



Tap Rock Resources, LLC

Lea County, NM (NAD 83 NME)
(Black Marlin) Sec-18_T-25-S_R-36-E
Black Marlin Fed Com #214H

OWB

Design: AWB

Standard Survey Report

15 June, 2020





Operator: Taprock Resources LLC
Well Name: Black Marlin Fed Com #214H
County: Lea
State: New Mexico
Rig Name: H&P 388
API: 30-025-46977

Intrepid Directional Drilling Specialists certifies that the surveys performed on the above referenced well are true and correct MWD surveys, data provided as follows:

Surveyor: Intrepid Directional Drilling Specialists
Survey Depths: 179' MD – 21985' MD
Projection to Bit: 22055MD
Dates Performed: 05/22/2020 – 06/14/2020
Type of Survey: MWD

Sincerely,

A handwritten signature in blue ink, appearing to read "Jim", written over a light blue horizontal line.

James Burlison
Vice President of MWD Operations
Intrepid Directional Drilling Specialists





Company:	Tap Rock Resources, LLC	Local Co-ordinate Reference:	Well Black Marlin Fed Com #214H
Project:	Lea County, NM (NAD 83 NME)	TVD Reference:	KB @ 3210.0usft (H&P 388)
Site:	(Black Marlin) Sec-18_T-25-S_R-36-E	MD Reference:	KB @ 3210.0usft (H&P 388)
Well:	Black Marlin Fed Com #214H	North Reference:	Grid
Wellbore:	OWB	Survey Calculation Method:	Minimum Curvature
Design:	AWB	Database:	EDM 5000.15 Single User Db

Project	Lea County, NM (NAD 83 NME)		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Eastern Zone		

Site	(Black Marlin) Sec-18_T-25-S_R-36-E				
Site Position:		Northing:	415,156.00 usft	Latitude:	32° 8' 13.653 N
From:	Map	Easting:	861,141.00 usft	Longitude:	103° 18' 0.552 W
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.55 °

Well	Black Marlin Fed Com #214H					
Well Position	+N/-S	0.0 usft	Northing:	415,156.00 usft	Latitude:	32° 8' 13.648 N
	+E/-W	0.0 usft	Easting:	861,191.00 usft	Longitude:	103° 17' 59.970 W
Position Uncertainty		0.0 usft	Wellhead Elevation:	usft	Ground Level:	3,184.0 usft

Wellbore	OWB				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM	05/25/20	6.49	59.73	47,690.19352032

Design	AWB				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)	
	0.0	0.0	0.0	179.43	

Survey Program	Date	06/15/20			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
179.0	22,055.0	Intrepid MWD (OWB)	MWD	OWSG 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)	
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00	
179.0	0.31	218.28	179.0	-0.4	-0.3	0.4	0.17	0.17	0.00	
240.0	0.62	240.96	240.0	-0.7	-0.7	0.7	0.58	0.51	37.18	
315.0	0.73	238.47	315.0	-1.1	-1.5	1.1	0.15	0.14	-3.32	
Rustler Anhydrite										
330.0	0.75	238.06	330.0	-1.2	-1.6	1.2	0.15	0.15	-2.74	
419.0	1.01	231.99	419.0	-2.0	-2.7	2.0	0.31	0.29	-6.82	
509.0	1.19	223.29	509.0	-3.2	-4.0	3.1	0.27	0.20	-9.67	
602.0	0.97	212.66	601.9	-4.5	-5.1	4.5	0.32	-0.24	-11.43	
693.0	1.10	213.89	692.9	-5.9	-6.0	5.9	0.14	0.14	1.35	
785.0	1.01	221.45	784.9	-7.3	-7.0	7.2	0.18	-0.10	8.22	



