



Crestone Peak Resources

Sec 33 T3N-R67W

Herren Pad

Herren 1J-33H-A367

Wellbore #1

Design #1 23Feb18 kjs

Anticollision Summary Report

01 May, 2018

Anticollision Summary Report

Company:	Crestone Peak Resources	Local Co-ordinate Reference:	Well Herren 1J-33H-A367
Project:	Sec 33 T3N-R67W	TVD Reference:	WELL @ 4872.00usft (Original Well Elev)
Reference Site:	Herren Pad	MD Reference:	WELL @ 4872.00usft (Original Well Elev)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Herren 1J-33H-A367	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM 5000.15 Single User Db
Reference Design:	Design #1 23Feb18 kjs	Offset TVD Reference:	Offset Datum

Reference	Design #1 23Feb18 kjs		
Filter type:	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
Interpolation Method:	MD Interval 100.00usft	Error Model:	ISCWSA
Depth Range:	Unlimited	Scan Method:	Closest Approach 3D
Results Limited by:	Maximum center-center distance of 9,999.98 usft	Error Surface:	Pedal Curve
Warning Levels Evaluated at:	2.00 Sigma	Casing Method:	Not applied

Survey Tool Program	Date 5/1/2018			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
0.00	11,891.56	Design #1 23Feb18 kjs (Wellbore #1)	MWD	OWSG MWD - Standard

Summary						
Site Name	Reference Measured Depth (usft)	Offset Measured Depth (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
Herren Pad						
Herren 1B-33H-A367 - Wellbore #1 - Design #1 21Feb18	200.00	198.00	80.00	79.02	81.155	CC, ES
Herren 1B-33H-A367 - Wellbore #1 - Design #1 21Feb18	11,891.56	11,997.34	2,405.99	2,148.11	9.330	SF
Herren 1C-33H-A367 - Wellbore #1 - Design #1 23Feb18	200.00	198.00	70.00	69.02	71.012	CC, ES
Herren 1C-33H-A367 - Wellbore #1 - Design #1 23Feb18	11,891.56	12,245.60	2,220.93	1,959.67	8.501	SF
Herren 1D-33H-A367 - Wellbore #1 - Design #1 23Feb18	400.00	399.00	60.01	57.58	24.762	CC, ES
Herren 1D-33H-A367 - Wellbore #1 - Design #1 23Feb18	11,891.56	12,058.19	2,121.50	1,859.21	8.088	SF
Herren 1E-33H-A367 - Wellbore #1 - Design #1 23Feb18	404.67	403.67	50.00	47.54	20.352	CC
Herren 1E-33H-A367 - Wellbore #1 - Design #1 23Feb18	500.00	498.20	50.39	47.25	16.061	ES
Herren 1E-33H-A367 - Wellbore #1 - Design #1 23Feb18	11,891.56	12,041.74	1,755.71	1,493.37	6.692	SF
Herren 1F-33H-A367 - Wellbore #1 - Design #1 23Feb18	404.65	403.65	40.00	37.54	16.283	CC
Herren 1F-33H-A367 - Wellbore #1 - Design #1 23Feb18	500.00	498.33	40.41	37.27	12.879	ES
Herren 1F-33H-A367 - Wellbore #1 - Design #1 23Feb18	11,891.56	12,076.38	1,324.16	1,063.84	5.087	SF
Herren 1G-33H-A367 - Wellbore #1 - Design #1 23Feb18	400.00	399.00	30.00	27.57	12.378	CC, ES
Herren 1G-33H-A367 - Wellbore #1 - Design #1 23Feb18	11,891.56	11,885.30	799.78	537.83	3.053	SF
Herren 1H-33H-A367 - Wellbore #1 - Design #1 23Feb18	600.00	600.00	20.00	16.14	5.180	CC, ES
Herren 1H-33H-A367 - Wellbore #1 - Design #1 23Feb18	10,900.00	11,007.81	353.01	159.45	1.824	SF
Herren 1I-33H-A367 - Wellbore #1 - Design #1 23Feb18	200.00	200.00	10.00	9.01	10.069	CC, ES
Herren 1I-33H-A367 - Wellbore #1 - Design #1 23Feb18	11,891.56	11,814.74	375.76	116.79	1.451	Level 3, SF

