

Schlumberger

30015 42161

Survey White City 8 Federal #4H MWD 0ft to 12013ft Survey Report

(Def Survey)

Report Date: October 06, 2015 - 04:36 PM
 Client: Cimarex
 Field: NIM Eddy County (NAD 83)
 Structure / Slot: Cimarex White City 8 Federal #4H / Cimarex White City 8 Federal #4H
 Well: Cimarex White City 8 Federal #4H
 Borehole: Original Borehole
 UWI / AP#: Unknown / Unknown
 Survey Name: Survey White City 8 Federal #4H MWD 0ft to 12013ft
 Survey Date: September 22, 2015
 Tort / AHD / DDI / ERO Ratio: 163.733 / 4949.585 ft / 6.114 / 0.660
 Coordinate Reference System: NAD83 New Mexico State Plane, Eastern Zone, US Feet
 Location Lat / Long: N 32° 8' 17.60374" W 104° 12' 37.48418"
 Location Grid NE VIX: N 414043.000 ftUS, E 579384.300 ftUS
 CRS Grid Convergence Angle: 0.0654°
 Grid Scale Factor: 0.99991075
 Version / Patch: 2.8.572.0

Survey / DLS Computation: Minimum Curvature / Lubinski
 Vertical Section Azimuth: 0.330° (Grid North)
 Vertical Section Origin: 0.000 ft, 0.000 ft
 TVD Reference Datum: RKB
 TVD Reference Elevation: 3260.000 ft above MSL
 Seabed / Ground Elevation: 3235.000 ft above MSL
 Magnetic Declination: 7.606°
 Total Gravity Field Strength: 998.4396mgm (9.80665 Based)
 Gravity Model: GARM
 Total Magnetic Field Strength: 48218.150 nT
 Magnetic Dip Angle: 59.915°
 Declination Date: September 22, 2015
 Magnetic Declination Model: HDGM 2015
 North Reference: Grid North
 Grid Convergence Used: 0.0654°
 Total Corr Mag North->Grid North: 7.5411°
 Local Coord Referenced To: Structure Reference Point

Provide signature page for Survey
 Frac report not on file currently

NM OIL CONSERVATION
 ARTESIA DISTRICT
 NOV 20 2015
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Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (ft/100ft)	Northing (ftUS)	Easting (ftUS)	Latitude (N/S ° ' '')	Longitude (E/W ° ' '')
SHL - Cimarex White City 8 Federal #4H - 2030' F.E.L., 330' FSL	0.00	0.00	8.50	0.00	0.00	0.00	0.00	N/A	414043.00	579384.30	N 32° 8' 17.60"	W 104° 12' 37.48"
	148.00	1.19	359.67	147.99	1.54	1.54	-0.01	0.80	414044.54	579384.29	N 32° 8' 17.62"	W 104° 12' 37.48"
	207.00	1.19	4.55	206.98	2.76	2.76	0.04	0.17	414045.78	579384.34	N 32° 8' 17.63"	W 104° 12' 37.48"
	301.00	1.19	356.86	300.96	4.71	4.71	0.06	0.17	414047.71	579384.36	N 32° 8' 17.65"	W 104° 12' 37.48"
	406.00	1.71	3.67	405.92	7.36	7.36	0.10	0.52	414050.36	579384.40	N 32° 8' 17.68"	W 104° 12' 37.48"
	450.00	1.71	3.67	449.90	8.67	8.67	0.18	0.00	414051.67	579384.48	N 32° 8' 17.69"	W 104° 12' 37.48"
	543.00	1.80	15.67	542.86	11.47	11.46	0.67	0.41	414054.46	579384.97	N 32° 8' 17.72"	W 104° 12' 37.48"
	609.00	1.89	16.85	608.83	13.51	13.50	1.26	0.15	414056.50	579385.56	N 32° 8' 17.74"	W 104° 12' 37.47"
	669.00	2.11	21.56	668.79	15.49	15.48	1.96	0.46	414058.47	579386.26	N 32° 8' 17.76"	W 104° 12' 37.46"
	760.00	2.29	24.85	759.72	18.70	18.68	3.34	0.24	414061.68	579387.64	N 32° 8' 17.79"	W 104° 12' 37.45"
	851.00	2.50	21.39	850.64	22.21	22.18	4.82	0.28	414065.18	579389.12	N 32° 8' 17.82"	W 104° 12' 37.43"
	942.00	2.59	21.25	941.55	25.98	25.95	6.29	0.10	414068.94	579390.58	N 32° 8' 17.86"	W 104° 12' 37.41"
	1030.00	2.68	23.67	1029.46	29.73	29.68	7.84	0.16	414072.68	579392.14	N 32° 8' 17.90"	W 104° 12' 37.39"
	1124.00	2.90	27.18	1123.35	33.87	33.81	9.81	0.30	414076.81	579394.11	N 32° 8' 17.94"	W 104° 12' 37.37"
	1215.00	1.01	73.28	1214.30	36.16	36.09	11.63	2.55	414079.09	579395.93	N 32° 8' 17.96"	W 104° 12' 37.35"
	1307.00	1.41	85.19	1306.27	36.49	36.42	13.53	0.51	414079.41	579397.83	N 32° 8' 17.96"	W 104° 12' 37.33"
	1396.00	2.29	86.68	1395.23	36.71	36.61	16.40	0.99	414079.61	579400.70	N 32° 8' 17.97"	W 104° 12' 37.29"
	1491.00	2.29	88.66	1490.15	36.88	36.77	20.19	0.08	414079.76	579404.49	N 32° 8' 17.97"	W 104° 12' 37.25"
	1586.00	3.12	88.75	1585.04	37.01	36.87	24.67	0.87	414079.86	579408.97	N 32° 8' 17.97"	W 104° 12' 37.20"

