



Crestone Peak Resources

Well Name:

Herren 1B-33H-H367

Project Name:

Sec 33 T3N-R67W

Pad Name:

Herren Pad

ANNOTATIONS

MD	Inc	Azi	TVD	+N/-S	+E/-W	VSection	Departure	Annotation
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	Start Build 2.00
1168.81	19.38	17.78	1150.45	154.51	49.56	25.28	162.26	Hold 19.38 Inc, 17.78 Az
6732.19	19.38	17.78	6398.72	1912.08	613.30	312.87	2008.03	KOP 8/100
7933.06	90.00	269.20	7150.00	2152.55	-102.31	1060.14	2823.97	LP 90 Inc, 269.2 Az
10933.06	90.00	269.20	7150.00	2110.66	-3102.02	3720.02	5823.97	Begin 2/100 Turn
11219.74	90.00	274.93	7150.00	2121.00	-3388.39	3980.41	6110.65	Hold 274.93 Az
12212.95	90.00	274.93	7150.00	2206.41	-4377.92	4902.50	7103.86	TD at 12212.95

Geodetic Datum:

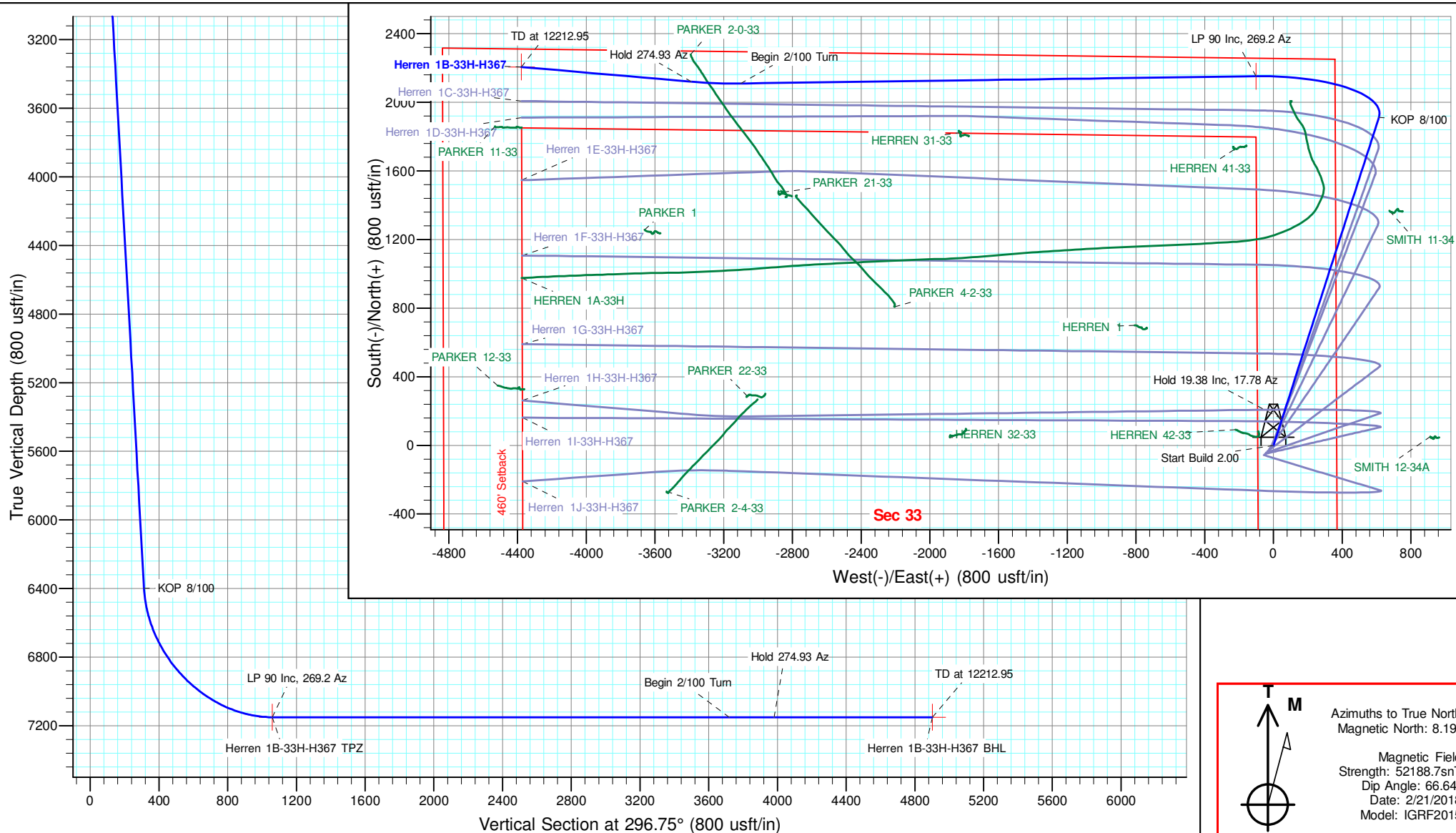
North American Datum 1983
US State Plane 1983, Colorado Northern Zone

