

NM OIL CONSERVATION
ARTESIA DISTRICT

JAN 22 2018

RECEIVED

Chisholm Energy Holdings, LLC

Eddy County, NM (NAD83)

Sec 21-T26S-R26E

Cottonwood 28-33 Fed WCA 3H

Wellbore #2

Design: Wellbore #2

Standard Survey Report

18 October, 2017

Integrity Directional Services, LLC

Survey Report

Company:	Chisholm Energy Holdings, LLC	Local Coordinate Reference:	Well Cottonwood 28-33 Fed WCA 3H
Project:	Eddy County, NM (NAD83)	TVD Reference:	KB=22' @ 3406.00ft (Nabors M55)
Site:	Sec 21-T26S-R26E	MD Reference:	KB=22' @ 3406.00ft (Nabors M55)
Well:	Cottonwood 28-33 Fed WCA 3H	North Reference:	Grid
Wellbore:	Wellbore #2	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #2	Database:	EDM 5000.1 Multi User Db

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 WCA 3H		
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:	-104.292598
		Ground Level:	3,384.00 ft

Wellbore:	Wellbore #2		
Magnetic	Model Name	Sample Date	Declination
			(°)
	HDGM	10/6/2017	7.45
			Dip Angle
			(°)
			Field Strength
			(mT)
			59.65
			47,890

Design:	Wellbore #2		
Audit Notes:			
Version:	1.0	Phase:	ACTUAL
		Tie On Depth:	7,718.00
Vertical Section:	Depth From (TVD)	N/S	E/W
	(ft)	(ft)	(ft)
	0.00	0.00	0.00
			Direction
			(°)
			183.95

Survey Program	Date: 10/18/2017		
From	To	Survey (Wellbore)	Tool Name
(m)	(m)		
454.00	7,718.00	IDS MWD Survey (Wellbore #1)	MWD
7,748.00	15,780.00	IDS MWD Surveys (Wellbore #2)	MWD
			Description
			MWD - Standard
			MWD - Standard

Survey										
Measured	Inclination	Azimuth	Vertical	N/S	E/W	Vertical	Dogleg	Build	Turn	
Depth	(°)	(°)	Depth	(ft)	(ft)	Depth	Rate	Rate	Rate	
(ft)			(ft)			(ft)	(°/100ft)	(°/100ft)	(°/100ft)	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
454.00	0.20	215.40	454.00	-0.65	-0.46	0.68	0.04	0.04	0.00	
545.00	0.20	219.10	545.00	-0.90	-0.65	0.94	0.01	0.00	4.07	
664.00	0.30	231.00	664.00	-1.26	-1.02	1.32	0.09	0.08	10.00	
761.00	0.50	230.50	760.99	-1.68	-1.55	1.79	0.21	0.21	-0.52	
857.00	1.00	245.90	856.99	-2.29	-2.64	2.47	0.56	0.52	16.04	
951.00	0.70	239.80	950.98	-2.92	-3.88	3.18	0.33	-0.32	-6.49	
1,047.00	1.10	234.00	1,046.96	-3.75	-5.13	4.10	0.43	0.42	-6.04	
1,142.00	0.40	228.10	1,141.96	-4.51	-6.12	4.92	0.74	-0.74	-6.21	
1,237.00	0.40	194.50	1,236.95	-5.05	-6.45	5.49	0.24	0.00	-35.37	

Integrity Directional Services, LLC

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Site:	Sec 21-T26S-R26E	MD Reference:	KB=22' @ 3406.00ft (Nabors M55)
Well:	Cottonwood 28-33 Fed WCA 3H	North Reference:	Grid
Wellbore:	Wellbore #2	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #2	Database:	EDM 5000.1 Multi User Db

