



CHISHOLM
ENERGY

Chisholm Energy

Eddy Co, NM

Dark Canyon SWD

Dark Canyon SWD #1

30-015-45033

SWD #1

NM OIL CONSERVATION
ARTESIA DISTRICT

FEB 26 2019

Design: SWD #1

RECEIVED

Standard Survey Report

19 February, 2019

gyro/data

Company: Chisholm Energy
Project: Eddy Co, NM
Site: Dark Canyon SWD
Well: Dark Canyon SWD #1
Wellbore: SWD #1
Design: SWD #1

Local Co-ordinate Reference: Well Dark Canyon SWD #1
TVD Reference: GE=3252+KB=23.5 @ 3275.50usft
MD Reference: GE=3252+KB=23.5 @ 3275.50usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: Gyrodata NWDB

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

Site	Dark Canyon SWD				
Site Position:		Northing:	467,624.10 usft	Latitude:	32° 17' 7.980952 N
From:	Map	Easting:	564,591.10 usft	Longitude:	104° 15' 29.104910 W
Position Uncertainty:	0.00 usft	Slot Radius:	13.20 in	Grid Convergence:	0.04 °

Well	Dark Canyon SWD #1				
Well Position	+N/-S	0.00 usft	Northing:	467,624.10 usft	Latitude: 32° 17' 7.980952 N
	+E/-W	0.00 usft	Easting:	564,591.10 usft	Longitude: 104° 15' 29.104910 W
Position Uncertainty	0.00 usft		Wellhead Elevation:	usft	Ground Level: 3,252.00 usft

Wellbore	SWD #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	HDGM-2019	01/12/19	7.34	60.00	47,886.51

Design	SWD #1				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)	
	0.00	0.00	0.00	0.00	

Survey Program	Date 02/19/19				
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
177.00	13,713.00	Survey #1 (SWD #1)	MWD+HRGM+AX	OWSG MWD + HRGM + Axial Correction	

Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100ft)	Bulld Rate (°/100ft)	Turn Rate (°/100ft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
177.00	0.67	163.46	177.00	-0.99	0.29	-0.99	0.38	0.38	0.00
205.00	0.73	163.33	204.99	-1.32	0.39	-1.32	0.21	0.21	-0.46
400.00	1.05	67.40	399.98	-1.82	2.40	-1.82	0.69	0.16	-49.19
530.00	1.40	137.71	529.95	-2.54	4.57	-2.54	1.11	0.27	54.08
617.00	1.17	58.99	616.94	-2.87	6.04	-2.87	1.88	-0.26	-90.48
777.00	1.93	68.43	776.88	-1.04	9.95	-1.04	0.50	0.47	5.90
873.00	2.34	69.44	872.81	0.25	13.29	0.25	0.43	0.43	1.05
968.00	2.12	69.11	967.74	1.55	16.74	1.55	0.23	-0.23	-0.35
1,064.00	0.26	141.19	1,063.72	2.02	18.54	2.02	2.14	-1.94	75.08

