



## **Mallard Exploration**

**Weld Co., CO**

**Sec.19-T08N-R60W**

**Hunt Fed 8-60 19-24-3**

**API #05-123-46707**

**Original Hole**

**Survey: Renovare MWD Surface**

## **Standard Survey Report**

**01 August, 2022**



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# Renovare Energy

## Survey Report



<b>Company:</b>	Mallard Exploration	<b>Local Co-ordinate Reference:</b>	Well Hunt Fed 8-60 19-24-3
<b>Project:</b>	Weld Co., CO	<b>TVD Reference:</b>	KB 15' @ 4947.00usft (Cartel 11)
<b>Site:</b>	Sec.19-T08N-R60W	<b>MD Reference:</b>	KB 15' @ 4947.00usft (Cartel 11)
<b>Well:</b>	Hunt Fed 8-60 19-24-3	<b>North Reference:</b>	True
<b>Wellbore:</b>	Original Hole	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	RE0729221-2	<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.19-T08N-R60W					
Site Position:		Northing:	1,482,695.68	usft	Latitude:	40° 39' 1.07280 N	
From:	Lat/Long	Easting:	3,380,986.48	usft	Longitude:	104° 7' 36.95520 W	
Position Uncertainty:	0.00	usft	Slot Radius:	13.200	in	Grid Convergence:	0.89 °

Well	Hunt Fed 8-60 19-24-3, SENE 19 8N60W					
Well Position	+N/-S	0.00 usft	Northing:	1,482,695.73 usft	Latitude:	40° 39' 1.07628 N
	+E/-W	0.00 usft	Easting:	3,380,966.50 usft	Longitude:	104° 7' 37.21440 W
Position Uncertainty		0.00 usft	Wellhead Elevation:	4,947.00 usft	Ground Level:	4,932.00 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	07/30/22	7.41	66.89	52,029

<b>Design</b>	RE0729221-2				
<b>Audit Notes:</b>					
<b>Version:</b>	1.0	<b>Phase:</b>	ACTUAL	<b>Tie On Depth:</b>	0.00
<b>Vertical Section:</b>	<b>Depth From (TVD) (usft)</b>	<b>+N/-S (usft)</b>	<b>+E/-W (usft)</b>	<b>Direction (°)</b>	
	0.00	0.00	0.00	272.11	

<b>Survey Program</b>	<b>Date</b>	08/01/22			
<b>From (usft)</b>	<b>To (usft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>	
111.00	1,940.00	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 (°/100ft)</b>	<b>Build Rate (°/100ft)</b>	<b>Turn Rate (°/100ft)</b>
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Surface</b>									
111.00	0.60	355.30	111.00	0.58	-0.05	0.07	0.54	0.54	0.00
<b>First Renovare Survey</b>									
202.00	0.60	344.70	201.99	1.51	-0.21	0.27	0.12	0.00	-11.65
294.00	0.50	24.00	293.99	2.35	-0.18	0.26	0.41	-0.11	42.72
455.00	1.40	115.80	454.97	2.13	1.88	-1.80	0.93	0.56	57.02
542.00	2.10	70.30	541.93	2.21	4.34	-4.25	1.72	0.80	-52.30
629.00	2.60	70.00	628.86	3.42	7.69	-7.56	0.57	0.57	-0.34
717.00	3.00	37.80	716.76	5.92	10.98	-10.75	1.82	0.45	-36.59

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<b>Site:</b>	Sec.19-T08N-R60W	<b>MD Reference:</b>	KB 15' @ 4947.00usft (Cartel 11)
<b>Well:</b>	Hunt Fed 8-60 19-24-3	<b>North Reference:</b>	True
<b>Wellbore:</b>	Original Hole	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	RE0729221-2	<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 (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
804.00	3.90	37.30	803.60	10.07	14.17	-13.79	1.04	1.03	-0.57
891.00	5.10	53.90	890.34	14.70	19.09	-18.53	2.02	1.38	19.08
978.00	6.60	54.80	976.88	19.87	26.30	-25.55	1.73	1.72	1.03
1,065.00	8.40	56.90	1,063.13	26.22	35.71	-34.72	2.09	2.07	2.41
1,153.00	10.20	59.40	1,149.97	33.70	47.80	-46.53	2.10	2.05	2.84
1,240.00	12.00	59.60	1,235.34	42.19	62.23	-60.64	2.07	2.07	0.23
1,327.00	14.30	62.30	1,320.06	51.77	79.55	-77.59	2.74	2.64	3.10
1,414.00	12.40	66.10	1,404.70	60.55	97.60	-95.31	2.40	-2.18	4.37
1,501.00	12.30	64.30	1,489.69	68.35	114.49	-111.90	0.46	-0.11	-2.07
1,589.00	10.90	62.30	1,575.89	76.28	130.31	-127.41	1.66	-1.59	-2.27
1,676.00	12.30	62.00	1,661.11	84.46	145.77	-142.56	1.61	1.61	-0.34
1,763.00	11.50	67.20	1,746.24	92.17	161.95	-158.45	1.54	-0.92	5.98
1,850.00	11.00	70.30	1,831.57	98.33	177.76	-174.02	0.90	-0.57	3.56
1,890.00	11.30	72.00	1,870.82	100.82	185.08	-181.24	1.11	0.75	4.25
Last Renovare Survey									
1,940.00	11.30	72.00	1,919.85	103.85	194.40	-190.44	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
111.00	111.00	0.58	-0.05	First Renovare Survey
1,890.00	1,870.82	100.82	185.08	Last Renovare Survey
1,940.00	1,919.85	103.85	194.40	Proj to BHL/TD

Checked By: _____	Approved By: _____	Date: _____
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