

30-025-43886

Schlumberger

Cimarex Hallertau 5 Federal #11H MWD Final(Surcon Corrected) Survey Geodetic Report (Def Survey)



Report Date: January 18, 2018 - 04:52 PM
Client: Cimarex
Field: NM Lea County (NAD 83)
Structure / Slot: Cimarex Hallertau 5 Federal #11H / Cimarex Hallertau 5 Federal #11H
Well: Cimarex Hallertau 5 Federal #11H
Borehole: Original Borehole
UWI / API#: Unknown / Unknown
Survey Name: Cimarex Hallertau 5 Federal #11H MWD Final(Surcon Corrected)
Survey Date: October 30, 2017
Tort / AHD / DDI / ERD Ratio: 213.101 * / 5454.693 ft / 6.209 / 0.458
Coordinate Reference System: NAD83 New Mexico State Plane, Eastern Zone, US Feet
Location Lat / Long: N 32° 3' 58.49745", W 103° 42' 16.35964"
Location Grid N/E/Y/X: N 388406.470 ftUS, E 736116.020 ftUS
CRS Grid Convergence Angle: 0.3338 °
Grid Scale Factor: 0.99995254
Version / Patch: 2.10.696.0
Survey / DLS Computation: Minimum Curvature / Lubinski
Vertical Section Azimuth: 359.460 ° (Grid North)
Vertical Section Origin: 0.000 ft, 0.000 ft
TVD Reference Datum: RKB
TVD Reference Elevation: 3296.500 ft above MSL
Seabed / Ground Elevation: 3271.500 ft above MSL
Magnetic Declination: 6.822 °
Total Gravity Field Strength: 998.4254mgn (9.80665 Based)
Gravity Model: GARM
Total Magnetic Field Strength: 47905.346 nT
Magnetic Dip Angle: 59.732 °
Declination Date: November 28, 2017
Magnetic Declination Model: HDGM 2017
North Reference: Grid North
Grid Convergence Used: 0.3338 °
Total Corr Mag North->Grid North: 6.4886 °
Local Coord Referenced To: Structure Reference Point

