

30-015-44068

Survey Company: MS Energy Services

MWD Surveyor Name: Josh Mirelez

Survey Type: MWD

Operating Company: Devon Energy Production Company, LP

Well Name & Number: Cotton Draw Unit 511H

API Number: 30-015-44068

Surveyed Depths: 798' – 9,872' MD
9,907' – 14,925' MD

Dates Performed: 06/19/2017 – 07/10/2017

Location: Eddy County, NM

Job Number: DDMO-170577

NM OIL CONSERVATION
ARTESIA DISTRICT
FEB 27 2018
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I certify that the data is true, correct and complete and within the limitations of the tool set forth by MS Energy Services; 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 Energy Services.

Digitally signed by:



Title: MWD Field Specialist

Date: 07-17-2017

Email: jmirelez@msenergyservices.com

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Company:	Devon Energy Production Company, LP		
Well Name:	Cotton Draw Unit 511H - Lateral		
Location:	Eddy County, NM		
Rig:	ICD #217	Magnetic Declination:	6.77
Job Number:	DDMO-170577		
API #:	30-015-44068		
Vertical Section Azimuth:	178.20	Proposed Direction:	178.20
Survey Calculation Method:	Minimum Curvature		

PTB:	MD	INC	AZM	TVD	N/S	E/W	VS				
	15,067	92.5	177.5	10139.76	-5251.92	-305.74	5239.72				
#	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	9,845	13.40	157.88	9817.20	-248.64	-469.22	233.78	531.03	242.08		
1	9,907	16.60	158.50	9877.08	-263.54	-463.27	248.86	532.98	240.37	5.17	5.16
2	9,938	18.60	158.50	9906.63	-272.26	-459.83	257.68	534.39	239.37	6.45	6.45
3	9,970	21.70	160.70	9936.67	-282.59	-456.01	268.13	536.47	238.21	9.97	9.69
4	10,001	24.70	167.70	9965.16	-294.34	-452.73	279.97	540.00	236.97	13.13	9.68
5	10,033	27.90	173.50	9993.85	-308.31	-450.46	294.01	545.87	235.61	12.82	10.00
6	10,065	30.90	177.60	10021.73	-323.97	-449.27	309.70	553.89	234.20	11.28	9.38
7	10,096	34.60	179.70	10047.80	-340.73	-448.89	326.46	563.55	232.80	12.48	11.94
8	10,128	38.20	182.20	10073.55	-359.71	-449.22	345.42	575.49	231.31	12.17	11.25
9	10,154	41.10	184.00	10093.57	-376.27	-450.12	361.95	586.68	230.11	12.00	11.15
10	10,185	45.20	184.30	10116.18	-397.41	-451.66	383.03	601.61	228.66	13.24	13.23
11	10,217	50.90	184.00	10137.56	-421.14	-453.38	406.69	618.80	227.11	17.83	17.81
12	10,248	57.40	183.90	10155.71	-446.19	-455.11	431.68	637.35	225.57	20.97	20.97
13	10,280	64.70	183.50	10171.26	-474.25	-456.92	459.66	658.55	223.93	22.73	22.71
14	10,312	70.60	183.90	10183.29	-503.44	-458.81	488.78	681.14	222.34	18.68	18.65
15	10,344	75.40	184.00	10192.70	-534.16	-460.93	519.42	705.54	220.79	14.91	14.90
16	10,375	81.20	183.60	10198.98	-564.43	-462.94	549.61	730.00	219.36	18.75	18.71
17	10,405	86.70	182.90	10202.14	-594.21	-464.63	579.32	754.30	218.02	18.48	18.33
18	10,436	89.20	181.90	10203.25	-625.16	-465.93	610.21	779.68	216.70	8.68	8.06
19	10,468	88.50	180.40	10203.90	-657.14	-466.57	642.16	805.93	215.37	5.17	-2.19
20	10,499	89.00	179.70	10204.57	-688.14	-466.59	673.14	831.41	214.14	2.77	1.61
21	10,563	90.60	178.30	10204.80	-752.12	-465.48	737.13	884.51	211.75	3.32	2.50
22	10,657	92.90	177.70	10201.93	-846.01	-462.20	831.08	964.04	208.65	2.53	2.45
23	10,752	92.10	177.70	10197.78	-940.85	-458.39	925.98	1046.57	205.98	0.84	-0.84
24	10,847	92.50	178.50	10193.97	-1035.72	-455.24	1020.91	1131.35	203.73	0.94	0.42
25	10,942	93.40	179.10	10189.08	-1130.57	-453.26	1115.77	1218.04	201.85	1.14	0.95
26	11,037	91.80	178.40	10184.77	-1225.44	-451.19	1210.67	1305.86	200.21	1.84	-1.68
27	11,132	90.00	178.10	10183.28	-1320.38	-448.28	1305.65	1394.41	198.75	1.92	-1.89
28	11,227	90.20	178.60	10183.11	-1415.34	-445.55	1400.65	1483.82	197.47	0.57	0.21
29	11,322	90.50	179.00	10182.53	-1510.32	-443.56	1495.64	1574.11	196.37	0.53	0.32
30	11,417	89.90	178.20	10182.20	-1605.29	-441.24	1590.64	1664.83	195.37	1.05	-0.63
31	11,511	90.00	178.90	10182.28	-1699.26	-438.86	1684.64	1755.02	194.48	0.75	0.11
32	11,605	90.10	180.40	10182.20	-1793.26	-438.29	1778.60	1846.04	193.73	1.60	0.11
33	11,699	90.90	179.30	10181.38	-1887.25	-438.04	1872.56	1937.42	193.07	1.45	0.85

