

Cimarex Red Hills Unit #17H MWD Final(Surcon Corrected) Survey Geodetic Report (Def Survey)



Report Date: April 12, 2018 - 03:51 PM
Client: Cimarex
Field: NM Lea County (NAD 83)
Structure / Slot: Cimarex Red Hills Unit #17H / Cimarex Red Hills Unit #17H
Well: Cimarex Red Hills Unit #17H
Borehole: Original Borehole
UWI / API#: Unknown / Unknown
Survey Name: Cimarex Red Hills Unit #17H MWD Final(Surcon Corrected)
Survey Date: March 06, 2018
Tort / AMD / DDI / ERD Ratio: 238.167 * / 9969.463 ft / 6.622 / 6.805
Coordinate Reference System: NAD83 New Mexico State Plane, Eastern Zone, US Feet
Location Lat / Long: N 32° 5' 34.506684", W 103° 35' 2.24427"
Location Grid N/E Y/X: N 398345.890 NUS, E 773403.630 NUS
GRS Grid Convergence Angle: 0.3982 *
Grid Scale Factor: 0.99997077
Version / Patch: 2.10.696.0
Survey / DLS Computation: Minimum Curvature / Lubinski
Vertical Section Azimuth: 179.787 * (Grid North)
Vertical Section Origin: 0.000 ft, 0.000 ft
TVD Reference Datum: Ground Level
TVD Reference Elevation: 3401.500 ft above MSL
Seabed / Ground Elevation: 3377.500 ft above MSL
Magnetic Declination: 6.777 *
Total Gravity Field Strength: 998.4331mgm (9.80685 Based)
Gravity Model: GARM
Total Magnetic Field Strength: 47883.598 nT
Magnetic Dip Angle: 59.761 *
Declination Date: March 20, 2018
Magnetic Declination Model: HDGM 2017
North Reference: Grid North
Grid Convergence Used: 0.3982 *
Total Corr Mag North->Grid North: 6.3792 *
Local Coord Referenced To: Well Head

HO338 OCD

NOV 29 2018

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Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (°/100ft)	Northing (mUS)	Easting (mUS)	Latitude (N/S ° ' ")	Longitude (E/W ° ' ")
SHL [504' FNL, 564' FWL]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	N/A	398345.89	773403.63	N 32 534.51	W 103 35 2.24
	201.00	0.40	342.50	201.00	-0.87	0.67	-0.21	0.20	398347.56	773403.42	N 32 534.51	W 103 35 2.25
	297.00	0.30	352.23	297.00	-1.24	1.24	-0.35	0.12	398348.13	773403.28	N 32 534.52	W 103 35 2.25
	389.00	0.48	334.32	388.99	-1.83	1.82	-0.55	0.23	398348.71	773403.08	N 32 534.52	W 103 35 2.25
	480.00	0.53	329.10	479.99	-2.53	2.53	-0.93	0.07	398349.42	773402.70	N 32 534.53	W 103 35 2.25
	570.00	0.47	318.24	569.99	-3.17	3.16	-1.39	0.12	398350.05	773402.24	N 32 534.54	W 103 35 2.26
	660.00	0.53	305.81	659.98	-3.69	3.68	-1.97	0.14	398350.57	773401.66	N 32 534.54	W 103 35 2.27
	750.00	0.61	295.57	749.98	-4.14	4.13	-2.74	0.14	398351.02	773400.89	N 32 534.55	W 103 35 2.28
	840.00	0.73	291.90	839.97	-4.58	4.55	-3.70	0.14	398351.44	773399.93	N 32 534.55	W 103 35 2.29
	934.00	0.79	290.08	933.97	-5.01	5.00	-4.87	0.07	398351.89	773398.76	N 32 534.56	W 103 35 2.30
	972.00	1.00	290.31	971.96	-5.22	5.20	-5.42	0.55	398352.09	773398.21	N 32 534.56	W 103 35 2.31
	1122.00	0.80	263.39	1121.94	-5.56	5.54	-7.69	0.31	398352.43	773395.94	N 32 534.56	W 103 35 2.33
	1217.00	0.93	251.36	1216.93	-5.25	5.21	-9.08	0.23	398352.10	773394.55	N 32 534.56	W 103 35 2.35
	1312.00	0.84	242.87	1311.92	-4.69	4.65	-10.43	0.17	398351.54	773393.20	N 32 534.55	W 103 35 2.37
