



MS Energy Services
Planning Report



15-43899

Database:	EDM Conroe	Local Co-ordinate Reference:	Well #221H
Company:	Matador Resources	TVD Reference:	WELL @ 3044.00usft (Patterson 297)
Project:	Eddy County, New Mexico (NAD 27)	MD Reference:	WELL @ 3044.00usft (Patterson 297)
Site:	Ann COM 15-24S-28E RB	North Reference:	Grid
Well:	#221H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

Project	Eddy County, New Mexico (NAD 27)		
Map System:	US State Plane 1927 (Exact solution)	System Datum:	Mean Sea Level
Geo Datum:	NAD 1927 (NADCON CONUS)		
Map Zone:	New Mexico East 3001		

Well	#221H		
Well Position	+N-S	444,829.00 usft	Northing: 444,829.00 usft
	+E-W	578,087.99 usft	Easting: 578,087.99 usft
Position Uncertainty	0.00 usft	Wellhead Elevation:	Ground Level: 3,015.00 usft

Wellbore	Wellbore #1
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Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	BGGM2016	9/20/2016	7.32	59.98	48,041

Design	Design #1
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Audit Notes:				
Version:	Phase:	PROTOTYPE	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (usft)	+N-S (usft)	+E-W (usft)	Direction (°)
	0.00	0.00	0.00	89.79

Plan Survey Tool Program		Date 8/30/2016		
Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks
1	0.00	15,397.97	Design #1 (Wellbore #1)	MWD
				OWSG MWD - Standard

Plan Sections										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N-S (usft)	+E-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
800.00	0.00	0.00	800.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,333.33	8.00	304.14	1,331.60	20.86	-30.77	1.50	1.50	0.00	304.14	VP - Ann COM 15-2
2,800.00	8.00	304.14	2,784.00	135.43	-199.70	0.00	0.00	0.00	0.00	
3,343.83	16.16	304.14	3,315.33	199.25	-293.81	1.50	1.50	0.00	0.00	
5,032.24	16.16	304.14	4,937.06	462.96	-682.67	0.00	0.00	0.00	0.00	
6,109.40	0.00	0.00	6,000.00	547.64	-807.54	1.50	-1.50	0.00	180.00	VP - Ann COM 15-2
10,066.95	0.00	0.00	9,957.55	547.64	-807.54	0.00	0.00	0.00	0.00	
10,866.95	80.00	89.79	10,521.80	549.41	-334.08	10.00	10.00	0.00	89.79	PBHL - Ann COM 1
11,013.62	88.80	89.79	10,536.10	549.95	-188.25	6.00	6.00	0.00	0.00	
15,397.97	88.80	89.79	10,627.92	566.32	4,195.11	0.00	0.00	0.00	0.00	PBHL - Ann COM 1



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Site:	Ann COM 15-24S-28E-RB	North Reference:	Grid
Well:	#221H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

