



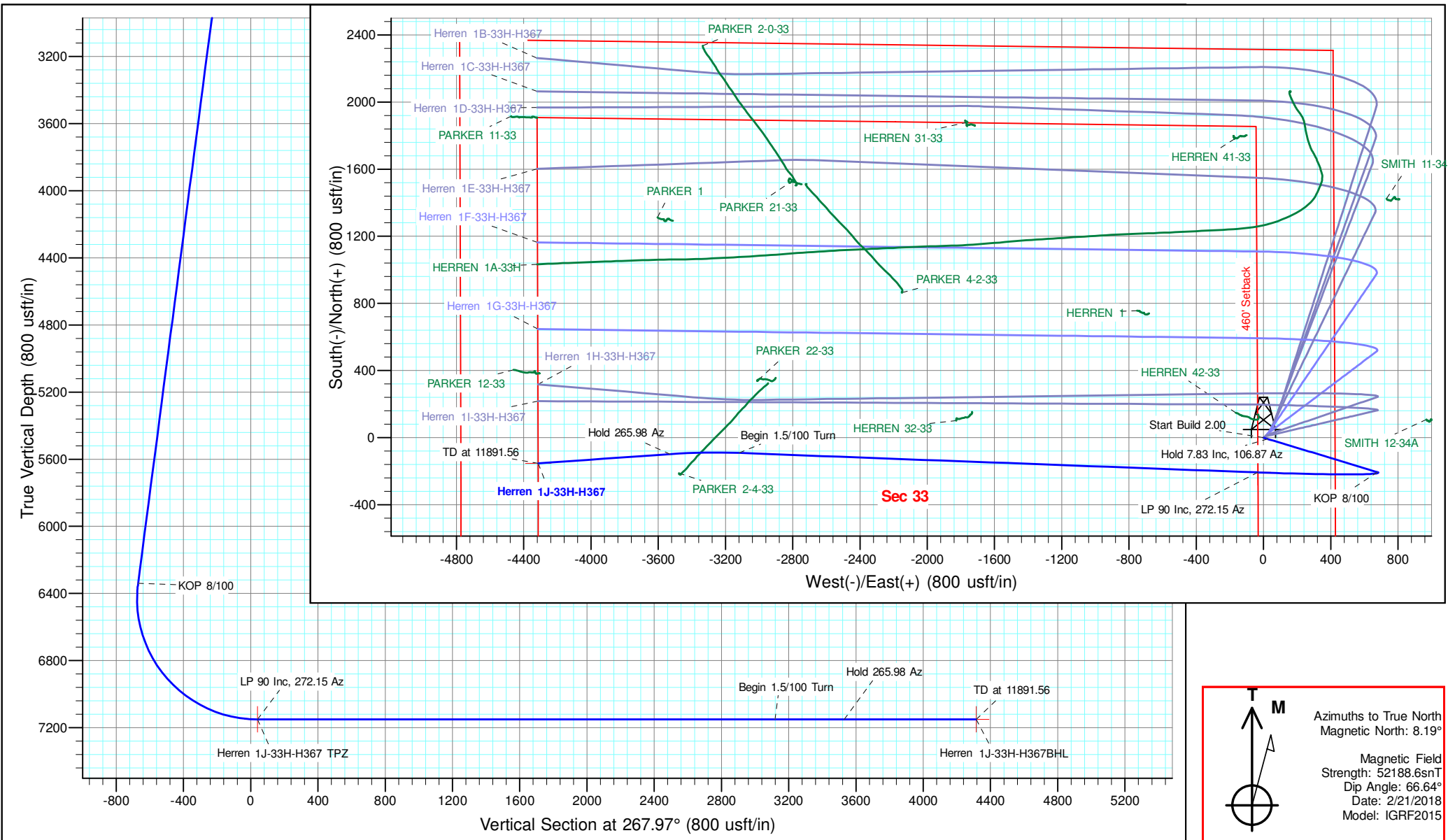
Crestone Peak Resources

Well Name: Herren 1J-33H-H367	Project Name: Sec 33 T3N-R67W	Pad Name: Herren Pad
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ANNOTATIONS									
MD	Inc	Azi	TVD	+N/-S	+E/-W	VSec	Departure	Annotation	
1000.00	0.00	0.00	1000.00	0.00	0.00	0.00	0.00	Start Build 2.00	
1391.67	7.83	106.87	1390.45	-7.76	25.58	-25.29	26.73	Hold 7.83 Inc, 106.87 Az	
6387.73	7.83	106.87	6339.89	-205.31	677.22	-669.51	707.66	KOP 8/100	
7607.41	90.00	272.15	7150.00	-206.96	-33.29	40.61	1550.22	LP 90 Inc, 272.15 Az	
10694.08	90.00	272.15	7150.00	-91.17	-3117.79	3119.06	4636.89	Begin 1.5/100 Turn	
11105.68	90.00	265.98	7150.00	-97.89	-3529.13	3530.38	5048.49	Hold 265.98 Az	
11891.56	90.00	265.98	7150.00	-153.04	-4313.07	4315.78	5834.36	TD at 11891.56	