Elevation:

Ground Elevation: 4847.00
KB Elevation: WELL @ 4870.00usft (Original Well Elev)

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
Herren 1B-33H-H367	7150.00	2206.41	-4377.92	1312380.40	3166859.99	40.189338	-104.902735	Point
BHL								
Herren 1B-33H-H367 TPZ	7150.00	2152.55	-102.31	1312356.09	3171135.87	40.189191	-104.887431	Point





Crestone Peak Resources

Sec 33 T3N-R67W

Herren Pad

Herren 1B-33H-H367

Wellbore #1

Plan: Design #1 21Feb18 kjs

Standard Planning Report

07 March, 2018

Database:	EDM 5000.14 Single User Db	Local Co-ordinate Reference:	Well Herren 1B-33H-H367
Company:	Crestone Peak Resources	TVD Reference:	WELL @ 4870.00usft (Original Well Elev)
Project:	Sec 33 T3N-R67W	MD Reference:	WELL @ 4870.00usft (Original Well Elev)
Site:	Herren Pad	North Reference:	True
Well:	Herren 1B-33H-H367	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1 21Feb18 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 1B-33H-H367					
Well Position	+N/-S	0.00 usft	Northing:	1,310,204.30 usft	Latitude:	40.183282
	+E/-W	0.00 usft	Easting:	3,171,253.06 usft	Longitude:	-104.887065
Position Uncertainty		0.00 usft	Wellhead Elevation:		Ground Level:	4,847.00 usft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	2/21/2018	8.19	66.64	52,188.67710490

Design	Design #1 21Feb18 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	296.75

Plan Survey Tool Program	Date	3/7/2018		
Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks
1	0.00	12,212.95	Design #1 21Feb18 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	
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,168.81	19.38	17.78	1,150.45	154.51	49.56	2.00	2.00	0.00	17.78	
6,732.19	19.38	17.78	6,398.72	1,912.08	613.30	0.00	0.00	0.00	0.00	
7,933.06	90.00	269.20	7,150.00	2,152.55	-102.31	8.00	5.88	-9.04	-107.60	Herren 1B-33H-H367 TPZ
10,933.06	90.00	269.20	7,150.00	2,110.66	-3,102.02	0.00	0.00	0.00	0.00	
11,219.74	90.00	274.93	7,150.00	2,121.00	-3,388.39	2.00	0.00	2.00	90.00	
12,212.95	90.00	274.93	7,150.00	2,206.41	-4,377.92	0.00	0.00	0.00	0.00	Herren 1B-33H-H367 BHL

