

Final Survey - Cimarex Cottonberry 20 Federal 5H MWD 0ft-12828ft (Surcon Corrected) Survey Geodetic Report



Report Date: December 04, 2018 - 10:47 AM
 Client: Cimarex
 Field: NM Eddy County (NAD 83)
 Structure / Slot: Cimarex Cottonberry 20 Federal 5H / Cimarex Cottonberry 20 Federal 5H
 Well: Cimarex Cottonberry 20 Federal 5H
 Borehole: Original Borehole
 UWI / APW: Unknown / Unknown
 Survey Name: Final Survey - Cimarex Cottonberry 20 Federal 5H MWD 0ft-12828ft (Surcon Corrected)
 Survey Date: November 16, 2018
 Tort / AHD / DDI / ERD Ratio: 197.392' / 6150.993 ft / 6.295 / 0.779
 Coordinate Reference System: NAD83 New Mexico State Plane, Eastern Zone, US Feet
 Location Lat / Long: N 32° 7' 12.23312", W 104° 13' 7.60364"
 Location Grid N/E Y/X: N 407434.520 fUS, E 576801.700 fUS
 CRS Grid Convergence Angle: 0.0609°
 Grid Scale Factor: 0.99991053
 Version / Patch: 2.10.753.0

Survey / DLS Computation: Minimum Curvature / Lubinski
 Vertical Section Azimuth: 178.805° (Grid North)
 Vertical Section Origin: 0.000 ft, 0.000 ft
 TVD Reference Datum: RKB
 TVD Reference Elevation: 3174.900 ft above MSL
 Seabed / Ground Elevation: 3148.900 ft above MSL
 Magnetic Declination: 7.318°
 Total Gravity Field Strength: 998.446mgm (9.80665 Based)
 Gravity Model: GARM
 Total Magnetic Field Strength: 47854.688 nT
 Magnetic Dip Angle: 59.791°
 Declination Date: November 26, 2018
 Magnetic Declination Model: HOGM 2018
 North Reference: Grid North
 Grid Convergence Used: 0.0609°
 Total Corr Mag North-Grid North: 7.2567°
 Local Coord Referenced To: Structure Reference Point