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	WV (ft)	WZ (ft)	Vertical Section (ft)	Dogleg Rate (°/1000ft)	Bulld Rate (°/1000ft)	Turn Rate (°/1000ft)
1,332.00	0.50	196.80	1,331.95	-5.77	-6.65	6.22	0.11	0.11	2.42
1,426.00	1.10	127.90	1,425.94	-6.72	-6.06	7.12	1.10	0.64	-73.30
1,522.00	2.20	110.70	1,521.90	-7.94	-3.61	8.17	1.24	1.15	-17.92
1,617.00	0.80	140.80	1,616.87	-9.09	-1.48	9.17	1.64	-1.47	31.68
1,712.00	0.70	164.00	1,711.86	-10.17	-0.90	10.20	0.33	-0.11	24.42
1,807.00	0.80	164.20	1,806.85	-11.36	-0.56	11.37	0.11	0.11	0.21
1,902.00	0.60	172.20	1,901.84	-12.49	-0.31	12.49	0.23	-0.21	8.42
1,996.00	0.70	183.50	1,995.84	-13.55	-0.28	13.54	0.17	0.11	12.02
2,091.00	0.50	187.50	2,090.83	-14.54	-0.37	14.54	0.21	-0.21	4.21
2,184.00	0.70	211.30	2,183.83	-15.43	-0.72	15.44	0.34	0.22	25.59
2,279.00	0.60	205.60	2,278.82	-16.38	-1.24	16.42	0.13	-0.11	-6.00
2,374.00	0.80	189.50	2,373.82	-17.48	-1.56	17.54	0.29	0.21	-16.95
2,469.00	1.10	194.70	2,468.80	-19.02	-1.90	19.10	0.33	0.32	5.47
2,564.00	1.30	199.10	2,563.78	-20.92	-2.49	21.04	0.23	0.21	4.63
2,658.00	1.50	210.30	2,657.75	-22.99	-3.45	23.17	0.36	0.21	11.91
2,753.00	1.10	269.60	2,752.73	-24.07	-4.99	24.35	1.40	-0.42	62.42
2,848.00	1.00	282.30	2,847.72	-23.90	-6.72	24.30	0.27	-0.11	13.37
2,943.00	1.00	273.90	2,942.70	-23.66	-8.35	24.18	0.15	0.00	-8.84
3,038.00	1.10	264.10	3,037.69	-23.70	-10.09	24.34	0.22	0.11	-10.32
3,133.00	1.50	260.10	3,132.66	-24.01	-12.22	24.79	0.43	0.42	-4.21
3,228.00	1.40	261.60	3,227.63	-24.39	-14.59	25.34	0.11	-0.11	1.58
3,324.00	1.80	255.10	3,323.59	-24.95	-17.21	26.08	0.46	0.42	-6.77
3,418.00	1.30	263.60	3,417.56	-25.45	-19.70	26.75	0.58	-0.53	9.04
3,513.00	1.10	264.30	3,512.54	-25.66	-21.67	27.09	0.21	-0.21	0.74
3,608.00	1.20	266.90	3,607.52	-25.80	-23.57	27.37	0.12	0.11	2.74
3,702.00	1.10	270.20	3,701.50	-25.85	-25.46	27.55	0.13	-0.11	3.51
3,797.00	1.10	251.40	3,796.48	-26.14	-27.24	27.96	0.38	0.00	-19.79
3,892.00	1.40	255.70	3,891.46	-26.72	-29.22	28.67	0.33	0.32	4.53
3,987.00	1.30	255.70	3,986.43	-27.27	-31.39	29.37	0.11	-0.11	0.00
4,082.00	1.50	256.30	4,081.41	-27.83	-33.65	30.09	0.21	0.21	0.63
4,178.00	1.30	250.80	4,177.38	-28.49	-35.89	30.89	0.25	-0.21	-5.73
4,272.00	1.40	257.10	4,271.35	-29.09	-38.02	31.65	0.19	0.11	6.70
4,367.00	1.20	254.10	4,366.33	-29.63	-40.11	32.32	0.22	-0.21	-3.16
4,462.00	1.20	245.90	4,461.31	-30.30	-41.97	33.13	0.18	0.00	-8.63
4,556.00	1.20	240.60	4,555.29	-31.19	-43.73	34.13	0.12	0.00	-5.64
4,651.00	1.10	243.00	4,650.27	-32.09	-45.41	35.15	0.12	-0.11	2.53
4,746.00	1.40	240.30	4,745.24	-33.08	-47.23	36.26	0.32	0.32	-2.84
4,841.00	1.50	233.70	4,840.21	-34.39	-49.24	37.71	0.20	0.11	-6.95
4,936.00	1.30	239.80	4,935.18	-35.67	-51.17	39.11	0.26	-0.21	6.42
5,030.00	1.40	236.10	5,029.16	-36.85	-53.05	40.42	0.14	0.11	-3.94
5,125.00	1.60	239.50	5,124.13	-38.17	-55.15	41.88	0.23	0.21	3.58
5,221.00	1.80	247.30	5,220.08	-39.43	-57.70	43.32	0.32	0.21	8.13
5,315.00	1.80	245.10	5,314.04	-40.62	-60.40	44.69	0.07	0.00	-2.34

