

CRESTONE PEAK RESOURCES

**ARAPAHOE COUNTY
SEC 15-T4S-R65W
LONE TREE 4-65 15-16 2AH**

OWB

Design: FINAL SURVEY

Standard Survey Report

09 November, 2022

Project: ARAPAHOE COUNTY
 Site: SEC 15-T4S-R65W
 Well: LONE TREE 4-65 15-16 2AH
 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



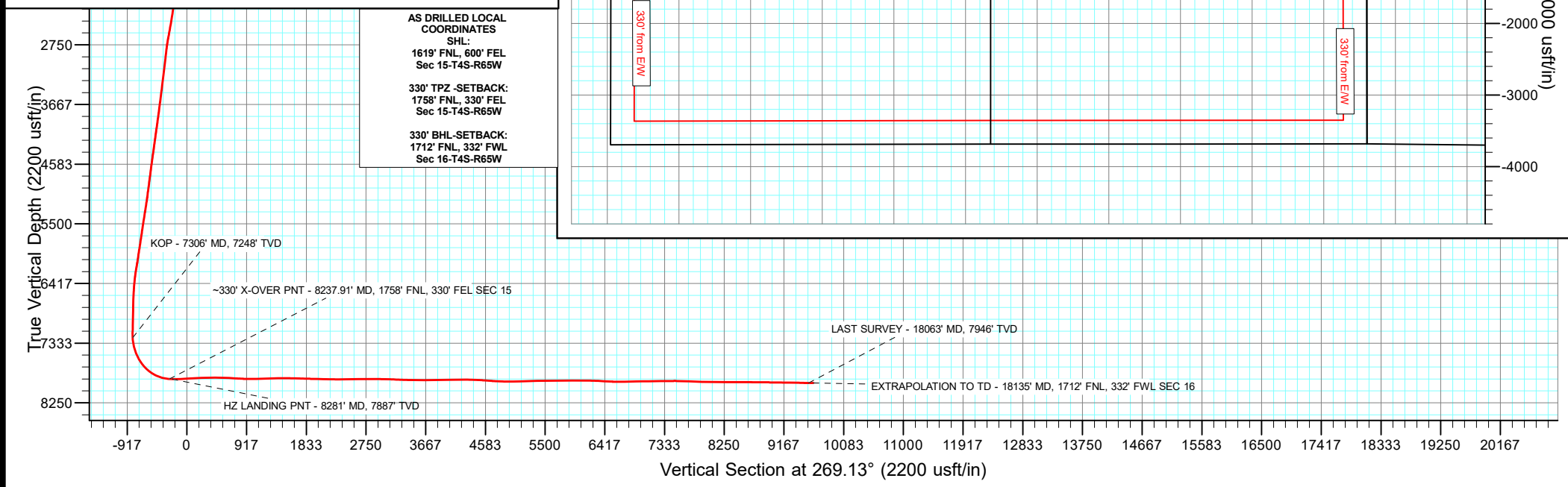
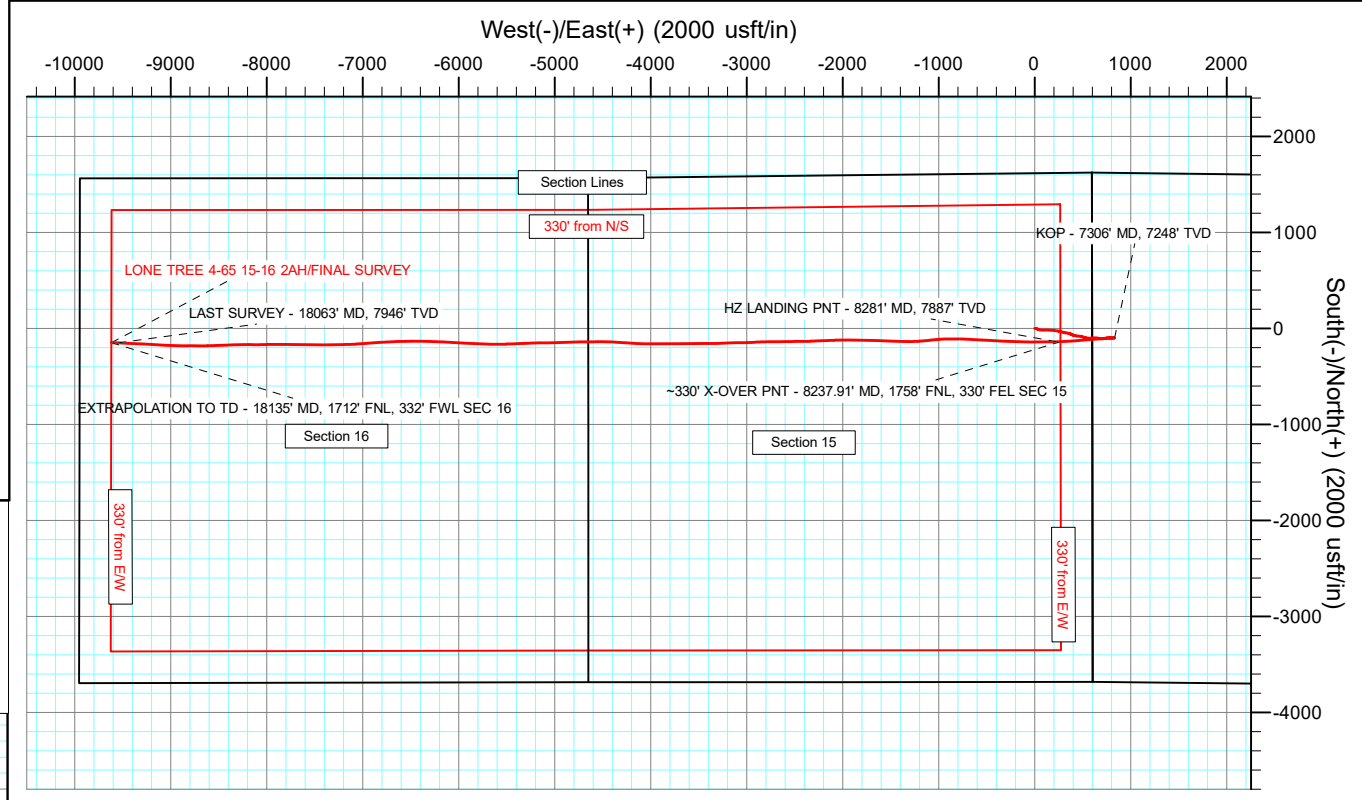
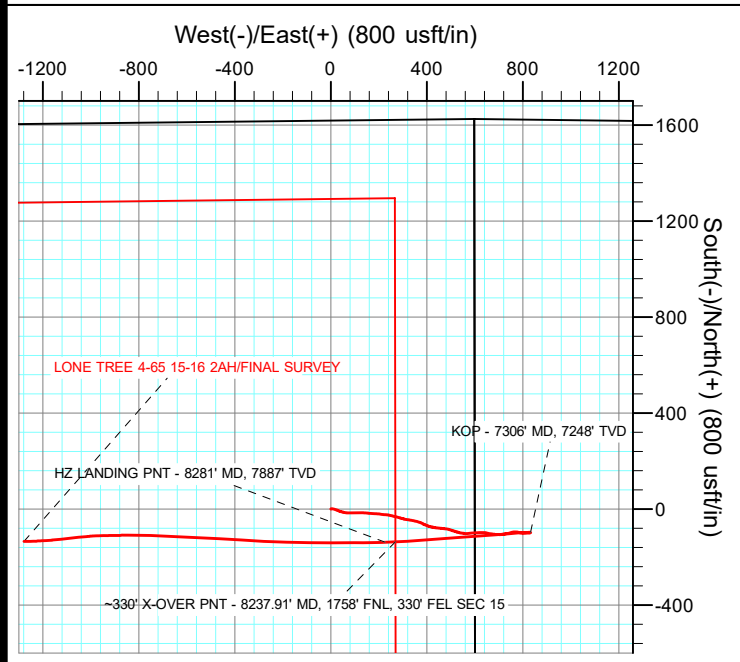
Azimuths to True North
 Magnetic North: 7.65°
 Magnetic Field
 Strength: 51525.4nT
 Dip Angle: 66.09°
 Date: 2/10/2022
 Model: IGRF2020