Database:	EDM 5000.14 Single User Db	Local Co-ordinate Reference:	Well Herren 1B-33H-H367
Company:	Crestone Peak Resources	TVD Reference:	WELL @ 4870.00usft (Original Well Elev)
Project:	Sec 33 T3N-R67W	MD Reference:	WELL @ 4870.00usft (Original Well Elev)
Site:	Herren Pad	North Reference:	True
Well:	Herren 1B-33H-H367	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1 21Feb18 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
Start Build 2.00									
400.00	4.00	17.78	399.84	6.65	2.13	1.09	2.00	2.00	0.00
600.00	8.00	17.78	598.70	26.55	8.52	4.34	2.00	2.00	0.00
800.00	12.00	17.78	795.62	59.61	19.12	9.75	2.00	2.00	0.00
1,000.00	16.00	17.78	989.64	105.67	33.89	17.29	2.00	2.00	0.00
1,168.81	19.38	17.78	1,150.45	154.51	49.56	25.28	2.00	2.00	0.00
Hold 19.38 Inc, 17.78 Az									
1,200.00	19.38	17.78	1,179.87	164.36	52.72	26.89	0.00	0.00	0.00
1,400.00	19.38	17.78	1,368.54	227.54	72.98	37.23	0.00	0.00	0.00
1,600.00	19.38	17.78	1,557.22	290.73	93.25	47.57	0.00	0.00	0.00
1,800.00	19.38	17.78	1,745.89	353.91	113.52	57.91	0.00	0.00	0.00
2,000.00	19.38	17.78	1,934.56	417.09	133.78	68.25	0.00	0.00	0.00
2,200.00	19.38	17.78	2,123.23	480.28	154.05	78.59	0.00	0.00	0.00
2,400.00	19.38	17.78	2,311.90	543.46	174.31	88.93	0.00	0.00	0.00
2,600.00	19.38	17.78	2,500.58	606.64	194.58	99.27	0.00	0.00	0.00
2,800.00	19.38	17.78	2,689.25	669.83	214.85	109.60	0.00	0.00	0.00
3,000.00	19.38	17.78	2,877.92	733.01	235.11	119.94	0.00	0.00	0.00
3,200.00	19.38	17.78	3,066.59	796.20	255.38	130.28	0.00	0.00	0.00
3,400.00	19.38	17.78	3,255.26	859.38	275.64	140.62	0.00	0.00	0.00
3,600.00	19.38	17.78	3,443.94	922.56	295.91	150.96	0.00	0.00	0.00
3,800.00	19.38	17.78	3,632.61	985.75	316.18	161.30	0.00	0.00	0.00
4,000.00	19.38	17.78	3,821.28	1,048.93	336.44	171.64	0.00	0.00	0.00
4,200.00	19.38	17.78	4,009.95	1,112.11	356.71	181.98	0.00	0.00	0.00
4,400.00	19.38	17.78	4,198.63	1,175.30	376.97	192.31	0.00	0.00	0.00
4,600.00	19.38	17.78	4,387.30	1,238.48	397.24	202.65	0.00	0.00	0.00
4,800.00	19.38	17.78	4,575.97	1,301.66	417.51	212.99	0.00	0.00	0.00
5,000.00	19.38	17.78	4,764.64	1,364.85	437.77	223.33	0.00	0.00	0.00
5,200.00	19.38	17.78	4,953.31	1,428.03	458.04	233.67	0.00	0.00	0.00
5,400.00	19.38	17.78	5,141.99	1,491.21	478.31	244.01	0.00	0.00	0.00
5,600.00	19.38	17.78	5,330.66	1,554.40	498.57	254.35	0.00	0.00	0.00
5,800.00	19.38	17.78	5,519.33	1,617.58	518.84	264.69	0.00	0.00	0.00
6,000.00	19.38	17.78	5,708.00	1,680.76	539.10	275.02	0.00	0.00	0.00
6,200.00	19.38	17.78	5,896.67	1,743.95	559.37	285.36	0.00	0.00	0.00
6,400.00	19.38	17.78	6,085.35	1,807.13	579.64	295.70	0.00	0.00	0.00
6,600.00	19.38	17.78	6,274.02	1,870.31	599.90	306.04	0.00	0.00	0.00
6,732.19	19.38	17.78	6,398.72	1,912.08	613.30	312.87	0.00	0.00	0.00
KOP 8/100									
6,800.00	18.45	1.24	6,462.92	1,933.53	616.97	319.25	8.00	-1.37	-24.40
7,000.00	23.82	318.23	6,650.48	1,995.69	590.57	370.80	8.00	2.69	-21.50
7,200.00	35.89	296.63	6,824.10	2,052.46	510.74	467.63	8.00	6.04	-10.80
7,400.00	50.01	285.44	6,970.34	2,099.44	383.66	602.26	8.00	7.06	-5.60
7,600.00	64.82	278.22	7,077.85	2,132.98	219.17	764.25	8.00	7.41	-3.61
7,800.00	79.91	272.60	7,138.31	2,150.50	30.02	941.04	8.00	7.54	-2.81
7,933.06	90.00	269.20	7,150.00	2,152.55	-102.31	1,060.14	8.00	7.59	-2.56
LP 90 Inc, 269.2 Az									
8,000.00	90.00	269.20	7,150.00	2,151.61	-169.25	1,119.49	0.00	0.00	0.00
8,200.00	90.00	269.20	7,150.00	2,148.82	-369.23	1,296.82	0.00	0.00	0.00
8,400.00	90.00	269.20	7,150.00	2,146.03	-569.21	1,474.14	0.00	0.00	0.00
8,600.00	90.00	269.20	7,150.00	2,143.24	-769.19	1,651.47	0.00	0.00	0.00
8,800.00	90.00	269.20	7,150.00	2,140.44	-969.17	1,828.80	0.00	0.00	0.00
9,000.00	90.00	269.20	7,150.00	2,137.65	-1,169.15	2,006.12	0.00	0.00	0.00

