



7821 Will Rogers Blvd.
Fort Worth, Texas 76140

817.568.1038 (office)
817.568.1499 (fax)
www.msdir.com

MS Directional Survey Data Certification

RECEIVED

MS Directional Job Number: DDMO-180033
Survey Type: MWD
Operating Company: Matador Production Company
Well Name & Number: Norris-Thornton COM 2
Location: [REDACTED] NM *Eddy Co., NM*
API Number: [REDACTED]
Tie In Depth: 9,495' MD
Surveyed Depths: 9,523' – 12,654' MD
Projected TD Survey: 12,700' MD
Dates Performed: 01/07/2018 – 01/16/2018

MAY 21 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: *Tyler Teague*

MWD Surveyor Name: Tyler Teague

Date: 02-16-2018

Email: tteague@msdir.com



SURVEY CALCULATION PROGRAM

2/15/18 15:30

V09.04.02

Company:	Matador Production Company		
Well Name:	Norris-Thornton COM 2		
Location:	Lea County, NM		
Rig:	Patterson #810	Magnetic Declination:	7.15
Job Number:	DDMO-180033		
API #:	30-015-42700		
Vertical Section Azimuth:	7.81	Proposed Direction:	7.81
Survey Calculation Method:	Minimum Curvature		

PTB:	MD	INC	AZM	TVD	N/S	E/W	VS				
	12,700	1.9	298.9	12691.3	109.36	-37.53	103.25				
#	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	9,495	1.60	189.20	9486.63	134.01	18.41	135.27	135.27	7.82		
1	9,523	1.50	185.70	9515.12	133.25	18.31	134.50	134.50	7.82	0.48	-0.35
2	9,711	1.70	217.10	9703.05	128.57	16.38	129.61	129.61	7.26	0.47	0.11
3	9,899	1.50	218.60	9890.98	124.43	13.17	125.06	125.12	6.04	0.11	-0.11
4	10,088	1.00	187.90	10079.93	120.86	11.40	121.29	121.40	5.39	0.43	-0.26
5	10,276	1.70	257.10	10267.89	118.61	8.45	118.66	118.91	4.08	0.87	0.37
6	10,463	0.80	258.60	10454.84	117.73	4.47	117.25	117.82	2.17	0.48	-0.48
7	10,652	1.00	251.90	10643.82	116.96	1.61	116.09	116.97	0.79	0.12	0.11
8	10,839	1.10	246.90	10830.79	115.75	-1.60	114.46	115.76	359.21	0.07	0.05
9	11,028	1.20	238.50	11019.75	114.00	-4.95	112.27	114.11	357.51	0.10	0.05
10	11,216	1.10	233.40	11207.71	111.90	-8.08	109.76	112.19	355.87	0.08	-0.05
11	11,405	1.40	233.00	11396.67	109.43	-11.38	106.87	110.02	354.06	0.16	0.16
12	11,593	1.20	240.50	11584.62	107.08	-14.93	104.06	108.11	352.06	0.14	-0.11
13	11,781	1.20	245.10	11772.58	105.28	-18.43	101.80	106.88	350.07	0.05	0.00
14	11,969	1.40	235.40	11960.53	103.15	-22.10	99.19	105.49	347.91	0.16	0.11
15	12,159	0.90	281.50	12150.49	102.13	-25.47	97.72	105.25	345.99	0.53	-0.26
16	12,347	1.60	311.00	12338.45	104.14	-28.90	99.25	108.08	344.49	0.49	0.37
17	12,536	1.50	296.70	12527.38	106.98	-33.10	101.49	111.99	342.81	0.21	-0.05
18	12,654	1.90	298.90	12645.33	108.62	-36.20	102.70	114.50	341.57	0.34	0.34
PTB:	12,700	1.90	298.90	12691.30	109.36	-37.53	103.25	115.62	341.06	0.00	0.00

NEXUS DIRECTIONAL SOLUTIONS, L.P.	Job Number:	14-0097	<i>Norris Thornton Com #2</i>	Elevation GL:	3130.61 ft	RKB:	17.50 ft
	Company:	Mack Energy		Projection System:	US State Plane 1983		
	Lease/Well:	Lost River Fee #2		Projection Group:	New Mexico Eastern Zone		
	Location:	Carlsbad NM		Projection Datum:	GRS80		
	Rig Name:	Silver Oak 6		Mag. Declination:	7.44° (C:\HawkEye\IGRF2005.MIF)		
	State/County:	New Mexico/ Eddy		Grid Convergence:	0.09493 E		
	Country:	USA		Date:	Wednesday, November 19, 2014		
	API Number:	30-015-42700					