HOEDS OGD

JUN 5 2019

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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 ° ' ")	Closure Azimuth (°)	Closure (ft)
SHL 976 FNL, 639 FVL]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	N/A	407434.52	576801.70	N 32° 7' 12.23" W 104° 13' 7.60"	7.60	0.00	0.00
	193.00	1.03	243.13	192.99	0.75	-0.78	-1.55	0.53	407433.74	576800.15	N 32° 7' 12.23" W 104° 13' 7.62"	7.62	243.13	1.73
	291.00	1.48	280.27	290.97	1.32	-1.40	-3.58	0.58	407433.12	576798.12	N 32° 7' 12.22" W 104° 13' 7.65"	7.65	248.70	3.84
	364.00	1.67	265.50	363.94	1.52	-1.64	-5.57	0.33	407432.88	576796.13	N 32° 7' 12.22" W 104° 13' 7.67"	7.67	253.61	5.81
	476.00	1.45	278.03	475.90	1.39	-1.57	-8.60	0.36	407432.95	576793.10	N 32° 7' 12.22" W 104° 13' 7.70"	7.70	259.66	8.74
	567.00	0.60	250.23	566.88	1.36	-1.57	-10.19	1.06	407432.95	576791.51	N 32° 7' 12.22" W 104° 13' 7.72"	7.72	261.24	10.31
	658.00	1.30	105.37	657.88	1.80	-2.00	-9.64	2.00	407432.52	576792.06	N 32° 7' 12.21" W 104° 13' 7.72"	7.72	258.26	9.85
	750.00	1.53	94.94	749.85	2.23	-2.39	-7.41	0.37	407432.13	576794.29	N 32° 7' 12.21" W 104° 13' 7.69"	7.69	252.15	7.79
	935.00	1.50	34.10	934.79	0.52	-0.59	-3.59	0.83	407433.93	576798.11	N 32° 7' 12.23" W 104° 13' 7.65"	7.65	260.61	3.64
	1029.00	1.28	25.53	1028.77	-1.42	1.37	-2.45	0.32	407435.89	576799.25	N 32° 7' 12.25" W 104° 13' 7.63"	7.63	269.24	2.81
	1124.00	1.63	39.85	1123.74	-3.39	3.37	-1.13	0.53	407437.89	576800.57	N 32° 7' 12.27" W 104° 13' 7.62"	7.62	314.48	3.55
	1218.00	2.01	54.19	1217.69	-5.33	5.36	1.07	0.63	407439.88	576802.77	N 32° 7' 12.29" W 104° 13' 7.59"	7.59	311.25	5.46
	1312.00	2.56	64.68	1311.61	-7.12	7.21	4.30	0.74	407441.73	576806.00	N 32° 7' 12.30" W 104° 13' 7.55"	7.55	308.82	8.40
	1406.00	2.81	65.99	1405.51	-8.87	9.04	8.31	0.27	407443.56	576810.01	N 32° 7' 12.32" W 104° 13' 7.51"	7.51	258.26	9.85
	1501.00	3.52	77.37	1500.37	-10.35	10.63	13.28	0.98	407445.15	576814.98	N 32° 7' 12.34" W 104° 13' 7.45"	7.45	51.33	17.01
	1690.00	3.85	97.02	1688.98	-10.59	11.12	25.24	0.89	407445.64	576826.94	N 32° 7' 12.34" W 104° 13' 7.31"	7.31	66.22	27.58
	1784.00	2.63	108.94	1782.83	-9.40	10.04	30.41	1.48	407445.64	576832.11	N 32° 7' 12.33" W 104° 13' 7.25"	7.25	71.74	32.03
	1813.00	2.76	107.52	1811.80	-8.95	9.61	31.71	0.50	407444.13	576833.41	N 32° 7' 12.33" W 104° 13' 7.23"	7.23	73.14	33.13
	1973.00	2.01	107.39	1971.66	-6.82	7.61	38.06	0.47	407442.13	576839.76	N 32° 7' 12.31" W 104° 13' 7.16"	7.16	78.69	38.81
	2162.00	2.33	60.19	2160.54	-7.60	8.53	44.56	0.93	407443.05	576846.25	N 32° 7' 12.32" W 104° 13' 7.09"	7.09	79.16	45.37
