



HOBBS OCD

MAY 28 2019

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MS Directional Survey Data Certification

*includes original hole
and sidetrack*

MS Directional Job Number: MSMO-55321
Survey Type: MWD
Operating Company: Matador Production Co.
Well Name & Number: Nina Cortell Federal COM 121H
Location: Lea County, NM
API Number: 30-025-44548

Original Wellbore

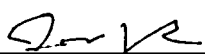
Tie In Depth: Surface
Surveyed Depths: 206' – 9,934' MD
Projected TD Survey: 9,989' MD

Sidetrack

Tie In Depth: 8,482' MD
Surveyed Depths: 8,834' – 14,852' MD
Projected TD Survey: 14,916' MD

Dates Performed: 09/02/2018 – 10/21/2018

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: 

MWD Surveyor Name: Jason Fulton

Date: 11-14-2018

Email: jfulton@msdir.com

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SURVEY CALCULATION PROGRAM

11/14/18 15:57

VO9.04.02

Company:	Matador Production Co.
Well Name:	Nina Cortell Federal COM 121H -
Location:	Lea County, NM
Rlg:	Patterson #282
Job Number:	MSMO-55321
API #:	30-025-44548

Magnetic Declination: 6.58 REFERENCED TO GRID NORTH

Vertical Section Azimuth: 359.51 Proposed Direction: 359.51

Survey Calculation Method: Minimum Curvature

PTB:	MD	INC	AZM	TVD	N/S	E/W	VS
	9,989	40.5	3.4	9923.83	84.27	107.79	83.34

#	Depth Feet	Inc Degrees	Azm Degrees	TVD Feet	N/S Feet	E/W Feet	Surface Vert Sec	Closure Distance	Azm	DLS/ 100	BUR/ 100'
TIE IN	0	0.00	0.00	0.00	0.00	0.00			0.00		
1	206	0.90	43.80	205.99	1.17	1.12	1.16	1.62	43.80	0.44	0.44
2	380	1.00	32.30	379.97	3.44	2.88	3.41	4.48	39.93	0.12	0.06
3	566	1.00	31.00	565.94	6.20	4.58	6.16	7.71	36.45	0.01	0.00
4	756	1.20	20.90	755.90	9.48	6.14	9.43	11.30	32.95	0.15	0.11
5	1,028	1.30	17.90	1027.84	15.08	8.11	15.01	17.12	28.27	0.04	0.04
6	1,216	0.80	212.50	1215.83	16.00	8.06	15.93	17.91	26.73	1.11	-0.27
7	1,405	2.50	176.90	1404.75	10.77	7.57	10.71	13.17	35.11	1.01	0.90
8	1,593	3.70	151.20	1592.48	1.36	10.72	1.27	10.80	82.77	0.96	0.64
9	1,782	4.10	148.30	1781.04	-9.73	17.21	-9.88	19.77	119.50	0.24	0.21
10	1,971	4.70	137.20	1969.48	-21.16	26.02	-21.38	33.54	129.13	0.55	0.32
11	2,159	5.40	130.90	2156.75	-32.61	37.94	-32.93	50.02	130.68	0.47	0.37
12	2,348	5.30	131.90	2344.93	-44.26	51.16	-44.69	67.64	130.87	0.07	-0.05
13	2,536	5.20	132.10	2532.14	-55.77	63.94	-56.31	84.84	131.10	0.05	-0.05
14	2,725	5.00	126.60	2720.39	-66.42	76.91	-67.08	101.62	130.82	0.28	-0.11
15	2,913	5.00	127.80	2907.68	-76.33	89.96	-77.09	117.98	130.31	0.06	0.00
16	3,103	4.80	126.60	3096.98	-86.14	102.88	-87.02	134.18	129.94	0.12	-0.11
17	3,292	2.70	151.70	3285.58	-94.78	111.34	-95.73	146.22	130.41	1.39	-1.11
18	3,482	1.30	95.10	3475.48	-98.91	115.61	-99.90	152.15	130.55	1.19	-0.74
19	3,671	2.70	60.30	3664.36	-96.90	121.61	-97.93	155.49	128.55	0.95	0.74
20	3,859	1.20	42.10	3852.25	-93.24	126.78	-94.32	157.38	126.33	0.85	-0.80
21	4,049	0.60	40.60	4042.23	-91.01	128.76	-92.11	157.68	125.25	0.32	-0.32
22	4,237	0.50	280.40	4230.22	-90.11	128.60	-91.21	157.03	125.02	0.51	-0.05
23	4,426	1.10	14.00	4419.21	-88.20	128.22	-89.30	155.63	124.52	0.65	0.32
24	4,615	1.80	223.90	4608.18	-88.58	126.60	-89.66	154.52	124.98	1.49	0.37
25	4,805	2.00	224.70	4798.08	-93.09	122.20	-94.13	153.62	127.30	0.11	0.11
26	4,970	1.80	225.60	4962.99	-96.95	118.33	-97.96	152.97	129.33	0.12	-0.12
27	5,088	1.90	218.00	5080.92	-99.79	115.80	-100.77	152.86	130.75	0.22	0.08
28	5,277	1.90	221.90	5269.82	-104.59	111.78	-105.54	153.08	133.10	0.07	0.00
29	5,466	0.30	107.70	5458.79	-107.07	110.15	-108.01	153.62	134.19	1.08	-0.85
30	5,654	0.10	126.70	5646.79	-107.32	110.75	-108.26	154.22	134.10	0.11	-0.11
31	5,843	0.10	210.30	5835.79	-107.56	110.80	-108.50	154.42	134.15	0.07	0.00
32	6,031	0.20	193.60	6023.79	-108.02	110.64	-108.96	154.63	134.31	0.06	0.05
33	6,219	0.30	298.20	6211.78	-108.11	110.13	-109.04	154.33	134.47	0.21	0.05

