

Chisholm Energy Holdings, LLC

Eddy County, NM (NAD83)

Sec 21-T26S-R26E

Cottonwood 28-33 Fed 2BS 5H

30-015-44648

Wellbore #2

NM OIL CONSERVATION
ARTESIA DISTRICT

Design: Wellbore #2

JUL 24 2018

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Standard Survey Report

14 March, 2018

Provide Signature Page for
Directional Survey



Survey Report



Company: Chisholm Energy Holdings, LLC
Project: Eddy County, NM (NAD83)
Site: Sec 21-T26S-R26E
Well: Cottonwood 28-33 Fed 2BS 5H
Wellbore: Wellbore #2
Design: Wellbore #2

Local Co-ordinate Reference: Well Cottonwood 28-33 Fed 2BS 5H
TVD Reference: KB=22 @ 3406.00ft (Nabors M55)
MD Reference: KB=22 @ 3406.00ft (Nabors M55)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM 5000.1

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

System Datum: Mean Sea Level

Site Sec 21-T26S-R26E

Site Position: **Northing:** 371,391.69 usft **Latitude:** 32.021029
From: Map **Easting:** 553,962.20 usft **Longitude:** -104.292598
Position Uncertainty: 0.00 ft **Slot Radius:** 13-3/16 " **Grid Convergence:** 0.02 °

Well Cottonwood 28-33 Fed 2BS 5H, WA

Well Position **+N/-S** 0.00 ft **Northing:** 371,292.90 usft **Latitude:** 32.020758
+E/-W 0.00 ft **Easting:** 553,926.80 usft **Longitude:** -104.292712
Position Uncertainty 0.00 ft **Wellhead Elevation:** 0.00 ft **Ground Level:** 3,384.00 ft

Wellbore Wellbore #2

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM	2/25/2018	7.42	59.63	47,845

Design Wellbore #2

Audit Notes:
Version: 1.0 **Phase:** ACTUAL **Tie On Depth:** 6,606.00
Vertical Section: **Depth From (TVD) (ft)** **+N/-S (ft)** **+E/-W (ft)** **Direction (°)**
 0.00 0.00 0.00 180.00

Survey Program Date 3/14/2018

From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
84.00	6,606.00	IDS MWD Surveys (Wellbore #1)	MWD	MWD - Standard
6,637.00	14,657.00	IDS MWD Surveys (Wellbore #2)	MWD	MWD - Standard

Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
84.00	0.60	114.30	84.00	-0.18	0.40	0.18	0.71	0.71	0.00
161.00	0.70	224.40	161.00	-0.68	0.44	0.68	1.39	0.13	142.99
221.00	0.60	224.10	220.99	-1.17	-0.04	1.17	0.17	-0.17	-0.50
280.00	0.80	207.10	279.99	-1.76	-0.44	1.76	0.49	0.34	-28.81
372.00	0.90	224.90	371.98	-2.84	-1.24	2.84	0.31	0.11	19.35
431.00	1.10	209.60	430.97	-3.66	-1.85	3.66	0.56	0.34	-25.93
505.00	1.10	221.90	504.96	-4.81	-2.67	4.81	0.32	0.00	16.62
567.00	1.40	222.30	566.94	-5.81	-3.58	5.81	0.48	0.48	0.65
629.00	1.60	216.90	628.92	-7.06	-4.61	7.06	0.39	0.32	-8.71

Survey Report



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Site:	Sec 21-T26S-R26E	MD Reference:	KB=22 @ 3406.00ft (Nabors M55)
Well:	Cottonwood 28-33 Fed 2BS 5H	North Reference:	Grid
Wellbore:	Wellbore #2	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #2	Database:	EDM 5000.1

Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
692.00	0.60	195.60	691.91	-8.09	-5.23	8.09	1.69	-1.59	-33.81
756.00	0.60	168.10	755.90	-8.74	-5.25	8.74	0.45	0.00	-42.97
850.00	0.40	149.30	849.90	-9.50	-4.98	9.50	0.27	-0.21	-20.00
945.00	0.60	181.90	944.90	-10.28	-4.83	10.28	0.36	0.21	34.32
1,039.00	0.60	199.40	1,038.89	-11.24	-5.01	11.24	0.19	0.00	18.62
1,134.00	0.40	191.30	1,133.89	-12.03	-5.24	12.03	0.22	-0.21	-8.53
1,229.00	1.10	129.20	1,228.88	-12.93	-4.59	12.93	1.03	0.74	-65.37
1,324.00	1.00	116.10	1,323.86	-13.88	-3.14	13.88	0.27	-0.11	-13.79
1,418.00	2.40	98.80	1,417.82	-14.54	-0.46	14.54	1.57	1.49	-18.40
1,513.00	3.30	95.00	1,512.70	-15.08	4.23	15.08	0.97	0.95	-4.00
1,607.00	2.90	102.60	1,606.57	-15.83	9.24	15.83	0.61	-0.43	8.09
1,634.00	2.80	106.80	1,633.53	-16.17	10.54	16.17	0.86	-0.37	15.56
1,695.00	2.60	108.10	1,694.46	-17.03	13.28	17.03	0.34	-0.33	2.13
1,791.00	1.10	47.00	1,790.42	-17.08	16.03	17.08	2.38	-1.56	-63.65
1,887.00	1.20	45.40	1,886.40	-15.75	17.42	15.75	0.11	0.10	-1.67
1,981.00	1.50	322.50	1,980.38	-14.08	17.37	14.08	1.92	0.32	-88.19
2,077.00	1.20	285.70	2,076.36	-12.81	15.64	12.81	0.94	-0.31	-38.33
2,172.00	1.20	281.10	2,171.33	-12.35	13.70	12.35	0.10	0.00	-4.84
2,268.00	0.80	263.70	2,267.32	-12.23	12.05	12.23	0.52	-0.42	-18.13
2,362.00	0.50	264.10	2,361.31	-12.35	10.99	12.35	0.32	-0.32	0.43
2,458.00	0.60	226.70	2,457.31	-12.73	10.21	12.73	0.38	0.10	-38.96
2,554.00	0.60	245.70	2,553.30	-13.29	9.38	13.29	0.21	0.00	19.79
2,647.00	0.80	236.50	2,646.30	-13.84	8.40	13.84	0.25	0.22	-9.89
2,742.00	0.90	239.00	2,741.29	-14.59	7.21	14.59	0.11	0.11	2.63
2,836.00	0.90	225.60	2,835.28	-15.49	6.05	15.49	0.22	0.00	-14.26
2,932.00	0.90	227.20	2,931.26	-16.53	4.95	16.53	0.03	0.00	1.67
3,023.00	0.40	68.70	3,022.26	-16.90	4.73	16.90	1.41	-0.55	-174.18
3,121.00	0.50	69.80	3,120.26	-16.63	5.45	16.63	0.10	0.10	1.12
3,217.00	0.30	28.00	3,216.26	-16.26	5.96	16.26	0.36	-0.21	-43.54
3,312.00	1.10	348.20	3,311.25	-15.15	5.89	15.15	0.94	0.84	-41.89
3,407.00	0.80	339.40	3,406.24	-13.64	5.47	13.64	0.35	-0.32	-9.26
3,503.00	0.80	347.70	3,502.23	-12.35	5.09	12.35	0.12	0.00	8.65
3,598.00	0.60	350.70	3,597.22	-11.22	4.87	11.22	0.21	-0.21	3.16
3,690.00	0.50	353.70	3,689.21	-10.34	4.74	10.34	0.11	-0.11	3.26
3,785.00	0.80	348.10	3,784.21	-9.28	4.56	9.28	0.32	0.32	-5.89
3,878.00	0.50	343.70	3,877.20	-8.26	4.31	8.26	0.33	-0.32	-4.73
3,972.00	1.00	314.90	3,971.19	-7.28	3.62	7.28	0.65	0.53	-30.64
4,068.00	1.30	307.20	4,067.17	-6.03	2.16	6.03	0.35	0.31	-8.02
4,163.00	1.10	278.60	4,162.15	-5.25	0.40	5.25	0.66	-0.21	-30.11
4,258.00	0.80	280.80	4,257.14	-4.99	-1.16	4.99	0.32	-0.32	2.32
4,353.00	0.90	273.60	4,352.13	-4.81	-2.55	4.81	0.15	0.11	-7.58
4,449.00	0.80	240.90	4,448.12	-5.09	-3.89	5.09	0.51	-0.10	-34.06
4,543.00	0.40	291.30	4,542.12	-5.29	-4.77	5.29	0.67	-0.43	53.62

