

30-015-44506

JUL 27 2018

MARATHON

SWN 100

BLACK RIVER 374 STATE 24 27 15 TB #10H

H&P 441

2/23/2018

SURVEY REPORT

BLACK RIVER 374 STATE 24 27 15 TB #10H

COMPUTED SURVEY

CUSTOMER **Marathon**
PROJECT **Black River**
FIELD **Sprayberry**

SDI JOB NO. **OP:008290**
SDI DISTRICT **Midland**
SDI KIT/UNIT **KIT MUD PULSE**

SITE INFORMATION

Site Name **Black River 374 State 24 27 15 TB #10H** Section **24**
Lat/Long **32° 12' 38.202" N, 104° 10' 51.11" W** Township **27**
Northing **440,373.41 ft** Range **15**
Easting **547,156.41 ft**

MAP INFORMATION

North Reference **Grid North**
Grid Correction **-0.08 deg**
System **US State Plane 1927**
Datum **North American Datum 1927 (Clarke 1866)**
Map Zone **New Mexico East: 3001**



WELL INFORMATION

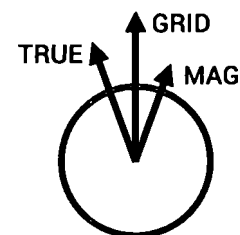
Lat/Long **32° 12' 38.2" N, 104° 10' 50.528" W**
Northing **440,373.32 ft**
Easting **547,206.4 ft**
UWI

DEPTH AND ELEVATION REFERENCE

Ground Level **3249.5 ft above Mean Sea Level**
Reference Datum **RKB**
Reference Height **26.5 ft above G.L.**
Reference Elevation **3276 ft**

VERTICAL SECTION REFERENCE

+N/-S **0 ft**
+E/-W **0 ft**
Proposal Direction **0.00°**
Calculation Method **Minimum Curvature**



GEOMAGNETIC REFERENCE INFORMATION

Local Gravity: **998.514 mG [computed]**

MD	MODEL	DATE	DECLINATION	TRUE TO GRID	MAG TO GRID
0-13588 ft	HDGM2018	21 Feb 2018	7.37°	subtract 0.08°	add 7.29°

WELL NOTES

OPERATORS

SDI Operator Name (Printed)

SIGNATURE

DATE

MD	INC	AZIM	TVD	VS	+N/-S	+E/-W	DLS	CLOSURE DIST	CLOSURE DIR
ft	deg	deg	ft	ft	ft	ft	°/100ft	ft	deg
0.00	0.00	0.00	0.00	0.00	0.00	0.00	Invalid	0.00	0.00
81.10	0.65	207.55	81.10	-0.41	-0.41	-0.21	0.80	0.46	207.55
175.60	0.18	319.04	175.60	-0.77	-0.77	-0.56	0.78	0.95	215.89
265.90	0.72	291.60	265.89	-0.46	-0.46	-1.18	0.63	1.26	248.89
357.60	1.74	304.08	357.57	0.54	0.54	-2.87	1.14	2.92	280.61
449.30	1.32	287.00	449.24	1.63	1.63	-5.03	0.67	5.29	287.91
485.10	0.57	265.85	485.03	1.73	1.73	-5.60	2.28	5.86	287.20
591.00	0.33	276.40	590.93	1.73	1.73	-6.43	0.24	6.66	285.05
681.00	0.30	289.21	680.93	1.84	1.84	-6.91	0.09	7.15	284.88
771.00	0.41	234.72	770.93	1.73	1.73	-7.40	0.38	7.60	283.15
861.00	0.75	300.43	860.92	1.84	1.84	-8.17	0.77	8.37	282.70
952.00	0.87	305.86	951.91	2.55	2.55	-9.24	0.15	9.58	285.40
1047.00	0.65	175.20	1046.91	2.43	2.43	-9.78	1.45	10.07	283.96
1142.00	0.74	156.56	1141.90	1.33	1.33	-9.49	0.25	9.58	278.01
1236.00	1.02	155.49	1235.89	0.02	0.02	-8.90	0.30	8.90	270.14
1330.00	0.57	170.73	1329.88	-1.20	-1.20	-8.48	0.52	8.56	261.93
1425.00	1.32	139.59	1424.87	-2.51	-2.51	-7.69	0.93	8.09	251.95
1519.00	1.54	162.39	1518.84	-4.54	-4.54	-6.61	0.64	8.02	235.53
1614.00	1.39	133.63	1613.81	-6.55	-6.55	-5.38	0.78	8.48	219.42
1709.00	2.61	116.62	1708.75	-8.32	-8.32	-2.61	1.41	8.72	197.45
1804.00	3.78	105.30	1803.60	-10.11	-10.11	2.34	1.39	10.38	166.97
1898.00	4.89	111.81	1897.33	-12.42	-12.42	9.05	1.29	15.37	143.92
1993.00	5.04	112.30	1991.98	-15.51	-15.51	16.67	0.16	22.76	132.93
2088.00	3.68	118.69	2086.70	-18.55	-18.55	23.20	1.51	29.71	128.65
2182.00	2.91	124.06	2180.55	-21.34	-21.34	27.83	0.88	35.06	127.48
2277.00	2.84	123.25	2275.43	-23.98	-23.98	31.79	0.08	39.82	127.03
2291.00	2.79	122.95	2289.41	-24.36	-24.36	32.37	0.38	40.51	126.96
2372.00	2.89	128.49	2370.31	-26.70	-26.70	35.63	0.36	44.52	126.85
2467.00	2.78	126.48	2465.19	-29.56	-29.56	39.36	0.15	49.22	126.91
2561.00	3.54	134.47	2559.05	-32.96	-32.96	43.26	0.93	54.39	127.30
2656.00	3.87	139.81	2653.85	-37.46	-37.46	47.42	0.50	60.43	128.30
2750.00	3.91	136.82	2747.64	-42.21	-42.21	51.66	0.22	66.72	129.25