Planned 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)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	0.00
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00
600.00	0.00	0.00	600.00	0.00	0.00	0.00	0.00	0.00	0.00
700.00	0.00	0.00	700.00	0.00	0.00	0.00	0.00	0.00	0.00
800.00	0.00	0.00	800.00	0.00	0.00	0.00	0.00	0.00	0.00
KOP, 1.50°/100' Build									
900.00	1.50	304.14	899.99	0.73	-1.08	-1.08	1.50	1.50	0.00
1,000.00	3.00	304.14	999.91	2.94	-4.33	-4.32	1.50	1.50	0.00
1,100.00	4.50	304.14	1,099.69	6.61	-9.75	-9.72	1.50	1.50	0.00
1,200.00	6.00	304.14	1,199.27	11.74	-17.32	-17.27	1.50	1.50	0.00
1,300.00	7.50	304.14	1,298.57	18.34	-27.05	-26.98	1.50	1.50	0.00
1,333.33	8.00	304.14	1,331.60	20.86	-30.77	-30.69	1.50	1.50	0.00
Begin 8.00° Tangent									
1,400.00	8.00	304.14	1,397.62	26.07	-38.44	-38.35	0.00	0.00	0.00
1,500.00	8.00	304.14	1,496.65	33.88	-49.96	-49.84	0.00	0.00	0.00
1,600.00	8.00	304.14	1,595.67	41.69	-61.48	-61.33	0.00	0.00	0.00
1,700.00	8.00	304.14	1,694.70	49.51	-73.00	-72.82	0.00	0.00	0.00
1,800.00	8.00	304.14	1,793.73	57.32	-84.52	-84.31	0.00	0.00	0.00
1,900.00	8.00	304.14	1,892.75	65.13	-96.04	-95.80	0.00	0.00	0.00
2,000.00	8.00	304.14	1,991.78	72.94	-107.56	-107.29	0.00	0.00	0.00
2,100.00	8.00	304.14	2,090.81	80.75	-119.07	-118.78	0.00	0.00	0.00
2,200.00	8.00	304.14	2,189.83	88.56	-130.59	-130.27	0.00	0.00	0.00
2,300.00	8.00	304.14	2,288.86	96.37	-142.11	-141.76	0.00	0.00	0.00
2,400.00	8.00	304.14	2,387.89	104.19	-153.63	-153.25	0.00	0.00	0.00
2,500.00	8.00	304.14	2,486.91	112.00	-165.15	-164.74	0.00	0.00	0.00
2,600.00	8.00	304.14	2,585.94	119.81	-176.67	-176.23	0.00	0.00	0.00
2,700.00	8.00	304.14	2,684.97	127.62	-188.18	-187.72	0.00	0.00	0.00
2,800.00	8.00	304.14	2,784.00	135.43	-199.70	-199.21	0.00	0.00	0.00
Begin 1.50°/100' Build									
2,900.00	9.50	304.14	2,882.83	143.97	-212.29	-211.76	1.50	1.50	0.00
3,000.00	11.00	304.14	2,981.23	153.96	-227.02	-226.45	1.50	1.50	0.00
3,100.00	12.50	304.14	3,079.13	165.39	-243.87	-243.27	1.50	1.50	0.00
3,200.00	14.00	304.14	3,176.47	178.25	-262.84	-262.19	1.50	1.50	0.00
3,300.00	15.50	304.14	3,273.17	192.54	-283.91	-283.21	1.50	1.50	0.00
3,343.83	16.16	304.14	3,315.33	199.25	-293.81	-293.07	1.50	1.50	0.00
Begin 16.16° Tangent									
3,400.00	16.16	304.14	3,369.29	208.02	-306.74	-305.98	0.00	0.00	0.00
3,500.00	16.16	304.14	3,465.34	223.64	-329.78	-328.95	0.00	0.00	0.00
3,600.00	16.16	304.14	3,561.39	239.26	-352.81	-351.93	0.00	0.00	0.00
3,700.00	16.16	304.14	3,657.44	254.88	-375.84	-374.90	0.00	0.00	0.00
3,800.00	16.16	304.14	3,753.49	270.50	-398.87	-397.87	0.00	0.00	0.00
3,900.00	16.16	304.14	3,849.54	286.12	-421.90	-420.85	0.00	0.00	0.00
4,000.00	16.16	304.14	3,945.59	301.73	-444.93	-443.82	0.00	0.00	0.00
4,100.00	16.16	304.14	4,041.64	317.35	-467.96	-466.80	0.00	0.00	0.00
4,200.00	16.16	304.14	4,137.69	332.97	-490.99	-489.77	0.00	0.00	0.00
4,300.00	16.16	304.14	4,233.74	348.59	-514.02	-512.74	0.00	0.00	0.00
4,400.00	16.16	304.14	4,329.79	364.21	-537.06	-535.72	0.00	0.00	0.00
4,500.00	16.16	304.14	4,425.84	379.83	-560.09	-558.69	0.00	0.00	0.00
4,600.00	16.16	304.14	4,521.89	395.45	-583.12	-581.66	0.00	0.00	0.00
4,700.00	16.16	304.14	4,617.94	411.07	-606.15	-604.64	0.00	0.00	0.00



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Well:	#221H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

