

30.015-44283
Survey Calculation Program

AUG 03 2018



CLIENT: Chisholm Energy Holdings, LLC
WELL: McCord Enterprises 23 WCA 4H
COUNTY: Carlsbad, NM
RIG: Latshaw 7

MWD OPERATORS: Brayden/Coleman/Dimitry/Daniel
DIRECTIONAL DRILLERS: Herschell/David
MAGNETIC DECLINATION: 7.43
JOB NUMBER: NM17478CL

RECEIVED

Vertical Section Angle:

0.00

Minimum Curvature Calculation

Svy Type	Sur #	Meas. Depth	Inc.	Azm.	T.V.D.	+N / -S	+E / -W	Ver.Sect.	DLS	CL
GYRO	TIE IN	390.00	1.79	36.46	389.87	6.95	6.43	6.95	0.22	090 F
MWD	1	506	2.37	22.20	505.79	10.63	8.41	10.63	0.67	116
MWD	2	599	1.58	33.27	598.74	13.48	9.84	13.48	0.94	93
MWD	3	691	1.32	157.90	690.72	13.56	10.94	13.56	2.79	92
MWD	4	784	1.85	158.34	783.69	11.17	11.89	11.17	0.57	93
MWD	5	875	1.93	137.86	874.64	8.67	13.46	8.67	0.74	91
MWD	6	966	2.46	128.81	965.57	6.31	16.01	6.31	0.69	91
MWD	7	1057	0.62	36.26	1056.54	5.48	17.83	5.48	2.82	91
MWD	8	1148	1.49	88.64	1147.53	5.91	19.30	5.91	1.34	91
MWD	9	1238	1.76	81.52	1237.49	6.14	21.84	6.14	0.37	90
MWD	10	1332	0.97	65.97	1331.47	6.68	23.99	6.68	0.92	94
MWD	11	1426	0.70	250.19	1425.46	6.81	24.18	6.81	1.78	94
MWD	12	1520	0.79	257.22	1519.45	6.47	23.01	6.47	0.14	94
MWD	13	1614	0.44	227.86	1613.45	6.08	22.11	6.08	0.49	94
MWD	14	1707	0.18	230.68	1706.45	5.75	21.73	5.75	0.28	93
MWD	15	1801	0.35	263.55	1800.45	5.62	21.33	5.62	0.24	94
MWD	16	1895	0.44	203.96	1894.44	5.26	20.90	5.26	0.43	94
MWD	17	1989	0.26	261.61	1988.44	4.90	20.54	4.90	0.40	94
MWD	18	2083	0.35	246.85	2082.44	4.76	20.07	4.76	0.13	94
MWD	19	2177	0.26	234.10	2176.44	4.52	19.63	4.52	0.12	94
MWD	20	2271	0.09	248.08	2270.44	4.37	19.39	4.37	0.19	94
MWD	21	2365	0.35	146.83	2364.44	4.10	19.48	4.10	0.40	94
MWD	22	2459	0.35	145.77	2458.44	3.62	19.80	3.62	0.01	94
MWD	23	2553	0.26	145.77	2552.44	3.21	20.08	3.21	0.10	94
MWD	24	2647	0.09	157.81	2646.44	2.96	20.22	2.96	0.18	94
MWD	25	2741	0.18	96.73	2740.44	2.88	20.40	2.88	0.17	94
MWD	26	2836	0.09	291.50	2835.43	2.89	20.48	2.89	0.28	95
MWD	27	2930	0.26	77.66	2929.43	2.96	20.62	2.96	0.36	94
MWD	28	3024	0.00	294.84	3023.43	3.00	20.83	3.00	0.28	94
MWD	29	3118	0.44	276.73	3117.43	3.05	20.47	3.05	0.47	94
MWD	30	3212	0.18	150.26	3211.43	2.96	20.18	2.96	0.60	94
MWD	31	3306	0.09	51.91	3305.43	2.88	20.31	2.88	0.23	94
MWD	32	3401	0.26	209.41	3400.43	2.74	20.27	2.74	0.36	95
MWD	33	3495	0.26	172.05	3494.43	2.34	20.19	2.34	0.18	94
MWD	34	3590	0.09	284.73	3589.43	2.15	20.15	2.15	0.32	95
MWD	35	3684	0.26	197.36	3683.43	1.96	20.01	1.96	0.29	94
MWD	36	3779	0.00	290.09	3778.43	1.75	19.95	1.75	0.27	95
MWD	37	3873	0.00	84.95	3872.43	1.75	19.95	1.75	0.00	94
MWD	38	3967	0.44	185.24	3966.43	1.40	19.92	1.40	0.47	94
MWD	39	4061	0.09	135.49	4060.43	0.98	19.94	0.98	0.41	94
MWD	40	4155	0.26	108.33	4154.43	0.86	20.19	0.86	0.20	94
MWD	41	4249	0.09	124.50	4248.43	0.75	20.45	0.75	0.19	94
MWD	42	4344	0.53	173.63	4343.43	0.28	20.56	0.28	0.50	95
MWD	43	4438	0.53	150.26	4437.42	-0.53	20.83	-0.53	0.23	94
MWD	44	4532	0.09	94.18	4531.42	-0.92	21.12	-0.92	0.52	94
MWD	45	4626	0.44	156.57	4625.42	-1.25	21.33	-1.25	0.43	94