HOBBS OCD
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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 ° ' ")
SHL [490' FSL, 398' FWL]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	N/A	388406.47	736116.02	N 32 3 58.50	W 103 42 16.36
	202.00	0.95	337.82	201.99	1.56	1.55	-0.63	0.47	388408.02	736115.39	N 32 3 58.51	W 103 42 16.37
	303.00	0.84	354.16	302.98	3.07	3.06	-1.02	0.27	388409.53	736115.00	N 32 3 58.53	W 103 42 16.37
	394.00	1.00	344.86	393.97	4.50	4.49	-1.30	0.24	388410.96	736114.72	N 32 3 58.54	W 103 42 16.37
	484.00	0.60	341.91	483.96	5.71	5.70	-1.65	0.45	388412.17	736114.37	N 32 3 58.55	W 103 42 16.38
	666.00	0.71	347.21	665.95	7.72	7.70	-2.20	0.07	388414.17	736113.82	N 32 3 58.57	W 103 42 16.38
	758.00	0.60	357.44	757.94	8.76	8.74	-2.34	0.17	388415.21	736113.68	N 32 3 58.58	W 103 42 16.39
	847.00	1.14	4.80	846.93	10.11	10.09	-2.29	0.62	388416.56	736113.73	N 32 3 58.60	W 103 42 16.39
	938.00	1.24	16.21	937.91	11.95	11.94	-1.94	0.28	388418.41	736114.08	N 32 3 58.62	W 103 42 16.38
	1005.00	1.22	8.33	1004.89	13.35	13.34	-1.63	0.25	388419.81	736114.39	N 32 3 58.63	W 103 42 16.38
	1120.00	1.05	14.14	1119.87	15.58	15.57	-1.20	0.18	388422.04	736114.82	N 32 3 58.65	W 103 42 16.37
	1212.00	1.17	90.64	1211.86	16.38	16.38	-0.05	1.50	388422.85	736115.97	N 32 3 58.66	W 103 42 16.36
	1307.00	2.25	120.20	1306.82	15.41	15.43	2.53	1.43	388421.90	736118.55	N 32 3 58.65	W 103 42 16.33
	1401.00	4.59	134.95	1400.64	11.78	11.84	6.79	2.64	388418.31	736122.80	N 32 3 58.61	W 103 42 16.28
	1496.00	6.41	139.41	1495.20	5.01	5.13	12.93	1.97	388411.60	736128.95	N 32 3 58.55	W 103 42 16.21
	1590.00	5.96	135.69	1588.66	-2.53	-2.35	19.75	0.64	388404.12	736135.77	N 32 3 58.47	W 103 42 16.13
	1684.00	5.76	136.32	1682.17	-9.50	-9.25	26.42	0.22	388397.22	736142.43	N 32 3 58.40	W 103 42 16.05
	1778.00	5.71	131.55	1775.70	-16.07	-15.76	33.17	0.51	388390.71	736149.19	N 32 3 58.34	W 103 42 15.98
	1873.00	5.82	131.23	1870.21	-22.51	-22.13	40.39	0.22	388384.34	736156.41	N 32 3 58.28	W 103 42 15.89
	1967.00	5.55	131.37	1963.74	-28.77	-28.33	47.45	0.39	388378.15	736163.47	N 32 3 58.21	W 103 42 15.81
	2061.00	5.25	134.08	2057.32	-34.83	-34.32	53.95	0.42	388372.15	736169.97	N 32 3 58.15	W 103 42 15.74
	2155.00	5.00	137.66	2150.94	-40.90	-40.34	59.80	0.43	388366.13	736175.62	N 32 3 58.09	W 103 42 15.60
	2250.00	4.99	138.80	2245.58	-47.12	-46.51	65.31	0.11	388359.96	736181.33	N 32 3 58.03	W 103 42 15.60
	2344.00	4.81	139.05	2339.24	-53.23	-52.56	70.59	0.11	388353.91	736186.60	N 32 3 57.97	W 103 42 15.54
	2438.00	4.49	134.82	2432.93	-58.84	-58.13	75.78	0.50	388348.34	736191.80	N 32 3 57.92	W 103 42 15.48
	2533.00	3.63	125.03	2527.69	-63.24	-62.48	80.88	1.16	388343.99	736196.90	N 32 3 57.87	W 103 42 15.42
	2627.00	4.02	126.14	2621.48	-66.94	-66.13	85.98	0.42	388340.34	736201.99	N 32 3 57.84	W 103 42 15.37
	2721.00	4.22	128.61	2715.24	-71.14	-70.28	91.30	0.34	388336.19	736207.32	N 32 3 57.80	W 103 42 15.30
	2816.00	3.99	125.58	2810.00	-75.34	-74.43	96.68	0.39	388332.04	736212.70	N 32 3 57.76	W 103 42 15.24
	2910.00	4.13	132.53	2903.76	-79.58	-78.62	101.84	0.54	388327.85	736217.85	N 32 3 57.71	W 103 42 15.18
	3004.00	3.76	128.42	2997.54	-83.87	-82.87	106.71	0.45	388323.61	736222.73	N 32 3 57.67	W 103 42 15.13
	3099.00	4.11	134.92	3092.31	-88.30	-87.25	111.53	0.54	388319.22	736227.54	N 32 3 57.63	W 103 42 15.07