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Reference Site:	Herren Pad	MD Reference:	WELL @ 4872.00usft (Original Well Elev)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Herren 1J-33H-A367	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	2.00 sigma
Reference Wellbore	Wellbore #1	Database:	EDM 5000.15 Single User Db
Reference Design:	Design #1 23Feb18 kjs	Offset TVD Reference:	Offset Datum

Summary						
Site Name	Reference Measured Depth (usft)	Offset Measured Depth (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
Relevant Existing Wells						
HERREN 1 - CPR - Gyro	8,348.78	7,120.62	934.51	867.39	13.923	CC, ES
HERREN 1 - CPR - Gyro	8,500.00	7,122.41	946.66	876.82	13.555	SF
HERREN 1A-33H - CPR - MWD Survey	10,936.55	10,712.28	1,154.29	948.65	5.613	CC
HERREN 1A-33H - CPR - MWD Survey	11,891.56	11,643.00	1,185.94	930.93	4.651	ES, SF
HERREN 31-33 - CPR - Gyro	9,422.41	7,094.29	2,026.64	1,934.68	22.039	CC
HERREN 31-33 - CPR - Gyro	9,500.00	7,093.38	2,028.12	1,934.32	21.621	ES
HERREN 31-33 - CPR - Gyro	10,000.00	7,087.70	2,107.33	2,003.94	20.383	SF
HERREN 32-33 - CPR - Gyro	9,411.69	7,106.88	248.88	157.10	2.711	CC, ES, SF
HERREN 41-33 - CPR - Gyro	1,044.84	1,006.64	1,804.17	1,797.30	262.658	CC
HERREN 41-33 - CPR - Gyro	1,100.00	1,060.28	1,804.37	1,797.13	248.946	ES
HERREN 41-33 - CPR - Gyro	8,700.00	7,133.28	2,174.87	2,103.43	30.444	SF
HERREN 42-33 - CPR - Gyro	1,126.59	1,105.61	125.78	118.28	16.770	CC, ES
HERREN 42-33 - CPR - Gyro	7,742.00	7,127.30	347.50	290.99	6.149	SF
PARKER 1 - CPR - Gyro	11,074.60	7,066.13	1,402.12	1,268.16	10.467	CC
PARKER 1 - CPR - Gyro	11,099.98	7,067.05	1,402.44	1,267.67	10.406	ES
PARKER 1 - CPR - Gyro	11,300.00	7,074.36	1,421.79	1,281.94	10.166	SF
PARKER 11-33 - CPR - Gyro	11,891.56	7,075.07	2,068.91	1,913.54	13.316	CC, ES, SF
PARKER 12-33 - CPR - Gyro	11,891.56	7,066.48	554.31	400.78	3.611	CC, ES, SF
PARKER 2-0-33 - CPR - Gyro	10,870.03	7,006.37	2,383.52	2,251.14	18.005	CC
PARKER 2-0-33 - CPR - Gyro	10,900.00	7,008.73	2,383.82	2,250.50	17.881	ES
PARKER 2-0-33 - CPR - Gyro	11,500.00	7,033.30	2,495.46	2,347.43	16.858	SF
PARKER 21-33 - CPR - Gyro	10,453.58	7,105.77	1,643.86	1,525.57	13.898	CC