Planned 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)
4,800.00	16.16	304.14	4,713.99	426.69	-629.18	-627.61	0.00	0.00	0.00
4,900.00	16.16	304.14	4,810.04	442.30	-652.21	-650.59	0.00	0.00	0.00
5,000.00	16.16	304.14	4,906.09	457.92	-675.24	-673.56	0.00	0.00	0.00
5,032.24	16.16	304.14	4,937.06	462.96	-682.67	-680.97	0.00	0.00	0.00
Begin 1.50°/100° Drop									
5,100.00	15.14	304.14	5,002.30	473.22	-697.80	-696.06	1.50	-1.50	0.00
5,200.00	13.64	304.14	5,099.16	487.17	-718.36	-716.57	1.50	-1.50	0.00
5,300.00	12.14	304.14	5,196.64	499.69	-736.83	-734.99	1.50	-1.50	0.00
5,400.00	10.64	304.14	5,294.67	510.77	-753.17	-751.30	1.50	-1.50	0.00
5,500.00	9.14	304.14	5,393.18	520.41	-767.39	-765.48	1.50	-1.50	0.00
5,600.00	7.64	304.14	5,492.10	528.60	-779.47	-777.52	1.50	-1.50	0.00
5,700.00	6.14	304.14	5,591.38	535.34	-789.40	-787.43	1.50	-1.50	0.00
5,800.00	4.64	304.14	5,690.93	540.61	-797.17	-795.19	1.50	-1.50	0.00
5,900.00	3.14	304.14	5,790.70	544.42	-802.79	-800.79	1.50	-1.50	0.00
6,000.00	1.64	304.14	5,890.61	546.76	-806.24	-804.23	1.50	-1.50	0.00
6,109.40	0.00	0.00	6,000.00	547.64	-807.54	-805.53	1.50	-1.50	0.00
Begin Vertical Hold									
6,200.00	0.00	0.00	6,090.60	547.64	-807.54	-805.53	0.00	0.00	0.00
6,300.00	0.00	0.00	6,190.60	547.64	-807.54	-805.53	0.00	0.00	0.00
6,400.00	0.00	0.00	6,290.60	547.64	-807.54	-805.53	0.00	0.00	0.00
6,500.00	0.00	0.00	6,390.60	547.64	-807.54	-805.53	0.00	0.00	0.00
6,600.00	0.00	0.00	6,490.60	547.64	-807.54	-805.53	0.00	0.00	0.00
6,700.00	0.00	0.00	6,590.60	547.64	-807.54	-805.53	0.00	0.00	0.00
6,800.00	0.00	0.00	6,690.60	547.64	-807.54	-805.53	0.00	0.00	0.00
6,900.00	0.00	0.00	6,790.60	547.64	-807.54	-805.53	0.00	0.00	0.00
7,000.00	0.00	0.00	6,890.60	547.64	-807.54	-805.53	0.00	0.00	0.00
7,100.00	0.00	0.00	6,990.60	547.64	-807.54	-805.53	0.00	0.00	0.00
7,200.00	0.00	0.00	7,090.60	547.64	-807.54	-805.53	0.00	0.00	0.00
7,300.00	0.00	0.00	7,190.60	547.64	-807.54	-805.53	0.00	0.00	0.00
7,400.00	0.00	0.00	7,290.60	547.64	-807.54	-805.53	0.00	0.00	0.00
7,500.00	0.00	0.00	7,390.60	547.64	-807.54	-805.53	0.00	0.00	0.00
7,600.00	0.00	0.00	7,490.60	547.64	-807.54	-805.53	0.00	0.00	0.00
7,700.00	0.00	0.00	7,590.60	547.64	-807.54	-805.53	0.00	0.00	0.00
7,800.00	0.00	0.00	7,690.60	547.64	-807.54	-805.53	0.00	0.00	0.00
7,900.00	0.00	0.00	7,790.60	547.64	-807.54	-805.53	0.00	0.00	0.00
8,000.00	0.00	0.00	7,890.60	547.64	-807.54	-805.53	0.00	0.00	0.00
8,100.00	0.00	0.00	7,990.60	547.64	-807.54	-805.53	0.00	0.00	0.00
8,200.00	0.00	0.00	8,090.60	547.64	-807.54	-805.53	0.00	0.00	0.00
8,300.00	0.00	0.00	8,190.60	547.64	-807.54	-805.53	0.00	0.00	0.00
8,400.00	0.00	0.00	8,290.60	547.64	-807.54	-805.53	0.00	0.00	0.00
8,500.00	0.00	0.00	8,390.60	547.64	-807.54	-805.53	0.00	0.00	0.00
8,600.00	0.00	0.00	8,490.60	547.64	-807.54	-805.53	0.00	0.00	0.00
8,700.00	0.00	0.00	8,590.60	547.64	-807.54	-805.53	0.00	0.00	0.00
8,800.00	0.00	0.00	8,690.60	547.64	-807.54	-805.53	0.00	0.00	0.00
8,900.00	0.00	0.00	8,790.60	547.64	-807.54	-805.53	0.00	0.00	0.00
9,000.00	0.00	0.00	8,890.60	547.64	-807.54	-805.53	0.00	0.00	0.00
9,100.00	0.00	0.00	8,990.60	547.64	-807.54	-805.53	0.00	0.00	0.00
9,200.00	0.00	0.00	9,090.60	547.64	-807.54	-805.53	0.00	0.00	0.00
9,300.00	0.00	0.00	9,190.60	547.64	-807.54	-805.53	0.00	0.00	0.00
9,400.00	0.00	0.00	9,290.60	547.64	-807.54	-805.53	0.00	0.00	0.00
9,500.00	0.00	0.00	9,390.60	547.64	-807.54	-805.53	0.00	0.00	0.00
9,600.00	0.00	0.00	9,490.60	547.64	-807.54	-805.53	0.00	0.00	0.00
9,700.00	0.00	0.00	9,590.60	547.64	-807.54	-805.53	0.00	0.00	0.00



