

Chisholm Energy Holdings, LLC

Eddy County, NM (NAD83)

Sec 21-T26S-R26E

Cottonwood 28-33 Fed Com WCA 4H

Wellbore #2

Design: Wellbore #2

Standard Survey Report

20 November, 2017

NM OIL CONSERVATION
ARTESIA DISTRICT
JAN 22 2018
RECEIVED

Survey Report

Company:	Chisholm Energy Holdings, LLC	Well Cottonwood 28-33 Fed Com WCA 4H
Project:	Eddy County, NM (NAD83)	KB=22' @ 3406.00ft (Nabors M55)
Site:	Sec 21-T26S-R26E	KB=22' @ 3406.00ft (Nabors M55)
Well:	Cottonwood 28-33 Fed Com WCA 4H	Grid
Wellbore:	Wellbore #2	Minimum Curvature
Direction:	Wellbore #2	EDM 5000.1

Project:	Eddy County, NM (NAD83)		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Eastern Zone		

Site:	Sec 21-T26S-R26E		
Site Position:		Northing:	371,391.6926 usft
From:	Map	Easting:	553,962.2000 usft
Position Uncertainty:	0.00 ft	Slot Radius:	13-3/16 "
		Latitude:	32.021029
		Longitude:	-104.292598
		Grid Convergence:	0.02 °

Well:	Cottonwood 28-33 Fed Com WCA 4H, WA		
Well Position	+N-S	0.00 ft	Northing:
	+E-W	0.00 ft	Easting:
Position Uncertainty	0.00 ft	Wellhead Elevation:	0.00 ft
		Latitude:	32.021029
		Longitude:	-104.292404
		Ground Level:	3,384.00 ft

Wellbore:	Wellbore #2		
Measure:	HDGM	11/4/2017	7.45
		59.65	47,881

Design:	Wellbore #2		
Audit Notes:			
Version:	1.0	Phase:	ACTUAL
		Tie On Depth:	7,792.00
	0.00	0.00	0.00
			176.29

Survey / Depth	91.00	7,792.00 IDS MWD Surveys (Wellbore #1)	MWD	MWD - Standard
	7,875.00	15,744.00 IDS MWD Surveys (Wellbore #2)	MWD	MWD - Standard

Survey	Depth (ft)	True Depth (ft)	Delta (ft)	Delta (%)	Delta (ft)	Delta (%)	Delta (ft)	Delta (%)	Delta (ft)	Delta (%)
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	91.00	0.60	122.80	91.00	-0.26	0.40	0.28	0.66	0.66	0.00
	185.00	0.60	159.50	184.99	-0.99	0.99	1.05	0.40	0.00	39.04
	274.00	1.20	168.30	273.98	-2.33	1.34	2.42	0.69	0.67	9.89
	364.00	1.70	174.20	363.95	-4.59	1.66	4.68	0.58	0.56	6.56
	407.00	1.80	171.80	406.93	-5.89	1.83	5.99	0.29	0.23	-5.58
	492.00	1.80	181.50	491.89	-8.54	1.98	8.65	0.36	0.00	11.41
	578.00	1.10	74.30	577.87	-9.67	2.74	9.83	2.76	-0.81	-124.65
	667.00	1.30	49.10	666.86	-8.78	4.33	9.04	0.63	0.22	-28.31
	764.00	0.90	49.00	763.84	-7.56	5.73	7.91	0.41	-0.41	-0.10

Survey Report

Company	Chisholm Energy Holdings, LLC	Well Cottonwood 28-33 Fed Com WCA 4H
Project	Eddy County, NM (NAD83)	KB=22' @ 3406.00ft (Nabors M55)
Sit	Sec 21-T28S-R26E	KB=22' @ 3406.00ft (Nabors M55)
Well	Cottonwood 28-33 Fed Com WCA 4H	Grid
Wellbore	Wellbore #2	Minimum Curvature
Wellbore	Wellbore #2	EDM 5000.1