	1406.00	1.02	242.84	1405.91	-4.00	3.95	-11.79	0.19	398350.84	773391.84	N 32 534.55	W 103 35 2.38
	1500.00	1.14	246.59	1499.89	-3.25	3.20	-13.39	0.15	398350.08	773390.24	N 32 534.54	W 103 35 2.40
	1585.00	0.53	246.33	1594.88	-2.70	2.65	-14.66	0.64	398349.54	773388.97	N 32 534.53	W 103 35 2.41
	1688.00	0.27	74.71	1688.88	-2.59	2.53	-14.85	0.85	398349.42	773388.78	N 32 534.53	W 103 35 2.42
	1783.00	0.24	105.04	1782.88	-2.59	2.54	-14.44	0.15	398349.43	773389.19	N 32 534.53	W 103 35 2.41
	1875.00	0.48	128.59	1877.88	-2.29	2.24	-13.94	0.29	398349.13	773389.68	N 32 534.53	W 103 35 2.41
	1972.00	0.68	126.95	1971.87	-1.71	1.66	-13.19	0.21	398348.55	773390.44	N 32 534.52	W 103 35 2.40
	2066.00	0.67	138.89	2065.87	-0.95	0.91	-12.38	0.15	398347.80	773391.25	N 32 534.52	W 103 35 2.39
	2161.00	0.65	163.50	2160.86	-0.02	-0.03	-11.86	0.30	398346.86	773391.77	N 32 534.51	W 103 35 2.38
	2255.00	0.81	159.27	2254.85	0.96	-1.01	-11.53	0.07	398345.88	773392.10	N 32 534.50	W 103 35 2.38
	2349.00	0.58	166.10	2348.85	1.89	-1.94	-11.24	0.08	398344.95	773392.39	N 32 534.49	W 103 35 2.38
	2443.00	0.82	151.29	2442.84	2.80	-2.84	-10.88	0.17	398344.05	773392.75	N 32 534.48	W 103 35 2.37
	2538.00	0.68	118.91	2537.84	3.53	-3.57	-10.14	0.39	398343.32	773393.49	N 32 534.47	W 103 35 2.36
	2632.00	1.08	291.03	2631.83	3.48	-3.52	-10.48	1.87	398343.37	773393.15	N 32 534.47	W 103 35 2.37
	2726.00	1.42	295.92	2725.81	2.65	-2.69	-12.35	0.38	398344.20	773391.28	N 32 534.48	W 103 35 2.39
	2821.00	2.60	288.46	2820.75	1.44	-1.49	-15.46	1.27	398345.40	773388.17	N 32 534.49	W 103 35 2.42
	2915.00	2.49	294.62	2914.66	-0.10	0.03	-19.34	0.31	398346.92	773384.29	N 32 534.51	W 103 35 2.47
	3009.00	2.20	304.42	3008.58	-1.99	1.90	-22.68	0.53	398348.79	773380.95	N 32 534.53	W 103 35 2.51
	3103.00	1.89	320.20	3102.52	-4.21	4.11	-25.16	0.68	398351.00	773378.47	N 32 534.55	W 103 35 2.54
	3197.00	1.79	326.37	3196.47	-6.63	6.53	-26.97	0.24	398353.42	773376.66	N 32 534.57	W 103 35 2.56
	3293.00	2.18	313.33	3292.42	-9.13	9.03	-29.13	0.62	398355.92	773374.51	N 32 534.60	W 103 35 2.58
	3387.00	2.32	307.69	3386.34	-11.54	11.42	-31.93	0.28	398358.31	773371.70	N 32 534.62	W 103 35 2.61
	3481.00	3.08	281.65	3480.24	-13.22	13.09	-35.91	1.51	398359.86	773367.72	N 32 534.64	W 103 35 2.66
	3575.00	3.98	262.09	3574.07	-13.31	13.15	-41.62	1.59	398360.04	773362.02	N 32 534.64	W 103 35 2.73
	3670.00	4.08	263.42	3668.83	-12.49	12.31	-48.24	0.14	398359.20	773355.39	N 32 534.63	W 103 35 2.80
	3764.00	3.77	267.16	3762.61	-11.98	11.77	-54.65	0.43	398358.66	773346.99	N 32 534.63	W 103 35 2.88
	3859.00	2.47	273.25	3857.47	-11.96	11.74	-59.81	1.41	398358.62	773343.82	N 32 534.63	W 103 35 2.94
	3952.00	1.89	281.50	3950.40	-12.39	12.15	-63.31	0.71	398359.04	773340.32	N 32 534.63	W 103 35 2.98
	4046.00	1.78	282.58	4044.35	-13.02	12.78	-68.24	0.14	398359.67	773337.39	N 32 534.64	W 103 35 3.01
	4140.00	3.06	265.59	4138.27	-13.16	12.90	-70.15	1.56	398359.79	773333.48	N 32 534.64	W 103 35 3.06
	4235.00	2.68	263.78	4233.15	-12.74	12.47	-74.87	0.43	398359.36	773328.76	N 32 534.64	W 103 35 3.11
	4330.00	2.47	231.87	4328.08	-11.26	10.98	-78.67	1.50	398357.85	773324.96	N 32 534.62	W 103 35 3.18