Geodetic Datum: North American Datum 1983 US State Plane 1983, Colorado Northern Zone	Elevation: Ground Elevation: 4849.00 KB Elevation: WELL @ 4872.00usft (Original Well Elev)
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DESIGN TARGET DETAILS								
Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
Herren 1J-33H-H367 TPZ	7150.00	-206.96	-33.29	1309940.54	3171164.63	40.182560	-104.887388	Point
Herren 1J-33H-A367BHL	7150.00	-153.04	-4313.07	1309964.89	3166884.58	40.182707	-104.902706	Point



Azimuths to True North
 Magnetic North: 8.19°
 Magnetic Field
 Strength: 52188.6snT
 Dip Angle: 66.64°
 Date: 2/21/2018
 Model: IGRF2015



Crestone Peak Resources

**Sec 33 T3N-R67W
Herren Pad
Herren 1J-33H-H367**

Wellbore #1

Plan: Design #1 23Feb18 kjs

Standard Planning Report

09 March, 2018



Microsoft Planning Report

Database:	EDM 5000.14 Single User Db	Local Co-ordinate Reference:	Well Herren 1J-33H-H367
Company:	Crestone Peak Resources	TVD Reference:	WELL @ 4872.00usft (Original Well Elev)
Project:	Sec 33 T3N-R67W	MD Reference:	WELL @ 4872.00usft (Original Well Elev)
Site:	Herren Pad	North Reference:	True
Well:	Herren 1J-33H-H367	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1 23Feb18 kjs		

Project	Sec 33 T3N-R67W, Weld County, CO		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	Colorado Northern Zone		

Site	Herren Pad				
Site Position:	Northing:	1,310,204.30 usft	Latitude:	40.183282	
From: Map	Easting:	3,171,253.06 usft	Longitude:	-104.887065	
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.40 °

Well	Herren 1J-33H-H367					
Well Position	+N/-S	-56.18 usft	Northing:	1,310,147.73 usft	Latitude:	40.183128
	+E/-W	-56.96 usft	Easting:	3,171,196.49 usft	Longitude:	-104.887269
Position Uncertainty	0.00 usft	Wellhead Elevation:		Ground Level:	4,849.00 usft	

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	2/21/2018	8.19	66.64	52,188.55898002

Design	Design #1 23Feb18 kjs			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.00	0.00	0.00	267.97

Plan Survey Tool Program	Date	3/7/2018		
Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks
1	0.00	11,891.56	Design #1 23Feb18 kjs (Wellbore)	MWD OWSG MWD - Standard

Plan Sections										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,000.00	0.00	0.00	1,000.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,391.67	7.83	106.87	1,390.45	-7.76	25.58	2.00	2.00	0.00	106.87	
6,387.73	7.83	106.87	6,339.89	-205.31	677.22	0.00	0.00	0.00	0.00	
7,607.41	90.00	272.15	7,150.00	-206.96	-33.29	8.00	6.74	13.55	165.15	Herren 1J-33H-H367 TPZ
10,694.08	90.00	272.15	7,150.00	-91.17	-3,117.79	0.00	0.00	0.00	0.00	
11,105.68	90.00	265.98	7,150.00	-97.89	-3,529.13	1.50	0.00	-1.50	-90.00	
11,891.56	90.00	265.98	7,150.00	-153.04	-4,313.07	0.00	0.00	0.00	0.00	Herren 1J-33H-H367BHL