Station	Offset	Depth	Angle	Distance	Angle	Distance	Angle	Distance	Angle
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859.00	0.70	7.70	858.83	-6.49	6.37	6.89	0.63	-0.21	-43.47
954.00	0.60	338.30	953.82	-5.46	6.27	5.85	0.36	-0.11	-30.95
1,049.00	0.60	4.80	1,048.82	-4.50	6.13	4.89	0.29	0.00	27.89
1,143.00	0.70	51.50	1,142.81	-3.65	6.62	4.07	0.56	0.11	49.68
1,238.00	1.10	79.60	1,237.80	-3.13	7.97	3.63	0.62	0.42	29.58
1,332.00	0.90	98.80	1,331.79	-3.08	9.58	3.69	0.41	-0.21	20.43
1,428.00	1.80	96.40	1,427.76	-3.36	11.83	4.12	0.94	0.94	-2.50
1,522.00	3.40	97.10	1,521.66	-3.87	16.06	4.90	1.70	1.70	0.74
1,617.00	2.60	62.80	1,616.54	-3.23	20.77	4.57	2.03	-0.84	-36.11
1,713.00	2.60	357.00	1,712.46	-0.06	22.60	1.52	2.94	0.00	-68.54
1,806.00	1.60	329.40	1,805.40	3.16	21.82	-1.75	1.50	-1.08	-29.68
1,900.00	0.90	322.40	1,899.37	4.88	20.71	-3.53	0.76	-0.74	-7.45
1,996.00	0.80	314.90	1,995.36	5.95	19.77	-4.66	0.16	-0.10	-7.81
2,091.00	1.10	317.60	2,090.35	7.09	18.69	-5.87	0.32	0.32	2.84
2,185.00	1.20	307.90	2,184.33	8.36	17.30	-7.22	0.23	0.11	-10.32
2,281.00	1.10	306.80	2,280.31	9.53	15.77	-8.49	0.11	-0.10	-1.15
2,375.00	1.10	302.00	2,374.29	10.55	14.28	-9.60	0.10	0.00	-5.11
2,470.00	1.30	289.40	2,469.27	11.39	12.49	-10.56	0.35	0.21	-13.26
2,565.00	1.50	290.20	2,564.24	12.18	10.31	-11.48	0.21	0.21	0.84
2,660.00	1.60	284.80	2,659.21	12.95	7.86	-12.41	0.19	0.11	-5.68
2,754.00	1.50	280.70	2,753.17	13.51	5.38	-13.13	0.16	-0.11	-4.36
2,849.00	1.50	278.80	2,848.14	13.93	2.93	-13.71	0.05	0.00	-2.00
2,943.00	1.50	276.60	2,942.11	14.26	0.49	-14.20	0.06	0.00	-2.34
3,038.00	1.70	273.40	3,037.07	14.49	-2.15	-14.59	0.23	0.21	-3.37
3,132.00	1.20	242.00	3,131.04	14.11	-4.41	-14.36	0.98	-0.53	-33.40
3,227.00	1.30	232.90	3,226.02	12.99	-6.15	-13.36	0.23	0.11	-9.58
3,321.00	1.10	222.10	3,320.00	11.68	-7.60	-12.14	0.32	-0.21	-11.49
3,415.00	1.00	216.80	3,413.99	10.35	-8.70	-10.89	0.15	-0.11	-5.64
3,509.00	0.50	183.00	3,507.98	9.28	-9.21	-9.86	0.69	-0.53	-35.96
3,604.00	0.60	197.10	3,602.97	8.39	-9.38	-8.98	0.18	0.11	14.84
3,699.00	0.60	149.70	3,697.97	7.49	-9.27	-8.07	0.51	0.00	-49.89
3,794.00	0.90	167.00	3,792.96	6.33	-8.86	-6.89	0.39	0.32	18.21
3,864.00	1.10	185.50	3,862.95	5.13	-8.80	-5.69	0.54	0.29	26.43
3,959.00	1.20	179.80	3,957.93	3.23	-8.88	-3.79	0.16	0.11	-6.00
4,054.00	0.90	121.60	4,052.92	1.84	-8.24	-2.37	1.11	-0.32	-61.26
4,148.00	1.40	116.70	4,146.90	0.94	-6.59	-1.36	0.54	0.53	-5.21
4,243.00	1.50	121.40	4,241.87	-0.23	-4.49	-0.06	0.16	0.11	4.95
4,337.00	1.50	128.50	4,335.84	-1.64	-2.48	1.47	0.20	0.00	7.55
4,432.00	1.50	127.60	4,430.80	-3.17	-0.52	3.13	0.02	0.00	-0.95
4,526.00	1.40	133.00	4,524.77	-4.70	1.30	4.78	0.18	-0.11	5.74
4,621.00	1.50	135.80	4,619.74	-6.39	3.01	6.57	0.13	0.11	2.95
4,716.00	1.60	137.20	4,714.71	-8.25	4.78	8.54	0.11	0.11	1.47
4,811.00	1.60	132.20	4,809.67	-10.12	6.66	10.53	0.15	0.00	-5.26

