

CRESTONE PEAK RESOURCES

ARAPAHOE COUNTY

SEC 15-T4S-R65W

LONE TREE 4-65 15-16 3CH

OWB

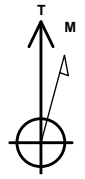
Design: FINAL SURVEY

Standard Survey Report

05 December, 2022

Project: ARAPAHOE COUNTY
 Site: SEC 15-T4S-R65W
 Well: LONE TREE 4-65 15-16 3CH
 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



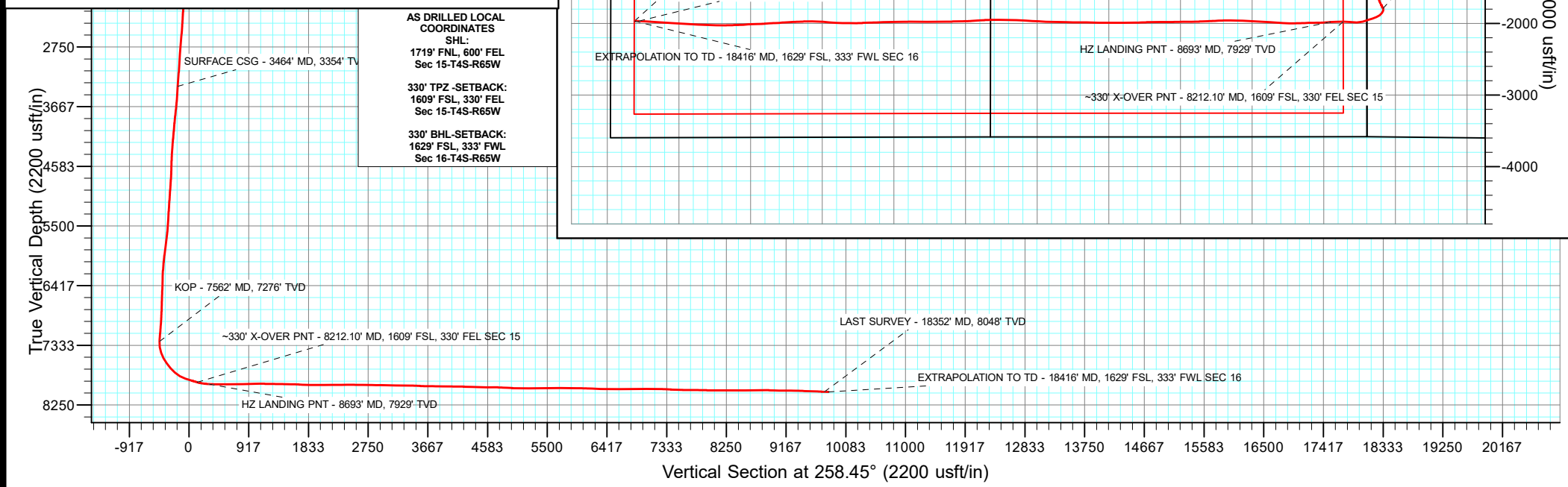
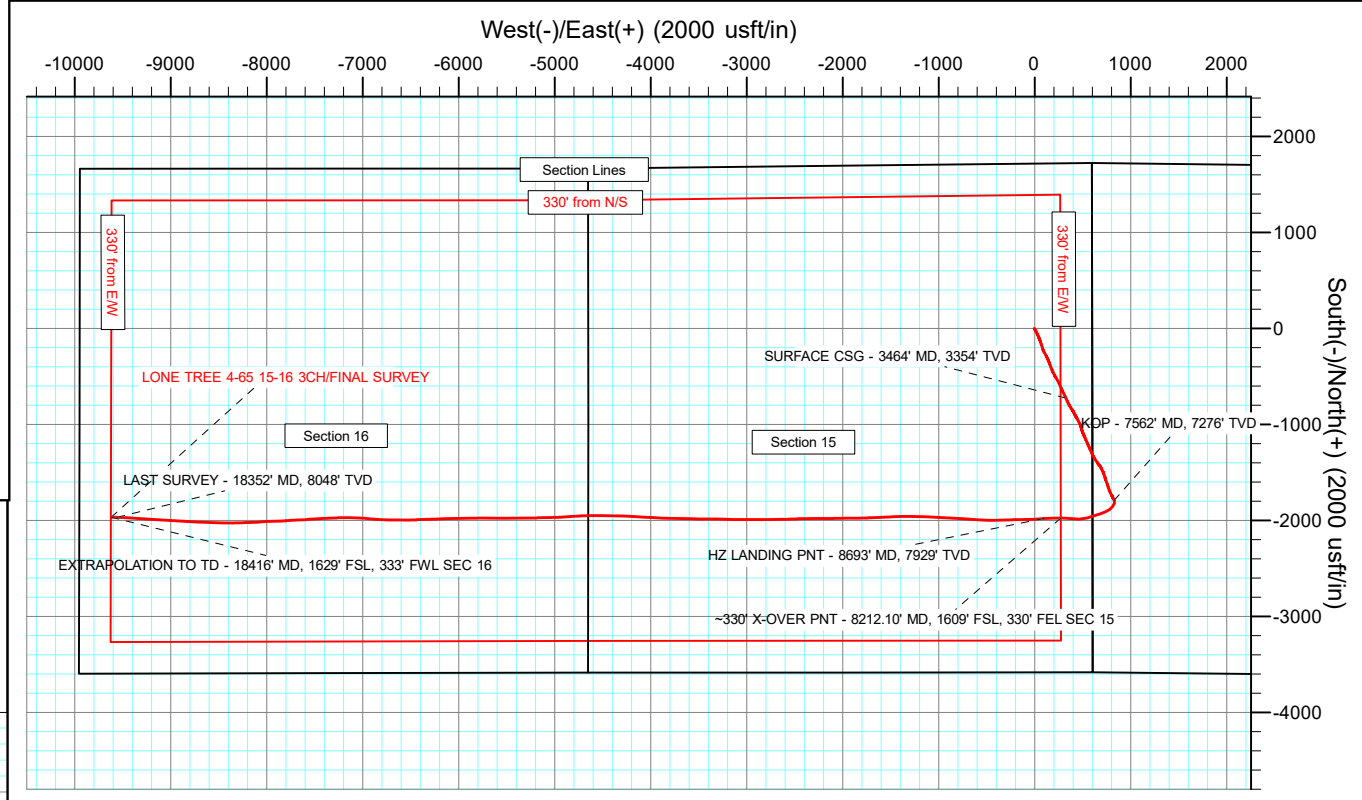
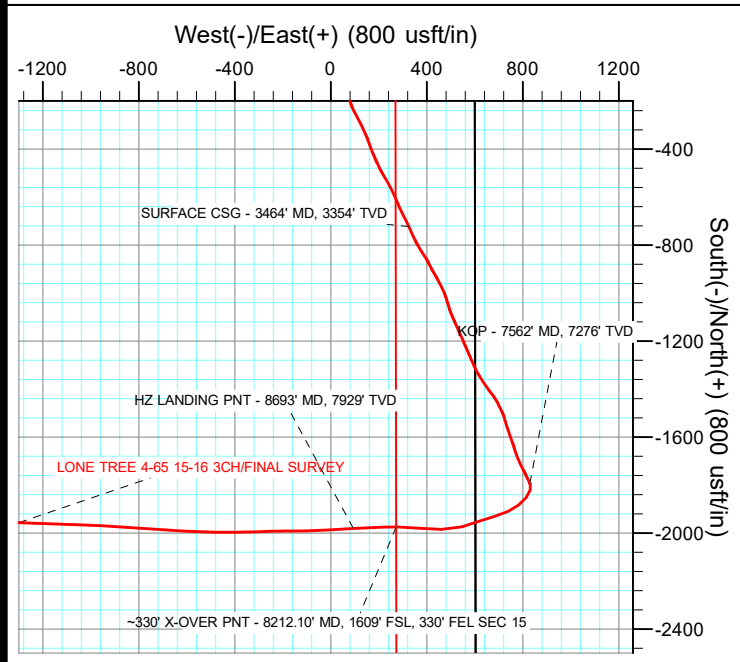
Azimuths to True North
 Magnetic North: 7.65°
 Magnetic Field
 Strength: 51525.3nT
 Dip Angle: 66.09°
 Date: 2/10/2022
 Model: IGRF2020