Calculated by HawkEye Software
Minimum Curvature Method
Vertical Section Plane 8.08°

Northing (US ft): 468991.50 Easting (US ft): 596251.43
Latitude: 32°17'21.1432" N Longitude: -104°09'20.2495" W

Well Location: 2105.81 FSL, 1018.25 FEL, Section 23, T23S, R27E, New Mexico Principal Meridian, Eddy County, NM
Direction Reference: Grid North

Measured Depth (Ft)	INC Deg	AZM Deg	TVD (Ft)	NS (Ft)	EW (Ft)	VS (Ft)	DLS °/100 Ft	LR/EW From-Plan (Ft)	UD/NS From-Plan (Ft)	Comment	CL (Ft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-	-		0.00
177.00	0.50	0.00	177.00	0.77	0.00	0.76	0.28	0.00 (E)	-0.77 (S)		177.00
357.00	1.00	0.00	356.98	3.13	0.00	3.10	0.28	0.00 (E)	0.01 (N)		180.00
428.00	1.90	154.80	427.97	2.68	0.50	2.73	4.00	0.50 (E)	-1.05 (S)		71.00
607.00	1.90	141.40	606.87	-2.32	3.62	-1.79	0.25	3.62 (E)	-6.31 (S)		179.00
698.00	2.10	136.50	697.82	-4.71	5.70	-3.86	0.29	5.70 (E)	-8.70 (S)		91.00
887.00	1.10	69.30	886.76	-6.58	9.79	-5.14	1.04	9.79 (E)	-10.57 (S)		189.00
1076.00	0.50	95.70	1075.74	-6.02	12.30	-4.23	0.36	12.30 (E)	-10.01 (S)		189.00
1265.00	0.20	235.60	1264.74	-6.29	12.85	-4.42	0.35	12.85 (E)	-10.28 (S)		189.00
1453.00	0.90	208.20	1452.73	-7.78	11.88	-6.03	0.39	11.88 (E)	-11.76 (S)		188.00
1642.00	2.50	102.40	1641.66	-9.97	15.21	-7.73	1.52	15.21 (E)	-13.96 (S)		189.00
1831.00	2.10	72.80	1830.52	-9.83	22.54	-6.56	0.65	22.54 (E)	-13.82 (S)		189.00
2019.00	2.60	38.70	2018.37	-5.48	28.50	-1.42	0.78	28.50 (E)	-9.47 (S)		188.00
2102.00	1.90	31.70	2101.30	-2.84	30.40	1.46	0.90	30.39 (E)	-6.90 (S)		83.00
2172.00	1.90	27.50	2171.26	-0.83	31.55	3.61	0.20	31.15 (E)	-7.55 (S)		70.00
2298.00	3.90	2.50	2297.10	5.31	32.70	9.85	1.84	31.34 (E)	-8.09 (S)		126.00
2485.00	5.80	358.30	2483.42	21.11	32.69	25.49	1.03	29.28 (E)	-6.56 (S)		187.00
2675.00	5.60	355.50	2672.48	39.94	31.68	44.00	0.18	26.18 (E)	-2.24 (S)		190.00
2865.00	4.90	350.90	2861.69	57.20	29.67	60.80	0.43	22.07 (E)	0.49 (N)		190.00
3053.00	4.00	353.70	3049.12	71.64	27.68	74.82	0.49	18.01 (E)	0.55 (N)		188.00
3242.00	3.90	349.90	3237.67	84.52	25.83	87.32	0.15	14.08 (E)	-1.01 (S)		189.00
3432.00	4.20	3.90	3427.20	97.83	25.17	100.39	0.54	11.32 (E)	-2.25 (S)		190.00
3619.00	3.90	3.60	3613.73	111.01	26.04	113.56	0.16	10.13 (E)	-3.37 (S)		187.00
3807.00	4.40	358.70	3801.24	124.60	26.27	127.05	0.33	8.30 (E)	-4.15 (S)		188.00
3996.00	4.00	355.50	3989.73	138.42	25.59	140.64	0.25	5.53 (E)	-4.78 (S)		189.00
4184.00	4.00	356.90	4177.27	151.50	24.72	153.47	0.05	2.59 (E)	-6.07 (S)		188.00
4372.00	1.90	350.90	4365.02	161.13	23.88	162.88	1.13	-0.26 (W)	-10.37 (S)		188.00
4507.06	1.81	338.78	4500.01	165.33	22.75	166.88	0.30	-2.14 (W)	-11.34 (S)	# VP(LRF#2), Dist. 10.63 ft to target is 10.37 ft	53.94
4561.00	1.80	333.70	4553.92	166.88	22.07	168.33	0.30	-2.82 (W)	-9.80 (S)		187.00
4748.00	0.90	335.50	4740.86	170.85	20.15	171.99	0.48	-4.73 (W)	-5.83 (S)		187.00
4937.00	0.40	177.30	4929.86	171.54	19.57	172.59	0.68	-5.32 (W)	-5.14 (S)		189.00
5126.00	0.50	240.50	5118.85	170.48	18.88	171.44	0.25	-6.00 (W)	-6.20 (S)		189.00
5314.00	0.90	102.00	5306.85	169.77	19.61	170.84	0.70	-5.27 (W)	-6.91 (S)		188.00
5503.00	0.40	90.40	5495.83	169.45	21.73	170.83	0.27	-3.16 (W)	-7.23 (S)		189.00
5692.00	0.40	50.00	5684.83	169.87	22.89	171.41	0.15	-2.00 (W)	-6.81 (S)		189.00
5881.00	0.50	202.60	5873.83	169.54	23.08	171.10	0.46	-1.81 (W)	-7.15 (S)		189.00
6069.00	0.40	217.30	6061.82	168.26	22.37	169.73	0.08	-2.52 (W)	-8.42 (S)		188.00
6257.00	0.50	46.50	6249.82	168.30	22.56	169.80	0.48	-2.32 (W)	-8.38 (S)		188.00
6445.00	1.40	334.10	6437.80	170.93	22.16	172.35	0.71	-2.73 (W)	-5.75 (S)		188.00
6632.00	0.90	117.50	6624.78	172.31	22.46	173.75	1.17	-2.43 (W)	-4.37 (S)		187.00
6820.00	0.90	46.10	6812.76	172.65	24.83	174.43	0.56	-0.05 (W)	-4.03 (S)		188.00
7009.00	0.50	0.10	7001.75	174.50	25.90	176.41	0.35	1.02 (E)	-2.18 (S)		189.00
7196.00	0.50	195.20	7188.75	174.53	25.69	176.41	0.53	0.81 (E)	-2.15 (S)		187.00