Survey Report



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Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
4,638.00	0.40	301.50	4,637.11	-5.00	-5.36	5.00	0.07	0.00	10.74
4,734.00	0.20	359.30	4,733.11	-4.66	-5.65	4.66	0.35	-0.21	60.21
4,829.00	0.10	359.70	4,828.11	-4.41	-5.65	4.41	0.11	-0.11	0.42
4,922.00	0.30	156.90	4,921.11	-4.55	-5.56	4.55	0.42	0.22	169.03
5,017.00	0.20	135.60	5,016.11	-4.90	-5.34	4.90	0.14	-0.11	-22.42
5,112.00	0.40	201.10	5,111.11	-5.33	-5.35	5.33	0.38	0.21	68.95
5,207.00	0.50	208.10	5,206.11	-6.00	-5.66	6.00	0.12	0.11	7.37
5,302.00	0.70	208.90	5,301.10	-6.87	-6.14	6.87	0.21	0.21	0.84
5,397.00	0.10	224.90	5,396.10	-7.44	-6.47	7.44	0.64	-0.63	16.84
5,492.00	0.10	269.50	5,491.10	-7.50	-6.62	7.50	0.08	0.00	46.95
5,587.00	0.30	261.00	5,586.10	-7.54	-6.94	7.54	0.21	0.21	-8.95
5,682.00	0.40	226.70	5,681.10	-7.81	-7.43	7.81	0.24	0.11	-36.11
5,777.00	0.50	319.00	5,776.09	-7.72	-7.94	7.72	0.69	0.11	97.16
5,869.00	0.70	291.10	5,868.09	-7.22	-8.73	7.22	0.38	0.22	-30.33
5,965.00	0.50	327.50	5,964.08	-6.65	-9.50	6.65	0.44	-0.21	37.92
6,059.00	0.30	24.50	6,058.08	-6.08	-9.62	6.08	0.45	-0.21	60.64
6,149.00	0.40	13.00	6,148.08	-5.56	-9.45	5.56	0.14	0.11	-12.78
6,165.00	0.50	16.80	6,164.08	-5.44	-9.42	5.44	0.65	0.63	23.75
6,195.00	0.70	275.30	6,194.08	-5.30	-9.57	5.30	3.13	0.67	-338.33
6,227.00	3.50	253.50	6,226.06	-5.56	-10.70	5.56	8.94	8.75	-68.13
6,259.00	7.00	250.70	6,257.92	-6.48	-13.48	6.48	10.96	10.94	-8.75
6,290.00	10.40	253.50	6,288.56	-7.90	-17.94	7.90	11.05	10.97	9.03
6,322.00	13.70	256.40	6,319.85	-9.61	-24.40	9.61	10.48	10.31	9.06
6,353.00	17.00	255.50	6,349.74	-11.61	-32.35	11.61	10.67	10.65	-2.90
6,385.00	20.10	254.70	6,380.07	-14.23	-42.19	14.23	9.72	9.69	-2.50
6,417.00	22.90	254.30	6,409.84	-17.37	-53.49	17.37	8.76	8.75	-1.25
6,448.00	25.50	255.00	6,438.11	-20.73	-65.74	20.73	8.44	8.39	2.26
6,480.00	28.00	254.10	6,466.69	-24.57	-79.62	24.57	7.91	7.81	-2.81
6,511.00	30.70	254.30	6,493.71	-28.70	-94.24	28.70	8.72	8.71	0.65
6,543.00	33.10	255.00	6,520.87	-33.18	-110.55	33.18	7.59	7.50	2.19
6,575.00	34.50	257.40	6,547.46	-37.42	-127.83	37.42	6.04	4.38	7.50
6,606.00	35.20	257.80	6,572.90	-41.22	-145.14	41.22	2.38	2.26	1.29
6,637.00	33.60	252.00	6,598.49	-45.76	-162.03	45.76	11.76	-5.16	-18.71
6,668.00	36.00	246.90	6,623.95	-51.99	-178.58	51.99	12.16	7.74	-16.45
6,700.00	39.30	242.30	6,649.28	-60.39	-196.21	60.39	13.54	10.31	-14.38
6,731.00	40.40	242.50	6,673.08	-69.59	-213.81	69.59	3.57	3.55	0.65
6,761.00	38.40	248.50	6,696.27	-77.50	-231.11	77.50	14.33	-6.67	20.00
6,794.00	38.90	254.60	6,722.05	-84.01	-250.64	84.01	11.64	1.52	18.48
6,825.00	40.40	260.70	6,745.93	-88.22	-269.95	88.22	13.45	4.84	19.68
6,857.00	42.60	265.60	6,769.90	-90.73	-290.99	90.73	12.25	6.88	15.31
6,889.00	44.70	269.60	6,793.06	-91.64	-313.05	91.64	10.84	6.56	12.50
6,920.00	46.70	271.10	6,814.71	-91.50	-335.23	91.50	7.32	6.45	4.84
6,952.00	49.80	270.30	6,836.02	-91.21	-359.10	91.21	9.87	9.69	-2.50

