

CRESTONE PEAK RESOURCES

WELD COUNTY

SEC 22-T1N-R68W

COSSLETT EAST 1E-22H-H168

OWB

Design: FINAL SURVEY

Standard Survey Report

01 May, 2023

Project: WELD COUNTY
 Site: SEC 22-T1N-R68W
 Well: COSSLETT EAST 1E-22H-H168
 Wellbore: OWB
 Design: FINAL SURVEY

PROJECT DETAILS: WELD COUNTY

Geodetic System: US State Plane 1983
 Datum: North American Datum 1983
 Ellipsoid: GRS 1980
 Zone: Colorado Northern Zone
 System Datum: Mean Sea Level



Azimuths to True North
 Magnetic North: 7.75°
 Magnetic Field
 Strength: 51552.8snT
 Dip Angle: 66.26°
 Date: 3/21/2023
 Model: IGRF2020

WELL DETAILS: COSSLETT EAST 1E-22H-H168

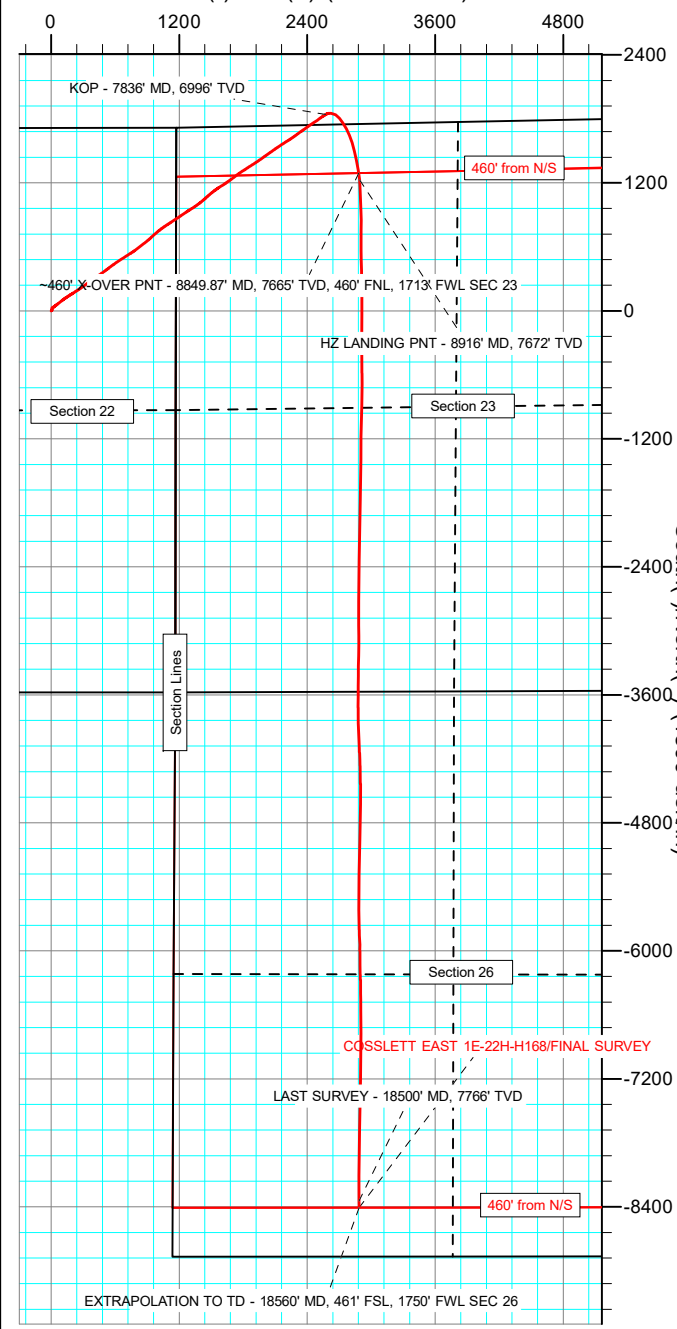
+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.00	0.00	1257557.67	3144413.12	40.039231°N	104.984222°W	