	4425.00	4.63	224.75	4422.87	-7.28	6.98	-82.98	2.32	398353.86	773320.65	N 32 534.56	W 103 35 3.21
	4514.00	4.46	208.73	4511.29	4.55	-4.89	-91.89	0.68	398342.00	773311.75	N 32 534.46	W 103 35 3.31
	4708.00	3.73	209.16	4705.04	10.41	-10.76	-95.13	0.78	398336.13	773308.50	N 32 534.41	W 103 35 3.35
	4802.00	2.50	228.66	4798.91	14.47	-14.84	-98.11	1.64	398332.05	773305.52	N 32 534.37	W 103 35 3.39
	4897.00	2.28	228.26	4893.82	17.14	-17.52	-101.03	0.24	398329.37	773302.60	N 32 534.34	W 103 35 3.42
	4992.00	2.14	251.99	4988.75	18.94	-19.33	-104.13	0.97	398327.56	773299.51	N 32 534.32	W 103 35 3.46
	5086.00	2.33	259.85	5082.68	18.80	-20.21	-107.68	0.38	398326.69	773295.96	N 32 534.31	W 103 35 3.50
	5180.00	2.47	258.97	5176.60	20.48	-20.89	-111.55	0.15	398326.00	773292.08	N 32 534.30	W 103 35 3.54
	5275.00	2.60	268.94	5271.51	20.86	-21.29	-115.72	0.44	398325.60	773287.91	N 32 534.30	W 103 35 3.59
	5370.00	2.55	274.82	5366.41	20.71	-21.15	-119.98	0.28	398325.74	773283.65	N 32 534.31	W 103 35 3.64

Comments	MD	Inch	Actm Grd	TVD	VSEC	NS	EW	DLS	Northmg	Eastmg	Longtude (W...)	Latitude (N...)
	544.00	2.30	268.77	5440.25	-20.44	-122.78	-122.78	39626.85	773279.88	773279.88	103 35 3.88	32 54.32 W
	559.00	2.40	264.68	5555.55	-17.78	-118.25	-122.32	39626.85	773279.88	773279.88	103 35 3.73	32 54.33 W
	565.00	1.68	264.68	5651.16	-16.09	-118.25	-122.32	39626.85	773279.88	773279.88	103 35 3.76	32 54.37 W
	574.00	1.71	265.14	5744.14	-14.46	-118.25	-122.32	39626.85	773279.88	773279.88	103 35 3.79	32 54.37 W
	586.00	1.65	265.00	5863.07	-12.66	-118.25	-122.32	39626.85	773279.88	773279.88	103 35 3.84	32 54.40 W
	600.00	1.56	265.04	5933.07	-11.31	-118.25	-122.32	39626.85	773279.88	773279.88	103 35 3.84	32 54.40 W
	607.00	1.43	268.44	6072.03	-9.90	-118.25	-122.32	39626.85	773279.88	773279.88	103 35 3.86	32 54.41 W
	616.00	1.40	300.44	6122.03	-8.90	-118.25	-122.32	39626.85	773279.88	773279.88	103 35 3.86	32 54.43 W
	619.00	1.31	282.88	6214.86	-7.50	-118.25	-122.32	39626.85	773279.88	773279.88	103 35 3.86	32 54.43 W
	631.00	1.28	289.88	6309.95	-6.71	-118.25	-122.32	39626.85	773279.88	773279.88	103 35 3.85	32 54.44 W
	640.00	1.35	286.44	6403.93	-6.03	-118.25	-122.32	39626.85	773279.88	773279.88	103 35 3.85	32 54.45 W
	650.00	1.28	281.88	6498.91	-5.49	-118.25	-122.32	39626.85	773279.88	773279.88	103 35 3.85	32 54.46 W
	658.00	1.45	131.95	6581.87	-5.53	-118.25	-122.32	39626.85	773279.88	773279.88	103 35 3.88	32 54.46 W
	663.00	0.45	140.91	6688.80	-6.08	-118.25	-122.32	39626.85	773279.88	773279.88	103 35 3.88	32 54.46 W
	678.00	0.34	126.30	6782.89	-6.53	-118.25	-122.32	39626.85	773279.88	773279.88	103 35 3.87	32 54.45 W
	682.00	0.20	110.61	6877.89	-6.76	-118.25	-122.32	39626.85	773279.88	773279.88	103 35 3.87	32 54.44 W
	697.00	0.23	155.16	6972.88	-6.99	-118.25	-122.32	39626.85	773279.88	773279.88	103 35 3.87	32 54.44 W
	707.00	0.24	195.64	7068.88	-7.35	-118.25	-122.32	39626.85	773279.88	773279.88	103 35 3.87	32 54.44 W
	716.00	0.44	212.74	7160.88	-7.85	-118.25	-122.32	39626.85	773279.88	773279.88	103 35 3.87	32 54.44 W