	3193.00	5.80	141.81	3185.96	-94.46	-93.36	116.85	1.90	388313.11	736232.87	N 32 3 57.57	W 103 42 15.01
	3288.00	4.72	142.82	3280.56	-101.40	-100.25	122.18	1.14	388306.23	736238.20	N 32 3 57.50	W 103 42 14.95
	3382.00	4.81	125.65	3374.24	-106.83	-105.63	127.72	1.51	388300.85	736243.74	N 32 3 57.44	W 103 42 14.88
	3476.00	5.47	118.11	3467.86	-111.30	-110.04	134.88	1.00	388296.44	736250.89	N 32 3 57.40	W 103 42 14.80
	3570.00	4.92	117.06	3561.47	-115.32	-113.98	142.42	0.59	388292.50	736256.43	N 32 3 57.36	W 103 42 14.71
	3664.00	4.33	115.47	3655.17	-118.74	-117.34	149.21	0.64	388289.14	736265.22	N 32 3 57.33	W 103 42 14.63
	3759.00	4.31	114.18	3749.90	-121.81	-120.34	155.71	0.10	388286.13	736271.72	N 32 3 57.30	W 103 42 14.56
	3853.00	4.62	117.72	3843.61	-125.08	-123.55	162.28	0.44	388282.82	736278.29	N 32 3 57.27	W 103 42 14.48
	3948.00	4.37	115.94	3938.32	-128.50	-126.92	168.92	0.30	388279.56	736284.93	N 32 3 57.23	W 103 42 14.41
	4042.00	4.45	117.76	4032.04	-131.83	-130.18	175.37	0.17	388276.30	736291.38	N 32 3 57.20	W 103 42 14.33
	4136.00	5.17	121.20	4125.71	-135.78	-134.07	182.22	0.82	388272.40	736298.23	N 32 3 57.16	W 103 42 14.25
	4231.00	5.94	124.68	4220.26	-140.87	-139.09	189.92	0.88	388267.39	736305.93	N 32 3 57.11	W 103 42 14.16
	4325.00	5.48	124.05	4313.80	-146.22	-144.37	197.64	0.49	388262.11	736313.65	N 32 3 57.06	W 103 42 14.07
	4420.00	4.53	123.98	4408.43	-150.93	-149.00	204.51	1.00	388257.47	736320.52	N 32 3 57.01	W 103 42 13.99
	4514.00	3.79	121.51	4502.19	-154.68	-152.70	210.24	0.81	388253.77	736326.25	N 32 3 56.97	W 103 42 13.93
	4608.00	3.76	120.89	4595.98	-157.93	-155.91	215.53	0.05	388250.57	736331.54	N 32 3 56.94	W 103 42 13.87
	4703.00	3.44	121.34	4690.79	-161.06	-158.99	220.64	0.34	388247.49	736336.65	N 32 3 56.91	W 103 42 13.81
	4797.00	3.50	121.18	4784.62	-164.06	-161.94	225.50	0.06	388244.54	736341.51	N 32 3 56.88	W 103 42 13.75
	4891.00	4.86	133.61	4878.37	-168.34	-166.18	230.84	1.73	388240.30	736346.85	N 32 3 56.84	W 103 42 13.69
	4985.00	4.47	133.43	4972.06	-173.66	-171.44	236.38	0.42	388235.04	736352.39	N 32 3 56.79	W 103 42 13.62
	5080.00	4.44	133.41	5066.77	-178.78	-176.51	241.74	0.03	388229.97	736357.75	N 32 3 56.74	W 103 42 13.56
	5174.00	4.21	132.24	5160.51	-183.65	-181.33	246.94	0.26	388225.15	736362.95	N 32 3 56.69	W 103 42 13.50
	5268.00	4.08	131.89	5254.26	-188.25	-185.88	251.98	0.14	388220.59	736367.99	N 32 3 56.64	W 103 42 13.44
	5362.00	3.74	129.92	5348.04	-192.50	-190.08	256.82	0.39	388216.40	736372.83	N 32 3 56.60	W 103 42 13.39
	5457.00	3.68	132.70	5442.84	-196.60	-194.14	261.44	0.20	388212.34	736377.45	N 32 3 56.56	W 103 42 13.33
	5551.00	4.52	136.23	5536.60	-201.36	-198.86	266.22	0.93	388207.62	736382.23	N 32 3 56.51	W 103 42 13.28
	5645.00	4.51	137.60	5630.31	-206.81	-204.26	271.28	0.12	388202.22	736387.28	N 32 3 56.46	W 103 42 13.22
	5739.00	4.57	141.17	5724.01	-212.50	-209.91	276.12	0.31	388196.57	736392.12	N 32 3 56.40	W 103 42 13.17
	5834.00	4.57	138.49	5818.71	-218.33	-215.69	281.00	0.22	388190.79	736397.00	N 32 3 56.35	W 103 42 13.11
	5928.00	4.37	138.62	5912.43	-223.87	-221.18	285.85	0.21	388185.30	736401.85	N 32 3 56.29	W 103 42 13.05
	6022.00	4.25	137.27	6006.16	-229.16	-226.43	290.58	0.17	388180.05	736406.58	N 32 3 56.24	W 103 42 13.00
	6116.00	3.91	135.31	6099.92	-234.04	-231.27	295.19	0.39	388175.21	736411.20	N 32 3 56.19	W 103 42 12.95