WELL DETAILS: LONE TREE 4-65 15-16 3CH

+N/-S	+E/-W	Northing	Easting	5693.40 Latitude	Longitude	Slot
0.00	0.00	1683330.27	3241109.90	39.706421°N	104.643033°W	

ANNOTATIONS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Vsect	Departure	Annotation
3464.00	16.77	156.04	3354.32	-722.09	325.51	-174.41	798.06	SURFACE CSG - 3464' MD, 3354' TVD
7562.00	17.12	154.20	7275.78	-1791.57	829.72	-454.36	1985.69	KOP - 7562' MD, 7276' TVD
8512.10	74.23	270.40	7901.95	-1973.72	272.76	127.79	2627.13	~330' X-OVER PNT - 8212.10' MD, 1609' FSL, 330' FEL SEC 15
8693.00	86.56	265.25	7928.68	-1979.89	94.37	303.80	2805.55	HZ LANDING PNT - 8693' MD, 7929' TVD
18352.00	88.21	271.03	8047.51	-1965.97	-9554.47	9754.62	12461.97	LAST SURVEY - 18352' MD, 8048' TVD
18416.00	88.21	271.03	8049.51	-1964.82	-9618.42	9817.06	12525.94	EXTRAPOLATION TO TD - 18416' MD, 1629' FSL, 333' FWL SEC 16



AS DRILLED LOCAL COORDINATES SHL:
 1719' FNL, 600' FEL
 Sec 15-T4S-R65W
 330' TPZ -SETBACK:
 1609' FSL, 330' FEL
 Sec 15-T4S-R65W
 330' BHL -SETBACK:
 1629' FSL, 333' FWL
 Sec 16-T4S-R65W