PARKER 21-33 - CPR - Gyro	10,500.00	7,104.50	1,644.51	1,525.10	13.771	ES
PARKER 21-33 - CPR - Gyro	10,800.00	7,096.74	1,681.37	1,556.41	13.455	SF
PARKER 22-33 - CPR - Gyro	10,602.81	7,089.32	434.21	312.08	3.555	CC, ES, SF
PARKER 2-4-33 - CPR - Gyro	11,055.91	7,144.38	123.99	-13.78	0.900	Level 2, CC, ES, SF
PARKER 4-2-33 - CPR - Gyro	9,761.78	7,180.30	997.02	889.53	9.275	CC
PARKER 4-2-33 - CPR - Gyro	9,800.00	7,180.60	997.75	888.95	9.170	ES
PARKER 4-2-33 - CPR - Gyro	9,900.00	7,181.37	1,006.55	894.87	9.012	SF
SMITH 11-34 - KMG - Gyro	4,649.46	4,614.82	1,579.60	1,545.50	46.321	CC
SMITH 11-34 - KMG - Gyro	4,700.00	4,658.67	1,579.71	1,545.24	45.833	ES
SMITH 11-34 - KMG - Gyro	7,300.00	7,059.87	1,703.12	1,651.05	32.709	SF
SMITH 12-34A - KMG - Gyro	6,449.40	6,378.01	425.65	378.16	8.964	CC, ES
SMITH 12-34A - KMG - Gyro	6,500.00	6,429.38	426.78	378.93	8.919	SF
WHISTON 10N-33HZ - KMG - MWD	9,100.00	13,050.00	216.49	104.32	1.930	SF
WHISTON 10N-33HZ - KMG - MWD	9,200.00	13,050.00	188.59	99.00	2.105	ES
WHISTON 10N-33HZ - KMG - MWD	9,206.50	13,050.00	188.48	99.62	2.121	CC
WHISTON 15N-33HZ - KMG - MWD	8,600.00	13,310.00	243.45	135.53	2.256	SF
WHISTON 15N-33HZ - KMG - MWD	8,700.00	13,310.00	201.38	117.57	2.403	ES
WHISTON 15N-33HZ - KMG - MWD	8,743.57	13,310.00	196.61	121.54	2.619	CC
WHISTON 16N-33HZ - KMG - MWD	7,744.77	13,343.00	178.00	118.43	2.988	CC
WHISTON 16N-33HZ - KMG - MWD	7,800.00	13,343.00	186.37	110.97	2.472	ES
WHISTON 16N-33HZ - KMG - MWD	7,900.00	13,343.00	236.17	132.09	2.269	SF
WHISTON 20N-33HZ - KMG - MWD	8,510.52	13,129.00	164.86	93.33	2.305	CC
WHISTON 20N-33HZ - KMG - MWD	8,600.00	13,129.00	187.58	90.76	1.937	ES, SF
WHISTON 23C-33HZ - KMG - MWD	9,400.00	13,365.00	319.05	216.73	3.118	SF
WHISTON 23C-33HZ - KMG - MWD	9,500.00	13,365.00	295.34	205.41	3.284	ES
WHISTON 23C-33HZ - KMG - MWD	9,522.83	13,365.00	294.46	205.74	3.319	CC
WHISTON 24C-33HZ - KMG - MWD	8,200.00	13,383.00	341.16	251.20	3.792	SF
WHISTON 24C-33HZ - KMG - MWD	8,370.15	13,383.00	295.70	227.93	4.364	CC, ES
WHISTON 25N-33HZ - KMG - MWD	9,500.00	13,260.00	253.65	135.68	2.150	SF
WHISTON 25N-33HZ - KMG - MWD	9,600.00	13,260.00	222.77	123.19	2.237	ES
WHISTON 25N-33HZ - KMG - MWD	9,623.57	13,260.00	221.51	125.01	2.295	CC