	2256.00	3.73	28.22	2254.41	-11.18	12.17	47.66	2.28	407446.69	576849.36	N 32° 7' 12.35" W 104° 13' 7.05"	7.05	75.67	49.19
	2351.00	5.11	13.01	2349.13	-17.97	19.02	50.07	1.89	407453.54	576851.77	N 32° 7' 12.42" W 104° 13' 7.02"	7.02	69.20	53.57
	2445.00	6.19	356.28	2442.68	-27.09	28.16	50.69	2.08	407452.67	576852.38	N 32° 7' 12.51" W 104° 13' 7.01"	7.01	60.95	57.98
	2539.00	5.92	357.26	2536.15	-37.00	38.06	50.13	0.31	407472.57	576851.82	N 32° 7' 12.61" W 104° 13' 7.02"	7.02	52.80	62.94
	2634.00	8.17	4.69	2630.43	-48.82	49.68	50.45	2.55	407484.19	576852.14	N 32° 7' 12.72" W 104° 13' 7.02"	7.02	45.44	70.80
	2728.00	10.28	5.23	2723.21	-63.80	64.69	51.76	2.25	407499.20	576853.45	N 32° 7' 12.87" W 104° 13' 7.00"	7.00	38.66	82.85
	2823.00	11.65	4.74	2816.47	-81.56	82.69	53.32	1.45	407517.20	576855.02	N 32° 7' 13.05" W 104° 13' 6.98"	6.98	32.82	98.39
	2917.00	13.51	5.21	2908.21	-101.91	103.09	55.10	1.98	407537.60	576856.80	N 32° 7' 13.25" W 104° 13' 6.96"	6.96	28.13	116.89
	3011.00	15.38	1.83	2999.24	-125.28	126.48	56.50	2.18	407560.99	576859.18	N 32° 7' 13.48" W 104° 13' 6.95"	6.95	24.07	138.53
	3106.00	16.19	355.93	3090.66	-151.09	152.29	55.96	1.89	407586.79	576861.86	N 32° 7' 13.74" W 104° 13' 6.95"	6.95	20.18	162.24
	3200.00	15.93	354.87	3180.99	-177.04	178.21	53.88	0.42	407612.71	576865.57	N 32° 7' 14.00" W 104° 13' 6.97"	6.97	16.82	186.17
	3295.00	15.01	353.90	3272.55	-202.31	203.42	51.40	1.01	407637.93	576865.10	N 32° 7' 14.25" W 104° 13' 7.00"	7.00	14.18	209.82
	3389.00	14.65	352.84	3363.42	-226.26	227.32	46.63	0.48	407661.82	576860.32	N 32° 7' 14.48" W 104° 13' 7.04	7.04	12.07	232.46
	3484.00	14.03	352.22	3455.46	-249.65	250.65	45.57	0.67	407685.15	576847.27	N 32° 7' 14.71" W 104° 13' 7.07	7.07	10.30	254.76
	3578.00	13.08	356.48	3546.84	-271.59	272.56	43.38	1.47	407707.05	576845.07	N 32° 7' 14.93" W 104° 13' 7.10	7.10	9.04	275.99
	3673.00	12.77	358.66	3639.44	-292.83	293.78	42.47	0.61	407728.28	576844.17	N 32° 7' 15.14" W 104° 13' 7.11	7.11	8.23	296.84
	3767.00	13.79	0.10	3730.92	-314.42	315.37	42.25	1.14	407749.86	576843.94	N 32° 7' 15.35" W 104° 13' 7.11	7.11	7.63	318.19
	3861.00	15.13	0.98	3821.94	-337.88	338.84	42.48	1.44	407773.33	576844.17	N 32° 7' 15.58" W 104° 13' 7.10	7.10	7.15	341.50
	3956.00	14.47	0.02	3913.79	-362.14	363.11	42.69	0.74	407797.60	576844.39	N 32° 7' 15.83" W 104° 13' 7.11	7.11	6.71	365.61
	4050.00	13.46	358.89	4005.01	-384.82	385.79	42.49	1.11	407820.28	576844.18	N 32° 7' 16.05" W 104° 13' 7.10	7.10	6.28	388.12
	4144.00	14.08	359.72	4096.31	-407.19	408.16	42.22	0.69	407862.65	576843.91	N 32° 7' 16.27" W 104° 13' 7.11	7.11	5.91	410.34