Survey Report

Company: CRESTONE PEAK RESOURCES	Local Co-ordinate Reference: Well LONE TREE 4-65 15-16 3CH
Project: ARAPAHOE COUNTY	TVD Reference: KB 25' @ 5718.40usft
Site: SEC 15-T4S-R65W	MD Reference: KB 25' @ 5718.40usft
Well: LONE TREE 4-65 15-16 3CH	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 15-T4S-R65W		
Site Position:	Northing: 1,685,061.36 usft	Latitude: 39.711158°N
From: Lat/Long	Easting: 3,241,690.88 usft	Longitude: 104.640910°W
Position Uncertainty: 0.00 usft	Slot Radius: 13.200 in	Grid Convergence: 0.54 °

Well LONE TREE 4-65 15-16 3CH		
Well Position +N/-S 0.00 usft	Northing: 1,683,330.27 usft	Latitude: 39.706421°N
+E/-W 0.00 usft	Easting: 3,241,109.90 usft	Longitude: 104.643033°W
Position Uncertainty 0.00 usft	Wellhead Elevation: usft	Ground Level: 5,693.40 usft

Wellbore OWB					
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2020	2/10/2022	7.65	66.09	51,525.31533338

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	258.45

Survey Program		Date 12/5/2022		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
302.00	3,412.00	SURFACE SURVEY (OWB)	MWD OWSG	OWSG MWD - Standard
3,492.00	18,416.00	FINAL SURVEY (OWB)	MWD OWSG	OWSG MWD - Standard

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)
211.00	1.30	300.90	210.98	1.17	-1.96	1.69	0.00	0.00	0.00
302.00	1.30	184.60	301.97	0.67	-2.93	2.74	2.43	0.00	-127.80
376.00	2.50	159.50	375.93	-1.68	-2.43	2.72	1.94	1.62	-33.92
463.00	3.80	145.50	462.79	-5.83	-0.13	1.30	1.73	1.49	-16.09
550.00	6.60	143.10	549.43	-12.21	4.50	-1.97	3.23	3.22	-2.76
638.00	8.40	151.90	636.67	-21.92	10.57	-5.97	2.42	2.05	10.00
725.00	11.20	154.30	722.40	-35.14	17.23	-9.84	3.25	3.22	2.76
812.00	12.70	154.30	807.51	-51.37	25.04	-14.25	1.72	1.72	0.00
899.00	14.50	154.10	892.07	-69.79	33.94	-19.29	2.07	2.07	-0.23
986.00	15.20	157.30	976.16	-90.11	43.10	-24.19	1.24	0.80	3.68

Survey Report

Company:	CRESTONE PEAK RESOURCES	Local Co-ordinate Reference:	Well LONE TREE 4-65 15-16 3CH
Project:	ARAPAHOE COUNTY	TVD Reference:	KB 25' @ 5718.40usft
Site:	SEC 15-T4S-R65W	MD Reference:	KB 25' @ 5718.40usft
Well:	LONE TREE 4-65 15-16 3CH	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)	
1,074.00	17.20	158.50	1,060.66	-112.86	52.32	-28.68	2.30	2.27	1.36	
1,161.00	16.40	162.80	1,143.95	-136.56	60.67	-32.11	1.70	-0.92	4.94	
1,248.00	15.10	163.40	1,227.68	-159.16	67.54	-34.32	1.51	-1.49	0.69	
1,335.00	16.50	161.90	1,311.40	-181.76	74.62	-36.73	1.68	1.61	-1.72	
1,423.00	17.00	161.80	1,395.66	-205.86	82.52	-39.65	0.57	0.57	-0.11	
1,510.00	15.20	156.90	1,479.25	-228.44	90.96	-43.40	2.59	-2.07	-5.63	
1,597.00	14.80	151.80	1,563.29	-248.72	100.69	-48.87	1.58	-0.46	-5.86	
1,684.00	14.90	151.90	1,647.38	-268.38	111.21	-55.25	0.12	0.11	0.11	
1,771.00	15.50	152.60	1,731.34	-288.57	121.83	-61.61	0.72	0.69	0.80	
1,858.00	17.09	154.16	1,814.84	-310.40	132.75	-67.94	1.90	1.83	1.79	
1,946.00	18.32	156.09	1,898.67	-334.68	143.99	-74.10	1.55	1.40	2.19	
2,033.00	20.10	159.50	1,980.83	-361.18	154.77	-79.35	2.42	2.05	3.92	
2,120.00	18.50	160.60	2,062.94	-388.21	164.59	-83.56	1.89	-1.84	1.26	
2,207.00	18.10	157.50	2,145.54	-413.71	174.35	-88.02	1.21	-0.46	-3.56	
2,295.00	16.30	156.10	2,229.60	-437.63	184.58	-93.26	2.10	-2.05	-1.59	
2,382.00	13.80	154.30	2,313.61	-458.15	194.03	-98.41	2.92	-2.87	-2.07	
2,469.00	13.20	156.20	2,398.21	-476.59	202.54	-103.06	0.86	-0.69	2.18	
2,556.00	13.80	149.20	2,482.81	-494.59	211.86	-108.59	2.00	0.69	-8.05	
2,643.00	15.10	149.90	2,567.05	-513.31	222.86	-115.61	1.51	1.49	0.80	
2,730.00	15.90	150.00	2,650.89	-533.43	234.50	-122.99	0.92	0.92	0.11	
2,817.00	16.30	151.90	2,734.48	-554.52	246.21	-130.24	0.76	0.46	2.18	
2,905.00	16.30	154.60	2,818.94	-576.57	257.32	-136.72	0.86	0.00	3.07	
2,992.00	16.70	155.10	2,902.36	-598.94	267.82	-142.53	0.49	0.46	0.57	
3,079.00	16.60	157.20	2,985.71	-621.74	277.90	-147.84	0.70	-0.11	2.41	
3,166.00	17.40	156.10	3,068.91	-645.08	287.99	-153.05	0.99	0.92	-1.26	
3,253.00	16.60	153.70	3,152.11	-668.12	298.77	-159.00	1.22	-0.92	-2.76	
3,341.00	16.60	152.30	3,236.44	-690.52	310.18	-165.70	0.45	0.00	-1.59	
3,412.00	16.50	154.30	3,304.50	-708.58	319.26	-170.99	0.81	-0.14	2.82	
3,464.00	16.77	156.04	3,354.32	-722.09	325.51	-174.41	1.09	0.52	3.34	
SURFACE CSG - 3464' MD, 3354' TVD										
3,492.00	16.92	156.95	3,381.12	-729.53	328.75	-176.09	1.09	0.54	3.26	
3,586.00	16.35	154.87	3,471.19	-754.10	339.72	-181.92	0.88	-0.61	-2.21	
3,681.00	15.28	154.31	3,562.59	-777.48	350.83	-188.12	1.14	-1.13	-0.59	
3,776.00	17.97	150.37	3,653.62	-801.51	363.50	-195.73	3.07	2.83	-4.15	
3,872.00	17.38	147.56	3,745.08	-826.48	378.52	-205.44	1.08	-0.61	-2.93	
3,967.00	15.78	145.89	3,836.13	-849.15	393.37	-215.46	1.76	-1.68	-1.76	
4,061.00	18.69	153.40	3,925.91	-873.21	407.29	-224.28	3.89	3.10	7.99	
4,155.00	17.32	152.45	4,015.31	-899.09	420.51	-232.05	1.49	-1.46	-1.01	
4,250.00	15.23	148.19	4,106.50	-922.23	433.62	-240.27	2.53	-2.20	-4.48	
4,344.00	17.60	152.45	4,196.66	-945.33	446.71	-248.47	2.83	2.52	4.53	
4,439.00	16.29	152.29	4,287.54	-969.86	459.55	-256.14	1.38	-1.38	-0.17	
4,534.00	16.36	155.80	4,378.71	-993.86	471.23	-262.78	1.04	0.07	3.69	
4,628.00	18.81	163.16	4,468.32	-1,020.44	481.05	-267.08	3.52	2.61	7.83	

