



DrilTech, LLC

MWD Survey Report

Job No: DM-2017-059-SED-T-NM

Operator: **Steward Energy II, LLC**
Well Name: **Pollos Hermanos State Com 5H**
Location: **Lea County, NM**
Rig: **McVay 5**
Directional Drilling Co: **DrilTech, LLC**
Well API #: **30-025-43735**
Tie Into: **VES Survey International**
Tie-In Date: **5/31/2017**
Date Completed:

Reference Coordinates: LAT:

33	°	6	'	44.2300	"	N
103	°	5	'	20.3500	"	W

LON:

103	°	5	'	20.3500	"	W
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Reference Grid Coordinates: X: 922353.60 (ft)
Y: 770650.20 (ft)

Reference Datum: **NAD 83**
Zone: **New Mexico East**
Coordinate System: **State Plane - Transverse Mercator Projection**

Survey Vertical Reference: **18.50 (ft)** RKB to Ground Level
Elevation: **3789.00 (ft)** Ground Level to Mean Sea Level
Vertical Section Plane: **359.30 (deg)**

North Alignment: **Grid North**

<u>Magnetic Data</u>	<u>Section 1</u>	<u>Section 2</u>	<u>Section 3</u>	<u>Section 4</u>
Magnetic Declination (deg)	6.79			
Grid (deg)	0.68			
TOTAL CORRECTION (deg)	6.11			
Depth Start (MD Ft)	4341.71			
Depth End (MD Ft)				

REMARKS:

DRILTECH MWD SURVEY REPORT



Company: Steward Energy II, LLC
Well: Pollos Hermanos State Com 5H
Location: Lea County, NM
Rig: McVay 5

Job Number: DM-2017-059-SED-T-NM
Vertical Section Plane: 359.3
Well API Number: 30-025-43735
Tie Into: VES Survey International