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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)
855.1	1.04	213.13	855.0	-8.3	-7.8	8.2	0.22	0.04	-11.87
Top Salt									
877.0	1.05	210.64	876.9	-8.6	-8.0	8.5	0.22	0.06	-11.38
968.0	0.79	206.07	967.9	-9.9	-8.7	9.8	0.30	-0.29	-5.02
1,063.0	0.75	199.65	1,062.9	-11.0	-9.2	11.0	0.10	-0.04	-6.76
1,158.0	0.97	221.18	1,157.9	-12.2	-9.9	12.1	0.41	0.23	22.66
1,256.0	1.27	205.63	1,255.9	-13.8	-10.9	13.7	0.43	0.31	-15.87
1,353.0	1.49	200.44	1,352.8	-16.0	-11.8	15.9	0.26	0.23	-5.35
1,449.0	1.32	196.14	1,448.8	-18.2	-12.6	18.1	0.21	-0.18	-4.48
1,544.0	1.23	161.24	1,543.8	-20.2	-12.6	20.1	0.81	-0.09	-36.74
1,639.0	0.88	145.86	1,638.8	-21.8	-11.8	21.7	0.47	-0.37	-16.19
1,734.0	0.97	136.81	1,733.7	-23.0	-10.9	22.9	0.18	0.09	-9.53
1,829.0	2.20	80.73	1,828.7	-23.3	-8.5	23.2	1.94	1.29	-59.03
1,924.0	2.24	75.46	1,923.6	-22.5	-4.9	22.5	0.22	0.04	-5.55
2,020.0	3.87	54.81	2,019.5	-20.2	-0.4	20.2	2.02	1.70	-21.51
2,115.0	5.76	61.40	2,114.2	-16.1	6.4	16.1	2.07	1.99	6.94
2,210.0	7.52	71.59	2,208.5	-11.8	16.4	12.0	2.22	1.85	10.73
2,305.0	7.47	75.55	2,302.7	-8.3	28.3	8.6	0.55	-0.05	4.17
2,401.0	7.43	72.47	2,397.9	-4.9	40.3	5.3	0.42	-0.04	-3.21
2,496.0	7.56	74.06	2,492.1	-1.3	52.1	1.8	0.26	0.14	1.67
2,591.0	7.47	74.32	2,586.3	2.1	64.1	-1.4	0.10	-0.09	0.27
2,686.0	10.37	74.32	2,680.1	6.0	78.3	-5.3	3.05	3.05	0.00
2,781.0	11.38	73.53	2,773.4	11.0	95.5	-10.1	1.07	1.06	-0.83
2,876.0	12.18	75.29	2,866.4	16.2	114.2	-15.1	0.92	0.84	1.85
2,970.0	12.84	77.22	2,958.2	21.0	134.0	-19.7	0.83	0.70	2.05
3,065.0	13.27	78.54	3,050.7	25.5	154.9	-24.0	0.55	0.45	1.39
3,160.0	13.27	79.94	3,143.2	29.6	176.4	-27.9	0.34	0.00	1.47
3,256.0	13.05	83.46	3,236.7	32.8	198.0	-30.8	0.87	-0.23	3.67
3,351.0	12.70	84.07	3,329.3	35.1	219.0	-32.9	0.40	-0.37	0.64
3,446.0	12.13	85.92	3,422.1	36.9	239.4	-34.5	0.73	-0.60	1.95
3,542.0	10.77	86.54	3,516.1	38.1	258.4	-35.6	1.42	-1.42	0.65
3,636.0	9.80	87.06	3,608.6	39.1	275.1	-36.3	1.04	-1.03	0.55
3,731.0	9.19	86.18	3,702.3	40.0	290.8	-37.1	0.66	-0.64	-0.93
3,827.0	8.66	86.71	3,797.2	40.9	305.6	-37.9	0.56	-0.55	0.55
3,922.0	8.04	86.98	3,891.2	41.7	319.4	-38.5	0.65	-0.65	0.28
4,017.0	7.60	90.58	3,985.3	42.0	332.3	-38.6	0.69	-0.46	3.79
4,112.0	7.43	91.37	4,079.5	41.7	344.8	-38.3	0.21	-0.18	0.83
4,163.0	7.21	90.27	4,130.0	41.7	351.3	-38.2	0.51	-0.42	-2.16
Base Salt									
4,207.0	7.03	89.26	4,173.7	41.7	356.7	-38.1	0.51	-0.42	-2.29
4,302.0	7.30	89.08	4,268.0	41.8	368.6	-38.2	0.29	0.28	-0.19
4,398.0	6.73	93.39	4,363.2	41.6	380.3	-37.8	0.81	-0.59	4.49
4,465.2	6.91	92.27	4,430.0	41.2	388.3	-37.4	0.33	0.27	-1.66