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Directional Survey



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MWD	46	4720	0.26	86.71	4719.42	-1.57	21.69	-1.57	0.45	94
MWD	47	4814	0.35	169.50	4813.42	-1.84	21.96	-1.84	0.44	94
MWD	48	4909	0.35	91.46	4908.42	-2.14	22.30	-2.14	0.46	95
MWD	49	5003	0.62	130.30	5002.41	-2.47	22.97	-2.47	0.44	94
MWD	50	5097	0.53	127.32	5096.41	-3.06	23.71	-3.06	0.10	94
MWD	51	5191	0.53	69.40	5190.40	-3.17	24.46	-3.17	0.55	94
MWD	52	5567	0.18	58.94	5566.40	-2.26	26.59	-2.26	0.09	376
MWD	53	5661	0.26	194.11	5660.40	-2.39	26.67	-2.39	0.43	94
MWD	54	5756	0.26	106.93	5755.40	-2.66	26.82	-2.66	0.38	95
MWD	55	5850	0.09	180.31	5849.40	-2.80	27.03	-2.80	0.27	94
MWD	56	5945	0.53	157.90	5944.39	-3.28	27.19	-3.28	0.47	95
MWD	57	6039	0.35	177.59	6038.39	-3.97	27.37	-3.97	0.25	94
MWD	58	6133	0.35	89.35	6132.39	-4.25	27.66	-4.25	0.52	94
MWD	59	6227	0.35	18.95	6226.39	-3.98	28.05	-3.98	0.43	94
MWD	60	6321	0.70	6.47	6320.38	-3.13	28.20	-3.13	0.39	94
MWD	61	6415	0.79	337.90	6414.38	-1.96	28.02	-1.96	0.40	94
MWD	62	6509	0.62	344.23	6508.37	-0.87	27.64	-0.87	0.20	94
MWD	63	6603	0.62	335.44	6602.36	0.08	27.29	0.08	0.10	94
	64	6698	0.62	329.73	6697.36	0.99	26.82	0.99	0.07	95
	65	6793	0.18	318.57	6792.36	1.55	26.46	1.55	0.47	95
	66	6887	0.62	296.94	6886.35	1.89	25.91	1.89	0.49	94
	67	6981	0.35	269.87	6980.35	2.12	25.17	2.12	0.37	94
	68	7076	0.53	282.44	7075.35	2.21	24.45	2.21	0.21	95
	69	7170	1.06	264.95	7169.34	2.23	23.16	2.23	0.61	94
	70	7264	0.79	268.03	7263.33	2.13	21.65	2.13	0.29	94
	71	7359	0.97	277.70	7358.31	2.21	20.20	2.21	0.25	95
	72	7453	0.70	290.70	7452.30	2.52	18.87	2.52	0.35	94
	73	7547	0.26	239.73	7546.30	2.62	18.15	2.62	0.61	94
	74	7641	0.79	251.68	7640.30	2.31	17.35	2.31	0.57	94
	75	7735	1.06	211.25	7734.29	1.36	16.28	1.36	0.73	94
	76	7830	1.76	198.07	7829.26	-0.78	15.37	-0.78	0.81	95
	77	7924	2.20	185.94	7923.20	-3.94	14.74	-3.94	0.64	94
	78	8108	1.06	171.35	8107.12	-9.14	14.63	-9.14	0.65	184
	79	8183	8.40	122.30	8181.83	-12.76	19.37	-12.76	10.33	75
	80	8214	12.70	118.50	8212.30	-15.60	24.28	-15.60	14.04	31
	81	8245	15.50	112.00	8242.36	-18.77	31.12	-18.77	10.36	31
	82	8277	17.70	103.00	8273.03	-21.47	39.83	-21.47	10.56	32
	83	8308	19.80	93.80	8302.39	-22.88	49.66	-22.88	11.68	31
	84	8340	22.80	89.20	8332.20	-23.15	61.27	-23.15	10.72	32
	85	8371	25.10	87.90	8360.53	-22.83	73.85	-22.83	7.61	31
	86	8402	27.60	87.00	8388.31	-22.21	87.59	-22.21	8.17	31
	87	8434	30.50	87.70	8416.28	-21.50	103.11	-21.50	9.12	32
	88	8465	33.30	86.10	8442.60	-20.60	119.47	-20.60	9.43	31
	89	8497	36.10	86.70	8468.90	-19.46	137.65	-19.46	8.81	32
	90	8528	40.30	85.20	8493.26	-18.10	156.76	-18.10	13.87	31
	91	8559	44.10	84.70	8516.22	-16.26	177.50	-16.26	12.31	31
	92	8590	47.00	86.00	8537.93	-14.47	199.56	-14.47	9.82	31
	93	8622	50.50	86.80	8559.03	-12.97	223.56	-12.97	11.10	32
	94	8653	54.20	86.00	8577.96	-11.42	248.06	-11.42	12.11	31



