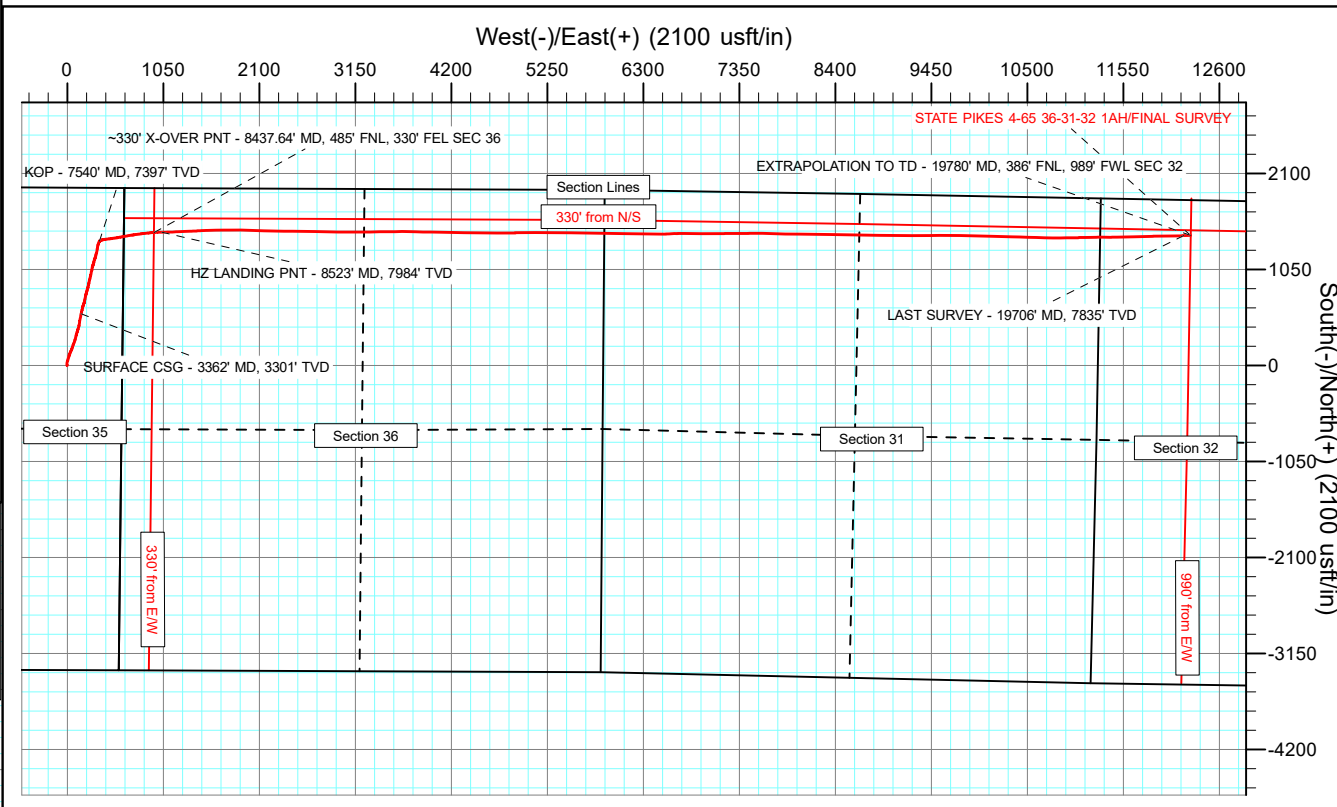
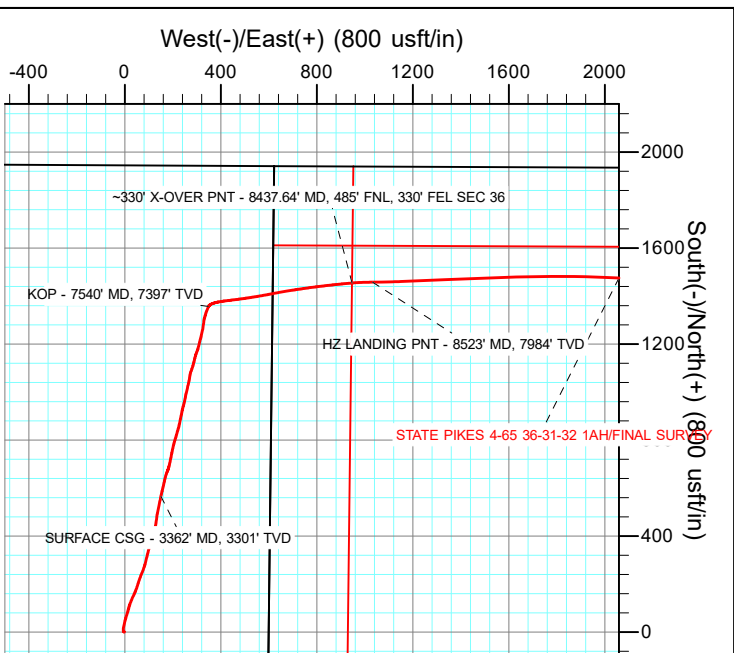
Magnetic Field
 Strength: 51513.3nT
 Dip Angle: 66.06°
 Date: 1/3/2022
 Model: IGRF2020

