

NM OIL CONSERVATION

ARTESIA DISTRICT

NOV 28 2016

RECEIVED

Matador Resources
Matador, Eddy County, New Mexico (NAD 27)
Ann COM 15-24S-28E RB
#221H
Ms Mwd 30-015-43899
Survey Date: Wednesday, September 28,
2016

MS Energy Services

Survey Report

Friday, October 14, 2016

Surface Coordinates: +444829.00, +578087.99 (32° 13' 21.7192" N, 104° 04' 50.9535" W)
Grid Coordinate System: NAD27 New Mexico State Planes, Eastern Zone, US Foot

Surface Coordinates relative to Well: 0.00, 0.00 (Grid)

RKB Elevation: 3044.00ft above Mean Sea Level
RKB Elevation: 29.00ft above Ground Level
Ground Level: 3015.00ft above Mean Sea Level

Survey Ref: svy58

NM OIL CONSERVATION

ARTESIA DISTRICT

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hr

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Survey Report for Ann COM 15-24S-28E RB, #221H, Ms Mwd

Survey Depth (ft)	Incl. (°)	(Grid) Azim. (°)	Vertical Depth (ft)	Northings (ft)	Eastings (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	
198.00	0.20	256.52	198.00	-0.08	-0.34	-0.34	0.101
390.00	0.31	93.53	390.00	-0.19	-0.14	-0.14	0.263
558.00	0.70	26.20	557.99	+0.70	+0.76	0.77	0.385
699.00	1.90	17.90	698.95	+3.70	+1.86	1.88	0.859
880.00	1.40	24.30	879.88	+8.57	+3.69	3.73	0.294
1067.00	4.90	328.80	1066.60	+17.49	+0.50	0.56	2.281
1254.00	7.20	315.50	1252.55	+32.68	-11.86	-11.74	1.432
1441.00	8.10	300.40	1437.90	+47.71	-31.44	-31.26	1.173
1628.00	7.00	301.20	1623.28	+60.28	-52.55	-52.33	0.591
1815.00	7.10	300.00	1808.87	+71.96	-72.30	-72.04	0.095
2002.00	7.40	304.60	1994.37	+84.57	-92.22	-91.91	0.349
2189.00	7.80	307.80	2179.73	+99.19	-112.16	-111.80	0.311
2376.00	7.60	298.80	2365.05	+112.93	-133.03	-132.61	0.653
2563.00	8.30	298.50	2550.25	+125.32	-155.72	-155.26	0.375
2740.00	7.80	299.30	2725.51	+137.30	-177.43	-176.92	0.289
2927.00	10.60	308.10	2910.09	+154.12	-202.03	-201.47	1.672
3113.00	13.70	306.60	3091.90	+177.82	-233.19	-232.53	1.675
3300.00	15.80	301.40	3272.74	+204.29	-272.70	-271.95	1.326
3487.00	15.30	298.10	3452.90	+229.17	-316.20	-315.35	0.543
3674.00	17.10	297.60	3632.47	+253.54	-362.33	-361.40	0.965
3861.00	17.50	297.20	3811.01	+279.12	-411.70	-410.67	0.223
4048.00	16.30	295.60	3989.93	+303.32	-460.37	-459.26	0.688
4235.00	15.90	299.30	4169.60	+327.19	-506.38	-505.18	0.589
4421.00	16.90	303.30	4348.03	+354.50	-551.20	-549.89	0.811
4608.00	16.50	303.00	4527.15	+383.89	-596.19	-594.78	0.219
4795.00	15.40	299.30	4706.95	+410.51	-640.11	-638.60	0.801
4982.00	13.30	303.10	4888.11	+434.41	-679.79	-678.19	1.230
5169.00	11.50	298.70	5070.74	+455.11	-714.16	-712.49	1.086
5356.00	9.80	304.90	5254.52	+473.17	-743.57	-741.83	1.095
5543.00	8.80	301.20	5439.06	+489.68	-768.86	-767.06	0.623
5730.00	7.20	303.80	5624.24	+503.61	-790.83	-788.98	0.877
5917.00	5.60	307.20	5810.07	+515.65	-807.84	-805.95	0.879
6010.00	4.10	307.70	5902.73	+520.43	-814.09	-812.17	1.614
6104.00	1.60	285.50	5996.61	+522.83	-818.01	-816.09	2.859
6198.00	1.50	283.90	6090.57	+523.48	-820.47	-818.54	0.116
6291.00	1.20	265.50	6183.55	+523.69	-822.62	-820.70	0.563
6385.00	1.20	214.90	6277.53	+522.81	-824.17	-822.24	1.091
6478.00	0.30	98.20	6370.52	+521.98	-824.48	-822.56	1.464
6572.00	0.70	113.60	6464.52	+521.71	-823.71	-821.79	0.445
6666.00	0.50	142.90	6558.52	+521.15	-822.94	-821.02	0.383
6759.00	0.90	116.30	6651.51	+520.51	-822.04	-820.13	0.543
6853.00	1.70	82.10	6745.48	+520.37	-820.00	-818.08	1.150
6946.00	1.60	32.40	6838.45	+521.66	-817.93	-816.02	1.494
7040.00	1.60	341.60	6932.42	+524.01	-817.64	-815.72	1.460