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Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
1,159.00	0.23	185.62	1,158.72	1.66	18.66	1.66	0.20	-0.03	46.77
1,254.00	0.22	177.03	1,253.72	1.29	18.65	1.29	0.04	-0.01	-9.04
1,350.00	0.22	189.08	1,349.72	0.92	18.63	0.92	0.05	0.00	12.55
1,445.00	0.24	175.59	1,444.71	0.54	18.61	0.54	0.06	0.02	-14.20
1,540.00	0.20	193.04	1,539.71	0.18	18.59	0.18	0.08	-0.04	18.37
1,636.00	0.11	214.00	1,635.71	-0.06	18.50	-0.06	0.11	-0.09	21.83
1,730.00	0.13	270.30	1,729.71	-0.13	18.35	-0.13	0.12	0.02	59.89
1,826.00	0.12	242.64	1,825.71	-0.18	18.15	-0.18	0.06	-0.01	-28.81
1,921.00	0.06	197.31	1,920.71	-0.27	18.04	-0.27	0.09	-0.06	-47.72
2,016.00	0.10	178.94	2,015.71	-0.40	18.03	-0.40	0.05	0.04	-19.34
2,111.00	0.10	147.44	2,110.71	-0.55	18.08	-0.55	0.06	0.00	-33.16
2,207.00	0.08	164.89	2,206.71	-0.69	18.14	-0.69	0.04	-0.02	18.18
2,302.00	0.08	180.10	2,301.71	-0.82	18.16	-0.82	0.02	0.00	16.01
2,398.00	0.07	217.28	2,397.71	-0.93	18.12	-0.93	0.05	-0.01	38.73
2,493.00	0.08	267.06	2,492.71	-0.98	18.02	-0.98	0.07	0.01	52.40
2,588.00	0.43	263.21	2,587.71	-1.03	17.60	-1.03	0.37	0.37	-4.05
2,683.00	0.10	311.20	2,682.71	-1.02	17.18	-1.02	0.39	-0.35	50.52
2,778.00	0.12	296.60	2,777.71	-0.92	17.03	-0.92	0.04	0.02	-15.37
2,873.00	0.08	309.04	2,872.71	-0.83	16.89	-0.83	0.05	-0.04	13.09
2,968.00	0.08	246.56	2,967.71	-0.81	16.78	-0.81	0.09	0.00	-65.77
3,062.00	0.08	247.88	3,061.71	-0.87	16.66	-0.87	0.00	0.00	1.40
3,158.00	0.05	272.19	3,157.71	-0.89	16.55	-0.89	0.04	-0.03	25.32
3,253.00	0.08	252.47	3,252.71	-0.91	16.45	-0.91	0.04	0.03	-20.76
3,348.00	0.01	24.22	3,347.71	-0.92	16.39	-0.92	0.09	-0.07	138.68
3,444.00	0.03	140.52	3,443.71	-0.93	16.41	-0.93	0.04	0.02	121.15
3,539.00	0.12	173.09	3,538.71	-1.05	16.44	-1.05	0.10	0.09	34.28
3,634.00	0.03	187.48	3,633.71	-1.17	16.45	-1.17	0.10	-0.09	15.15
3,730.00	0.08	111.89	3,729.71	-1.22	16.50	-1.22	0.08	0.05	-78.74
3,825.00	0.10	166.76	3,824.71	-1.33	16.59	-1.33	0.09	0.02	57.76
3,920.00	0.07	171.35	3,919.71	-1.47	16.61	-1.47	0.03	-0.03	4.83
4,015.00	0.03	252.83	4,014.71	-1.53	16.60	-1.53	0.08	-0.04	85.77
4,111.00	0.04	6.95	4,110.71	-1.50	16.58	-1.50	0.06	0.01	118.87
4,206.00	0.03	216.71	4,205.71	-1.49	16.57	-1.49	0.07	-0.01	-158.15
4,301.00	0.07	297.75	4,300.71	-1.48	16.50	-1.48	0.08	0.04	85.31
4,396.00	0.07	315.58	4,395.71	-1.42	16.41	-1.42	0.02	0.00	18.77
4,492.00	0.02	203.87	4,491.71	-1.39	16.36	-1.39	0.08	-0.05	-116.36
4,587.00	0.03	313.30	4,586.71	-1.39	16.34	-1.39	0.04	0.01	115.19
4,682.00	0.08	300.84	4,681.71	-1.34	16.26	-1.34	0.05	0.05	-13.12
4,777.00	0.08	317.14	4,776.71	-1.25	16.16	-1.25	0.02	0.00	17.16
4,871.00	0.09	337.04	4,870.71	-1.14	16.09	-1.14	0.03	0.01	21.17
4,966.00	0.03	290.39	4,965.71	-1.06	16.03	-1.06	0.08	-0.06	-49.11
5,061.00	0.07	336.88	5,060.71	-1.00	15.99	-1.00	0.06	0.04	48.94
5,157.00	0.02	30.75	5,156.71	-0.93	15.97	-0.93	0.06	-0.05	56.11
5,254.00	0.08	4.29	5,253.71	-0.85	15.99	-0.85	0.06	0.06	-27.28

