MS Directional

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MS Directional Survey Data Certification

MS Directional Job Number:	DDMO-171276
Survey Type:	MWD
Operating Company:	Matador Production Company
Well Name & Number:	Zach McCormick FED COM 221H
Location:	Eddy County, NM
API Number:	30-015-44241

Original Wellbore

Tie In Depth:	Surface
Surveyed Depths:	175' – 14,695' MD
Projected TD Survey:	14,772' MD

Sidetrack

Tie In Depth:	14,411' MD
Surveyed Depths:	14,441' – 15,545' MD
Projected TD Survey:	15,634' MD

Dates Performed: 01/11/2018 – 02/24/2018

I certify that the data is true, correct and complete and within the limitations of the tool set forth by MS Directional; that I am authorized and qualified to make this report and that I have reviewed this report and find it conforms to the principles and procedures as set forth by MS Directional.

Digitally signed by: Christopher Morasch

MWD Surveyor Name: Chris Morasch

Date: 04-02-2018

Email: cmorasch@msdir.com

MS Directional
V09.04.02

SURVEY CALCULATION PROGRAM

4/2/18 13:48

Company:	Matador Production Company
Well Name:	Zach McCormick FED COM 221H - Original Wellbore
Location:	Eddy County, NM
Rig:	Patterson #597
Job Number:	DDMO-171276
API #:	30-015-44241
Vertical Section Azimuth:	90.02
Survey Calculation Method:	Minimum Curvature

Magnetic Declination: 7.02 REFERENCED TO GRID NORTH

Proposed Direction: 90.02

PTB:	MD	INC	AZM	TVD	N/S	E/W	VS
	14,772	91.5	107.5	10944.22	277.38	3842.28	3842.18

#	Depth Feet	Inc Degrees	Azm Degrees	TVD Feet	N/S Feet	E/W Feet	Surface Vert Sec	Closure Distance	Closure Azm	DLS/ 100	BUR/ 100'
TIE IN	0	0.00	0.00	0.00	0.00	0.00			0.00		
1	175	0.80	315.60	174.99	0.87	-0.85	-0.86	1.22	315.60	0.46	0.46
2	329	0.70	278.30	328.98	1.78	-2.54	-2.54	3.10	305.00	0.32	-0.06
3	439	0.90	292.80	438.97	2.21	-4.00	-4.00	4.57	298.91	0.26	0.18
4	603	1.10	311.40	602.95	3.75	-6.37	-6.37	7.39	300.49	0.23	0.12
5	785	2.30	320.90	784.86	7.74	-9.98	-9.98	12.63	307.79	0.68	0.66
6	970	4.20	313.70	969.56	15.30	-17.22	-17.23	23.04	311.62	1.05	1.03