ANNOTATIONS

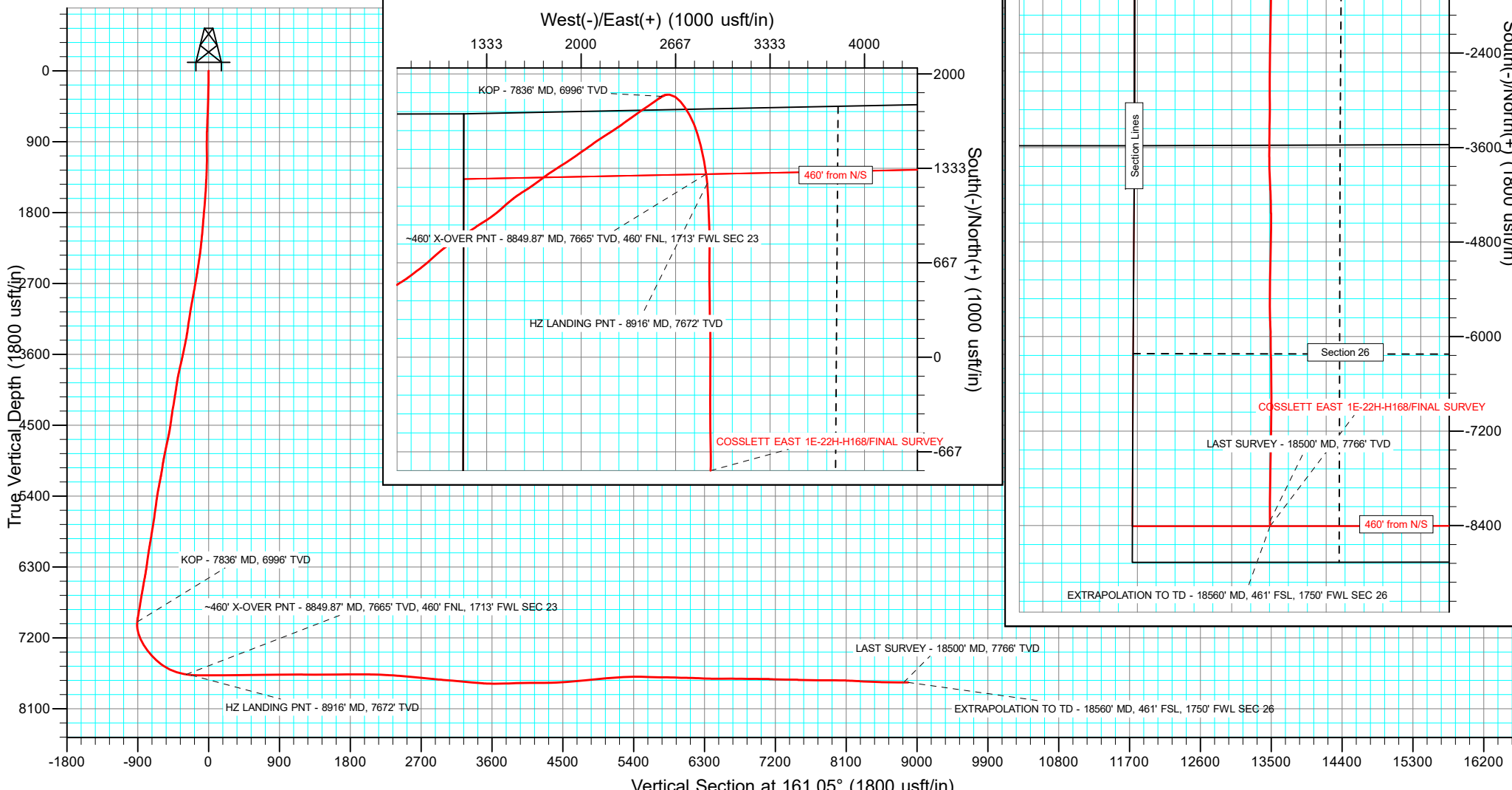
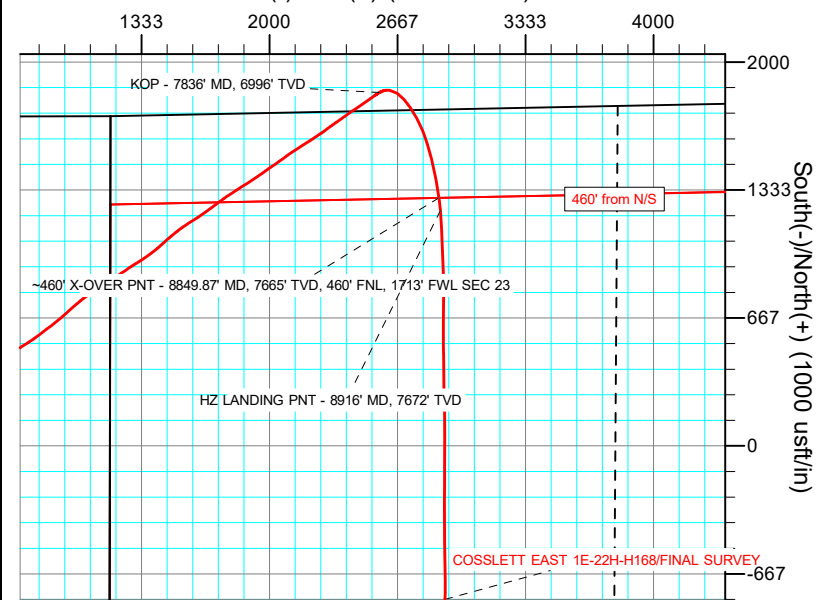
MD	Inc	Azi	TVD	+N/-S	+E/-W	VSec	Departure	Annotation
7836.00	27.06	61.25	6995.73	1840.30	2571.42	-905.24	3178.09	KOP - 7836' MD, 6996' TVD
8849.87	80.63	171.83	7664.55	1292.31	2882.75	-285.84	3879.14	~460' X-OVER PNT - 8849.87' MD, 7665' TVD, 460' FNL, 1713' FWL SEC 23
8916.00	86.67	176.00	7671.87	1227.00	2889.70	-221.81	3944.62	HZ LANDING PNT - 8916' MD, 7672' TVD
18500.00	90.38	178.91	7765.63	-8346.00	2885.89	8830.84	13519.63	LAST SURVEY - 18500' MD, 7766' TVD
18560.00	90.38	178.91	7765.23	-8405.99	2887.03	8887.94	13579.62	EXTRAPOLATION TO TD - 18560' MD, 461' FSL, 1750' FWL SEC 26