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6,984.00	52.50	267.50	6,856.09	-91.70	-384.01	91.70	10.84	8.44	-8.75
7,015.00	54.90	265.20	6,874.44	-93.30	-408.94	93.30	9.78	7.74	-7.42
7,046.00	56.70	268.00	6,891.87	-94.81	-434.53	94.81	9.46	5.81	9.03
7,078.00	57.50	273.30	6,909.26	-94.50	-461.38	94.50	14.13	2.50	16.56
7,110.00	60.10	274.80	6,925.84	-92.56	-488.68	92.56	9.06	8.13	4.69
7,141.00	63.20	273.30	6,940.55	-90.64	-515.89	90.64	10.87	10.00	-4.84
7,173.00	66.80	271.40	6,954.08	-89.46	-544.86	89.46	12.47	11.25	-5.94
7,204.00	70.90	271.40	6,965.26	-88.75	-573.76	88.75	13.23	13.23	0.00
7,235.00	73.80	272.60	6,974.66	-87.72	-603.28	87.72	10.06	9.35	3.87
7,266.00	74.60	272.80	6,983.10	-86.32	-633.07	86.32	2.65	2.58	0.65
7,298.00	74.80	272.80	6,991.54	-84.81	-663.90	84.81	0.63	0.63	0.00
7,330.00	74.80	272.50	6,999.93	-83.38	-694.75	83.38	0.90	0.00	-0.94
7,361.00	74.50	272.20	7,008.14	-82.15	-724.62	82.15	1.34	-0.97	-0.97
7,394.00	74.20	271.70	7,017.04	-81.07	-756.37	81.07	1.72	-0.91	-1.52
7,424.00	74.20	271.50	7,025.21	-80.27	-785.23	80.27	0.64	0.00	-0.67
7,456.00	74.40	271.40	7,033.87	-79.49	-816.03	79.49	0.69	0.63	-0.31
7,487.00	74.60	269.80	7,042.15	-79.18	-845.90	79.18	5.02	0.65	-5.16
7,519.00	75.50	266.20	7,050.41	-80.26	-876.79	80.26	11.23	2.81	-11.25
7,551.00	75.70	261.90	7,058.37	-83.47	-907.61	83.47	13.03	0.63	-13.44
7,582.00	76.10	257.70	7,065.93	-88.79	-937.19	88.79	13.20	1.29	-13.55
7,614.00	75.90	256.00	7,073.67	-95.86	-967.42	95.86	5.19	-0.63	-5.31
7,645.00	76.20	254.10	7,081.14	-103.62	-996.49	103.62	6.03	0.97	-6.13
7,677.00	76.20	251.20	7,088.78	-112.88	-1,026.15	112.88	8.80	0.00	-9.06
7,708.00	76.10	247.40	7,096.20	-123.52	-1,054.30	123.52	11.91	-0.32	-12.26
7,740.00	76.70	243.50	7,103.73	-136.44	-1,082.58	136.44	11.99	1.88	-12.19
7,772.00	77.00	239.20	7,111.01	-151.38	-1,109.92	151.38	13.12	0.94	-13.44
7,803.00	77.70	235.40	7,117.80	-167.72	-1,135.37	167.72	12.17	2.26	-12.26
7,835.00	79.40	231.80	7,124.16	-186.33	-1,160.61	186.33	12.24	5.31	-11.25
7,866.00	80.50	230.30	7,129.57	-205.52	-1,184.34	205.52	5.94	3.55	-4.84
7,898.00	80.90	229.90	7,134.74	-225.77	-1,208.57	225.77	1.76	1.25	-1.25
7,929.00	81.10	229.60	7,139.59	-245.56	-1,231.94	245.56	1.15	0.65	-0.97
7,960.00	81.70	227.80	7,144.23	-265.78	-1,254.96	265.78	6.06	1.94	-5.81
7,992.00	81.40	224.10	7,148.93	-287.79	-1,277.71	287.79	11.48	-0.94	-11.56
8,023.00	81.90	220.20	7,153.43	-310.52	-1,298.29	310.52	12.55	1.61	-12.58
8,055.00	82.50	216.00	7,157.78	-335.47	-1,317.85	335.47	13.14	1.88	-13.13
8,087.00	82.20	212.10	7,162.04	-361.74	-1,335.60	361.74	12.12	-0.94	-12.19
8,118.00	82.50	208.70	7,166.17	-388.23	-1,351.14	388.23	10.91	0.97	-10.97
8,149.00	82.20	204.90	7,170.30	-415.65	-1,365.00	415.65	12.19	-0.97	-12.26
8,181.00	81.80	201.40	7,174.75	-444.79	-1,377.45	444.79	10.90	-1.25	-10.94
8,213.00	84.40	199.00	7,178.59	-474.60	-1,388.42	474.60	11.02	8.13	-7.50
8,244.00	87.30	196.40	7,180.84	-504.05	-1,397.81	504.05	12.55	9.35	-8.39
8,276.00	89.60	193.20	7,181.70	-534.97	-1,405.98	534.97	12.31	7.19	-10.00
8,307.00	90.10	189.40	7,181.79	-565.36	-1,412.06	565.36	12.36	1.61	-12.26
8,406.00	92.70	182.50	7,179.36	-663.73	-1,422.31	663.73	7.45	2.63	-6.97