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

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Reference Design:	Design #1 23Feb18 kjs	Offset TVD Reference:	Offset Datum

Summary						
Site Name	Reference Measured Depth (usft)	Offset Measured Depth (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
Relevant Existing Wells						
WHISTON 39C-33HZ - KMG - MWD	7,535.07	13,625.00	253.68	189.61	3.960	CC, ES
WHISTON 39C-33HZ - KMG - MWD	7,700.00	13,625.00	311.97	220.37	3.406	SF
WHISTON 40N-33HZ - KMG - MWD	7,327.82	13,359.00	181.82	115.94	2.760	CC
WHISTON 40N-33HZ - KMG - MWD	7,400.00	13,359.00	196.61	108.37	2.228	ES, SF
WHISTON 9N-33HZ - KMG - MWD	8,339.99	13,383.00	295.21	227.87	4.383	CC, ES
WHISTON 9N-33HZ - KMG - MWD	8,500.00	13,383.00	335.79	248.11	3.830	SF

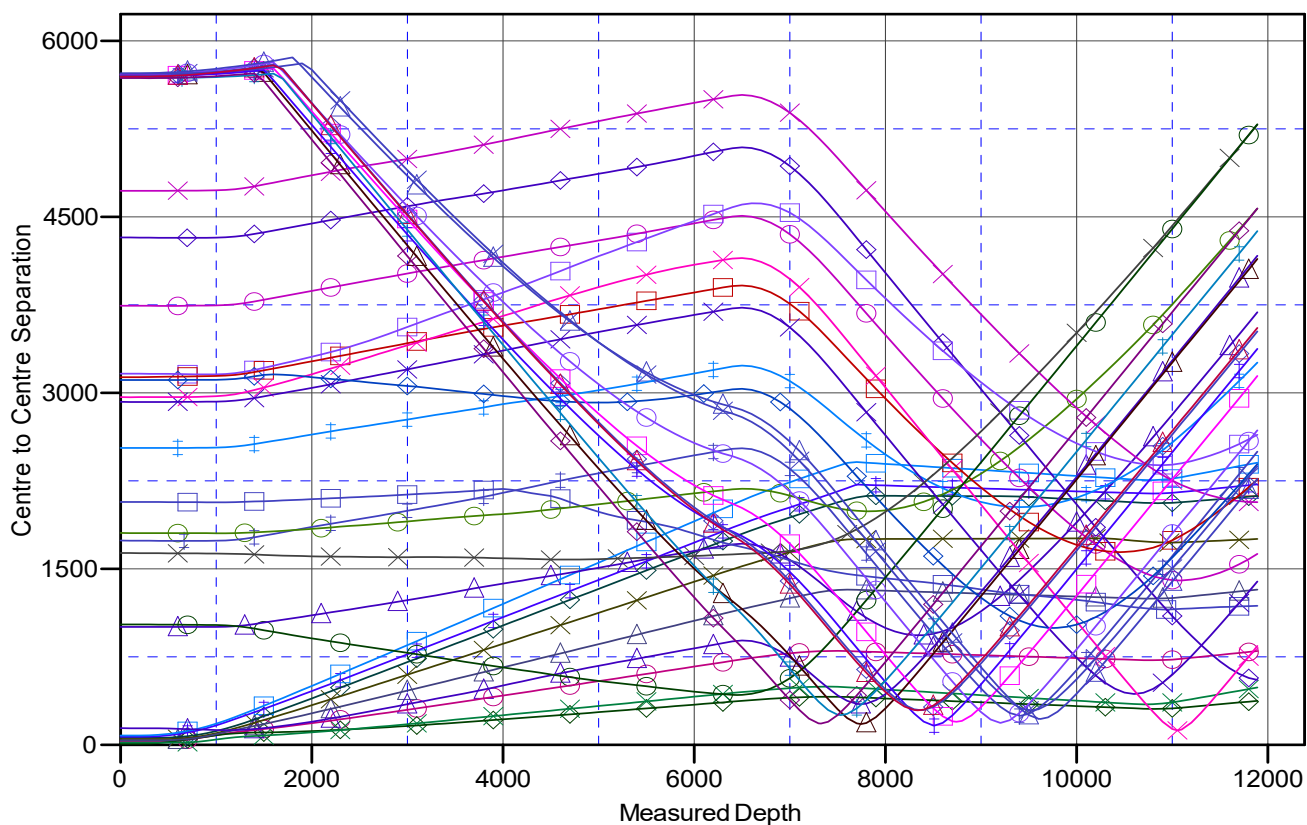
Company: Crestone Peak Resources
Project: Sec 33 T3N-R67W
Reference Site: Herren Pad
Site Error: 0.00 usft
Reference Well: Herren 1J-33H-A367
Well Error: 0.00 usft
Reference Wellbore Wellbore #1
Reference Design: Design #1 23Feb18 kjs

Local Co-ordinate Reference: Well Herren 1J-33H-A367
TVD Reference: WELL @ 4872.00usft (Original Well Elev)
MD Reference: WELL @ 4872.00usft (Original Well Elev)
North Reference: True
Survey Calculation Method: Minimum Curvature
Output errors are at 2.00 sigma
Database: EDM 5000.15 Single User Db
Offset TVD Reference: Offset Datum