SHL:
 1715' FNL, 1168' FEL
 Sec 22-T1N-R68W
 ~460' X-OVER PNT:
 460' FNL, 1713' FWL
 Sec 23-T1N-R68W
 BHL:
 461' FSL, 1750' FWL
 Sec 26-T1N-R68W

West(-)/East(+) (1800 usft/in)



West(-)/East(+) (1000 usft/in)



Survey Report

Company:	CRESTONE PEAK RESOURCES	Local Co-ordinate Reference:	Well COSSLETT EAST 1E-22H-H168
Project:	WELD COUNTY	TVD Reference:	KB 25' @ 5208.00usft
Site:	SEC 22-T1N-R68W	MD Reference:	KB 25' @ 5208.00usft
Well:	COSSLETT EAST 1E-22H-H168	North Reference:	True
Wellbore:	OWB	Survey Calculation Method:	Minimum Curvature
Design:	FINAL SURVEY	Database:	EDT_32Bit_ODBC

Project WELD COUNTY			
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	Colorado Northern Zone		Using geodetic scale factor

Site SEC 22-T1N-R68W			
Site Position:		Northing:	1,259,282.05 usft
From:	Lat/Long	Easting:	3,145,574.24 usft
Position Uncertainty:	0.00 usft	Slot Radius:	13.200 in
		Latitude:	40.043946°N
		Longitude:	104.980039°W
		Grid Convergence:	0.34 °

Well COSSLETT EAST 1E-22H-H168			
Well Position	+N/-S	0.00 usft	Northing:
	+E/-W	0.00 usft	1,257,557.67 usft
			Latitude:
			40.039231°N
			Longitude:
			104.984222°W
Position Uncertainty		0.00 usft	Wellhead Elevation:
			usft
			Ground Level:
			5,183.00 usft

Wellbore OWB					
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2020	3/21/2023	7.75	66.26	51,552.80305174

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	161.05	

Survey Program		Date	5/1/2023		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
128.00	2,491.00	SURFACE SURVEY (OWB)	MWD OWSG	OWSG MWD - Standard	
2,627.00	18,560.00	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
128.00	2.07	48.44	127.97	1.53	1.73	-0.89	1.62	1.62	0.00
219.00	3.15	60.06	218.88	3.87	5.13	-2.00	1.32	1.19	12.77
310.00	2.37	33.59	309.77	6.69	8.33	-3.62	1.62	-0.86	-29.09
402.00	1.86	0.18	401.71	9.77	9.39	-6.19	1.42	-0.55	-36.32
496.00	2.11	343.18	495.66	12.95	8.90	-9.36	0.68	0.27	-18.09
686.00	2.64	354.08	685.50	20.65	7.43	-17.11	0.37	0.28	5.74
781.00	0.95	319.07	780.45	23.42	6.69	-19.98	2.04	-1.78	-36.85
876.00	1.10	306.14	875.43	24.55	5.44	-21.45	0.29	0.16	-13.61
971.00	1.29	84.02	970.42	25.20	5.76	-21.96	2.35	0.20	145.14