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (7100ft)	Northing (ftUS)	Easting (ftUS)	Latitude (N/S ° '")	Longitude (E/W ° '")
	1681.00	2.42	126.06	1679.94	35.91	35.74	28.88	1.99	414078.74	579413.18	N 32 8 17.96	W 104 12 37.15
	1776.00	2.68	121.58	1774.85	33.59	33.40	32.39	0.34	414076.40	579416.69	N 32 8 17.93	W 104 12 37.11
	1870.00	3.52	116.48	1868.71	31.17	30.96	36.85	0.94	414073.96	579421.14	N 32 8 17.91	W 104 12 37.06
	1889.00	1.89	148.38	1987.58	27.90	27.66	41.15	1.82	414070.66	579425.44	N 32 8 17.88	W 104 12 37.01
	2156.00	1.89	144.69	2154.49	23.32	23.07	44.18	0.07	414066.07	579428.48	N 32 8 17.83	W 104 12 36.97
	2251.00	1.89	138.76	2249.44	20.88	20.61	46.12	0.21	414063.61	579430.42	N 32 8 17.81	W 104 12 36.95
	2347.00	2.02	141.26	2345.38	18.38	18.10	48.22	0.16	414061.10	579432.52	N 32 8 17.78	W 104 12 36.92
	2442.00	2.02	135.29	2440.32	15.90	15.61	50.45	0.22	414058.61	579434.74	N 32 8 17.76	W 104 12 36.90
	2536.00	2.02	141.66	2534.26	13.43	13.13	52.64	0.24	414056.13	579436.94	N 32 8 17.73	W 104 12 36.87
	2631.00	1.89	148.16	2629.21	10.80	10.48	54.51	0.27	414053.49	579438.80	N 32 8 17.71	W 104 12 36.85
	2726.00	1.80	139.86	2724.16	8.34	8.01	56.30	0.30	414051.01	579440.59	N 32 8 17.68	W 104 12 36.83
	2821.00	1.58	148.78	2819.12	6.09	5.75	57.94	0.36	414048.75	579442.23	N 32 8 17.66	W 104 12 36.81
	2916.00	1.58	150.98	2914.08	3.83	3.49	59.25	0.06	414046.49	579443.54	N 32 8 17.64	W 104 12 36.80
	3010.00	1.41	145.26	3008.05	1.75	1.41	60.54	0.24	414044.41	579444.83	N 32 8 17.62	W 104 12 36.78
	3105.00	1.41	144.47	3103.02	-0.15	-0.51	61.88	0.02	414042.49	579446.18	N 32 8 17.60	W 104 12 36.76
	3200.00	1.41	145.97	3197.99	-2.06	-2.43	63.22	0.04	414040.57	579447.51	N 32 8 17.58	W 104 12 36.75
	3295.00	1.32	147.59	3292.96	-3.95	-4.32	64.46	0.10	414038.68	579448.75	N 32 8 17.56	W 104 12 36.73
	3389.00	1.41	152.38	3386.94	-5.88	-6.26	65.57	0.15	414036.74	579449.87	N 32 8 17.54	W 104 12 36.72
	3484.00	1.49	143.29	3481.91	-7.90	-8.28	66.85	0.26	414034.72	579451.15	N 32 8 17.52	W 104 12 36.71
	3579.00	1.32	151.46	3576.88	-9.84	-10.23	68.11	0.28	414032.77	579452.41	N 32 8 17.50	W 104 12 36.69
	3674.00	1.32	156.95	3671.85	-11.81	-12.20	69.07	0.13	414030.80	579453.36	N 32 8 17.48	W 104 12 36.68
	3769.00	1.19	151.15	3766.83	-13.67	-14.07	69.97	0.19	414028.93	579454.26	N 32 8 17.46	W 104 12 36.67
	3864.00	1.19	162.18	3861.81	-15.47	-15.88	70.75	0.24	414027.12	579455.04	N 32 8 17.45	W 104 12 36.66