	4238.00	14.97	0.15	4188.27	-431.02	431.99	42.19	0.94	407866.47	576843.89	N 32° 7' 16.51" W 104° 13' 7.11	7.11	5.58	434.05
	4333.00	13.81	359.08	4279.32	-454.37	455.35	42.05	1.27	407889.83	576843.74	N 32° 7' 16.74" W 104° 13' 7.11	7.11	5.28	457.29
	4428.00	14.39	0.98	4371.46	-477.51	478.49	42.07	0.78	407912.87	576843.76	N 32° 7' 16.97" W 104° 13' 7.11	7.11	5.02	480.33
	4522.00	15.37	2.78	4462.31	-501.61	502.61	42.87	1.15	407937.09	576843.57	N 32° 7' 17.21" W 104° 13' 7.10	7.10	4.88	504.44
	4616.00	15.08	1.72	4553.01	-526.25	527.28	43.84	0.43	407961.75	576845.54	N 32° 7' 17.45" W 104° 13' 7.09	7.09	4.75	529.10
	4711.00	14.03	0.65	4644.96	-550.10	551.14	44.34	1.14	407985.61	576846.04	N 32° 7' 17.69" W 104° 13' 7.08	7.08	4.60	552.93
	4805.00	15.05	2.20	4735.95	-573.67	574.73	44.94	1.16	408009.20	576846.64	N 32° 7' 17.92" W 104° 13' 7.07	7.07	4.47	576.49
	4900.00	15.17	2.27	4827.66	-598.39	599.48	45.91	0.13	408033.94	576847.60	N 32° 7' 18.16" W 104° 13' 7.06	7.06	4.38	601.23
	4994.00	14.71	2.03	4918.48	-622.58	623.70	46.82	0.49	408058.16	576848.51	N 32° 7' 18.40" W 104° 13' 7.05	7.05	4.29	625.45
	5088.00	13.95	2.38	5009.56	-645.81	646.94	47.71	0.81	408081.40	576849.40	N 32° 7' 18.63" W 104° 13' 7.04	7.04	4.22	648.70
	5183.00	15.03	2.42	5101.53	-669.53	669.55	48.70	1.14	408105.15	576850.40	N 32° 7' 18.87" W 104° 13' 7.03	7.03	4.15	672.46
	5277.00	14.40	2.73	5192.45	-693.36	694.55	49.78	0.68	408129.00	576851.47	N 32° 7' 19.11" W 104° 13' 7.02	7.02	4.10	696.33
	5371.00	13.78	0.75	5283.62	-716.21	717.41	50.48	0.84	408151.87	576852.17	N 32° 7' 19.33" W 104° 13' 7.01	7.01	4.02	719.19
	5466.00	13.91	0.71	5375.86	-738.93	740.15	50.77	0.78	408174.60	576852.46	N 32° 7' 19.56" W 104° 13' 7.00	7.00	3.92	743.82
	5560.00	13.12	1.30	5467.26	-760.88	762.11	51.15	0.85	408196.56	576852.85	N 32° 7' 19.77" W 104° 13' 7.00	7.00	3.84	763.82
	5655.00	10.57	358.16	5560.23	-780.37	781.60	51.12	2.77	408216.05	576852.81	N 32° 7' 19.97" W 104° 13' 7.00	7.00	3.74	783.27
	5749.00	10.39	356.69	5652.66	-797.46	798.68	50.35	1.33	408233.13	576852.05	N 32° 7' 20.14" W 104° 13' 7.01	7.01	3.61	800.27
	5843.00	9.20	354.46	5745.29	-813.42	814.62	49.13	1.66	408249.07	576850.83	N 32° 7' 20.29" W 104° 13' 7.02	7.02	3.45	816.10
	5938.00	7.80	349.54	5839.25	-827.36	828.52	47.23	1.42	408262.97	576848.93	N 32° 7' 20.43" W 104° 13' 7.04	7.04	3.26	829.87
	6032.00	6.52	346.46	5932.51	-838.87	839.98	44.82	1.62	408274.43	576846.52	N 32° 7' 20.54" W 104° 13' 7.07	7.07	3.05	841.18
	6127.00	5.66	340.74	6026.98	-848.59	849.65	42.02	1.11	408284.09	576843.71	N 32° 7' 20.64" W			