Survey Report

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Project:	WELD COUNTY	TVD Reference:	KB 25' @ 5208.00usft
Site:	SEC 22-T1N-R68W	MD Reference:	KB 25' @ 5208.00usft
Well:	COSSLETT EAST 1E-22H-H168	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)	
1,067.00	1.45	99.85	1,066.40	25.11	8.04	-21.13	0.43	0.17	16.49	
1,161.00	2.84	54.20	1,160.34	26.26	11.10	-21.24	2.23	1.48	-48.56	
1,257.00	5.28	46.66	1,256.09	30.69	16.24	-23.75	2.60	2.54	-7.85	
1,351.00	7.52	52.21	1,349.50	37.43	24.25	-27.52	2.47	2.38	5.90	
1,446.00	9.99	53.91	1,443.38	46.09	35.82	-31.96	2.61	2.60	1.79	
1,541.00	12.54	53.55	1,536.54	57.07	50.78	-37.49	2.69	2.68	-0.38	
1,636.00	13.59	52.28	1,629.08	70.03	67.90	-44.18	1.15	1.11	-1.34	
1,731.00	13.68	50.81	1,721.41	83.96	85.44	-51.65	0.38	0.09	-1.55	
1,825.00	14.54	51.70	1,812.57	98.29	103.31	-59.41	0.94	0.91	0.95	
1,921.00	16.83	55.02	1,904.99	113.73	124.16	-67.24	2.56	2.39	3.46	
2,016.00	19.08	57.18	1,995.36	130.04	148.48	-74.75	2.47	2.37	2.27	
2,111.00	21.16	56.60	2,084.56	147.89	175.85	-82.75	2.20	2.19	-0.61	
2,206.00	24.26	58.05	2,172.18	167.66	206.73	-91.42	3.32	3.26	1.53	
2,300.00	25.71	57.51	2,257.38	188.84	240.32	-100.54	1.56	1.54	-0.57	
2,396.00	27.49	54.92	2,343.22	212.76	276.02	-111.56	2.21	1.85	-2.70	
2,491.00	28.40	55.02	2,427.14	238.31	312.47	-123.89	0.96	0.96	0.11	
2,627.00	28.19	53.79	2,546.90	275.83	364.89	-142.35	0.46	-0.15	-0.90	
2,722.00	31.06	54.60	2,629.47	303.29	402.98	-155.94	3.05	3.02	0.85	
2,842.00	31.97	55.09	2,731.77	339.40	454.26	-173.44	0.79	0.76	0.41	
2,936.00	32.53	54.55	2,811.27	368.30	495.26	-187.46	0.67	0.60	-0.57	
3,031.00	30.49	52.73	2,892.26	397.72	535.25	-202.29	2.37	-2.15	-1.92	
3,126.00	31.54	53.31	2,973.67	427.16	574.36	-217.43	1.15	1.11	0.61	
3,221.00	31.79	56.42	3,054.54	455.84	615.13	-231.32	1.74	0.26	3.27	
3,316.00	31.78	56.91	3,135.29	483.34	656.94	-243.74	0.27	-0.01	0.52	
3,410.00	31.76	57.28	3,215.21	510.23	698.49	-255.67	0.21	-0.02	0.39	
3,506.00	31.48	57.99	3,296.95	537.17	741.00	-267.35	0.49	-0.29	0.74	
3,601.00	32.54	53.35	3,377.52	565.58	782.54	-280.72	2.82	1.12	-4.88	
3,696.00	32.31	53.10	3,457.71	596.07	823.34	-296.31	0.28	-0.24	-0.26	
3,790.00	32.22	52.12	3,537.20	626.54	863.21	-312.18	0.56	-0.10	-1.04	
3,885.00	31.35	50.39	3,617.95	657.85	902.24	-329.11	1.33	-0.92	-1.82	
3,980.00	30.77	47.82	3,699.33	689.92	939.29	-347.41	1.52	-0.61	-2.71	
4,075.00	31.19	48.50	3,780.78	722.54	975.72	-366.42	0.58	0.44	0.72	
4,169.00	30.24	50.59	3,861.60	753.70	1,012.24	-384.03	1.52	-1.01	2.22	
4,264.00	30.12	55.15	3,943.73	782.51	1,050.29	-398.92	2.42	-0.13	4.80	
4,359.00	31.10	57.88	4,025.49	809.18	1,090.63	-411.03	1.79	1.03	2.87	
4,454.00	32.85	55.91	4,106.08	836.67	1,132.76	-423.35	2.14	1.84	-2.07	
4,548.00	33.20	57.09	4,184.89	864.94	1,175.48	-436.21	0.78	0.37	1.26	
4,644.00	32.01	55.78	4,265.76	893.53	1,218.58	-449.25	1.44	-1.24	-1.36	
4,739.00	32.06	55.50	4,346.30	921.97	1,260.18	-462.64	0.16	0.05	-0.29	
4,834.00	30.09	58.61	4,427.67	948.66	1,301.29	-474.53	2.67	-2.07	3.27	
4,929.00	31.27	56.53	4,509.37	974.66	1,342.19	-485.83	1.67	1.24	-2.19	
5,025.00	31.60	53.02	4,591.29	1,003.54	1,383.07	-499.86	1.94	0.34	-3.66	
5,120.00	30.49	49.38	4,672.68	1,034.20	1,421.25	-516.46	2.30	-1.17	-3.83	