WELL DETAILS: LONE TREE 4-65 15-16 2AH

+N/-S	+E/-W	Northing	Easting	5697.80 Latitude	Longitude	Slot
0.00	0.00	1683430.07	3241108.68	39.706695°N	104.643034°W	

ANNOTATIONS

MD	Inc	Azi	TVD	+N/-S	+E/-W	VSect	Departure	Annotation
7306.00	1.57	282.67	7247.85	-96.62	832.62	-831.05	853.35	KOP - 7306' MD, 7248' TVD
8237.91	85.82	267.60	7884.48	-135.70	270.10	-268.00	1417.02	~330' X-OVER PNT - 8237.91' MD, 1758' FNL, 330' FEL SEC 15
8281.00	88.52	267.92	7886.61	-137.38	227.10	-224.98	1460.06	HZ LANDING PNT - 8281' MD, 7887' TVD
18063.00	89.44	272.59	7946.26	-149.91	-9544.09	9545.26	11237.92	LAST SURVEY - 18063' MD, 7946' TVD
18135.00	89.44	272.59	7946.96	-146.65	-9616.01	9617.13	11309.92	EXTRAPOLATION TO TD - 18135' MD, 1712' FNL, 332' FWL SEC 16



AS DRILLED LOCAL COORDINATES
 SHL:
 1619' FNL, 600' FEL
 Sec 15-T4S-R65W
 330' TPZ -SETBACK:
 1758' FNL, 330' FEL
 Sec 15-T4S-R65W
 330' BHL-SETBACK:
 1712' FNL, 332' FWL
 Sec 16-T4S-R65W

Survey Report

Company: CRESTONE PEAK RESOURCES	Local Co-ordinate Reference: Well LONE TREE 4-65 15-16 2AH
Project: ARAPAHOE COUNTY	TVD Reference: KB 25' @ 5722.80usft
Site: SEC 15-T4S-R65W	MD Reference: KB 25' @ 5722.80usft
Well: LONE TREE 4-65 15-16 2AH	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 2AH		
Well Position +N/-S 0.00 usft	Northing: 1,683,430.07 usft	Latitude: 39.706695°N
+E/-W 0.00 usft	Easting: 3,241,108.68 usft	Longitude: 104.643034°W
Position Uncertainty 0.00 usft	Wellhead Elevation: usft	Ground Level: 5,697.80 usft

Wellbore OWB					
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2020	2/10/2022	7.65	66.09	51,525.42565108

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	269.13	

Survey Program		Date 11/9/2022		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
149.00	3,298.00	SURFACE SURVEY (OWB)	MWD OWSG	OWSG MWD - Standard
3,399.00	18,135.00	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)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
149.00	0.70	74.60	149.00	0.24	0.88	-0.88	0.47	0.47	0.00
241.00	1.20	56.50	240.98	0.92	2.22	-2.24	0.63	0.54	-19.67
332.00	1.20	59.50	331.96	1.93	3.84	-3.87	0.07	0.00	3.30
418.00	3.00	105.90	417.91	1.77	6.78	-6.81	2.72	2.09	53.95
506.00	4.30	105.20	505.73	0.28	12.18	-12.18	1.48	1.48	-0.80
593.00	4.60	105.90	592.46	-1.53	18.68	-18.65	0.35	0.34	0.80
680.00	5.50	109.00	679.13	-3.85	25.98	-25.92	1.08	1.03	3.56
767.00	6.60	115.40	765.64	-7.35	34.44	-34.32	1.48	1.26	7.36
854.00	6.70	102.90	852.06	-10.63	43.90	-43.73	1.66	0.11	-14.37