WELL DETAILS: STATE PIKES 4-65 36-31-32 1AH

5870.30						Slot
+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	
0.00	0.00	1667192.37	3246496.39	39.661979°N	104.624442°W	

ANNOTATIONS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Vsect	Departure	Annotation
3362.00	13.26	12.46	3300.60	566.67	150.91	215.10	592.43	SURFACE CSG - 3362' MD, 3301' TVD
7540.00	9.32	26.52	7396.52	1356.85	348.72	502.48	1408.91	KOP - 7540' MD, 7397' TVD
8437.64	82.11	85.40	7977.93	1455.01	947.70	1108.78	2019.83	~330' X-OVER PNT - 8437.64' MD, 485' FNL, 330' FEL SEC 36
8523.00	89.12	89.49	7984.14	1458.54	1032.68	1193.60	2104.84	HZ LANDING PNT - 8523' MD, 7984' TVD
19706.00	89.50	88.03	7835.24	1420.05	12210.98	12293.27	13285.57	LAST SURVEY - 19706' MD, 7835' TVD
19760.00	89.50	88.03	7835.88	1422.60	12284.93	12367.02	13359.57	EXTRAPOLATION TO TD - 19780' MD, 386' FNL, 989' FWL SEC 32



AS DRILLED LOCAL COORDINATES
 SHL:
 1945' FNL, 600' FEL
 Sec 35-T4S-R65W
 330' TPZ - SETBACK:
 485' FNL, 330' FWL
 Sec 36-T4S-R65W
 BHL-SETBACK:
 386' FNL, 989' FWL
 Sec 32-T4S-R64W

Survey Report

Company: CRESTONE PEAK RESOURCES	Local Co-ordinate Reference: Well STATE PIKES 4-65 36-31-32 1AH
Project: ARAPAHOE COUNTY	TVD Reference: KB 23' @ 5893.30usft
Site: SEC 35-T4S-R65W	MD Reference: KB 23' @ 5893.30usft
Well: STATE PIKES 4-65 36-31-32 1AH	North Reference: True
Wellbore: OWB	Survey Calculation Method: Minimum Curvature
Design: FINAL SURVEY	Database: EDT_32Bit_ODBC

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 35-T4S-R65W				
Site Position:	Northing: 1,666,501.66 usft	Latitude: 39.660067°N		
From: Lat/Long	Easting: 3,247,094.88 usft	Longitude: 104.622340°W		
Position Uncertainty: 0.00 usft	Slot Radius: 13.200 in	Grid Convergence: 0.55 °		

Well STATE PIKES 4-65 36-31-32 1AH				
Well Position	+N/-S 0.00 usft	Northing: 1,667,192.37 usft	Latitude: 39.661979°N	
	+E/-W 0.00 usft	Easting: 3,246,496.39 usft	Longitude: 104.624442°W	
Position Uncertainty	0.00 usft	Wellhead Elevation: usft	Ground Level: 5,870.30 usft	

Wellbore OWB					
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2020	1/3/2022	7.65	66.06	51,513.28912004

Design FINAL SURVEY				
Audit Notes:				
Version: 1.0	Phase: ACTUAL	Tie On Depth: 0.00		
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.00	0.00	0.00	14.89

Survey Program		Date 2/23/2022
From (usft)	To (usft)	Survey (Wellbore)
249.00	3,302.00	SURFACE SURVEY (OWB)
3,379.00	19,780.00	FINAL SURVEY (OWB)
		Tool Name
		MWD OWSG
		MWD OWSG
		Description
		OWSG MWD - Standard
		OWSG MWD - Standard

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)	
157.00	1.00	283.50	156.99	0.30	-1.25	-0.03	0.00	0.00	0.00	
249.00	1.30	322.30	248.97	1.31	-2.67	0.58	0.89	0.33	42.17	
340.00	1.60	302.40	339.94	2.81	-4.37	1.59	0.64	0.33	-21.87	
430.00	2.60	345.20	429.89	5.46	-5.96	3.74	1.99	1.11	47.56	
519.00	4.10	1.90	518.73	10.59	-6.37	8.60	1.99	1.69	18.76	
608.00	6.70	8.90	607.33	18.90	-5.46	16.86	3.01	2.92	7.87	
697.00	9.10	12.80	695.48	30.89	-3.09	29.06	2.76	2.70	4.38	
786.00	10.20	14.70	783.22	45.38	0.47	43.98	1.29	1.24	2.13	
875.00	11.80	17.00	870.58	61.71	5.13	60.95	1.86	1.80	2.58	
965.00	12.40	17.70	958.58	79.71	10.75	79.80	0.69	0.67	0.78	

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Site:	SEC 35-T4S-R65W	MD Reference:	KB 23' @ 5893.30usft
Well:	STATE PIKES 4-65 36-31-32 1AH	North Reference:	True
Wellbore:	OWB	Survey Calculation Method:	Minimum Curvature
Design:	FINAL SURVEY	Database:	EDT_32Bit_ODBC