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Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100ft)	Bulld Rate (°/100ft)	Turn Rate (°/100ft)
5,349.00	0.06	16.44	5,348.71	-0.73	16.01	-0.73	0.03	-0.02	12.79
5,442.00	0.06	44.98	5,441.71	-0.65	16.05	-0.65	0.03	0.00	30.69
5,537.00	0.04	38.65	5,536.71	-0.59	16.11	-0.59	0.02	-0.02	-6.66
5,633.00	0.06	193.47	5,632.71	-0.61	16.12	-0.61	0.10	0.02	161.27
5,728.00	0.02	149.99	5,727.71	-0.68	16.12	-0.68	0.05	-0.04	-45.77
5,824.00	0.13	209.45	5,823.71	-0.79	16.07	-0.79	0.13	0.11	61.94
5,918.00	0.17	189.85	5,917.71	-1.02	15.99	-1.02	0.07	0.04	-20.85
6,014.00	0.14	165.40	6,013.71	-1.27	16.00	-1.27	0.07	-0.03	-25.47
6,109.00	0.13	158.27	6,108.71	-1.48	16.07	-1.48	0.02	-0.01	-7.51
6,204.00	0.14	189.91	6,203.71	-1.70	16.09	-1.70	0.08	0.01	33.31
6,299.00	0.14	244.28	6,298.71	-1.86	15.96	-1.86	0.13	0.00	57.23
6,394.00	0.06	215.16	6,393.71	-1.95	15.83	-1.95	0.10	-0.08	-30.65
6,490.00	0.42	141.87	6,489.71	-2.27	16.02	-2.27	0.42	0.37	-76.34
6,585.00	0.68	160.77	6,584.70	-3.08	16.42	-3.08	0.33	0.27	19.89
6,680.00	1.47	164.41	6,679.68	-4.78	16.93	-4.78	0.83	0.83	3.83
6,776.00	1.87	169.74	6,775.64	-7.51	17.54	-7.51	0.45	0.42	5.55
6,871.00	2.12	163.59	6,870.59	-10.72	18.32	-10.72	0.35	0.26	-6.47
6,967.00	2.62	166.10	6,966.50	-14.56	19.34	-14.56	0.53	0.52	2.61
7,062.00	2.42	167.36	7,061.41	-18.62	20.30	-18.62	0.22	-0.21	1.33
7,157.00	1.87	170.02	7,156.34	-22.10	21.01	-22.10	0.59	-0.58	2.80
7,252.00	1.68	168.76	7,251.30	-25.00	21.55	-25.00	0.20	-0.20	-1.33
7,348.00	1.36	162.24	7,347.26	-27.46	22.17	-27.46	0.38	-0.33	-6.79
7,443.00	1.84	174.68	7,442.23	-30.05	22.66	-30.05	0.62	0.51	13.09
7,539.00	1.97	166.74	7,538.18	-33.19	23.18	-33.19	0.31	0.14	-8.27
7,634.00	1.94	165.76	7,633.12	-36.34	23.95	-36.34	0.05	-0.03	-1.03
7,729.00	2.75	164.59	7,728.04	-40.10	24.95	-40.10	0.85	0.85	-1.23
7,824.00	2.34	159.86	7,822.95	-44.12	26.23	-44.12	0.48	-0.43	-4.98
7,920.00	1.30	159.89	7,918.90	-46.98	27.27	-46.98	1.08	-1.08	0.03
8,013.00	0.74	214.92	8,011.88	-48.46	27.29	-48.46	1.15	-0.60	59.17
8,106.00	0.60	236.49	8,104.88	-49.22	26.54	-49.22	0.31	-0.15	23.19
8,202.00	0.91	241.71	8,200.87	-49.86	25.45	-49.86	0.33	0.32	5.44
8,297.00	1.33	244.62	8,295.85	-50.69	23.79	-50.69	0.45	0.44	3.06
8,393.00	1.61	244.03	8,391.82	-51.76	21.57	-51.76	0.29	0.29	-0.61
8,488.00	1.82	240.79	8,486.78	-53.08	19.06	-53.08	0.24	0.22	-3.41
8,583.00	1.75	225.65	8,581.73	-54.83	16.70	-54.83	0.50	-0.07	-15.94
8,634.00	1.95	213.66	8,632.70	-56.10	15.67	-56.10	0.85	0.39	-23.51
8,778.00	0.13	185.02	8,776.67	-58.30	14.29	-58.30	1.28	-1.26	-19.89
8,873.00	0.14	40.57	8,871.67	-58.32	14.36	-58.32	0.27	0.01	-152.05
8,967.00	0.11	318.06	8,965.67	-58.16	14.37	-58.16	0.18	-0.03	-87.78
9,063.00	0.14	301.54	9,061.67	-58.03	14.21	-58.03	0.05	0.03	-17.21
9,158.00	0.14	232.76	9,156.67	-58.04	14.02	-58.04	0.17	0.00	-72.40
9,253.00	0.12	179.79	9,251.67	-58.21	13.93	-58.21	0.12	-0.02	-55.76
9,349.00	0.10	113.11	9,347.67	-58.35	14.01	-58.35	0.13	-0.02	-69.46