Survey Report

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Project:	WELD COUNTY	TVD Reference:	KB 25' @ 5208.00usft
Site:	SEC 22-T1N-R68W	MD Reference:	KB 25' @ 5208.00usft
Well:	COSSLETT EAST 1E-22H-H168	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)	
5,215.00	28.17	47.50	4,755.50	1,065.05	1,456.09	-534.32	2.63	-2.44	-1.98	
5,310.00	29.79	50.16	4,838.61	1,095.32	1,490.74	-551.69	2.18	1.71	2.80	
5,405.00	31.42	52.79	4,920.38	1,125.42	1,528.59	-567.87	2.22	1.72	2.77	
5,500.00	33.12	57.23	5,000.71	1,154.45	1,570.14	-581.82	3.07	1.79	4.67	
5,594.00	33.59	57.38	5,079.23	1,182.36	1,613.64	-594.10	0.51	0.50	0.16	
5,688.00	34.57	54.61	5,157.09	1,211.83	1,657.28	-607.79	1.95	1.04	-2.95	
5,784.00	32.76	53.49	5,236.98	1,243.06	1,700.37	-623.33	1.99	-1.89	-1.17	
5,879.00	31.75	53.02	5,317.32	1,273.39	1,740.99	-638.82	1.10	-1.06	-0.49	
5,974.00	30.93	56.64	5,398.47	1,301.85	1,781.36	-652.63	2.16	-0.86	3.81	
6,070.00	29.48	56.51	5,481.43	1,328.45	1,821.67	-664.69	1.51	-1.51	-0.14	
6,164.00	29.54	57.94	5,563.24	1,353.52	1,860.59	-675.75	0.75	0.06	1.52	
6,259.00	29.75	57.11	5,645.80	1,378.75	1,900.23	-686.74	0.49	0.22	-0.87	
6,449.00	31.25	54.25	5,809.52	1,433.14	1,979.83	-712.33	1.10	0.79	-1.51	
6,544.00	29.74	56.21	5,891.38	1,460.65	2,019.41	-725.49	1.90	-1.59	2.06	
6,638.00	30.19	53.42	5,972.82	1,487.70	2,057.77	-738.61	1.56	0.48	-2.97	
6,733.00	31.27	55.04	6,054.48	1,516.07	2,097.16	-752.65	1.43	1.14	1.71	
6,829.00	30.62	56.48	6,136.81	1,543.84	2,137.96	-765.66	1.03	-0.68	1.50	
6,923.00	29.74	58.11	6,218.07	1,569.38	2,177.72	-776.90	1.28	-0.94	1.73	
7,018.00	31.07	57.01	6,300.01	1,595.18	2,218.29	-788.12	1.52	1.40	-1.16	
7,112.00	33.04	55.92	6,379.67	1,622.75	2,259.86	-800.69	2.18	2.10	-1.16	
7,208.00	31.89	52.77	6,460.67	1,652.76	2,301.73	-815.48	2.13	-1.20	-3.28	
7,303.00	32.41	56.19	6,541.11	1,682.11	2,342.87	-829.87	1.99	0.55	3.60	
7,398.00	31.50	53.13	6,621.72	1,711.17	2,383.88	-844.03	1.96	-0.96	-3.22	
7,492.00	31.20	56.31	6,702.00	1,739.41	2,423.79	-857.78	1.79	-0.32	3.38	
7,587.00	32.49	55.71	6,782.70	1,767.44	2,465.34	-870.79	1.40	1.36	-0.63	
7,683.00	32.35	55.14	6,863.74	1,796.64	2,507.72	-884.65	0.35	-0.15	-0.59	
7,776.00	30.44	53.86	6,943.12	1,824.76	2,547.17	-898.43	2.18	-2.05	-1.38	
7,836.00	27.06	61.25	6,995.73	1,840.30	2,571.42	-905.24	8.17	-5.63	12.32	
KOP - 7836' MD, 6996' TVD										
7,871.00	25.30	66.36	7,027.15	1,847.13	2,585.26	-907.21	8.17	-5.03	14.60	
7,965.00	26.58	97.46	7,112.06	1,852.48	2,624.69	-899.46	14.39	1.36	33.09	
8,060.00	28.77	124.09	7,196.51	1,836.84	2,664.86	-871.62	13.12	2.31	28.03	
8,156.00	32.10	138.64	7,279.39	1,804.70	2,700.90	-829.51	8.40	3.47	15.16	
8,251.00	37.44	146.43	7,357.44	1,761.64	2,733.59	-778.17	7.30	5.62	8.20	
8,347.00	43.77	150.88	7,430.30	1,708.25	2,765.92	-717.18	7.25	6.59	4.64	
8,442.00	49.32	158.76	7,495.67	1,645.87	2,795.01	-648.73	8.38	5.84	8.29	
8,536.00	55.34	161.72	7,553.09	1,575.86	2,820.08	-574.38	6.87	6.40	3.15	
8,631.00	64.18	166.16	7,600.91	1,497.06	2,842.61	-492.53	10.14	9.31	4.67	
8,726.00	73.08	169.04	7,635.50	1,410.74	2,861.52	-404.75	9.78	9.37	3.03	
8,821.00	78.01	169.97	7,659.20	1,320.32	2,878.27	-313.79	5.28	5.19	0.98	
8,849.87	80.63	171.83	7,664.55	1,292.31	2,882.75	-285.84	11.07	9.08	6.44	
-460' X-OVER PNT - 8849.87' MD, 7665' TVD, 460' FNL, 1713' FWL SEC 23										
8,916.00	86.67	176.00	7,671.87	1,227.00	2,889.70	-221.81	11.07	9.13	6.30	
HZ LANDING PNT - 8916' MD, 7672' TVD										