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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)
Lamar									
4,494.0	6.99	91.81	4,458.6	41.1	391.7	-37.2	0.33	0.27	-1.60
4,515.6	7.17	91.44	4,480.0	41.0	394.4	-37.1	0.86	0.83	-1.70
Delaware Mountain Gp									
4,566.0	7.59	90.65	4,530.0	40.9	400.9	-36.9	0.86	0.83	-1.57
Bell Canyon									
4,589.0	7.78	90.32	4,552.8	40.9	403.9	-36.9	0.86	0.83	-1.45
4,601.3	7.85	90.00	4,565.0	40.9	405.6	-36.8	0.70	0.60	-2.59
Ramsey Sand									
4,683.0	8.35	88.03	4,645.8	41.1	417.1	-36.9	0.70	0.61	-2.41
4,779.0	9.71	83.11	4,740.6	42.3	432.1	-38.0	1.63	1.42	-5.13
4,874.0	9.63	86.36	4,834.3	43.8	448.0	-39.3	0.58	-0.08	3.42
4,970.0	9.71	82.93	4,928.9	45.3	464.1	-40.6	0.61	0.08	-3.57
5,064.0	10.24	78.89	5,021.5	47.8	480.1	-43.1	0.93	0.56	-4.30
5,160.0	10.24	81.88	5,116.0	50.7	496.9	-45.7	0.55	0.00	3.11
5,255.0	10.11	81.26	5,209.5	53.2	513.5	-48.0	0.18	-0.14	-0.65
5,288.0	10.07	83.64	5,242.0	53.9	519.3	-48.7	1.27	-0.12	7.21
5,428.0	9.76	84.51	5,379.9	56.4	543.3	-51.0	0.25	-0.22	0.62
5,458.5	9.55	84.59	5,410.0	56.9	548.3	-51.4	0.70	-0.69	0.27
Cherry Canyon									
5,523.0	9.10	84.78	5,473.6	57.9	558.7	-52.3	0.70	-0.69	0.29
5,618.0	9.32	75.11	5,567.4	60.5	573.7	-54.8	1.64	0.23	-10.18
5,712.0	9.85	72.03	5,660.1	65.0	588.7	-59.1	0.78	0.56	-3.28
5,806.0	9.67	70.98	5,752.7	70.0	603.8	-64.0	0.27	-0.19	-1.12
5,901.0	9.36	71.15	5,846.4	75.1	618.6	-68.9	0.33	-0.33	0.18
5,995.0	9.41	70.36	5,939.2	80.2	633.1	-73.9	0.15	0.05	-0.84
6,090.0	9.23	69.84	6,032.9	85.4	647.6	-78.9	0.21	-0.19	-0.55
6,184.0	9.01	68.96	6,125.7	90.6	661.5	-84.0	0.28	-0.23	-0.94
6,279.0	9.45	74.58	6,219.5	95.4	676.0	-88.6	1.06	0.46	5.92
6,374.0	10.02	80.12	6,313.1	98.9	691.6	-92.0	1.15	0.60	5.83
6,469.0	10.02	78.98	6,406.7	101.9	707.9	-94.8	0.21	0.00	-1.20
6,487.6	10.02	78.98	6,425.0	102.5	711.1	-95.4	0.00	0.00	0.00
Brushy Canyon									
6,564.0	10.02	78.89	6,500.2	105.0	724.1	-97.8	0.02	0.00	-0.12
6,659.0	9.80	79.07	6,593.8	108.2	740.2	-100.8	0.23	-0.23	0.19
6,754.0	9.19	78.71	6,687.5	111.2	755.5	-103.7	0.65	-0.64	-0.38
6,849.0	8.70	78.27	6,781.3	114.1	770.0	-106.5	0.52	-0.52	-0.46
6,944.0	8.62	79.33	6,875.3	116.9	784.0	-109.1	0.19	-0.08	1.12
7,039.0	9.19	81.97	6,969.1	119.3	798.6	-111.3	0.74	0.60	2.78
7,134.0	8.62	83.64	7,063.0	121.1	813.1	-113.0	0.66	-0.60	1.76
7,229.0	7.91	85.39	7,157.0	122.4	826.7	-114.2	0.79	-0.75	1.84
7,324.0	8.48	84.60	7,251.0	123.6	840.2	-115.3	0.61	0.60	-0.83
7,420.0	8.35	85.39	7,346.0	124.9	854.2	-116.4	0.18	-0.14	0.82
7,515.0	7.38	85.48	7,440.1	125.9	867.2	-117.3	1.02	-1.02	0.09
7,610.0	6.29	85.31	7,534.4	126.8	878.4	-118.1	1.15	-1.15	-0.18