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Planned 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)
9,800.00	0.00	0.00	9,690.60	547.64	-807.54	-805.53	0.00	0.00	0.00
9,900.00	0.00	0.00	9,790.60	547.64	-807.54	-805.53	0.00	0.00	0.00
10,000.00	0.00	0.00	9,890.60	547.64	-807.54	-805.53	0.00	0.00	0.00
10,066.95	0.00	0.00	9,957.55	547.64	-807.54	-805.53	0.00	0.00	0.00
Begin 10.00°/100' Build									
10,100.00	3.30	89.79	9,990.58	547.64	-806.59	-804.57	10.00	10.00	0.00
10,150.00	8.30	89.79	10,040.31	547.66	-801.53	-799.52	10.00	10.00	0.00
10,200.00	13.30	89.79	10,089.40	547.70	-792.16	-790.15	10.00	10.00	0.00
10,250.00	18.30	89.79	10,137.50	547.75	-778.55	-776.53	10.00	10.00	0.00
10,300.00	23.30	89.79	10,184.22	547.82	-760.79	-758.78	10.00	10.00	0.00
10,350.00	28.30	89.79	10,229.22	547.90	-739.04	-737.02	10.00	10.00	0.00
10,400.00	33.30	89.79	10,272.16	547.99	-713.44	-711.43	10.00	10.00	0.00
10,450.00	38.30	89.79	10,312.69	548.10	-684.20	-682.18	10.00	10.00	0.00
10,500.00	43.30	89.79	10,350.53	548.22	-651.53	-649.52	10.00	10.00	0.00
10,550.00	48.30	89.79	10,385.37	548.36	-615.70	-613.68	10.00	10.00	0.00
10,600.00	53.30	89.79	10,416.96	548.50	-576.96	-574.95	10.00	10.00	0.00
10,650.00	58.30	89.79	10,445.05	548.66	-535.62	-533.60	10.00	10.00	0.00
10,700.00	63.30	89.79	10,469.43	548.82	-491.98	-489.97	10.00	10.00	0.00
10,750.00	68.30	89.79	10,489.92	548.99	-446.39	-444.38	10.00	10.00	0.00
10,800.00	73.30	89.79	10,506.36	549.17	-399.19	-397.17	10.00	10.00	0.00
10,850.00	78.30	89.79	10,518.61	549.35	-350.73	-348.71	10.00	10.00	0.00
10,866.95	80.00	89.79	10,521.80	549.41	-334.08	-332.06	10.00	10.00	0.00
Begin 6.00°/100' Build									
10,900.00	81.98	89.79	10,526.98	549.53	-301.44	-299.42	6.00	6.00	0.00
10,950.00	84.98	89.79	10,532.65	549.72	-251.77	-249.75	6.00	6.00	0.00
11,000.00	87.98	89.79	10,535.72	549.90	-201.87	-199.85	6.00	6.00	0.00
11,013.62	88.80	89.79	10,536.10	549.95	-188.25	-186.24	6.00	6.00	0.00
Begin 88.80° Lateral									
11,100.00	88.80	89.79	10,537.91	550.28	-101.90	-99.88	0.00	0.00	0.00
11,200.00	88.80	89.79	10,540.00	550.65	-1.92	0.10	0.00	0.00	0.00
11,300.00	88.80	89.79	10,542.10	551.02	98.06	100.08	0.00	0.00	0.00
11,400.00	88.80	89.79	10,544.19	551.40	198.04	200.06	0.00	0.00	0.00
11,500.00	88.80	89.79	10,546.29	551.77	298.01	300.03	0.00	0.00	0.00
11,600.00	88.80	89.79	10,548.38	552.14	397.99	400.01	0.00	0.00	0.00
11,700.00	88.80	89.79	10,550.48	552.52	497.97	499.99	0.00	0.00	0.00
11,800.00	88.80	89.79	10,552.57	552.89	597.95	599.97	0.00	0.00	0.00
11,900.00	88.80	89.79	10,554.66	553.26	697.92	699.95	0.00	0.00	0.00
12,000.00	88.80	89.79	10,556.76	553.63	797.90	799.92	0.00	0.00	0.00
12,100.00	88.80	89.79	10,558.85	554.01	897.88	899.90	0.00	0.00	0.00
12,200.00	88.80	89.79	10,560.95	554.38	997.86	999.88	0.00	0.00	0.00
12,300.00	88.80	89.79	10,563.04	554.75	1,097.83	1,099.86	0.00	0.00	0.00
12,400.00	88.80	89.79	10,565.13	555.13	1,197.81	1,199.84	0.00	0.00	0.00
12,500.00	88.80	89.79	10,567.23	555.50	1,297.79	1,299.81	0.00	0.00	0.00
12,600.00	88.80	89.79	10,569.32	555.87	1,397.77	1,399.79	0.00	0.00	0.00
12,700.00	88.80	89.79	10,571.42	556.25	1,497.74	1,499.77	0.00	0.00	0.00
12,800.00	88.80	89.79	10,573.51	556.62	1,597.72	1,599.75	0.00	0.00	0.00
12,900.00	88.80	89.79	10,575.61	556.99	1,697.70	1,699.73	0.00	0.00	0.00
13,000.00	88.80	89.79	10,577.70	557.37	1,797.67	1,799.71	0.00	0.00	0.00
13,100.00	88.80	89.79	10,579.79	557.74	1,897.65	1,899.68	0.00	0.00	0.00
13,200.00	88.80	89.79	10,581.89	558.11	1,997.63	1,999.66	0.00	0.00	0.00
13,300.00	88.80	89.79	10,583.98	558.49	2,097.61	2,099.64	0.00	0.00	0.00
13,400.00	88.80	89.79	10,586.08	558.86	2,197.58	2,199.62	0.00	0.00	0.00
13,500.00	88.80	89.79	10,588.17	559.23	2,297.56	2,299.60	0.00	0.00	0.00