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9,444.00	0.20	16.62	9,442.67	-58.22	14.13	-58.22	0.25	0.11	-101.57
9,539.00	0.24	234.37	9,537.67	-58.18	14.02	-58.18	0.44	0.04	-149.74
9,634.00	0.11	65.86	9,632.67	-58.26	13.94	-58.26	0.37	-0.14	-177.38
9,730.00	0.13	323.94	9,728.67	-58.13	13.96	-58.13	0.19	0.02	-106.17
9,825.00	0.14	42.54	9,823.67	-57.96	13.97	-57.96	0.18	0.01	82.74
9,921.00	0.22	172.56	9,919.67	-58.05	14.08	-58.05	0.34	0.08	135.44
10,016.00	0.22	216.27	10,014.67	-58.38	13.99	-58.38	0.17	0.00	46.01
10,112.00	0.11	288.56	10,110.67	-58.50	13.79	-58.50	0.22	-0.11	75.30
10,207.00	0.16	210.06	10,205.67	-58.59	13.64	-58.59	0.18	0.05	-82.63
10,302.00	0.08	92.42	10,300.67	-58.70	13.64	-58.70	0.22	-0.08	-123.83
10,397.00	0.10	288.64	10,395.67	-58.68	13.63	-58.68	0.19	0.02	-172.40
10,492.00	0.10	278.09	10,490.67	-58.64	13.47	-58.64	0.02	0.00	-11.11
10,588.00	0.18	199.83	10,586.67	-58.77	13.33	-58.77	0.20	0.08	-81.52
10,683.00	0.18	161.66	10,681.67	-59.05	13.33	-59.05	0.12	0.00	-40.18
10,778.00	0.24	232.46	10,776.67	-59.32	13.22	-59.32	0.26	0.06	74.53
10,874.00	0.08	29.81	10,872.67	-59.38	13.09	-59.38	0.33	-0.17	163.91
10,969.00	0.10	345.92	10,967.67	-59.24	13.11	-59.24	0.07	0.02	-46.20
11,064.00	0.11	155.41	11,062.67	-59.25	13.12	-59.25	0.22	0.01	178.41
11,160.00	0.10	110.57	11,158.67	-59.36	13.24	-59.36	0.08	-0.01	-46.71
11,255.00	0.10	47.35	11,253.67	-59.33	13.38	-59.33	0.11	0.00	-66.55
11,349.00	0.16	263.22	11,347.67	-59.29	13.31	-59.29	0.26	0.06	-153.33
11,445.00	0.07	77.57	11,443.67	-59.30	13.23	-59.30	0.24	-0.09	181.61
11,540.00	0.19	208.98	11,538.67	-59.42	13.21	-59.42	0.25	0.13	138.33
11,635.00	0.17	338.27	11,633.67	-59.43	13.09	-59.43	0.34	-0.02	136.09
11,731.00	0.12	340.98	11,729.67	-59.20	13.00	-59.20	0.05	-0.05	2.82
11,826.00	0.13	115.88	11,824.67	-59.15	13.06	-59.15	0.24	0.01	142.00
11,921.00	0.21	282.41	11,919.67	-59.16	12.99	-59.16	0.36	0.08	175.29
12,016.00	0.20	296.43	12,014.67	-59.05	12.67	-59.05	0.05	-0.01	14.76
12,112.00	0.22	198.08	12,110.67	-59.15	12.47	-59.15	0.33	0.02	-102.45
12,207.00	0.32	222.75	12,205.67	-59.52	12.23	-59.52	0.16	0.11	25.97
12,303.00	0.16	254.16	12,301.66	-59.75	11.92	-59.75	0.21	-0.17	32.72
12,398.00	0.12	21.68	12,396.66	-59.70	11.83	-59.70	0.27	-0.04	134.23
12,494.00	0.11	8.50	12,492.66	-59.51	11.88	-59.51	0.03	-0.01	-13.73
12,589.00	0.19	185.82	12,587.66	-59.58	11.88	-59.58	0.32	0.08	186.65
12,650.00	0.30	217.32	12,648.66	-59.81	11.77	-59.81	0.28	0.18	51.64
12,728.00	0.38	163.71	12,726.66	-60.22	11.72	-60.22	0.40	0.10	-68.73
12,823.00	0.83	161.76	12,821.66	-61.17	12.02	-61.17	0.47	0.47	-2.05
12,918.00	0.82	169.50	12,916.65	-62.50	12.36	-62.50	0.12	-0.01	8.15
13,013.00	1.13	160.50	13,011.63	-64.05	12.80	-64.05	0.36	0.33	-9.47
13,109.00	1.14	156.79	13,107.61	-65.82	13.49	-65.82	0.08	0.01	-3.86
13,204.00	0.98	157.86	13,202.60	-67.44	14.17	-67.44	0.17	-0.17	1.13
13,299.00	0.99	154.00	13,297.58	-68.93	14.83	-68.93	0.07	0.01	-4.06
13,395.00	1.12	160.24	13,393.57	-70.56	15.51	-70.56	0.18	0.14	6.50