Survey Report

Company:	CRESTONE PEAK RESOURCES	Local Co-ordinate Reference:	Well LONE TREE 4-65 15-16 3CH
Project:	ARAPAHOE COUNTY	TVD Reference:	KB 25' @ 5718.40usft
Site:	SEC 15-T4S-R65W	MD Reference:	KB 25' @ 5718.40usft
Well:	LONE TREE 4-65 15-16 3CH	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)	
4,723.00	16.37	163.37	4,558.87	-1,047.93	489.32	-269.68	2.57	-2.57	0.22	
4,818.00	13.77	161.13	4,650.60	-1,071.46	496.81	-272.31	2.80	-2.74	-2.36	
4,913.00	14.96	156.37	4,742.63	-1,093.40	505.38	-276.32	1.76	1.25	-5.01	
5,008.00	17.72	156.10	4,833.78	-1,117.85	516.15	-281.98	2.91	2.91	-0.28	
5,102.00	19.64	156.57	4,922.83	-1,145.43	528.23	-288.29	2.05	2.04	0.50	
5,197.00	17.25	156.02	5,012.94	-1,172.95	540.31	-294.61	2.52	-2.52	-0.58	
5,292.00	18.67	156.82	5,103.31	-1,199.80	552.02	-300.71	1.52	1.49	0.84	
5,386.00	15.92	155.31	5,193.05	-1,225.35	563.33	-306.68	2.96	-2.93	-1.61	
5,480.00	17.50	156.78	5,283.08	-1,250.05	574.28	-312.47	1.74	1.68	1.56	
5,575.00	16.65	157.29	5,373.89	-1,275.74	585.17	-318.00	0.91	-0.89	0.54	
5,669.00	17.00	155.31	5,463.87	-1,300.64	596.11	-323.73	0.71	0.37	-2.11	
5,764.00	16.28	152.33	5,554.89	-1,325.06	608.09	-330.59	1.18	-0.76	-3.14	
5,859.00	17.83	147.62	5,645.72	-1,349.13	622.07	-339.46	2.18	1.63	-4.96	
5,953.00	17.81	145.52	5,735.21	-1,373.14	637.91	-350.18	0.68	-0.02	-2.23	
6,048.00	17.81	145.92	5,825.65	-1,397.15	654.28	-361.41	0.13	0.00	0.42	
6,142.00	17.01	140.78	5,915.35	-1,419.71	671.03	-373.31	1.84	-0.85	-5.47	
6,236.00	17.37	148.25	6,005.16	-1,442.29	687.11	-384.54	2.38	0.38	7.95	
6,331.00	18.42	155.28	6,095.58	-1,467.99	700.85	-392.86	2.53	1.11	7.40	
6,426.00	17.35	153.20	6,185.99	-1,494.27	713.51	-400.01	1.31	-1.13	-2.19	
6,521.00	17.43	164.58	6,276.67	-1,520.64	723.69	-404.70	3.58	0.08	11.98	
6,615.00	16.93	162.82	6,366.48	-1,547.28	731.47	-406.99	0.77	-0.53	-1.87	
6,710.00	14.98	160.97	6,457.81	-1,572.11	739.56	-409.95	2.12	-2.05	-1.95	
6,804.00	15.92	161.38	6,548.42	-1,595.81	747.64	-413.12	1.01	1.00	0.44	
6,899.00	15.70	159.00	6,639.82	-1,620.16	756.41	-416.84	0.72	-0.23	-2.51	
6,993.00	13.92	164.37	6,730.70	-1,642.92	764.01	-419.73	2.39	-1.89	5.71	
7,088.00	15.47	160.29	6,822.59	-1,665.86	771.36	-422.35	1.96	1.63	-4.29	
7,182.00	16.65	157.81	6,912.92	-1,690.13	780.68	-426.61	1.45	1.26	-2.64	
7,276.00	16.32	154.00	7,003.06	-1,714.47	791.55	-432.40	1.20	-0.35	-4.05	
7,371.00	16.62	152.46	7,094.16	-1,738.51	803.69	-439.47	0.56	0.32	-1.62	
7,466.00	19.19	154.76	7,184.56	-1,764.69	816.63	-446.92	2.81	2.71	2.42	
7,560.00	17.15	153.24	7,273.87	-1,791.04	829.46	-454.21	2.23	-2.17	-1.62	
7,562.00	17.12	154.20	7,275.78	-1,791.57	829.72	-454.36	14.29	-1.62	48.19	
KOP - 7562' MD, 7276' TVD										
7,654.00	20.33	194.82	7,363.26	-1,819.33	831.53	-450.58	14.29	3.49	44.15	
7,748.00	25.91	217.62	7,449.85	-1,851.47	814.77	-427.73	11.12	5.94	24.26	
7,843.00	30.71	232.10	7,533.56	-1,882.87	782.90	-390.22	8.79	5.05	15.24	
7,937.00	36.37	245.49	7,611.98	-1,909.23	738.51	-341.44	9.88	6.02	14.24	
8,032.00	42.20	253.50	7,685.53	-1,930.01	682.20	-282.12	8.12	6.14	8.43	
8,126.00	47.78	251.23	7,751.99	-1,950.19	618.92	-216.08	6.18	5.94	-2.41	
8,220.00	59.88	253.38	7,807.37	-1,973.11	546.73	-140.77	13.00	12.87	2.29	
8,315.00	71.57	270.34	7,846.59	-1,984.70	461.49	-54.93	20.36	12.31	17.85	
8,410.00	74.87	276.40	7,874.04	-1,979.32	370.76	32.89	7.02	3.47	6.38	
8,504.00	73.47	270.60	7,899.70	-1,973.79	280.54	120.18	6.12	-1.49	-6.17	
8,512.10	74.23	270.40	7,901.95	-1,973.72	272.76	127.79	9.64	9.35	-2.44	