	3959.00	1.32	159.37	3956.79	-17.43	-17.84	71.43	0.15	414025.16	579455.73	N 32 8 17.43	W 104 12 36.65
	4054.00	1.32	163.76	4051.76	-19.50	-19.91	72.13	0.11	414023.09	579456.42	N 32 8 17.41	W 104 12 36.65
	4148.00	1.49	162.58	4145.73	-21.70	-22.12	72.80	0.18	414020.88	579457.09	N 32 8 17.38	W 104 12 36.64
	4245.00	1.41	176.99	4242.70	-24.09	-24.52	73.24	0.38	414018.49	579457.53	N 32 8 17.36	W 104 12 36.63
	4339.00	1.19	191.36	4336.68	-26.21	-26.63	73.10	0.42	414016.38	579457.40	N 32 8 17.34	W 104 12 36.63
	4433.00	1.10	205.86	4430.66	-27.98	-28.40	72.92	0.32	414014.61	579456.81	N 32 8 17.32	W 104 12 36.64
	4527.00	1.01	195.67	4524.65	-29.59	-30.01	71.90	0.22	414013.00	579456.19	N 32 8 17.31	W 104 12 36.65
	4624.00	1.19	188.86	4621.63	-31.41	-31.82	71.52	0.23	414011.18	579455.81	N 32 8 17.29	W 104 12 36.65
	4717.00	1.19	179.67	4714.61	-33.33	-33.74	71.37	0.21	414009.26	579455.67	N 32 8 17.27	W 104 12 36.65
	4812.00	1.32	169.48	4809.58	-35.39	-35.81	71.58	0.27	414007.20	579455.87	N 32 8 17.25	W 104 12 36.65
	4907.00	1.19	174.75	4904.56	-37.45	-37.86	71.87	0.18	414005.14	579456.16	N 32 8 17.23	W 104 12 36.65
	5001.00	1.19	174.88	4998.54	-39.39	-39.81	72.04	0.00	414003.19	579456.34	N 32 8 17.21	W 104 12 36.65
	5096.00	1.19	166.27	5093.52	-41.33	-41.75	72.37	0.19	414001.25	579456.66	N 32 8 17.19	W 104 12 36.64
	5191.00	1.19	173.39	5188.50	-43.27	-43.69	72.71	0.16	413999.32	579457.01	N 32 8 17.17	W 104 12 36.64
	5286.00	1.32	174.49	5283.48	-45.34	-45.76	72.93	0.14	413997.25	579457.23	N 32 8 17.15	W 104 12 36.64
	5380.00	1.49	177.98	5377.45	-47.63	-48.06	72.86	0.20	413994.95	579457.37	N 32 8 17.13	W 104 12 36.63
	5475.00	1.49	174.97	5472.42	-50.10	-50.52	73.23	0.08	413992.48	579457.53	N 32 8 17.10	W 104 12 36.63
	5570.00	1.49	174.35	5567.39	-52.56	-52.98	73.46	0.02	413990.02	579457.76	N 32 8 17.08	W 104 12 36.63
	5665.00	1.89	188.68	5662.34	-55.34	-55.76	73.35	0.61	413987.25	579457.64	N 32 8 17.05	W 104 12 36.63
	5760.00	2.20	197.47	5757.28	-58.63	-59.05	72.56	0.46	413983.96	579456.86	N 32 8 17.02	W 104 12 36.64
	5854.00	1.49	197.38	5851.23	-61.52	-61.93	71.66	0.76	413981.07	579455.95	N 32 8 16.99	W 104 12 36.65
	5949.00	1.01	173.08	5946.21	-63.53	-63.94	71.39	0.74	413979.06	579455.68	N 32 8 16.97	W 104 12 36.65
	6044.00	0.79	144.87	6041.20	-64.90	-65.31	71.87	0.51	413977.70	579456.16	N 32 8 16.96	W 104 12 36.65
	6138.00	1.19	186.97	6135.19	-66.39	-66.81	72.12	0.85	413976.20	579456.41	N 32 8 16.94	W 104 12 36.65

