



PRODIRECTIONAL

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HOBBS OCD

MAR 05 2018

RECEIVED



Marlan Downey St. 09-23S-35E AR #111H
Lea County, NM

February 14, 2018

Job No. LNM5161817

ORIGINAL

Survey Completion Report



PRODIRECTIONAL

Survey Certification Letter

February 14, 2018



Operator Name: Matador Resources
Well Name: Marlan Downey State 09-23S-35E AR No. 111H
County/Parish: Lea County,
State: NM
Rig Name: Patterson 274
Job Number: LNM5161817

This is to certify the surveys performed on the referenced well by Professional Directional Ent., Inc. are true and correct MWD Surveys, data provided as follows:

Surveyor	Surveyed Depths	Projection to Bit	Dates Performed	Type of Survey
ProDirectional	136' MD – 14,466' MD	14,523' MD	12/31/17 – 01/18/18	MWD-OWSG

Sincerely,

Mike Coats

Mike Coats
Regulatory Specialist
Professional Directional

850 Conroe Park West Drive | Conroe, TX 77303 | Phone: 936.441.7266

prodirectional.com

The Standard of Excellence in Directional Supervision



Matador Resources

Lea County, NM

Marlan Downey State 09-23S-35E AR

No. 111H

OH

Survey: ProDirectional

Survey Report

14 February, 2018





ProDirectional Survey Report



Company:	Matador Resources	Local Co-ordinate Reference:	Well No. 111H
Project:	Lea County, NM(NAD83)	TVD Reference:	Well @ 3528.50usft
Site:	Marlan Downey State 09-23S-35E AR	MD Reference:	Well @ 3528.50usft
Well:	No. 111H	North Reference:	Grid
Wellbore:	OH	Survey Calculation Method:	Minimum Curvature
Design:	MWD	Database:	WellPlanner1

Project	Lea County, NM(NAD83)		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Eastern Zone		

Site	Marlan Downey State 09-23S-35E AR		
Site Position:		Northing:	483,460.00 usft
From:	Map	Easting:	836,204.00 usft
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "
		Latitude:	32.325493
		Longitude:	-103.378746
		Grid Convergence:	0.51 °

Well		No. 111H				
Well Position	+N/-S	0.00 usft	Northing:	483,460.00 usft	Latitude:	32.325493
	+E/-W	0.00 usft	Easting:	836,204.00 usft	Longitude:	-103.378746
Position Uncertainty		0.00 usft	Wellhead Elevation:	usft	Ground Level:	3,500.00 usft

Wellbore	OH				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM	12/29/2017	6.82	60.15	48,158.60

Design	MWD			
Audit Notes:				
Version:	1.0	Phase:	ACTUAL	Tie On Depth: 0.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.00	0.00	0.00	179.50

Survey Program	Date 2/14/2018			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
136.00	14,523.00	Survey #1 (OH)	MWD+HDGM	OWSG MWD + HRGM



ProDirectional Survey Report



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Project: Lea County, NM(NAD83)
Site: Marlan Downey State 09-23S-35E AR
Well: No. 111H
Wellbore: OH
Design: MWD

Local Co-ordinate Reference:
TVD Reference: Well @ 3528.50usft
MD Reference: Well @ 3528.50usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: WellPlanner1