MS Energy Services Planning Report



Database:	EDM Conroe	Local Co-ordinate Reference:	Well #221H
Company:	Matador Resources	TVD Reference:	WELL @ 3044.00usft (Patterson 297)
Project:	Eddy County, New Mexico (NAD 27)	MD Reference:	WELL @ 3044.00usft (Patterson 297)
Site:	Ann COM 15-24S-28E RB	North Reference:	Grid
Well:	#221H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

Planned 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)	
13,600.00	88.80	89.79	10,590.27	559.61	2,397.54	2,399.57	0.00	0.00	0.00	
13,700.00	88.80	89.79	10,592.36	559.98	2,497.52	2,499.55	0.00	0.00	0.00	
13,800.00	88.80	89.79	10,594.45	560.35	2,597.49	2,599.53	0.00	0.00	0.00	
13,900.00	88.80	89.79	10,596.55	560.73	2,697.47	2,699.51	0.00	0.00	0.00	
14,000.00	88.80	89.79	10,598.64	561.10	2,797.45	2,799.49	0.00	0.00	0.00	
14,100.00	88.80	89.79	10,600.74	561.47	2,897.43	2,899.46	0.00	0.00	0.00	
14,200.00	88.80	89.79	10,602.83	561.85	2,997.40	2,999.44	0.00	0.00	0.00	
14,300.00	88.80	89.79	10,604.92	562.22	3,097.38	3,099.42	0.00	0.00	0.00	
14,400.00	88.80	89.79	10,607.02	562.59	3,197.36	3,199.40	0.00	0.00	0.00	
14,500.00	88.80	89.79	10,609.11	562.97	3,297.34	3,299.38	0.00	0.00	0.00	
14,600.00	88.80	89.79	10,611.21	563.34	3,397.31	3,399.35	0.00	0.00	0.00	
14,700.00	88.80	89.79	10,613.30	563.71	3,497.29	3,499.33	0.00	0.00	0.00	
14,800.00	88.80	89.79	10,615.40	564.09	3,597.27	3,599.31	0.00	0.00	0.00	
14,900.00	88.80	89.79	10,617.49	564.46	3,697.24	3,699.29	0.00	0.00	0.00	
15,000.00	88.80	89.79	10,619.58	564.83	3,797.22	3,799.27	0.00	0.00	0.00	
15,100.00	88.80	89.79	10,621.68	565.21	3,897.20	3,899.24	0.00	0.00	0.00	
15,200.00	88.80	89.79	10,623.77	565.58	3,997.18	3,999.22	0.00	0.00	0.00	
15,300.00	88.80	89.79	10,625.87	565.95	4,097.15	4,099.20	0.00	0.00	0.00	
15,397.97	88.80	89.79	10,627.92	566.32	4,195.11	4,197.15	0.00	0.00	0.00	
PBHL										

Design Targets										
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude	
VP - Ann COM 15-24S-28E RB - hit/miss target - plan hits target center - Shape - Point	0.00	0.00	6,000.00	547.64	-807.54	445,376.64	577,280.45	32° 13' 27.158 N	104° 5' 0.339 W	
PBHL - Ann COM 15-24S-28E RB - plan hits target center - Point	0.00	0.00	10,627.92	566.32	4,195.11	445,395.32	582,283.10	32° 13' 27.223 N	104° 4' 2.101 W	



MS Energy Services Planning Report



Database:	EDM Conroe	Local Co-ordinate Reference:	Well #221H
Company:	Matador Resources	TVD Reference:	WELL @ 3044:00usft (Patterson 297)
Project:	Eddy County, New Mexico (NAD 27)	MD Reference:	WELL @ 3044:00usft (Patterson 297)
Site:	Ann COM 15-24S-28E RB	North Reference:	Grid
Well:	#221H	Survey Calculation Method:	Minimum Curvature
Wellbore:	Wellbore #1		
Design:	Design #1		

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
665.00	665.00	Salado (Top of Salt)		1.20	89.79	
2,528.85	2,515.48	Lamar (Base of Salt)		1.20	89.79	
2,574.18	2,560.37	Bell Canyon		1.20	89.79	
3,470.76	3,437.25	Cherry Canyon		1.20	89.79	
4,713.88	4,631.27	Brushy Canyon		1.20	89.79	
6,276.53	6,167.13	Bone Springs Lime		1.20	89.79	
7,246.53	7,137.13	1st Bone Spring Sand		1.20	89.79	
7,496.53	7,387.13	2nd Bone Spring Carbonate		1.20	89.79	
8,036.53	7,927.13	2nd Bone Spring Sand		1.20	89.79	
8,326.53	8,217.13	3rd Bone Spring Carbonate		1.20	89.79	
9,116.53	9,007.13	3rd Bone Spring Sand		1.20	89.79	
9,486.53	9,377.13	Wolfcamp		1.20	89.79	
9,526.53	9,417.13	Wolfcamp X		1.20	89.79	
9,586.53	9,477.13	Wolfcamp Y		1.20	89.79	
10,086.54	9,977.13	Wolfcamp B		1.20	89.79	
10,764.09	10,494.97	Blair Shale		1.20	89.79	