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 ° ' '')
Last Extreme Survey	6233.00	2.29	207.05	6230.14	-69.07	-69.48	71.14	1.31	413973.53	579455.43	N 32 8 16.92	W 104 12 36.66
	6238.00	2.50	202.88	6325.06	-72.68	-73.08	69.47	0.29	413968.93	579453.76	N 32 8 16.88	W 104 12 36.68
	6423.00	2.68	195.67	6419.96	-76.73	-77.13	68.06	0.39	413965.88	579452.36	N 32 8 16.84	W 104 12 36.69
	6518.00	2.99	198.48	6514.85	-81.23	-81.61	66.68	0.36	413961.39	579450.97	N 32 8 16.80	W 104 12 36.71
	6612.00	2.90	212.06	6608.72	-85.58	-85.95	64.64	0.75	413957.05	579448.93	N 32 8 16.75	W 104 12 36.73
	6707.00	2.70	220.98	6703.61	-89.32	-89.68	61.90	0.50	413953.33	579446.19	N 32 8 16.72	W 104 12 36.77
	6802.00	2.50	223.57	6798.51	-92.53	-92.87	59.00	0.24	413950.14	579443.30	N 32 8 16.68	W 104 12 36.80
	6897.00	1.40	218.56	6893.46	-94.95	-95.28	56.85	1.17	413947.73	579441.14	N 32 8 16.66	W 104 12 36.82
	6961.00	0.70	198.09	6957.45	-95.94	-96.26	56.24	1.22	413946.75	579440.54	N 32 8 16.65	W 104 12 36.83
	7023.00	2.82	10.81	7019.43	-94.80	-95.12	56.41	5.67	413947.89	579440.70	N 32 8 16.66	W 104 12 36.83
First Legal Take Point	7070.00	10.29	1.74	7066.09	-89.46	-89.78	56.75	16.00	413953.22	579441.05	N 32 8 16.71	W 104 12 36.83
	7118.00	17.22	352.14	7112.69	-78.12	-78.45	55.91	14.35	413964.56	579440.21	N 32 8 16.83	W 104 12 36.83
	7165.00	23.94	350.43	7156.66	-61.82	-62.13	53.37	15.15	413980.87	579437.67	N 32 8 16.99	W 104 12 36.86
	7213.00	28.34	353.33	7199.74	-40.91	-41.20	50.43	9.54	414001.80	579434.72	N 32 8 17.20	W 104 12 36.90
	7260.00	31.92	356.20	7240.39	-17.44	-17.72	48.31	8.21	414025.29	579432.60	N 32 8 17.43	W 104 12 36.92
	7292.00	34.90	357.67	7267.10	0.15	-0.12	47.38	9.66	414042.88	579431.67	N 32 8 17.60	W 104 12 36.93
	7308.00	36.40	358.33	7280.10	9.47	9.20	47.05	9.66	414052.20	579431.35	N 32 8 17.69	W 104 12 36.94
	7355.00	41.08	358.71	7316.75	38.86	38.59	46.30	9.97	414081.59	579430.59	N 32 8 17.99	W 104 12 36.95
	7402.00	46.22	359.05	7350.75	71.28	71.02	45.67	10.95	414114.01	579429.96	N 32 8 18.31	W 104 12 36.95
	7449.00	52.68	0.15	7381.29	106.97	106.71	45.43	13.86	414149.70	579429.73	N 32 8 18.66	W 104 12 36.95
	7497.00	57.49	0.34	7408.75	146.32	146.06	45.60	10.03	414189.04	579429.90	N 32 8 19.05	W 104 12 36.95
	7544.00	61.52	359.13	7432.60	186.80	186.54	45.41	8.86	414229.53	579429.70	N 32 8 19.45	W 104 12 36.95
	7590.00	64.17	356.76	7453.59	227.69	227.44	43.93	7.34	414270.42	579428.23	N 32 8 19.85	W 104 12 36.97