7	1,157	3.10	313.70	1156.18	23.52	-25.83	-25.84	34.94	312.33	0.59	-0.59
8	1,344	4.70	312.70	1342.74	32.21	-35.11	-35.13	47.65	312.53	0.86	0.86
9	1,532	3.50	312.40	1530.25	41.31	-45.01	-45.03	61.09	312.54	0.64	-0.64
10	1,719	3.60	318.10	1716.89	49.53	-53.15	-53.17	72.65	312.98	0.20	0.05
11	1,907	3.40	315.10	1904.54	57.87	-61.03	-61.05	84.10	313.48	0.14	-0.11
12	2,093	2.50	319.40	2090.30	64.86	-67.56	-67.58	93.65	313.83	0.50	-0.48
13	2,281	4.90	320.10	2277.89	74.13	-75.38	-75.40	105.72	314.52	1.28	1.28
14	2,468	3.50	321.40	2464.38	84.72	-84.06	-84.09	119.35	315.22	0.75	-0.75
15	2,655	4.60	315.90	2650.91	94.56	-92.84	-92.88	132.52	315.53	0.62	0.59
16	2,703	4.20	315.60	2698.77	97.20	-95.41	-95.45	136.20	315.53	0.83	-0.83
17	2,843	3.90	319.40	2838.42	104.48	-102.10	-102.13	146.08	315.66	0.29	-0.21
18	3,030	5.90	329.80	3024.73	117.62	-111.07	-111.11	161.77	316.64	1.17	1.07
19	3,217	6.00	330.00	3210.73	134.39	-120.79	-120.84	180.70	318.05	0.05	0.05
20	3,404	5.90	329.60	3396.72	151.14	-130.54	-130.60	199.71	319.18	0.06	-0.05
21	3,591	5.50	328.60	3582.79	167.08	-140.08	-140.13	218.03	320.02	0.22	-0.21
22	3,778	5.20	327.60	3768.98	181.88	-149.29	-149.35	235.30	320.62	0.17	-0.16
23	3,966	7.30	326.90	3955.85	199.09	-160.37	-160.44	255.65	321.15	1.12	1.12
24	4,153	7.60	329.30	4141.27	219.67	-173.18	-173.25	279.72	321.75	0.23	0.16
25	4,340	6.50	320.60	4326.86	238.48	-186.21	-186.29	302.57	322.02	0.82	-0.59
26	4,527	6.20	319.40	4512.71	254.33	-199.50	-199.59	323.24	321.89	0.18	-0.16
27	4,714	6.00	320.90	4698.66	269.58	-212.23	-212.33	343.10	321.79	0.14	-0.11
28	4,901	5.20	321.10	4884.76	283.76	-223.72	-223.82	361.35	321.75	0.43	-0.43
29	5,088	6.30	320.40	5070.82	298.26	-235.58	-235.68	380.08	321.70	0.59	0.59
30	5,275	5.20	318.00	5256.87	312.47	-247.79	-247.90	398.79	321.58	0.60	-0.59
31	5,462	6.20	327.50	5442.95	327.28	-258.89	-259.00	417.30	321.66	0.73	0.53
32	5,650	5.00	325.70	5630.05	342.61	-268.96	-269.08	435.57	321.87	0.65	-0.64
33	5,837	5.90	327.20	5816.20	357.42	-278.76	-278.88	453.27	322.05	0.49	0.48

