



7821 Will Rogers Blvd.
Fort Worth, Texas 76140
817.568.1038 (office)
817.568.1499 (fax)
www.msdir.com

MS Directional Survey Data Certification

MS Directional Job Number: DDMO-180090
Survey Type: MWD
Operating Company: Matador Production Company
Well Name & Number: Zach McCormick Fed COM 121H
Location: Eddy County, NM
API Number: 30-015-44244
Tie In Depth: Surface
Surveyed Depths: 176' – 13,088' MD
Projected TD Survey: 13,162' MD
Dates Performed: 01/25/2018 – 02/09/2018

RECEIVED

JUL 12 2018

DISTRICT II-ARTESIA O.C.D.

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

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SURVEY CALCULATION PROGRAM

4/2/18 12:03

Company: Matador Production Company
 Well Name: Zach McCormick Fed COM 121H
 Location: Eddy County, NM
 Rig: Patterson #297
 Job Number: DDMO-180090
 API #: 30-015-44244

Magnetic Declination: 7.02
 REFERENCED TO GRID NORTH

Vertical Section Azimuth: 90.02
 Survey Calculation Method: Minimum Curvature

Proposed Direction: 90.02

PTB: MD 13,162
 INC 92.3
 AZM 89.6

#	Depth Feet	Inc Degrees	Azm Degrees	TVD Feet	N/S Feet	E/W Feet	N/S Surface Vert Sec	E/W Surface Vert Sec	Distance	Azm	DLS/ 100	BUR/ 100'
TIE IN	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1	176	0.20	265.40	176.00	0.00	0.00	0.00	0.00	0.31	265.40	0.11	0.11
2	328	0.20	201.00	328.00	-0.02	-0.31	-0.67	-0.67	0.73	246.20	0.14	0.00
3	441	0.30	210.00	441.00	-0.29	-0.67	-0.88	-0.88	1.15	230.31	0.09	0.09
4	603	0.20	180.20	603.00	-0.73	-0.88	-1.10	-1.10	1.77	218.41	0.10	-0.06
5	785	0.20	179.90	785.00	-1.38	-1.10	-1.10	-1.10	2.30	208.53	0.00	0.00
6	970	0.10	119.10	969.99	-2.02	-1.10	-0.96	-0.96	2.60	201.56	0.09	-0.05
7	1,157	0.20	90.20	1156.99	-2.42	-0.96	-0.49	-0.49	2.55	191.02	0.07	0.05
8	1,345	0.00	33.50	1344.99	-2.50	-0.49	-0.16	-0.16	2.51	183.64	0.11	-0.11
9	1,532	1.30	286.20	1531.98	-1.91	-0.16	-2.20	-2.20	2.91	228.98	0.70	0.70
10	1,720	2.60	291.50	1719.86	0.25	-2.20	-8.21	-8.21	8.22	271.73	0.70	0.69
11	1,907	3.50	288.10	1906.60	3.58	-17.58	-29.30	-29.30	17.94	281.49	0.49	0.48
12	2,094	4.00	285.50	2093.20	7.09	-29.29	-41.53	-41.53	30.14	283.61	0.28	0.27
13	2,281	3.70	279.80	2279.78	9.86	-41.53	-53.48	-53.48	42.68	283.36	0.26	-0.16
14	2,468	3.90	289.20	2466.37	12.98	-53.48	-64.55	-64.55	55.03	283.64	0.35	0.11
15	2,655	3.40	294.00	2652.99	17.33	-64.55	-73.60	-73.60	66.83	285.03	0.31	-0.27
16	2,843	2.60	291.80	2840.73	21.18	-73.60	-86.13	-86.13	76.59	286.05	0.43	-0.43
17	3,030	5.50	286.70	3027.24	25.33	-86.13	-103.75	-103.75	89.77	286.39	1.56	1.55
18	3,217	5.70	283.10	3213.35	30.01	-103.75	-121.64	-121.64	108.01	286.13	0.22	0.11
19	3,405	5.50	282.50	3400.45	34.08	-121.64	-141.15	-141.15	126.33	285.65	0.11	-0.11
20	3,592	6.90	286.70	3586.35	39.24	-141.15	-162.69	-162.69	146.51	285.54	0.79	0.75
21	3,779	6.90	286.30	3772.00	45.62	-162.69	-184.13	-184.13	168.97	285.67	0.03	0.00
22	3,966	6.90	288.40	3957.65	52.32	-184.13	-205.05	-205.05	191.42	285.86	0.13	0.00
23	4,153	6.70	289.80	4143.33	59.56	-205.05	-224.26	-224.26	213.53	286.20	0.14	-0.11
24	4,340	5.90	291.50	4329.20	66.78	-224.26	-241.15	-241.15	233.99	286.58	0.44	-0.43
25	4,527	5.10	287.10	4515.34	72.75	-241.15	-253.60	-253.60	251.88	286.79	0.48	-0.43
26	4,714	2.80	279.00	4701.88	75.91	-253.60	-259.22	-259.22	264.72	286.66	1.26	-1.23
27	4,901	0.90	311.60	4888.78	77.60	-259.22	-261.54	-261.54	270.58	286.67	1.12	-1.02
28	5,088	1.40	212.60	5075.76	76.65	-261.54	-263.03	-263.03	272.54	286.33	0.95	0.27
29	5,275	0.20	308.20	5262.74	74.92	-263.03	-263.17	-263.17	273.49	285.90	0.77	-0.64
30	5,463	0.10	48.80	5450.74	75.23	-263.17	-262.92	-262.92	273.71	285.95	0.13	-0.05
31	5,650	0.10	132.90	5637.74	75.23	-262.92	-262.75	-262.75	273.47	285.97	0.07	0.00
32	5,837	0.30	173.50	5824.74	74.63	-262.75	-262.99	-262.99	273.14	285.86	0.12	0.11
33	6,025	0.40	204.90	6012.73	73.55	-262.99			273.06	285.63	0.11	0.05