Database:	EDM 5000.14 Single User Db	Local Co-ordinate Reference:	Well Herren 1J-33H-H367
Company:	Crestone Peak Resources	TVD Reference:	WELL @ 4872.00usft (Original Well Elev)
Project:	Sec 33 T3N-R67W	MD Reference:	WELL @ 4872.00usft (Original Well Elev)
Site:	Herren Pad	North Reference:	True
Well:	Herren 1J-33H-H367	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1 23Feb18 kjs		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N-S (usft)	+E-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	0.00
600.00	0.00	0.00	600.00	0.00	0.00	0.00	0.00	0.00	0.00
800.00	0.00	0.00	800.00	0.00	0.00	0.00	0.00	0.00	0.00
1,000.00	0.00	0.00	1,000.00	0.00	0.00	0.00	0.00	0.00	0.00
Start Build 2.00									
1,200.00	4.00	106.87	1,199.84	-2.02	6.68	-6.60	2.00	2.00	0.00
1,391.67	7.83	106.87	1,390.45	-7.76	25.58	-25.29	2.00	2.00	0.00
Hold 7.83 Inc, 106.87 Az									
1,400.00	7.83	106.87	1,398.70	-8.09	26.67	-26.37	0.00	0.00	0.00
1,600.00	7.83	106.87	1,596.84	-15.99	52.76	-52.15	0.00	0.00	0.00
1,800.00	7.83	106.87	1,794.97	-23.90	78.84	-77.94	0.00	0.00	0.00
2,000.00	7.83	106.87	1,993.10	-31.81	104.93	-103.73	0.00	0.00	0.00
2,200.00	7.83	106.87	2,191.24	-39.72	131.01	-129.52	0.00	0.00	0.00
2,400.00	7.83	106.87	2,389.37	-47.63	157.10	-155.31	0.00	0.00	0.00
2,600.00	7.83	106.87	2,587.51	-55.54	183.19	-181.10	0.00	0.00	0.00
2,800.00	7.83	106.87	2,785.64	-63.44	209.27	-206.89	0.00	0.00	0.00
3,000.00	7.83	106.87	2,983.77	-71.35	235.36	-232.68	0.00	0.00	0.00
3,200.00	7.83	106.87	3,181.91	-79.26	261.44	-258.47	0.00	0.00	0.00
3,400.00	7.83	106.87	3,380.04	-87.17	287.53	-284.26	0.00	0.00	0.00
3,600.00	7.83	106.87	3,578.17	-95.08	313.62	-310.05	0.00	0.00	0.00
3,800.00	7.83	106.87	3,776.31	-102.99	339.70	-335.84	0.00	0.00	0.00
4,000.00	7.83	106.87	3,974.44	-110.89	365.79	-361.63	0.00	0.00	0.00
4,200.00	7.83	106.87	4,172.58	-118.80	391.87	-387.41	0.00	0.00	0.00
4,400.00	7.83	106.87	4,370.71	-126.71	417.96	-413.20	0.00	0.00	0.00
4,600.00	7.83	106.87	4,568.84	-134.62	444.05	-438.99	0.00	0.00	0.00
4,800.00	7.83	106.87	4,766.98	-142.53	470.13	-464.78	0.00	0.00	0.00
5,000.00	7.83	106.87	4,965.11	-150.44	496.22	-490.57	0.00	0.00	0.00
5,200.00	7.83	106.87	5,163.24	-158.34	522.30	-516.36	0.00	0.00	0.00
5,400.00	7.83	106.87	5,361.38	-166.25	548.39	-542.15	0.00	0.00	0.00
5,600.00	7.83	106.87	5,559.51	-174.16	574.48	-567.94	0.00	0.00	0.00
5,800.00	7.83	106.87	5,757.65	-182.07	600.56	-593.73	0.00	0.00	0.00
6,000.00	7.83	106.87	5,955.78	-189.98	626.65	-619.52	0.00	0.00	0.00
6,200.00	7.83	106.87	6,153.91	-197.89	652.73	-645.31	0.00	0.00	0.00
6,387.73	7.83	106.87	6,339.89	-205.31	677.22	-669.51	0.00	0.00	0.00
KOP 8/100									
6,400.00	6.89	108.96	6,352.06	-205.79	678.72	-670.99	8.00	-7.70	17.09
6,600.00	9.62	260.25	6,551.23	-212.56	673.56	-665.60	8.00	1.36	75.64
6,800.00	25.48	267.94	6,741.33	-216.96	613.72	-605.64	8.00	7.93	3.85
7,000.00	41.45	269.88	6,907.65	-218.65	503.82	-495.75	8.00	7.98	0.97
7,200.00	57.43	270.87	7,037.28	-217.50	352.38	-344.44	8.00	7.99	0.49
7,400.00	73.42	271.55	7,120.19	-213.60	171.13	-163.45	8.00	7.99	0.34
7,600.00	89.41	272.13	7,149.96	-207.24	-25.88	33.22	8.00	7.99	0.29
7,607.41	90.00	272.15	7,150.00	-206.96	-33.29	40.61	8.00	8.00	0.28
LP 90 Inc, 272.15 Az									
7,800.00	90.00	272.15	7,150.00	-199.74	-225.74	232.68	0.00	0.00	0.00
8,000.00	90.00	272.15	7,150.00	-192.24	-425.60	432.15	0.00	0.00	0.00
8,200.00	90.00	272.15	7,150.00	-184.73	-625.46	631.62	0.00	0.00	0.00
8,400.00	90.00	272.15	7,150.00	-177.23	-825.32	831.09	0.00	0.00	0.00
8,600.00	90.00	272.15	7,150.00	-169.73	-1,025.18	1,030.55	0.00	0.00	0.00
8,800.00	90.00	272.15	7,150.00	-162.22	-1,225.04	1,230.02	0.00	0.00	0.00
9,000.00	90.00	272.15	7,150.00	-154.72	-1,424.90	1,429.49	0.00	0.00	0.00