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)	
1,054.00	14.00	14.20	1,045.23	99.25	16.30	100.11	2.01	1.80	-3.93	
1,144.00	12.30	20.80	1,132.87	118.77	22.38	120.53	2.52	-1.89	7.33	
1,233.00	11.40	22.00	1,219.98	135.79	29.04	138.69	1.05	-1.01	1.35	
1,322.00	11.60	25.80	1,307.19	152.00	36.23	156.21	0.88	0.22	4.27	
1,411.00	10.70	23.30	1,394.51	167.65	43.39	173.17	1.15	-1.01	-2.81	
1,501.00	11.70	19.30	1,482.80	183.93	49.71	190.53	1.41	1.11	-4.44	
1,590.00	12.20	16.40	1,569.87	201.47	55.35	208.93	0.88	0.56	-3.26	
1,679.00	12.80	19.60	1,656.76	219.78	61.31	228.16	1.03	0.67	3.60	
1,765.00	12.10	21.70	1,740.74	237.13	67.84	246.60	0.97	-0.81	2.44	
1,853.00	11.30	22.10	1,826.91	253.69	74.49	264.31	0.91	-0.91	0.45	
1,941.00	11.30	18.70	1,913.20	269.84	80.50	281.47	0.76	0.00	-3.86	
2,026.00	12.40	14.50	1,996.39	286.57	85.46	298.91	1.64	1.29	-4.94	
2,111.00	13.10	14.00	2,079.30	304.75	90.07	317.66	0.83	0.82	-0.59	
2,197.00	14.00	13.60	2,162.90	324.32	94.88	337.81	1.05	1.05	-0.47	
2,282.00	13.10	14.50	2,245.53	343.64	99.71	357.72	1.09	-1.06	1.06	
2,367.00	13.00	18.00	2,328.34	362.06	105.07	376.90	0.94	-0.12	4.12	
2,452.00	11.60	17.30	2,411.39	379.31	110.57	394.98	1.66	-1.65	-0.82	
2,536.00	10.50	19.60	2,493.83	394.58	115.65	411.05	1.41	-1.31	2.74	
2,623.00	10.00	16.60	2,579.44	409.29	120.46	426.50	0.84	-0.57	-3.45	
2,710.00	9.90	14.70	2,665.13	423.76	124.52	441.53	0.39	-0.11	-2.18	
2,795.00	11.10	9.40	2,748.71	438.90	127.71	456.98	1.81	1.41	-6.24	
2,881.00	13.50	8.00	2,832.73	457.01	130.46	475.19	2.81	2.79	-1.63	
2,964.00	13.40	7.00	2,913.45	476.15	132.98	494.34	0.31	-0.12	-1.20	
3,054.00	13.70	11.90	3,000.95	496.93	136.45	515.31	1.32	0.33	5.44	
3,143.00	13.30	11.90	3,087.49	517.26	140.73	536.06	0.45	-0.45	0.00	
3,231.00	13.20	11.30	3,173.15	537.02	144.79	556.20	0.19	-0.11	-0.68	
3,302.00	13.50	11.50	3,242.23	553.09	148.03	572.56	0.43	0.42	0.28	
3,362.00	13.26	12.46	3,300.60	566.67	150.91	586.42	0.55	-0.40	1.60	
SURFACE CSG - 3362' MD, 3301' TVD										
3,379.00	13.19	12.74	3,317.15	570.47	151.76	590.31	0.55	-0.40	1.64	
3,469.00	11.70	13.27	3,405.03	589.37	156.12	609.69	1.66	-1.66	0.59	
3,559.00	10.82	13.54	3,493.30	606.46	160.19	627.26	0.98	-0.98	0.30	
3,648.00	9.85	12.31	3,580.86	622.02	163.77	643.22	1.12	-1.09	-1.38	
3,739.00	8.44	13.45	3,670.70	636.12	166.98	657.67	1.56	-1.55	1.25	
3,828.00	7.56	14.77	3,758.83	648.14	170.00	670.05	1.01	-0.99	1.48	
3,919.00	6.95	18.55	3,849.10	659.14	173.27	681.53	0.85	-0.67	4.15	
4,010.00	6.07	22.94	3,939.51	668.79	176.90	691.79	1.11	-0.97	4.82	
4,128.00	9.16	18.39	4,056.46	683.46	182.30	707.35	2.67	2.62	-3.86	
4,218.00	13.05	12.60	4,144.76	700.18	186.77	724.66	4.49	4.32	-6.43	
4,308.00	12.37	11.16	4,232.56	719.55	190.86	744.43	0.83	-0.76	-1.60	
4,397.00	11.34	10.97	4,319.66	737.49	194.37	762.68	1.16	-1.16	-0.21	
4,487.00	12.41	12.39	4,407.73	755.63	198.13	781.17	1.23	1.19	1.58	
4,577.00	11.25	12.15	4,495.82	773.66	202.05	799.60	1.29	-1.29	-0.27	

Survey Report

Company:	CRESTONE PEAK RESOURCES	Local Co-ordinate Reference:	Well STATE PIKES 4-65 36-31-32 1AH
Project:	ARAPAHOE COUNTY	TVD Reference:	KB 23' @ 5893.30usft
Site:	SEC 35-T4S-R65W	MD Reference:	KB 23' @ 5893.30usft
Well:	STATE PIKES 4-65 36-31-32 1AH	North Reference:	True
Wellbore:	OWB	Survey Calculation Method:	Minimum Curvature
Design:	FINAL SURVEY	Database:	EDT_32Bit_ODBC

