

CONFIDENTIAL



Cimarex Hayduke 34 Federal Com #3H XEM+MWD 0ft to Update Survey
Report
(Non-Def Survey)



Report Date: July 10, 2014 - 10:04 AM
Client: Cimarex
Field: NM Eddy County (NAD 83)
Structure / Slot: Cimarex Hayduke 34 Federal Com #3H / Hayduke 34 Federal Com #3H
Well: Hayduke 34 Federal Com #3H
Borehole: Original Borehole
UWI / API#: Unknown / Unknown
Survey Name: Cimarex Hayduke 34 Federal Com #3H XEM+MWD 0ft to Update
Survey Date: June 07, 2014
Tort / AHD / DDI / ERD Ratio: 222.295° / 7341.029 ft / 6.436 / 0.762
Coordinate Reference System: NAD83 New Mexico State Plane, Eastern Zone, US Feet
Location Lat / Long: N 32° 5' 3.11560", W 104° 16' 22.54780"
Location Grid N/E Y/X: N 394373.800 ftUS, E 560044.700 ftUS
CRS Grid Convergence Angle: 0.0321°
Grid Scale Factor: 0.99990949
Version / Patch: 2.7.1043.0

Survey / DLS Computation: Minimum Curvature / Lubinski
Vertical Section Azimuth: 186.330° (Grid North)
Vertical Section Origin: 0.000 ft, 0.000 ft
TVD Reference Datum: RKB
TVD Reference Elevation: 3382.000 ft above
Seabed / Ground Elevation: 3364.000 ft above
Magnetic Declination: 7.691°
Total Gravity Field Strength: 998.4255mgm (9.80665 Based)
Gravity Model: GARM
Total Magnetic Field Strength: 48114.762 nT
Magnetic Dip Angle: 59.850°
Declination Date: June 07, 2014
Magnetic Declination Model: BGGM 2014
North Reference: Grid North
Grid Convergence Used: 0.0321°
Total Corr Mag North->Grid North: 7.6589°
Local Coord Referenced To: Structure Reference Point