Survey Report

Company:	CRESTONE PEAK RESOURCES	Local Co-ordinate Reference:	Well LONE TREE 4-65 15-16 3CH
Project:	ARAPAHOE COUNTY	TVD Reference:	KB 25' @ 5718.40usft
Site:	SEC 15-T4S-R65W	MD Reference:	KB 25' @ 5718.40usft
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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)
-330' X-OVER PNT - 8212.10' MD, 1609' FSL, 330' FEL SEC 15									
8,598.00	82.27	268.38	7,919.44	-1,974.63	188.74	210.29	9.64	9.36	-2.35
8,693.00	86.56	265.25	7,928.68	-1,979.89	94.37	303.80	5.58	4.52	-3.29
HZ LANDING PNT - 8693' MD, 7929' TVD									
8,788.00	89.33	266.86	7,932.09	-1,986.42	-0.33	397.90	3.37	2.92	1.69
8,882.00	90.25	269.29	7,932.43	-1,989.58	-94.27	490.56	2.76	0.98	2.59
8,977.00	89.34	269.03	7,932.77	-1,990.97	-189.26	583.91	1.00	-0.96	-0.27
9,072.00	90.49	268.31	7,932.91	-1,993.18	-284.23	677.40	1.43	1.21	-0.76
9,166.00	91.52	268.42	7,931.26	-1,995.86	-378.18	769.98	1.10	1.10	0.12
9,260.00	92.51	270.83	7,927.96	-1,996.47	-472.11	862.14	2.77	1.05	2.56
9,355.00	90.84	273.09	7,925.18	-1,993.23	-567.00	954.46	2.96	-1.76	2.38
9,449.00	90.50	274.01	7,924.08	-1,987.41	-660.82	1,045.21	1.04	-0.36	0.98
9,544.00	88.87	273.17	7,924.60	-1,981.46	-755.62	1,136.91	1.93	-1.72	-0.88
9,639.00	89.91	273.82	7,925.62	-1,975.67	-850.44	1,228.65	1.29	1.09	0.68
9,733.00	88.09	272.53	7,927.26	-1,970.46	-944.28	1,319.54	2.37	-1.94	-1.37
9,828.00	89.75	273.35	7,929.05	-1,965.59	-1,039.13	1,411.50	1.95	1.75	0.86
9,922.00	88.29	271.29	7,930.66	-1,961.78	-1,133.03	1,502.74	2.69	-1.55	-2.19
10,017.00	89.33	272.34	7,932.63	-1,958.78	-1,227.96	1,595.15	1.56	1.09	1.11
10,112.00	86.78	270.15	7,935.85	-1,956.71	-1,322.87	1,687.73	3.54	-2.68	-2.31
10,207.00	88.32	267.63	7,939.91	-1,958.55	-1,417.75	1,781.06	3.11	1.62	-2.65
10,302.00	88.08	267.95	7,942.90	-1,962.21	-1,512.64	1,874.75	0.42	-0.25	0.34
10,396.00	90.94	267.27	7,943.70	-1,966.13	-1,606.54	1,967.54	3.13	3.04	-0.72
10,490.00	91.36	267.28	7,941.82	-1,970.60	-1,700.42	2,060.41	0.45	0.45	0.01
10,585.00	89.62	269.06	7,941.00	-1,973.63	-1,795.36	2,154.04	2.62	-1.83	1.87
10,680.00	90.05	269.56	7,941.28	-1,974.78	-1,890.35	2,247.34	0.69	0.45	0.53
10,775.00	90.18	269.31	7,941.09	-1,975.72	-1,985.34	2,340.60	0.30	0.14	-0.26
10,869.00	90.92	268.36	7,940.18	-1,977.63	-2,079.32	2,433.06	1.28	0.79	-1.01
10,964.00	89.07	270.11	7,940.19	-1,978.89	-2,174.30	2,526.37	2.68	-1.95	1.84
11,059.00	89.69	269.70	7,941.22	-1,979.05	-2,269.30	2,619.47	0.78	0.65	-0.43
11,154.00	88.36	269.19	7,942.84	-1,979.97	-2,364.27	2,712.72	1.50	-1.40	-0.54
11,248.00	89.38	268.77	7,944.69	-1,981.65	-2,458.24	2,805.11	1.17	1.09	-0.45
11,343.00	90.04	266.99	7,945.17	-1,985.16	-2,553.17	2,898.83	2.00	0.69	-1.87
11,437.00	88.52	269.72	7,946.35	-1,987.86	-2,647.11	2,991.41	3.32	-1.62	2.90
11,532.00	88.98	269.34	7,948.42	-1,988.64	-2,742.09	3,084.62	0.63	0.48	-0.40
11,626.00	89.84	268.77	7,949.39	-1,990.19	-2,836.07	3,177.01	1.10	0.91	-0.61
11,721.00	88.84	270.41	7,950.49	-1,990.87	-2,931.05	3,270.21	2.02	-1.05	1.73
11,816.00	89.68	270.28	7,951.71	-1,990.29	-3,026.04	3,363.16	0.89	0.88	-0.14
11,910.00	87.79	271.90	7,953.79	-1,988.51	-3,120.00	3,454.85	2.65	-2.01	1.72
12,005.00	87.17	272.02	7,957.97	-1,985.26	-3,214.85	3,547.14	0.66	-0.65	0.13
12,100.00	89.11	270.12	7,961.05	-1,983.49	-3,309.77	3,639.79	2.86	2.04	-2.00
12,195.00	89.87	270.20	7,961.90	-1,983.22	-3,404.77	3,732.81	0.80	0.80	0.08
12,289.00	88.43	271.08	7,963.29	-1,982.17	-3,498.75	3,824.68	1.80	-1.53	0.94
12,384.00	88.87	270.83	7,965.53	-1,980.59	-3,593.71	3,917.40	0.53	0.46	-0.26