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Location:	Eddy County, NM (NAD83)	KB=22' @ 3406.00ft (Nabors M55)
Sec:	Sec 21-T26S-R26E	KB=22' @ 3406.00ft (Nabors M55)
Well:	Cottonwood 28-33 Fed Com WCA 4H	Grid
Wellbore:	Wellbore #2	Minimum Curvature
Design:	Wellbore #2	EDM 5000.1

Station	Offset	Depth	True	Apparent	True	Apparent	True	Apparent	True	Apparent
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)
4,905.00	1.30	103.60	4,903.64	-11.25	8.67	11.79	0.82	-0.32	-30.43	
5,000.00	1.30	95.30	4,998.62	-11.60	10.79	12.28	0.20	0.00	-8.74	
5,094.00	1.30	97.20	5,092.59	-11.83	12.91	12.64	0.05	0.00	2.02	
5,189.00	1.10	99.70	5,187.57	-12.12	14.88	13.06	0.22	-0.21	2.63	
5,283.00	0.80	84.70	5,281.56	-12.21	16.42	13.25	0.41	-0.32	-15.96	
5,379.00	0.60	55.80	5,377.55	-11.87	17.51	12.98	0.42	-0.21	-30.10	
5,474.00	1.00	24.80	5,472.54	-10.84	18.27	12.00	0.61	0.42	-32.63	
5,569.00	0.70	7.10	5,567.53	-9.51	18.69	10.70	0.42	-0.32	-18.63	
5,663.00	0.80	350.20	5,661.52	-8.29	18.65	9.48	0.26	0.11	-17.98	
5,758.00	1.10	342.60	5,756.51	-6.77	18.26	7.94	0.34	0.32	-8.00	
5,853.00	1.90	340.10	5,851.48	-4.42	17.45	5.54	0.84	0.84	-2.63	
5,948.00	2.20	345.30	5,946.42	-1.17	16.45	2.23	0.37	0.32	5.47	
6,042.00	2.90	353.80	6,040.32	2.94	15.74	-1.91	0.84	0.74	9.04	
6,169.00	2.30	355.70	6,167.19	8.67	15.20	-7.67	0.48	-0.47	1.50	
6,263.00	1.80	347.60	6,261.13	11.99	14.74	-11.02	0.61	-0.53	-8.62	
6,358.00	1.80	352.90	6,356.09	14.93	14.24	-13.98	0.18	0.00	5.58	
6,454.00	2.20	349.30	6,452.03	18.24	13.71	-17.31	0.44	0.42	-3.75	
6,547.00	2.10	345.80	6,544.96	21.64	12.96	-20.76	0.18	-0.11	-3.76	
6,641.00	1.80	342.20	6,638.91	24.72	12.08	-23.89	0.34	-0.32	-3.83	
6,737.00	1.40	345.10	6,734.87	27.29	11.32	-26.50	0.42	-0.42	3.02	
6,832.00	1.60	331.20	6,829.84	29.57	10.38	-28.84	0.44	0.21	-14.63	
6,926.00	1.70	317.00	6,923.80	31.74	8.80	-31.11	0.45	0.11	-15.11	
7,022.00	1.40	301.50	7,019.76	33.40	6.83	-32.88	0.53	-0.31	-16.15	
7,116.00	1.20	306.40	7,113.74	34.58	5.06	-34.18	0.24	-0.21	5.21	
7,211.00	0.80	288.20	7,208.73	35.38	3.63	-35.07	0.53	-0.42	-19.16	
7,306.00	0.70	288.20	7,303.72	35.77	2.45	-35.53	0.11	-0.11	0.00	
7,401.00	1.10	225.30	7,398.71	35.31	1.25	-35.15	1.05	0.42	-66.21	
7,495.00	0.80	249.90	7,492.69	34.45	-0.01	-34.37	0.53	-0.32	26.17	
7,589.00	0.60	281.70	7,586.69	34.32	-1.11	-34.32	0.46	-0.21	33.83	
7,683.00	0.70	256.60	7,680.68	34.29	-2.15	-34.35	0.32	0.11	-26.70	
7,739.00	0.60	253.00	7,736.68	34.12	-2.76	-34.23	0.19	-0.18	-6.43	
7,792.00	0.90	248.40	7,789.67	33.89	-3.41	-34.04	0.58	0.57	-8.68	
7,875.00	3.60	107.00	7,872.63	32.89	-1.53	-32.92	5.23	3.25	-170.36	
7,907.00	7.30	93.70	7,904.48	32.46	1.46	-32.30	12.14	11.56	-41.56	
7,939.00	11.10	95.50	7,936.06	32.03	6.56	-31.54	11.91	11.88	5.63	
7,971.00	14.90	87.80	7,967.24	31.90	13.74	-30.94	13.03	11.88	-24.06	
8,003.00	19.00	90.10	7,997.84	32.05	23.06	-30.49	12.98	12.81	7.19	
8,034.00	22.90	92.10	8,026.79	31.82	34.14	-29.54	12.79	12.58	6.45	
8,066.00	26.20	91.70	8,055.89	31.38	47.43	-28.24	10.33	10.31	-1.25	
8,098.00	28.40	97.30	8,084.33	30.20	62.04	-26.13	10.56	6.88	17.50	
8,129.00	32.40	100.00	8,111.06	27.82	77.54	-22.75	13.63	12.90	8.71	
8,160.00	36.80	102.20	8,136.57	24.41	94.80	-18.23	14.75	14.19	7.10	
8,191.00	40.00	103.80	8,160.87	20.07	113.56	-12.69	10.81	10.32	5.16	