Company:		Matador Production Company									
Well Name:		Zach McCormick Fed COM 121H									
Location:		Eddy County, NM									
Rig:		Patterson #297				Magnetic Declination:		7.02		REFERENCED TO GRID NORTH	
Job Number:		DDMO-180090									
API #:		30-015-44244									
Vertical Section Azimuth:		90.02				Proposed Direction:		90.02			
Survey Calculation Method:		Minimum Curvature									
PTB:	MD	INC		AZM		TVD	N/S	E/W	VS		
	13,162	92.3		89.6		8521.71	67.39	4740.43	4740.4		
#	Depth Feet	Inc Degrees	Azm Degrees	TVD Feet	N/S Feet	E/W Feet	Surface Vert Sec	Closure Distance	Azm	DLS/ 100	BUR/ 100'
34	6,212	0.80	203.50	6199.72	71.76	-263.76	-263.79	273.35	285.22	0.21	0.21
35	6,400	1.20	212.10	6387.69	68.89	-265.33	-265.36	274.13	284.55	0.23	0.21
36	6,587	1.50	246.00	6574.64	66.23	-268.61	-268.63	276.66	283.85	0.45	0.16
37	6,774	0.60	337.00	6761.62	66.14	-271.23	-271.25	279.18	283.70	0.87	-0.48
38	6,961	1.60	301.60	6948.58	68.41	-273.84	-273.86	282.25	284.03	0.62	0.53
39	7,148	1.80	318.50	7135.50	71.98	-278.01	-278.03	287.17	284.52	0.29	0.11
40	7,335	0.90	193.90	7322.47	72.75	-280.30	-280.33	289.59	284.55	1.30	-0.48
41	7,523	1.50	147.20	7510.44	69.25	-279.33	-279.35	287.78	283.92	0.58	0.32
42	7,710	0.60	120.50	7697.40	66.70	-277.16	-277.18	285.07	283.53	0.54	-0.48
43	7,787	0.30	32.40	7774.40	66.66	-276.70	-276.72	284.62	283.55	0.86	-0.39
44	7,834	4.20	83.20	7821.36	66.97	-274.93	-274.95	282.96	283.69	8.55	8.30
45	7,881	11.00	85.40	7867.92	67.53	-268.74	-268.76	277.10	284.11	14.48	14.47
46	7,927	16.30	87.10	7912.60	68.21	-257.91	-257.93	266.78	284.81	11.55	11.52
47	7,974	19.70	90.60	7957.30	68.46	-243.40	-243.42	252.84	285.71	7.59	7.23
48	8,021	22.10	90.00	8001.20	68.38	-226.63	-226.66	236.72	286.79	5.13	5.11
49	8,068	24.80	89.10	8044.31	68.53	-207.93	-207.96	218.93	288.24	5.79	5.74
50	8,114	28.10	88.10	8085.49	69.05	-187.45	-187.48	199.76	290.22	7.24	7.17
51	8,161	30.40	85.50	8126.50	70.35	-164.53	-164.55	178.94	293.15	5.59	4.89
52	8,208	35.00	85.20	8166.04	72.41	-139.23	-139.26	156.93	297.48	9.79	9.79
53	8,255	41.00	85.90	8203.06	74.64	-110.39	-110.42	133.26	304.06	12.80	12.77
54	8,302	47.70	87.50	8236.65	76.50	-77.61	-77.64	108.98	314.59	14.45	14.26
55	8,349	54.30	88.30	8266.21	77.83	-41.13	-41.16	88.03	332.14	14.10	14.04
56	8,395	57.50	88.50	8292.00	78.89	-3.06	-3.09	78.95	357.78	6.97	6.96
57	8,442	60.70	89.50	8316.13	79.59	37.26	37.23	87.88	25.09	7.05	6.81
58	8,489	66.00	90.40	8337.21	79.62	79.25	79.22	112.33	44.87	11.41	11.28
59	8,536	70.40	90.80	8354.66	79.16	122.87	122.85	146.16	57.21	9.39	9.36
60	8,583	74.30	91.40	8368.91	78.30	167.64	167.62	185.03	64.97	8.39	8.30
61	8,630	78.00	91.00	8380.15	77.34	213.26	213.23	226.85	70.07	7.92	7.87
62	8,676	80.50	89.90	8388.73	76.99	258.45	258.42	269.67	73.41	5.92	5.43
63	8,723	82.60	89.50	8395.64	77.23	304.93	304.91	314.56	75.79	4.55	4.47
64	8,782	85.50	90.50	8401.76	77.23	363.61	363.58	371.72	78.01	5.20	4.92
65	8,829	86.20	89.90	8405.16	77.07	410.48	410.46	417.66	79.37	1.96	1.49
66	8,876	86.70	89.70	8408.07	77.23	457.39	457.37	463.87	80.42	1.15	1.06
67	8,969	88.40	90.20	8412.04	77.31	550.30	550.28	555.71	82.00	1.91	1.83