Company:		Matador Production Co.											
Well Name:		Nina Cortell Federal COM 121H - Original Wellbore											
Location:		Lea County, NM											
Rig:		Patterson #282					Magnetic Declination:		6.58		REFERENCED TO GRID NORTH		
Job Number:		MSMO-55321											
API #:		30-025-44548											
Vertical Section Azimuth:					359.51					Proposed Direction:		359.51	
Survey Calculation Method:					Minimum Curvature								
PTB:	MD		INC		AZM		TVD	N/S		E/W		VS	
	9,989		40.5		3.4		9923.83	84.27		107.79		83.34	
#	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	6,408	0.30	301.00	6400.78	-107.62	109.27	-108.55	153.37	134.56	0.01	0.00		
35	6,596	0.40	297.00	6588.78	-107.07	108.27	-107.99	152.27	134.68	0.05	0.05		
36	6,785	0.30	305.10	6777.77	-106.48	107.27	-107.40	151.15	134.79	0.06	-0.05		
37	6,974	0.30	276.20	6966.77	-106.14	106.38	-107.05	150.28	134.94	0.08	0.00		
38	7,162	1.00	209.60	7154.76	-107.52	105.08	-108.41	150.34	135.66	0.49	0.37		
39	7,351	1.40	176.60	7343.72	-111.26	104.40	-112.15	152.57	136.82	0.41	0.21		
40	7,540	1.70	173.00	7532.65	-116.34	104.88	-117.24	156.64	137.97	0.17	0.16		
41	7,729	0.20	117.10	7721.62	-119.28	105.51	-120.18	159.25	138.50	0.84	-0.79		
42	7,918	0.70	146.80	7910.62	-120.39	106.44	-121.30	160.70	138.52	0.28	0.26		
43	8,106	0.80	138.10	8098.60	-122.33	107.94	-123.25	163.15	138.58	0.08	0.05		
44	8,295	0.60	20.60	8287.59	-122.39	109.17	-123.32	164.00	138.27	0.64	-0.11		
45	8,482	0.40	62.60	8474.58	-121.17	110.10	-122.11	163.72	137.74	0.22	-0.11		
46	8,671	0.30	83.10	8663.58	-120.81	111.17	-121.75	164.18	137.38	0.08	-0.05		
47	8,859	0.20	44.70	8851.58	-120.51	111.89	-121.47	164.45	137.12	0.10	-0.05		
48	9,048	1.00	248.10	9040.57	-120.90	110.60	-121.84	163.85	137.55	0.63	0.42		
49	9,237	1.90	237.10	9229.51	-123.21	106.43	-124.12	162.82	139.18	0.50	0.48		
50	9,392	0.50	149.80	9384.48	-125.19	104.62	-126.08	163.15	140.12	1.25	-0.90		
51	9,463	0.30	344.30	9455.48	-125.28	104.72	-126.17	163.29	140.11	1.12	-0.28		
52	9,557	9.70	3.10	9549.02	-117.12	105.09	-118.01	157.35	138.10	10.02	10.00		
53	9,651	18.30	359.80	9640.14	-94.41	105.46	-95.31	141.55	131.84	9.18	9.15		
54	9,745	27.00	357.90	9726.81	-58.26	104.63	-59.15	119.75	119.11	9.29	9.26		
55	9,792	30.50	358.40	9768.01	-35.67	103.90	-36.56	109.86	108.95	7.46	7.45		
56	9,839	34.90	0.50	9807.55	-10.29	103.69	-11.17	104.20	95.67	9.67	9.36		
57	9,886	39.00	1.80	9845.10	17.95	104.27	17.06	105.80	80.23	8.88	8.72		
58	9,934	40.50	3.40	9882.01	48.61	105.67	47.70	116.31	65.30	3.78	3.13		
PTB:	9,989	40.50	3.40	9923.83	84.27	107.79	83.34	136.82	51.98	0.00	0.00		