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7,705.0	6.55	81.53	7,628.8	128.0	889.0	-119.2	0.52	0.27	-3.98
7,799.0	5.85	79.07	7,722.3	129.7	899.0	-120.8	0.80	-0.74	-2.62
7,894.0	6.11	82.76	7,816.7	131.3	908.8	-122.2	0.49	0.27	3.88
7,989.0	7.30	89.35	7,911.1	132.0	919.8	-122.8	1.49	1.25	6.94
8,083.0	6.95	90.67	8,004.4	132.0	931.5	-122.7	0.41	-0.37	1.40
8,178.0	6.51	93.22	8,098.7	131.6	942.6	-122.2	0.56	-0.46	2.68
8,229.6	6.29	92.94	8,150.0	131.3	948.3	-121.9	0.43	-0.42	-0.54
Bone Spring Lime									
8,254.8	6.19	92.80	8,175.0	131.2	951.1	-121.7	0.43	-0.42	-0.57
Upper Avalon									
8,273.0	6.11	92.69	8,193.1	131.1	953.0	-121.6	0.43	-0.42	-0.59
8,368.0	5.45	93.30	8,287.7	130.6	962.6	-121.0	0.70	-0.69	0.64
8,463.0	5.01	96.91	8,382.3	129.8	971.2	-120.2	0.58	-0.46	3.80
8,526.0	4.80	98.23	8,445.0	129.1	976.5	-119.4	0.38	-0.33	2.10
Middle Avalon									
8,557.0	4.70	98.93	8,475.9	128.7	979.1	-119.0	0.38	-0.33	2.24
8,652.0	4.40	98.14	8,570.6	127.6	986.5	-117.8	0.32	-0.32	-0.83
8,748.0	2.07	97.26	8,666.5	126.9	991.9	-117.0	2.43	-2.43	-0.92
8,842.0	1.10	81.79	8,760.4	126.8	994.5	-116.9	1.12	-1.03	-16.46
8,937.0	1.10	126.53	8,855.4	126.4	996.1	-116.5	0.88	0.00	47.09
9,006.6	1.16	131.79	8,925.0	125.5	997.2	-115.6	0.18	0.09	7.56
Lower Avalon									
9,032.0	1.19	133.56	8,950.4	125.1	997.6	-115.2	0.18	0.10	6.98
9,127.0	1.23	141.73	9,045.4	123.7	998.9	-113.7	0.19	0.04	8.60
9,222.0	1.54	144.02	9,140.3	121.8	1,000.3	-111.9	0.33	0.33	2.41
9,317.0	0.31	338.17	9,235.3	121.0	1,000.9	-111.1	1.94	-1.29	-174.58
9,413.0	0.62	20.97	9,331.3	121.8	1,001.0	-111.8	0.46	0.32	44.58
9,501.7	0.33	15.74	9,420.0	122.5	1,001.3	-112.5	0.33	-0.33	-5.90
1st Bone Spring Sand									
9,508.0	0.31	14.99	9,426.3	122.5	1,001.3	-112.5	0.33	-0.32	-11.79
9,602.0	1.01	3.13	9,520.3	123.6	1,001.4	-113.6	0.75	0.74	-12.62
9,696.7	0.41	30.25	9,615.0	124.7	1,001.6	-114.7	0.71	-0.64	28.64
2nd Bone Spring Carb									
9,698.0	0.40	31.16	9,616.3	124.7	1,001.6	-114.7	0.71	-0.52	69.64
9,793.0	0.57	42.77	9,711.3	125.3	1,002.1	-115.4	0.21	0.18	12.22
9,888.0	0.66	51.29	9,806.3	126.0	1,002.9	-116.0	0.13	0.09	8.97
9,983.0	0.53	73.53	9,901.3	126.5	1,003.7	-116.5	0.28	-0.14	23.41
10,078.0	0.57	21.50	9,996.3	127.0	1,004.3	-117.1	0.51	0.04	-54.77
10,081.7	0.57	22.70	10,000.0	127.1	1,004.3	-117.1	0.32	-0.03	32.49
2nd Bone Spring Sand									
10,173.0	0.62	51.12	10,091.3	127.8	1,004.9	-117.8	0.32	0.06	31.13
10,269.0	0.97	95.50	10,187.3	128.1	1,006.1	-118.0	0.71	0.36	46.23
10,364.0	1.49	123.54	10,282.3	127.3	1,007.9	-117.3	0.82	0.55	29.52
10,459.0	2.11	134.79	10,377.2	125.4	1,010.2	-115.3	0.75	0.65	11.84