Comments	MD (ft)	Incl (°)	Azlm Grid (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (°/100ft)	Northing (ftUS)	Easting (ftUS)	Latitude (N/S ° ' ")	Longitude (E/W ° ' ")	Closure Azimuth (°)	Closure (ft)
First Legal Take Point [100' FNL, 572' FWL]	7578.00	21.09	168.93	7469.09	-874.98	875.47	14.61	8.91	408309.91	576816.31	N 32 7 20.90 W 104 13 7.42		0.96	875.59
7600.00	23.05	169.06	7489.48	-865.83	867.36	16.19	8.91	408301.80	576817.89	N 32 7 20.82 W 104 13 7.40		1.07	867.51	
7631.00	25.54	169.19	7517.73	-854.26	854.83	18.59	8.03	408289.27	576820.29	N 32 7 20.69 W 104 13 7.38		1.25	855.03	
7663.00	28.02	168.95	7546.30	-840.05	840.58	21.33	7.76	408275.12	576823.03	N 32 7 20.55 W 104 13 7.35		1.45	840.95	
7694.00	30.93	170.44	7573.28	-824.99	825.67	24.05	9.68	408260.12	576825.75	N 32 7 20.40 W 104 13 7.31		1.67	826.02	
7725.00	34.84	172.68	7599.31	-808.30	809.02	26.50	13.21	408243.47	576828.20	N 32 7 20.24 W 104 13 7.29		1.88	809.46	
7757.00	40.60	174.45	7624.61	-788.81	789.58	28.67	18.31	408224.03	576830.37	N 32 7 20.05 W 104 13 7.26		2.08	790.10	
7789.00	47.24	175.25	7647.65	-768.68	767.48	30.66	20.82	408201.93	576832.35	N 32 7 19.83 W 104 13 7.24		2.29	788.09	
7820.00	52.22	175.68	7667.88	-743.07	743.91	32.52	16.10	408178.36	576834.22	N 32 7 19.59 W 104 13 7.22		2.50	774.62	
7852.00	54.74	175.82	7688.72	-717.40	718.27	34.47	7.88	408152.72	576836.17	N 32 7 19.34 W 104 13 7.19		2.75	719.10	
7883.00	56.17	176.10	7704.30	-691.90	692.80	36.31	4.79	408127.26	576838.01	N 32 7 19.09 W 104 13 7.17		3.00	693.75	
7915.00	59.88	177.16	7721.24	-664.78	665.71	37.91	11.93	408100.17	576839.60	N 32 7 18.82 W 104 13 7.15		3.26	666.79	
7946.00	63.38	178.76	7735.97	-637.51	638.46	38.87	12.17	408072.92	576840.57	N 32 7 18.55 W 104 13 7.14		3.48	639.64	
7977.00	66.17	179.90	7749.18	-609.47	610.42	39.19	9.58	408044.88	576840.89	N 32 7 18.27 W 104 13 7.14		3.67	611.67	
8009.00	67.33	180.46	7761.82	-580.08	581.02	39.10	3.97	408015.48	576840.80	N 32 7 17.98 W 104 13 7.14		3.85	582.33	
8040.00	71.22	180.34	7772.78	-551.10	552.03	38.90	12.55	407986.50	576840.80	N 32 7 17.70 W 104 13 7.14		4.03	553.40	
8104.00	79.41	178.81	7789.00	-489.25	490.18	39.37	13.00	407924.65	576841.07	N 32 7 17.08 W 104 13 7.14		4.59	491.76	
8127.00	81.23	177.65	7792.86	-466.58	467.52	40.07	9.35	407901.99	576841.77	N 32 7 16.86 W 104 13 7.13		4.90	469.23	
8157.00	83.83	176.81	7796.76	-436.85	437.81	41.51	9.10	407872.29	576843.21	N 32 7 16.56 W 104 13 7.12		5.42	438.77	
8200.00	86.86	175.82	7800.25	-394.04	395.04	44.27	7.41	407829.53	576845.96	N 32 7 16.14 W 104 13 7.08		6.39	397.52	
8234.00	88.15	175.80	7801.73	-360.11	361.17	46.75	3.79	407795.69	576848.45	N 32 7 15.81 W 104 13 7.06		7.38	364.18	
8265.00	88.82	175.77	7802.55	-329.17	330.26	49.03	2.16	407764.75	576850.72	N 32 7 15.50 W 104 13 7.03		8.44	333.88	