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)	
4,667.00	12.84	16.17	4,583.83	791.84	206.68	818.37	2.00	1.77	4.47	
4,756.00	11.37	17.18	4,670.85	809.73	212.03	837.02	1.67	-1.65	1.13	
4,846.00	12.86	15.11	4,758.85	827.87	217.26	855.90	1.72	1.66	-2.30	
4,936.00	11.54	17.02	4,846.81	846.15	222.51	874.91	1.53	-1.47	2.12	
5,025.00	13.12	12.34	4,933.76	864.53	227.27	893.90	2.10	1.78	-5.26	
5,114.00	11.86	11.27	5,020.65	883.37	231.22	913.12	1.44	-1.42	-1.20	
5,204.00	13.56	12.14	5,108.44	902.76	235.24	932.89	1.90	1.89	0.97	
5,294.00	12.08	10.87	5,196.20	922.32	239.24	952.83	1.67	-1.64	-1.41	
5,383.00	13.71	15.74	5,282.95	941.62	243.86	972.66	2.20	1.83	5.47	
5,473.00	12.20	13.69	5,370.66	961.13	249.00	992.84	1.75	-1.68	-2.28	
5,563.00	11.07	9.30	5,458.81	978.89	252.65	1,010.94	1.59	-1.26	-4.88	
5,652.00	12.70	13.32	5,545.90	996.85	256.28	1,029.23	2.05	1.83	4.52	
5,742.00	12.77	13.54	5,633.69	1,016.14	260.89	1,049.06	0.09	0.08	0.24	
5,832.00	12.43	13.33	5,721.52	1,035.24	265.45	1,068.69	0.38	-0.38	-0.23	
5,921.00	11.46	9.90	5,808.59	1,053.27	269.18	1,087.07	1.35	-1.09	-3.85	
6,011.00	10.35	7.95	5,896.96	1,070.08	271.84	1,104.00	1.30	-1.23	-2.17	
6,101.00	11.02	20.36	5,985.42	1,086.16	275.95	1,120.59	2.66	0.74	13.79	
6,191.00	9.74	18.45	6,073.94	1,101.45	281.35	1,136.76	1.47	-1.42	-2.12	
6,280.00	11.00	15.82	6,161.49	1,116.76	286.05	1,152.76	1.51	1.42	-2.96	
6,370.00	9.57	12.08	6,250.04	1,132.33	289.95	1,168.82	1.75	-1.59	-4.16	
6,460.00	11.15	14.94	6,338.57	1,148.06	293.76	1,185.00	1.85	1.76	3.18	
6,549.00	13.19	21.03	6,425.57	1,165.85	299.63	1,203.70	2.71	2.29	6.84	
6,639.00	11.30	16.63	6,513.52	1,183.89	305.84	1,222.72	2.34	-2.10	-4.89	
6,728.00	11.86	12.54	6,600.71	1,201.17	310.32	1,240.58	1.12	0.63	-4.60	
6,818.00	13.00	15.98	6,688.60	1,219.93	315.11	1,259.94	1.51	1.27	3.82	
6,907.00	11.23	12.11	6,775.61	1,238.03	319.69	1,278.61	2.19	-1.99	-4.35	
6,997.00	11.66	12.04	6,863.82	1,255.49	323.42	1,296.44	0.48	0.48	-0.08	
7,176.00	12.33	5.72	7,038.92	1,292.20	329.10	1,333.38	0.82	0.37	-3.53	
7,265.00	11.71	17.62	7,125.98	1,310.27	332.78	1,351.78	2.86	-0.70	13.37	
7,354.00	9.88	14.55	7,213.41	1,326.27	337.44	1,368.44	2.15	-2.06	-3.45	
7,444.00	10.75	21.89	7,301.96	1,341.53	342.50	1,384.50	1.75	0.97	8.16	
7,533.00	9.18	21.95	7,389.61	1,355.82	348.25	1,399.78	1.76	-1.76	0.07	
7,540.00	9.32	26.52	7,396.52	1,356.85	348.72	1,400.89	10.69	1.99	65.34	
KOP - 7540' MD, 7397' TVD										
7,622.00	14.13	63.98	7,476.89	1,367.20	360.70	1,413.97	10.69	5.87	45.68	
7,712.00	23.17	78.93	7,562.13	1,375.44	388.02	1,428.96	11.29	10.04	16.61	
7,801.00	34.60	83.05	7,639.93	1,381.88	430.43	1,446.08	13.03	12.84	4.63	
7,891.00	43.29	82.38	7,709.86	1,389.08	486.49	1,467.45	9.67	9.66	-0.74	
7,980.00	50.69	80.51	7,770.53	1,398.81	550.78	1,493.38	8.45	8.31	-2.10	
8,069.00	54.49	79.13	7,824.59	1,411.33	620.34	1,523.35	4.44	4.27	-1.55	
8,159.00	55.10	80.94	7,876.48	1,424.05	692.77	1,554.26	1.78	0.68	2.01	
8,248.00	63.98	82.26	7,921.55	1,435.20	768.59	1,584.52	10.06	9.98	1.48	
8,338.00	71.66	83.60	7,955.51	1,445.43	851.23	1,615.64	8.64	8.53	1.49	
8,427.00	81.18	84.83	7,976.38	1,454.12	937.21	1,646.14	10.78	10.70	1.38	