All Azimuths
Corrected To: **Grid North**

Calculation Method: Minimum Curvature

Survey #	Survey Tool Type	Survey Depth (ft)	Inclination (deg)	Azimuth (deg)	Course Length (ft)	True Vertical Depth (ft)	Vertical Section (ft)	Coordinates N(+) / S(-) (ft)	E(+)/W(-) (ft)	Closure Distance (ft)	Angle (deg)	Dogleg Severity (d/100')	Build Rate (d/100')	Walk Rate (d/100')
Tie In	GYRO	4341.71	1.29	71.03		4341.30	4.66	4.88	18.06	18.71	74.88	0.20		
1	MWD	4440.00	0.97	84.77	98	4439.57	5.07	5.32	19.93	20.63	75.07	0.42	-0.33	13.98
2	MWD	4565.00	1.76	26.85	125	4564.54	6.86	7.12	21.86	22.99	71.94	1.19	0.63	-46.34
3	MWD	4659.00	2.99	12.97	94	4658.46	10.52	10.80	23.06	25.46	64.90	1.44	1.31	-14.77
4	MWD	4753.00	2.99	15.25	94	4752.33	15.26	15.56	24.25	28.81	57.32	0.13	0.00	2.43
5	MWD	4847.00	3.61	11.56	94	4846.17	20.51	20.82	25.49	32.91	50.76	0.70	0.66	-3.93
6	MWD	4879.00	6.51	3.82	32	4878.05	23.30	23.62	25.81	34.99	47.54	9.29	9.06	-24.19
7	MWD	4910.00	10.11	0.31	31	4908.72	27.78	28.09	25.95	38.24	42.72	11.72	11.61	-11.32
8	MWD	4941.00	13.89	359.52	31	4939.03	34.22	34.54	25.93	43.19	36.90	12.20	12.19	1158.74
9	MWD	4973.00	17.85	359.96	32	4969.81	42.97	43.29	25.89	50.44	30.89	12.38	12.38	1.37
10	MWD	5003.00	21.10	0.48	30	4998.09	52.97	53.29	25.94	59.26	25.95	10.85	10.83	-1198.27
11	MWD	5035.00	24.18	0.66	32	5027.62	65.28	65.60	26.06	70.59	21.66	9.63	9.62	0.56
12	MWD	5066.00	27.17	1.10	31	5055.55	78.70	79.03	26.27	83.28	18.39	9.66	9.65	1.42
13	MWD	5097.00	30.25	0.57	31	5082.74	93.59	93.92	26.48	97.58	15.75	9.97	9.94	-1.71
14	MWD	5129.00	32.89	1.10	32	5110.00	110.33	110.67	26.73	113.85	13.58	8.30	8.25	1.66
15	MWD	5161.00	35.61	1.19	32	5136.45	128.33	128.67	27.09	131.49	11.89	8.50	8.50	0.28
16	MWD	5192.00	39.13	1.72	31	5161.08	147.13	147.48	27.57	150.03	10.59	11.40	11.35	1.71
17	MWD	5224.00	41.94	2.33	32	5185.40	167.90	168.26	28.31	170.63	9.55	8.87	8.78	1.91
18	MWD	5255.00	44.76	3.03	31	5207.94	189.14	189.52	29.31	191.77	8.79	9.23	9.10	2.26
19	MWD	5286.00	47.84	2.42	31	5229.36	211.51	211.90	30.37	214.07	8.16	10.04	9.94	-1.97
20	MWD	5318.00	50.21	1.98	32	5250.34	235.64	236.04	31.29	238.11	7.55	7.48	7.41	-1.38
21	MWD	5349.00	53.20	0.13	31	5269.55	259.95	260.36	31.73	262.29	6.95	10.72	9.65	-5.97
22	MWD	5381.00	55.26	358.29	32	5288.25	285.91	286.32	31.37	288.03	6.25	7.95	6.44	1119.25
23	MWD	5412.00	58.56	357.50	31	5305.17	311.88	312.27	30.41	313.75	5.56	10.86	10.65	-2.55
24	MWD	5443.00	61.82	358.38	31	5320.58	338.76	339.15	29.45	340.42	4.96	10.80	10.52	2.84
25	MWD	5475.00	64.98	358.99	32	5334.91	367.37	367.75	28.80	368.87	4.48	10.02	9.88	1.91
26	MWD	5506.00	67.97	0.13	31	5347.28	395.79	396.17	28.58	397.20	4.13	10.22	9.65	-1157.61
27	MWD	5537.00	70.87	0.66	31	5358.18	424.80	425.18	28.78	426.16	3.87	9.49	9.35	1.71
28	MWD	5569.00	73.60	1.10	32	5367.94	455.26	455.65	29.25	456.59	3.67	8.63	8.53	1.38
29	MWD	5600.00	77.56	1.45	31	5375.66	485.26	485.66	29.92	486.58	3.53	12.82	12.77	1.13
30	MWD	5632.00	82.75	1.19	32	5381.13	516.76	517.17	30.65	518.08	3.39	16.24	16.22	-0.81
31	MWD	5663.00	87.32	0.22	31	5383.81	547.62	548.04	31.02	548.92	3.24	15.07	14.74	-3.13
32	MWD	5694.00	88.55	359.25	31	5384.93	578.60	579.02	30.88	579.85	3.05	5.05	3.97	1158.16



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 Vertical Section Plane: 359.3
 Well API Number: 30-025-43735
 Tie Into: VES Survey International