Survey Report

Company:	CRESTONE PEAK RESOURCES	Local Co-ordinate Reference:	Well COSSLETT EAST 1E-22H-H168
Project:	WELD COUNTY	TVD Reference:	KB 25' @ 5208.00usft
Site:	SEC 22-T1N-R68W	MD Reference:	KB 25' @ 5208.00usft
Well:	COSSLETT EAST 1E-22H-H168	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)	
9,011.00	90.27	177.17	7,674.40	1,132.22	2,895.35	-130.34	3.98	3.79	1.23	
9,200.00	89.64	177.62	7,674.55	943.41	2,903.94	51.02	0.41	-0.33	0.24	
9,295.00	91.41	179.72	7,673.68	848.45	2,906.15	141.55	2.89	1.86	2.21	
9,391.00	89.82	180.83	7,672.65	752.46	2,905.69	232.18	2.02	-1.66	1.16	
9,486.00	90.21	180.16	7,672.62	657.47	2,904.87	321.76	0.82	0.41	-0.71	
9,581.00	90.40	179.37	7,672.12	562.47	2,905.26	411.73	0.86	0.20	-0.83	
9,676.00	91.14	178.76	7,670.84	467.49	2,906.81	502.06	1.01	0.78	-0.64	
9,771.00	89.78	179.93	7,670.08	372.50	2,907.89	592.25	1.89	-1.43	1.23	
9,867.00	90.35	178.78	7,669.97	276.51	2,908.97	683.39	1.34	0.59	-1.20	
9,962.00	90.99	178.35	7,668.86	181.55	2,911.35	773.98	0.81	0.67	-0.45	
10,057.00	90.24	180.81	7,667.84	86.57	2,912.05	864.04	2.71	-0.79	2.59	
10,151.00	90.66	179.90	7,667.10	-7.43	2,911.46	952.74	1.07	0.45	-0.97	
10,247.00	91.75	179.63	7,665.08	-103.40	2,911.86	1,043.64	1.17	1.14	-0.28	
10,342.00	89.01	180.76	7,664.45	-198.39	2,911.53	1,133.37	3.12	-2.88	1.19	
10,438.00	89.31	180.11	7,665.86	-294.38	2,910.81	1,223.92	0.75	0.31	-0.68	
10,532.00	89.44	179.73	7,666.89	-388.37	2,910.94	1,312.86	0.43	0.14	-0.40	
10,627.00	89.97	179.44	7,667.37	-483.37	2,911.63	1,402.93	0.64	0.56	-0.31	
10,722.00	90.55	179.07	7,666.94	-578.36	2,912.86	1,493.17	0.72	0.61	-0.39	
10,817.00	91.42	178.96	7,665.31	-673.33	2,914.49	1,583.52	0.92	0.92	-0.12	
10,912.00	90.35	180.59	7,663.84	-768.31	2,914.87	1,673.47	2.05	-1.13	1.72	
11,007.00	91.33	181.75	7,662.45	-863.28	2,912.93	1,762.66	1.60	1.03	1.22	
11,102.00	89.19	181.88	7,662.02	-958.23	2,909.92	1,851.48	2.26	-2.25	0.14	
11,198.00	89.67	181.50	7,662.97	-1,054.18	2,907.09	1,941.31	0.64	0.50	-0.40	
11,293.00	89.79	181.43	7,663.42	-1,149.15	2,904.66	2,030.34	0.15	0.13	-0.07	
11,388.00	87.91	180.42	7,665.33	-1,244.11	2,903.12	2,119.65	2.25	-1.98	-1.06	
11,483.00	87.92	180.12	7,668.78	-1,339.05	2,902.68	2,209.30	0.32	0.01	-0.32	
11,578.00	86.51	179.80	7,673.40	-1,433.93	2,902.74	2,299.06	1.52	-1.48	-0.34	
11,673.00	86.35	181.02	7,679.32	-1,528.74	2,902.07	2,388.51	1.29	-0.17	1.28	
11,768.00	85.21	181.36	7,686.31	-1,623.46	2,900.10	2,477.45	1.25	-1.20	0.36	
11,863.00	85.00	181.33	7,694.41	-1,718.09	2,897.88	2,566.23	0.22	-0.22	-0.03	
11,959.00	85.02	180.86	7,702.76	-1,813.71	2,896.05	2,656.07	0.49	0.02	-0.49	
12,054.00	84.75	181.21	7,711.23	-1,908.31	2,894.34	2,744.99	0.46	-0.28	0.37	
12,150.00	84.68	181.01	7,720.08	-2,003.89	2,892.49	2,834.78	0.22	-0.07	-0.21	
12,244.00	85.04	180.90	7,728.50	-2,097.50	2,890.93	2,922.80	0.40	0.38	-0.12	
12,339.00	85.49	180.82	7,736.34	-2,192.16	2,889.51	3,011.87	0.48	0.47	-0.08	
12,434.00	85.56	181.15	7,743.75	-2,286.86	2,887.88	3,100.91	0.35	0.07	0.35	
12,529.00	85.56	180.95	7,751.11	-2,381.56	2,886.14	3,189.91	0.21	0.00	-0.21	
12,623.00	84.98	180.48	7,758.86	-2,475.23	2,884.97	3,278.12	0.79	-0.62	-0.50	
12,718.00	84.79	181.06	7,767.33	-2,569.84	2,883.70	3,367.19	0.64	-0.20	0.61	
12,813.00	86.13	181.27	7,774.85	-2,664.52	2,881.78	3,456.11	1.43	1.41	0.22	
13,003.00	90.09	179.25	7,781.11	-2,854.37	2,880.92	3,635.38	2.34	2.08	-1.06	
13,099.00	90.90	179.05	7,780.28	-2,950.35	2,882.34	3,726.63	0.87	0.84	-0.21	
13,194.00	92.20	179.08	7,777.71	-3,045.30	2,883.89	3,816.93	1.37	1.37	0.03	