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Project:	Sec 33 T3N-R67W	MD Reference:	WELL @ 4870.00usft (Original Well Elev)
Site:	Herren Pad	North Reference:	True
Well:	Herren 1B-33H-H367	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1 21Feb18 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	269.20	7,150.00	2,134.86	-1,369.13	2,183.45	0.00	0.00	0.00	
9,400.00	90.00	269.20	7,150.00	2,132.07	-1,569.11	2,360.77	0.00	0.00	0.00	
9,600.00	90.00	269.20	7,150.00	2,129.27	-1,769.09	2,538.10	0.00	0.00	0.00	
9,800.00	90.00	269.20	7,150.00	2,126.48	-1,969.07	2,715.42	0.00	0.00	0.00	
10,000.00	90.00	269.20	7,150.00	2,123.69	-2,169.05	2,892.75	0.00	0.00	0.00	
10,200.00	90.00	269.20	7,150.00	2,120.90	-2,369.04	3,070.07	0.00	0.00	0.00	
10,400.00	90.00	269.20	7,150.00	2,118.10	-2,569.02	3,247.40	0.00	0.00	0.00	
10,600.00	90.00	269.20	7,150.00	2,115.31	-2,769.00	3,424.73	0.00	0.00	0.00	
10,800.00	90.00	269.20	7,150.00	2,112.52	-2,968.98	3,602.05	0.00	0.00	0.00	
10,933.06	90.00	269.20	7,150.00	2,110.66	-3,102.02	3,720.02	0.00	0.00	0.00	
Begin 2/100 Turn										
11,000.00	90.00	270.54	7,150.00	2,110.51	-3,168.96	3,779.73	2.00	0.00	2.00	
11,200.00	90.00	274.54	7,150.00	2,119.37	-3,368.73	3,962.11	2.00	0.00	2.00	
11,219.74	90.00	274.93	7,150.00	2,121.00	-3,388.39	3,980.41	2.00	0.00	2.00	
Hold 274.93 Az										
11,400.00	90.00	274.93	7,150.00	2,136.50	-3,567.99	4,147.76	0.00	0.00	0.00	
11,600.00	90.00	274.93	7,150.00	2,153.70	-3,767.25	4,333.44	0.00	0.00	0.00	
11,800.00	90.00	274.93	7,150.00	2,170.90	-3,966.51	4,519.12	0.00	0.00	0.00	
12,000.00	90.00	274.93	7,150.00	2,188.10	-4,165.77	4,704.80	0.00	0.00	0.00	
12,200.00	90.00	274.93	7,150.00	2,205.30	-4,365.03	4,890.48	0.00	0.00	0.00	
12,212.95	90.00	274.93	7,150.00	2,206.41	-4,377.92	4,902.50	0.00	0.00	0.00	
TD at 12212.95										

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
- hit/miss target									
- Shape									
Herren 1B-33H-H367 BHL	0.00	0.00	7,150.00	2,206.41	-4,377.92	1,312,380.40	3,166,859.99	40.189338	-104.902736
- plan hits target center									
- Point									
Herren 1B-33H-H367 TPZ	0.00	0.00	7,150.00	2,152.55	-102.31	1,312,356.09	3,171,135.87	40.189191	-104.887432
- plan hits target center									
- Point									

Plan Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
200.00	200.00	0.00	0.00	Start Build 2.00	
1,168.81	1,150.45	154.51	49.56	Hold 19.38 Inc, 17.78 Az	
6,732.19	6,398.72	1,912.08	613.30	KOP 8/100	
7,933.06	7,150.00	2,152.55	-102.31	LP 90 Inc, 269.2 Az	
10,933.06	7,150.00	2,110.66	-3,102.02	Begin 2/100 Turn	
11,219.74	7,150.00	2,121.00	-3,388.39	Hold 274.93 Az	
12,212.95	7,150.00	2,206.41	-4,377.92	TD at 12212.95	