8297.00	88.82	175.68	7803.21	-297.22	298.35	51.36	0.34	407732.85	576853.05	N 32 7 15.18 W 104 13 7.00		9.77	302.74	
8392.00	88.82	175.68	7805.17	-262.32	263.56	57.26	1.17	407638.06	576858.96	N 32 7 14.25 W 104 13 6.94		15.71	211.48	
8486.00	90.11	177.57	7806.04	-198.36	199.67	61.72	1.50	407544.18	576863.42	N 32 7 13.32 W 104 13 6.88		29.37	125.85	
8581.00	91.01	177.96	7805.12	-13.38	14.75	65.43	1.03	407448.27	576867.12	N 32 7 12.38 W 104 13 6.84		77.30	67.07	
8675.00	90.90	177.47	7803.55	80.59	-79.16	69.17	0.53	407355.37	576870.87	N 32 7 11.45 W 104 13 6.80		138.85	105.13	
8770.00	90.94	176.90	7802.11	175.54	-174.04	73.84	0.60	407260.50	576875.53	N 32 7 10.51 W 104 13 6.75		157.01	189.05	
8864.00	91.79	177.85	7799.95	269.48	-267.91	78.14	1.43	407166.63	576879.84	N 32 7 9.58 W 104 13 6.70		183.74	279.07	
8959.00	91.91	178.85	7796.88	364.43	-362.82	80.88	1.06	407071.73	576882.57	N 32 7 8.64 W 104 13 6.67		187.43	371.72	
9053.00	91.96	178.76	7793.71	458.37	-456.75	82.84	0.11	406977.82	576884.53	N 32 7 7.71 W 104 13 6.65		169.72	464.20	
9148.00	92.35	178.66	7790.14	553.31	-551.65	84.97	0.42	406882.92	576886.67	N 32 7 6.77 W 104 13 6.62		171.24	558.16	
9242.00	91.79	179.84	7786.74	647.24	-645.58	86.20	1.39	406789.00	576887.90	N 32 7 5.84 W 104 13 6.61		172.39	651.31	
9337.00	90.17	179.78	7785.12	742.21	-740.57	86.52	1.71	406694.02	576888.21	N 32 7 4.90 W 104 13 6.61		173.34	745.60	
9431.00	90.17	179.99	7784.84	836.19	-834.56	86.71	0.22	406600.03	576888.40	N 32 7 3.97 W 104 13 6.61		174.07	839.06	
9525.00	89.44	180.24	7785.16	930.17	-928.56	86.52	0.82	406506.04	576888.21	N 32 7 3.04 W 104 13 6.61		174.68	932.59	
9620.00	89.44	180.56	7786.09	1025.12	-1023.56	85.77	0.44	406411.06	576887.46	N 32 7 2.10 W 104 13 6.62		175.21	1027.14	
9714.00	89.33	181.09	7787.09	1119.05	-1117.54	84.34	0.47	406317.08	576886.03	N 32 7 1.17 W 104 13 6.64		175.68	1120.72	
9809.00	89.55	180.93	7788.02	1213.58	-1212.52	82.66	0.29	406222.11	576884.35	N 32 7 0.23 W 104 13 6.66		176.10	1215.33	
9903.00	89.27	181.04	7788.99	1307.91	-1306.50	81.05	0.32	406128.14	576882.74	N 32 6.59.30 W 104 13 6.68		176.45	1309.01	
9998.00	89.50	180.84	7790.01	1402.83	-1401.48	79.49	0.32	406033.17	576881.18	N 32 6.58.36 W 104 13 6.70		176.75	1403.73	
10092.00	89.66	180.82	7790.70	1496.77	-1495.47	78.13	0.17	405939.19	576879.82	N 32 6.57.43 W 104 13 6.71		177.01	1497.51	
10187.00	89.10	180.76	7791.73	1591.71	-1590.45	76.82	0.59	405844.21	576878.51	N 32 6.56.49 W 104 13 6.73		177.23	1592.31	
10281.00	88.94	179.58	7793.34	1685.67	-1684.44	76.54	1.27	405750.24	576878.23	N 32 6.55.56 W 104 13 6.73		177.40	1686.18	
10375.00	88.82	179.31	7795.17	1779.64	-1778.42	77.45	0.31	405656.27	576878.14	N 32 6.54.63 W 104 13 6.73		177.51	1780.10	
10470.00	89.83	178.58	7796.29	1874.64	-1873.39	79.20	1.31	405561.30	576880.89	N 32 6.53.69 W 104 13 6.71		177.58	1875.07	