MD	INC	AZIM	TVD	VS	+N/-S	+E/-W	DLS	CLOSURE DIST	CLOSURE DIR
ft	deg	deg	ft	ft	ft	ft	°/100ft	ft	deg
2845.00	3.75	137.17	2842.42	-46.85	-46.85	55.99	0.17	73.01	129.92
2939.00	3.66	136.07	2936.23	-51.27	-51.27	60.16	0.12	79.04	130.44
3034.00	4.09	124.52	3031.01	-55.37	-55.37	65.05	0.94	85.43	130.40
3128.00	4.23	119.37	3124.76	-58.97	-58.97	70.84	0.42	92.17	129.78
3223.00	4.22	118.32	3219.51	-62.34	-62.34	76.96	0.08	99.04	129.01
3318.00	4.10	117.43	3314.26	-65.56	-65.56	83.05	0.14	105.81	128.29
3412.00	4.25	117.72	3408.01	-68.73	-68.73	89.11	0.16	112.54	127.64
3507.00	4.02	116.36	3502.76	-71.84	-71.84	95.21	0.26	119.28	127.04
3602.00	3.84	114.57	3597.54	-74.64	-74.64	101.08	0.24	125.66	126.44
3696.00	3.79	113.06	3691.33	-77.17	-77.17	106.81	0.12	131.77	125.85
3791.00	3.87	114.28	3786.12	-79.72	-79.72	112.62	0.12	137.98	125.29
3885.00	3.97	115.37	3879.90	-82.42	-82.42	118.45	0.14	144.30	124.83
3980.00	3.92	113.77	3974.67	-85.13	-85.13	124.39	0.13	150.73	124.39
4075.00	3.68	111.25	4069.46	-87.55	-87.55	130.20	0.30	156.90	123.92
4169.00	3.61	106.98	4163.27	-89.51	-89.51	135.85	0.30	162.69	123.38
4264.00	3.79	104.81	4258.07	-91.18	-91.18	141.75	0.24	168.55	122.75
4358.00	3.64	106.80	4351.88	-92.84	-92.84	147.62	0.21	174.39	122.17
4453.00	3.46	98.11	4446.69	-94.12	-94.12	153.34	0.60	179.92	121.54
4548.00	3.62	117.80	4541.52	-95.92	-95.92	158.84	1.28	185.55	121.13
4642.00	3.30	124.59	4635.35	-98.84	-98.84	163.69	0.55	191.22	121.13
4737.00	3.09	126.57	4730.20	-101.92	-101.92	168.00	0.25	196.50	121.24
4831.00	2.96	126.70	4824.07	-104.88	-104.88	171.98	0.14	201.44	121.38
4926.00	2.62	121.15	4918.95	-107.47	-107.47	175.80	0.46	206.05	121.44
5021.00	3.86	116.87	5013.80	-110.04	-110.04	180.51	1.34	211.41	121.37
5115.00	3.79	114.85	5107.59	-112.77	-112.77	186.15	0.16	217.65	121.21
5210.00	3.71	113.04	5202.39	-115.29	-115.29	191.83	0.15	223.81	121.01
5305.00	3.05	111.23	5297.22	-117.41	-117.41	197.02	0.70	229.35	120.79
5400.00	3.06	118.56	5392.09	-119.54	-119.54	201.60	0.41	234.38	120.67
5495.00	2.93	119.84	5486.96	-121.96	-121.96	205.93	0.16	239.34	120.64
5589.00	3.03	120.12	5580.83	-124.40	-124.40	210.16	0.10	244.22	120.62
5684.00	2.88	116.44	5675.70	-126.72	-126.72	214.47	0.25	249.11	120.58
5779.00	2.94	117.56	5770.58	-128.91	-128.91	218.76	0.08	253.92	120.51