Reference Depths are relative to WELL @ 4872.00usft (Original Well E
Offset Depths are relative to Offset Datum
Central Meridian is -105.500000

Coordinates are relative to: Herren 1J-33H-A367
Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: 0.40°

Ladder Plot



LEGEND

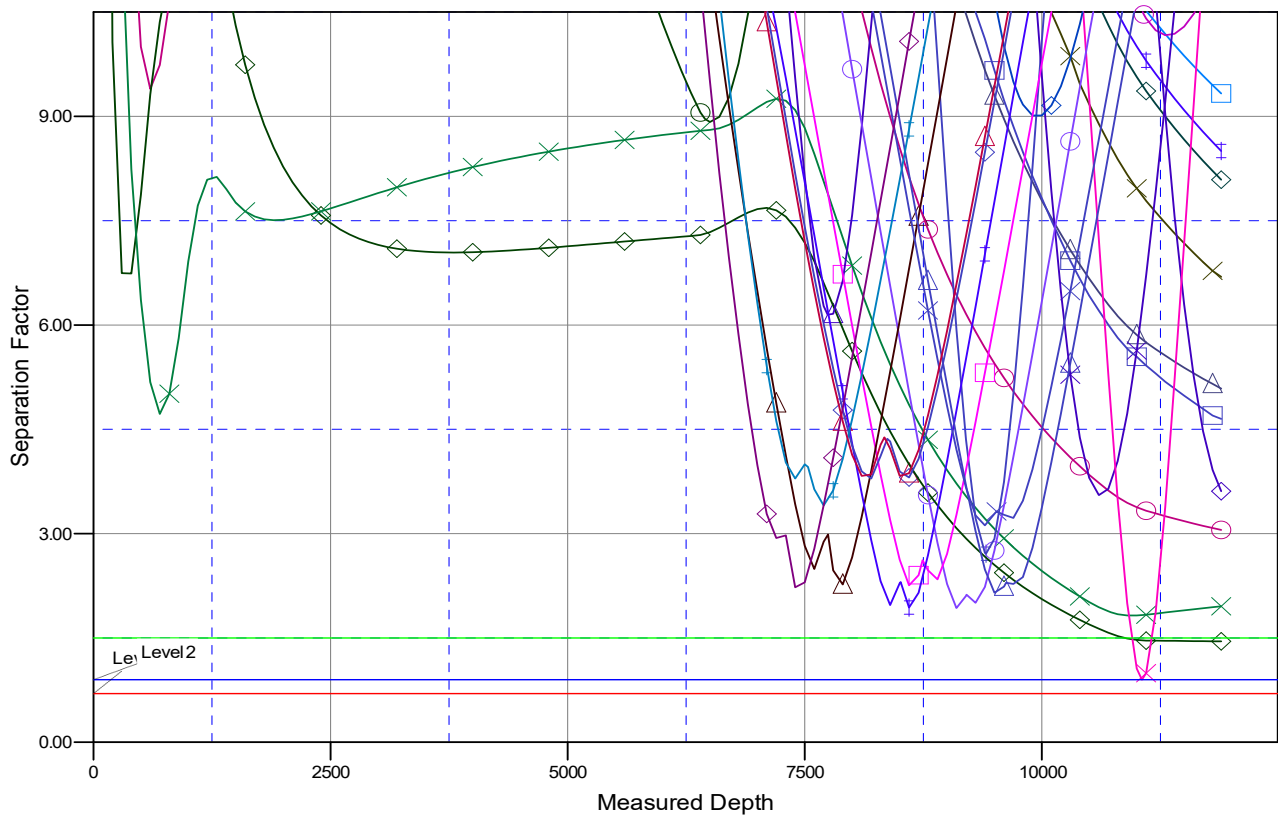
Herren 1D33H-A367, Wellbore #1, Design #1 23Feb18 kjs V0	HERREN 41-33, CPR, Gyro V0	WHISTON 10N-33HZ, KMG, MWD V0
Herren 1C33H-A367, Wellbore #1, Design #1 23Feb18 kjs V0	HERREN 42-33, CPR, Gyro V0	WHISTON 19N-33HZ, KMG, MWD V0
Herren 1B33H-A367, Wellbore #1, Design #1 21Feb18 kjs V0	PARKER 1, CPR, Gyro V0	WHISTON 16N-33HZ, KMG, MWD V0
Herren 1G33H-A367, Wellbore #1, Design #1 23Feb18 kjs V0	PARKER 11-33, CPR, Gyro V0	WHISTON 20N-33HZ, KMG, MWD V0
Herren 1I33H-A367, Wellbore #1, Design #1 23Feb18 kjs V0	PARKER 12-33, CPR, Gyro V0	WHISTON 23C-33HZ, KMG, MWD V0
Herren 1H33H-A367, Wellbore #1, Design #1 23Feb18 kjs V0	PARKER 2-0-33, CPR, Gyro V0	WHISTON 24C-33HZ, KMG, MWD V0
Herren 1E33H-A367, Wellbore #1, Design #1 23Feb18 kjs V0	PARKER 21-33, CPR, Gyro V0	WHISTON 29N-33HZ, KMG, MWD V0
Herren 1F33H-A367, Wellbore #1, Design #1 23Feb18 kjs V0	PARKER 22-33, CPR, Gyro V0	WHISTON 39C-33HZ, KMG, MWD V0
HERREN 1, CPR, Gyro V0	PARKER 2-4-33, CPR, Gyro V0	WHISTON 40N-33HZ, KMG, MWD V0
HERREN 1A-33H, CPR, MWD Survey V0	PARKER 4-2-33, CPR, Gyro V0	WHISTON 9N-33HZ, KMG, MWD V0
HERREN 31-33, CPR, Gyro V0	SMITH 11-34, KMG, Gyro V0	
HERREN 32-33, CPR, Gyro V0		