Survey Report

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Site:	SEC 35-T4S-R65W	MD Reference:	KB 23' @ 5893.30usft
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Wellbore:	OWB	Survey Calculation Method:	Minimum Curvature
Design:	FINAL SURVEY	Database:	EDT_32Bit_ODBC

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)
8,437.64	82.11	85.40	7,977.93	1,455.01	947.70	1,649.70	10.18	8.72	5.31
~330' X-OVER PNT - 8437.64' MD, 485' FNL, 330' FEL SEC 36									
8,517.00	89.05	89.55	7,984.04	1,458.49	1,026.68	1,673.35	10.18	8.75	5.24
8,523.00	89.12	89.49	7,984.14	1,458.54	1,032.68	1,674.95	1.53	1.10	-1.07
HZ LANDING PNT - 8523' MD, 7984' TVD									
8,607.00	90.04	88.59	7,984.76	1,459.95	1,116.66	1,697.89	1.53	1.10	-1.07
8,696.00	90.56	87.73	7,984.29	1,462.80	1,205.61	1,723.51	1.13	0.58	-0.97
8,785.00	90.92	87.18	7,983.14	1,466.76	1,294.52	1,750.18	0.74	0.40	-0.62
8,875.00	91.26	87.90	7,981.43	1,470.62	1,384.42	1,777.02	0.88	0.38	0.80
8,964.00	90.31	86.77	7,980.21	1,474.76	1,473.31	1,803.86	1.66	-1.07	-1.27
9,054.00	91.56	88.69	7,978.74	1,478.32	1,563.22	1,830.41	2.55	1.39	2.13
9,143.00	91.19	88.51	7,976.61	1,480.49	1,652.17	1,855.38	0.46	-0.42	-0.20
9,233.00	92.09	90.11	7,974.03	1,481.58	1,742.12	1,879.54	2.04	1.00	1.78
9,323.00	91.95	89.23	7,970.86	1,482.10	1,832.06	1,903.16	0.99	-0.16	-0.98
9,413.00	91.32	91.99	7,968.29	1,481.14	1,922.01	1,925.35	3.14	-0.70	3.07
9,502.00	90.61	91.64	7,966.79	1,478.32	2,010.95	1,945.48	0.89	-0.80	-0.39
9,592.00	89.31	92.55	7,966.85	1,475.03	2,100.89	1,965.42	1.76	-1.44	1.01
9,682.00	90.47	91.47	7,967.03	1,471.87	2,190.83	1,985.48	1.76	1.29	-1.20
9,771.00	89.88	90.57	7,966.76	1,470.29	2,279.82	2,006.82	1.21	-0.66	-1.01
9,861.00	91.76	91.29	7,965.47	1,468.83	2,369.79	2,028.53	2.24	2.09	0.80
9,951.00	91.26	89.95	7,963.10	1,467.86	2,459.75	2,050.71	1.59	-0.56	-1.49
10,040.00	90.96	90.51	7,961.37	1,467.50	2,548.73	2,073.23	0.71	-0.34	0.63
10,129.00	90.04	91.31	7,960.59	1,466.08	2,637.72	2,094.74	1.37	-1.03	0.90
10,220.00	91.79	91.61	7,959.14	1,463.77	2,728.67	2,115.87	1.95	1.92	0.33
10,309.00	91.38	91.40	7,956.68	1,461.43	2,817.61	2,136.47	0.52	-0.46	-0.24
10,398.00	91.10	90.65	7,954.75	1,459.84	2,906.57	2,157.80	0.90	-0.31	-0.84
10,577.00	91.42	88.74	7,950.82	1,460.79	3,085.52	2,204.71	1.08	0.18	-1.07
10,667.00	89.68	91.06	7,949.95	1,460.95	3,175.50	2,227.98	3.22	-1.93	2.58
10,756.00	92.40	89.69	7,948.34	1,460.36	3,264.48	2,250.29	3.42	3.06	-1.54
10,845.00	92.53	89.11	7,944.51	1,461.30	3,353.39	2,274.04	0.67	0.15	-0.65
10,934.00	91.96	89.65	7,941.02	1,462.26	3,442.31	2,297.82	0.88	-0.64	0.61
11,023.00	91.70	90.01	7,938.18	1,462.52	3,531.27	2,320.94	0.50	-0.29	0.40
11,113.00	91.95	88.17	7,935.32	1,463.95	3,621.21	2,345.43	2.06	0.28	-2.04
11,202.00	91.00	92.36	7,933.02	1,463.54	3,710.16	2,367.89	4.83	-1.07	4.71
11,291.00	91.30	90.28	7,931.24	1,461.49	3,799.11	2,388.77	2.36	0.34	-2.34
11,381.00	91.53	91.12	7,929.01	1,460.39	3,889.08	2,410.83	0.97	0.26	0.93
11,470.00	92.12	90.22	7,926.18	1,459.35	3,978.02	2,432.69	1.21	0.66	-1.01
11,560.00	91.69	90.69	7,923.19	1,458.63	4,067.97	2,455.11	0.71	-0.48	0.52
11,649.00	91.60	91.72	7,920.63	1,456.76	4,156.91	2,476.16	1.16	-0.10	1.16
11,738.00	92.09	91.75	7,917.77	1,454.07	4,245.82	2,496.41	0.55	0.55	0.03
11,827.00	90.75	90.27	7,915.56	1,452.50	4,334.78	2,517.76	2.24	-1.51	-1.66
11,916.00	90.92	90.97	7,914.27	1,451.54	4,423.76	2,539.70	0.81	0.19	0.79
12,006.00	90.79	91.01	7,912.92	1,449.98	4,513.74	2,561.32	0.15	-0.14	0.04