	726.00	0.47	216.53	7255.88	-8.46	-118.25	-122.32	39626.85	773279.88	773279.88	103 35 3.87	32 54.43 W
	734.00	0.51	233.45	7348.88	-9.02	-118.25	-122.32	39626.85	773279.88	773279.88	103 35 3.87	32 54.43 W
	744.00	0.47	241.41	7438.88	-9.89	-118.25	-122.32	39626.85	773279.88	773279.88	103 35 3.87	32 54.41 W
	753.00	0.67	221.01	7534.87	-10.50	-118.25	-122.32	39626.85	773279.88	773279.88	103 35 4.00	32 54.41 W
	773.00	0.59	218.39	7728.87	-11.29	-118.25	-122.32	39626.85	773279.88	773279.88	103 35 4.00	32 54.41 W
	787.00	0.15	205.49	7822.86	-11.78	-118.25	-122.32	39626.85	773279.88	773279.88	103 35 4.02	32 54.39 W
	792.00	0.32	57.87	7918.86	-11.75	-118.25	-122.32	39626.85	773279.88	773279.88	103 35 4.01	32 54.40 W
	801.00	0.39	89.61	8011.86	-11.61	-118.25	-122.32	39626.85	773279.88	773279.88	103 35 4.01	32 54.40 W
	810.00	0.32	102.59	8105.86	-11.66	-118.25	-122.32	39626.85	773279.88	773279.88	103 35 4.00	32 54.39 W
	820.00	0.33	116.44	8199.86	-11.84	-118.25	-122.32	39626.85	773279.88	773279.88	103 35 4.00	32 54.39 W
	829.00	0.35	135.71	8294.86	-12.17	-118.25	-122.32	39626.85	773279.88	773279.88	103 35 4.00	32 54.39 W
	834.00	0.45	169.26	8388.85	-12.75	-118.25	-122.32	39626.85	773279.88	773279.88	103 35 3.99	32 54.39 W
	846.00	0.67	171.10	8443.85	-13.66	-118.25	-122.32	39626.85	773279.88	773279.88	103 35 3.99	32 54.39 W
	852.00	0.76	158.82	8577.84	-14.79	-118.25	-122.32	39626.85	773279.88	773279.88	103 35 3.98	32 54.37 W
	867.00	0.83	173.89	8671.83	-16.05	-118.25	-122.32	39626.85	773279.88	773279.88	103 35 3.98	32 54.37 W
	871.00	0.84	176.68	8766.82	-17.43	-118.25	-122.32	39626.85	773279.88	773279.88	103 35 3.98	32 54.37 W
	885.00	0.96	172.94	8860.81	-18.89	-118.25	-122.32	39626.85	773279.88	773279.88	103 35 3.98	32 54.34 W
	895.00	0.96	181.50	8955.80	-19.44	-118.25	-122.32	39626.85	773279.88	773279.88	103 35 3.98	32 54.34 W
	905.00	0.23	295.59	9050.79	-20.46	-118.25	-122.32	39626.85	773279.88	773279.88	103 35 3.98	32 54.31 W
	916.00	0.31	244.82	9145.78	-21.19	-118.25	-122.32	39626.85	773279.88	773279.88	103 35 3.98	32 54.30 W
	924.00	0.49	216.89	9239.78	-22.19	-118.25	-122.32	39626.85	773279.88	773279.88	103 35 3.98	32 54.30 W
	934.00	0.32	261.53	9334.78	-22.19	-118.25	-122.32	39626.85	773279.88	773279.88	103 35 3.98	32 54.30 W
	943.00	0.50	303.76	9429.78	-22.87	-118.25	-122.32	39626.85	773279.88	773279.88	103 35 3.99	32 54.28 W
	952.00	0.41	165.70	9523.76	-23.63	-118.25	-122.32	39626.85	773279.88	773279.88	103 35 3.99	32 54.28 W
	962.00	0.51	97.81	9617.77	-24.76	-118.25	-122.32	39626.85	773279.88	773279.88	103 35 3.97	32 54.27 W
	971.00	1.23	17.89	9711.77	-25.76	-118.25	-122.32	39626.85	773279.88	773279.88	103 35 3.97	32 54.28 W
	981.00	1.34	67.84	9808.72	-26.03	-118.25	-122.32	39626.85	773279.88	773279.88	103 35 3.97	32 54.28 W
	996.00	1.36	60.82	9901.72	-26.03	-118.25	-122.32	39626.85	773279.88	773279.88	103 35 3.95	32 54.29 W
	1005.00	0.97	66.04	9994.72	-21.23	-118.25	-122.32	39626.85	773279.88	773279.88	103 35 3.95	32 54.30 W
	1009.00	1.01	68.58	10090.69	-20.60	-118.25	-122.32	39626.85	773279.88	773279.88	103 35 3.88	32 54.31 W
	1018.00	0.60	10184.68	10184.68	-19.88	-118.25	-122.32	39626.85	773279.88	773279.88	103 35 3.88	32 54.31 W