	7639.00	71.67	356.53	7472.00	272.97	272.74	41.27	15.31	414315.71	579425.57	N 32 8 20.30	W 104 12 37.00
	7686.00	79.91	357.68	7483.53	318.42	318.20	38.98	17.69	414361.17	579423.28	N 32 8 20.75	W 104 12 37.03
	7780.00	86.77	359.59	7494.42	411.68	411.48	36.77	7.57	414454.44	579421.07	N 32 8 21.68	W 104 12 37.05
	7875.00	93.58	359.98	7494.13	506.62	506.42	36.41	7.18	414549.38	579420.71	N 32 8 22.61	W 104 12 37.05
	7916.00	93.93	0.06	7491.45	547.53	547.33	36.43	0.88	414590.28	579420.73	N 32 8 23.02	W 104 12 37.05
	8011.00	93.06	359.98	7485.66	642.36	642.16	36.46	0.92	414685.10	579420.76	N 32 8 23.96	W 104 12 37.05
	8105.00	92.48	358.64	7481.11	736.23	736.04	35.33	1.55	414778.97	579419.63	N 32 8 24.89	W 104 12 37.06
	8200.00	92.48	358.78	7477.00	831.10	830.92	33.19	0.15	414873.85	579417.49	N 32 8 25.83	W 104 12 37.09
	8295.00	91.41	358.76	7473.78	926.01	925.85	31.17	1.13	414968.76	579415.47	N 32 8 26.76	W 104 12 37.11
	8390.00	91.69	358.61	7471.21	1020.94	1020.79	29.01	0.34	415063.69	579413.31	N 32 8 27.70	W 104 12 37.13
	8485.00	91.38	357.72	7468.66	1115.83	1115.70	28.97	0.99	415158.60	579410.27	N 32 8 28.64	W 104 12 37.17
	8580.00	91.69	359.20	7466.12	1210.75	1210.63	23.42	1.59	415253.52	579407.71	N 32 8 29.58	W 104 12 37.20
	8674.00	91.48	0.77	7463.52	1304.67	1304.59	23.39	1.68	415347.47	579407.69	N 32 8 30.51	W 104 12 37.19
	8769.00	91.62	0.52	7460.95	1399.61	1399.55	22.46	0.30	415442.42	579408.76	N 32 8 31.45	W 104 12 37.18
	8864.00	91.65	0.53	7458.24	1494.63	1494.51	25.33	0.03	415537.37	579409.63	N 32 8 32.39	W 104 12 37.17
	8959.00	91.75	0.75	7455.42	1589.59	1589.46	26.39	0.25	415632.32	579410.69	N 32 8 33.33	W 104 12 37.16
	9054.00	91.89	0.23	7452.40	1684.54	1684.41	27.20	0.57	415727.26	579411.50	N 32 8 34.27	W 104 12 37.15
	9148.00	92.27	359.75	7448.99	1778.47	1778.35	27.19	0.65	415821.19	579411.49	N 32 8 35.20	W 104 12 37.14
	9243.00	92.27	359.23	7445.23	1873.39	1873.27	26.34	0.59	415916.10	579410.64	N 32 8 36.14	W 104 12 37.15
	9338.00	91.82	359.56	7441.84	1968.32	1968.20	25.34	0.59	416011.02	579409.64	N 32 8 37.08	W 104 12 37.16
	9432.00	91.10	1.10	7439.44	2062.28	2062.17	25.88	1.81	416104.98	579410.18	N 32 8 38.01	W 104 12 37.16
	9527.00	91.20	0.97	7437.54	2157.26	2157.13	27.60	0.17	416199.94	579411.89	N 32 8 38.95	W 104 12 37.13
	9622.00	91.34	1.33	7435.43	2252.22	2252.09	29.50	0.41	416294.88	579413.80	N 32 8 39.89	W 104 12 37.11