Survey Report



Company: Chisholm Energy Holdings, LLC
Project: Eddy County, NM (NAD83)
Site: Sec 21-T26S-R26E
Well: Cottonwood 28-33 Fed 2BS 5H
Wellbore: Wellbore #2
Design: Wellbore #2

Local Co-ordinate Reference: Well Cottonwood 28-33 Fed 2BS 5H
TVD Reference: KB=22 @ 3406.00ft (Nabors M55)
MD Reference: KB=22 @ 3406.00ft (Nabors M55)
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: EDM 5000.1

Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
8,500.00	91.00	183.40	7,176.33	-757.55	-1,427.15	757.55	2.05	-1.81	0.96
8,595.00	90.90	183.50	7,174.75	-852.37	-1,432.86	852.37	0.15	-0.11	0.11
8,689.00	91.00	183.80	7,173.20	-946.16	-1,438.85	946.16	0.34	0.11	0.32
8,784.00	90.80	183.80	7,171.70	-1,040.94	-1,445.14	1,040.94	0.21	-0.21	0.00
8,879.00	90.50	183.90	7,170.63	-1,135.72	-1,451.52	1,135.72	0.33	-0.32	0.11
8,973.00	90.30	183.60	7,169.97	-1,229.52	-1,457.67	1,229.52	0.38	-0.21	-0.32
9,068.00	90.30	181.90	7,169.47	-1,324.40	-1,462.23	1,324.40	1.79	0.00	-1.79
9,163.00	91.00	180.90	7,168.39	-1,419.37	-1,464.55	1,419.37	1.28	0.74	-1.05
9,258.00	91.70	179.40	7,166.16	-1,514.34	-1,464.80	1,514.34	1.74	0.74	-1.58
9,352.00	92.40	178.70	7,162.79	-1,608.26	-1,463.24	1,608.26	1.05	0.74	-0.74
9,447.00	92.70	179.10	7,158.57	-1,703.15	-1,461.42	1,703.15	0.53	0.32	0.42
9,543.00	94.10	178.70	7,152.87	-1,798.96	-1,459.58	1,798.96	1.52	1.46	-0.42
9,637.00	92.50	179.40	7,147.46	-1,892.79	-1,458.02	1,892.79	1.86	-1.70	0.74
9,732.00	92.60	179.20	7,143.24	-1,987.69	-1,456.86	1,987.69	0.24	0.11	-0.21
9,827.00	92.70	179.20	7,138.84	-2,082.58	-1,455.54	2,082.58	0.11	0.11	0.00
9,922.00	92.70	179.20	7,134.37	-2,177.46	-1,454.21	2,177.46	0.00	0.00	0.00
10,017.00	94.00	179.40	7,128.82	-2,272.29	-1,453.05	2,272.29	1.38	1.37	0.21
10,112.00	93.60	178.80	7,122.52	-2,367.07	-1,451.56	2,367.07	0.76	-0.42	-0.63
10,206.00	92.10	178.50	7,117.85	-2,460.92	-1,449.35	2,460.92	1.63	-1.60	-0.32