Survey											
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	V. Sec (usft)	N/S (usft)	E/W (usft)	Closure Distance (usft)	Closure Azimuth (°)	Northing (usft)	Easting (usft)	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	483,460.00	836,204.00	
136.00	0.30	351.80	136.00	-0.35	0.35	-0.05	0.36	351.80	483,460.35	836,203.95	
Pro MWD First Survey: 136' MD											
230.00	0.30	353.50	230.00	-0.84	0.84	-0.11	0.85	352.29	483,460.84	836,203.89	
319.00	0.30	343.70	319.00	-1.30	1.30	-0.21	1.31	350.99	483,461.30	836,203.79	
417.00	0.40	9.60	417.00	-1.88	1.88	-0.22	1.89	353.31	483,461.88	836,203.78	
510.00	0.30	5.00	509.99	-2.44	2.44	-0.15	2.45	356.60	483,462.44	836,203.85	
601.00	0.20	328.80	600.99	-2.82	2.81	-0.21	2.82	355.80	483,462.81	836,203.79	
694.00	0.20	345.00	693.99	-3.11	3.11	-0.33	3.13	353.89	483,463.11	836,203.67	
786.00	0.10	290.70	785.99	-3.30	3.29	-0.45	3.32	352.23	483,463.29	836,203.55	
879.00	0.10	319.60	878.99	-3.39	3.38	-0.58	3.43	350.31	483,463.38	836,203.42	
971.00	0.20	272.60	970.99	-3.46	3.45	-0.79	3.54	347.11	483,463.45	836,203.21	
1,063.00	0.80	301.90	1,062.99	-3.81	3.80	-1.50	4.08	338.51	483,463.80	836,202.50	
1,156.00	1.30	302.80	1,155.97	-4.74	4.71	-2.93	5.55	328.10	483,464.71	836,201.07	
1,245.00	2.00	302.90	1,244.93	-6.15	6.10	-5.09	7.95	320.20	483,466.10	836,198.91	
1,340.00	2.70	307.70	1,339.85	-8.45	8.37	-8.25	11.75	315.43	483,468.37	836,195.75	
1,435.00	2.50	304.90	1,434.76	-11.03	10.93	-11.72	16.02	313.00	483,470.93	836,192.28	
1,530.00	2.30	302.20	1,529.67	-13.26	13.13	-15.03	19.96	311.14	483,473.13	836,188.97	
1,625.00	2.00	301.50	1,624.61	-15.17	15.01	-18.06	23.48	309.74	483,475.01	836,185.94	
1,721.00	2.00	296.10	1,720.55	-16.81	16.62	-20.99	26.78	308.38	483,476.62	836,183.01	
1,851.00	1.90	295.20	1,850.47	-18.76	18.54	-24.98	31.11	306.58	483,478.54	836,179.02	
2,005.00	2.20	292.50	2,004.37	-21.02	20.76	-30.02	36.50	304.66	483,480.76	836,173.98	
2,100.00	2.60	295.20	2,099.29	-22.66	22.37	-33.65	40.41	303.62	483,482.37	836,170.35	
2,195.00	2.20	318.80	2,194.21	-24.98	24.66	-36.80	44.30	303.83	483,484.66	836,167.20	
2,291.00	2.90	319.60	2,290.11	-28.24	27.90	-39.59	48.43	305.17	483,487.90	836,164.41	
2,386.00	3.70	322.80	2,384.95	-32.54	32.17	-43.00	53.70	306.80	483,492.17	836,161.00	
2,481.00	4.80	325.10	2,479.69	-38.28	37.87	-47.13	60.46	308.78	483,497.87	836,156.87	



ProDirectional Survey Report



Company: Matador Resources
Project: Lea County, NM(NAD83)
Site: Marlan Downey State 09-23S-35E AR
Well: No. 111H
Wellbore: OH
Design: MWD

Local Co-ordinate Reference: Well No. 111H
TVD Reference: Well @ 3528.50usft
MD Reference: Well @ 3528.50usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: WellPlanner1

Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	V. Sec (usft)	N/S (usft)	E/W (usft)	Closure Distance (usft)	Closure Azimuth (°)	Northing (usft)	Easting (usft)
2,576.00	5.80	326.90	2,574.28	-45.60	45.15	-52.02	68.89	310.95	483,505.15	836,151.98
2,671.00	7.40	325.20	2,668.65	-54.70	54.20	-58.14	79.48	312.99	483,514.20	836,145.86
2,766.00	7.70	317.20	2,762.83	-64.46	63.89	-65.95	91.83	314.09	483,523.89	836,138.05
2,861.00	8.10	312.80	2,856.93	-73.76	73.11	-75.19	104.87	314.20	483,533.11	836,128.81
2,957.00	7.40	305.20	2,952.06	-82.01	81.27	-85.20	117.75	313.65	483,541.27	836,118.80
3,052.00	6.70	297.70	3,046.34	-88.20	87.37	-95.11	129.15	312.57	483,547.37	836,108.89
3,147.00	7.70	296.70	3,140.59	-93.72	92.81	-105.70	140.66	311.28	483,552.81	836,098.30
3,243.00	6.20	290.20	3,235.88	-98.50	97.49	-116.31	151.76	309.97	483,557.49	836,087.69
3,337.00	4.60	287.30	3,329.46	-101.44	100.36	-124.68	160.05	308.83	483,560.36	836,079.32
3,528.00	4.00	284.50	3,519.92	-105.51	104.31	-138.44	173.34	307.00	483,564.31	836,065.56
3,623.00	4.20	289.60	3,614.68	-107.56	106.30	-144.92	179.73	306.26	483,566.30	836,059.08
3,718.00	4.80	297.00	3,709.39	-110.59	109.27	-151.74	186.99	305.76	483,569.27	836,052.26
3,813.00	5.50	305.90	3,804.01	-115.13	113.75	-158.97	195.48	305.58	483,573.75	836,045.03
3,909.00	4.20	318.40	3,899.66	-120.51	119.07	-165.03	203.51	305.81	483,579.07	836,038.97
4,004.00	3.80	336.20	3,994.43	-126.02	124.56	-168.61	209.63	306.45	483,584.56	836,035.39
4,099.00	4.10	356.10	4,089.21	-132.30	130.83	-170.12	214.60	307.56	483,590.83	836,033.88
4,194.00	4.00	341.70	4,183.98	-138.85	137.36	-171.39	219.64	308.71	483,597.36	836,032.61
4,290.00	4.80	333.60	4,279.70	-145.65	144.14	-174.22	226.12	309.60	483,604.14	836,029.78
4,385.00	5.70	333.50	4,374.30	-153.47	151.92	-178.10	234.09	310.46	483,611.92	836,025.90
4,480.00	6.00	322.10	4,468.80	-161.65	160.06	-183.25	243.31	311.14	483,620.06	836,020.75
4,576.00	5.80	303.50	4,564.30	-168.35	166.70	-190.38	253.05	311.21	483,626.70	836,013.62
4,671.00	6.80	298.20	4,658.73	-173.74	172.00	-199.34	263.29	310.79	483,632.00	836,004.66
4,766.00	7.80	299.40	4,752.96	-179.65	177.83	-209.91	275.11	310.27	483,637.83	835,994.09
4,861.00	8.80	300.60	4,846.96	-186.62	184.69	-221.78	288.61	309.79	483,644.69	835,982.22
4,957.00	7.50	294.10	4,941.99	-193.02	190.99	-233.82	301.91	309.24	483,650.99	835,970.18
5,052.00	8.20	290.30	5,036.10	-198.01	195.87	-245.84	314.33	308.55	483,655.87	835,958.16
5,147.00	9.40	291.70	5,129.98	-203.34	201.09	-259.40	328.22	307.78	483,661.09	835,944.60



ProDirectional Survey Report



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Project: Lea County, NM(NAD83)
Site: Marlan Downey State 09-23S-35E AR
Well: No. 111H
Wellbore: OH
Design: MWD

Local Co-ordinate Reference:
TVD Reference:
MD Reference:
North Reference:
Survey Calculation Method:
Database:

Well No. 111H
Well @ 3528.50usft
Well @ 3528.50usft
Grid
Minimum Curvature
WellPlanner1

Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	V. Sec (usft)	N/S (usft)	E/W (usft)	Closure Distance (usft)	Closure Azimuth (°)	Northing (usft)	Easting (usft)
5,241.00	7.90	287.50	5,222.91	-208.24	205.87	-272.70	341.68	307.05	483,665.87	835,931.30
5,336.00	8.80	282.60	5,316.91	-211.91	209.42	-286.01	354.49	306.21	483,669.42	835,917.99
5,432.00	8.60	292.00	5,411.81	-216.32	213.71	-299.84	368.20	305.48	483,673.71	835,904.16
5,527.00	9.20	297.90	5,505.66	-222.65	219.92	-313.13	382.65	305.08	483,679.92	835,890.87
5,621.00	8.90	301.50	5,598.49	-230.07	227.24	-325.98	397.36	304.88	483,687.24	835,878.02
5,716.00	9.20	305.60	5,692.31	-238.44	235.50	-338.42	412.29	304.83	483,695.50	835,865.58
5,811.00	10.60	308.90	5,785.90	-248.46	245.41	-351.39	428.60	304.93	483,705.41	835,852.61
5,874.00	11.70	311.20	5,847.71	-256.39	253.25	-360.71	440.74	305.07	483,713.25	835,843.29
6,000.00	12.60	311.90	5,970.88	-274.16	270.85	-380.55	467.09	305.44	483,730.85	835,823.45
6,095.00	11.10	322.20	6,063.87	-288.42	285.00	-393.87	486.16	305.89	483,745.00	835,810.13
6,189.00	7.60	310.70	6,156.61	-299.72	296.20	-404.13	501.06	306.24	483,756.20	835,799.87
6,284.00	5.80	286.40	6,250.98	-305.25	301.66	-413.50	511.84	306.11	483,761.66	835,790.50
6,379.00	3.50	241.70	6,345.69	-305.30	301.64	-420.66	517.63	305.64	483,761.64	835,783.34
6,474.00	1.50	243.60	6,440.59	-303.40	299.71	-424.33	519.50	305.23	483,759.71	835,779.67
6,570.00	2.00	194.00	6,536.55	-301.23	297.53	-425.86	519.50	304.94	483,757.53	835,778.14
6,665.00	2.20	185.10	6,631.49	-297.81	294.10	-426.42	518.01	304.59	483,754.10	835,777.58
6,760.00	2.10	187.10	6,726.42	-294.27	290.56	-426.80	516.32	304.25	483,750.56	835,777.20
6,855.00	2.70	164.30	6,821.34	-290.39	286.68	-426.41	513.82	303.91	483,746.68	835,777.59
6,950.00	3.10	159.00	6,916.22	-285.82	282.12	-424.89	510.02	303.58	483,742.12	835,779.11
7,045.00	3.20	156.40	7,011.07	-280.98	277.30	-422.90	505.71	303.25	483,737.30	835,781.10
7,140.00	2.90	143.80	7,105.94	-276.58	272.93	-420.42	501.24	302.99	483,732.93	835,783.58
7,236.00	2.80	139.30	7,201.82	-272.82	269.19	-417.46	496.72	302.82	483,729.19	835,786.54
7,330.00	2.90	139.10	7,295.70	-269.26	265.65	-414.41	492.24	302.66	483,725.65	835,789.59
7,426.00	2.60	136.40	7,391.59	-265.82	262.24	-411.31	487.80	302.52	483,722.24	835,792.69
7,521.00	2.10	134.90	7,486.51	-263.01	259.45	-408.59	484.01	302.41	483,719.45	835,795.41
7,616.00	1.20	134.70	7,581.47	-261.06	257.52	-406.65	481.34	302.34	483,717.52	835,797.35
7,711.00	1.30	129.50	7,676.45	-259.66	256.14	-405.12	479.30	302.30	483,716.14	835,798.88



ProDirectional
Survey Report



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Project: Lea County, NM(NAD83)
Site: Marlan Downey State 09-23S-35E AR
Well: No. 111H
Wellbore: OH
Design: MWD

Local Co-ordinate Reference:
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North Reference:
Survey Calculation Method:
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Well No. 111H
Well @ 3528.50usft
Well @ 3528.50usft
Grid
Minimum Curvature
WellPlanner1

Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	V. Sec (usft)	N/S (usft)	E/W (usft)	Closure Distance (usft)	Closure Azimuth (°)	Northing (usft)	Easting (usft)
7,806.00	1.20	128.40	7,771.43	-258.34	254.83	-403.51	477.24	302.27	483,714.83	835,800.49
7,901.00	1.10	116.30	7,866.41	-257.31	253.81	-401.91	475.34	302.27	483,713.81	835,802.09
7,996.00	1.10	105.70	7,961.39	-256.64	253.16	-400.21	473.56	302.32	483,713.16	835,803.79
8,091.00	1.10	90.90	8,056.37	-256.37	252.90	-398.42	471.91	302.41	483,712.90	835,805.58
8,187.00	1.10	80.20	8,152.36	-256.49	253.04	-396.59	470.44	302.54	483,713.04	835,807.41
8,282.00	1.10	70.00	8,247.34	-256.94	253.51	-394.84	469.22	302.70	483,713.51	835,809.16
8,377.00	1.20	64.80	8,342.32	-257.66	254.24	-393.08	468.14	302.89	483,714.24	835,810.92
8,473.00	1.40	59.80	8,438.30	-258.67	255.26	-391.16	467.08	303.13	483,715.26	835,812.84
8,568.00	1.50	51.90	8,533.27	-260.00	256.61	-389.18	466.16	303.40	483,716.61	835,814.82
8,663.00	1.40	44.20	8,628.23	-261.58	258.21	-387.39	465.56	303.69	483,718.21	835,816.61
8,758.00	1.60	35.80	8,723.20	-263.48	260.12	-385.80	465.30	303.99	483,720.12	835,818.20
8,853.00	0.30	359.60	8,818.19	-264.79	261.44	-385.03	465.40	304.18	483,721.44	835,818.97
8,949.00	0.80	346.10	8,914.18	-265.70	262.35	-385.19	466.05	304.26	483,722.35	835,818.81
9,044.00	1.10	332.70	9,009.17	-267.16	263.80	-385.77	467.34	304.37	483,723.80	835,818.23
9,129.00	1.40	322.10	9,094.15	-268.71	265.34	-386.78	469.05	304.45	483,725.34	835,817.22
9,228.00	1.70	196.70	9,193.13	-268.27	264.89	-387.95	469.76	304.33	483,724.89	835,816.05
9,259.00	5.50	178.90	9,224.07	-266.34	262.97	-388.05	468.76	304.12	483,722.97	835,815.95
9,291.00	9.50	175.50	9,255.79	-262.17	258.80	-387.81	466.24	303.72	483,718.80	835,816.19
9,322.00	13.80	175.30	9,286.14	-255.93	252.56	-387.31	462.38	303.11	483,712.56	835,816.69
9,354.00	18.70	174.80	9,316.85	-247.01	243.64	-386.53	456.91	302.22	483,703.64	835,817.47
9,386.00	24.50	177.20	9,346.59	-235.25	231.90	-385.74	450.08	301.01	483,691.90	835,818.26
9,440.00	30.50	179.00	9,394.47	-210.34	206.99	-384.96	437.08	298.27	483,666.99	835,819.04
9,472.00	31.90	179.00	9,421.84	-193.76	190.41	-384.67	429.22	296.34	483,650.41	835,819.33
9,503.00	32.30	178.70	9,448.10	-177.29	173.94	-384.34	421.87	294.35	483,633.94	835,819.66
9,535.00	34.90	176.40	9,474.76	-159.60	156.26	-383.57	414.17	292.16	483,616.26	835,820.43
9,567.00	40.00	173.60	9,500.15	-140.21	136.89	-381.84	405.64	289.72	483,596.89	835,822.16
9,599.00	44.10	171.20	9,523.91	-118.95	115.65	-378.99	396.25	286.97	483,575.65	835,825.01