Survey Report

Company:	CRESTONE PEAK RESOURCES	Local Co-ordinate Reference:	Well COSSLETT EAST 1E-22H-H168
Project:	WELD COUNTY	TVD Reference:	KB 25' @ 5208.00usft
Site:	SEC 22-T1N-R68W	MD Reference:	KB 25' @ 5208.00usft
Well:	COSSLETT EAST 1E-22H-H168	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)	
13,289.00	91.27	181.03	7,774.84	-3,140.26	2,883.80	3,906.70	2.27	-0.98	2.05	
13,385.00	92.41	181.29	7,771.75	-3,236.18	2,881.86	3,996.80	1.22	1.19	0.27	
13,480.00	89.79	180.82	7,769.93	-3,331.14	2,880.11	4,086.04	2.80	-2.76	-0.49	
13,574.00	89.78	180.48	7,770.28	-3,425.14	2,879.04	4,174.59	0.36	-0.01	-0.36	
13,669.00	90.14	180.55	7,770.35	-3,520.13	2,878.19	4,264.16	0.39	0.38	0.07	
13,765.00	92.24	180.52	7,768.36	-3,616.10	2,877.29	4,354.63	2.19	2.19	-0.03	
13,860.00	91.87	179.86	7,764.95	-3,711.04	2,876.98	4,444.32	0.80	-0.39	-0.69	
13,955.00	94.41	179.08	7,759.75	-3,805.88	2,877.86	4,534.31	2.80	2.67	-0.82	
14,049.00	94.53	178.56	7,752.42	-3,899.58	2,879.79	4,623.55	0.57	0.13	-0.55	
14,145.00	94.87	177.52	7,744.55	-3,995.20	2,883.06	4,715.04	1.14	0.35	-1.08	
14,240.00	95.25	177.62	7,736.17	-4,089.74	2,887.07	4,805.76	0.41	0.40	0.11	
14,334.00	95.37	176.68	7,727.48	-4,183.22	2,891.72	4,895.69	1.00	0.13	-1.00	
14,429.00	94.37	179.03	7,719.41	-4,277.80	2,895.26	4,986.29	2.68	-1.05	2.47	
14,524.00	95.00	178.43	7,711.65	-4,372.46	2,897.36	5,076.50	0.91	0.66	-0.63	
14,619.00	93.04	179.67	7,704.99	-4,467.21	2,898.93	5,166.62	2.44	-2.06	1.31	
14,714.00	94.35	179.32	7,698.87	-4,562.01	2,899.77	5,256.54	1.43	1.38	-0.37	
14,810.00	92.67	180.76	7,692.99	-4,657.82	2,899.70	5,347.14	2.30	-1.75	1.50	
14,904.00	88.94	181.21	7,691.67	-4,751.78	2,898.08	5,435.48	4.00	-3.97	0.48	
14,999.00	87.91	181.56	7,694.28	-4,846.71	2,895.79	5,524.52	1.15	-1.08	0.37	
15,094.00	88.67	181.33	7,697.12	-4,941.64	2,893.39	5,613.52	0.84	0.80	-0.24	
15,190.00	88.91	181.22	7,699.14	-5,037.60	2,891.26	5,703.58	0.27	0.25	-0.11	
15,285.00	89.71	180.90	7,700.29	-5,132.57	2,889.50	5,792.84	0.91	0.84	-0.34	
15,380.00	88.16	181.55	7,702.05	-5,227.53	2,887.47	5,881.99	1.77	-1.63	0.68	
15,475.00	88.41	180.93	7,704.90	-5,322.47	2,885.42	5,971.11	0.70	0.26	-0.65	
15,568.00	89.59	180.57	7,706.52	-5,415.44	2,884.20	6,058.64	1.33	1.27	-0.39	
15,664.00	87.69	180.18	7,708.80	-5,511.41	2,883.57	6,149.20	2.02	-1.98	-0.41	
15,759.00	87.82	179.35	7,712.52	-5,606.33	2,883.96	6,239.11	0.88	0.14	-0.87	
15,854.00	87.96	178.73	7,716.02	-5,701.26	2,885.55	6,329.40	0.67	0.15	-0.65	
15,949.00	89.39	178.61	7,718.21	-5,796.20	2,887.76	6,419.91	1.51	1.51	-0.13	
16,045.00	90.48	178.50	7,718.32	-5,892.17	2,890.18	6,511.46	1.14	1.14	-0.11	
16,140.00	90.42	178.36	7,717.58	-5,987.13	2,892.78	6,602.12	0.16	-0.06	-0.15	
16,234.00	89.04	179.99	7,718.02	-6,081.11	2,894.13	6,691.45	2.27	-1.47	1.73	
16,328.00	89.32	178.53	7,719.36	-6,175.09	2,895.35	6,780.73	1.58	0.30	-1.55	
16,423.00	89.77	177.62	7,720.12	-6,270.04	2,898.54	6,871.56	1.07	0.47	-0.96	
16,517.00	89.32	180.40	7,720.87	-6,364.01	2,900.16	6,960.96	3.00	-0.48	2.96	
16,613.00	89.75	178.92	7,721.64	-6,460.00	2,900.73	7,051.93	1.61	0.45	-1.54	
16,708.00	87.62	180.16	7,723.83	-6,554.97	2,901.49	7,142.00	2.59	-2.24	1.31	
16,802.00	88.44	179.91	7,727.06	-6,648.91	2,901.44	7,230.83	0.91	0.87	-0.27	
16,897.00	88.74	179.51	7,729.39	-6,743.88	2,901.92	7,320.80	0.53	0.32	-0.42	
16,992.00	89.39	178.62	7,730.94	-6,838.85	2,903.47	7,411.13	1.16	0.68	-0.94	
17,088.00	88.98	180.56	7,732.31	-6,934.84	2,904.15	7,502.13	2.07	-0.43	2.02	
17,183.00	88.08	181.88	7,734.75	-7,029.78	2,902.13	7,591.27	1.68	-0.95	1.39	
17,278.00	88.74	181.56	7,737.38	-7,124.70	2,899.28	7,680.12	0.77	0.69	-0.34	