10564.00	89.94	178.58	7796.48	1968.64	-1967.36	81.53	0.12	405467.34	576883.22	N 32 6.52.76 W 104 13 6.68		177.63	1969.05	
10658.00	90.00	178.47	7796.53	2062.63	-2061.33	83.95	0.13	405373.38	576885.64	N 32 6.51.83 W 104 13 6.65		177.67	2063.04	
10752.00	87.31	177.92	7798.74	2156.59	-2155.25	85.81	2.92	405279.47	576888.60	N 32 6.50.91 W 104 13 6.62		177.69	2157.00	
10848.00	87.03	177.70	7803.48	2252.46	-2251.05	90.57	0.37	405183.66	576892.26	N 32 6.49.96 W 104 13 6.58		177.70	2252.88	
10942.00	87.37	177.75	7808.07	2346.33	-2344.88	94.30	0.37	405089.86	576895.99	N 32 6.49.03 W 104 13 6.54		177.70	2346.77	
11037.00	87.14	177.21	7812.62	2441.20	-2439.68	98.47	0.62	404995.07	576900.16	N 32 6.48.09 W 104 13 6.49		177.69	2441.66	
11226.00	87.20	177.10	7821.95	2638.89	-2638.21	107.84	0.07	404895.55	576905.53	N 32 6.46.23 W 104 13 6.48		177.65	2630.42	
11320.00	85.74	177.80	7827.74	2723.68	-2721.94	112.01	1.72	404712.83	576913.70	N 32 6.45.30 W 104 13 6.33		177.64	2724.24	
11415.00	85.79	179.82	7834.75	2818.42	-2816.65	113.98	2.12	404618.12	576915.67	N 32 6.44.36 W 104 13 6.31		177.68	2818.96	
11603.00	86.25	177.68	7847.80	3005.95	-3004.14	118.07	1.15	404430.65	576919.76	N 32 6.42.50 W 104 13 6.27		177.75	3006.46	
11698.00	86.36	177.80	7853.93	3100.74	-3098.87	121.81	0.17	404335.93	576923.50	N 32 6.41.57 W 104 13 6.23		177.75	3101.27	
11792.00	87.87	177.56	7858.66	3194.60	-3192.67	125.61	1.63	404242.14	576927.30	N 32 6.40.64 W 104 13 6.18		177.75	3195.14	
11886.00	87.98	177.39	7862.06	3288.51	-3286.52	129.75	0.22	404148.30	576931.44	N 32 6.39.71 W 104 13 6.14		177.74	3289.08	
11981.00	87.93	177.72	7865.45	3383.43	-3381.37	133.80	0.35	404053.46	576935.49	N 32 6.38.77 W 104 13 6.09		177.73	3384.02	
12075.00	87.87	177.71	7868.89	3477.35	-3475.24	137.54	0.06	403959.60	576939.23	N 32 6.37.84 W 104 13 6.05		177.73	3477.96	
12169.00	88.15	178.00	7872.16	3571.28	-3569.11	141.06	0.43	403865.73	576942.75	N 32 6.36.91 W 104 13 6.01		177.74	3571.90	
12264.00	89.05	177.99	7874.48	3666.24	-3664.03	144.38	0.95	403770.83	576946.07	N 32 6.35.97 W 104 13 5.97		177.74	3666.87	
12358.00	89.50	178.17	7875.67	3760.22	-3757.96	147.53	0.52	403676.90	576949.22	N 32 6.35.05 W 104 13 5.93		177.75	3760.86	
12453.00	89.82	179.35	7877.06	3855.21	-3852.93	149.59	1.43	403581.84	576951.27	N 32 6.34.11 W 104 13 5.91		177.78	3855.83	
12547.00	87.93	179.57	7879.73	3949.17	-3946.89	150.47	0.98	403487.99	576952.16	N 32 6.33.18 W 104 13 5.90		177.82	3949.75	
12641.00	87.42	179.93	7883.54	4043.08	-4040.81	150.88	0.66	403394.08	576952.57	N 32 6.32.25 W 104 13 5.90		177.86	4043.62	
12736.00	87.14	179.50	7888.05	4137.96	-4135.70	151.36	0.54	403299.20	576953.04	N 32 6.31.31 W 104 13 5.90		177.90	4138.47	
12772.00	87.25	179.59	7889.81	4173.91	-4171.66	151.64	0.39	403263.25	576953.33	N 32 6.30.95 W 104 13 5.89		177.92	4174.41	
Final Survey TD, PT8, [100' FSL, 703' FWL]	12828.00	87.25	179.5											

