



## **Mallard Exploration**

**Weld Co., CO**

**Sec.19-T08N-R60W**

**Hunt Fed 8-60 19-24-7**

**API #05-123-46708**

**Original Hole**

**Survey: Renovare MWD Surface**

## **Standard Survey Report**

**02 August, 2022**



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<b>Company:</b>	Mallard Exploration	<b>Local Co-ordinate Reference:</b>	Well Hunt Fed 8-60 19-24-7
<b>Project:</b>	Weld Co., CO	<b>TVD Reference:</b>	KB 15' @ 4948.00usft (Cartel 11)
<b>Site:</b>	Sec.19-T08N-R60W	<b>MD Reference:</b>	KB 15' @ 4948.00usft (Cartel 11)
<b>Well:</b>	Hunt Fed 8-60 19-24-7	<b>North Reference:</b>	True
<b>Wellbore:</b>	Original Hole	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	RE0729221-5	<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 19-24-7, SENE 19 8N60W					
Well Position	+N/-S	0.00 usft	Northing:	1,482,695.51 usft	Latitude:	40° 39' 1.06188 N
	+E/-W	0.00 usft	Easting:	3,381,046.43 usft	Longitude:	104° 7' 36.17760 W
Position Uncertainty		0.00 usft	Wellhead Elevation:	4,948.00 usft	Ground Level:	4,933.00 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	08/02/22	7.41	66.89	52,028

<b>Design</b>	RE0729221-5				
<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	259.85	

<b>Survey Program</b>	<b>Date</b>	08/02/22			
<b>From (usft)</b>	<b>To (usft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>	
202.00	1,978.00	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>									
202.00	0.00	0.00	202.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>First Renovare Survey</b>									
294.00	1.10	159.10	293.99	-0.83	0.32	-0.16	1.20	1.20	0.00
367.00	2.90	169.10	366.95	-3.29	0.91	-0.32	2.50	2.47	13.70
454.00	4.40	161.10	453.77	-8.61	2.41	-0.86	1.82	1.72	-9.20
542.00	7.30	158.50	541.30	-17.01	5.55	-2.47	3.31	3.30	-2.95
629.00	9.50	154.80	627.36	-28.65	10.64	-5.42	2.60	2.53	-4.25
716.00	10.70	153.90	713.01	-42.40	17.25	-9.51	1.39	1.38	-1.03

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<b>Well:</b>	Hunt Fed 8-60 19-24-7	<b>North Reference:</b>	True
<b>Wellbore:</b>	Original Hole	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	RE0729221-5	<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)	
803.00	12.60	156.90	798.22	-58.38	24.53	-13.85	2.29	2.18	3.45	
890.00	15.30	158.00	882.64	-77.76	32.55	-18.34	3.12	3.10	1.26	
978.00	18.10	158.50	966.92	-101.25	41.91	-23.41	3.19	3.18	0.57	
1,065.00	20.10	159.40	1,049.13	-127.82	52.12	-28.78	2.32	2.30	1.03	
1,152.00	20.30	161.40	1,130.78	-156.11	62.20	-33.71	0.83	0.23	2.30	
1,239.00	19.20	158.60	1,212.66	-183.74	72.23	-38.72	1.67	-1.26	-3.22	
1,327.00	20.70	159.30	1,295.38	-211.76	83.01	-44.39	1.73	1.70	0.80	
1,414.00	22.50	161.30	1,376.27	-241.91	93.78	-49.68	2.24	2.07	2.30	
1,501.00	22.60	159.10	1,456.62	-273.30	105.08	-55.28	0.98	0.11	-2.53	
1,588.00	21.70	155.30	1,537.20	-303.53	117.77	-62.44	1.94	-1.03	-4.37	
1,675.00	22.50	155.10	1,617.81	-333.24	131.50	-70.72	0.92	0.92	-0.23	
1,763.00	23.70	156.50	1,698.75	-364.74	145.64	-79.09	1.50	1.36	1.59	
1,850.00	21.80	154.50	1,778.98	-395.36	159.57	-87.40	2.36	-2.18	-2.30	
1,928.00	22.10	156.70	1,851.33	-421.90	171.61	-94.57	1.12	0.38	2.82	
Last Renovare Survey										
1,978.00	22.10	156.70	1,897.66	-439.18	179.05	-98.85	0.00	0.00	0.00	
Proj to BHL/TD										

Survey Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
0.00	0.00	0.00	0.00	Surface	
202.00	202.00	0.00	0.00	First Renovare Survey	
1,928.00	1,851.33	-421.90	171.61	Last Renovare Survey	
1,978.00	1,897.66	-439.18	179.05	Proj to BHL/TD	

Checked By: _____	Approved By: _____	Date: _____
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