MD	INC	AZIM	TVD	VS	+N/-S	+E/-W	DLS	CLOSURE DIST	CLOSURE DIR
ft	deg	deg	ft	ft	ft	ft	°/100ft	ft	deg
5873.00	2.64	120.31	5864.47	-131.11	-131.11	222.76	0.35	258.48	120.48
5968.00	2.60	123.15	5959.37	-133.39	-133.39	226.45	0.14	262.82	120.50
6062.00	2.21	122.88	6053.29	-135.54	-135.54	229.75	0.41	266.75	120.54
6157.00	2.66	127.64	6148.20	-137.88	-137.88	233.04	0.52	270.77	120.61
6251.00	2.42	120.43	6242.11	-140.22	-140.22	236.47	0.43	274.92	120.67
6346.00	2.65	101.02	6337.02	-141.65	-141.65	240.35	0.93	278.99	120.51
6441.00	3.04	102.05	6431.90	-142.60	-142.60	244.97	0.42	283.45	120.20
6535.00	2.54	94.87	6525.79	-143.29	-143.29	249.48	0.65	287.71	119.87
6630.00	2.93	103.60	6620.68	-144.04	-144.04	253.94	0.60	291.94	119.56
6725.00	3.16	114.90	6715.55	-145.72	-145.72	258.67	0.68	296.89	119.39
6819.00	3.50	128.09	6809.39	-148.58	-148.58	263.29	0.89	302.32	119.44
6914.00	3.14	132.80	6904.23	-152.14	-152.14	267.48	0.48	307.72	119.63
7009.00	2.63	132.82	6999.11	-155.39	-155.39	270.98	0.53	312.37	119.83
7103.00	3.48	125.56	7092.98	-158.51	-158.51	274.89	0.99	317.31	119.97
7198.00	2.80	129.00	7187.83	-161.65	-161.65	279.04	0.74	322.48	120.08
7292.00	3.60	152.44	7281.69	-165.72	-165.72	282.19	1.62	327.25	120.42
7387.00	3.55	148.37	7376.51	-170.87	-170.87	285.12	0.27	332.40	120.93
7482.00	3.48	122.99	7471.33	-174.95	-174.95	289.08	1.63	337.90	121.18
7576.00	3.07	117.09	7565.18	-177.65	-177.65	293.71	0.56	343.25	121.17
7671.00	2.39	112.96	7660.07	-179.57	-179.57	297.79	0.75	347.75	121.09
7766.00	1.76	112.08	7755.01	-180.89	-180.89	300.97	0.66	351.14	121.01
7861.00	1.19	97.85	7849.98	-181.58	-181.58	303.29	0.70	353.49	120.91
7955.00	0.30	133.07	7943.97	-181.88	-181.88	304.44	1.02	354.63	120.85
8050.00	1.15	148.52	8038.96	-182.86	-182.86	305.12	0.91	355.72	120.93
8144.00	1.93	133.96	8132.93	-184.77	-184.77	306.75	0.92	358.10	121.06
8239.00	2.66	117.83	8227.85	-186.91	-186.91	309.86	1.02	361.87	121.10
8332.00	1.92	118.39	8320.78	-188.66	-188.66	313.14	0.80	365.58	121.07
8427.00	1.99	103.83	8415.72	-189.81	-189.81	316.15	0.53	368.75	120.98
8474.00	4.97	31.40	8462.64	-188.27	-188.27	318.00	10.13	369.55	120.63
8522.00	10.95	19.62	8510.16	-182.19	-182.19	320.62	12.85	368.77	119.61
8569.00	15.95	16.02	8555.86	-171.78	-171.78	323.90	10.78	366.63	117.94
8616.00	21.81	12.49	8600.31	-157.03	-157.03	327.57	12.69	363.27	115.61