Survey Report for Ann COM 15-24S-28E RB, #221H, Ms Mwd

Survey Depth (ft)	Incl. (°)	(Grid) Azim. (°)	Vertical Depth (ft)	Northings (ft)	Eastings (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)
7134.00	1.20	340.10	7026.39	+526.18	-818.39	-816.46	0.427
7227.00	0.90	5.40	7119.38	+527.82	-818.66	-816.72	0.586
7321.00	0.50	47.60	7213.37	+528.84	-818.28	-816.34	0.667
7414.00	0.50	320.10	7306.37	+529.42	-818.25	-816.30	0.744
7508.00	1.00	279.80	7400.36	+529.87	-819.32	-817.37	0.743
7601.00	1.00	233.10	7493.35	+529.53	-820.77	-818.82	0.852
7695.00	1.50	190.40	7587.32	+527.82	-821.64	-819.70	1.088
7789.00	2.50	177.60	7681.27	+524.56	-821.78	-819.85	1.159
7883.00	2.10	143.10	7775.20	+521.14	-820.66	-818.74	1.507
7976.00	2.10	71.10	7868.15	+520.33	-818.02	-816.11	2.654
8070.00	2.50	64.60	7962.07	+521.77	-814.54	-812.62	0.507
8164.00	1.10	25.20	8056.03	+523.46	-812.31	-810.38	1.906
8257.00	0.90	28.50	8149.01	+524.91	-811.58	-809.65	0.224
8351.00	0.70	43.80	8243.00	+525.97	-810.83	-808.89	0.310
8444.00	0.70	39.30	8336.00	+526.82	-810.07	-808.14	0.059
8538.00	1.40	36.70	8429.98	+528.19	-809.02	-807.08	0.746
8632.00	1.50	30.70	8523.95	+530.17	-807.71	-805.76	0.193
8725.00	1.00	22.30	8616.93	+531.96	-806.78	-804.83	0.571
8819.00	1.10	12.20	8710.91	+533.61	-806.28	-804.32	0.223
8912.00	1.40	356.30	8803.89	+535.61	-806.16	-804.20	0.490
9006.00	1.70	345.10	8897.85	+538.11	-806.60	-804.62	0.452
9099.00	1.80	333.50	8990.81	+540.75	-807.60	-805.62	0.395
9193.00	1.80	355.70	9084.77	+543.54	-808.37	-806.37	0.737
9286.00	1.80	1.20	9177.72	+546.46	-808.45	-806.44	0.186
9380.00	1.50	357.00	9271.68	+549.16	-808.48	-806.47	0.344
9474.00	1.30	2.30	9365.65	+551.45	-808.51	-806.48	0.253
9567.00	1.30	355.50	9458.63	+553.56	-808.55	-806.51	0.166
9661.00	1.10	352.30	9552.61	+555.52	-808.75	-806.71	0.224
9755.00	1.20	354.80	9646.59	+557.39	-808.96	-806.91	0.119
9848.00	0.80	335.90	9739.58	+558.95	-809.31	-807.26	0.552
9911.00	0.80	328.80	9802.57	+559.73	-809.72	-807.67	0.157
9971.00	1.00	337.10	9862.56	+560.57	-810.14	-808.08	0.397
10065.00	6.40	83.00	9956.37	+561.97	-805.26	-803.19	7.173
10111.00	11.00	84.20	10001.83	+562.72	-798.34	-796.27	10.007
10158.00	16.10	85.70	10047.51	+563.67	-787.38	-785.30	10.876
10205.00	20.00	90.20	10092.19	+564.13	-772.83	-770.76	8.806
10252.00	23.80	88.80	10135.79	+564.30	-755.31	-753.23	8.161
10299.00	28.20	91.50	10178.02	+564.21	-734.71	-732.64	9.692
10346.00	31.60	90.90	10218.76	+563.72	-711.29	-709.22	7.262
10392.00	35.40	92.70	10257.11	+562.90	-685.93	-683.86	8.538
10439.00	40.40	94.60	10294.19	+561.04	-657.13	-655.07	10.923
10486.00	45.80	92.10	10328.50	+559.20	-625.08	-623.03	12.049
10533.00	50.70	90.00	10359.79	+558.58	-590.04	-587.99	10.944
10579.00	54.40	87.10	10387.76	+559.53	-553.54	-551.49	9.472
10626.00	57.20	87.90	10414.17	+561.22	-514.71	-512.65	6.121