Survey Report

Company:	CRESTONE PEAK RESOURCES	Local Co-ordinate Reference:	Well STATE PIKES 4-65 36-31-32 1AH
Project:	ARAPAHOE COUNTY	TVD Reference:	KB 23' @ 5893.30usft
Site:	SEC 35-T4S-R65W	MD Reference:	KB 23' @ 5893.30usft
Well:	STATE PIKES 4-65 36-31-32 1AH	North Reference:	True
Wellbore:	OWB	Survey Calculation Method:	Minimum Curvature
Design:	FINAL SURVEY	Database:	EDT_32Bit_ODBC

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)	
12,095.00	91.40	89.75	7,911.22	1,449.39	4,602.72	2,583.62	1.57	0.69	-1.42	
12,184.00	91.89	90.01	7,908.67	1,449.58	4,691.68	2,606.66	0.62	0.55	0.29	
12,274.00	91.71	89.99	7,905.84	1,449.58	4,781.64	2,629.78	0.20	-0.20	-0.02	
12,363.00	92.30	89.01	7,902.73	1,450.36	4,870.58	2,653.39	1.28	0.66	-1.10	
12,453.00	90.15	89.16	7,900.80	1,451.79	4,960.54	2,677.89	2.39	-2.39	0.17	
12,543.00	89.58	90.64	7,901.01	1,451.95	5,050.54	2,701.18	1.76	-0.63	1.64	
12,633.00	89.38	89.40	7,901.83	1,451.92	5,140.53	2,724.27	1.40	-0.22	-1.38	
12,722.00	89.56	88.37	7,902.65	1,453.65	5,229.51	2,748.82	1.17	0.20	-1.16	
12,811.00	89.86	90.79	7,903.10	1,454.30	5,318.50	2,772.32	2.74	0.34	2.72	
12,901.00	89.87	91.02	7,903.32	1,452.88	5,408.49	2,794.07	0.26	0.01	0.26	
12,990.00	89.93	91.70	7,903.47	1,450.77	5,497.46	2,814.89	0.77	0.07	0.76	
13,080.00	90.28	90.81	7,903.31	1,448.80	5,587.44	2,836.11	1.06	0.39	-0.99	
13,170.00	90.39	89.70	7,902.78	1,448.40	5,677.44	2,858.86	1.24	0.12	-1.23	
13,259.00	90.69	90.19	7,901.94	1,448.48	5,766.43	2,881.81	0.65	0.34	0.55	
13,348.00	90.46	90.13	7,901.05	1,448.23	5,855.43	2,904.44	0.27	-0.26	-0.07	
13,437.00	91.38	90.76	7,899.62	1,447.54	5,944.41	2,926.64	1.25	1.03	0.71	
13,526.00	91.30	92.18	7,897.54	1,445.26	6,033.36	2,947.30	1.60	-0.09	1.60	
13,706.00	91.56	91.47	7,893.05	1,439.53	6,213.21	2,987.98	0.42	0.14	-0.39	
13,795.00	91.89	89.91	7,890.37	1,438.46	6,302.16	3,009.81	1.79	0.37	-1.75	
13,884.00	91.58	90.61	7,887.67	1,438.06	6,391.12	3,032.28	0.86	-0.35	0.79	
13,974.00	91.84	90.06	7,884.99	1,437.53	6,481.07	3,054.89	0.68	0.29	-0.61	
14,063.00	90.18	88.12	7,883.42	1,438.94	6,570.04	3,079.12	2.87	-1.87	-2.18	
14,153.00	90.20	87.93	7,883.12	1,442.04	6,659.99	3,105.23	0.21	0.02	-0.21	
14,242.00	89.57	91.44	7,883.30	1,442.53	6,748.97	3,128.57	4.01	-0.71	3.94	
14,332.00	89.86	90.47	7,883.75	1,441.03	6,838.96	3,150.25	1.12	0.32	-1.08	
14,421.00	90.46	89.74	7,883.50	1,440.87	6,927.95	3,172.97	1.06	0.67	-0.82	
14,511.00	90.55	90.47	7,882.70	1,440.71	7,017.95	3,195.94	0.82	0.10	0.81	
14,600.00	90.09	89.39	7,882.21	1,440.81	7,106.95	3,218.91	1.32	-0.52	-1.21	
14,689.00	90.16	87.94	7,882.01	1,442.89	7,195.92	3,243.78	1.63	0.08	-1.63	
14,779.00	89.75	90.56	7,882.08	1,444.07	7,285.90	3,268.05	2.95	-0.46	2.91	
14,868.00	89.68	90.06	7,882.53	1,443.58	7,374.90	3,290.45	0.57	-0.08	-0.56	
14,958.00	90.15	88.01	7,882.66	1,445.10	7,464.88	3,315.05	2.34	0.52	-2.28	
15,048.00	89.45	91.40	7,882.97	1,445.56	7,554.87	3,338.62	3.85	-0.78	3.77	
15,138.00	90.46	91.26	7,883.04	1,443.47	7,644.84	3,359.72	1.13	1.12	-0.16	
15,227.00	90.66	91.86	7,882.17	1,441.05	7,733.81	3,380.25	0.71	0.22	0.67	
15,317.00	90.89	90.94	7,880.96	1,438.85	7,823.77	3,401.24	1.05	0.26	-1.02	
15,406.00	91.49	90.89	7,879.11	1,437.43	7,912.74	3,422.73	0.68	0.67	-0.06	
15,496.00	92.50	88.88	7,875.98	1,437.61	8,002.68	3,446.02	2.50	1.12	-2.23	
15,585.00	89.95	91.77	7,874.07	1,437.11	8,091.64	3,468.40	4.33	-2.87	3.25	
15,675.00	90.76	90.45	7,873.52	1,435.36	8,181.62	3,489.84	1.72	0.90	-1.47	
15,764.00	90.93	91.43	7,872.20	1,433.90	8,270.60	3,511.29	1.12	0.19	1.10	
15,854.00	91.22	90.41	7,870.51	1,432.46	8,360.57	3,533.02	1.18	0.32	-1.13	
15,944.00	91.62	91.57	7,868.28	1,430.90	8,450.52	3,554.64	1.36	0.44	1.29	
16,033.00	89.65	90.86	7,867.30	1,429.02	8,539.49	3,575.68	2.35	-2.21	-0.80	