MD	INC	AZIM	TVD	VS	+N/-S	+E/-W	DLS	CLOSURE DIST	CLOSURE DIR
ft	deg	deg	ft	ft	ft	ft	°/100ft	ft	deg
8663.00	26.15	5.57	8643.26	-138.19	-138.19	330.47	10.99	358.20	112.69
8711.00	30.53	2.62	8685.50	-115.47	-115.47	332.05	9.59	351.56	109.17
8758.00	36.45	2.82	8724.67	-89.57	-89.57	333.29	12.60	345.11	105.04
8806.00	42.50	1.52	8761.71	-59.10	-59.10	334.42	12.70	339.60	100.02
8853.00	46.64	0.21	8795.19	-26.13	-26.13	334.91	9.04	335.92	94.46
8900.00	51.00	359.17	8826.12	9.24	9.24	334.70	9.43	334.83	88.42
8947.00	53.55	358.42	8854.88	46.40	46.40	333.91	5.55	337.12	82.09
8995.00	54.94	358.03	8882.93	85.34	85.34	332.70	2.99	343.47	75.61
9042.00	60.73	0.65	8907.94	125.10	125.10	332.27	13.18	355.04	69.37
9090.00	64.26	3.06	8930.10	167.64	167.64	333.67	8.60	373.41	63.32
9137.00	67.32	4.07	8949.37	210.42	210.42	336.33	6.79	396.73	57.97
9184.00	67.91	359.85	8967.28	253.84	253.84	337.82	8.39	422.56	53.08
9231.00	70.87	359.45	8983.82	297.83	297.83	337.54	6.35	450.15	48.58
9278.00	76.02	359.48	8997.21	342.86	342.86	337.12	10.96	480.84	44.52
9325.00	80.56	0.15	9006.75	388.87	388.87	336.98	9.76	514.56	40.91
9373.00	84.56	1.69	9012.96	436.45	436.45	337.74	8.91	551.87	37.73
9396.00	85.39	1.34	9014.98	459.35	459.35	338.35	3.94	570.51	36.37
9491.00	89.09	1.50	9019.54	554.20	554.20	340.70	3.90	650.55	31.58
9585.00	90.81	2.24	9019.63	648.14	648.14	343.78	1.98	733.67	27.94
9680.00	90.94	3.15	9018.18	743.02	743.02	348.25	0.97	820.59	25.11
9775.00	91.78	2.03	9015.92	837.90	837.90	352.54	1.47	909.04	22.82
9869.00	90.97	3.49	9013.66	931.76	931.76	357.07	1.77	997.84	20.97
9964.00	90.13	3.98	9012.75	1026.55	1026.55	363.27	1.02	1088.93	19.49
10059.00	89.36	3.67	9013.16	1121.34	1121.34	369.61	0.88	1180.68	18.24
10153.00	88.05	4.45	9015.28	1215.07	1215.07	376.26	1.62	1272.00	17.21
10248.00	88.16	3.52	9018.43	1309.79	1309.79	382.85	0.99	1364.60	16.29
10343.00	87.48	4.01	9022.04	1404.52	1404.52	389.08	0.87	1457.41	15.48
10437.00	88.42	4.66	9025.40	1498.19	1498.19	396.18	1.22	1549.69	14.81
10532.00	89.53	4.44	9027.10	1592.87	1592.87	403.73	1.19	1643.24	14.22
10627.00	91.41	4.17	9026.32	1687.59	1687.59	410.86	2.00	1736.89	13.68
10721.00	93.43	2.49	9022.35	1781.34	1781.34	416.31	2.79	1829.34	13.15
10816.00	92.52	0.95	9017.42	1876.17	1876.17	419.15	1.88	1922.42	12.59