Survey Report

Company:	CRESTONE PEAK RESOURCES	Local Co-ordinate Reference:	Well LONE TREE 4-65 15-16 3CH
Project:	ARAPAHOE COUNTY	TVD Reference:	KB 25' @ 5718.40usft
Site:	SEC 15-T4S-R65W	MD Reference:	KB 25' @ 5718.40usft
Well:	LONE TREE 4-65 15-16 3CH	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)	
12,479.00	89.88	270.10	7,966.56	-1,979.82	-3,688.70	4,010.31	1.31	1.06	-0.77	
12,574.00	88.57	272.47	7,967.85	-1,977.69	-3,783.66	4,102.92	2.85	-1.38	2.49	
12,668.00	90.13	271.95	7,968.92	-1,974.07	-3,877.58	4,194.22	1.75	1.66	-0.55	
12,763.00	87.55	273.28	7,970.84	-1,969.73	-3,972.45	4,286.30	3.06	-2.72	1.40	
12,857.00	87.94	273.11	7,974.54	-1,964.50	-4,066.23	4,377.14	0.45	0.41	-0.18	
12,952.00	88.58	273.13	7,977.42	-1,959.33	-4,161.04	4,469.00	0.67	0.67	0.02	
13,047.00	89.54	272.29	7,978.98	-1,954.84	-4,255.92	4,561.06	1.34	1.01	-0.88	
13,142.00	90.50	271.87	7,978.95	-1,951.39	-4,350.86	4,653.38	1.10	1.01	-0.44	
13,236.00	88.31	271.33	7,979.92	-1,948.77	-4,444.81	4,744.91	2.40	-2.33	-0.57	
13,331.00	87.18	269.16	7,983.66	-1,948.36	-4,539.73	4,837.83	2.57	-1.19	-2.28	
13,426.00	86.28	269.44	7,989.08	-1,949.52	-4,634.57	4,930.98	0.99	-0.95	0.29	
13,521.00	88.93	267.62	7,993.05	-1,951.96	-4,729.44	5,024.42	3.38	2.79	-1.92	
13,615.00	89.92	266.10	7,993.99	-1,957.10	-4,823.29	5,117.40	1.93	1.05	-1.62	
13,710.00	91.02	266.07	7,993.21	-1,963.59	-4,918.06	5,211.55	1.16	1.16	-0.03	
13,805.00	89.51	268.92	7,992.78	-1,967.74	-5,012.96	5,305.36	3.39	-1.59	3.00	
13,899.00	90.81	268.37	7,992.51	-1,969.96	-5,106.93	5,397.88	1.50	1.38	-0.59	
13,994.00	91.95	268.51	7,990.22	-1,972.55	-5,201.87	5,491.41	1.21	1.20	0.15	
14,089.00	89.15	269.75	7,989.31	-1,973.99	-5,296.84	5,584.75	3.22	-2.95	1.31	
14,184.00	89.32	269.67	7,990.58	-1,974.47	-5,391.83	5,677.91	0.20	0.18	-0.08	
14,279.00	89.42	269.77	7,991.63	-1,974.94	-5,486.82	5,771.08	0.15	0.11	0.11	
14,373.00	90.88	269.69	7,991.38	-1,975.38	-5,580.82	5,863.26	1.56	1.55	-0.09	
14,468.00	88.93	271.36	7,991.54	-1,974.51	-5,675.81	5,956.15	2.70	-2.05	1.76	
14,563.00	88.40	269.58	7,993.75	-1,973.73	-5,770.77	6,049.04	1.95	-0.56	-1.87	
14,657.00	87.58	268.90	7,997.05	-1,974.98	-5,864.71	6,141.32	1.13	-0.87	-0.72	
14,752.00	88.08	269.01	8,000.64	-1,976.71	-5,959.62	6,234.66	0.54	0.53	0.12	
14,846.00	87.77	269.09	8,004.05	-1,978.27	-6,053.55	6,327.00	0.34	-0.33	0.09	
14,941.00	89.58	267.69	8,006.25	-1,980.93	-6,148.48	6,420.54	2.41	1.91	-1.47	
15,036.00	88.91	268.19	8,007.50	-1,984.35	-6,243.41	6,514.24	0.88	-0.71	0.53	
15,130.00	91.02	267.59	8,007.55	-1,987.81	-6,337.34	6,606.96	2.33	2.24	-0.64	
15,225.00	91.93	267.56	8,005.11	-1,991.83	-6,432.22	6,700.73	0.96	0.96	-0.03	
15,319.00	91.22	269.45	8,002.53	-1,994.28	-6,526.15	6,793.24	2.15	-0.76	2.01	
15,414.00	89.38	271.14	8,002.03	-1,993.79	-6,621.14	6,886.21	2.63	-1.94	1.78	
15,509.00	89.05	270.03	8,003.33	-1,992.82	-6,716.12	6,979.08	1.22	-0.35	-1.17	
15,603.00	89.03	272.92	8,004.90	-1,990.40	-6,810.07	7,070.64	3.07	-0.02	3.07	
15,698.00	90.72	275.17	8,005.11	-1,983.70	-6,904.82	7,162.14	2.96	1.78	2.37	
15,793.00	88.46	274.44	8,005.79	-1,975.74	-6,999.48	7,253.29	2.50	-2.38	-0.77	
15,887.00	86.48	271.63	8,009.94	-1,970.77	-7,093.24	7,344.16	3.65	-2.11	-2.99	
15,982.00	88.04	269.12	8,014.48	-1,970.15	-7,188.12	7,436.99	3.11	1.64	-2.64	
16,077.00	87.61	267.97	8,018.09	-1,972.56	-7,283.02	7,530.45	1.29	-0.45	-1.21	
16,172.00	89.96	267.13	8,020.10	-1,976.62	-7,377.90	7,624.23	2.63	2.47	-0.88	
16,266.00	89.58	267.01	8,020.48	-1,981.43	-7,471.78	7,717.17	0.42	-0.40	-0.13	
16,361.00	89.15	266.68	8,021.53	-1,986.65	-7,566.63	7,811.15	0.57	-0.45	-0.35	
16,456.00	88.80	266.78	8,023.23	-1,992.07	-7,661.46	7,905.14	0.38	-0.37	0.11	
16,550.00	89.58	265.01	8,024.56	-1,998.80	-7,755.21	7,998.34	2.06	0.83	-1.88	