Company:	Crestone Peak Resources	Local Co-ordinate Reference:	Well Herren 1J-33H-A367
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Reference Depths are relative to WELL @ 4872.00usft (Original Well E
Offset Depths are relative to Offset Datum
Central Meridian is -105.500000

Coordinates are relative to: Herren 1J-33H-A367
Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: 0.40°

Separation Factor Plot



LEGEND

Herren 1D33H-A367, Wellbore #1, Design #1 23Feb18 kjs V0	HERREN 41-33, CPR, GYRO V0	WHISTON 10N-33HZ, KMG, MWD V0
Herren 1C33H-A367, Wellbore #1, Design #1 23Feb18 kjs V0	HERREN 42-33, CPR, GYRO V0	WHISTON 19N-33HZ, KMG, MWD V0
Herren 1B33H-A367, Wellbore #1, Design #1 21Feb18 kjs V0	PARKER 1, CPR, GYRO V0	WHISTON 16N-33HZ, KMG, MWD V0
Herren 1G33H-A367, Wellbore #1, Design #1 23Feb18 kjs V0	PARKER 11-33, CPR, GYRO V0	WHISTON 20N-33HZ, KMG, MWD V0
Herren 1H33H-A367, Wellbore #1, Design #1 23Feb18 kjs V0	PARKER 12-33, CPR, GYRO V0	WHISTON 23C-33HZ, KMG, MWD V0
Herren 1E33H-A367, Wellbore #1, Design #1 23Feb18 kjs V0	PARKER 2-0-33, CPR, GYRO V0	WHISTON 24C-33HZ, KMG, MWD V0
Herren 1F33H-A367, Wellbore #1, Design #1 23Feb18 kjs V0	PARKER 21-33, CPR, GYRO V0	WHISTON 29N-33HZ, KMG, MWD V0
HERREN 1, CPR, GYRO V0	PARKER 22-33, CPR, GYRO V0	WHISTON 39C-33HZ, KMG, MWD V0
HERREN 1A-33H, CPR, MWD Survey V0	PARKER 4-2-33, CPR, GYRO V0	WHISTON 40N-33HZ, KMG, MWD V0
HERREN 31-33, CPR, GYRO V0	SMITH 11-34, KMG, GYRO V0	
HERREN 32-33, CPR, GYRO V0		