MD	Inc1	Azim Grd	TVD	VSEC	NS	EW	DLS	Northng	Eastng	Latitde	Longitde	Comments
6210.00	3.72	6193.19	6238.58	6238.58	-235.77	289.13	289.13	388115.51	736415.51	N 32	3 55.13	W 103 42 12.90
6305.00	4.24	6288.49	6343.08	6343.08	-240.20	314.50	314.50	388162.59	736420.59	N 32	3 55.10	W 103 42 12.84
6398.00	3.96	6381.25	6476.04	6476.04	-251.29	324.50	324.50	388165.25	736425.25	N 32	3 55.02	W 103 42 12.72
6493.00	3.73	6476.04	6581.25	6581.25	-261.29	334.50	334.50	388168.14	736430.14	N 32	3 55.06	W 103 42 12.60
6587.00	3.87	6568.82	6686.04	6686.04	-271.29	344.50	344.50	388171.03	736435.03	N 32	3 55.08	W 103 42 12.48
6681.00	3.85	6661.60	6791.25	6791.25	-281.29	354.50	354.50	388173.92	736440.00	N 32	3 55.04	W 103 42 12.36
6775.00	3.49	6757.41	6896.04	6896.04	-291.29	364.50	364.50	388176.81	736445.00	N 32	3 55.04	W 103 42 12.24
6868.00	3.79	6850.22	6996.04	6996.04	-301.29	374.50	374.50	388179.70	736450.00	N 32	3 55.04	W 103 42 12.12
6962.00	3.56	6943.03	7096.04	7096.04	-311.29	384.50	384.50	388182.59	736455.00	N 32	3 55.04	W 103 42 12.00
7056.00	3.90	7037.73	7196.04	7196.04	-321.29	394.50	394.50	388185.48	736460.00	N 32	3 55.04	W 103 42 11.88
7150.00	3.24	7131.55	7296.04	7296.04	-331.29	404.50	404.50	388188.37	736465.00	N 32	3 55.04	W 103 42 11.76
7245.00	3.01	7226.45	7396.04	7396.04	-341.29	414.50	414.50	388191.26	736470.00	N 32	3 55.04	W 103 42 11.64
7339.00	2.86	7320.33	7496.04	7496.04	-351.29	424.50	424.50	388194.15	736475.00	N 32	3 55.04	W 103 42 11.52
7433.00	2.73	7414.21	7596.04	7596.04	-361.29	434.50	434.50	388197.04	736480.00	N 32	3 55.04	W 103 42 11.40
7527.00	2.25	7508.17	7696.04	7696.04	-371.29	444.50	444.50	388200.00	736485.00	N 32	3 55.04	W 103 42 11.28
7625.00	2.25	7602.03	7796.04	7796.04	-381.29	454.50	454.50	388203.00	736490.00	N 32	3 55.04	W 103 42 11.16
7720.00	2.10	7700.96	7896.04	7896.04	-391.29	464.50	464.50	388206.00	736495.00	N 32	3 55.04	W 103 42 11.04
7814.00	1.93	7794.90	7996.04	7996.04	-401.29	474.50	474.50	388209.00	736500.00	N 32	3 55.04	W 103 42 10.92
7908.00	2.02	7888.85	8096.04	8096.04	-411.29	484.50	484.50	388212.00	736505.00	N 32	3 55.04	W 103 42 10.80
8003.00	1.75	7983.80	8196.04	8196.04	-421.29	494.50	494.50	388215.00	736510.00	N 32	3 55.04	W 103 42 10.68
8097.00	1.52	8078.75	8296.04	8296.04	-431.29	504.50	504.50	388218.00	736515.00	N 32	3 55.04	W 103 42 10.56
8191.00	1.35	8173.71	8396.04	8396.04	-441.29	514.50	514.50	388221.00	736520.00	N 32	3 55.04	W 103 42 10.44
8285.00	1.35	8268.66	8496.04	8496.04	-451.29	524.50	524.50	388224.00	736525.00	N 32	3 55.04	W 103 42 10.32
8379.00	1.06	8363.61	8596.04	8596.04	-461.29	534.50	534.50	388227.00	736530.00	N 32	3 55.04	W 103 42 10.20
8474.00	1.03	8458.56	8696.04	8696.04	-471.29	544.50	544.50	388230.00	736535.00	N 32	3 55.04	W 103 42 10.08
8568.00	0.81	8553.51	8796.04	8796.04	-481.29	554.50	554.50	388233.00	736540.00	N 32	3 55.04	W 103 42 9.96
8662.00	0.56	8648.46	8896.04	8896.04	-491.29	564.50	564.50	388236.00	736545.00	N 32	3 55.04	W 103 42 9.84
8756.00	0.52	8743.41	8996.04	8996.04	-501.29	574.50	574.50	388239.00	736550.00	N 32	3 55.04	W 103 42 9.72
8850.00	0.26	8838.36	9096.04	9096.04	-511.29	584.50	584.50	388242.00	736555.00	N 32	3 55.04	W 103 42 9.60
8945.00	0.66	8933.31	9196.04	9196.04	-521.29	594.50	594.50	388245.00	736560.00	N 32	3 55.04	W 103 42 9.48
9039.00	0.62	9028.26	9296.04	9296.04	-531.29	604.50	604.50	388248.00	736565.00	N 32	3 55.04	W 103 42 9.36
9133.00	0.80	9123.21	9396.04	9396.04	-541.29	614.50	614.50	388251.00	736570.00	N 32	3 55.04	W 103 42 9.24
9227.00	0.46	9218.16	9496.04	9496.04	-551.29	624.50	624.50	388254.00	736575.00	N 32	3 55.04	W 103 42 9.12
9321.00	1.94	9313.11	9596.04	9596.04	-561.29	634.50	634.50	388257.00	736580.00	N 32	3 55.04	W 103 42 9.00
9415.00	2.05	9408.06	9696.04	9696.04	-571.29	644.50	644.50	388260.00	736585.00	N 32	3 55.04	W 103 42 8.88
9509.00	1.98	9503.01	9796.04	9796.04	-581.29	654.50	654.50	388263.00	736590.00	N 32	3 55.04	W 103 42 8.76
9607.00	1.52	9597.96	9896.04	9896.04	-591.29	664.50	664.50	388266.00	736595.00	N 32	3 55.04	W 103 42 8.64
9701.00	1.59	9692.91	9996.04	9996.04	-601.29	674.50	674.50	388269.00	736600.00	N 32	3 55.04	W 103 42 8.52