	1024.00	0.56	10279.87	10279.87	-18.95	-118.25	-122.32	39626.85	773279.88	773279.88	103 35 3.87	32 54.32 W
	1037.00	0.41	10374.67	10374.67	-18.72	-118.25	-122.32	39626.85	773279.88	773279.88	103 35 3.87	32 54.32 W
	1047.00	0.45	10468.87	10468.87	-17.72	-118.25	-122.32	39626.85	773279.88	773279.88	103 35 3.88	32 54.34 W
	1058.00	0.39	10563.86	10563.86	-17.44	-118.25	-122.32	39626.85	773279.88	773279.88	103 35 3.89	32 54.34 W
	1068.00	0.32	10657.86	10657.86	-17.14	-118.25	-122.32	39626.85	773279.88	773279.88	103 35 3.89	32 54.34 W
	1076.00	0.43	111.29	10791.86	-16.68	-118.25	-122.32	39626.85	773279.88	773279.88	103 35 3.90	32 54.35 W
	1085.00	0.49	320.08	10846.86	-16.16	-118.25	-122.32	39626.85	773279.88	773279.88	103 35 3.90	32 54.35 W
	1094.00	0.99	134.79	10941.05	-15.28	-118.25	-122.32	39626.85	773279.88	773279.88	103 35 3.90	32 54.36 W
	1103.00	1.62	331.08	11034.63	-13.56	-118.25	-122.32	39626.85	773279.88	773279.88	103 35 3.93	32 54.36 W
	1128.00	1.73	11128.39	11128.39	-11.71	-118.25	-122.32	39626.85	773279.88	773279.88	103 35 3.95	32 54.36 W
	1132.00	1.81	11223.34	11223.34	-8.60	-118.25	-122.32	39626.85	773279.88	773279.88	103 35 3.96	32 54.37 W
	1141.00	1.64	11317.30	11317.30	-6.13	-118.25	-122.32	39626.85	773279.88	773279.88	103 35 3.88	32 54.38 W
	11416.00	1.10	11411.47	11411.47	-4.07	-118.25	-122.32	39626.85	773279.88	773279.88	103 35 3.87	32 54.47 W
	11511.00	0.87	11506.46	11506.46	-2.47	-118.25	-122.32	39626.85	773279.88	773279.88	103 35 3.88	32 54.47 W
	11604.00	1.07	11599.44	11599.44	-0.82	-118.25	-122.32	39626.85	773279.88	773279.88	103 35 3.89	32 54.49 W
	11699.00	1.25	11694.42	11694.42	-1.00	-118.25	-122.32	39626.85	773279.88	773279.88	103 35 3.89	32 54.49 W
	11719.00	1.26	11714.42	11714.42	-1.44	-118.25	-122.32	39626.85	773279.88	773279.88	103 35 3.89	32 54.49 W
	11788.00	1.16	11783.40	11783.40	-2.88	-118.25	-122.32	39626.85	773279.88	773279.88	103 35 3.89	32 54.54 W
	11820.00	1.10	11815.40	11815.40	-2.89	-118.25	-122.32	39626.85	773279.88	773279.88	103 35 3.89	32 54.54 W
	11861.00	4.69	11846.36	11846.36	-1.35	-118.25	-122.32	39626.85	773279.88	773279.88	103 35 3.89	32 54.54 W
	11882.00	8.82	11877.15	11877.15	-2.18	-118.25	-122.32	39626.85	773279.88	773279.88	103 35 3.89	32 54.54 W
	11913.00	12.67	11907.81	11907.81	-7.85	-118.25	-122.32	39626.85	773279.88	773279.88	103 35 3.89	32 54.54 W
	11946.00	16.63	11938.56	11938.56	-19.80	-118.25	-122.32	39626.85	773279.88	773279.88	103 35 3.87	32 54.48 W
	11978.00	20.59	11967.94	11967.94	-26.77	-118.25	-122.32	39626.85	773279.88	773279.88	103 35 3.86	32 54.45 W
	12008.00	24.55	11997.48	11997.48	-38.04	-118.25	-122.32	39626.85	773279.88	773279.88	103 35 3.86	32 54.45 W
	12040.00	27.34	12008.28	12008.28	-52.02	-118.25	-122.32	39626.85	773279.88	773279.88	103 35 3.87	32 54.40 W
	12071.00	28.44	12053.65	12053.65	-66.48	-118.25	-122.32	39626.85	773279.88	773279.88	103 35 3.87	32 54.40 W
	12102.00	31.05	12080.87	12080.87	-81.82	-118.25	-122.3					

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	VSEC (hr)	NS (ft)	EW (ft)	DLS (ft/100ft)	Northing (ftUS)	Easting (ftUS)	Latitude (N/S ° ' ")	Longitude (E/W ° ' ")