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Design:	AWB	Database:	EDM 5000.15 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)
10,555.0	1.32	81.09	10,473.2	124.3	1,012.5	-114.2	1.77	-0.82	-55.94
10,650.0	1.05	68.52	10,568.2	124.8	1,014.4	-114.7	0.39	-0.28	-13.23
10,721.9	1.07	349.07	10,640.0	125.7	1,014.9	-115.6	1.89	0.03	-110.57
3rd Bone Spring Carb									
10,746.0	1.41	334.83	10,664.1	126.2	1,014.7	-116.1	1.89	1.40	-58.99
10,841.0	1.98	313.12	10,759.1	128.4	1,013.0	-118.3	0.89	0.60	-22.85
10,937.0	1.58	336.94	10,855.1	130.7	1,011.3	-120.7	0.87	-0.42	24.81
11,031.0	2.37	335.44	10,949.0	133.7	1,010.0	-123.6	0.84	0.84	-1.60
11,116.0	1.89	352.67	11,033.9	136.7	1,009.1	-126.6	0.94	-0.56	20.27
11,261.0	1.93	28.09	11,178.9	141.2	1,009.9	-131.1	0.80	0.03	24.43
11,342.5	9.87	174.38	11,260.0	135.4	1,011.3	-125.4	14.14	9.74	179.52
3rd Bone Spring Sand									
11,357.0	11.91	175.31	11,274.2	132.7	1,011.5	-122.6	14.14	14.09	6.41
11,452.0	29.27	183.48	11,362.9	99.5	1,010.9	-89.4	18.48	18.27	8.60
11,475.9	30.13	183.48	11,383.6	87.7	1,010.2	-77.6	3.61	3.61	0.00
FTP @ 11475.9'MD, 100'FNL & 319.8'FEL									
11,506.6	31.24	183.48	11,410.0	72.1	1,009.2	-62.0	3.61	3.61	0.00
3rd BS W Sand									
11,546.0	32.66	183.48	11,443.4	51.2	1,008.0	-41.2	3.61	3.61	0.00
11,559.8	33.39	183.86	11,455.0	43.7	1,007.5	-33.7	5.51	5.29	2.78
Wolfcamp A X Sand									
11,639.6	37.64	185.82	11,520.0	-2.5	1,003.5	12.5	5.51	5.32	2.45
Wolfcamp A Y Sand									
11,641.0	37.71	185.85	11,521.1	-3.3	1,003.4	13.3	5.51	5.34	2.21
11,737.0	49.27	177.59	11,590.7	-69.1	1,002.0	79.1	13.40	12.04	-8.60
11,784.8	55.02	176.50	11,620.0	-106.8	1,003.9	116.8	12.16	12.02	-2.27
Wolfcamp A Lower									
11,832.0	60.70	175.57	11,645.1	-146.6	1,006.7	156.7	12.16	12.04	-1.98
11,926.0	65.71	178.82	11,687.4	-230.4	1,010.8	240.5	6.16	5.33	3.46
11,985.0	68.53	179.00	11,710.4	-284.8	1,011.8	294.8	4.79	4.78	0.31
12,079.0	77.93	182.25	11,737.5	-374.6	1,010.7	384.7	10.53	10.00	3.46
12,174.0	80.31	182.07	11,755.4	-467.9	1,007.2	477.9	2.51	2.51	-0.19
12,268.0	91.78	181.55	11,761.9	-561.4	1,004.3	571.4	12.21	12.20	-0.55
12,364.0	87.34	179.52	11,762.6	-657.4	1,003.4	667.3	5.09	-4.63	-2.11
12,458.0	89.05	178.29	11,765.6	-751.3	1,005.2	761.3	2.24	1.82	-1.31
12,554.0	89.67	177.15	11,766.7	-847.2	1,009.0	857.2	1.35	0.65	-1.19
12,649.0	91.47	177.33	11,765.7	-942.1	1,013.6	952.2	1.90	1.89	0.19
12,744.0	91.30	176.80	11,763.4	-1,037.0	1,018.4	1,047.0	0.59	-0.18	-0.56
12,839.0	91.43	176.18	11,761.2	-1,131.8	1,024.2	1,141.9	0.67	0.14	-0.65
12,934.0	89.67	175.66	11,760.2	-1,226.5	1,031.0	1,236.7	1.93	-1.85	-0.55
13,029.0	89.93	178.82	11,760.6	-1,321.4	1,035.6	1,331.6	3.34	0.27	3.33
13,124.0	89.85	179.52	11,760.8	-1,416.4	1,037.0	1,426.6	0.74	-0.08	0.74
13,219.0	90.29	180.49	11,760.6	-1,511.4	1,036.9	1,521.6	1.12	0.46	1.02
13,314.0	89.10	179.88	11,761.1	-1,606.4	1,036.6	1,616.6	1.41	-1.25	-0.64
13,409.0	91.47	178.82	11,760.7	-1,701.4	1,037.7	1,711.6	2.73	2.49	-1.12