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	95	8685	57.60	84.50	8595.90	-9.22	274.46	-9.22	11.31	32
	96	8716	61.10	81.00	8611.70	-5.84	300.90	-5.84	14.89	31
	97	8748	61.70	76.60	8627.02	-0.38	328.45	-0.38	12.22	32
	98	8779	62.50	72.10	8641.54	7.01	354.82	7.01	13.08	31
	99	8812	63.80	67.90	8656.45	17.08	382.48	17.08	12.02	33
	100	8843	64.70	64.20	8669.92	28.41	407.99	28.41	11.13	31
	101	8875	65.10	63.80	8683.49	41.12	434.03	41.12	1.69	32
	102	8906	66.20	60.90	8696.28	54.23	459.04	54.23	9.23	31
	103	8938	67.00	56.60	8708.99	69.46	484.14	69.46	12.58	32
	104	8969	67.40	53.50	8721.00	85.83	507.56	85.83	9.31	31
	105	9001	67.30	50.00	8733.33	104.11	530.75	104.11	10.10	32
	106	9032	68.00	45.80	8745.12	123.33	552.01	123.33	12.73	31
	107	9064	69.70	43.00	8756.67	144.65	572.89	144.65	9.74	32
	108	9095	71.70	39.10	8766.92	166.71	592.09	166.71	13.51	31
	109	9127	73.30	35.30	8776.55	191.02	610.53	191.02	12.38	32
	110	9158	74.30	32.20	8785.20	215.77	627.07	215.77	10.13	31
	111	9189	75.60	28.70	8793.25	241.57	642.24	241.57	11.68	31
	112	9220	77.40	25.30	8800.49	268.42	655.91	268.42	12.14	31
	113	9252	78.80	22.60	8807.09	297.04	668.62	297.04	9.34	32
	114	9283	79.90	18.60	8812.82	325.55	679.34	325.55	13.17	31
	115	9314	81.00	15.00	8817.96	354.81	688.17	354.81	11.99	31
	116	9346	82.50	11.70	8822.55	385.62	695.48	385.62	11.23	32
	117	9377	83.90	7.70	8826.23	415.95	700.66	415.95	13.58	31
	118	9409	85.50	3.40	8829.18	447.66	703.74	447.66	14.28	32
	119	9431	87.10	0.90	8830.60	469.59	704.56	469.59	13.47	22
	120	9463	88.00	359.70	8831.97	501.56	704.73	501.56	4.68	32
	121	9557	88.10	0.10	8835.17	595.51	704.57	595.51	0.44	94
	122	9651	88.10	0.70	8838.29	689.45	705.22	689.45	0.64	94
	123	9745	88.60	359.80	8840.99	783.41	705.63	783.41	1.09	94
	124	9839	89.20	358.50	8842.80	877.38	704.24	877.38	1.52	94
	125	9933	89.30	358.80	8844.03	971.35	702.03	971.35	0.34	94
	126	10027	88.80	358.50	8845.59	1065.31	699.81	1065.31	0.62	94
	127	10122	90.20	358.90	8846.42	1160.28	697.66	1160.28	1.53	95
	128	10216	89.80	358.70	8846.42	1254.26	695.69	1254.26	0.48	94
	129	10312	90.00	359.10	8846.58	1350.24	693.84	1350.24	0.47	96
	130	10406	89.50	359.50	8846.99	1444.23	692.70	1444.23	0.68	94
	131	10500	89.70	358.90	8847.65	1538.22	691.38	1538.22	0.67	94
	132	10595	89.60	358.60	8848.23	1633.20	689.31	1633.20	0.33	95
	133	10689	89.00	358.70	8849.38	1727.16	687.10	1727.16	0.65	94
	134	10783	89.90	0.60	8850.28	1821.15	686.52	1821.15	2.24	94
	135	10877	89.50	0.80	8850.77	1915.14	687.67	1915.14	0.48	94
	136	10971	89.40	1.30	8851.68	2009.12	689.39	2009.12	0.54	94
	137	11065	89.00	2.20	8852.99	2103.07	692.26	2103.07	1.05	94
	138	11159	88.00	0.40	8855.45	2197.01	694.40	2197.01	2.19	94
	139	11254	88.70	359.80	8858.18	2291.97	694.56	2291.97	0.97	95
	140	11347	89.40	0.30	8859.73	2384.95	694.64	2384.95	0.92	93
	141	11442	90.00	359.50	8860.22	2479.95	694.48	2479.95	1.05	95
	142	11536	89.80	0.00	8860.39	2573.95	694.07	2573.95	0.57	94
	143	11630	89.30	0.10	8861.13	2667.94	694.15	2667.94	0.54	94