	13209.00	88.04	178.46	12362.70	1398.10	-1098.68	-153.52	1.68	397248.25	773250.12	N 32 5 23.65 W 103 35 4.12	
	13303.00	88.49	177.75	12385.55	1192.01	-1192.58	-150.41	0.89	397154.35	773253.22	N 32 5 22.72 W 103 35 4.09	
	13397.00	87.87	177.82	12368.53	1285.90	-1288.46	-148.62	0.67	397060.47	773257.02	N 32 5 21.79 W 103 35 4.05	
	13490.00	87.87	177.88	12371.99	1378.78	-1379.32	-143.05	0.39	396967.61	773260.59	N 32 5 20.87 W 103 35 4.02	
	13584.00	88.07	180.01	12375.32	1472.71	-1473.24	-141.40	2.17	396873.69	773262.23	N 32 5 19.94 W 103 35 4.01	
	13678.00	88.52	179.88	12378.12	1568.67	-1567.20	-141.39	0.48	396779.74	773262.24	N 32 5 19.01 W 103 35 4.01	
	13771.00	89.17	179.99	12379.99	1659.65	-1660.18	-141.37	0.70	396686.76	773262.27	N 32 5 18.09 W 103 35 4.02	
	13866.00	89.62	180.10	12381.00	1754.84	-1755.18	-141.44	0.49	396591.77	773262.19	N 32 5 17.15 W 103 35 4.03	
	13960.00	89.97	179.89	12381.33	1848.84	-1849.18	-141.44	0.43	396497.77	773262.20	N 32 5 16.22 W 103 35 4.04	
	14054.00	90.03	180.15	12381.33	1942.84	-1943.18	-141.47	0.28	396403.77	773262.17	N 32 5 15.29 W 103 35 4.05	
	14148.00	90.14	180.01	12381.19	2036.84	-2037.18	-141.60	0.19	396309.78	773262.03	N 32 5 14.36 W 103 35 4.05	
	14242.00	89.97	179.82	12381.10	2130.84	-2131.18	-141.46	0.27	396215.78	773262.17	N 32 5 13.43 W 103 35 4.06	
	14336.00	90.52	180.02	12380.70	2224.63	-2225.18	-141.33	0.62	396121.78	773262.31	N 32 5 12.50 W 103 35 4.07	
	14430.00	90.96	180.02	12379.49	2318.63	-2319.17	-141.38	0.47	396027.80	773262.27	N 32 5 11.57 W 103 35 4.07	
	14524.00	90.98	179.49	12377.91	2412.61	-2413.15	-140.98	0.56	395933.81	773262.67	N 32 5 10.64 W 103 35 4.08	
	14617.00	90.76	179.42	12376.52	2506.80	-2506.14	-140.38	0.23	395840.83	773263.56	N 32 5 9.72 W 103 35 4.07	
	14711.00	90.98	180.14	12375.10	2599.59	-2600.13	-139.71	0.79	395746.85	773263.82	N 32 5 8.79 W 103 35 4.08	
	14805.00	91.07	179.83	12373.42	2694.57	-2695.11	-139.69	0.35	395651.88	773263.94	N 32 5 7.85 W 103 35 4.09	
	14900.00	91.00	179.94	12371.72	2788.56	-2789.10	-139.50	0.14	395557.88	773264.13	N 32 5 6.92 W 103 35 4.09	
	14994.00	90.89	179.99	12370.17	2882.54	-2883.08	-139.44	0.13	395463.90	773264.19	N 32 5 5.99 W 103 35 4.10	
	15087.00	91.10	179.49	12368.56	2975.53	-2976.07	-139.02	0.58	395370.82	773264.61	N 32 5 5.07 W 103 35 4.10	
	15181.00	91.03	180.19	12366.81	3069.51	-3070.05	-138.76	0.73	395276.84	773264.87	N 32 5 4.14 W 103 35 4.10	
	15275.00	91.14	180.05	12365.03	3163.49	-3164.03	-138.96	0.19	395182.96	773264.68	N 32 5 3.21 W 103 35 4.11	
	15369.00	90.41	179.11	12363.76	3257.48	-3258.02	-138.27	1.27	395088.97	773265.37	N 32 5 2.28 W 103 35 4.11	
	15463.00	91.48	179.18	12362.21	3351.46	-3352.00	-138.68	1.14	394995.00	773265.77	N 32 5 1.35 W 103 35 4.11	
	15557.00	90.45	179.90	12360.63	3445.45	-3445.88	-138.11	1.34	394901.02	773265.72	N 32 5 0.42 W 103 35 4.10	
	15651.00	89.86	178.12	12360.37	3541.43	-3541.96	-134.45	1.85	394805.04	773265.18	N 32 4 59.47 W 103 35 4.09	
	15745.00	90.24	176.44	12360.28	3635.34	-3635.85	-129.99	1.83	394711.15	773273.64	N 32 4 58.54 W 103 35 4.05	