Intrepid Survey Report



Company:	Tap Rock Resources, LLC	Local Co-ordinate Reference:	Well Black Marlin Fed Com #214H
Project:	Lea County, NM (NAD 83 NME)	TVD Reference:	KB @ 3210.0usft (H&P 388)
Site:	(Black Marlin) Sec-18_T-25-S_R-36-E	MD Reference:	KB @ 3210.0usft (H&P 388)
Well:	Black Marlin Fed Com #214H	North Reference:	Grid
Wellbore:	OWB	Survey Calculation Method:	Minimum Curvature
Design:	AWB	Database:	EDM 5000.15 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)
13,504.0	92.84	178.56	11,757.1	-1,796.3	1,039.9	1,806.5	1.47	1.44	-0.27
13,599.0	90.77	180.67	11,754.1	-1,891.2	1,040.5	1,901.5	3.11	-2.18	2.22
13,694.0	89.36	180.75	11,754.0	-1,986.2	1,039.3	1,996.4	1.49	-1.48	0.08
13,788.0	87.34	179.61	11,756.7	-2,080.1	1,039.1	2,090.4	2.47	-2.15	-1.21
13,883.0	91.56	181.11	11,757.6	-2,175.1	1,038.5	2,185.3	4.71	4.44	1.58
13,978.0	92.18	180.84	11,754.5	-2,270.1	1,036.8	2,280.3	0.71	0.65	-0.28
14,073.0	88.66	179.70	11,753.8	-2,365.0	1,036.4	2,375.2	3.89	-3.71	-1.20
14,169.0	86.77	178.91	11,757.6	-2,460.9	1,037.6	2,471.1	2.13	-1.97	-0.82
14,264.0	87.78	179.08	11,762.2	-2,555.8	1,039.2	2,566.0	1.08	1.06	0.18
14,359.0	89.54	178.56	11,764.4	-2,650.8	1,041.2	2,661.0	1.93	1.85	-0.55
14,453.0	88.79	178.03	11,765.8	-2,744.7	1,044.0	2,755.0	0.98	-0.80	-0.56
14,546.0	90.46	177.59	11,766.4	-2,837.6	1,047.5	2,847.9	1.86	1.80	-0.47
14,636.0	93.01	179.96	11,763.6	-2,927.6	1,049.5	2,937.9	3.87	2.83	2.63
14,725.0	93.01	181.37	11,759.0	-3,016.4	1,048.4	3,026.7	1.58	0.00	1.58
14,814.0	91.82	180.58	11,755.2	-3,105.3	1,046.9	3,115.6	1.60	-1.34	-0.89
14,907.0	93.49	182.16	11,750.9	-3,198.2	1,044.7	3,208.4	2.47	1.80	1.70
15,001.0	88.22	183.48	11,749.5	-3,292.1	1,040.1	3,302.2	5.78	-5.61	1.40
15,094.0	88.53	182.86	11,752.1	-3,384.9	1,034.9	3,395.0	0.75	0.33	-0.67
15,187.0	89.76	183.83	11,753.5	-3,477.7	1,029.5	3,487.8	1.68	1.32	1.04
15,281.0	90.90	180.75	11,753.0	-3,571.6	1,025.7	3,581.6	3.49	1.21	-3.28
15,374.0	88.22	180.93	11,753.7	-3,664.6	1,024.4	3,674.6	2.89	-2.88	0.19
15,467.0	86.59	181.46	11,757.9	-3,757.5	1,022.4	3,767.5	1.84	-1.75	0.57
15,560.0	91.30	183.13	11,759.6	-3,850.4	1,018.7	3,860.3	5.37	5.06	1.80
15,653.0	91.03	180.58	11,757.7	-3,943.3	1,015.7	3,953.2	2.76	-0.29	-2.74
15,746.0	91.25	180.40	11,755.9	-4,036.3	1,014.9	4,046.2	0.31	0.24	-0.19
15,839.0	88.22	179.96	11,756.3	-4,129.2	1,014.6	4,139.1	3.29	-3.26	-0.47
15,931.0	87.65	179.44	11,759.6	-4,221.2	1,015.1	4,231.1	0.84	-0.62	-0.57
16,024.0	87.30	179.00	11,763.7	-4,314.1	1,016.4	4,324.0	0.60	-0.38	-0.47
16,117.0	89.67	179.00	11,766.2	-4,407.0	1,018.0	4,416.9	2.55	2.55	0.00
16,210.0	89.67	177.85	11,766.7	-4,500.0	1,020.5	4,509.9	1.24	0.00	-1.24
16,305.0	89.93	176.36	11,767.1	-4,594.9	1,025.3	4,604.8	1.59	0.27	-1.57
16,400.0	92.04	176.27	11,765.4	-4,689.6	1,031.4	4,699.7	2.22	2.22	-0.09
16,495.0	93.85	178.12	11,760.5	-4,784.4	1,036.1	4,794.5	2.72	1.91	1.95
16,590.0	93.49	177.77	11,754.5	-4,879.1	1,039.5	4,889.2	0.53	-0.38	-0.37
16,685.0	93.76	177.77	11,748.5	-4,973.9	1,043.2	4,984.0	0.28	0.28	0.00
16,778.0	93.49	179.35	11,742.6	-5,066.7	1,045.5	5,076.8	1.72	-0.29	1.70
16,870.0	91.91	178.38	11,738.2	-5,158.5	1,047.3	5,168.7	2.01	-1.72	-1.05
16,962.0	91.25	177.77	11,735.7	-5,250.5	1,050.4	5,260.6	0.98	-0.72	-0.66
17,057.0	91.16	178.38	11,733.7	-5,345.4	1,053.6	5,355.6	0.65	-0.09	0.64
17,152.0	91.56	178.29	11,731.4	-5,440.3	1,056.4	5,450.6	0.43	0.42	-0.09
17,244.0	92.26	178.65	11,728.4	-5,532.2	1,058.8	5,542.5	0.86	0.76	0.39
17,339.0	91.69	178.56	11,725.1	-5,627.1	1,061.1	5,637.4	0.61	-0.60	-0.09
17,430.0	92.92	178.47	11,721.4	-5,718.0	1,063.5	5,728.3	1.36	1.35	-0.10