Schlumberger

Cimarex

Final PVA

CIMAREX

Borehole:				Well:				Field:				Structure:			
Original Borehole				Cimarex Cottonberry 20 Federal 5H				NM Eddy County (NAD 83)				Cimarex Cottonberry 20 Federal 5H			
Gravity & Magnetic Parameters Number: H0000 2018 Mag Dec: 7.318° Dip: 16.791° Date: 28 Jul 2018 FB: 47554.886-T Gravity FB: 999.447mg (18.0085 Based)				Surface Location Lat: N 32 7 12.23 Long: W 106 12 7.85 NAD83 New Mexico State Plane, Eastern Zone, US Feet Northing: 407434.128018 Easting: 571851.7018 Grid Cont: 0.0000° Scale Fact: 0.99999323				Measurements Shot: Cimarex Cottonberry 20 Fudge: 50 Plan: Cimarex Cottonberry 20 Federal 5H-12020 (Barren Corrected) TVD Ref: 8483174.88 above MSL TVD Ref: 8483174.88 above MSL							
Critical Points															



Grid
True
Mag

Grid North
Tot Corr (MAG 7.257°)
Mag Dec (7.318°)
Grid Conv (0.081°)

CONTROLLED

REVISIONS

Drawing of

Title Number

Date

Scale

Author

Checker

Approver

Date

Notes

Revision

Revision

Revision

Revision

Revision

Revision

Revision

Revision

Revision

Revision

Revision

Revision

Revision

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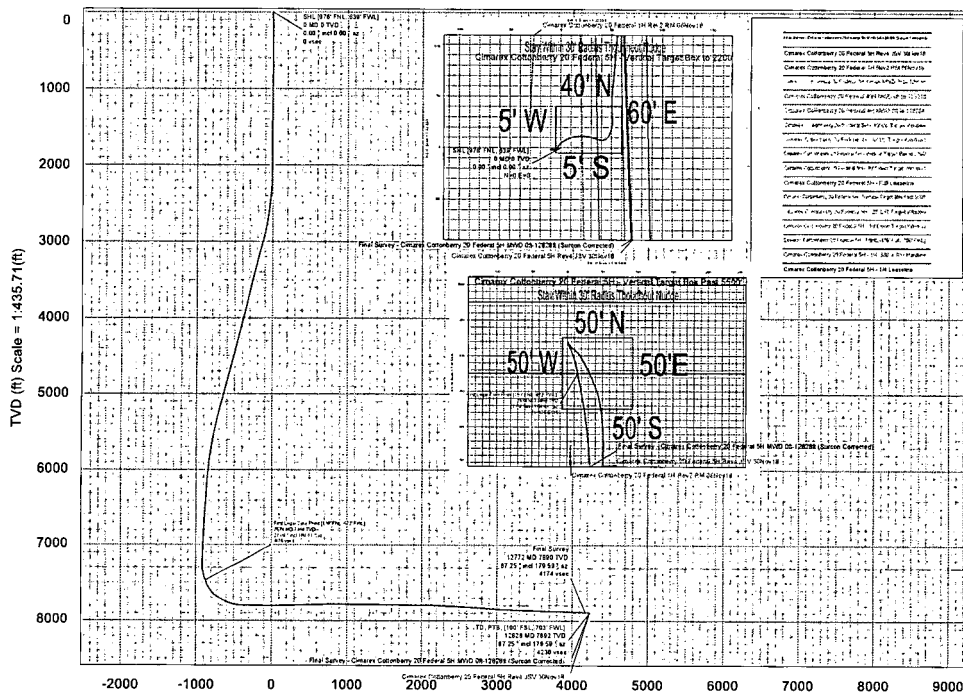
Revision

Revision

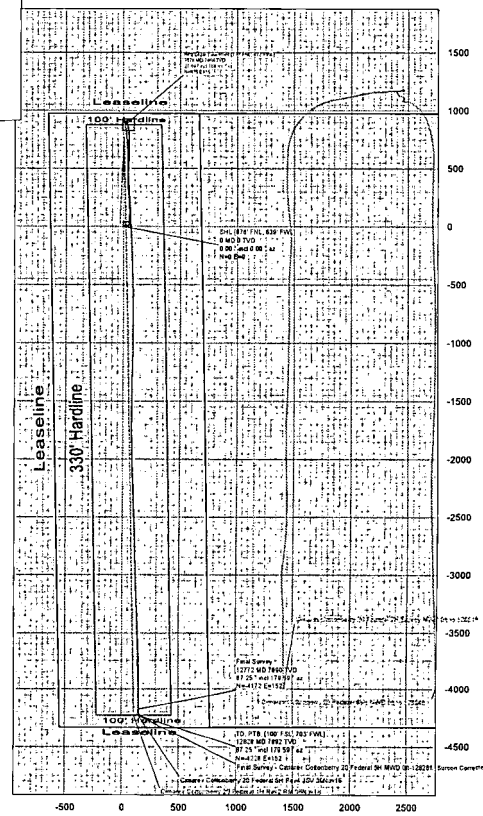
Revision

Revision

Revision



Vertical Section (ft) Azim = 178.81° Scale = 1:435.71(ft) Origin = 0N/-S, 0E/-W



EW (ft) Scale = 1:286.43(ft)