9805.00	1.20	9787.86	10096.04	10096.04	-611.29	684.50	684.50	388272.00	736605.00	N 32	3 55.04	W 103 42 8.40
9909.00	0.78	9882.81	10196.04	10196.04	-621.29	694.50	694.50	388275.00	736610.00	N 32	3 55.04	W 103 42 8.28
10004.00	1.15	9977.76	10296.04	10296.04	-631.29	704.50	704.50	388278.00	736615.00	N 32	3 55.04	W 103 42 8.16
10108.00	1.72	10072.71	10396.04	10396.04	-641.29	714.50	714.50	388281.00	736620.00	N 32	3 55.04	W 103 42 8.04
10212.00	2.07	10167.66	10496.04	10496.04	-651.29	724.50	724.50	388284.00	736625.00	N 32	3 55.04	W 103 42 7.92
10316.00	1.48	10262.61	10596.04	10596.04	-661.29	734.50	734.50	388287.00	736630.00	N 32	3 55.04	W 103 42 7.80
10420.00	1.72	10357.56	10696.04	10696.04	-671.29	744.50	744.50	388290.00	736635.00	N 32	3 55.04	W 103 42 7.68
10524.00	2.07	10452.51	10796.04	10796.04	-681.29	754.50	754.50	388293.00	736640.00	N 32	3 55.04	W 103 42 7.56
10628.00	1.41	10547.46	10896.04	10896.04	-691.29	764.50	764.50	388296.00	736645.00	N 32	3 55.04	W 103 42 7.44
10732.00	1.27	10642.41	10996.04	10996.04	-701.29	774.50	774.50	388299.00	736650.00	N 32	3 55.04	W 103 42 7.32
10836.00	0.56	10737.36	11096.04	11096.04	-711.29	784.50	784.50	388302.00	736655.00	N 32	3 55.04	W 103 42 7.20
10940.00	0.71	10832.31	11196.04	11196.04	-721.29	794.50	794.50	388305.00	736660.00	N 32	3 55.04	W 103 42 7.08
11044.00	1.17	10927.26	11296.04	11296.04	-731.29	804.50	804.50	388308.00	736665.00	N 32	3 55.04	W 103 42 6.96
11148.00	1.43	11022.21	11396.04	11396.04	-741.29	814.50	814.50	388311.00	736670.00	N 32	3 55.04	W 103 42 6.84
11252.00	1.48	11117.16	11496.04	11496.04	-751.29	824.50	824.50	388314.00	736675.00	N 32	3 55.04	W 103 42 6.72
11356.00	1.35	11212.11	11596.04	11596.04	-761.29	834.50	834.50	388317.00	736680.00	N 32	3 55.04	W 103 42 6.60
11460.00	1.72	11307.06	11696.04	11696.04	-771.29	844.50	844.50	388320.00	736685.00	N 32	3 55.04	W 103 42 6.48
11564.00	4.73	11402.01	11796.04	11796.04	-781.29	854.50	854.50	388323.00	736690.00	N 32	3 55.04	W 103 42 6.36
11668.00	6.05	11496.96	11896.04	11896.04	-791.29	864.50	864.50	388326.00	736695.00	N 32	3 55.04	W 103 42 6.24
11772.00	8.35	11591.91	11996.04	11996.04	-801.29	874.50	874.50	388329.00	736700.00	N 32	3 55.04	W 103 42 6.12
11876.00	4.93	11686.86	12096.04	12096.04	-811.29	884.50	884.50	388332.00	736705.00	N 32	3 55.04	W 103 42 6.00
11980.00	6.66	11781.81	12196.04	12196.04	-821.29	894.50	894.50	388335.00	736710.00	N 32	3 55.04	W 103 42 5.88
12084.00	6.66	11876.76	12296.04	12296.04	-831.29	904.50	904.50	388338.00	736715.00	N 32	3 55.04	W 103 42 5.76
12188.00	6.38	11971.71	12396.04	12396.04	-841.29	914.50	914.50	388341.00	736720.00	N 32	3 55.04	W 103 42 5.64
12292.00	6.70	12066.66	12496.04	12496.04	-851.29	924.50	924.50	388344.00	736725.00	N 32	3 55.04	W 103 42 5.52
12396.00	6.63	12161.61	12596.04	12596.04	-861.29	934.50	934.50	388347.00	736730.00	N 32	3 55.04	W 103 42 5.40
12500.00	5.01	12256.56	12696.04	12696.04	-871.29	944.50	944.50	388350.00	736735.00	N 32	3 55.04	W 103 42 5.28
12604.00	6.52	12351.51	12796.04	12796.04	-881.29	954.50	954.50	388353.00	736740.00	N 32	3 55.04	W 103 42 5.16
12708.00	6.80	12446.46	12896.04	12896.04	-891.29	964.50	964.50	388356.00	736745.00	N 32	3 55.04	W 103 42 5.04
12812.00	6.40	12541.41	12996.04	12996.04	-901.29	974.50	974.50	388359.00	736750.00	N 32	3 55.04	W 103 42 4.92
12916.00	6.35	12636.36	13096.04	13096.04	-911.29	984.50	984.50	388362.00	736755.00	N 32	3 55.04	W 103 42 4.80
13020.00	6.09	12731.31	13196.04	13196.04	-921.29	994.50	994.50	388365.00	736760.00	N 32	3 55.04	W 103 42 4.68
13124.00	4.82	12826.26	13296.04	13296.04	-931.29	1004.50	1004.50	388368.00	736765.00	N 32	3 55.04	W 103 42 4.56
13228.00	4.28	12921.21	13396.04	13396.04	-941.29	1014.50	1014.50	388371.00	736770.00	N 32	3 55.04	W 103 42 4.44
13332.00	2.75	13016.16	13496.04	13496.04	-951.29	1024.50	1024.50	388374.00	736775.00	N 32	3 55.04	W 103 42 4.32
13436.00	1.91	13111.11	13596.04	13596.04	-961.29	1034.50	1034.50	388377.00	736780.00	N 32	3 55.04	W 103 42 4.20
13540.00	6.76	13206.06	13696.04	13696.04	-971.29	1044.50	1044.5					