SURVEY CALCULATION PROGRAM

11/14/18 16:11

009.04.02

Company:		Matador Production Co.												
Well Name:		Nina Cortell Federal COM 121H - [REDACTED]												
Location:		Lea County, NM												
Rig:		Patterson #282					Magnetic Declination:		6.58		REFERENCED TO GRID NORTH			
Job Number:		MSMO-55321												
API #:		30-025-44548												
Vertical Section Azimuth:					359.51		Proposed Direction:		359.51					
Survey Calculation Method:					Minimum Curvature									
PTB:	MD		INC		AZM		TVD		N/S		E/W		VS	
	14,916		95.1		358.5		9977.74		5026.59		53.56		5025.95	
#	Depth Feet	Inc Degrees	Azm Degrees	TVD Feet	N/S Feet	E/W Feet	Surface Vert Sec	Closure Distance Azm		DLS/ 100	BUR/ 100'			
TIE IN	8,482	0.40	62.60	8474.58	-121.17	110.10		163.72	137.74					
1	8,834	5.00	119.10	8826.11	-128.07	124.60	-129.13	178.68	135.79	1.36	1.31			
2	8,844	6.60	107.80	8836.06	-128.46	125.53	-129.53	179.61	135.66	19.58	16.00			
3	8,928	12.80	89.20	8918.84	-129.80	139.45	-130.99	190.51	132.95	8.18	7.38			
4	8,973	8.90	74.70	8963.03	-128.82	147.79	-130.07	196.05	131.07	10.51	-8.67			
5	9,022	7.80	63.70	9011.51	-126.34	154.43	-127.66	199.53	129.29	3.95	-2.24			
6	9,117	6.10	38.70	9105.83	-119.54	163.37	-120.94	202.44	126.19	3.61	-1.79			
7	9,211	3.10	6.00	9199.54	-113.12	166.76	-114.54	201.50	124.15	4.12	-3.19			
8	9,305	1.50	339.70	9293.46	-109.43	166.60	-110.85	199.33	123.30	2.00	-1.70			
9	9,390	0.80	339.50	9378.44	-107.83	166.00	-109.25	197.95	123.01	0.82	-0.82			
10	9,401	0.70	347.50	9389.44	-107.70	165.96	-109.11	197.84	122.98	1.31	-0.91			
11	9,495	7.90	5.50	9483.12	-100.70	166.46	-102.12	194.55	121.17	7.70	7.66			
12	9,542	14.70	6.60	9529.18	-91.55	167.45	-92.98	190.85	118.67	14.47	14.47			
13	9,589	16.10	3.70	9574.49	-79.12	168.56	-80.56	186.21	115.14	3.40	2.98			
14	9,636	22.20	358.40	9618.87	-63.72	168.73	-65.17	180.37	110.69	13.48	12.98			
15	9,683	24.90	355.80	9661.95	-44.98	167.76	-46.41	173.69	105.01	6.15	5.74			
16	9,730	28.50	355.60	9703.93	-23.92	166.18	-25.34	167.89	98.19	7.66	7.66			
17	9,777	33.60	354.70	9744.19	0.22	164.11	-1.18	164.11	89.92	10.90	10.85			
18	9,824	36.30	355.40	9782.71	27.04	161.79	25.66	164.04	80.51	5.81	5.74			
19	9,871	39.30	356.60	9819.84	55.78	159.80	54.41	169.25	70.76	6.57	6.38			
20	9,918	44.40	356.40	9854.84	87.07	157.88	85.71	180.30	61.12	10.85	10.85			
21	9,966	47.70	355.10	9888.15	121.52	155.31	120.19	197.20	51.96	7.15	6.88			
22	10,013	52.20	355.40	9918.38	157.37	152.33	156.06	219.02	44.07	9.59	9.57			
23	10,060	57.70	355.90	9945.37	195.72	149.42	194.43	246.24	37.36	11.73	11.70			
24	10,107	61.10	356.40	9969.29	236.08	146.71	234.81	277.95	31.86	7.29	7.23			
25	10,125	62.20	356.40	9977.83	251.89	145.71	250.63	291.00	30.05	6.11	6.11			
26	10,155	65.50	356.30	9991.05	278.76	144.00	277.51	313.75	27.32	11.00	11.00			
27	10,202	70.80	356.30	10008.54	322.27	141.19	321.05	351.84	23.66	11.28	11.28			
28	10,249	77.30	356.20	10021.45	367.34	138.23	366.15	392.49	20.62	13.83	13.83			
29	10,296	79.50	357.10	10030.90	413.30	135.54	412.13	434.96	18.16	5.04	4.68			
30	10,344	81.10	356.90	10038.99	460.55	133.07	459.39	479.39	16.12	3.36	3.33			
31	10,391	84.60	354.70	10044.84	507.05	129.65	505.92	523.36	14.34	8.78	7.45			
32	10,438	87.70	355.00	10047.99	553.75	125.44	552.65	567.78	12.76	6.63	6.60			
33	10,532	89.80	355.40	10050.04	647.39	117.58	646.36	657.98	10.29	2.27	2.23			