All Azimuths
 Corrected To: **Grid North**

Calculation Method: Minimum Curvature

Survey #	Survey Tool Type	Survey Depth (ft)	Inclination (deg)	Azimuth (deg)	Course Length (ft)	True Vertical Depth (ft)	Vertical Section (ft)	Coordinates N(+) / S(-) (ft)	Coordinates E(+) / W(-) (ft)	Closure Distance (ft)	Angle (deg)	Dogleg Severity (d/100')	Build Rate (d/100')	Walk Rate (d/100')
33	MWD	5788.00	91.28	357.50	94	5385.07	672.58	672.97	28.22	673.56	2.40	3.45	2.90	-1.86
34	MWD	5882.00	92.59	359.17	94	5381.89	766.51	766.87	25.49	767.30	1.90	2.26	1.39	1.78
35	MWD	5976.00	91.01	359.25	94	5378.94	860.46	860.82	24.19	861.16	1.61	1.68	-1.68	0.09
36	MWD	6070.00	89.16	359.25	94	5378.80	954.45	954.80	22.96	955.08	1.38	1.97	-1.97	0.00
37	MWD	6164.00	89.78	359.87	94	5379.67	1048.45	1048.80	22.24	1049.03	1.21	0.93	0.66	0.66
38	MWD	6258.00	89.34	358.90	94	5380.39	1142.44	1142.79	21.23	1142.98	1.06	1.13	-0.47	-1.03
39	MWD	6353.00	89.78	359.08	95	5381.12	1237.44	1237.77	19.55	1237.92	0.91	0.50	0.46	0.19
40	MWD	6447.00	89.96	358.90	94	5381.34	1331.44	1331.75	17.90	1331.87	0.77	0.27	0.19	-0.19
41	MWD	6542.00	90.57	358.73	95	5380.90	1426.43	1426.73	15.93	1426.82	0.64	0.67	0.64	-0.18
42	MWD	6636.00	89.69	359.52	94	5380.68	1520.43	1520.72	14.50	1520.79	0.55	1.26	-0.94	0.84
43	MWD	6732.00	90.40	359.96	96	5380.61	1616.42	1616.72	14.06	1616.78	0.50	0.87	0.74	0.46
44	MWD	6826.00	91.54	0.05	94	5379.02	1710.40	1710.70	14.07	1710.76	0.47	1.22	1.21	-382.88
45	MWD	6920.00	91.63	359.17	94	5376.42	1804.36	1804.66	13.43	1804.71	0.43	0.94	0.10	382.04
46	MWD	7014.00	89.96	358.64	94	5375.11	1898.35	1898.63	11.63	1898.67	0.35	1.86	-1.78	-0.56
47	MWD	7108.00	89.16	357.50	94	5375.83	1992.32	1992.57	8.47	1992.59	0.24	1.48	-0.85	-1.21
48	MWD	7202.00	88.02	356.35	94	5378.15	2086.21	2086.41	3.43	2086.41	0.09	1.72	-1.21	-1.22
49	MWD	7297.00	88.46	357.15	95	5381.07	2181.07	2181.21	-1.95	2181.21	-0.05	0.96	0.46	0.84
50	MWD	7391.00	89.25	358.99	94	5382.94	2275.03	2275.13	-5.12	2275.14	-0.13	2.13	0.84	1.96
51	MWD	7506.00	89.60	356.88	115	5384.10	2389.98	2390.05	-9.26	2390.06	-0.22	1.86	0.30	-1.83
52	MWD	7600.00	89.25	358.46	94	5385.04	2483.93	2483.96	-13.08	2483.99	-0.30	1.72	-0.37	1.68
53	MWD	7694.00	89.78	0.05	94	5385.84	2577.93	2577.95	-14.31	2577.98	-0.32	1.78	0.56	-381.29
54	MWD	7788.00	90.04	0.48	94	5385.98	2671.91	2671.94	-13.87	2671.98	-0.30	0.53	0.28	0.46
55	MWD	7879.00	92.15	2.24	91	5384.25	2762.83	2762.89	-11.71	2762.92	-0.24	3.02	2.32	1.93
56	MWD	7970.00	92.42	2.51	91	5380.62	2853.63	2853.74	-7.94	2853.75	-0.16	0.42	0.30	0.30
57	MWD	8061.00	90.57	1.54	91	5378.24	2944.49	2944.65	-4.73	2944.65	-0.09	2.30	-2.03	-1.07
58	MWD	8153.00	89.34	0.75	92	5378.32	3036.44	3036.63	-2.89	3036.63	-0.05	1.59	-1.34	-0.86
59	MWD	8245.00	89.25	0.66	92	5379.45	3128.40	3128.61	-1.76	3128.61	-0.03	0.14	-0.10	-0.10
60	MWD	8337.00	89.69	0.75	92	5380.30	3220.37	3220.60	-0.63	3220.60	-0.01	0.49	0.48	0.10
61	MWD	8429.00	88.55	359.87	92	5381.71	3312.34	3312.59	-0.13	3312.59	0.00	1.57	-1.24	390.35
62	MWD	8520.00	88.55	0.48	91	5384.01	3403.30	3403.56	0.15	3403.56	0.00	0.67	0.00	-394.93
63	MWD	8611.00	90.04	359.69	91	5385.13	3494.28	3494.55	0.28	3494.55	0.00	1.85	1.64	394.74
64	MWD	8703.00	90.57	0.13	92	5384.64	3586.28	3586.55	0.14	3586.55	0.00	0.75	0.58	-390.83
65	MWD	8799.00	90.04	359.17	96	5384.13	3682.27	3682.54	-0.45	3682.54	-0.01	1.14	-0.55	374.00
66	MWD	8893.00	89.96	359.87	94	5384.13	3776.27	3776.54	-1.24	3776.54	-0.02	0.75	-0.09	0.74
67	MWD	8987.00	89.16	358.99	94	5384.86	3870.27	3870.53	-2.17	3870.53	-0.03	1.27	-0.85	-0.94
68	MWD	9081.00	88.64	359.34	94	5386.66	3964.25	3964.50	-3.54	3964.50	-0.05	0.67	-0.55	0.37