Survey Report

Company:	CRESTONE PEAK RESOURCES	Local Co-ordinate Reference:	Well LONE TREE 4-65 15-16 3CH
Project:	ARAPAHOE COUNTY	TVD Reference:	KB 25' @ 5718.40usft
Site:	SEC 15-T4S-R65W	MD Reference:	KB 25' @ 5718.40usft
Well:	LONE TREE 4-65 15-16 3CH	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)
16,645.00	89.71	268.08	8,025.15	-2,004.52	-7,850.02	8,092.38	3.23	0.14	3.23
16,739.00	89.98	267.91	8,025.40	-2,007.81	-7,943.96	8,185.08	0.34	0.29	-0.18
16,834.00	89.83	266.59	8,025.56	-2,012.37	-8,038.85	8,278.96	1.40	-0.16	-1.39
16,928.00	89.76	266.36	8,025.90	-2,018.15	-8,132.67	8,372.04	0.26	-0.07	-0.24
17,023.00	89.75	269.28	8,026.31	-2,021.76	-8,227.59	8,465.76	3.07	-0.01	3.07
17,117.00	90.98	268.35	8,025.71	-2,023.71	-8,321.57	8,558.22	1.64	1.31	-0.99
17,212.00	90.06	270.78	8,024.84	-2,024.43	-8,416.55	8,651.43	2.73	-0.97	2.56
17,307.00	91.28	271.01	8,023.73	-2,022.94	-8,511.53	8,744.19	1.31	1.28	0.24
17,401.00	89.74	271.41	8,022.90	-2,020.96	-8,605.50	8,835.87	1.69	-1.64	0.43
17,496.00	88.08	273.50	8,024.70	-2,016.89	-8,700.39	8,928.02	2.81	-1.75	2.20
17,591.00	88.46	273.11	8,027.57	-2,011.42	-8,795.19	9,019.80	0.57	0.40	-0.41
17,685.00	89.14	273.20	8,029.54	-2,006.25	-8,889.03	9,110.71	0.73	0.72	0.10
17,780.00	90.31	273.48	8,030.00	-2,000.71	-8,983.86	9,202.52	1.27	1.23	0.29
17,874.00	88.59	273.45	8,030.90	-1,995.03	-9,077.68	9,293.30	1.83	-1.83	-0.03
18,063.00	88.14	273.79	8,036.29	-1,983.10	-9,266.23	9,475.64	0.30	-0.24	0.18
18,157.00	87.89	273.85	8,039.55	-1,976.84	-9,359.96	9,566.23	0.27	-0.27	0.06
18,252.00	87.25	274.05	8,043.57	-1,970.30	-9,454.65	9,657.69	0.71	-0.67	0.21
18,347.00	88.19	271.08	8,047.36	-1,966.06	-9,549.47	9,749.74	3.28	0.99	-3.13
18,352.00	88.21	271.03	8,047.51	-1,965.97	-9,554.47	9,754.62	1.08	0.40	-1.00
LAST SURVEY - 18352' MD, 8048' TVD									
18,416.00	88.21	271.03	8,049.51	-1,964.82	-9,618.42	9,817.06	0.00	0.00	0.00
EXTRAPOLATION TO TD - 18416' MD, 1629' FSL, 333' FWL SEC 16									

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
LP-LT 4-65 3CH	0.00	0.00	7,925.00	-1,982.34	272.66	1,681,350.61	3,241,401.25	39.700979°N	104.642064°W
- actual wellpath misses target center by 23.84usft at 8516.99usft MD (7903.26 TVD, -1973.69 N, 268.05 E)									
- Point									
PBHL-LT 4-65 3CH	0.00	0.00	8,030.00	-1,993.64	-9,621.54	1,681,245.97	3,231,507.67	39.700943°N	104.677227°W
- actual wellpath misses target center by 34.95usft at 18416.00usft MD (8049.51 TVD, -1964.82 N, -9618.42 E)									
- Point									

Survey Report

Company: CRESTONE PEAK RESOURCES	Local Co-ordinate Reference: Well LONE TREE 4-65 15-16 3CH
Project: ARAPAHOE COUNTY	TVD Reference: KB 25' @ 5718.40usft
Site: SEC 15-T4S-R65W	MD Reference: KB 25' @ 5718.40usft
Well: LONE TREE 4-65 15-16 3CH	North Reference: True
Wellbore: OWB	Survey Calculation Method: Minimum Curvature
Design: FINAL SURVEY	Database: EDT_32Bit_ODBC

Design Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
3,464.00	3,354.32	-722.09	325.51	SURFACE CSG - 3464' MD, 3354' TVD
7,562.00	7,275.78	-1,791.57	829.72	KOP - 7562' MD, 7276' TVD
8,512.10	7,901.95	-1,973.72	272.76	~330' X-OVER PNT - 8212.10' MD, 1609' FSL, 330' FEL SEC 15
8,693.00	7,928.68	-1,979.89	94.37	HZ LANDING PNT - 8693' MD, 7929' TVD
18,352.00	8,047.51	-1,965.97	-9,554.47	LAST SURVEY - 18352' MD, 8048' TVD
18,416.00	8,049.51	-1,964.82	-9,618.42	EXTRAPOLATION TO TD - 18416' MD, 1629' FSL, 333' FWL SEC 16

Checked By: _____ Approved By: _____ Date: _____