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Design:	Wellbore #2	Database:	EDM 5000.1 Multi User Db

Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/S (ft)	+E/W (ft)	Vertical Section (ft)	Doped Rate (ft/1000ft)	Build Rate (ft/1000ft)	Turn Rate (ft/1000ft)
5,444.00	1.80	248.70	5,442.97	-42.21	-64.13	46.53	0.09	0.00	2.79
5,539.00	0.90	328.30	5,537.95	-42.12	-65.91	46.56	1.96	-0.95	83.79
5,634.00	0.60	330.80	5,632.94	-41.05	-66.54	45.54	0.32	-0.32	2.63
5,729.00	0.70	348.60	5,727.94	-40.05	-66.90	44.56	0.24	0.11	18.74
5,824.00	0.50	351.50	5,822.93	-39.07	-67.08	43.60	0.21	-0.21	3.05
5,919.00	0.90	358.80	5,917.93	-37.91	-67.15	42.45	0.43	0.42	7.68
6,014.00	1.40	21.20	6,012.91	-36.08	-66.75	40.60	0.70	0.53	23.58
6,108.00	1.50	32.70	6,106.88	-33.98	-65.67	38.42	0.33	0.11	12.23
6,203.00	1.50	16.10	6,201.84	-31.74	-64.65	36.12	0.46	0.00	-17.47
6,298.00	1.00	9.00	6,296.82	-29.72	-64.18	34.08	0.55	-0.53	-7.47
6,393.00	1.00	14.40	6,391.81	-28.10	-63.84	32.44	0.10	0.00	5.68
6,488.00	0.90	10.70	6,486.79	-26.56	-63.50	30.88	0.12	-0.11	-3.89
6,582.00	0.80	30.50	6,580.78	-25.27	-63.03	29.56	0.33	-0.11	21.06
6,676.00	0.70	33.00	6,674.78	-24.23	-62.38	28.47	0.11	-0.11	2.66
6,771.00	0.20	31.40	6,769.77	-23.60	-61.98	27.82	0.53	-0.53	-1.68
6,865.00	0.40	17.20	6,863.77	-23.14	-61.80	27.35	0.23	0.21	-15.11
6,961.00	0.40	54.60	6,959.77	-22.63	-61.42	26.81	0.27	0.00	38.96
7,055.00	0.80	80.80	7,053.76	-22.34	-60.51	26.46	0.51	0.43	27.87
7,150.00	1.00	82.80	7,148.75	-22.13	-59.03	26.14	0.21	0.21	2.11
7,245.00	0.80	84.40	7,243.74	-21.96	-57.55	25.87	0.21	-0.21	1.68
7,339.00	1.00	66.20	7,337.73	-21.56	-56.15	25.38	0.37	0.21	-19.36
7,433.00	0.70	94.50	7,431.72	-21.28	-54.82	25.01	0.54	-0.32	30.11
7,528.00	0.40	84.90	7,526.72	-21.29	-53.91	24.96	0.33	-0.32	-10.11
7,623.00	0.40	123.50	7,621.71	-21.45	-53.31	25.07	0.28	0.00	40.63
7,718.00	0.50	169.80	7,716.71	-22.04	-52.96	25.64	0.38	0.11	48.74
7,748.00	0.80	248.60	7,746.71	-22.24	-53.13	25.85	2.86	1.00	262.67
7,780.00	4.00	268.10	7,778.68	-22.36	-54.45	26.06	10.18	10.00	60.94
7,812.00	7.70	265.70	7,810.50	-22.56	-57.71	26.48	11.59	11.56	-7.50
7,843.00	9.90	273.10	7,841.14	-22.57	-62.44	26.82	7.97	7.10	23.87
7,875.00	11.90	280.80	7,872.56	-21.80	-68.43	26.47	7.72	6.25	24.06
7,906.00	15.20	279.50	7,902.69	-20.53	-75.58	25.70	10.69	10.65	-4.19
7,938.00	15.50	282.00	7,933.55	-18.95	-83.90	24.69	2.27	0.94	7.81
7,969.00	16.60	275.50	7,963.35	-17.67	-92.36	23.99	6.79	3.55	-20.97
8,001.00	19.80	271.60	7,993.74	-17.08	-102.33	24.09	10.69	10.00	-12.19
8,032.00	23.00	272.10	8,022.60	-16.71	-113.63	24.50	10.34	10.32	1.61
8,064.00	26.20	273.60	8,051.69	-16.03	-126.93	24.75	10.19	10.00	4.69
8,095.00	29.40	273.50	8,079.11	-15.14	-141.36	24.85	10.32	10.32	-0.32
8,127.00	33.00	274.00	8,106.48	-14.05	-157.90	24.91	11.28	11.25	1.56
8,159.00	36.80	272.40	8,132.72	-13.04	-176.18	25.16	12.21	11.88	-5.00
8,190.00	40.50	269.80	8,156.93	-12.69	-195.53	26.14	13.03	11.94	-8.39
8,222.00	44.00	266.30	8,180.61	-13.44	-217.02	28.38	13.18	10.94	-10.94
8,253.00	46.80	261.60	8,202.39	-15.79	-238.95	32.23	14.07	9.03	-15.16
8,285.00	49.60	256.80	8,223.72	-20.28	-262.37	38.32	14.19	8.75	-15.00