Company: Matador Production Co.
 Well Name: Nina Cortell Federal COM 121H - Sidetrack
 Location: Lea County, NM
 Rig: Patterson #282
 Job Number: MSMO-55321
 API #: 30-025-44548

Magnetic Declination: 6.58 REFERENCED TO GRID NORTH

Vertical Section Azimuth: 359.51 Proposed Direction: 359.51

Survey Calculation Method: Minimum Curvature

PTB:	MD	INC	AZM	TVD	N/S	E/W	VS
	14,916	95.1	358.5	9977.74	5026.59	53.56	5025.95

#	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	10,626	90.40	355.00	10049.88	741.06	109.71	740.09	749.14	8.42	0.77	0.64
35	10,720	90.90	354.80	10048.81	834.68	101.35	833.78	840.81	6.92	0.57	0.53
36	10,814	90.70	356.00	10047.50	928.37	93.82	927.53	933.09	5.77	1.29	-0.21
37	10,907	90.90	355.30	10046.20	1021.09	86.76	1020.31	1024.77	4.86	0.78	0.22
38	11,001	91.80	357.50	10043.99	1114.87	80.86	1114.14	1117.80	4.15	2.53	0.96
39	11,094	91.70	357.30	10041.15	1207.73	76.65	1207.03	1210.16	3.63	0.24	-0.11
40	11,188	91.40	359.50	10038.60	1301.65	74.02	1300.97	1303.76	3.25	2.36	-0.32
41	11,282	91.20	1.60	10036.47	1395.62	74.92	1394.93	1397.63	3.07	2.24	-0.21
42	11,375	91.70	1.40	10034.12	1488.56	77.36	1487.84	1490.57	2.97	0.58	0.54
43	11,469	92.50	1.20	10030.67	1582.47	79.49	1581.73	1584.47	2.88	0.88	0.85
44	11,562	90.30	1.20	10028.40	1675.42	81.44	1674.66	1677.39	2.78	2.37	-2.37
45	11,656	91.20	1.00	10027.17	1769.39	83.24	1768.61	1771.35	2.69	0.98	0.96
46	11,750	89.50	1.00	10026.60	1863.37	84.88	1862.58	1865.30	2.61	1.81	-1.81
47	11,844	89.60	0.50	10027.33	1957.36	86.11	1956.55	1959.25	2.52	0.54	0.11
48	11,937	90.10	0.40	10027.58	2050.36	86.84	2049.54	2052.19	2.43	0.55	0.54
49	12,031	90.20	0.50	10027.33	2144.35	87.58	2143.53	2146.14	2.34	0.15	0.11
50	12,124	90.70	0.60	10026.60	2237.34	88.47	2236.51	2239.09	2.26	0.55	0.54
51	12,219	91.20	0.80	10025.03	2332.32	89.63	2331.47	2334.05	2.20	0.57	0.53
52	12,313	92.00	0.50	10022.40	2426.28	90.70	2425.42	2427.98	2.14	0.91	0.85
53	12,345	92.40	0.40	10021.17	2458.26	90.95	2457.39	2459.94	2.12	1.29	1.25
54	12,407	93.20	0.30	10018.14	2520.18	91.33	2519.31	2521.83	2.08	1.30	1.29
55	12,501	91.80	358.80	10014.04	2614.08	90.59	2613.21	2615.65	1.98	2.18	-1.49
56	12,594	88.80	358.20	10013.56	2707.04	88.16	2706.19	2708.47	1.87	3.29	-3.23
57	12,688	88.50	357.80	10015.77	2800.96	84.88	2800.13	2802.24	1.74	0.53	-0.32
58	12,782	88.80	357.20	10017.99	2894.84	80.78	2894.04	2895.97	1.60	0.71	0.32
59	12,875	88.80	357.00	10019.93	2987.70	76.07	2986.94	2988.67	1.46	0.22	0.00
60	12,969	88.80	356.90	10021.90	3081.55	71.07	3080.83	3082.37	1.32	0.11	0.00
61	13,063	89.30	356.30	10023.46	3175.37	65.50	3174.69	3176.04	1.18	0.83	0.53
62	13,157	89.40	358.20	10024.53	3269.25	60.99	3268.61	3269.82	1.07	2.02	0.11
63	13,251	89.20	357.70	10025.68	3363.18	57.63	3362.56	3363.67	0.98	0.57	-0.21
64	13,345	89.60	357.80	10026.66	3457.10	53.94	3456.52	3457.52	0.89	0.44	0.43
65	13,439	90.40	360.00	10026.66	3551.08	52.13	3550.50	3551.46	0.84	2.49	0.85
66	13,535	92.30	0.70	10024.40	3647.05	52.72	3646.46	3647.43	0.83	2.11	1.98
67	13,629	92.70	0.60	10020.30	3740.95	53.78	3740.35	3741.34	0.82	0.44	0.43