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Site:	SEC 15-T4S-R65W	MD Reference:	KB 25' @ 5722.80usft
Well:	LONE TREE 4-65 15-16 2AH	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)
942.00	7.70	103.80	939.37	-13.18	54.63	-54.42	1.14	1.14	1.02
1,029.00	7.30	95.70	1,025.62	-15.12	65.79	-65.55	1.30	-0.46	-9.31
1,116.00	5.20	92.10	1,112.10	-15.81	75.23	-74.98	2.45	-2.41	-4.14
1,203.00	5.10	90.70	1,198.75	-16.00	83.04	-82.78	0.18	-0.11	-1.61
1,290.00	5.30	86.00	1,285.39	-15.77	90.91	-90.66	0.54	0.23	-5.40
1,378.00	5.40	86.00	1,373.01	-15.20	99.10	-98.85	0.11	0.11	0.00
1,465.00	6.60	89.30	1,459.53	-14.85	108.18	-107.94	1.43	1.38	3.79
1,552.00	7.10	89.30	1,545.91	-14.73	118.56	-118.32	0.57	0.57	0.00
1,639.00	7.10	91.90	1,632.24	-14.84	129.31	-129.07	0.37	0.00	2.99
1,726.00	7.60	94.30	1,718.53	-15.45	140.42	-140.17	0.67	0.57	2.76
1,814.00	8.90	94.80	1,805.62	-16.45	153.00	-152.74	1.48	1.48	0.57
1,901.00	9.90	94.00	1,891.45	-17.54	167.17	-166.89	1.16	1.15	-0.92
1,988.00	8.40	94.00	1,977.34	-18.50	180.97	-180.67	1.72	-1.72	0.00
2,075.00	7.40	93.00	2,063.51	-19.24	192.91	-192.59	1.16	-1.15	-1.15
2,162.00	8.20	97.60	2,149.71	-20.35	204.65	-204.32	1.17	0.92	5.29
2,250.00	8.30	97.40	2,236.79	-22.00	217.17	-216.81	0.12	0.11	-0.23
2,337.00	9.10	93.20	2,322.79	-23.19	230.27	-229.89	1.17	0.92	-4.83
2,424.00	9.60	101.60	2,408.64	-25.04	244.24	-243.83	1.67	0.57	9.66
2,468.00	10.10	104.10	2,451.99	-26.72	251.58	-251.14	1.50	1.14	5.68
2,555.00	11.00	103.00	2,537.52	-30.44	267.07	-266.57	1.06	1.03	-1.26
2,642.00	11.30	106.30	2,622.88	-34.70	283.34	-282.77	0.81	0.34	3.79
2,729.00	9.70	105.80	2,708.42	-39.09	298.57	-297.94	1.84	-1.84	-0.57
2,816.00	7.50	102.30	2,794.44	-42.29	311.17	-310.49	2.60	-2.53	-4.02
2,903.00	6.20	96.50	2,880.82	-44.04	321.39	-320.68	1.69	-1.49	-6.67
2,991.00	6.70	99.80	2,968.26	-45.45	331.17	-330.44	0.71	0.57	3.75
3,078.00	7.00	102.00	3,054.64	-47.41	341.35	-340.59	0.46	0.34	2.53
3,165.00	7.30	101.00	3,140.96	-49.57	351.97	-351.17	0.37	0.34	-1.15
3,252.00	7.40	106.90	3,227.25	-52.25	362.75	-361.91	0.87	0.11	6.78
3,298.00	7.30	106.70	3,272.87	-53.95	368.39	-367.52	0.22	-0.22	-0.43
3,399.00	7.11	118.16	3,373.08	-58.75	380.04	-379.10	1.43	-0.19	11.35
3,493.00	8.64	113.13	3,466.19	-64.27	391.67	-390.64	1.78	1.63	-5.35
3,588.00	7.24	112.14	3,560.28	-69.33	403.77	-402.67	1.48	-1.47	-1.04
3,683.00	8.41	101.97	3,654.39	-73.02	416.12	-414.95	1.90	1.23	-10.71
3,777.00	6.65	102.83	3,747.58	-75.66	428.15	-426.94	1.88	-1.87	0.91
3,872.00	8.61	95.80	3,841.74	-77.60	440.59	-439.35	2.28	2.06	-7.40
3,967.00	6.85	97.26	3,935.87	-79.03	453.28	-452.03	1.86	-1.85	1.54
4,061.00	9.25	94.65	4,028.94	-80.36	466.38	-465.10	2.58	2.55	-2.78
4,155.00	7.06	96.87	4,121.98	-81.66	479.64	-478.34	2.35	-2.33	2.36
4,250.00	8.91	106.05	4,216.06	-84.39	492.51	-491.17	2.36	1.95	9.66
4,344.00	7.58	108.94	4,309.09	-88.42	505.37	-503.96	1.48	-1.41	3.07
4,439.00	9.45	107.10	4,403.04	-92.74	518.75	-517.28	1.99	1.97	-1.94
4,534.00	7.49	106.37	4,496.99	-96.78	532.15	-530.61	2.07	-2.06	-0.77
4,628.00	8.42	98.62	4,590.09	-99.54	544.83	-543.25	1.51	0.99	-8.24