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8,317.00	51.70	252.00	8,244.02	-26.94	-286.18	46.62	13.32	6.56	-15.00	
8,348.00	53.70	247.20	8,262.81	-35.55	-309.28	56.79	13.90	6.45	-15.48	
8,380.00	54.80	244.40	8,281.51	-46.19	-332.96	69.05	7.89	3.44	-8.75	
8,412.00	55.80	241.10	8,299.73	-58.24	-356.34	82.68	9.04	3.13	-10.31	
8,444.00	57.10	238.00	8,317.41	-71.76	-379.32	97.75	9.04	4.06	-9.69	
8,475.00	58.40	235.10	8,333.96	-86.21	-401.19	113.67	8.95	4.19	-9.35	
8,507.00	59.30	232.00	8,350.51	-102.48	-423.21	131.43	8.75	2.81	-9.69	
8,539.00	59.90	227.70	8,366.71	-120.27	-444.30	150.63	11.74	1.88	-13.44	
8,568.00	60.50	223.70	8,381.13	-137.85	-462.30	169.40	12.15	2.07	-13.79	
8,600.00	61.10	219.90	8,396.74	-158.67	-480.92	191.46	10.53	1.88	-11.88	
8,632.00	61.50	215.40	8,412.12	-180.88	-498.05	214.80	12.40	1.25	-14.06	
8,663.00	62.40	212.20	8,426.70	-203.62	-513.27	238.53	9.56	2.90	-10.32	
8,695.00	63.40	208.90	8,441.28	-228.14	-527.74	264.00	9.70	3.13	-10.31	
8,727.00	64.10	205.50	8,455.43	-253.67	-540.85	290.36	9.78	2.19	-10.63	
8,758.00	66.50	201.90	8,468.39	-279.45	-552.16	316.87	13.08	7.74	-11.61	
8,790.00	69.30	198.30	8,480.43	-307.29	-562.34	345.34	13.61	8.75	-11.25	
8,822.00	72.30	194.20	8,490.96	-336.29	-570.78	374.86	15.31	9.38	-12.81	
8,854.00	75.60	190.50	8,499.81	-366.33	-577.35	405.27	15.16	10.31	-11.56	
8,885.00	79.40	188.00	8,506.52	-396.19	-582.21	435.40	14.57	12.26	-8.06	
8,917.00	83.40	185.20	8,511.30	-427.61	-585.84	467.00	15.20	12.50	-8.75	
8,986.00	89.30	180.90	8,515.70	-496.33	-589.49	535.80	10.57	8.55	-6.23	
9,081.00	92.60	182.40	8,514.12	-591.26	-592.23	630.69	3.82	3.47	1.58	
9,176.00	93.60	180.20	8,508.98	-686.09	-594.38	725.45	2.54	1.05	-2.32	
9,270.00	92.90	177.90	8,503.65	-779.92	-592.83	818.94	2.55	-0.74	-2.45	
9,364.00	92.70	177.00	8,499.06	-873.71	-588.65	912.23	0.98	-0.21	-0.96	
9,459.00	91.20	176.10	8,495.83	-968.48	-582.93	1,006.38	1.84	-1.58	-0.95	
9,553.00	88.00	175.60	8,496.48	-1,062.22	-576.13	1,099.42	3.45	-3.40	-0.53	
9,648.00	87.60	176.10	8,500.13	-1,156.90	-569.26	1,193.40	0.67	-0.42	0.53	
9,742.00	88.50	175.00	8,503.33	-1,250.56	-561.97	1,286.34	1.51	0.96	-1.17	
9,837.00	89.70	175.50	8,504.82	-1,345.22	-554.11	1,380.23	1.37	1.26	0.53	
9,931.00	90.80	175.80	8,504.41	-1,438.95	-546.98	1,473.24	1.21	1.17	0.32	
10,025.00	91.60	176.50	8,502.44	-1,532.71	-540.67	1,566.35	1.13	0.85	0.74	
10,119.00	91.90	177.40	8,499.57	-1,626.53	-535.67	1,659.60	1.01	0.32	0.96	
10,214.00	91.60	178.30	8,496.67	-1,721.42	-532.11	1,754.02	1.00	-0.32	0.95	
10,309.00	92.30	178.40	8,493.44	-1,816.33	-529.37	1,848.51	0.74	0.74	0.11	
10,405.00	91.50	178.40	8,490.26	-1,912.24	-526.69	1,944.01	0.83	-0.83	0.00	
10,500.00	89.80	179.30	8,489.18	-2,007.21	-524.79	2,038.62	2.02	-1.79	0.95	
10,594.00	89.60	180.50	8,489.67	-2,101.20	-524.62	2,132.38	1.29	-0.21	1.28	
10,689.00	90.30	181.10	8,489.75	-2,196.19	-525.95	2,227.24	0.97	0.74	0.63	
10,784.00	90.50	181.40	8,489.09	-2,291.17	-528.02	2,322.13	0.38	0.21	0.32	
10,879.00	90.00	181.60	8,488.68	-2,386.13	-530.51	2,417.04	0.57	-0.53	0.21	
10,974.00	90.60	181.30	8,488.18	-2,481.10	-532.91	2,511.95	0.71	0.63	-0.32	
11,068.00	91.60	182.10	8,486.37	-2,575.04	-535.70	2,605.86	1.36	1.06	0.85	
11,163.00	91.80	181.70	8,483.55	-2,669.95	-538.85	2,700.75	0.47	0.21	-0.42	