Survey Report

Company	Chisholm Energy Holdings, LLC	Well Cottonwood 28-33 Fed Com WCA 4H
Project	Eddy County, NM (NAD83)	KB=22' @ 3406.00ft (Nabors M55)
Site	Sec 21-T26S-R26E	KB=22' @ 3406.00ft (Nabors M55)
Well	Cottonwood 28-33 Fed Com WCA 4H	Grid
Wellbore	Wellbore #2	Minimum Curvature
Design	Wellbore #2	EDM 5000.1

Station	North	East	Depth	True	True	True	True	True	True
1	2	3	4	5	6	7	8	9	10
8,223.00	43.60	105.40	8,184.72	14.69	134.19	-5.98	11.73	11.25	5.00
8,255.00	45.40	112.00	8,207.55	7.49	155.41	2.58	15.51	5.63	20.63
8,286.00	47.70	117.60	8,228.88	-1.96	175.81	13.33	15.06	7.42	18.06
8,318.00	49.70	123.20	8,250.01	-14.14	196.52	26.81	14.55	6.25	17.50
8,350.00	50.70	126.80	8,270.50	-28.24	216.65	42.19	9.19	3.13	11.25
8,381.00	51.70	129.50	8,289.92	-43.16	235.64	58.31	7.51	3.23	8.71
8,413.00	52.20	133.50	8,309.65	-59.85	254.51	76.19	9.97	1.56	12.50
8,445.00	53.60	135.80	8,328.95	-77.79	272.66	95.26	7.21	4.38	7.19
8,476.00	54.70	137.30	8,347.11	-96.03	289.94	114.58	5.29	3.55	4.84
8,508.00	57.10	138.70	8,365.05	-115.73	307.66	135.38	8.33	7.50	4.38
8,540.00	60.40	141.80	8,381.65	-136.76	325.14	157.50	13.22	10.31	9.69
8,571.00	62.00	145.30	8,396.59	-158.61	341.27	180.35	11.16	5.16	11.29
8,603.00	64.70	148.60	8,410.94	-182.58	356.86	205.28	12.49	8.44	10.31
8,635.00	64.80	151.90	8,424.60	-207.71	371.21	231.28	9.33	0.31	10.31
8,666.00	66.10	154.30	8,437.48	-232.85	383.97	257.19	8.20	4.19	7.74
8,698.00	68.50	158.20	8,449.83	-259.87	395.84	284.92	13.51	7.50	12.19
8,729.00	70.00	159.90	8,460.81	-286.94	406.21	312.61	7.05	4.84	5.48
8,761.00	71.30	163.40	8,471.42	-315.59	415.71	341.81	11.09	4.06	10.94
8,792.00	72.40	165.60	8,481.08	-343.97	423.58	370.65	7.62	3.55	7.10
8,824.00	76.10	169.00	8,489.76	-374.01	430.34	401.06	15.43	11.56	10.63
8,855.00	81.50	171.80	8,495.78	-403.98	435.40	431.29	19.54	17.42	9.03
8,887.00	83.60	174.10	8,499.93	-435.47	439.29	462.96	9.69	6.56	7.19