Survey Report

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Project:	ARAPAHOE COUNTY	TVD Reference:	KB 25' @ 5722.80usft
Site:	SEC 15-T4S-R65W	MD Reference:	KB 25' @ 5722.80usft
Well:	LONE TREE 4-65 15-16 2AH	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	6.29	95.92	4,684.31	-101.12	556.89	-555.28	2.27	-2.24	-2.84	
4,818.00	8.57	86.12	4,778.51	-101.18	569.13	-567.52	2.74	2.40	-10.32	
4,913.00	6.50	82.88	4,872.68	-100.03	581.53	-579.93	2.22	-2.18	-3.41	
5,008.00	8.48	87.51	4,966.87	-99.06	593.86	-592.28	2.18	2.08	4.87	
5,102.00	6.68	81.65	5,060.04	-97.97	606.20	-604.63	2.08	-1.91	-6.23	
5,197.00	9.30	89.60	5,154.11	-97.11	619.34	-617.79	2.99	2.76	8.37	
5,291.00	8.18	88.46	5,247.02	-96.88	633.62	-632.07	1.21	-1.19	-1.21	
5,386.00	9.71	102.64	5,340.87	-98.45	648.20	-646.62	2.81	1.61	14.93	
5,480.00	8.92	102.73	5,433.63	-101.79	663.04	-661.41	0.84	-0.84	0.10	
5,575.00	9.21	96.04	5,527.45	-104.21	677.79	-676.12	1.15	0.31	-7.04	
5,669.00	7.56	92.72	5,620.44	-105.30	691.45	-689.76	1.83	-1.76	-3.53	
5,764.00	9.51	90.67	5,714.39	-105.69	705.54	-703.84	2.08	2.05	-2.16	
5,858.00	8.04	78.45	5,807.29	-104.46	719.74	-718.07	2.52	-1.56	-13.00	
5,953.00	9.78	78.29	5,901.14	-101.49	734.15	-732.52	1.83	1.83	-0.17	
6,048.00	7.72	72.11	5,995.03	-97.89	748.13	-746.55	2.38	-2.17	-6.51	
6,142.00	9.49	83.08	6,087.98	-95.02	761.83	-760.29	2.56	1.88	11.67	
6,236.00	10.45	101.66	6,180.58	-95.81	777.88	-776.33	3.55	1.02	19.77	
6,331.00	7.89	99.94	6,274.36	-98.68	792.74	-791.14	2.71	-2.69	-1.81	
6,426.00	6.05	93.25	6,368.65	-100.09	804.16	-802.54	2.11	-1.94	-7.04	
6,521.00	4.38	86.50	6,463.26	-100.15	812.78	-811.16	1.87	-1.76	-7.11	
6,615.00	3.03	86.27	6,557.06	-99.77	818.85	-817.23	1.44	-1.44	-0.24	
6,710.00	2.04	89.27	6,651.97	-99.58	823.04	-821.43	1.05	-1.04	3.16	
6,804.00	1.62	93.77	6,745.92	-99.65	826.04	-824.42	0.47	-0.45	4.79	
6,899.00	1.06	83.00	6,840.89	-99.63	828.25	-826.64	0.64	-0.59	-11.34	
6,993.00	0.76	65.80	6,934.88	-99.27	829.68	-828.07	0.43	-0.32	-18.30	
7,088.00	0.77	56.72	7,029.87	-98.66	830.79	-829.19	0.13	0.01	-9.56	
7,182.00	0.87	43.71	7,123.86	-97.80	831.81	-830.23	0.22	0.11	-13.84	
7,276.00	0.85	51.38	7,217.85	-96.85	832.85	-831.28	0.12	-0.02	8.16	
7,306.00	1.57	282.67	7,247.85	-96.62	832.62	-831.05	7.36	2.41	-429.03	
KOP - 7306' MD, 7248' TVD										
7,371.00	6.30	269.47	7,312.68	-96.46	828.18	-826.62	7.36	7.27	-20.31	
7,465.00	15.07	268.55	7,404.96	-96.81	810.78	-809.21	9.33	9.33	-0.98	
7,560.00	22.77	265.57	7,494.76	-98.55	780.05	-778.46	8.17	8.11	-3.14	
7,655.00	30.38	263.86	7,579.66	-102.54	737.78	-736.13	8.05	8.01	-1.80	
7,748.00	38.14	267.05	7,656.47	-106.54	685.63	-683.93	8.56	8.34	3.43	
7,843.00	45.67	265.86	7,727.13	-110.51	622.35	-620.60	7.97	7.93	-1.25	
7,937.00	55.23	264.72	7,786.91	-116.51	550.21	-548.37	10.21	10.17	-1.21	
8,032.00	65.34	264.94	7,833.94	-123.92	468.14	-466.20	10.64	10.64	0.23	
8,126.00	74.58	266.74	7,866.12	-130.28	380.16	-378.13	9.99	9.83	1.91	
8,220.00	84.70	267.47	7,883.00	-134.94	287.93	-285.84	10.79	10.77	0.78	
8,237.91	85.82	267.60	7,884.48	-135.70	270.10	-268.00	6.31	6.26	0.74	
-330' X-OVER PNT - 8237.91' MD, 1758' FNL, 330' FEL SEC 15										
8,281.00	88.52	267.92	7,886.61	-137.38	227.10	-224.98	6.31	6.26	0.74	
HZ LANDING PNT - 8281' MD, 7887' TVD										