Integrity Directional Services, LLC

Survey Report

Company:	Chisholm Energy Holdings, LLC	Local Coordinates Reference:	Well Cottonwood 28-33 Fed WCA 3H
Project:	Eddy County, NM (NAD83)	TVD Reference:	KB=22' @ 3406.00ft (Nabors M55)
Site:	Sec 21-T26S-R26E	MD Reference:	KB=22' @ 3406.00ft (Nabors M55)
Well:	Cottonwood 28-33 Fed WCA 3H	North Reference:	Grid
Wellbore:	Wellbore #2	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #2	Database:	EDM 5000.1 Multi User Db

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	True Vertical Depth (ft)	True Horizontal Depth (ft)	Vertical Section (ft)	Dogleg Rate (°/1000ft)	Build Rate (°/1000ft)	Turn Rate (°/1000ft)
11,258.00	90.40	180.00	8,481.73	-2,764.91	-540.26	2,795.59	2.32	-1.47	-1.79
11,353.00	90.20	180.20	8,481.23	-2,859.91	-540.42	2,890.37	0.30	-0.21	0.21
11,448.00	89.50	180.20	8,481.48	-2,954.91	-540.76	2,985.17	0.74	-0.74	0.00
11,542.00	88.70	180.40	8,482.96	-3,048.90	-541.25	3,078.96	0.88	-0.85	0.21
11,636.00	90.10	180.20	8,483.94	-3,142.89	-541.74	3,172.77	1.50	1.49	-0.21
11,731.00	91.60	179.90	8,482.53	-3,237.87	-541.82	3,267.53	1.61	1.58	-0.32
11,827.00	92.00	179.50	8,479.52	-3,333.83	-541.32	3,363.22	0.59	0.42	-0.42
11,921.00	91.90	178.40	8,476.32	-3,427.75	-539.60	3,456.81	1.17	-0.11	-1.17
12,016.00	92.60	178.70	8,472.59	-3,522.65	-537.20	3,551.31	0.80	0.74	0.32
12,110.00	92.20	178.90	8,468.65	-3,616.55	-535.23	3,644.85	0.48	-0.43	0.21
12,205.00	91.70	178.80	8,465.42	-3,711.47	-533.32	3,739.42	0.54	-0.53	-0.11
12,301.00	92.00	179.20	8,462.32	-3,807.41	-531.65	3,835.01	0.52	0.31	0.42
12,396.00	92.00	179.20	8,459.01	-3,902.34	-530.32	3,929.62	0.00	0.00	0.00
12,491.00	91.80	179.40	8,455.86	-3,997.28	-529.16	4,024.26	0.30	-0.21	0.21
12,586.00	90.60	179.80	8,453.87	-4,092.26	-528.50	4,118.96	1.33	-1.26	0.42
12,681.00	89.20	179.30	8,454.03	-4,187.25	-527.76	4,213.68	1.56	-1.47	-0.53
12,776.00	90.10	179.60	8,454.61	-4,282.24	-526.84	4,308.38	1.00	0.95	0.32