Company:	Matador Production Co.		
Well Name:	Nina Cortell Federal COM 121H - Sidetrack		
Location:	Lea County, NM		
Rig:	Patterson #282	Magnetic Declination:	6.58
Job Number:	MSMO-55321		
API #:	30-025-44548		

REFERENCED TO GRID NORTH

Vertical Section Azimuth:	359.51	Proposed Direction:	359.51
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Survey Calculation Method:	Minimum Curvature
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PTB:	MD	INC	AZM	TVD	N/S	E/W	VS
	14,916	95.1	358.5	9977.74	5026.59	53.56	5025.95

#	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	13,723	93.10	0.20	10015.54	3834.83	54.44	3834.22	3835.21	0.81	0.60	0.43
69	13,817	90.30	0.90	10012.75	3928.77	55.34	3928.15	3929.16	0.81	3.07	-2.98
70	13,911	90.30	0.90	10012.26	4022.76	56.82	4022.13	4023.16	0.81	0.00	0.00
71	14,004	90.70	0.90	10011.45	4115.74	58.28	4115.09	4116.16	0.81	0.43	0.43
72	14,099	91.60	0.70	10009.54	4210.71	59.61	4210.05	4211.14	0.81	0.97	0.95
73	14,192	92.20	0.30	10006.46	4303.66	60.42	4302.98	4304.08	0.80	0.78	0.65
74	14,289	90.20	0.50	10004.43	4400.63	61.09	4399.95	4401.05	0.80	2.07	-2.06
75	14,383	89.70	0.30	10004.51	4494.63	61.75	4493.93	4495.05	0.79	0.57	-0.53
76	14,477	90.30	359.90	10004.51	4588.63	61.91	4587.93	4589.04	0.77	0.77	0.64
77	14,571	92.30	359.20	10002.38	4682.59	61.18	4681.90	4682.99	0.75	2.25	2.13
78	14,665	93.80	359.00	9997.38	4776.45	59.70	4775.76	4776.82	0.72	1.61	1.60
79	14,758	94.10	358.50	9990.97	4869.20	57.68	4868.53	4869.54	0.68	0.63	0.32
80	14,852	95.10	358.50	9983.43	4962.87	55.23	4962.21	4963.17	0.64	1.06	1.06
PTB:	14,916	95.10	358.50	9977.74	5026.59	53.56	5025.95	5026.88	0.61	0.00	0.00