ProDirectional Survey Report



Company: Matador Resources
Project: Lea County, NM(NAD83)
Site: Marlan Downey State 09-23S-35E AR
Well: No. 111H
Wellbore: OH
Design: MWD

Local Co-ordinate Reference: Well No. 111H
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North Reference: Grid
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Database: WellPlanner1

Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	V. Sec (usft)	N/S (usft)	E/W (usft)	Closure Distance (usft)	Closure Azimuth (°)	Northing (usft)	Easting (usft)
9,630.00	45.90	169.70	9,545.83	-97.31	94.04	-375.35	386.95	284.06	483,554.04	835,828.65
9,680.00	49.00	169.80	9,579.64	-61.01	57.80	-368.80	373.30	278.91	483,517.80	835,835.20
9,711.00	52.50	170.20	9,599.25	-37.34	34.16	-364.63	366.23	275.35	483,494.16	835,839.37
9,743.00	56.00	170.40	9,617.94	-11.71	8.56	-360.26	360.36	271.36	483,468.56	835,843.74
9,775.00	58.20	170.10	9,635.32	14.81	-17.92	-355.71	356.16	267.12	483,442.08	835,848.29
9,807.00	59.10	169.80	9,651.97	41.76	-44.82	-350.94	353.79	262.72	483,415.18	835,853.06
9,838.00	60.90	170.50	9,667.47	68.25	-71.27	-346.35	353.61	258.37	483,388.73	835,857.65
9,870.00	61.70	170.90	9,682.84	95.99	-98.97	-341.81	355.85	253.85	483,361.03	835,862.19
9,902.00	62.30	170.80	9,697.86	123.92	-126.87	-337.32	360.39	249.39	483,333.13	835,866.68
9,933.00	63.50	171.90	9,711.98	151.24	-154.15	-333.17	367.10	245.17	483,305.85	835,870.83
9,965.00	63.80	172.30	9,726.19	179.67	-182.55	-329.23	376.45	240.99	483,277.45	835,874.77
9,997.00	65.20	173.00	9,739.96	208.35	-211.20	-325.54	388.04	237.03	483,248.80	835,878.46
10,029.00	65.60	173.80	9,753.28	237.28	-240.10	-322.19	401.82	233.31	483,219.90	835,881.81
10,061.00	66.30	175.10	9,766.33	266.39	-269.18	-319.37	417.68	229.87	483,190.82	835,884.63
10,092.00	67.20	176.10	9,778.56	294.80	-297.58	-317.18	434.93	226.83	483,162.42	835,886.82
10,123.00	69.20	176.50	9,790.07	323.54	-326.30	-315.33	453.77	224.02	483,133.70	835,888.67
10,155.00	71.30	176.20	9,800.89	353.61	-356.36	-313.41	474.57	221.33	483,103.64	835,890.59
10,186.00	73.40	175.90	9,810.29	383.10	-385.83	-311.37	495.80	218.90	483,074.17	835,892.63
10,249.00	76.20	176.20	9,826.80	443.78	-446.47	-307.19	541.94	214.53	483,013.53	835,896.81
10,281.00	76.70	176.30	9,834.30	474.83	-477.52	-305.15	566.69	212.58	482,982.48	835,898.85
10,313.00	77.80	177.30	9,841.36	506.01	-508.68	-303.41	592.29	210.81	482,951.32	835,900.59
10,345.00	78.30	178.20	9,847.99	537.30	-539.96	-302.18	618.76	209.23	482,920.04	835,901.82
10,377.00	79.90	178.10	9,854.04	568.71	-571.36	-301.17	645.88	207.79	482,888.64	835,902.83
10,408.00	81.50	178.70	9,859.05	599.30	-601.94	-300.31	672.70	206.51	482,858.06	835,903.69
10,440.00	83.70	180.00	9,863.17	631.03	-633.67	-299.95	701.08	205.33	482,826.33	835,904.05
10,503.00	86.70	181.00	9,868.44	693.79	-696.44	-300.50	758.51	203.34	482,763.56	835,903.50
10,535.00	87.40	180.90	9,870.09	725.74	-728.39	-301.03	788.15	202.45	482,731.61	835,902.97