MD	INC	AZIM	TVD	VS	+N/-S	+E/-W	DLS	CLOSURE DIST	CLOSURE DIR
ft	deg	deg	ft	ft	ft	ft	°/100ft	ft	deg
10910.00	91.11	0.23	9014.45	1970.12	1970.12	420.12	1.68	2014.41	12.04
11005.00	89.53	0.66	9013.92	2065.11	2065.11	420.85	1.72	2107.55	11.52
11100.00	90.27	359.32	9014.09	2160.10	2160.10	420.83	1.61	2200.72	11.02
11194.00	91.51	358.12	9012.63	2254.07	2254.07	418.73	1.83	2292.63	10.52
11289.00	91.95	359.62	9009.76	2349.00	2349.00	416.86	1.64	2385.70	10.06
11383.00	91.11	1.63	9007.26	2442.96	2442.96	417.88	2.31	2478.44	9.71
11478.00	90.07	2.19	9006.28	2537.90	2537.90	421.05	1.25	2572.59	9.42
11572.00	88.42	2.25	9007.52	2631.82	2631.82	424.69	1.75	2665.86	9.17
11667.00	88.86	1.67	9009.78	2726.73	2726.73	427.94	0.77	2760.11	8.92
11761.00	90.37	0.65	9010.41	2820.71	2820.71	429.84	1.94	2853.27	8.66
11856.00	89.36	0.93	9010.63	2915.70	2915.70	431.15	1.10	2947.40	8.41
11950.00	89.80	0.05	9011.32	3009.69	3009.69	431.95	1.04	3040.53	8.17
12045.00	89.70	0.39	9011.74	3104.69	3104.69	432.33	0.37	3134.64	7.93
12139.00	88.83	1.52	9012.95	3198.66	3198.66	433.89	1.51	3227.96	7.72
12234.00	89.40	1.79	9014.43	3293.61	3293.61	436.63	0.66	3322.43	7.55
12329.00	90.70	1.10	9014.34	3388.58	3388.58	439.02	1.56	3416.90	7.38
12423.00	91.91	0.09	9012.19	3482.55	3482.55	440.00	1.68	3510.23	7.20
12518.00	91.18	0.84	9009.63	3577.51	3577.51	440.77	1.11	3604.56	7.02
12612.00	90.00	1.00	9008.67	3671.49	3671.49	442.29	1.26	3698.03	6.87
12707.00	90.81	0.74	9008.00	3766.48	3766.48	443.74	0.89	3792.52	6.72
12801.00	90.27	0.18	9007.12	3860.47	3860.47	444.49	0.83	3885.97	6.57
12896.00	89.33	359.81	9007.45	3955.47	3955.47	444.48	1.06	3980.36	6.41
12991.00	89.63	0.58	9008.32	4050.46	4050.46	444.80	0.87	4074.81	6.27
13085.00	89.80	1.57	9008.78	4144.44	4144.44	446.56	1.06	4168.43	6.15
13180.00	91.21	0.95	9007.95	4239.41	4239.41	448.65	1.62	4263.09	6.04
13274.00	90.71	1.31	9006.38	4333.38	4333.38	450.50	0.66	4356.74	5.94
13369.00	90.77	1.18	9005.15	4428.35	4428.35	452.57	0.16	4451.42	5.84
13463.00	92.32	0.91	9002.62	4522.30	4522.30	454.29	1.67	4545.06	5.74
13558.00	93.59	0.02	8997.72	4617.17	4617.17	455.06	1.64	4639.54	5.63
13588.00	94.10	359.83	8995.71	4647.10	4647.10	455.01	1.81	4669.32	5.59
13652.00	94.10	359.83	8991.00	4710.93	4710.93	454.83	0.00	4669.00	5.59