12,871.00	90.80	178.60	8,453.87	-4,377.23	-525.35	4,403.03	1.28	0.74	-1.05
12,966.00	90.30	179.00	8,452.96	-4,472.20	-523.36	4,497.65	0.67	-0.53	0.42
13,060.00	90.20	179.50	8,452.55	-4,566.19	-522.13	4,591.33	0.54	-0.11	0.53
13,155.00	91.60	179.50	8,451.05	-4,661.17	-521.30	4,686.03	1.47	1.47	0.00
13,249.00	88.40	179.20	8,451.05	-4,755.15	-520.24	4,779.71	3.42	-3.40	-0.32
13,344.00	90.20	179.40	8,452.21	-4,850.14	-519.08	4,874.39	1.91	1.89	0.21
13,439.00	88.30	178.90	8,453.46	-4,945.11	-517.67	4,969.04	2.07	-2.00	-0.53
13,533.00	86.90	178.40	8,457.39	-5,039.00	-515.45	5,062.55	1.58	-1.49	-0.53
13,628.00	85.60	177.70	8,463.61	-5,133.74	-512.23	5,156.84	1.55	-1.37	-0.74
13,723.00	87.60	178.80	8,469.24	-5,228.52	-509.33	5,251.20	2.40	2.11	1.16
13,817.00	89.20	178.80	8,471.87	-5,322.46	-507.37	5,344.78	1.70	1.70	0.00
13,912.00	90.90	179.40	8,471.78	-5,417.45	-505.87	5,439.44	1.90	1.79	0.63
14,007.00	92.10	180.20	8,469.30	-5,512.41	-505.54	5,534.15	1.52	1.26	0.84
14,102.00	89.60	179.80	8,467.89	-5,607.39	-505.54	5,628.91	2.67	-2.63	-0.42
14,197.00	93.50	180.90	8,465.32	-5,702.34	-506.12	5,723.67	4.27	4.11	1.16
14,292.00	93.60	180.60	8,459.43	-5,797.15	-507.36	5,818.33	0.33	0.11	-0.32
14,387.00	89.20	178.50	8,457.11	-5,892.09	-506.62	5,913.00	5.13	-4.63	-2.21
14,482.00	88.40	177.90	8,459.10	-5,987.02	-503.63	6,007.50	1.05	-0.84	-0.63
14,577.00	89.20	178.10	8,461.09	-6,081.94	-500.32	6,101.96	0.87	0.84	0.21
14,672.00	91.60	178.70	8,460.43	-6,176.89	-497.67	6,196.51	2.60	2.53	0.63
14,767.00	92.70	179.60	8,456.87	-6,271.81	-496.26	6,291.10	1.50	1.16	0.95
14,862.00	92.10	179.90	8,452.89	-6,366.73	-495.84	6,385.76	0.71	-0.63	0.32
14,958.00	90.10	179.90	8,451.04	-6,462.70	-495.68	6,481.50	2.08	-2.08	0.00
15,052.00	90.30	180.00	8,450.72	-6,556.70	-495.59	6,575.27	0.24	0.21	0.11
15,147.00	89.20	180.00	8,451.13	-6,651.70	-495.59	6,670.04	1.16	-1.16	0.00
15,242.00	93.20	180.80	8,449.14	-6,746.66	-496.26	6,764.82	4.29	4.21	0.84