10,301.00	92.60	178.40	7,113.95	-2,555.81	-1,446.79	2,555.81	0.54	0.53	-0.11
10,396.00	91.70	178.20	7,110.39	-2,650.70	-1,443.97	2,650.70	0.97	-0.95	-0.21
10,491.00	92.40	178.30	7,106.99	-2,745.59	-1,441.07	2,745.59	0.74	0.74	0.11
10,585.00	91.20	178.00	7,104.04	-2,839.50	-1,438.04	2,839.50	1.32	-1.28	-0.32
10,680.00	92.10	178.10	7,101.30	-2,934.40	-1,434.81	2,934.40	0.95	0.95	0.11
10,775.00	91.20	178.80	7,098.57	-3,029.33	-1,432.24	3,029.33	1.20	-0.95	0.74
10,869.00	91.70	180.30	7,096.19	-3,123.29	-1,431.50	3,123.29	1.68	0.53	1.60
10,964.00	92.20	179.40	7,092.95	-3,218.23	-1,431.25	3,218.23	1.08	0.53	-0.95
11,059.00	91.20	179.80	7,090.14	-3,313.19	-1,430.59	3,313.19	1.13	-1.05	0.42
11,154.00	91.30	180.00	7,088.06	-3,408.16	-1,430.42	3,408.16	0.24	0.11	0.21
11,249.00	91.60	180.20	7,085.66	-3,503.13	-1,430.59	3,503.13	0.38	0.32	0.21
11,343.00	91.50	180.40	7,083.12	-3,597.10	-1,431.08	3,597.10	0.24	-0.11	0.21
11,438.00	92.00	180.70	7,080.22	-3,692.05	-1,431.99	3,692.05	0.61	0.53	0.32
11,533.00	91.10	180.50	7,077.65	-3,787.01	-1,432.99	3,787.01	0.97	-0.95	-0.21
11,628.00	91.50	180.50	7,075.49	-3,881.98	-1,433.81	3,881.98	0.42	0.42	0.00
11,723.00	92.00	180.70	7,072.59	-3,976.93	-1,434.81	3,976.93	0.57	0.53	0.21
11,817.00	91.30	180.00	7,069.88	-4,070.89	-1,435.38	4,070.89	1.05	-0.74	-0.74
11,913.00	91.90	180.10	7,067.20	-4,166.85	-1,435.47	4,166.85	0.63	0.63	0.10
12,008.00	90.90	179.40	7,064.88	-4,261.82	-1,435.05	4,261.82	1.28	-1.05	-0.74
12,101.00	91.10	179.60	7,063.26	-4,354.80	-1,434.24	4,354.80	0.30	0.22	0.22
12,196.00	91.50	179.80	7,061.10	-4,449.78	-1,433.74	4,449.78	0.47	0.42	0.21
12,291.00	92.00	179.50	7,058.20	-4,544.73	-1,433.16	4,544.73	0.61	0.53	-0.32
12,385.00	92.40	178.80	7,054.59	-4,638.65	-1,431.77	4,638.65	0.86	0.43	-0.74
12,480.00	91.50	178.60	7,051.36	-4,733.57	-1,429.62	4,733.57	0.97	-0.95	-0.21