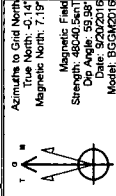
Plan Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
800.00	800.00	0.00	0.00	KOP, 1.50°/100' Build	
1,333.33	1,331.60	20.86	-30.77	Begin 8.00° Tangent	
2,800.00	2,784.00	135.43	-199.70	Begin 1.50°/100' Build	
3,343.83	3,315.33	199.25	-293.81	Begin 16.16° Tangent	
5,032.24	4,937.06	462.96	-682.67	Begin 1.50°/100' Drop	
6,109.40	6,000.00	547.64	-807.54	Begin Vertical Hold	
10,066.95	9,957.55	547.64	-807.54	Begin 10.00°/100' Build	
10,866.95	10,521.80	549.41	-334.08	Begin 6.00°/100' Build	
11,013.62	10,536.10	549.95	-188.25	Begin 88.80° Lateral	
15,397.97	10,627.92	566.32	4,195.11	PBHL	



Company: Matador Resources
Site: Ann COM 15-24S-28E RB
Well: #221H
Project: Eddy County, New Mexico (NAD 27)
Rig: Patterson 297

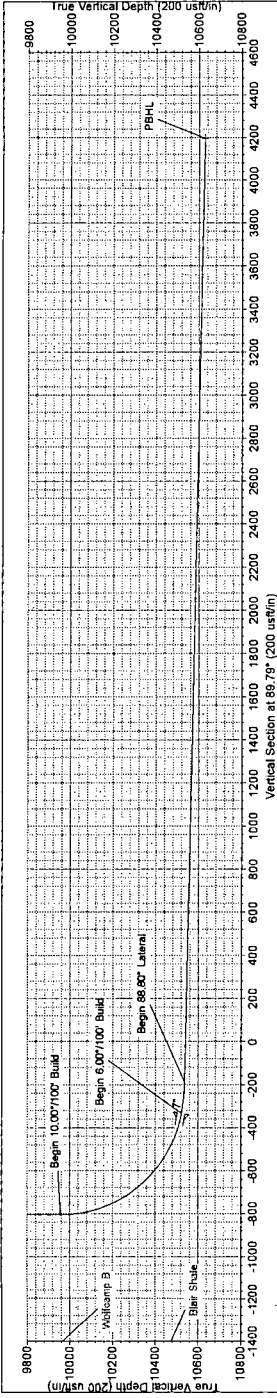
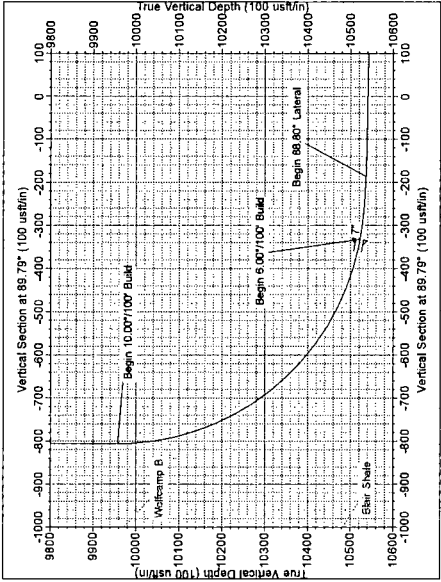
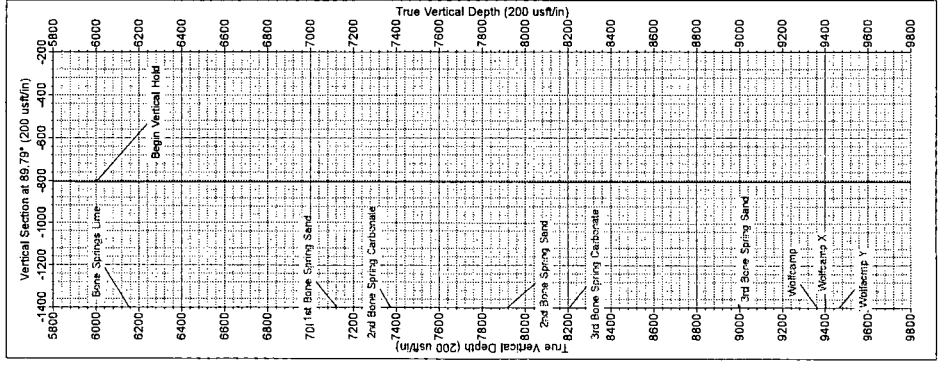
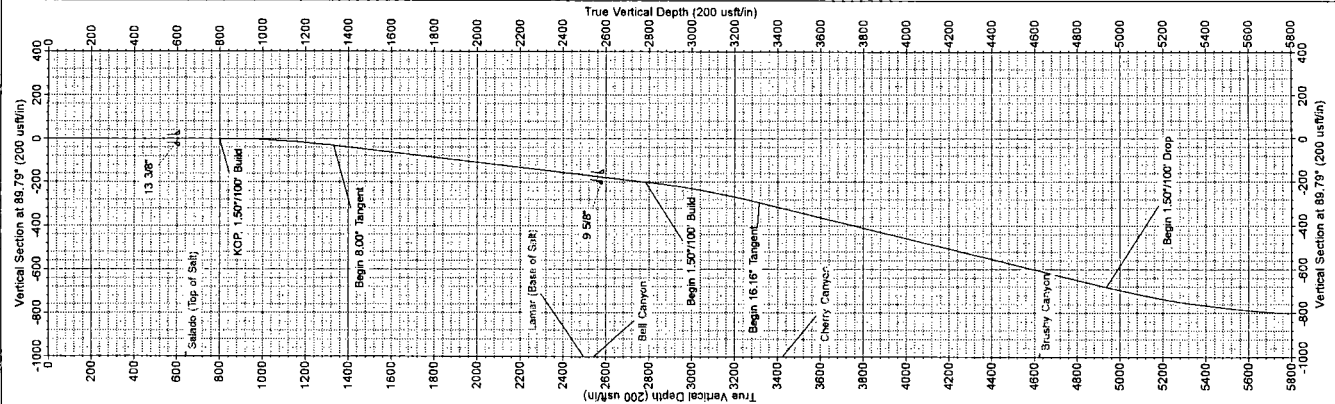
MS Energy Services
WWW.MSENERGYSERVICES.COM