Database:	EDM 5000.14 Single User Db	Local Co-ordinate Reference:	Well Herren 1J-33H-H367
Company:	Crestone Peak Resources	TVD Reference:	WELL @ 4872.00usft (Original Well Elev)
Project:	Sec 33 T3N-R67W	MD Reference:	WELL @ 4872.00usft (Original Well Elev)
Site:	Herren Pad	North Reference:	True
Well:	Herren 1J-33H-H367	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1 23Feb18 kjs		

Planned Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
9,200.00	90.00	272.15	7,150.00	-147.22	-1,624.76	1,628.96	0.00	0.00	0.00	
9,400.00	90.00	272.15	7,150.00	-139.71	-1,824.62	1,828.42	0.00	0.00	0.00	
9,600.00	90.00	272.15	7,150.00	-132.21	-2,024.48	2,027.89	0.00	0.00	0.00	
9,800.00	90.00	272.15	7,150.00	-124.71	-2,224.34	2,227.36	0.00	0.00	0.00	
10,000.00	90.00	272.15	7,150.00	-117.21	-2,424.19	2,426.83	0.00	0.00	0.00	
10,200.00	90.00	272.15	7,150.00	-109.70	-2,624.05	2,626.29	0.00	0.00	0.00	
10,400.00	90.00	272.15	7,150.00	-102.20	-2,823.91	2,825.76	0.00	0.00	0.00	
10,600.00	90.00	272.15	7,150.00	-94.70	-3,023.77	3,025.23	0.00	0.00	0.00	
10,694.08	90.00	272.15	7,150.00	-91.17	-3,117.79	3,119.06	0.00	0.00	0.00	
Begin 1.5/100 Turn										
10,800.00	90.00	270.56	7,150.00	-88.66	-3,223.67	3,224.79	1.50	0.00	-1.50	
11,000.00	90.00	267.56	7,150.00	-91.94	-3,423.62	3,424.73	1.50	0.00	-1.50	
11,105.68	90.00	265.98	7,150.00	-97.89	-3,529.13	3,530.38	1.50	0.00	-1.50	
Hold 265.98 Az										
11,200.00	90.00	265.98	7,150.00	-104.51	-3,623.22	3,624.65	0.00	0.00	0.00	
11,400.00	90.00	265.98	7,150.00	-118.55	-3,822.73	3,824.53	0.00	0.00	0.00	
11,600.00	90.00	265.98	7,150.00	-132.58	-4,022.23	4,024.41	0.00	0.00	0.00	
11,800.00	90.00	265.98	7,150.00	-146.62	-4,221.74	4,224.28	0.00	0.00	0.00	
11,891.56	90.00	265.98	7,150.00	-153.04	-4,313.07	4,315.78	0.00	0.00	0.00	
TD at 11891.56										

Design Targets										
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude	
Herren 1J-33H-H367BHL - hit/miss target - Shape - Point	0.00	0.00	7,150.00	-153.04	-4,313.07	1,309,964.89	3,166,884.58	40.182707	-104.902706	
Herren 1J-33H-H367 TPZ - plan hits target center - Point	0.00	0.00	7,150.00	-206.96	-33.29	1,309,940.54	3,171,164.63	40.182560	-104.887388	

Plan Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment	
		+N/-S (usft)	+E/-W (usft)		
1,000.00	1,000.00	0.00	0.00	Start Build 2.00	
1,391.67	1,390.45	-7.76	25.58	Hold 7.83 Inc, 106.87 Az	
6,387.73	6,339.89	-205.31	677.22	KOP 8/100	
7,607.41	7,150.00	-206.96	-33.29	LP 90 Inc, 272.15 Az	
10,694.08	7,150.00	-91.17	-3,117.79	Begin 1.5/100 Turn	
11,105.68	7,150.00	-97.89	-3,529.13	Hold 265.98 Az	
11,891.56	7,150.00	-153.04	-4,313.07	TD at 11891.56	