Survey Report

Company:	CRESTONE PEAK RESOURCES	Local Co-ordinate Reference:	Well COSSLETT EAST 1E-22H-H168
Project:	WELD COUNTY	TVD Reference:	KB 25' @ 5208.00usft
Site:	SEC 22-T1N-R68W	MD Reference:	KB 25' @ 5208.00usft
Well:	COSSLETT EAST 1E-22H-H168	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)	
17,373.00	89.46	180.30	7,738.88	-7,219.67	2,897.74	7,769.44	1.53	0.76	-1.33	
17,468.00	90.65	179.90	7,738.78	-7,314.67	2,897.57	7,859.23	1.32	1.25	-0.42	
17,563.00	89.41	180.69	7,738.73	-7,409.67	2,897.09	7,948.92	1.55	-1.31	0.83	
17,659.00	89.46	180.37	7,739.68	-7,505.66	2,896.20	8,039.42	0.34	0.05	-0.33	
17,753.00	87.47	181.84	7,742.20	-7,599.60	2,894.39	8,127.67	2.63	-2.12	1.56	
17,849.00	87.09	181.91	7,746.75	-7,695.44	2,891.25	8,217.30	0.40	-0.40	0.07	
17,943.00	86.90	180.99	7,751.68	-7,789.28	2,888.87	8,305.28	1.00	-0.20	-0.98	
18,038.00	88.16	181.38	7,755.78	-7,884.17	2,886.91	8,394.38	1.39	1.33	0.41	
18,132.00	88.19	180.97	7,758.77	-7,978.10	2,884.98	8,482.60	0.44	0.03	-0.44	
18,228.00	88.48	180.44	7,761.56	-8,074.05	2,883.80	8,572.96	0.63	0.30	-0.55	
18,323.00	88.96	179.71	7,763.68	-8,169.03	2,883.68	8,662.75	0.92	0.51	-0.77	
18,418.00	89.12	179.23	7,765.27	-8,264.01	2,884.56	8,752.86	0.53	0.17	-0.51	
18,500.00	90.38	178.91	7,765.63	-8,346.00	2,885.89	8,830.84	1.59	1.54	-0.39	
LAST SURVEY - 18500' MD, 7766' TVD										
18,560.00	90.38	178.91	7,765.23	-8,405.99	2,887.03	8,887.94	0.00	0.00	0.00	
EXTRAPOLATION TO TD - 18560' MD, 461' FSL, 1750' FWL SEC 26										

Design Targets										
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude	
LP-COSSLETT E 1E-H1 - hit/miss target - Shape	0.00	0.00	7,675.00	1,292.31	2,909.92	1,258,866.84	3,147,315.37	40.042778°N	104.973829°W	
- actual wellpath misses target center by 28.63usft at 8853.88usft MD (7665.19 TVD, 1288.39 N, 2883.30 E)										
- Point										
PBHL-COSSLETT E 1E- - hit/miss target - Shape	0.00	0.00	7,770.00	-8,406.50	2,877.16	1,249,168.35	3,147,339.02	40.016154°N	104.973950°W	
- actual wellpath misses target center by 10.97usft at 18560.00usft MD (7765.23 TVD, -8405.99 N, 2887.03 E)										
- Point										

Design Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment	
		+N/-S (usft)	+E/-W (usft)		
7,836.00	6,995.73	1,840.30	2,571.42	KOP - 7836' MD, 6996' TVD	
8,849.87	7,664.55	1,292.31	2,882.75	~460' X-OVER PNT - 8849.87' MD, 7665' TVD, 460' FNL, 1713' FWL SEC 23	
8,916.00	7,671.87	1,227.00	2,889.70	HZ LANDING PNT - 8916' MD, 7672' TVD	
18,500.00	7,765.63	-8,346.00	2,885.89	LAST SURVEY - 18500' MD, 7766' TVD	
18,560.00	7,765.23	-8,405.99	2,887.03	EXTRAPOLATION TO TD - 18560' MD, 461' FSL, 1750' FWL SEC 26	

Checked By: _____	Approved By: _____	Date: _____
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