Company:	Chisholm Energy Holdings, LLC	Local Co-ordinate Reference:	Well Cottonwood 28-33 Fed 2BS 5H
Project:	Eddy County, NM (NAD83)	TVD Reference:	KB=22 @ 3406.00ft (Nabors M55)
	Sec 21-T26S-R26E	MD Reference:	KB=22 @ 3406.00ft (Nabors M55)
Well:	Cottonwood 28-33 Fed 2BS 5H	North Reference:	Grid
Wellbore:	Wellbore #2	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #2	Database:	EDM 5000.1

Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
12,575.00	92.10	178.40	7,048.38	-4,828.49	-1,427.13	4,828.49	0.67	0.63	-0.21
12,669.00	90.40	179.10	7,046.33	-4,922.44	-1,425.08	4,922.44	1.96	-1.81	0.74
12,764.00	89.50	178.80	7,046.41	-5,017.42	-1,423.34	5,017.42	1.00	-0.95	-0.32
12,859.00	89.80	179.10	7,046.99	-5,112.40	-1,421.60	5,112.40	0.45	0.32	0.32
12,953.00	89.10	178.40	7,047.89	-5,206.38	-1,419.55	5,206.38	1.05	-0.74	-0.74
13,048.00	89.50	178.30	7,049.05	-5,301.33	-1,416.81	5,301.33	0.43	0.42	-0.11
13,143.00	89.80	178.50	7,049.63	-5,396.29	-1,414.16	5,396.29	0.38	0.32	0.21
13,238.00	90.10	178.50	7,049.72	-5,491.26	-1,411.67	5,491.26	0.32	0.32	0.00
13,332.00	90.50	178.40	7,049.22	-5,585.22	-1,409.13	5,585.22	0.44	0.43	-0.11
13,427.00	90.50	178.50	7,048.40	-5,680.18	-1,406.56	5,680.18	0.11	0.00	0.11
13,522.00	90.80	178.60	7,047.32	-5,775.15	-1,404.16	5,775.15	0.33	0.32	0.11
13,616.00	89.90	179.20	7,046.74	-5,869.13	-1,402.35	5,869.13	1.15	-0.96	0.64
13,711.00	89.50	179.00	7,047.24	-5,964.11	-1,400.86	5,964.11	0.47	-0.42	-0.21
13,806.00	89.60	179.20	7,047.99	-6,059.10	-1,399.37	6,059.10	0.24	0.11	0.21
13,900.00	89.70	179.50	7,048.56	-6,153.09	-1,398.30	6,153.09	0.34	0.11	0.32
13,995.00	90.30	179.60	7,048.56	-6,248.09	-1,397.56	6,248.09	0.64	0.63	0.11
14,089.00	89.20	179.70	7,048.97	-6,342.08	-1,396.98	6,342.08	1.18	-1.17	0.11
14,184.00	89.50	179.80	7,050.05	-6,437.08	-1,396.57	6,437.08	0.33	0.32	0.11
14,254.00	90.00	180.10	7,050.35	-6,507.08	-1,396.51	6,507.08	0.83	0.71	0.43
14,349.00	89.20	180.00	7,051.02	-6,602.07	-1,396.59	6,602.07	0.85	-0.84	-0.11
14,443.00	88.00	179.40	7,053.31	-6,696.04	-1,396.10	6,696.04	1.43	-1.28	-0.64
14,538.00	87.00	179.70	7,057.46	-6,790.95	-1,395.35	6,790.95	1.10	-1.05	0.32
14,584.00	86.50	179.80	7,060.07	-6,836.87	-1,395.15	6,836.87	1.11	-1.09	0.22
Last IDS MWD Survey									
14,657.00	86.50	179.80	7,064.52	-6,909.73	-1,394.90	6,909.73	0.00	0.00	0.00
Projection to TD - 28-33 Fed 2BS 5H BHL									

Design Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
14,584.00	7,060.07	-6,836.87	-1,395.15	Last IDS MWD Survey
14,657.00	7,064.52	-6,909.73	-1,394.90	Projection to TD

Checked By: _____ Approved By: _____ Date: _____