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	144	11724	90.10	360.00	8861.62	2761.94	694.23	2761.94	0.86	94
	145	11818	90.20	0.30	8861.37	2855.94	694.48	2855.94	0.34	94
	146	11912	89.80	0.30	8861.37	2949.94	694.97	2949.94	0.43	94
	147	12007	89.80	0.90	8861.70	3044.93	695.96	3044.93	0.63	95
	148	12101	89.40	1.20	8862.36	3138.92	697.69	3138.92	0.53	94
	149	12195	89.80	0.00	8863.02	3232.91	698.67	3232.91	1.35	94
	150	12289	90.00	1.10	8863.18	3326.90	699.57	3326.90	1.19	94
	151	12384	88.70	0.40	8864.26	3421.88	700.82	3421.88	1.55	95
	152	12478	88.00	359.70	8866.96	3515.84	700.90	3515.84	1.05	94
	153	12572	89.00	359.00	8869.43	3609.80	699.83	3609.80	1.30	94
	154	12667	89.00	359.80	8871.08	3704.78	698.84	3704.78	0.84	95
	155	12761	88.70	359.60	8872.97	3798.76	698.35	3798.76	0.38	94
	156	12855	88.50	359.50	8875.27	3892.73	697.61	3892.73	0.24	94
	157	12949	88.50	0.10	8877.73	3986.70	697.28	3986.70	0.64	94
	158	13043	88.30	0.50	8880.35	4080.66	697.77	4080.66	0.48	94
	159	13137	88.20	0.30	8883.22	4174.61	698.43	4174.61	0.24	94
	160	13231	88.00	1.00	8886.34	4268.56	699.49	4268.56	0.77	94
	161	13326	88.30	359.70	8889.41	4363.50	700.07	4363.50	1.40	95
	162	13420	88.50	358.90	8892.03	4457.46	698.92	4457.46	0.88	94
	163	13514	89.10	359.20	8894.00	4551.42	697.37	4551.42	0.71	94
	164	13607	88.90	0.30	8895.62	4644.41	696.96	4644.41	1.20	93
	165	13702	88.10	359.80	8898.11	4739.37	697.04	4739.37	0.99	95
Final	13790	88.20	0.40	8900.95	4827.33	697.20	4827.33	4827.33	0.69	88
PTB	13842	88.20	0.40	8902.58	4879.30	697.56	4879.30	4879.30	0.00	52