	15839.00	89.97	178.74	12360.92	3727.26	-3727.76	-126.12	2.86	394618.25	773277.51	N 32 4 57.63 W 103 35 4.01	
	15933.00	87.52	179.82	12363.77	3820.21	-3820.70	-124.95	1.94	394526.31	773278.68	N 32 4 56.71 W 103 35 4.01	
	16026.00	89.04	182.58	12366.59	3914.13	-3914.63	-128.91	3.33	394432.38	773278.73	N 32 4 55.78 W 103 35 4.04	
	16119.00	89.93	182.76	12367.42	4007.01	-4007.52	-131.22	0.98	394338.49	773272.41	N 32 4 54.86 W 103 35 4.09	
	16213.00	90.31	182.74	12367.23	4100.88	-4101.41	-135.73	0.40	394245.60	773267.90	N 32 4 53.93 W 103 35 4.15	
	16306.00	87.08	177.48	12369.35	4193.81	-4194.35	-135.91	6.64	394152.68	773267.72	N 32 4 53.01 W 103 35 4.16	
	16400.00	90.10	178.33	12371.66	4287.72	-4288.24	-132.48	3.34	394058.78	773271.16	N 32 4 52.08 W 103 35 4.13	
	16494.00	90.24	176.59	12371.88	4381.71	-4382.22	-130.77	1.35	393964.80	773272.86	N 32 4 51.15 W 103 35 4.12	
	16588.00	89.86	180.73	12371.30	4475.70	-4476.22	-131.04	1.28	393870.81	773272.60	N 32 4 50.22 W 103 35 4.13	
	16682.00	89.97	180.97	12371.44	4569.69	-4570.21	-132.43	0.28	393776.82	773271.20	N 32 4 49.29 W 103 35 4.15	
	16777.00	90.07	180.90	12371.41	4664.67	-4665.20	-133.98	0.13	393681.84	773269.65	N 32 4 48.35 W 103 35 4.18	
	16871.00	89.69	181.10	12370.78	4758.65	-4759.18	-135.62	0.89	393587.85	773268.01	N 32 4 47.42 W 103 35 4.20	
	16964.00	89.42	181.16	12370.69	4851.62	-4852.16	-137.45	1.37	393494.88	773266.18	N 32 4 46.50 W 103 35 4.23	
	17058.00	90.69	181.17	12370.60	4946.59	-4947.14	-139.39	1.34	393399.90	773264.25	N 32 4 45.56 W 103 35 4.26	
	17154.00	90.41	181.11	12369.69	5041.56	-5042.12	-141.28	0.30	393304.93	773262.36	N 32 4 44.62 W 103 35 4.29	
	17247.00	90.45	180.29	12368.99	5134.54	-5135.11	-142.41	0.88	393211.94	773261.22	N 32 4 43.70 W 103 35 4.31	
	17340.00	90.48	179.77	12368.24	5227.54	-5228.10	-142.46	0.56	393118.95	773261.17	N 32 4 42.78 W 103 35 4.32	
	17434.00	90.83	178.78	12367.16	5321.53	-5322.09	-141.27	1.12	393024.97	773262.36	N 32 4 41.85 W 103 35 4.32	
	17528.00	90.89	178.88	12365.74	5416.50	-5417.06	-139.33	0.12	392930.00	773264.30	N 32 4 40.91 W 103 35 4.30	
	17622.00	89.35	175.77	12365.54	5509.40	-5509.94	-134.99	3.73	392837.12	773268.64	N 32 4 39.99 W 103 35 4.28	
	17717.00	90.55	177.63	12365.62	5604.26	-5604.78	-129.52	2.33	392742.29	773274.11	N 32 4 39.08 W 103 35 4.20	
	17811.00	90.24	179.32	12364.98	5698.23	-5698.74	-127.02	1.83	392648.33	773275.61	N 32 4 38.13 W 103 35 4.18	
	17904.00	89.86	179.57	12364.90	5791.23	-5791.74	-126.12	0.49	392555.34	773277.51	N 32 4 37.21 W 103 35 4.18	
	17998.00	90.58	181.14	12364.53	5885.22	-5885.73	-126.70	1.84	392461.34	773275.93	N 32 4 36.28 W 103 35 4.19	
	18091.00	90.55	181.59	12363.60	5980.18	-5980.70	-128.97	0.47	392368.38	773274.67	N 32 4 35.34 W 103 35 4.23	
	18187.00	89.69	180.25	12363.40	6074.15	-6074.68	-130.48	1.69	392274.40	773273.16	N 32 4 34.41 W 103 35 4.25	
	18281.00	89.62	182.07	12363.97	6168.12	-6168.66	-132.38	1.94	392178.43	773271.26	N 32 4 33.48 W 103 35 4.28	
	18375.00	89.17	182.61	12364.96	6262.02	-6262.57	-136.22	0.75	392084.51	773267.42	N 32 4 32.55 W 103 35 4.30	
