



Mallard Exploration

Weld Co., CO

Sec.32-T09N-R60W

Canvasback Fed 32-33-3HN

API #05-123-49657

Original Hole

Survey: Renovare MWD Surface

Standard Survey Report

10 October, 2022



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Renovare Energy

Survey Report



Company:	Mallard Exploration	Local Co-ordinate Reference:	Well Canvasback Fed 32-33-3HN
Project:	Weld Co., CO	TVD Reference:	KB 15' @ 4959.00usft (Cartel 11)
Site:	Sec.32-T09N-R60W	MD Reference:	KB 15' @ 4959.00usft (Cartel 11)
Well:	Canvasback Fed 32-33-3HN	North Reference:	True
Wellbore:	Original Hole	Survey Calculation Method:	Minimum Curvature
Design:	RE1005221-6	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 32-33-3HN, SWNW 32 9N60W 6					
Well Position	+N/-S	0.00 usft	Northing:	1,503,666.565 usft	Latitude:	40° 42' 28.184 N
	+E/-W	0.00 usft	Easting:	3,381,533.785 usft	Longitude:	104° 7' 25.633 W
Position Uncertainty		0.00 usft	Wellhead Elevation:	4,959.00 usft	Ground Level:	4,944.00 usft

Wellbore	Original Hole				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2020	10/09/22	7.40	66.93	52,038

Design	RE1005221-6				
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	89.04	

Survey Program	Date	10/10/22			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
138.00	1,899.00	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	1.00	318.70	137.99	0.90	-0.79	-0.78	0.72	0.72	0.00
First Renovare Survey									
229.00	1.30	339.40	228.97	2.47	-1.68	-1.64	0.56	0.33	22.75
321.00	1.60	302.40	320.95	4.13	-3.13	-3.06	1.05	0.33	-40.22
408.00	2.90	264.70	407.88	4.58	-6.35	-6.27	2.19	1.49	-43.33
495.00	4.90	261.60	494.68	3.83	-12.22	-12.15	2.31	2.30	-3.56
582.00	6.90	259.70	581.21	2.36	-21.04	-20.99	2.31	2.30	-2.18
669.00	9.40	255.40	667.33	-0.37	-33.06	-33.06	2.96	2.87	-4.94

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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	10.50	255.90	754.00	-4.13	-47.79	-47.85	1.25	1.25	0.57
845.00	11.00	256.80	840.46	-8.00	-63.74	-63.86	0.60	0.57	1.02
932.00	10.20	258.90	925.97	-11.38	-79.38	-79.56	1.02	-0.92	2.41
1,019.00	9.90	258.40	1,011.64	-14.37	-94.26	-94.49	0.36	-0.34	-0.57
1,106.00	11.30	260.10	1,097.15	-17.34	-109.99	-110.26	1.65	1.61	1.95
1,194.00	9.00	255.70	1,183.77	-20.52	-125.15	-125.48	2.76	-2.61	-5.00
1,282.00	10.10	254.60	1,270.55	-24.27	-139.26	-139.65	1.27	1.25	-1.25
1,370.00	8.00	260.40	1,357.45	-27.34	-152.74	-153.18	2.60	-2.39	6.59
1,458.00	9.20	262.40	1,444.46	-29.29	-165.75	-166.22	1.41	1.36	2.27
1,545.00	10.20	265.90	1,530.21	-30.76	-180.33	-180.82	1.33	1.15	4.02
1,635.00	12.10	265.30	1,618.51	-32.11	-197.68	-198.19	2.12	2.11	-0.67
1,725.00	12.10	263.30	1,706.51	-33.98	-216.45	-216.99	0.47	0.00	-2.22
1,811.00	11.90	261.40	1,790.63	-36.36	-234.17	-234.75	0.51	-0.23	-2.21
1,849.00	12.30	260.40	1,827.79	-37.62	-242.03	-242.63	1.19	1.05	-2.63
Last Renovare Survey									
1,899.00	12.30	260.40	1,876.64	-39.40	-252.54	-253.16	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	0.90	-0.79	First Renovare Survey
1,849.00	1,827.79	-37.62	-242.03	Last Renovare Survey
1,899.00	1,876.64	-39.40	-252.54	Proj to BHL/TD

Checked By: _____	Approved By: _____	Date: _____
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