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 ° ' '')
	9717.00	90.65	1.25	7433.78	2347.19	2347.05	31.64	0.73	416389.84	579415.94	N 32 8 40.83	W 104 12 37.09
	9811.00	90.34	1.24	7432.97	2441.18	2441.02	33.68	0.33	416483.80	579417.98	N 32 8 41.76	W 104 12 37.06
	9906.00	89.45	1.63	7433.14	2536.16	2535.99	36.06	1.02	416578.76	579420.36	N 32 8 42.70	W 104 12 37.03
	10001.00	88.69	2.30	7434.68	2631.11	2630.92	39.32	1.07	416673.68	579423.62	N 32 8 43.64	W 104 12 36.99
	10095.00	88.59	2.51	7436.92	2725.02	2724.81	43.26	0.25	416767.57	579427.56	N 32 8 44.57	W 104 12 36.94
	10190.00	87.87	1.66	7439.85	2819.93	2819.71	46.72	1.17	416862.45	579431.01	N 32 8 45.50	W 104 12 36.90
	10285.00	87.97	0.15	7443.30	2914.86	2914.63	48.22	1.59	416957.36	579432.51	N 32 8 46.44	W 104 12 36.88
	10380.00	87.90	359.16	7446.72	3009.79	3009.56	47.65	1.04	417052.29	579431.94	N 32 8 47.38	W 104 12 36.89
	10475.00	89.59	359.05	7448.80	3104.74	3104.53	46.16	1.78	417147.24	579430.46	N 32 8 48.32	W 104 12 36.91
	10569.00	88.66	359.05	7450.24	3198.70	3198.50	44.60	0.99	417241.21	579428.90	N 32 8 49.25	W 104 12 36.92
	10664.00	88.04	358.89	7452.97	3293.64	3293.45	42.90	0.67	417336.14	579427.19	N 32 8 50.19	W 104 12 36.94
	10759.00	88.38	358.70	7455.94	3388.56	3388.38	40.90	0.41	417431.07	579425.20	N 32 8 51.13	W 104 12 36.96
	10853.00	88.28	359.05	7458.68	3482.49	3482.32	39.06	0.39	417525.00	579423.35	N 32 8 52.06	W 104 12 36.98
	10948.00	88.55	359.16	7461.31	3577.43	3577.27	37.57	0.31	417619.95	579421.87	N 32 8 53.00	W 104 12 37.00
	11043.00	88.62	359.25	7463.65	3672.38	3672.23	36.25	0.12	417714.90	579420.55	N 32 8 53.94	W 104 12 37.01
	11138.00	87.93	359.02	7466.51	3767.32	3767.18	34.82	0.77	417809.84	579419.12	N 32 8 54.88	W 104 12 37.03
	11232.00	87.56	0.47	7470.21	3861.24	3861.10	34.40	1.59	417903.75	579418.70	N 32 8 55.81	W 104 12 37.03
	11327.00	87.21	1.66	7474.55	3956.13	3955.99	36.17	1.30	417998.62	579420.46	N 32 8 56.75	W 104 12 37.01
	11422.00	87.66	2.54	7478.80	4050.99	4050.83	36.64	1.04	418093.46	579423.94	N 32 8 57.69	W 104 12 36.97
	11516.00	88.62	0.88	7481.85	4144.91	4144.73	42.45	2.04	418187.35	579426.74	N 32 8 58.62	W 104 12 36.94
	11611.00	89.00	0.67	7483.82	4239.88	4239.70	43.73	0.46	418282.31	579428.03	N 32 8 59.56	W 104 12 36.92
	11706.00	89.90	1.42	7484.73	4334.87	4334.68	45.46	1.23	418377.28	579429.76	N 32 9 0.50	W 104 12 36.90
	11800.00	88.90	358.53	7485.72	4428.85	4428.66	45.42	3.25	418471.26	579429.72	N 32 9 1.43	W 104 12 36.90
	11895.00	88.66	356.97	7487.74	4523.73	4523.56	41.70	1.66	418566.15	579425.99	N 32 9 2.37	W 104 12 36.94
	11948.00	88.97	357.28	7488.84	4576.63	4576.49	39.04	0.83	418619.07	579423.33	N 32 9 2.89	W 104 12 36.97
	12013.00	88.97	357.28	7490.01	4641.53	4641.40	35.95	0.00	418683.98	579420.25	N 32 9 3.53	W 104 12 37.00