	18468.00	88.73	178.52	12366.66	6354.98	-6355.53	-137.13	4.42	391991.56	773266.50	N 32 4 31.63 W 103 35 4.35	
	18562.00	89.79	178.39	12367.68	6448.94	-6449.49	-134.60	1.14	391897.60	773269.03	N 32 4 30.70 W 103 35 4.33	
	18656.00	90.58	176.61	12367.57	6542.92	-6543.46	-132.14	0.87	391803.64	773271.50	N 32 4 29.77 W 103 35 4.31	
	18751.00	90.76	178.72	12366.46	6637.89	-6638.42	-128.93	0.22	391708.67	773273.71	N 32 4 28.83 W 103 35 4.29	
	18844.00	90.79	178.45	12365.21	6730.87	-6731.39	-127.83	0.29	391615.71	773275.00	N 32 4 27.91 W 103 35 4.27	
	18938.00	89.97	178.23	12364.58	6824.83	-6825.34	-124.91	0.90	391521.76	773278.73	N 32 4 26.98 W 103 35 4.25	
	19033.00	88.69	178.99	12365.69	6919.80	-6920.31	-122.60	1.57	391426.80	773281.03	N 32 4 26.04 W 103 35 4.23	
	19136.00	88.87	179.25	12367.89	7022.77	-7023.27	-121.02	0.31	391323.84	773282.51	N 32 4 25.02 W 103 35 4.22	
	19230.00	88.35	180.30	12370.17	7116.74	-7117.24	-120.65	1.25	391229.87	773282.98	N 32 4 24.09 W 103 35 4.22	
	19323.00	88.69	180.51	12372.57	7209.71	-7210.21	-121.31	0.43	391136.91	773282.33	N 32 4 23.17 W 103 35 4.24	
	19418.00	88.89	179.93	12374.74	7304.68	-7305.18	-121.67	0.61	391041.94	773281.86	N 32 4 22.23 W 103 35 4.25	
	19511.00	88.59	180.18	12376.95	7397.65	-7398.16	-121.76	0.29	390948.97	773281.87	N 32 4 21.31 W 103 35 4.28	
	19605.00	88.62	180.33	12379.24	7491.62	-7492.13	-122.18	0.16	390855.00	773281.45	N 32 4 20.38 W 103 35 4.27	
	19699.00	88.52	179.57	12381.58	7585.59	-7586.10	-122.10	0.82	390761.03	773281.54	N 32 4 19.45 W 103 35 4.28	
	19793.00	90.14	180.01	12382.68	7679.58	-7680.09	-121.75	1.78	390667.04	773281.88	N 32 4 18.52 W 103 35 4.28	
	19887.00	90.24	179.97	12382.37	7773.58	-7774.09	-121.74	0.11	390573.05	773281.90	N 32 4 17.59 W 103 35 4.29	
	19981.00	89.87	180.01	12382.20	7867.58	-7868.09	-121.72	0.29	390479.05	773281.91	N 32 4 16.66 W 103 35 4.29	
	20075.00	90.36	180.27	12381.91	7961.58	-7962.08	-121.95	0.52	390385.05	773281.68	N 32 4 15.73 W 103 35 4.30	
	20169.00	89.87	180.03	12381.62	8055.57	-8056.08	-122.20	0.51	390291.06	773281.44	N 32 4 14.80 W 103 35 4.31	
	20263.00	90.31	178.86	12381.39	8149.57	-8150.08	-122.11	0.40	390197.08	773281.53	N 32 4 13.87 W 103	

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (°/100ft)	Northing (ftUS)	Easting (ftUS)	Latitude (N/S ° ' '')	Longitude (E/W ° ' '')
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Survey Error Model: ISCWSA Rev D *** 3-D 95.000% Confidence 2.7955 sigma
Survey Program:

Description	Part	MD From (ft)	MD To (ft)	EOU Freq (ft)	Hole Size (in)	Casing Diameter (in)	Survey Tool Type	Borehole / Survey
	1	0.000	24.000	1/88.425	30.000	30.000	NAL_MWD_IFR1+MS-Depth Only	Original Borehole / Cimarex Red Hills Unit #17H MWD Final(Surcon Corrected)
	1	24.000	24.000	Act Strs	30.000	30.000	NAL_MWD_IFR1+MS-Depth Only	Original Borehole / Cimarex Red Hills Unit #17H MWD Final(Surcon Corrected)
	1	24.000	21823.000	Act Strs	30.000	30.000	NAL_MWD_IFR1+MS	Original Borehole / Cimarex Red Hills Unit #17H MWD Final(Surcon Corrected)



Vertical Section (ft) Azim = 179.79° Scale = 1:500.00(ft) Origin = 0N-S, 0E-W