Survey Report for Ann COM 15-24S-28E RB, #221H, Ms Mwd

Survey Depth (ft)	Incl. (°)	(Grid) Azim. (°)	Vertical Depth (ft)	Northings (ft)	Eastings (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)
10673.00	60.40	90.20	10438.52	+561.87	-474.53	-472.46	7.992
10720.00	64.00	91.00	10460.43	+561.43	-432.96	-430.90	7.806
10767.00	68.50	93.10	10479.36	+559.88	-389.98	-387.93	10.411
10814.00	72.40	93.90	10495.09	+557.17	-345.78	-343.74	8.451
10889.00	78.90	93.90	10513.66	+552.23	-273.33	-271.30	8.667
10982.00	84.40	93.90	10527.16	+545.98	-181.56	-179.56	5.914
11076.00	86.00	93.20	10535.03	+540.18	-88.08	-86.10	1.857
11170.00	88.10	91.70	10539.87	+536.17	+5.70	7.67	2.744
11265.00	90.50	90.80	10541.03	+534.10	+100.67	102.62	2.698
11358.00	87.50	89.40	10542.65	+533.93	+193.64	195.59	3.560
11452.00	91.30	90.00	10543.63	+534.42	+287.61	289.57	4.093
11546.00	88.40	88.50	10543.88	+535.66	+381.59	383.55	3.473
11641.00	90.10	89.30	10545.12	+537.48	+476.56	478.53	1.978
11734.00	86.80	88.70	10547.64	+539.10	+569.50	571.47	3.607
11828.00	88.00	88.50	10551.90	+541.39	+663.38	665.36	1.294
11922.00	92.00	90.50	10551.90	+542.21	+757.35	759.33	4.757
12016.00	91.20	91.10	10549.28	+540.90	+851.30	853.28	1.064
12111.00	85.20	88.30	10552.26	+541.40	+946.20	948.18	6.968
12205.00	90.10	91.10	10556.12	+541.88	+1040.08	1042.06	6.002
12299.00	87.80	89.20	10557.84	+541.64	+1134.06	1136.03	3.173
12394.00	89.70	90.50	10559.91	+541.88	+1229.03	1231.00	2.423
12488.00	88.30	87.30	10561.55	+543.69	+1322.98	1324.96	3.715
12582.00	89.80	87.80	10563.11	+547.71	+1416.88	1418.88	1.682
12676.00	92.00	89.40	10561.63	+550.00	+1510.83	1512.84	2.894
12771.00	91.70	88.90	10558.57	+551.41	+1605.77	1607.78	0.614
12864.00	90.90	88.80	10556.46	+553.28	+1698.73	1700.74	0.867
12959.00	90.70	89.40	10555.13	+554.77	+1793.70	1795.73	0.666
13053.00	86.20	87.10	10557.67	+557.64	+1887.60	1889.63	5.376
13147.00	88.50	88.00	10562.02	+561.65	+1981.40	1983.45	2.627
13242.00	89.20	90.10	10563.93	+563.22	+2076.36	2078.41	2.330
13337.00	87.70	88.00	10566.50	+564.80	+2171.31	2173.36	2.716
13431.00	87.80	88.30	10570.19	+567.83	+2265.19	2267.25	0.336
13525.00	90.80	92.00	10571.33	+567.58	+2359.15	2361.22	5.067
13620.00	90.20	93.10	10570.51	+563.36	+2454.05	2456.10	1.319
13713.00	87.30	90.30	10572.53	+560.60	+2546.97	2549.01	4.334
13807.00	86.90	88.50	10577.29	+561.58	+2640.84	2642.88	1.959
13901.00	89.90	85.60	10579.92	+566.42	+2734.66	2736.72	4.438
13996.00	87.50	85.10	10582.07	+574.11	+2829.31	2831.40	2.581
14090.00	89.00	90.90	10584.94	+577.39	+2923.17	2925.27	6.370
14185.00	90.10	93.60	10585.69	+573.66	+3018.08	3020.17	3.069
14279.00	89.40	92.10	10586.10	+568.99	+3111.96	3114.03	1.761
14372.00	88.30	90.60	10587.97	+566.80	+3204.92	3206.97	2.000
14467.00	89.40	91.70	10589.87	+564.89	+3299.87	3301.92	1.637
14561.00	87.70	91.60	10592.25	+562.18	+3393.80	3395.84	1.812
14655.00	86.90	91.60	10596.68	+559.56	+3487.66	3489.69	0.851