Survey Report

Company:	CRESTONE PEAK RESOURCES	Local Co-ordinate Reference:	Well STATE PIKES 4-65 36-31-32 1AH
Project:	ARAPAHOE COUNTY	TVD Reference:	KB 23' @ 5893.30usft
Site:	SEC 35-T4S-R65W	MD Reference:	KB 23' @ 5893.30usft
Well:	STATE PIKES 4-65 36-31-32 1AH	North Reference:	True
Wellbore:	OWB	Survey Calculation Method:	Minimum Curvature
Design:	FINAL SURVEY	Database:	EDT_32Bit_ODBC

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)
16,122.00	89.28	91.42	7,868.13	1,427.25	8,628.47	3,596.83	0.75	-0.42	0.63
16,212.00	90.21	91.77	7,868.53	1,424.74	8,718.43	3,617.53	1.10	1.03	0.39
16,302.00	91.43	89.93	7,867.24	1,423.41	8,808.41	3,639.37	2.45	1.36	-2.04
16,391.00	89.32	90.35	7,866.66	1,423.19	8,897.40	3,662.03	2.42	-2.37	0.47
16,481.00	89.86	89.72	7,867.30	1,423.13	8,987.40	3,685.11	0.92	0.60	-0.70
16,571.00	89.83	90.98	7,867.55	1,422.58	9,077.40	3,707.70	1.40	-0.03	1.40
16,660.00	89.37	90.44	7,868.17	1,421.48	9,166.39	3,729.51	0.80	-0.52	-0.61
16,750.00	89.41	90.08	7,869.13	1,421.07	9,256.38	3,752.24	0.40	0.04	-0.40
16,840.00	90.21	90.14	7,869.42	1,420.90	9,346.38	3,775.20	0.89	0.89	0.07
16,929.00	90.73	89.23	7,868.69	1,421.39	9,435.37	3,798.55	1.18	0.58	-1.02
17,018.00	91.00	88.42	7,867.35	1,423.21	9,524.34	3,823.18	0.96	0.30	-0.91
17,108.00	90.34	92.54	7,866.30	1,422.46	9,614.31	3,845.57	4.64	-0.73	4.58
17,197.00	90.17	91.09	7,865.90	1,419.64	9,703.27	3,865.71	1.64	-0.19	-1.63
17,377.00	89.89	90.06	7,865.81	1,417.84	9,883.25	3,910.22	0.59	-0.16	-0.57
17,466.00	89.98	89.45	7,865.91	1,418.22	9,972.25	3,933.46	0.69	0.10	-0.69
17,555.00	89.78	93.05	7,866.09	1,416.27	10,061.22	3,954.45	4.05	-0.22	4.04
17,645.00	90.55	91.51	7,865.84	1,412.69	10,151.14	3,974.10	1.91	0.86	-1.71
17,735.00	90.75	91.46	7,864.81	1,410.36	10,241.11	3,994.97	0.23	0.22	-0.06
17,824.00	90.75	91.64	7,863.65	1,407.95	10,330.07	4,015.50	0.20	0.00	0.20
17,913.00	91.36	91.91	7,862.01	1,405.20	10,419.01	4,035.70	0.75	0.69	0.30
18,002.00	91.47	92.70	7,859.81	1,401.62	10,507.91	4,055.09	0.90	0.12	0.89
18,092.00	92.12	91.07	7,856.99	1,398.66	10,597.81	4,075.33	1.95	0.72	-1.81
18,182.00	92.45	91.52	7,853.41	1,396.63	10,687.72	4,096.47	0.62	0.37	0.50
18,271.00	90.93	90.45	7,850.78	1,395.10	10,776.66	4,117.85	2.09	-1.71	-1.20
18,361.00	91.59	88.68	7,848.80	1,395.78	10,866.63	4,141.64	2.10	0.73	-1.97
18,451.00	92.15	89.70	7,845.86	1,397.05	10,956.57	4,165.98	1.29	0.62	1.13
18,541.00	92.58	88.88	7,842.15	1,398.17	11,046.49	4,190.17	1.03	0.48	-0.91
18,631.00	91.08	89.43	7,839.28	1,399.49	11,136.43	4,214.56	1.78	-1.67	0.61
18,720.00	91.86	87.92	7,836.99	1,401.55	11,225.37	4,239.41	1.91	0.88	-1.70