Integrity Directional Services, LLC

Survey Report

Company:	Chisholm Energy Holdings, LLC	Local Coordinate Reference:	Well Cottonwood 28-33 Fed WCA 3H
Project:	Eddy County, NM (NAD83)	TVD Reference:	KB=22' @ 3406.00ft (Nabors M55)
Site:	Sec 21-T26S-R26E	MD Reference:	KB=22' @ 3406.00ft (Nabors M55)
Well:	Cottonwood 28-33 Fed WCA 3H	North Reference:	Grid
Wellbore:	Wellbore #2	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #2	Database:	EDM 5000.1 Multi User Db

Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	N/A (ft)	E/W (ft)	Vertical Section (ft)	Dogleg Rate (°/100usft)	Bulld Rate (°/100usft)	Turn Rate (°/100usft)
15,337.00	93.50	181.20	8,443.59	-6,841.48	-497.91	6,859.53	0.53	0.32	0.42
15,432.00	92.40	181.40	8,438.70	-6,936.33	-500.06	6,954.30	1.18	-1.16	0.21
15,527.00	87.90	181.00	8,438.45	-7,031.28	-502.05	7,049.17	4.76	-4.74	-0.42
15,622.00	88.10	180.60	8,441.77	-7,126.22	-503.38	7,143.97	0.47	0.21	-0.42
15,692.00	86.40	180.10	8,445.13	-7,196.13	-503.80	7,213.74	2.53	-2.43	-0.71
Last IDS MWD Survey									
15,780.00	86.40	180.10	8,450.65	-7,283.96	-503.96	7,301.37	0.00	0.00	0.00
Projection to TD - 28-33 Fed WCA 3H BHL									

Design Annotations				
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		N/A (ft)	E/W (ft)	
15,692.00	8,445.13	-7,196.13	-503.80	Last IDS MWD Survey
15,780.00	8,450.65	-7,283.96	-503.96	Projection to TD

Checked By: _____	Approved By: _____	Date: _____
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