Intrepid Survey Report



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Site:	(Black Marlin) Sec-18_T-25-S_R-36-E	MD Reference:	KB @ 3210.0usft (H&P 388)
Well:	Black Marlin Fed Com #214H	North Reference:	Grid
Wellbore:	OWB	Survey Calculation Method:	Minimum Curvature
Design:	AWB	Database:	EDM 5000.15 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)	
17,525.0	93.45	178.12	11,716.2	-5,812.8	1,066.3	5,823.2	0.67	0.56	-0.37	
17,616.0	92.66	178.65	11,711.3	-5,903.7	1,068.9	5,914.0	1.04	-0.87	0.58	
17,711.0	89.76	179.61	11,709.3	-5,998.6	1,070.3	6,009.0	3.22	-3.05	1.01	
17,804.0	89.71	179.17	11,709.7	-6,091.6	1,071.3	6,102.0	0.48	-0.05	-0.47	
17,897.0	86.07	177.24	11,713.2	-6,184.5	1,074.2	6,194.9	4.43	-3.91	-2.08	
17,990.0	90.64	178.82	11,715.8	-6,277.4	1,077.4	6,287.8	5.20	4.91	1.70	
18,084.0	90.33	179.00	11,715.0	-6,371.4	1,079.2	6,381.8	0.38	-0.33	0.19	
18,177.0	90.68	180.14	11,714.2	-6,464.4	1,079.9	6,474.8	1.28	0.38	1.23	
18,270.0	90.81	180.05	11,713.0	-6,557.3	1,079.7	6,567.8	0.17	0.14	-0.10	
18,363.0	92.44	180.67	11,710.4	-6,650.3	1,079.2	6,660.7	1.88	1.75	0.67	
18,456.0	92.40	181.28	11,706.4	-6,743.2	1,077.6	6,753.6	0.66	-0.04	0.66	
18,549.0	89.32	181.55	11,705.1	-6,836.2	1,075.3	6,846.5	3.32	-3.31	0.29	
18,642.0	87.65	181.37	11,707.5	-6,929.1	1,072.9	6,939.4	1.81	-1.80	-0.19	
18,737.0	87.87	181.46	11,711.2	-7,024.0	1,070.6	7,034.3	0.25	0.23	0.09	
18,831.0	87.56	180.75	11,715.0	-7,117.9	1,068.8	7,128.2	0.82	-0.33	-0.76	
18,927.0	86.73	180.58	11,719.8	-7,213.8	1,067.6	7,224.0	0.88	-0.86	-0.18	
19,020.0	88.00	180.14	11,724.0	-7,306.7	1,067.1	7,316.9	1.45	1.37	-0.47	
19,115.0	88.04	179.70	11,727.3	-7,401.6	1,067.2	7,411.9	0.46	0.04	-0.46	
19,232.0	89.49	179.61	11,729.8	-7,518.6	1,067.9	7,528.8	1.24	1.24	-0.08	
19,326.0	91.03	179.96	11,729.4	-7,612.6	1,068.3	7,622.8	1.68	1.64	0.37	
19,422.0	90.02	179.52	11,728.5	-7,708.6	1,068.7	7,718.8	1.15	-1.05	-0.46	
19,517.0	89.32	178.91	11,729.1	-7,803.6	1,070.0	7,813.8	0.98	-0.74	-0.64	
19,612.0	90.42	178.21	11,729.3	-7,898.5	1,072.4	7,908.8	1.37	1.16	-0.74	
19,707.0	92.75	177.85	11,726.7	-7,993.4	1,075.6	8,003.7	2.48	2.45	-0.38	
19,802.0	92.84	177.50	11,722.0	-8,088.2	1,079.5	8,098.6	0.38	0.09	-0.37	
19,897.0	92.44	176.80	11,717.7	-8,183.0	1,084.2	8,193.4	0.85	-0.42	-0.74	
19,993.0	92.09	179.35	11,713.9	-8,278.9	1,087.4	8,289.3	2.68	-0.36	2.66	
20,087.0	91.74	179.44	11,710.7	-8,372.8	1,088.4	8,383.2	0.38	-0.37	0.10	
20,183.0	92.22	178.91	11,707.4	-8,468.7	1,089.8	8,479.2	0.74	0.50	-0.55	
20,278.0	88.97	179.35	11,706.4	-8,563.7	1,091.2	8,574.2	3.45	-3.42	0.46	
20,374.0	88.35	179.70	11,708.7	-8,659.7	1,092.0	8,670.1	0.74	-0.65	0.36	
20,469.0	86.24	179.35	11,713.1	-8,754.6	1,092.8	8,765.0	2.25	-2.22	-0.37	
20,564.0	91.96	181.11	11,714.6	-8,849.5	1,092.4	8,859.9	6.30	6.02	1.85	
20,659.0	88.22	180.14	11,714.5	-8,944.5	1,091.4	8,954.9	4.07	-3.94	-1.02	
20,754.0	91.03	179.17	11,715.1	-9,039.5	1,092.0	9,049.9	3.13	2.96	-1.02	
20,849.0	87.96	178.65	11,715.9	-9,134.4	1,093.8	9,144.9	3.28	-3.23	-0.55	
20,945.0	84.75	178.82	11,722.0	-9,230.2	1,095.9	9,240.7	3.35	-3.34	0.18	
21,040.0	86.81	178.47	11,729.0	-9,324.9	1,098.1	9,335.4	2.20	2.17	-0.37	
21,135.0	87.12	179.44	11,734.1	-9,419.8	1,099.9	9,430.3	1.07	0.33	1.02	
21,231.0	92.44	180.84	11,734.4	-9,515.7	1,099.6	9,526.2	5.73	5.54	1.46	
21,326.0	95.43	180.58	11,727.9	-9,610.5	1,098.5	9,621.0	3.16	3.15	-0.27	
21,422.0	91.08	180.75	11,722.5	-9,706.3	1,097.4	9,716.8	4.53	-4.53	0.18	
21,517.0	88.22	180.23	11,723.0	-9,801.3	1,096.5	9,811.7	3.06	-3.01	-0.55	