Company:		Matador Production Company												
Well Name:		Zach McCormick Fed COM 121H												
Location:		Eddy County, NM												
Rig:		Patterson #297					Magnetic Declination:		7.02		REFERENCED TO GRID NORTH			
Job Number:		DDMO-180090												
API #:		30-015-44244												
Vertical Section Azimuth:				90.02		Proposed Direction:		90.02						
Survey Calculation Method:				Minimum Curvature										
PTB:	MD		INC		AZM		TVD		N/S		E/W		VS	
	13,162		92.3		89.6		8521.71		67.39		4740.43		4740.4	
#	Depth Feet	Inc Degrees	Azm Degrees	TVD Feet	N/S Feet	E/W Feet	Surface Vert Sec	Closure Distance		Azm	DLS/ 100	BUR/ 100'		
68	9,063	89.50	90.00	8413.76	77.15	644.29	644.26	648.89	83.17	1.19	1.17			
69	9,157	88.20	89.70	8415.65	77.39	738.27	738.24	742.31	84.02	1.42	-1.38			
70	9,250	89.40	89.50	8417.60	78.04	831.24	831.21	834.90	84.64	1.31	1.29			
71	9,344	88.20	90.20	8419.57	78.29	925.22	925.19	928.52	85.16	1.48	-1.28			
72	9,438	89.10	90.20	8421.78	77.96	1019.19	1019.16	1022.17	85.63	0.96	0.96			
73	9,532	87.50	90.40	8424.57	77.47	1113.14	1113.12	1115.84	86.02	1.72	-1.70			
74	9,625	88.20	90.10	8428.06	77.06	1206.08	1206.05	1208.54	86.34	0.82	0.75			
75	9,718	89.40	90.00	8430.01	76.98	1299.06	1299.03	1301.33	86.61	1.29	1.29			
76	9,812	88.10	90.70	8432.06	76.41	1393.03	1393.00	1395.12	86.86	1.57	-1.38			
77	9,905	87.30	90.90	8435.79	75.11	1485.94	1485.92	1487.84	87.11	0.89	-0.86			
78	9,999	88.00	90.80	8439.64	73.72	1579.85	1579.83	1581.57	87.33	0.75	0.74			
79	10,093	87.10	91.10	8443.66	72.16	1673.75	1673.73	1675.31	87.53	1.01	-0.96			
80	10,186	88.20	91.50	8447.48	70.05	1766.65	1766.63	1768.04	87.73	1.26	1.18			
81	10,280	86.40	91.40	8451.90	67.68	1860.51	1860.49	1861.74	87.92	1.92	-1.91			
82	10,374	86.20	91.70	8457.97	65.14	1954.28	1954.26	1955.37	88.09	0.38	-0.21			
83	10,467	87.30	91.40	8463.24	62.63	2047.10	2047.07	2048.05	88.25	1.23	1.18			
84	10,561	86.10	92.30	8468.65	59.60	2140.89	2140.87	2141.72	88.41	1.59	-1.28			
85	10,655	86.60	92.40	8474.64	55.75	2234.62	2234.60	2235.31	88.57	0.54	0.53			
86	10,748	88.00	90.70	8479.02	53.24	2327.48	2327.46	2328.09	88.69	2.37	1.51			
87	10,842	89.60	90.50	8480.99	52.26	2421.45	2421.43	2422.01	88.76	1.72	1.70			
88	10,935	88.30	90.60	8482.69	51.36	2514.43	2514.41	2514.95	88.83	1.40	-1.40			
89	11,029	86.50	90.10	8486.96	50.79	2608.32	2608.30	2608.82	88.88	1.99	-1.91			
90	11,123	86.60	89.90	8492.61	50.79	2702.15	2702.13	2702.63	88.92	0.24	0.11			
91	11,216	87.40	89.60	8497.48	51.20	2795.02	2795.01	2795.49	88.95	0.92	0.86			
92	11,310	88.80	89.30	8500.60	52.10	2888.96	2888.95	2889.43	88.97	1.52	1.49			
93	11,403	87.90	89.50	8503.27	53.07	2981.92	2981.90	2982.39	88.98	0.99	-0.97			
94	11,497	89.30	90.10	8505.57	53.40	3075.89	3075.87	3076.35	89.01	1.62	1.49			
95	11,591	88.60	89.40	8507.29	53.81	3169.87	3169.85	3170.33	89.03	1.05	-0.74			
96	11,684	89.60	89.50	8508.75	54.70	3262.85	3262.83	3263.31	89.04	1.08	1.08			
97	11,778	87.60	88.90	8511.05	56.01	3356.81	3356.79	3357.28	89.04	2.22	-2.13			
98	11,871	88.10	89.00	8514.54	57.72	3449.73	3449.71	3450.21	89.04	0.55	0.54			
99	11,965	89.80	88.90	8516.26	59.44	3543.69	3543.67	3544.19	89.04	1.81	1.81			
100	12,059	88.10	89.60	8517.98	60.67	3637.67	3637.65	3638.17	89.04	1.96	-1.81			
101	12,152	87.80	89.50	8521.31	61.40	3730.60	3730.58	3731.11	89.06	0.34	-0.32			