Final Survey
Proj to TD

Survey Type: Def Survey -

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

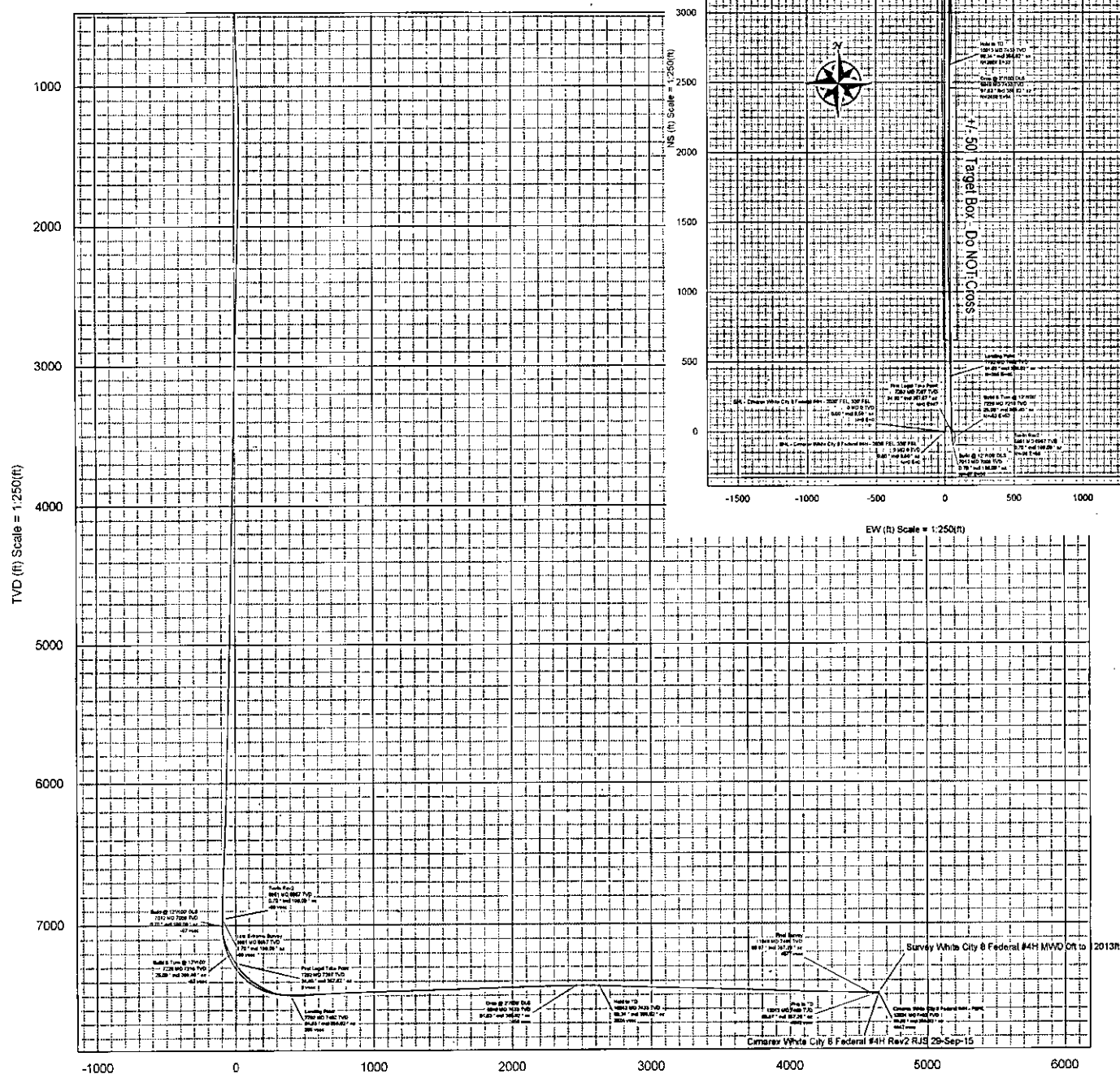
Description	Part	MD From (ft)	MD To (ft)	EOU Freq (ft)	Hole Size (in)	Casing Diameter (in)	Survey Tool Type	Borehole / Survey
	1	0.000	25.000	1/98.425	30.000	30.000	SLB_MWD-STD-Depth Only	Original Borehole / Survey White City 8 Federal #4H MWD Off to
	1	25.000	25.000	Act Stns	30.000	30.000	SLB_MWD-STD-Depth Only	Original Borehole / Survey White City 8 Federal #4H MWD Off to
	1	25.000	11948.000	Act Stns	30.000	30.000	SLB_MWD-STD	Original Borehole / Survey White City 8 Federal #4H MWD Off to
	1	11948.000	12013.000	Act Stns	30.000	30.000	SLB_BLIND+TREND	Original Borehole / Survey White City 8 Federal #4H MWD Off to