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 ° ' ")
	15068.00	89.00	358.80	11896.31	3008.49	3012.35	386.16	3.25	391418.68	736512.16	N 32 4 28.28	W 103 42 11.55
	15162.00	90.03	357.59	11897.10	3102.46	3106.30	393.20	1.69	391512.62	736509.20	N 32 4 29.21	W 103 42 11.58
	15256.00	89.59	0.52	11897.41	3196.44	3200.28	391.65	3.15	391606.59	736507.65	N 32 4 30.14	W 103 42 11.59
	15351.00	89.38	0.63	11898.27	3291.42	3295.27	392.61	0.25	391701.58	736508.61	N 32 4 31.08	W 103 42 11.57
	15445.00	89.72	359.55	11899.01	3385.41	3389.26	392.75	1.20	391795.57	736508.75	N 32 4 32.01	W 103 42 11.57
	15539.00	90.41	359.14	11898.90	3479.41	3483.26	391.68	0.85	391889.55	736507.68	N 32 4 32.94	W 103 42 11.57
	15634.00	89.35	359.73	11899.10	3574.41	3578.25	390.74	1.28	391984.54	736506.74	N 32 4 33.88	W 103 42 11.58
	15727.00	89.24	359.14	11900.24	3667.40	3671.24	389.83	0.65	392077.53	736505.83	N 32 4 34.80	W 103 42 11.58
	15822.00	89.28	359.55	11901.47	3762.39	3766.22	388.74	0.43	392172.51	736504.74	N 32 4 35.74	W 103 42 11.59
	15916.00	89.35	359.90	11902.59	3856.39	3860.22	388.29	0.38	392266.50	736504.29	N 32 4 36.67	W 103 42 11.59
	16011.00	89.66	0.26	11903.41	3951.38	3955.21	388.42	0.50	392361.49	736504.42	N 32 4 37.61	W 103 42 11.58
	16105.00	90.14	359.45	11903.58	4045.37	4049.21	388.18	1.00	392455.48	736504.18	N 32 4 38.54	W 103 42 11.57
	16199.00	90.24	358.99	11903.27	4139.37	4143.20	386.90	0.50	392549.47	736502.90	N 32 4 39.47	W 103 42 11.58
	16293.00	91.37	358.59	11901.95	4233.35	4237.17	384.92	1.28	392643.43	736500.92	N 32 4 40.40	W 103 42 11.60
	16387.00	91.17	359.55	11899.86	4327.33	4331.13	383.39	1.04	392737.39	736499.39	N 32 4 41.33	W 103 42 11.61
	16481.00	92.24	359.80	11897.07	4421.28	4425.09	382.86	1.17	392831.34	736498.86	N 32 4 42.26	W 103 42 11.61
	16530.00	93.65	0.04	11894.55	4470.22	4474.02	382.79	2.92	392880.27	736498.79	N 32 4 42.75	W 103 42 11.61
TD, project to bit	16579.00	93.65	0.04	11891.43	4519.11	4522.92	382.83	0.00	392929.17	736498.83	N 32 4 43.23	W 103 42 11.60