ProDirectional
Survey Report



Company: Matador Resources
Project: Lea County, NM(NAD83)
Site: Marlan Downey State 09-23S-35E AR
Well: No. 111H
Wellbore: OH
Design: MWD

Local Co-ordinate Reference:
TVD Reference: Well @ 3528.50usft
MD Reference: Well @ 3528.50usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: WellPlanner1

Survey										
MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	V. Sec (usft)	N/S (usft)	E/W (usft)	Closure Distance (usft)	Closure Azimuth (°)	Northing (usft)	Easting (usft)
10,629.00	90.90	181.20	9,871.48	819.68	-822.35	-302.76	876.31	200.21	482,637.65	835,901.24
10,725.00	93.10	181.20	9,868.13	915.57	-918.27	-304.76	967.52	198.36	482,541.73	835,899.24
10,819.00	92.10	180.90	9,863.87	1,009.44	-1,012.15	-306.48	1,057.54	196.85	482,447.85	835,897.52
10,915.00	90.60	181.00	9,861.61	1,105.38	-1,108.11	-308.08	1,150.14	195.54	482,351.89	835,895.92
11,010.00	89.10	181.60	9,861.85	1,200.33	-1,203.08	-310.23	1,242.44	194.46	482,256.92	835,893.77
11,105.00	88.80	180.50	9,863.60	1,295.28	-1,298.05	-311.97	1,335.01	193.51	482,161.95	835,892.03
11,200.00	87.70	180.50	9,866.50	1,390.22	-1,393.00	-312.80	1,427.69	192.66	482,067.00	835,891.20
11,295.00	88.80	180.00	9,869.40	1,485.16	-1,487.95	-313.21	1,520.56	191.89	481,972.05	835,890.79
11,389.00	87.30	179.60	9,872.60	1,579.11	-1,581.90	-312.89	1,612.54	191.19	481,878.10	835,891.11
11,485.00	86.60	179.40	9,877.70	1,674.97	-1,677.76	-312.05	1,706.53	190.54	481,782.24	835,891.95
11,580.00	87.30	179.00	9,882.76	1,769.83	-1,772.61	-310.73	1,799.64	189.94	481,687.39	835,893.27
11,675.00	86.80	178.90	9,887.65	1,864.70	-1,867.47	-308.99	1,892.86	189.39	481,592.53	835,895.01
11,770.00	87.50	179.30	9,892.37	1,959.58	-1,962.34	-307.50	1,986.28	188.91	481,497.66	835,896.50
11,865.00	86.70	178.80	9,897.18	2,054.45	-2,057.20	-305.92	2,079.83	188.46	481,402.80	835,898.08
11,961.00	86.60	179.30	9,902.79	2,150.29	-2,153.03	-304.34	2,174.43	188.05	481,306.97	835,899.66
12,056.00	85.30	180.80	9,909.50	2,245.04	-2,247.78	-304.42	2,268.30	187.71	481,212.22	835,899.58
12,151.00	86.40	180.40	9,916.37	2,339.77	-2,342.53	-305.41	2,362.35	187.43	481,117.47	835,898.59
12,246.00	88.30	180.20	9,920.76	2,434.66	-2,437.42	-305.91	2,456.54	187.15	481,022.58	835,898.09
12,341.00	87.30	180.30	9,924.41	2,529.58	-2,532.35	-306.32	2,550.81	186.90	480,927.65	835,897.68
12,437.00	88.20	181.00	9,928.18	2,625.48	-2,628.27	-307.41	2,646.18	186.67	480,831.73	835,896.59
12,532.00	88.20	182.10	9,931.16	2,720.37	-2,723.18	-309.98	2,740.77	186.49	480,736.82	835,894.02
12,627.00	87.90	182.50	9,934.40	2,815.21	-2,818.05	-313.79	2,835.47	186.35	480,641.95	835,890.21
12,722.00	88.50	183.10	9,937.38	2,910.00	-2,912.89	-318.43	2,930.24	186.24	480,547.11	835,885.57
12,817.00	88.90	181.40	9,939.54	3,004.86	-3,007.79	-322.15	3,024.99	186.11	480,452.21	835,881.85
12,912.00	88.80	181.50	9,941.44	3,099.79	-3,102.74	-324.56	3,119.67	185.97	480,357.26	835,879.44
13,007.00	88.20	178.80	9,943.93	3,194.74	-3,197.70	-324.81	3,214.15	185.80	480,262.30	835,879.19
13,102.00	91.20	178.90	9,944.43	3,289.72	-3,292.67	-322.90	3,308.46	185.60	480,167.33	835,881.10