8,911.00	85.80	175.00	8,502.15	-459.26	441.56	486.85	9.90	9.17	3.75
8,981.98	89.98	177.39	8,504.76	-530.01	446.26	557.76	6.79	5.89	3.37
FTP @ MD 8,981.97/ TVD 8,504.76'									
9,006.00	91.40	178.20	8,504.47	-554.01	447.19	581.77	6.79	5.90	3.36
9,100.00	88.60	177.20	8,504.47	-647.92	450.96	675.73	3.16	-2.98	-1.06
9,195.00	90.90	179.60	8,504.89	-742.87	453.61	770.65	3.50	2.42	2.53
9,289.00	92.50	180.90	8,502.10	-836.83	453.20	864.38	2.19	1.70	1.38
9,384.00	89.80	180.40	8,500.19	-931.79	452.12	959.08	2.89	-2.84	-0.53
9,480.00	89.10	181.60	8,501.11	-1,027.77	450.45	1,054.75	1.45	-0.73	1.25
9,574.00	91.50	182.10	8,500.62	-1,121.71	447.41	1,148.30	2.61	2.55	0.53
9,669.00	92.40	181.30	8,497.39	-1,216.61	444.60	1,242.82	1.27	0.95	-0.84
9,763.00	90.60	180.90	8,494.93	-1,310.56	442.79	1,336.45	1.96	-1.91	-0.43
9,858.00	91.30	181.10	8,493.35	-1,405.53	441.14	1,431.12	0.77	0.74	0.21
9,954.00	89.80	180.20	8,492.43	-1,501.52	440.05	1,526.83	1.82	-1.56	-0.94
10,049.00	91.80	181.00	8,491.10	-1,596.50	439.05	1,621.55	2.27	2.11	0.84
10,144.00	92.00	181.80	8,487.95	-1,691.42	436.73	1,716.12	0.87	0.21	0.84
10,239.00	90.60	177.40	8,485.80	-1,786.36	437.40	1,810.91	4.86	-1.47	-4.63
10,332.00	91.10	176.90	8,484.42	-1,879.24	442.02	1,903.89	0.76	0.54	-0.54
10,428.00	91.20	177.90	8,482.49	-1,975.12	446.37	1,999.85	1.05	0.10	1.04
10,522.00	91.60	178.50	8,480.19	-2,069.04	449.33	2,093.77	0.77	0.43	0.64
10,617.00	91.50	177.60	8,477.63	-2,163.95	452.56	2,188.69	0.95	-0.11	-0.95
10,712.00	91.10	178.40	8,475.47	-2,258.87	455.87	2,283.62	0.94	-0.42	0.84

Survey Report

Company:	Chisholm Energy Holdings, LLC	Well Cottonwood 28-33 Fed Com WCA 4H
Project:	Eddy County, NM (NAD83)	KB=22' @ 3406.00ft (Nabors M55)
Site:	Sec 21-T26S-R26E	KB=22' @ 3406.00ft (Nabors M55)
Well:	Cottonwood 28-33 Fed Com WCA 4H	Grid
Wellbore:	Wellbore #2	Minimum Curvature
Depth:	Wellbore #2	EDM 5000.1