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 Rig: McVay 5

Job Number: DM-2017-059-SEDT-NM
 Vertical Section Plane: 359.3
 Well API Number: 30-025-43735
 Tie Into: VES Survey International

All Azimuths
 Corrected To: **Grid North**

Calculation Method: Minimum Curvature

Survey #	Survey Tool Type	Survey Depth (ft)	Inclina- tion (deg)	Azimuth (deg)	Course Length (ft)	True Vertical Depth (ft)	Vertical Section (ft)	Coordinates N(+) / S(-) (ft)	E(+)/W(-) (ft)	Closure Distance (ft)	Angle (deg)	Dogleg Severity (d/100')	Build Rate (d/100')	Walk Rate (d/100')
69	MWD	9176.00	88.02	359.43	95	5389.43	4059.21	4059.45	-4.56	4059.46	-0.06	0.66	-0.65	0.09
70	MWD	9270.00	89.96	359.52	94	5391.08	4153.19	4153.43	-5.42	4153.44	-0.07	2.07	2.06	0.10
71	MWD	9365.00	90.57	359.69	95	5390.65	4248.19	4248.43	-6.08	4248.43	-0.08	0.67	0.64	0.18
72	MWD	9459.00	89.52	358.11	94	5390.57	4342.18	4342.41	-7.88	4342.41	-0.10	2.02	-1.12	-1.68
73	MWD	9553.00	90.40	359.78	94	5390.64	4436.17	4436.39	-9.61	4436.40	-0.12	2.01	0.94	1.78
74	MWD	9647.00	90.40	0.05	94	5389.98	4530.16	4530.38	-9.75	4530.39	-0.12	0.29	0.00	-382.69
75	MWD	9742.00	91.63	0.57	95	5388.30	4625.13	4625.37	-9.24	4625.37	-0.11	1.41	1.29	0.55
76	MWD	9836.00	90.84	358.55	94	5386.27	4719.10	4719.33	-9.96	4719.35	-0.12	2.31	-0.84	380.83
77	MWD	9930.00	91.28	358.99	94	5384.53	4813.08	4813.30	-11.98	4813.31	-0.14	0.66	0.47	0.47
78	MWD	10024.00	90.31	359.78	94	5383.23	4907.07	4907.28	-12.99	4907.30	-0.15	1.33	-1.03	0.84
79	MWD	10118.00	91.54	0.66	94	5381.71	5001.05	5001.26	-12.62	5001.28	-0.14	1.61	1.31	-382.04
80	MWD	10213.00	91.80	0.57	95	5378.94	5095.98	5096.22	-11.61	5096.23	-0.13	0.29	0.27	-0.09
81	MWD	10308.00	90.13	359.17	95	5377.34	5190.96	5191.20	-11.82	5191.21	-0.13	2.29	-1.76	377.47
82	MWD	10402.00	88.99	358.55	94	5378.06	5284.95	5285.18	-13.69	5285.19	-0.15	1.38	-1.21	-0.66
83	MWD	10495.00	89.08	359.17	93	5379.63	5377.93	5378.14	-15.54	5378.17	-0.17	0.67	0.10	0.67
84	MWD	10590.00	88.64	359.08	95	5381.52	5472.91	5473.11	-16.99	5473.14	-0.18	0.47	-0.46	-0.09
85	MWD	10684.00	91.54	359.78	94	5381.37	5566.90	5567.10	-17.93	5567.13	-0.18	3.17	3.09	0.74
86	MWD	10779.00	89.43	357.76	95	5380.57	5661.88	5662.06	-19.97	5662.10	-0.20	3.07	-2.22	-2.13
87	MWD	10873.00	88.90	358.20	94	5381.94	5755.85	5755.99	-23.28	5756.04	-0.23	0.73	-0.56	0.47
88	MWD	10967.00	91.36	359.08	94	5381.73	5849.83	5849.96	-25.51	5850.01	-0.25	2.78	2.62	0.94
89	MWD	11062.00	91.19	358.82	95	5379.61	5944.81	5944.92	-27.25	5944.98	-0.26	0.33	-0.18	-0.27
90	MWD	11156.00	90.40	358.46	94	5378.31	6038.79	6038.88	-29.48	6038.95	-0.28	0.92	-0.84	-0.38
91	MWD	11251.00	90.84	358.90	95	5377.28	6133.78	6133.85	-31.67	6133.93	-0.30	0.65	0.46	0.46
92	MWD	11345.00	88.99	358.99	94	5377.42	6227.77	6227.83	-33.40	6227.92	-0.31	1.97	-1.97	0.10
93	MWD	11439.00	88.90	358.82	94	5379.15	6321.76	6321.80	-35.20	6321.90	-0.32	0.20	-0.10	-0.18
94	MWD	11533.00	90.84	358.64	94	5379.36	6415.75	6415.77	-37.28	6415.88	-0.33	2.07	2.06	-0.19
95	MWD	11627.00	91.36	359.52	94	5377.56	6509.73	6509.74	-38.79	6509.86	-0.34	1.09	0.55	0.94
96	MWD	11721.00	90.57	359.17	94	5375.98	6603.71	6603.72	-39.86	6603.84	-0.35	0.92	-0.84	-0.37
97	MWD	11814.00	91.19	358.73	93	5374.55	6696.70	6696.69	-41.57	6696.82	-0.36	0.82	0.67	-0.47
98	MWD	11909.00	91.89	358.90	95	5371.99	6791.66	6791.64	-43.53	6791.78	-0.37	0.76	0.74	0.18
99	MWD	12004.00	91.89	358.99	95	5368.86	6886.61	6886.57	-45.28	6886.72	-0.38	0.09	0.00	0.09
100	MWD	12098.00	92.33	358.64	94	5365.40	6980.54	6980.48	-47.22	6980.64	-0.39	0.60	0.47	-0.37
101	MWD	12192.00	90.22	358.90	94	5363.31	7074.51	7074.43	-49.24	7074.61	-0.40	2.26	-2.24	0.28
102	MWD	12286.00	88.64	359.17	94	5364.24	7168.50	7168.41	-50.82	7168.59	-0.41	1.71	-1.68	0.29
103	MWD	12380.00	90.13	359.43	94	5365.25	7262.49	7262.40	-51.97	7262.58	-0.41	1.61	1.59	0.28
104	MWD	12475.00	89.87	0.05	95	5365.25	7357.49	7357.40	-52.40	7357.58	-0.41	0.71	-0.27	-378.29