Survey Report

Company:	CRESTONE PEAK RESOURCES	Local Co-ordinate Reference:	Well LONE TREE 4-65 15-16 2AH
Project:	ARAPAHOE COUNTY	TVD Reference:	KB 25' @ 5722.80usft
Site:	SEC 15-T4S-R65W	MD Reference:	KB 25' @ 5722.80usft
Well:	LONE TREE 4-65 15-16 2AH	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)	
8,315.00	90.65	268.17	7,886.86	-138.54	193.12	-190.99	6.31	6.26	0.74	
8,410.00	92.33	270.15	7,884.39	-139.94	98.18	-96.03	2.73	1.77	2.08	
8,504.00	92.24	269.50	7,880.64	-140.22	4.25	-2.11	0.70	-0.10	-0.69	
8,598.00	93.31	271.49	7,876.09	-139.41	-89.63	91.74	2.40	1.14	2.12	
8,693.00	93.71	271.13	7,870.27	-137.24	-184.43	186.50	0.57	0.42	-0.38	
8,788.00	92.84	272.88	7,864.84	-133.93	-279.21	281.22	2.05	-0.92	1.84	
8,882.00	90.08	273.89	7,862.45	-128.38	-373.00	374.92	3.13	-2.94	1.07	
8,977.00	88.76	273.17	7,863.41	-122.53	-467.82	469.63	1.58	-1.39	-0.76	
9,260.00	86.54	272.23	7,875.01	-109.21	-750.24	751.82	0.85	-0.78	-0.33	
9,355.00	87.24	268.93	7,880.17	-108.25	-845.08	846.64	3.55	0.74	-3.47	
9,449.00	90.43	269.20	7,882.08	-109.78	-939.04	940.60	3.41	3.39	0.29	
9,544.00	89.42	264.01	7,882.20	-115.41	-1,033.84	1,035.48	5.57	-1.06	-5.46	
9,639.00	91.24	263.71	7,881.66	-125.57	-1,128.29	1,130.07	1.94	1.92	-0.32	
9,733.00	93.20	267.59	7,878.01	-132.69	-1,221.93	1,223.81	4.62	2.09	4.13	
9,828.00	92.29	270.60	7,873.46	-134.19	-1,316.79	1,318.69	3.31	-0.96	3.17	
9,922.00	90.55	271.39	7,871.13	-132.56	-1,410.74	1,412.60	2.03	-1.85	0.84	
10,017.00	89.50	270.74	7,871.09	-130.79	-1,505.73	1,507.55	1.30	-1.11	-0.68	
10,112.00	88.84	272.03	7,872.47	-128.50	-1,600.69	1,602.46	1.53	-0.69	1.36	
10,301.00	87.57	272.29	7,878.39	-121.38	-1,789.46	1,791.10	0.69	-0.67	0.14	
10,396.00	89.29	269.69	7,880.99	-119.74	-1,884.39	1,886.00	3.28	1.81	-2.74	
10,490.00	88.70	269.38	7,882.64	-120.50	-1,978.38	1,979.98	0.71	-0.63	-0.33	
10,585.00	87.74	269.07	7,885.59	-121.78	-2,073.32	2,074.94	1.06	-1.01	-0.33	
10,680.00	89.64	267.89	7,887.76	-124.30	-2,168.26	2,169.90	2.35	2.00	-1.24	
10,774.00	88.14	266.67	7,889.58	-128.76	-2,262.13	2,263.83	2.06	-1.60	-1.30	
10,869.00	89.48	268.82	7,891.56	-132.50	-2,357.03	2,358.77	2.67	1.41	2.26	
10,964.00	91.56	269.84	7,890.70	-133.61	-2,452.01	2,453.76	2.44	2.19	1.07	
11,059.00	92.45	268.66	7,887.37	-134.85	-2,546.94	2,548.70	1.56	0.94	-1.24	
11,154.00	90.28	269.88	7,885.11	-136.06	-2,641.90	2,643.67	2.62	-2.28	1.28	
11,248.00	89.92	269.16	7,884.94	-136.85	-2,735.89	2,737.66	0.86	-0.38	-0.77	
11,342.00	90.33	268.33	7,884.74	-138.91	-2,829.87	2,831.66	0.98	0.44	-0.88	
11,437.00	89.59	266.75	7,884.81	-142.98	-2,924.78	2,926.62	1.84	-0.78	-1.66	
11,532.00	88.38	268.94	7,886.49	-146.56	-3,019.69	3,021.57	2.63	-1.27	2.31	
11,626.00	88.34	268.82	7,889.18	-148.39	-3,113.63	3,115.53	0.13	-0.04	-0.13	
11,815.00	87.52	267.67	7,896.01	-154.18	-3,302.42	3,304.38	0.75	-0.43	-0.61	
11,910.00	89.00	270.29	7,898.89	-155.87	-3,397.35	3,399.33	3.17	1.56	2.76	
12,005.00	88.44	269.37	7,901.01	-156.15	-3,492.32	3,494.30	1.13	-0.59	-0.97	
12,100.00	91.26	270.34	7,901.26	-156.39	-3,587.31	3,589.28	3.14	2.97	1.02	
12,195.00	90.94	269.66	7,899.44	-156.39	-3,682.29	3,684.25	0.79	-0.34	-0.72	
12,384.00	89.18	268.64	7,899.24	-159.19	-3,871.26	3,873.24	1.08	-0.93	-0.54	
12,479.00	91.42	270.70	7,898.74	-159.74	-3,966.25	3,968.22	3.20	2.36	2.17	
12,573.00	92.52	270.53	7,895.51	-158.73	-4,060.18	4,062.13	1.18	1.17	-0.18	
12,668.00	90.56	274.14	7,892.96	-154.86	-4,155.05	4,156.93	4.32	-2.06	3.80	
12,763.00	89.58	273.26	7,892.84	-148.73	-4,249.85	4,251.62	1.39	-1.03	-0.93	

