



Mallard Exploration

Weld Co., CO

Sec.32-T09N-R60W

Canvasback Fed 32-33-1HN

API #05-123-49661

Original Hole

Survey: Renovare MWD Surface

Standard Survey Report

11 October, 2022



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Renovare Energy

Survey Report



Company:	Mallard Exploration	Local Co-ordinate Reference:	Well Canvasback Fed 32-33-1HN
Project:	Weld Co., CO	TVD Reference:	KB 15' @ 4958.00usft (Cartel 11)
Site:	Sec.32-T09N-R60W	MD Reference:	KB 15' @ 4958.00usft (Cartel 11)
Well:	Canvasback Fed 32-33-1HN	North Reference:	True
Wellbore:	Original Hole	Survey Calculation Method:	Minimum Curvature
Design:	RE1005221-8	Database:	EDM 5000.1 Single User Db

Project	Weld Co., CO		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	Colorado Northern Zone		

Site		Sec.32-T09N-R60W			
Site Position:		Northing:	1,503,646.550 usft	Latitude:	40° 42' 27.986 N
From:	Lat/Long	Easting:	3,381,534.928 usft	Longitude:	104° 7' 25.622 W
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.89 °

Well	Canvasback Fed 32-33-1HN, SWNW 32 9N60W 6					
Well Position	+N/-S	0.00 usft	Northing:	1,503,706.250 usft	Latitude:	40° 42' 28.577 N
	+E/-W	0.00 usft	Easting:	3,381,531.783 usft	Longitude:	104° 7' 25.651 W
Position Uncertainty		0.00 usft	Wellhead Elevation:	4,958.00 usft	Ground Level:	4,943.00 usft

Wellbore	Original Hole				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2020	10/11/22	7.40	66.93	52,038

Design	RE1005221-8				
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	79.99	

Survey Program	Date	10/11/22			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
138.00	1,934.00	Renovare MWD Surface (Original Hole)	MWD	MWD - Standard	

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
Surface									
138.00	1.20	287.90	137.99	0.44	-1.38	-1.28	0.87	0.87	0.00
First Renovare Survey									
229.00	2.20	304.30	228.95	1.72	-3.72	-3.37	1.21	1.10	18.02
321.00	3.20	331.90	320.85	4.98	-6.39	-5.43	1.75	1.09	30.00
408.00	5.20	334.70	407.61	10.69	-9.22	-7.22	2.31	2.30	3.22
495.00	7.50	336.80	494.07	19.47	-13.14	-9.56	2.66	2.64	2.41
582.00	9.10	328.10	580.16	30.53	-19.02	-13.42	2.33	1.84	-10.00
669.00	11.60	325.60	665.74	43.59	-27.60	-19.60	2.92	2.87	-2.87

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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)
757.00	14.30	324.50	751.49	59.74	-38.91	-27.93	3.08	3.07	-1.25
845.00	15.80	325.40	836.47	78.46	-52.02	-37.59	1.73	1.70	1.02
932.00	17.60	326.10	919.80	99.12	-66.09	-47.85	2.08	2.07	0.80
1,019.00	19.20	327.10	1,002.35	122.05	-81.19	-58.74	1.87	1.84	1.15
1,106.00	20.90	327.80	1,084.07	147.20	-97.23	-70.17	1.97	1.95	0.80
1,194.00	20.00	324.40	1,166.53	172.72	-114.36	-82.60	1.69	-1.02	-3.86
1,282.00	21.70	324.00	1,248.76	198.12	-132.68	-96.23	1.94	1.93	-0.45
1,370.00	20.40	324.50	1,330.89	223.77	-151.15	-109.96	1.49	-1.48	0.57
1,458.00	21.70	325.60	1,413.02	249.68	-169.25	-123.28	1.54	1.48	1.25
1,545.00	20.17	327.00	1,494.27	275.53	-186.51	-135.78	1.85	-1.76	1.61
1,635.00	20.20	327.40	1,578.74	301.63	-203.33	-147.81	0.16	0.03	0.44
1,725.00	21.90	329.00	1,662.74	329.11	-220.35	-159.79	1.99	1.89	1.78
1,811.00	21.00	327.50	1,742.78	355.86	-236.89	-171.43	1.23	-1.05	-1.74
1,884.00	20.80	326.30	1,810.98	377.67	-251.11	-181.64	0.65	-0.27	-1.64
Last Renovare Survey									
1,934.00	20.80	326.30	1,857.72	392.45	-260.96	-188.77	0.00	0.00	0.00
Proj to BHL/TD									

Survey Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
0.00	0.00	0.00	0.00	Surface
138.00	137.99	0.44	-1.38	First Renovare Survey
1,884.00	1,810.98	377.67	-251.11	Last Renovare Survey
1,934.00	1,857.72	392.45	-260.96	Proj to BHL/TD

Checked By: _____	Approved By: _____	Date: _____
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