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								N(+) / S(-) (ft)	E(+)/W(-) (ft)	Distance (ft)	(deg)			
105	MWD	12569.00	90.04	0.84	94	5365.33	7451.47	7451.39	-51.67	7451.57	-0.40	0.86	0.18	0.84
106	PTB	12644.00	90.04	0.84	75	5365.27	7526.44	7526.39	-50.57	7526.56	-0.38	0.00	0.00	0.00



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Corrected To: **Grid North**

Calculation Method: Minimum Curvature

Survey #	Survey Tool Type	Survey Depth (ft)	Inclina- tion (deg)	Azimuth (deg)	Course Length (ft)	True Vertical Depth (ft)	Vertical Section (ft)	Coordinates N(+) / S(-) E(+)/W(-) (ft) (ft)	Closure Distance (ft)	Angle (deg)	Dogleg Severity (d/100')	Build Rate (d/100')	Walk Rate (d/100')
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DRILTECH MWD SURVEY REPORT

Company: Steward Energy II, LLC
Well: Pollos Hermanos State Com 5H
Location: Lea County, NM
Rig: McVay 5

Job Number: DM-2017-059-SED-T-NM
Vertical Section Plane: 359.3
Well API Number: 30-025-43735
Tie Into: VES Survey International

All Azimuths
Corrected To: **Grid North**

Calculation Method: Minimum Curvature

Survey #	Survey Tool Type	Survey Depth (ft)	Inclina- tion (deg)	Azimuth (deg)	Course Length (ft)	True Vertical Depth (ft)	Vertical Section (ft)	Coordinates		Closure Distance (ft)	Angle (deg)	Dogleg Severity (d/100')	Build Rate (d/100')	Walk Rate (d/100')
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