Survey	Depth (ft)	True North	True East	True North	True East	True North	True East	True North	True East	True North
	10,807.00	93.70	179.20	8,471.49	-2,353.76	457.86	2,378.44	2.86	2.74	0.84
	10,901.00	94.10	179.90	8,465.10	-2,447.53	458.60	2,472.07	0.86	0.43	0.74
	10,996.00	92.30	179.20	8,459.80	-2,542.38	459.34	2,566.76	2.03	-1.89	-0.74
	11,091.00	91.80	177.10	8,456.40	-2,637.26	462.41	2,661.65	2.27	-0.53	-2.21
	11,185.00	89.80	179.70	8,455.08	-2,731.20	465.03	2,755.56	3.49	-2.13	2.77
	11,280.00	90.70	179.50	8,454.67	-2,826.20	465.69	2,850.40	0.97	0.95	-0.21
	11,374.00	91.60	179.10	8,452.78	-2,920.17	466.84	2,944.25	1.05	0.96	-0.43
	11,469.00	90.90	177.90	8,450.71	-3,015.12	469.33	3,039.15	1.46	-0.74	-1.26
	11,564.00	90.50	177.90	8,449.55	-3,110.04	472.81	3,134.11	0.42	-0.42	0.00
	11,659.00	90.90	179.40	8,448.39	-3,205.01	475.05	3,229.02	1.63	0.42	1.58
	11,754.00	92.20	181.10	8,445.82	-3,299.97	474.63	3,323.75	2.25	1.37	1.79
	11,849.00	91.00	180.70	8,443.17	-3,394.92	473.14	3,418.41	1.33	-1.26	-0.42
	11,943.00	93.80	183.80	8,439.23	-3,488.74	469.46	3,511.80	4.44	2.98	3.30
	12,039.00	93.10	183.40	8,433.45	-3,584.38	463.44	3,606.84	0.84	-0.73	-0.42
	12,133.00	92.40	182.70	8,428.94	-3,678.13	458.45	3,700.08	1.05	-0.74	-0.74
	12,228.00	90.40	181.60	8,426.62	-3,773.03	454.88	3,794.55	2.40	-2.11	-1.16
	12,324.00	91.50	181.30	8,425.03	-3,868.99	452.46	3,890.15	1.19	1.15	-0.31
	12,419.00	91.40	179.80	8,422.63	-3,963.95	451.54	3,984.85	1.58	-0.11	-1.58
	12,514.00	91.10	179.90	8,420.55	-4,058.93	451.79	4,079.65	0.33	-0.32	0.11
	12,609.00	93.10	180.90	8,417.07	-4,153.86	451.13	4,174.33	2.35	2.11	1.05
	12,704.00	93.10	180.50	8,411.94	-4,248.71	449.97	4,268.91	0.42	0.00	-0.42
	12,799.00	93.50	179.80	8,406.47	-4,343.55	449.72	4,363.54	0.85	0.42	-0.74
	12,893.00	92.10	180.10	8,401.87	-4,437.44	449.80	4,457.23	1.52	-1.49	0.32
	12,988.00	90.50	178.80	8,399.72	-4,532.40	450.72	4,552.06	2.17	-1.68	-1.37
	13,083.00	89.40	177.80	8,399.80	-4,627.36	453.53	4,647.00	1.56	-1.16	-1.05
	13,178.00	89.20	177.00	8,400.96	-4,722.25	457.84	4,741.97	0.87	-0.21	-0.84
	13,273.00	92.30	178.40	8,399.72	-4,817.15	461.66	4,836.92	3.58	3.26	1.47
	13,369.00	92.40	178.10	8,395.78	-4,913.03	464.59	4,932.79	0.33	0.10	-0.31
	13,463.00	90.10	178.90	8,393.73	-5,006.97	467.04	5,026.69	2.59	-2.45	0.85
	13,557.00	90.20	178.90	8,393.49	-5,100.95	468.85	5,120.59	0.11	0.11	0.00
	13,653.00	90.20	178.50	8,393.15	-5,196.92	471.03	5,216.50	0.42	0.00	-0.42
	13,748.00	90.90	178.10	8,392.24	-5,291.88	473.85	5,311.44	0.85	0.74	-0.42
	13,842.00	90.70	177.30	8,390.93	-5,385.79	477.62	5,405.40	0.88	-0.21	-0.85
	13,937.00	89.10	178.30	8,391.09	-5,480.72	481.26	5,500.37	1.99	-1.68	1.05
	13,973.09	88.99	177.92	8,391.70	-5,516.78	482.45	5,536.43	1.10	-0.32	-1.05
Cross Section @ MD 13,973.09' TVD 8,391.70'										
	14,032.00	88.80	177.30	8,392.83	-5,575.63	484.91	5,595.32	1.10	-0.32	-1.05
	14,127.00	88.40	178.80	8,395.16	-5,670.54	488.14	5,690.24	1.63	-0.42	1.58
	14,222.00	88.60	179.30	8,397.64	-5,765.50	489.72	5,785.10	0.57	0.21	0.53
	14,316.00	91.30	181.00	8,397.72	-5,859.48	489.47	5,878.87	3.39	2.87	1.81
	14,412.00	93.10	181.60	8,394.04	-5,955.38	487.29	5,974.43	1.98	1.88	0.63
	14,507.00	93.80	181.20	8,388.32	-6,050.18	484.98	6,068.88	0.85	0.74	-0.42
	14,602.00	92.10	180.90	8,383.43	-6,145.04	483.24	6,163.42	1.82	-1.79	-0.32

