



# **Mallard Exploration**

**Weld Co., CO**

**Sec.32-T09N-R60W**

**Canvasback Fed 32-33-2HN**

**API #05-123-49655**

**Original Hole**

**Survey: Renovare MWD Surface**

## **Standard Survey Report**

**10 October, 2022**



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# Renovare Energy

## Survey Report



<b>Company:</b>	Mallard Exploration	<b>Local Co-ordinate Reference:</b>	Well Canvasback Fed 32-33-2HN
<b>Project:</b>	Weld Co., CO	<b>TVD Reference:</b>	KB 15' @ 4958.00usft (Cartel 11)
<b>Site:</b>	Sec.32-T09N-R60W	<b>MD Reference:</b>	KB 15' @ 4958.00usft (Cartel 11)
<b>Well:</b>	Canvasback Fed 32-33-2HN	<b>North Reference:</b>	True
<b>Wellbore:</b>	Original Hole	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	RE1005221-7	<b>Database:</b>	EDM 5000.1 Single User Db

<b>Project</b>	Weld Co., CO		
<b>Map System:</b>	US State Plane 1983	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	North American Datum 1983		
<b>Map Zone:</b>	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 32-33-2HN, SWNW 32 9N60W 6					
Well Position	+N/-S	0.00 usft	Northing:	1,503,686.267 usft	Latitude:	40° 42' 28.379 N
	+E/-W	0.00 usft	Easting:	3,381,535.420 usft	Longitude:	104° 7' 25.608 W
Position Uncertainty		0.00 usft	Wellhead Elevation:	4,958.00 usft	Ground Level:	4,943.00 usft

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

Design	RE1005221-7				
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	84.69	

<b>Survey Program</b>	<b>Date</b>	10/10/22			
<b>From (usft)</b>	<b>To (usft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>	
138.00	1,889.00	Renovare MWD Surface (Original Hole)	MWD	MWD - Standard	

<b>Survey</b>									
<b>Measured Depth (usft)</b>	<b>Inclination (°)</b>	<b>Azimuth (°)</b>	<b>Vertical Depth (usft)</b>	<b>+N/-S (usft)</b>	<b>+E/-W (usft)</b>	<b>Vertical Section (usft)</b>	<b>Dogleg Rate (°/100usft)</b>	<b>Build Rate (°/100usft)</b>	<b>Turn Rate (°/100usft)</b>
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Surface</b>									
138.00	0.60	9.40	138.00	0.71	0.12	0.18	0.43	0.43	0.00
<b>First Renovare Survey</b>									
229.00	0.90	26.70	228.99	1.82	0.52	0.68	0.41	0.33	19.01
321.00	1.30	311.50	320.98	3.16	0.06	0.35	1.50	0.43	-81.74
408.00	3.10	305.10	407.91	5.17	-2.60	-2.11	2.08	2.07	-7.36
495.00	4.30	290.80	494.73	7.68	-7.58	-6.84	1.73	1.38	-16.44
582.00	6.50	284.30	581.34	10.05	-15.40	-14.40	2.62	2.53	-7.47
669.00	9.30	289.60	667.50	13.63	-26.80	-25.42	3.32	3.22	6.09

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<b>Well:</b>	Canvasback Fed 32-33-2HN	<b>North Reference:</b>	True
<b>Wellbore:</b>	Original Hole	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	RE1005221-7	<b>Database:</b>	EDM 5000.1 Single User Db

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	10.30	290.80	754.22	18.81	-40.85	-38.93	1.16	1.14	1.36
845.00	10.90	291.60	840.72	24.66	-55.94	-53.42	0.70	0.68	0.91
932.00	12.00	292.30	925.98	31.12	-71.96	-68.77	1.27	1.26	0.80
1,019.00	13.20	294.10	1,010.89	38.61	-89.39	-85.44	1.45	1.38	2.07
1,106.00	11.60	293.40	1,095.86	46.14	-106.49	-101.76	1.85	-1.84	-0.80
1,194.00	9.10	300.50	1,182.42	53.19	-120.61	-115.17	3.18	-2.84	8.07
1,282.00	9.80	299.40	1,269.23	60.40	-133.13	-126.97	0.82	0.80	-1.25
1,370.00	9.80	292.30	1,355.94	66.91	-146.58	-139.76	1.37	0.00	-8.07
1,458.00	11.40	293.20	1,442.44	73.18	-161.51	-154.04	1.83	1.82	1.02
1,545.00	12.30	295.20	1,527.59	80.52	-177.79	-169.58	1.14	1.03	2.30
1,635.00	13.50	295.80	1,615.31	89.17	-195.93	-186.83	1.34	1.33	0.67
1,725.00	12.70	295.20	1,702.97	97.95	-214.34	-204.35	0.90	-0.89	-0.67
1,811.00	12.60	294.50	1,786.88	105.87	-231.43	-220.64	0.21	-0.12	-0.81
1,839.00	12.50	293.70	1,814.21	108.35	-236.98	-225.93	0.72	-0.36	-2.86
<b>Last Renovare Survey</b>									
1,889.00	12.50	293.70	1,863.03	112.70	-246.89	-235.40	0.00	0.00	0.00
<b>Proj to BHL/TD</b>									

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	138.00	0.71	0.12	First Renovare Survey
1,839.00	1,814.21	108.35	-236.98	Last Renovare Survey
1,889.00	1,863.03	112.70	-246.89	Proj to BHL/TD

Checked By: _____	Approved By: _____	Date: _____
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