Company: Chisholm Energy
Project: Eddy Co, NM
Site: Dark Canyon SWD
Well: Dark Canyon SWD #1
Wellbore: SWD #1
Design: SWD #1

Local Co-ordinate Reference: Well Dark Canyon SWD #1
TVD Reference: GE=3252+KB=23.5 @ 3275.50usft
MD Reference: GE=3252+KB=23.5 @ 3275.50usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: Gyrodata NWDB

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
13,490.00	1.21	163.18	13,488.55	-72.39	16.12	-72.39	0.11	0.09	3.09
13,499.90	1.21	164.16	13,498.45	-72.59	16.18	-72.59	0.21	-0.04	9.92
Dark Canyon SWD #1 - BHL									
13,586.00	1.19	172.88	13,584.53	-74.35	16.54	-74.35	0.21	-0.02	10.13
13,666.00	1.22	173.41	13,664.51	-76.02	16.74	-76.02	0.04	0.04	0.66
13,713.00	1.22	173.41	13,711.50	-77.02	16.85	-77.02	0.00	0.00	0.00
Projection to Bit : 32° 17' 7.218697 N , 104° 15' 28.909230 W									

Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates +N/-S (usft)	+E/-W (usft)	Comment
13,713.00	13,711.50	-77.02	16.85	Projection to Bit : 32° 17' 7.218697 N , 104° 15' 28.909230 W

Checked By: _____ Approved By: _____ Date: _____