WELL DETAILS: #221H			
3015.00			
N/S	E/W	North	East
0.00	0.00	444029.00	57607.99
3015.00			
Longitude			
104° 4' 50.853 W			
Latitude			
32° 12' 21.719 N			



Azimuth to Grid North
True North: 0.0°
Magnetic North: 7.1°
Magnetic Field
Strength: 46000.5nT
Declination: 7.1°
Date: 5/23/2016
Model: BGM2016
US State Plane 1927 (Eads solution)
New Mexico East 3001
Created By: U.S.
Date: 17/11 August 30 2016
Plan: Design #1

ANNOTATIONS											
MD	Inc	AZI	TVD	N/S	E/W	V-Set	Departure	Annulation			
800.00	0.00	0.00	800.00	0.00	0.00	0.00	0.00	KOP 1.507/100° Build			
1333.33	8.00	304.14	1331.60	20.86	-30.77	-30.69	37.17	Begin 8.00° Tangent			
2500.00	16.00	304.14	2498.30	41.72	-61.54	-61.51	74.35	Begin 1.507/100° Build			
3343.83	18.16	304.14	3341.53	139.25	-293.81	-293.61	245.00	Begin 1.507/100° Build			
5032.24	18.16	304.14	4937.08	485.96	-692.67	-690.97	824.84	Begin 1.507/100° Drop			
6109.40	0.00	0.00	6109.00	547.64	-807.54	-805.53	975.72	Begin Vertical Hold			
10486.95	0.00	0.00	10486.50	547.64	-807.54	-805.53	975.72	Begin 10.007/100° Build			
11013.52	88.80	89.79	10521.86	549.95	-188.25	-186.24	1595.01	Begin 88.80° Lateral			
15397.97	88.80	89.79	10627.92	566.32	-4195.11	-4197.15	5978.40	Begin 88.80° Lateral			



The customer should refer to the well log for the most current data. MS Energy is not responsible for the accuracy of the information contained herein.



Matador Resources

Eddy County, New Mexico (NAD 27)

Ann COM 15-24S-28E RB

#221H

Wellbore #1

Plan: Design #1

Standard Planning Report

30 August, 2016