Survey Report

Client:	Chisholm Energy Holdings, LLC	Well:	Well Cottonwood 28-33 Fed Com WCA 4H
Project:	Eddy County, NM (NAD83)	KB=22' @ 3406.00ft (Nabors M55)	
Survey:	Sec 21-T26S-R26E	KB=22' @ 3406.00ft (Nabors M55)	
Well:	Cottonwood 28-33 Fed Com WCA 4H	Grid	
Wellbore:	Wellbore #2	Minimum Curvature	
Design:	Wellbore #2	EDM 5000.1	

Station	True North	True East	True North	True East	True North	True East	True North	True East	True North	True East
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)
14,697.00	90.10	179.90	8,381.61	-6,240.01	482.58	6,258.16	2.35	-2.11	-1.05	
14,791.00	89.80	179.20	8,381.69	-6,334.01	483.31	6,352.00	0.81	-0.32	-0.74	
14,887.00	90.10	179.20	8,381.78	-6,430.00	484.65	6,447.88	0.31	0.31	0.00	
14,982.00	90.90	179.80	8,380.95	-6,524.99	485.48	6,542.73	1.05	0.84	0.63	
15,077.00	92.10	180.50	8,378.46	-6,619.95	485.24	6,637.48	1.46	1.26	0.74	
15,172.00	89.50	180.90	8,377.13	-6,714.93	484.07	6,732.18	2.77	-2.74	0.42	
15,266.00	90.20	181.10	8,377.38	-6,808.91	482.43	6,825.86	0.77	0.74	0.21	
15,361.00	91.90	182.70	8,375.64	-6,903.84	479.29	6,920.38	2.46	1.79	1.68	
15,456.00	90.50	181.50	8,373.65	-6,998.75	475.81	7,014.87	1.94	-1.47	-1.26	
15,551.00	89.80	182.00	8,373.40	-7,093.71	472.90	7,109.44	0.91	-0.74	0.53	
15,646.00	90.10	181.20	8,373.48	-7,188.67	470.25	7,204.03	0.90	0.32	-0.84	
15,695.00	90.10	181.70	8,373.40	-7,237.65	469.01	7,252.83	1.02	0.00	1.02	
Last IDS MWD Survey										
15,744.00	90.10	181.70	8,373.31	-7,286.63	467.56	7,301.61	0.00	0.00	0.00	
Projection to TD - WCA 4H BHL - LTP @ MD15,744' TVD 8,373.31'										

Station	True North	True East	True North	True East	True North	True East	True North	True East	True North	True East
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)
LTP @ MD15,744' TVD	0.00	0.00	8,373.31	-7,286.63	467.56	364,104.9850	554,489.8576	32.000998	-104.290905	
- actual wellpath hits target center										
- Point										
Cross Section @ MD 13	0.00	0.00	8,391.70	-5,516.78	482.45	365,874.8311	554,504.7531	32.005863	-104.290854	
- actual wellpath hits target center										
- Point										
FTP @ MD 8,981.97' TVD	0.00	0.00	8,504.76	-530.00	446.26	370,861.6010	554,468.5621	32.019572	-104.290965	
- actual wellpath hits target center										
- Point										

Station	True North	True East	True North	True East	True North	True East	True North	True East	True North	True East
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)
15,695.00	8,373.40	-7,237.65	469.01	Last IDS MWD Survey						
15,744.00	8,373.31	-7,286.63	467.56	Projection to TD						

Checked By: _____ Approved By: _____ Date: _____