Survey Report

Company:	CRESTONE PEAK RESOURCES	Local Co-ordinate Reference:	Well LONE TREE 4-65 15-16 2AH
Project:	ARAPAHOE COUNTY	TVD Reference:	KB 25' @ 5722.80usft
Site:	SEC 15-T4S-R65W	MD Reference:	KB 25' @ 5722.80usft
Well:	LONE TREE 4-65 15-16 2AH	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)	
12,857.00	88.17	273.63	7,894.69	-143.08	-4,343.66	4,345.34	1.55	-1.50	0.39	
13,047.00	86.93	269.64	7,902.81	-137.67	-4,533.37	4,534.94	2.20	-0.65	-2.10	
13,142.00	84.86	269.21	7,909.61	-138.62	-4,628.11	4,629.69	2.23	-2.18	-0.45	
13,236.00	87.38	269.39	7,915.97	-139.76	-4,721.88	4,723.46	2.69	2.68	0.19	
13,331.00	86.33	268.16	7,921.18	-141.79	-4,816.71	4,818.32	1.70	-1.11	-1.29	
13,426.00	89.63	268.22	7,924.53	-144.79	-4,911.60	4,913.23	3.47	3.47	0.06	
13,520.00	91.63	269.14	7,923.50	-146.95	-5,005.56	5,007.22	2.34	2.13	0.98	
13,615.00	91.32	269.09	7,921.05	-148.42	-5,100.52	5,102.19	0.33	-0.33	-0.05	
13,710.00	91.49	268.64	7,918.72	-150.30	-5,195.47	5,197.16	0.51	0.18	-0.47	
13,804.00	91.41	268.03	7,916.35	-153.03	-5,289.40	5,291.12	0.65	-0.09	-0.65	
13,899.00	92.09	266.93	7,913.44	-157.21	-5,384.26	5,386.03	1.36	0.72	-1.16	
13,994.00	91.69	268.17	7,910.31	-161.26	-5,479.12	5,480.94	1.37	-0.42	1.31	
14,089.00	89.94	270.00	7,908.96	-162.78	-5,574.09	5,575.92	2.67	-1.84	1.93	
14,184.00	90.02	268.88	7,908.99	-163.71	-5,669.08	5,670.92	1.18	0.08	-1.18	
14,278.00	90.63	273.89	7,908.46	-161.44	-5,763.02	5,764.82	5.37	0.65	5.33	
14,373.00	91.36	272.59	7,906.81	-156.07	-5,857.86	5,859.55	1.57	0.77	-1.37	
14,468.00	88.90	273.64	7,906.59	-150.91	-5,952.71	5,954.32	2.82	-2.59	1.11	
14,562.00	89.06	273.37	7,908.27	-145.16	-6,046.52	6,048.03	0.33	0.17	-0.29	
14,657.00	90.18	274.29	7,908.90	-138.82	-6,141.30	6,142.70	1.53	1.18	0.97	
14,752.00	87.80	270.66	7,910.57	-134.71	-6,236.17	6,237.50	4.57	-2.51	-3.82	
14,846.00	87.37	270.63	7,914.53	-133.66	-6,330.08	6,331.39	0.46	-0.46	-0.03	
14,941.00	86.71	270.90	7,919.44	-132.39	-6,424.95	6,426.22	0.75	-0.69	0.28	
15,036.00	87.13	269.51	7,924.54	-132.05	-6,519.81	6,521.06	1.53	0.44	-1.46	
15,130.00	90.75	268.31	7,926.28	-133.84	-6,613.76	6,615.03	4.06	3.85	-1.28	
15,225.00	90.76	266.93	7,925.03	-137.78	-6,708.66	6,709.99	1.45	0.01	-1.45	
15,319.00	90.83	266.78	7,923.73	-142.94	-6,802.51	6,803.90	0.18	0.07	-0.16	
15,414.00	90.88	265.44	7,922.31	-149.39	-6,897.28	6,898.76	1.41	0.05	-1.41	
15,509.00	91.66	265.45	7,920.20	-156.93	-6,991.96	6,993.54	0.82	0.82	0.01	
15,603.00	90.21	267.40	7,918.67	-162.79	-7,085.76	7,087.41	2.58	-1.54	2.07	
15,698.00	91.15	268.75	7,917.54	-165.98	-7,180.69	7,182.39	1.73	0.99	1.42	
15,793.00	90.49	268.44	7,916.18	-168.31	-7,275.65	7,277.37	0.77	-0.69	-0.33	
15,888.00	90.77	270.34	7,914.10	-170.32	-7,370.62	7,372.34	1.02	0.15	1.01	
15,983.00	87.85	270.92	7,915.25	-169.28	-7,465.60	7,467.32	3.13	-3.07	0.61	
16,078.00	87.59	271.21	7,918.99	-167.53	-7,560.57	7,562.29	0.41	-0.28	0.31	
16,173.00	88.04	270.82	7,922.61	-165.85	-7,655.54	7,657.26	0.63	0.47	-0.41	
16,268.00	88.16	270.62	7,925.76	-164.65	-7,750.51	7,752.23	0.25	0.13	-0.21	
16,363.00	88.88	267.97	7,930.64	-166.98	-7,845.48	7,847.20	1.45	0.38	-1.40	
16,458.00	90.12	270.25	7,931.46	-168.44	-7,940.45	7,942.17	2.76	1.32	2.43	
16,553.00	90.52	270.41	7,930.93	-167.89	-8,035.42	8,037.14	0.45	0.42	0.17	
16,648.00	89.63	268.46	7,930.81	-168.83	-8,130.39	8,132.11	2.26	-0.94	-2.05	
16,743.00	89.59	267.41	7,931.45	-172.22	-8,225.36	8,227.08	1.12	-0.04	-1.12	
16,838.00	89.68	268.62	7,932.05	-175.51	-8,320.33	8,322.05	1.28	0.09	1.27	
16,933.00	89.18	266.72	7,932.99	-179.33	-8,415.30	8,417.02	2.09	-0.53	-2.02	