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Well Name:		Cotton Draw Unit 511H - Lateral										
Location:		Eddy County, NM										
Rig:		ICD #217					Magnetic Declination:		6.77		REFERENCED TO GRID NORTH	
Job Number:		DDMO-170577										
API #:		30-015-44068										
Vertical Section Azimuth:			178.20			Proposed Direction:		178.20				
Survey Calculation Method:			Minimum Curvature									
PTB:	MD		INC		AZM	TVD	N/S	E/W		VS		
	15,067		92.5		177.5	10139.76	-5251.92	-305.74		5239.72		
#	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	11,794	90.30	177.60	10180.39	-1982.21	-435.47	1967.55	2029.48	192.39	1.90	-0.63	
35	11,889	90.50	177.90	10179.72	-2077.13	-431.74	2062.54	2121.53	191.74	0.38	0.21	
36	11,983	90.90	176.30	10178.57	-2171.00	-426.99	2156.52	2212.59	191.13	1.75	0.43	
37	12,078	91.10	177.00	10176.92	-2265.82	-421.44	2251.47	2304.68	190.54	0.77	0.21	
38	12,173	91.60	177.70	10174.68	-2360.69	-417.04	2346.43	2397.25	190.02	0.91	0.53	
39	12,269	89.90	176.80	10173.42	-2456.57	-412.44	2442.40	2490.95	189.53	2.00	-1.77	
40	12,364	90.20	177.60	10173.34	-2551.46	-407.80	2537.39	2583.84	189.08	0.90	0.32	
41	12,459	90.40	178.20	10172.84	-2646.39	-404.32	2632.38	2677.10	188.69	0.67	0.21	
42	12,554	90.70	178.70	10171.93	-2741.35	-401.75	2727.38	2770.63	188.34	0.61	0.32	
43	12,649	89.90	176.80	10171.43	-2836.27	-398.02	2822.37	2864.06	187.99	2.17	-0.84	
44	12,744	89.90	177.00	10171.60	-2931.13	-392.88	2917.34	2957.34	187.63	0.21	0.00	
45	12,839	90.10	177.10	10171.60	-3026.01	-387.99	3012.33	3050.78	187.31	0.24	0.21	
46	12,934	90.90	177.60	10170.77	-3120.90	-383.60	3107.31	3144.39	187.01	0.99	0.84	
47	13,029	91.60	177.80	10168.70	-3215.80	-379.79	3202.28	3238.15	186.74	0.77	0.74	
48	13,123	90.10	177.50	10167.30	-3309.71	-375.93	3296.27	3330.99	186.48	1.63	-1.60	
49	13,218	90.80	178.50	10166.55	-3404.65	-372.62	3391.26	3424.97	186.25	1.28	0.74	
50	13,313	91.20	178.60	10164.90	-3499.60	-370.22	3486.24	3519.13	186.04	0.43	0.42	
51	13,408	89.90	178.70	10163.98	-3594.57	-367.98	3581.24	3613.35	185.85	1.37	-1.37	
52	13,503	90.10	179.20	10163.98	-3689.55	-366.24	3676.23	3707.68	185.67	0.57	0.21	
53	13,598	90.10	179.60	10163.82	-3784.55	-365.24	3771.21	3802.13	185.51	0.42	0.00	
54	13,693	90.20	179.20	10163.57	-3879.54	-364.25	3866.18	3896.60	185.36	0.43	0.11	
55	13,788	90.20	177.20	10163.24	-3974.49	-361.26	3961.18	3990.87	185.19	2.11	0.00	
56	13,883	90.70	176.80	10162.49	-4069.35	-356.29	4056.15	4084.92	185.00	0.67	0.53	
57	13,977	91.30	177.20	10160.85	-4163.21	-351.37	4150.12	4178.01	184.82	0.77	0.64	
58	14,072	92.10	177.50	10158.03	-4258.07	-346.98	4245.07	4272.18	184.66	0.90	0.84	
59	14,167	90.60	177.50	10155.80	-4352.95	-342.84	4340.03	4366.43	184.50	1.58	-1.58	
60	14,262	91.10	178.20	10154.39	-4447.87	-339.28	4435.02	4460.79	184.36	0.91	0.53	
61	14,357	89.50	177.70	10153.89	-4542.80	-335.88	4530.01	4555.20	184.23	1.76	-1.68	
62	14,451	90.10	177.80	10154.22	-4636.73	-332.19	4624.01	4648.61	184.10	0.65	0.64	
63	14,546	90.80	177.70	10153.47	-4731.65	-328.46	4719.00	4743.04	183.97	0.74	0.74	
64	14,641	90.10	177.40	10152.72	-4826.56	-324.40	4813.99	4837.45	183.85	0.80	-0.74	
65	14,736	91.10	177.50	10151.73	-4921.46	-320.17	4908.98	4931.86	183.72	1.06	1.05	
66	14,830	91.70	177.50	10149.43	-5015.34	-316.07	5002.94	5025.29	183.61	0.64	0.64	
67	14,925	92.50	177.50	10145.95	-5110.19	-311.93	5097.87	5119.70	183.49	0.84	0.84	