MS Directional
V09.04.02

SURVEY CALCULATION PROGRAM

4/2/18 13:48

Company:	Matador Production Company
Well Name:	Zach McCormick FED COM 221H - Original Wellbore
Location:	Eddy County, NM
Rig:	Patterson #597
Job Number:	DDMO-171276
API #:	30-015-44241
Vertical Section Azimuth:	90.02
Survey Calculation Method:	Minimum Curvature

Magnetic Declination: 7.02 REFERENCED TO GRID NORTH

Proposed Direction: 90.02

PTB:	MD	INC	AZM	TVD	N/S	E/W	VS
	14,772	91.5	107.5	10944.22	277.38	3842.28	3842.18

#	Depth Feet	Inc Degrees	Azm Degrees	TVD Feet	N/S Feet	E/W Feet	Surface Vert Sec	Closure Distance	Closure Azm	DLS/ 100	BUR/ 100'
34	6,025	4.70	325.80	6003.40	371.92	-288.32	-288.45	470.59	322.22	0.64	-0.64
35	6,212	3.80	320.20	6189.88	383.01	-296.60	-296.73	484.43	322.25	0.53	-0.48
36	6,399	2.20	312.10	6376.62	390.18	-303.23	-303.36	494.15	322.15	0.88	-0.86
37	6,587	1.30	242.30	6564.55	391.61	-307.79	-307.93	498.09	321.83	1.14	-0.48
38	6,774	2.70	262.10	6751.43	390.02	-314.03	-314.17	500.73	321.16	0.82	0.75
39	6,961	2.70	254.80	6938.22	388.26	-322.65	-322.78	504.82	320.27	0.18	0.00
40	7,148	1.00	226.90	7125.12	385.99	-328.09	-328.22	506.58	319.64	1.00	-0.91
41	7,335	0.80	94.40	7312.11	384.77	-327.98	-328.11	505.59	319.56	0.88	-0.11
42	7,522	1.50	98.30	7499.07	384.32	-324.25	-324.39	502.83	319.85	0.38	0.37
43	7,710	0.70	99.50	7687.04	383.77	-320.69	-320.82	500.12	320.12	0.43	-0.43
44	7,898	1.00	120.90	7875.02	382.74	-318.15	-318.28	497.70	320.27	0.23	0.16
45	8,085	0.70	136.10	8062.00	381.08	-315.95	-316.09	495.02	320.34	0.20	-0.16
46	8,272	0.70	39.10	8248.99	381.14	-314.44	-314.57	494.11	320.48	0.56	0.00
47	8,459	0.60	16.60	8435.98	382.97	-313.44	-313.58	494.88	320.70	0.15	-0.05
48	8,646	0.60	336.20	8622.97	384.80	-313.56	-313.69	496.38	320.83	0.22	0.00
49	8,833	0.50	166.20	8809.96	384.91	-313.76	-313.89	496.58	320.81	0.59	-0.05
50	9,021	0.60	200.60	8997.96	383.19	-313.91	-314.04	495.35	320.68	0.18	0.05
51	9,208	0.20	259.20	9184.95	382.21	-314.57	-314.71	495.02	320.54	0.28	-0.21
52	9,395	1.00	319.10	9371.94	383.38	-315.96	-316.10	496.80	320.51	0.49	0.43
53	9,582	0.20	291.10	9558.93	384.73	-317.34	-317.47	498.72	320.48	0.44	-0.43
54	9,769	0.60	114.00	9745.93	384.45	-316.75	-316.88	498.13	320.52	0.43	0.21
55	9,957	0.40	253.20	9933.92	383.86	-316.47	-316.61	497.50	320.50	0.50	-0.11
56	10,144	0.90	297.30	10120.91	384.35	-318.40	-318.54	499.10	320.36	0.36	0.27
57	10,231	1.60	295.00	10207.89	385.17	-320.11	-320.25	500.83	320.27	0.81	0.80
58	10,355	6.90	86.90	10331.64	386.31	-314.23	-314.37	497.97	320.87	6.73	4.27
59	10,402	12.20	89.80	10377.97	386.48	-306.44	-306.58	493.23	321.59	11.32	11.28
60	10,449	17.40	91.90	10423.39	386.27	-294.44	-294.58	485.69	322.68	11.12	11.06
61	10,496	22.80	93.00	10467.51	385.55	-278.31	-278.45	475.51	324.18	11.52	11.49
62	10,542	27.50	94.10	10509.14	384.33	-258.81	-258.94	463.35	326.04	10.27	10.22
63	10,589	33.20	93.30	10549.68	382.81	-235.12	-235.25	449.25	328.44	12.16	12.13
64	10,636	39.40	92.40	10587.54	381.44	-207.34	-207.48	434.16	331.47	13.24	13.19
65	10,683	45.10	91.90	10622.32	380.27	-175.78	-175.91	418.93	335.19	12.15	12.13
66	10,729	48.90	94.60	10653.69	378.34	-142.20	-142.34	404.18	339.40	9.31	8.26
67	10,776	52.90	98.20	10683.33	374.24	-105.98	-106.11	388.96	344.19	10.38	8.51

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V09.04.02

SURVEY CALCULATION PROGRAM

4/2/18 13:48

Company:	Matador Production Company
Well Name:	Zach McCormick FED COM 221H - Original Wellbore
Location:	Eddy County, NM
Rig:	Patterson #597
Job Number:	DDMO-171276
API #:	30-015-44241
Vertical Section Azimuth:	90.02
Survey Calculation Method:	Minimum Curvature