Measured Depth (Ft)	INC Deg	AZM Deg	TVD (Ft)	NS (Ft)	EW (Ft)	VS (Ft)	DLS */100 Ft	LR/EW From-Plan (Ft)	UD/NS From-Plan (Ft)	Comment	CL (Ft)
7384.00	2.10	196.20	7376.69	170.43	24.52	172.19	0.85	-0.37 (W)	-6.25 (S)		188.00
7572.00	0.50	214.50	7564.64	166.45	23.09	168.04	0.87	-1.80 (W)	-10.23 (S)		188.00
7759.00	1.10	246.90	7751.62	165.07	20.98	166.38	0.39	-3.91 (W)	-11.61 (S)		187.00
7946.00	0.90	338.60	7938.60	165.74	18.79	166.73	0.77	-6.10 (W)	-10.95 (S)		187.00
8134.00	0.40	69.00	8126.59	167.35	18.86	168.34	0.53	-6.02 (W)	-9.34 (S)		188.00
8321.00	1.40	161.40	8313.57	165.41	20.20	166.61	0.79	-4.68 (W)	-11.27 (S)		187.00
8508.00	2.10	179.40	8500.48	159.82	20.97	161.18	0.47	-3.92 (W)	-16.86 (S)		187.00
8695.00	1.80	180.80	8687.38	153.46	20.96	154.88	0.16	-3.92 (W)	-23.22 (S)		187.00
8885.00	1.20	179.70	8877.31	148.49	20.93	149.95	0.32	-3.96 (W)	-28.20 (S)		190.00
9068.00	1.40	187.40	9060.26	144.35	20.65	145.82	0.14	-4.23 (W)	-32.33 (S)		183.00
9257.00	1.40	197.30	9249.21	139.86	19.67	141.24	0.13	-5.22 (W)	-36.82 (S)		189.00
9435.00	1.60	189.20	9427.15	135.33	18.62	136.60	0.16	-6.26 (W)	-41.35 (S)		178.00
9483.00	1.60	189.20	9475.13	134.01	18.41	135.26	0.00	-6.48 (W)	-42.67 (S)	SLPTB	48.00