Company:	Tap Rock Resources, LLC	Local Co-ordinate Reference:	Well Black Marlin Fed Com #214H
Project:	Lea County, NM (NAD 83 NME)	TVD Reference:	KB @ 3210.0usft (H&P 388)
Site:	(Black Marlin) Sec-18_T-25-S_R-36-E	MD Reference:	KB @ 3210.0usft (H&P 388)
Well:	Black Marlin Fed Com #214H	North Reference:	Grid
Wellbore:	OWB	Survey Calculation Method:	Minimum Curvature
Design:	AWB	Database:	EDM 5000.15 Single User Db

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)
21,612.0	88.70	179.35	11,725.6	-9,896.3	1,096.9	9,906.7	1.05	0.51	-0.93
21,707.0	88.70	178.12	11,727.8	-9,991.2	1,099.0	10,001.7	1.29	0.00	-1.29
21,802.0	87.60	177.33	11,730.8	-10,086.1	1,102.8	10,096.6	1.43	-1.16	-0.83
21,897.0	88.35	177.15	11,734.2	-10,180.9	1,107.3	10,191.4	0.81	0.79	-0.19
21,981.6	87.08	176.90	11,737.6	-10,265.3	1,111.7	10,275.9	1.53	-1.50	-0.30
LTP @ 21981.6'MD, 100'FSL & 321.6'FEL									
21,985.0	87.03	176.89	11,737.7	-10,268.7	1,111.9	10,279.3	1.53	-1.50	-0.30
LAST SVY									
22,055.0	87.03	176.89	11,741.4	-10,338.5	1,115.7	10,349.1	0.00	0.00	0.00
Projection to TD @ 22055'MD, 26.8'FSL & 318.4'FEL									

Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
LTP (Black Marlin Fed - hit/miss target - Shape - Point	0.00	0.00	11,732.5	-10,265.0	1,099.0	404,891.00	862,290.00	32° 6' 31.976 N	103° 17' 48.339 W
- actual wellpath misses target center by 13.6usft at 21980.4usft MD (11737.5 TVD, -10264.1 N, 1111.6 E)									
PBHL (Black Marlin Fed - actual wellpath misses target center by 28.0usft at 22055.0usft MD (11741.4 TVD, -10338.5 N, 1115.7 E) - Rectangle (sides W100.0 H1,605.8 D30.0)	0.50	179.43	11,732.5	-10,360.0	1,100.0	404,796.00	862,291.00	32° 6' 31.036 N	103° 17' 48.338 W
FTP (Black Marlin Fed - actual wellpath misses target center by 238.5usft at 11737.0usft MD (11590.7 TVD, -69.1 N, 1002.0 E) - Point	0.00	0.00	11,770.0	88.0	996.0	415,244.00	862,187.00	32° 8' 14.424 N	103° 17' 48.378 W

Company:	Tap Rock Resources, LLC	Local Co-ordinate Reference:	Well Black Marlin Fed Com #214H
Project:	Lea County, NM (NAD 83 NME)	TVD Reference:	KB @ 3210.0usft (H&P 388)
Site:	(Black Marlin) Sec-18_T-25-S_R-36-E	MD Reference:	KB @ 3210.0usft (H&P 388)
Well:	Black Marlin Fed Com #214H	North Reference:	Grid
Wellbore:	OWB	Survey Calculation Method:	Minimum Curvature
Design:	AWB	Database:	EDM 5000.15 Single User Db

Formations

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
315.0	315.0	Rustler Anhydrite			
855.1	855.0	Top Salt			
4,163.0	4,130.0	Base Salt			
4,465.2	4,430.0	Lamar			
4,515.6	4,480.0	Delaware Mountain Gp			
4,566.0	4,530.0	Bell Canyon			
4,601.3	4,565.0	Ramsey Sand			
5,458.5	5,410.0	Cherry Canyon			
6,487.6	6,425.0	Brushy Canyon			
8,229.6	8,150.0	Bone Spring Lime			
8,254.8	8,175.0	Upper Avalon			
8,526.0	8,445.0	Middle Avalon			
9,006.6	8,925.0	Lower Avalon			
9,501.7	9,420.0	1st Bone Spring Sand			
9,696.7	9,615.0	2nd Bone Spring Carb			
10,081.7	10,000.0	2nd Bone Spring Sand			
10,721.9	10,640.0	3rd Bone Spring Carb			
11,342.5	11,260.0	3rd Bone Spring Sand			
11,506.6	11,410.0	3rd BS W Sand			
11,559.8	11,455.0	Wolfcamp A X Sand			
11,639.6	11,520.0	Wolfcamp A Y Sand			
11,784.8	11,620.0	Wolfcamp A Lower			

Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
11,475.9	11,383.6	87.7	1,010.2	FTP @ 11475.9'MD, 100'FNL & 319.8'FEL
21,981.6	11,737.6	-10,265.3	1,111.7	LTP @ 21981.6'MD, 100'FSL & 321.6'FEL
21,985.0	11,737.7	-10,268.7	1,111.9	LAST SVY
22,055.0	11,741.4	-10,338.5	1,115.7	Projection to TD @ 22055'MD, 26.8'FSL & 318.4'FEL

Checked By: _____	Approved By: _____	Date: _____
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