Company:		Matador Production Company									
Well Name:		Zach McCormick Fed COM 121H									
Location:		Eddy County, NM									
Rig:		Patterson #297				Magnetic Declination:		7.02		REFERENCED TO GRID NORTH	
Job Number:		DDMO-180090									
API #:		30-015-44244									
Vertical Section Azimuth:		90.02				Proposed Direction:		90.02			
Survey Calculation Method:		Minimum Curvature									
PTB:	MD	INC		AZM		TVD	N/S		E/W		VS
	13,162	92.3		89.6		8521.71	67.39		4740.43		4740.4
#	Depth Feet	Inc Degrees	Azm Degrees	TVD Feet	N/S Feet	E/W Feet	Surface Vert Sec	Closure Distance Azm		DLS/ 100	BUR/ 100'
102	12,246	89.10	89.40	8523.85	62.30	3824.56	3824.54	3825.07	89.07	1.39	1.38
103	12,339	90.30	89.40	8524.34	63.27	3917.56	3917.53	3918.07	89.07	1.29	1.29
104	12,433	88.90	90.10	8525.00	63.68	4011.55	4011.53	4012.06	89.09	1.67	-1.49
105	12,526	89.50	89.90	8526.29	63.68	4104.54	4104.52	4105.03	89.11	0.68	0.65
106	12,620	90.40	89.10	8526.38	64.51	4198.53	4198.51	4199.03	89.12	1.28	0.96
107	12,714	89.50	89.70	8526.46	65.49	4292.53	4292.51	4293.03	89.13	1.15	-0.96
108	12,807	90.20	89.90	8526.70	65.81	4385.53	4385.50	4386.02	89.14	0.78	0.75
109	12,901	89.40	89.80	8527.03	66.06	4479.53	4479.50	4480.01	89.16	0.86	-0.85
110	12,995	90.60	89.80	8527.03	66.39	4573.52	4573.50	4574.00	89.17	1.28	1.28
111	13,088	92.30	89.60	8524.68	66.88	4666.49	4666.46	4666.97	89.18	1.84	1.83
PTB:	13,162	92.30	89.60	8521.71	67.39	4740.43	4740.40	4740.91	89.19	0.00	0.00