Survey Type: Def Survey

Survey Error Model: ISCWSA Rev 0 *** 3-D 95.000% Confidence 2.7955 sigma
Survey Program:

Description	Part	MD From (ft)	MD To (ft)	EQU Freq (ft)	Hole Size (in)	Casing Diameter (in)	Survey Tool Type	Borehole / Survey
	1	0.000	25.000	1/98.425	30.000	30.000	NAL_MWD_IFR1-Depth Only	Original Borehole / Cimarex Hallertau 5 Federal #11H MWD Final(Surcon Corrected)
	1	25.000	25.000	Act Stns	30.000	30.000	NAL_MWD_IFR1-Depth Only	Original Borehole / Cimarex Hallertau 5 Federal #11H MWD Final(Surcon Corrected)
	1	25.000	16579.000	Act Stns	30.000	30.000	NAL_MWD_IFR1	Original Borehole / Cimarex Hallertau 5 Federal #11H MWD

Borehole:				Well:				Field:				Structure:			
Original Borehole				Cimarex Hallertau 5 Federal #11H				NM Lea County (NAD 83)				Cimarex Hallertau 5 Federal #11H			
Gravity & Magnetic Parameters								Surface Location				Miscellaneous			
Model: HDGM 2017		Dip: 59.732°		Date: 28-Nov-2017		Lat: N 32 3 58.50		Northings: 388406.477US		Grid Conv: 0.3338°		Cimarex Hallertau 5 Federal #11H		TVD Ref: RKB(3298.5ft above MSL)	
MagDec: 8.822°		FS: 47905.348nT		Gravity FS: 998.423mgals (9.80665 Based)		Lon: W 103 42 18.36		Easting: 736116.028US		Scale Fact: 0.99995254		Cimarex Hallertau 5 Federal #11H MWD Final(Surcon Corrected)			