ProDirectional Survey Report



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Site: Marlan Downey State 09-23S-35E AR
Well: No. 111H
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Local Co-ordinate Reference: Well No. 111H
TVD Reference: Well @ 3528.50usft
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Survey Calculation Method: Minimum Curvature
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Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	V. Sec (usft)	N/S (usft)	E/W (usft)	Closure Distance (usft)	Closure Azimuth (°)	Northing (usft)	Easting (usft)
13,198.00	93.10	179.30	9,940.83	3,385.65	-3,388.58	-321.39	3,403.79	185.42	480,071.42	835,882.61
13,293.00	93.50	179.80	9,935.36	3,480.49	-3,483.42	-320.65	3,498.15	185.26	479,976.58	835,883.35
13,388.00	93.90	180.30	9,929.23	3,575.29	-3,578.22	-320.73	3,592.57	185.12	479,881.78	835,883.27
13,484.00	91.50	180.60	9,924.71	3,671.16	-3,674.11	-321.48	3,688.14	185.00	479,785.89	835,882.52
13,579.00	90.60	179.60	9,922.96	3,766.14	-3,769.09	-321.65	3,782.79	184.88	479,690.91	835,882.35
13,674.00	89.90	179.90	9,922.55	3,861.13	-3,864.09	-321.23	3,877.41	184.75	479,595.91	835,882.77
13,769.00	89.80	179.90	9,922.80	3,956.13	-3,959.08	-321.07	3,972.08	184.64	479,500.92	835,882.93
13,864.00	89.90	180.10	9,923.05	4,051.13	-4,054.08	-321.07	4,066.78	184.53	479,405.92	835,882.93
13,960.00	90.20	180.90	9,922.96	4,147.11	-4,150.08	-321.91	4,162.55	184.44	479,309.92	835,882.09
14,056.00	90.60	181.30	9,922.29	4,243.07	-4,246.06	-323.75	4,258.38	184.36	479,213.94	835,880.25
14,151.00	90.50	181.30	9,921.38	4,338.02	-4,341.03	-325.90	4,353.25	184.29	479,118.97	835,878.10
14,247.00	90.80	181.70	9,920.29	4,433.96	-4,436.99	-328.42	4,449.13	184.23	479,023.01	835,875.58
14,342.00	91.00	182.40	9,918.80	4,528.85	-4,531.92	-331.82	4,544.05	184.19	478,928.08	835,872.18
14,437.00	91.30	182.50	9,916.89	4,623.70	-4,626.81	-335.88	4,638.99	184.15	478,833.19	835,868.12
14,466.00	91.20	182.50	9,916.26	4,652.66	-4,655.78	-337.14	4,667.97	184.14	478,804.22	835,866.86
Last Survey: 14466' MD										
14,523.00	91.20	182.50	9,915.07	4,709.57	-4,712.71	-339.63	4,724.93	184.12	478,747.29	835,864.37
PTB: 14523' MD										

Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
136.00	136.00	0.35	-0.05	Pro MWD First Survey: 136' MD
14,466.00	9,916.26	-4,655.78	-337.14	Last Survey: 14466' MD
14,523.00	9,915.07	-4,712.71	-339.63	PTB: 14523' MD