18,810.00	89.75	90.47	7,835.73	1,402.82	11,315.34	4,263.75	3.68	-2.34	2.83
18,899.00	90.38	89.91	7,835.63	1,402.52	11,404.34	4,286.34	0.95	0.71	-0.63
18,988.00	91.39	88.44	7,834.25	1,403.80	11,493.32	4,310.45	2.00	1.13	-1.65
19,078.00	91.78	88.57	7,831.76	1,406.15	11,583.25	4,335.83	0.46	0.43	0.14
19,168.00	90.08	89.13	7,830.30	1,407.95	11,673.22	4,360.70	1.99	-1.89	0.62
19,258.00	90.52	88.93	7,829.83	1,409.48	11,763.21	4,385.29	0.54	0.49	-0.22
19,347.00	90.75	87.46	7,828.84	1,412.28	11,852.15	4,410.86	1.67	0.26	-1.65
19,437.00	88.12	89.26	7,829.73	1,414.86	11,942.10	4,436.47	3.54	-2.92	2.00
19,527.00	88.14	88.85	7,832.67	1,416.34	12,032.04	4,461.02	0.46	0.02	-0.46
19,617.00	89.54	89.18	7,834.49	1,417.89	12,122.01	4,485.63	1.60	1.56	0.37
19,706.00	89.50	88.03	7,835.24	1,420.05	12,210.98	4,510.59	1.29	-0.04	-1.29
LAST SURVEY - 19706' MD, 7835' TVD									
19,780.00	89.50	88.03	7,835.88	1,422.60	12,284.93	4,532.06	0.00	0.00	0.00
EXTRAPOLATION TO TD - 19780' MD, 386' FNL, 989' FWL SEC 32									

Survey Report

Company:	CRESTONE PEAK RESOURCES	Local Co-ordinate Reference:	Well STATE PIKES 4-65 36-31-32 1AH
Project:	ARAPAHOE COUNTY	TVD Reference:	KB 23' @ 5893.30usft
Site:	SEC 35-T4S-R65W	MD Reference:	KB 23' @ 5893.30usft
Well:	STATE PIKES 4-65 36-31-32 1AH	North Reference:	True
Wellbore:	OWB	Survey Calculation Method:	Minimum Curvature
Design:	FINAL SURVEY	Database:	EDT_32Bit_ODBC

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)

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
ST.PIKES 4-65 1AH-PB - hit/miss target - Shape - Point	0.00	0.00	7,825.00	1,408.66	12,286.27	1,668,719.35	3,258,768.32	39.665838°N	104.580800°W
- actual wellpath misses target center by 17.73usft at 19780.00usft MD (7835.88 TVD, 1422.60 N, 12284.93 E)									
ST.PIKES 4-65 1AH-LP - Point	0.00	0.00	7,989.00	1,500.43	947.61	1,668,701.84	3,247,429.47	39.666098°N	104.621076°W
- actual wellpath misses target center by 46.54usft at 8440.40usft MD (7978.30 TVD, 1455.23 N, 950.42 E)									

Design Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment	
		+N/-S (usft)	+E/-W (usft)		
3,362.00	3,300.60	566.67	150.91	SURFACE CSG - 3362' MD, 3301' TVD	
7,540.00	7,396.52	1,356.85	348.72	KOP - 7540' MD, 7397' TVD	
8,437.64	7,977.93	1,455.01	947.70	~330' X-OVER PNT - 8437.64' MD, 485' FNL, 330' FEL SEC 36	
8,523.00	7,984.14	1,458.54	1,032.68	HZ LANDING PNT - 8523' MD, 7984' TVD	
19,706.00	7,835.24	1,420.05	12,210.98	LAST SURVEY - 19706' MD, 7835' TVD	
19,780.00	7,835.88	1,422.60	12,284.93	EXTRAPOLATION TO TD - 19780' MD, 386' FNL, 989' FWL SEC 32	

Checked By: _____ Approved By: _____ Date: _____