Borehole:	Well:	Field:	Structure:
Original Borehole	Cimarex White City 8 Federal #4H	NM Eddy County (NAD 83)	Cimarex White City 8 Federal #4H

Gravity & Magnetic Parameters				Surface Location				MAGNETIC NEW MEXICO STATE, EASTERN ZONE, US Feet				Section			
												Differance White			
Model: HGM15 2016				Dip: 58.91°				Date: 23-Aug-2016				Blot: City 8 Federal # TYD Ref. R/R(12601' above MSL)			
Horizontal: 7.00M				R/R: 42731.561				Gravity F/R: 980.46mm (9.80665 m/sec^2)				Plan: City 8 White City 8 Federal 44N 14W 01N 12E121			
								Lat: N 32 18 17.60 Northing: 4146331.018				Grid Cont: 0.0654'			
								Long: W 124 12 37.48 Easting: 379384.31113				Scale Fact: 0.00001576			

CONTROLLED	
Plan ref	Starting Initial Cost \$75,000.00 Mortgage rate is 12.12%
Drawing ref	
Copy number	all 1
Date	06-01-2015
1	Chart
2	Chart
3	Office
4	Office
5	Mobile Phone
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Critical Points								
Critical Point	MD	INCL	AZIM	TVD	VSEC	N(+)/S(-)	E(+)/W(-)	DLS
SHL - Cimarron White City B Federal #4H - 2030' FEL, 330' FSL	0.00	0.00	8.50	0.00	0.00	0.00	0.00	
Last Extreme Survey	6961.00	0.70	198.09	6957.45	-95.94	-96.26	56.24	1.22
First Legal Take Point	7292.00	34.90	357.67	7267.10	0.15	-0.12	47.38	9.66
Final Survey	11943.00	88.97	357.28	7488.84	4576.63	4575.49	39.04	0.83
Proj to TD	12013.00	88.97	357.28	7490.01	4541.53	4641.40	35.95	0.00



Vertical Section (ft) Azim = 0.33° Scale = 1:250(ft) Origin = 0N/-S, 0E/-W