Magnetic Declination: 7.02 REFERENCED TO GRID NORTH

Proposed Direction: 90.02

PTB:	MD	INC	AZM	TVD	N/S	E/W	VS
	14,772	91.5	107.5	10944.22	277.38	3842.28	3842.18

#	Depth Feet	Inc Degrees	Azm Degrees	TVD Feet	N/S Feet	E/W Feet	Surface Vert Sec	Closure Distance	Closure Azm	DLS/ 100	BUR/ 100'
68	10,823	56.90	98.40	10710.35	368.69	-67.94	-68.06	374.89	349.56	8.52	8.51
69	10,870	59.80	98.30	10735.01	362.88	-28.35	-28.48	363.99	355.53	6.17	6.17
70	10,917	63.20	98.30	10757.43	356.92	12.51	12.39	357.14	2.01	7.23	7.23
71	10,967	65.80	95.60	10778.96	351.47	57.30	57.18	356.11	9.26	7.13	5.20
72	11,065	73.20	96.70	10813.26	341.62	148.50	148.38	372.50	23.49	7.62	7.55
73	11,113	79.00	95.80	10824.78	336.56	194.80	194.68	388.86	30.06	12.22	12.08
74	11,160	82.00	95.70	10832.54	331.91	240.91	240.80	410.13	35.97	6.39	6.38
75	11,208	82.70	93.70	10838.93	328.01	288.32	288.21	436.72	41.32	4.38	1.46
76	11,255	84.50	91.10	10844.17	326.06	334.98	334.87	467.47	45.77	6.70	3.83
77	11,302	85.30	91.40	10848.35	325.04	381.79	381.67	501.41	49.59	1.82	1.70
78	11,349	85.60	90.00	10852.08	324.47	428.63	428.52	537.59	52.88	3.04	0.64
79	11,396	85.60	90.40	10855.68	324.30	475.49	475.38	575.56	55.70	0.85	0.00
80	11,490	88.70	90.50	10860.36	323.57	569.36	569.25	654.88	60.39	3.30	3.30
81	11,584	86.80	90.90	10864.05	322.42	663.28	663.17	737.49	64.08	2.07	-2.02
82	11,679	92.00	90.90	10865.04	320.93	758.23	758.12	823.35	67.06	5.47	5.47
83	11,773	90.00	90.50	10863.40	319.78	852.20	852.09	910.23	69.43	2.17	-2.13
84	11,866	89.60	90.30	10863.73	319.13	945.20	945.09	997.62	71.34	0.48	-0.43
85	11,960	89.00	92.70	10864.87	316.67	1039.15	1039.04	1086.33	73.05	2.63	-0.64
86	12,054	88.50	90.20	10866.93	314.29	1133.09	1132.98	1175.88	74.50	2.71	-0.53
87	12,149	87.00	90.10	10870.66	314.04	1228.02	1227.91	1267.54	75.66	1.58	-1.58
88	12,243	87.10	91.60	10875.49	312.65	1321.88	1321.77	1358.35	76.69	1.60	0.11
89	12,337	88.40	93.00	10879.18	308.88	1415.73	1415.62	1449.03	77.69	2.03	1.38
90	12,431	91.20	93.10	10879.51	303.88	1509.58	1509.48	1539.87	78.62	2.98	2.98
91	12,525	88.20	92.40	10880.00	299.37	1603.46	1603.36	1631.17	79.42	3.28	-3.19
92	12,619	87.70	89.50	10883.37	297.81	1697.38	1697.28	1723.31	80.05	3.13	-0.53
93	12,713	90.00	89.60	10885.25	298.55	1791.35	1791.25	1816.06	80.54	2.45	2.45
94	12,808	86.90	88.10	10887.82	300.46	1886.28	1886.18	1910.06	80.95	3.62	-3.26
95	12,902	88.60	89.50	10891.51	302.42	1980.19	1980.08	2003.15	81.32	2.34	1.81
96	12,996	87.90	89.20	10894.38	303.49	2074.13	2074.03	2096.22	81.68	0.81	-0.74
97	13,090	89.30	89.60	10896.68	304.47	2168.10	2167.99	2189.37	82.01	1.55	1.49
98	13,184	84.80	87.80	10901.52	306.60	2261.92	2261.82	2282.61	82.28	5.15	-4.79
99	13,279	85.10	89.00	10909.88	309.24	2356.51	2356.41	2376.72	82.52	1.30	0.32
100	13,373	87.40	89.70	10916.03	310.30	2450.30	2450.19	2469.87	82.78	2.56	2.45
101	13,468	87.90	86.90	10919.92	313.12	2545.17	2545.06	2564.36	82.99	2.99	0.53

MS Directional
V09.04.02

SURVEY CALCULATION PROGRAM

4/2/18 13:48

Company:	Matador Production Company
Well Name:	Zach McCormick FED COM 221H - Original Wellbore
Location:	Eddy County, NM
Rig:	Patterson #597
Job Number:	DDMO-171276
API #:	30-015-44241
Vertical Section Azimuth:	90.02
Survey Calculation Method:	Minimum Curvature