Survey Report

Company:	CRESTONE PEAK RESOURCES	Local Co-ordinate Reference:	Well LONE TREE 4-65 15-16 2AH
Project:	ARAPAHOE COUNTY	TVD Reference:	KB 25' @ 5722.80usft
Site:	SEC 15-T4S-R65W	MD Reference:	KB 25' @ 5722.80usft
Well:	LONE TREE 4-65 15-16 2AH	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)	
17,212.00	89.63	271.76	7,933.97	-180.59	-8,693.98	8,695.72	5.33	0.47	5.31	
17,307.00	89.98	271.23	7,934.30	-178.11	-8,788.94	8,790.64	0.67	0.37	-0.56	
17,401.00	89.05	269.68	7,935.09	-177.36	-8,882.93	8,884.60	1.92	-0.99	-1.65	
17,496.00	89.15	270.98	7,936.59	-176.82	-8,977.92	8,979.57	1.37	0.11	1.37	
17,590.00	89.45	272.02	7,937.73	-174.35	-9,071.88	9,073.48	1.15	0.32	1.11	
17,685.00	89.84	274.91	7,938.32	-168.61	-9,166.69	9,168.20	3.07	0.41	3.04	
17,780.00	89.18	273.20	7,939.14	-161.90	-9,261.44	9,262.84	1.93	-0.69	-1.80	
17,969.00	87.85	271.86	7,944.03	-153.56	-9,450.19	9,451.43	1.00	-0.70	-0.71	
18,063.00	89.44	272.59	7,946.26	-149.91	-9,544.09	9,545.26	1.86	1.69	0.78	
LAST SURVEY - 18063' MD, 7946' TVD										
18,135.00	89.44	272.59	7,946.96	-146.65	-9,616.01	9,617.13	0.00	0.00	0.00	
EXTRAPOLATION TO TD - 18135' MD, 1712' FNL, 332' 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 2AH	0.00	0.00	7,850.00	-117.65	270.10	1,683,314.97	3,241,379.88	39.706372°N	104.642074°W	
- actual wellpath misses target center by 38.78usft at 8234.29usft MD (7884.21 TVD, -135.55 N, 273.71 E)										
- Point										
PBHL-LT 4-65 2AH	0.00	0.00	7,970.00	-174.49	-9,617.73	1,683,164.86	3,231,493.11	39.706211°N	104.677217°W	
- actual wellpath misses target center by 36.18usft at 18135.00usft MD (7946.96 TVD, -146.65 N, -9616.01 E)										
- Point										

Design Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment	
		+N/-S (usft)	+E/-W (usft)		
7,306.00	7,247.85	-96.62	832.62	KOP - 7306' MD, 7248' TVD	
8,237.91	7,884.48	-135.70	270.10	~330' X-OVER PNT - 8237.91' MD, 1758' FNL, 330' FEL SEC 15	
8,281.00	7,886.61	-137.38	227.10	HZ LANDING PNT - 8281' MD, 7887' TVD	
18,063.00	7,946.26	-149.91	-9,544.09	LAST SURVEY - 18063' MD, 7946' TVD	
18,135.00	7,946.96	-146.65	-9,616.01	EXTRAPOLATION TO TD - 18135' MD, 1712' FNL, 332' FWL SEC 16	

Checked By: _____ Approved By: _____ Date: _____