Survey Report for Ann COM 15-24S-28E RB, #221H, Ms Mwd

Survey Depth (ft)	Incl. (°)	(Grid) Azim. (°)	Vertical Depth (ft)	Northings (ft)	Eastings (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)
14749.00	87.10	91.10	10601.60	+557.35	+3581.50	3583.52	0.572
14843.00	89.30	93.60	10604.55	+553.50	+3675.37	3677.37	3.542
14937.00	89.80	91.50	10605.29	+549.32	+3769.26	3771.25	2.296
15032.00	87.30	88.00	10607.70	+549.73	+3864.21	3866.20	4.526
15126.00	88.50	86.60	10611.14	+554.15	+3958.04	3960.04	1.961
15220.00	88.90	83.80	10613.27	+562.02	+4051.68	4053.71	3.008
15293.00	89.90	84.40	10614.04	+569.52	+4124.28	4126.34	1.597

Bit Projection

15364.00	89.90	84.40	10614.16	+576.45	+4194.95	4197.03	0.000
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All data is in Feet (US Survey) unless otherwise stated. Directions and coordinates are relative to Grid North. Vertical depths are relative to RKB. Northings and Eastings are relative to Well.

The dogleg severity is in Degrees per 100 feet (US Survey). Vertical Section is from Well calculated along an azimuth of 89.79° (Grid).

Based upon minimum curvature calculations, at a measured depth of 15293.00ft, the bottom hole displacement is 4163.42ft, in the direction of 82.14° (Grid).

The along-hole displacement is 6005.23ft. The total accumulated dogleg is 250.382°. The measured tortuosity is 1.670°/100ft. The directional difficulty index is 5.8.

The survey penetrates target PBHL - Ann COM 15-24S-28E RB #221H at a measured depth of 15260.93ft at a distance of 103.69ft from the target centre. The survey penetrates target VP - Ann COM 15-24S-28E RB #221H at a measured depth of 9325.12ft at a distance of 3216.82ft from the target centre.

Comments associated with #221H, Ms Mwd

Station Coordinates						
Survey Depth (ft)	Incl. (°)	(Grid) Azimuth (°)	Vertical Depth (ft)	Northings (ft)	Eastings (ft)	Comment
198.00	0.20	256.52	198.00	-0.08	-0.34	Teledrift
390.00	0.31	93.53	390.00	-0.19	-0.14	Teledrift
558.00	0.70	26.20	557.99	+0.70	+0.76	Teledrift

Survey Tool Program for #221H, Ms Mwd

From		To		Survey Tool Description
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	
0.00	0.00	15293.00	10614.04	MWD

Survey Report for Ann COM 15-24S-28E RB, #221H, Ms Mwd

Targets associated with #221H, Ms Mwd

Target Name	Vertical Depth (ft)	Sub-Sea Depth (ft)	Target Entry Coordinates		Target Type (Shape)
			Northings (ft)	Eastings (ft)	
PBHL - Ann COM 15-24S-28E	10627.92	7583.92	+566.32	+4195.11	[N/A] (Point)
			+445395.32	+582283.10	(Map Coordinates)
			32° 13' 27.2235" N	104° 04' 02.1011" W	(Geographical Coordinates)
VP - Ann COM 15-24S-28E R	6000.00	2956.00	+547.64	-807.54	[N/A] (Point)
			+445376.64	+577280.45	(Map Coordinates)
			32° 13' 27.1575" N	104° 05' 00.3394" W	(Geographical Coordinates)

Survey Report for Ann COM 15-24S-28E RB, #221H, Ms Mwd

REFERENCE DATA			
Ellipsoid	Clarke - 1866	Unit System	Feet (Us Survey)
Coord. System	NAD27 New Mexico State Planes, Eastern Zone, US Foc	North Ref.	Grid North
Mag. Model	User Defined	Vertical Ref.	Mean Sea Level
Calc. Date	20 Sep, 2016		

LOCATION DATA			
RKB Elevation	3044.00ft above MSL	Total Field	4080.0 nT
Map North	+444829.00	Magnetic Dip	59.98°
Map East	+578087.99	Declination	7.32°
Latitude	32° 13' 21.7192" N	Convergence	0.13°
Longitude	104° 04' 50.9535" W		

NORTH REFERENCE DATA	
Magnetic Model	User Defined
Calculation Date	Tuesday, September 20, 2016
Declination	7.32°
Inclination/Dip	59.98°
Total Field Strength	4080.0 nT
Grid North is 0.13 degrees East of True North (Grid Convergence) Magnetic North is 7.32 degrees East of True North (Magnetic Declination) Magnetic North is 7.19 degrees East of Grid North (Magnetic Convergence)	
To convert a True Direction to a Grid Direction, Subtract 0.13 degrees. To convert a Magnetic Direction to a True Direction, Add 7.32 degrees. To convert a Magnetic Direction to a Grid Direction, Add 7.19 degrees.	

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