Critical Points

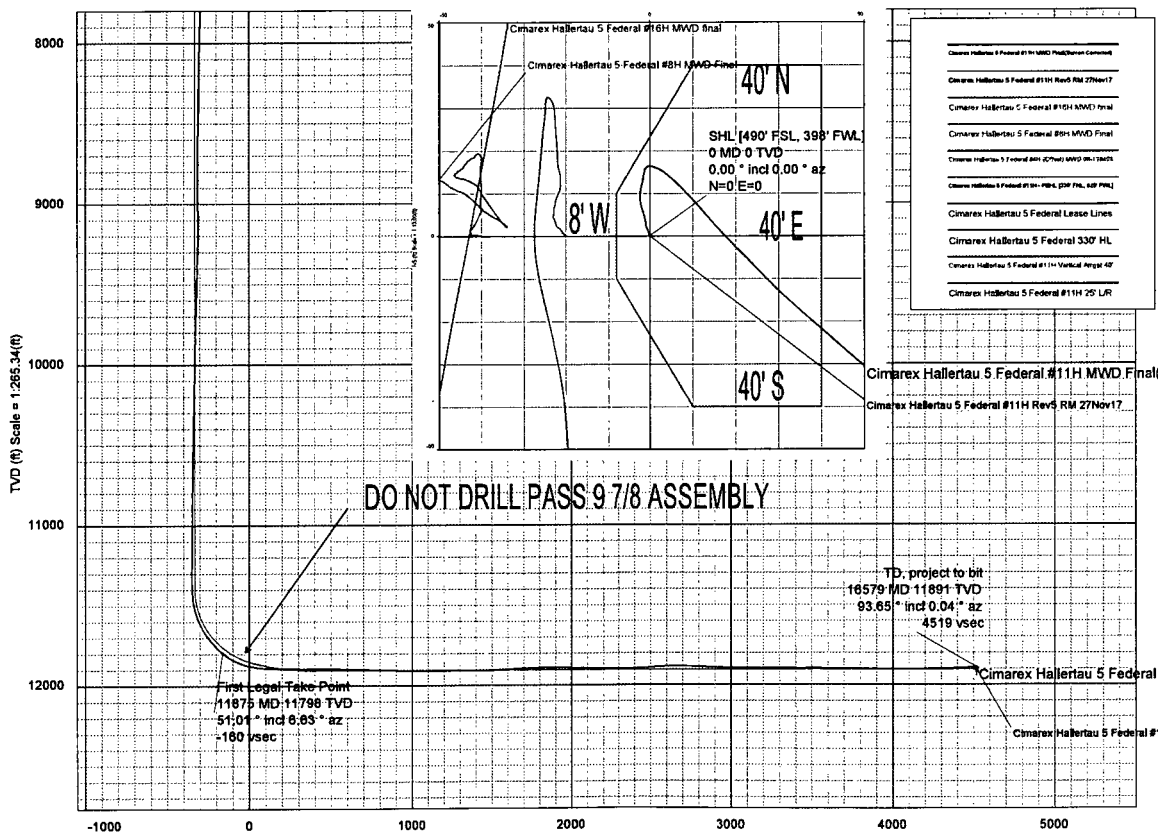
Critical Point	MD	INCL	AZIM	TVD	VSEC	N(+)/S(-)	E(+)/W(-)	DLS
SHL [490' FSL, 398' FWL]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
First Legal Take Point	11875.00	51.01	6.63	11797.94	-159.55	-155.84	394.15	13.16
TD, project to bit	16579.00	93.65	0.04	11891.43	4519.11	4522.92	382.83	0.00



Grid
True
Mag

Grid North
Tot Cor (M-G 6.489°)
Mag Dec (8.822°)
Grid Conv (0.334°)

CONTROLLED	
Plan ref	Cimarex Hallertau 5 Federal #11H MWD
Drawing ref	Final(Surcon Corrected)
Copy number	of 3
Date	18-Jan-2018
1 Client	
2 Client	
3 Office	
4 Office	
Copy number	for



Vertical Section (ft) Azim = 359.46° Scale = 1:265.34 (ft) Origin = 0N-S, 0E-W