Magnetic Declination: 7.02 REFERENCED TO GRID NORTH

Proposed Direction: 90.02

PTB:	MD	INC	AZM	TVD	N/S	E/W	VS
	14,772	91.5	107.5	10944.22	277.38	3842.28	3842.18

#	Depth Feet	Inc Degrees	Azm Degrees	TVD Feet	N/S Feet	E/W Feet	Surface Vert Sec	Closure Distance	Closure Azm	DLS/ 100	BUR/ 100'
102	13,562	89.90	87.40	10921.73	317.79	2639.03	2638.92	2658.10	83.13	2.19	2.13
103	13,657	90.40	88.50	10921.48	321.19	2733.97	2733.86	2752.77	83.30	1.27	0.53
104	13,751	90.40	90.40	10920.82	322.09	2827.96	2827.84	2846.24	83.50	2.02	0.00
105	13,845	87.90	94.10	10922.22	318.40	2921.85	2921.74	2939.15	83.78	4.75	-2.66
106	13,940	89.30	95.50	10924.54	310.46	3016.48	3016.38	3032.42	84.12	2.08	1.47
107	14,034	88.20	91.80	10926.59	304.47	3110.25	3110.15	3125.12	84.41	4.11	-1.17
108	14,129	88.70	92.60	10929.16	300.83	3205.15	3205.04	3219.23	84.64	0.99	0.53
109	14,223	87.70	86.00	10932.12	301.97	3299.04	3298.94	3312.83	84.77	7.10	-1.06
110	14,317	85.80	86.20	10937.44	308.36	3392.67	3392.56	3406.65	84.81	2.03	-2.02
111	14,411	87.50	87.60	10942.94	313.43	3486.36	3486.25	3500.43	84.86	2.34	1.81
112	14,506	89.30	91.00	10945.59	314.59	3581.30	3581.19	3595.09	84.98	4.05	1.89
113	14,600	89.20	89.30	10946.82	314.34	3675.29	3675.18	3688.71	85.11	1.81	-0.11
114	14,695	91.50	107.50	10946.24	300.53	3768.87	3768.76	3780.83	85.44	19.31	2.42
PTB:	14,772	91.50	107.50	10944.22	277.38	3842.28	3842.18	3852.28	85.87	0.00	0.00

MS Directional
V09.04.02

SURVEY CALCULATION PROGRAM

4/2/18 13:50

Company:	Matador Production Company
Well Name:	Zach McCormick FED COM 221H - Sidetrack
Location:	Eddy County, NM
Rig:	Patterson #597
Job Number:	DDMO-171276
API #:	30-015-44241
Vertical Section Azimuth:	85.90
Survey Calculation Method:	Minimum Curvature

Magnetic Declination: 7.02 REFERENCED TO GRID NORTH

Proposed Direction: 85.90

PTB:	MD	INC	AZM	TVD	N/S	E/W	VS
	15,634	90.9	87.8	10945.4	369.02	4705.99	4720.33

#	Depth Feet	Inc Degrees	Azm Degrees	TVD Feet	N/S Feet	E/W Feet	Surface Vert Sec	Closure Distance	Closure Azm	DLS/ 100	BUR/ 100'
TIE IN	14,411	87.50	87.60	10942.94	313.43	3486.36		3500.42	84.86		
1	14,444	81.10	83.10	10946.22	316.08	3519.06	3532.66	3533.23	84.87	23.67	-19.39
2	14,507	83.50	81.90	10954.66	324.23	3580.96	3594.97	3595.60	84.83	4.25	3.81
3	14,602	88.30	83.60	10961.45	336.18	3674.92	3689.56	3690.27	84.77	5.36	5.05
4	14,696	91.10	86.30	10961.94	344.46	3768.54	3783.52	3784.25	84.78	4.14	2.98
5	14,790	89.90	88.40	10961.12	348.80	3862.43	3877.48	3878.15	84.84	2.57	-1.28
6	14,884	91.80	89.40	10959.73	350.61	3956.40	3971.34	3971.90	84.94	2.28	2.02
7	14,979	90.90	89.30	10957.49	351.68	4051.36	4066.14	4066.60	85.04	0.95	-0.95
8	15,073	91.40	88.90	10955.60	353.16	4145.33	4159.97	4160.35	85.13	0.68	0.53
9	15,167	91.00	88.50	10953.63	355.29	4239.29	4253.84	4254.15	85.21	0.60	-0.43
10	15,262	90.30	88.60	10952.56	357.69	4334.25	4348.73	4348.98	85.28	0.74	-0.74
11	15,356	92.00	88.70	10950.67	359.91	4428.20	4442.60	4442.80	85.35	1.81	1.81
12	15,450	90.90	88.30	10948.29	362.37	4522.14	4536.47	4536.63	85.42	1.25	-1.17
13	15,545	90.90	87.80	10946.80	365.60	4617.07	4631.39	4631.52	85.47	0.53	0.00
PTB:	15,634	90.90	87.80	10945.40	369.02	4705.99	4720.33	4720.44	85.52	0.00	0.00