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ARTESIA DISTRICT

JAN 13 2015

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Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	TVDSS (ft)	VSEC (ft)	DLS (°/100ft)	NS (ft)	EW (ft)	Northing (ftUS)	Easting (ftUS)	Latitude (N/S ° ' '')	Longitude (E/W ° ' '')
SHL Hayduke 34 Fed Com #3H	0.00	0.00	300.00	0.00	-3382.00	0.00	N/A	0.00	0.00	394373.80	560044.70	N 32 5 3.12	W 104 16 22.55
	152.00	0.40	342.72	152.00	-3230.00	-0.49	0.26	0.51	-0.16	394374.31	560044.54	N 32 5 3.12	W 104 16 22.55
	181.00	0.40	319.21	181.00	-3201.00	-0.65	0.56	0.68	-0.25	394374.48	560044.45	N 32 5 3.12	W 104 16 22.55
	211.00	0.31	304.18	211.00	-3171.00	-0.76	0.43	0.80	-0.39	394374.60	560044.31	N 32 5 3.12	W 104 16 22.55
	238.00	0.31	353.09	238.00	-3144.00	-0.86	0.95	0.92	-0.46	394374.72	560044.24	N 32 5 3.12	W 104 16 22.55
	263.00	0.48	346.59	263.00	-3119.00	-1.03	0.70	1.09	-0.49	394374.89	560044.21	N 32 5 3.13	W 104 16 22.55
	408.00	0.48	347.60	407.99	-2974.01	-2.17	0.01	2.27	-0.76	394376.07	560043.94	N 32 5 3.14	W 104 16 22.56
	441.00	0.40	145.40	440.99	-2941.01	-2.22	2.62	2.31	-0.73	394376.11	560043.97	N 32 5 3.14	W 104 16 22.56
	478.00	0.31	350.32	477.99	-2904.01	-2.22	1.87	2.30	-0.67	394376.10	560044.03	N 32 5 3.14	W 104 16 22.56
	508.00	0.31	338.81	507.99	-2874.01	-2.37	0.21	2.46	-0.71	394376.26	560043.99	N 32 5 3.14	W 104 16 22.56
	536.00	0.40	333.40	535.99	-2846.01	-2.52	0.34	2.62	-0.78	394376.42	560043.92	N 32 5 3.14	W 104 16 22.56
	590.00	0.40	316.88	589.99	-2792.01	-2.80	0.21	2.92	-1.00	394376.72	560043.70	N 32 5 3.14	W 104 16 22.56
	624.00	0.48	317.32	623.99	-2758.01	-2.97	0.24	3.12	-1.18	394376.91	560043.53	N 32 5 3.15	W 104 16 22.56
	674.00	0.40	308.18	673.99	-2708.01	-3.20	0.21	3.38	-1.45	394377.18	560043.25	N 32 5 3.15	W 104 16 22.56
	750.00	0.48	313.98	749.98	-2632.02	-3.53	0.12	3.76	-1.89	394377.56	560042.81	N 32 5 3.15	W 104 16 22.57
	839.00	0.48	280.32	838.98	-2543.02	-3.78	0.31	4.09	-2.53	394377.89	560042.17	N 32 5 3.16	W 104 16 22.58
	908.00	0.40	280.58	907.98	-2474.02	-3.82	0.12	4.18	-3.05	394377.98	560041.65	N 32 5 3.16	W 104 16 22.58
	994.00	0.48	296.09	993.98	-2388.02	-3.97	0.17	4.40	-3.67	394378.20	560041.03	N 32 5 3.16	W 104 16 22.59
	1117.00	0.40	299.30	1116.97	-2265.03	-4.31	0.07	4.83	-4.50	394378.63	560040.20	N 32 5 3.16	W 104 16 22.60
	1204.00	0.09	286.51	1203.97	-2178.03	-4.44	0.36	5.00	-4.83	394378.80	560039.87	N 32 5 3.17	W 104 16 22.60
	1295.00	0.31	98.21	1294.97	-2087.03	-4.44	0.44	4.99	-4.66	394378.79	560040.04	N 32 5 3.16	W 104 16 22.60
	1366.00	0.31	55.19	1365.97	-2016.03	-4.56	0.32	5.07	-4.31	394378.87	560040.39	N 32 5 3.17	W 104 16 22.60
	1390.00	0.31	71.31	1389.97	-1992.03	-4.63	0.36	5.13	-4.20	394378.93	560040.50	N 32 5 3.17	W 104 16 22.60
	1483.00	0.62	89.59	1482.97	-1899.03	-4.80	0.37	5.21	-3.45	394379.01	560041.25	N 32 5 3.17	W 104 16 22.59
	1578.00	1.19	98.21	1577.95	-1804.05	-4.83	0.62	5.07	-1.96	394378.87	560042.74	N 32 5 3.17	W 104 16 22.57

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Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	TVPSS (ft)	VSEC (ft)	DLS (%/100ft)	NS (ft)	EW (ft)	Northing (RUS)	Easting (RUS)	Latitude (N/S ° ' '')	Longitude (E/W ° ' '')
	1672.00	1.71	94.12	1671.92	-1710.08	-4.85	0.56	4.83	0.40	394378.63	560045.10	N 32 5 3.16	W 104 16 22.54
	1767.00	0.79	57.60	1766.90	-1615.10	-5.31	1.24	5.08	2.37	394378.88	560047.07	N 32 5 3.17	W 104 16 22.52
	1860.00	0.31	6.58	1859.90	-1522.10	-5.97	0.69	5.68	2.94	394379.48	560047.64	N 32 5 3.17	W 104 16 22.51
	1954.00	0.40	355.60	1953.90	-1428.10	-6.54	0.12	6.26	2.94	394380.06	560047.64	N 32 5 3.18	W 104 16 22.51
	2048.00	0.40	348.30	2047.89	-1334.11	-7.18	0.05	6.90	2.85	394380.70	560047.55	N 32 5 3.18	W 104 16 22.51
	2143.00	0.48	355.90	2142.89	-1239.11	-7.88	0.10	7.63	2.75	394381.43	560047.45	N 32 5 3.19	W 104 16 22.52
	2237.00	0.48	353.49	2236.89	-1145.11	-8.65	0.02	8.41	2.68	394382.21	560047.38	N 32 5 3.20	W 104 16 22.52
	2331.00	0.62	353.00	2330.88	-1051.12	-9.53	0.15	9.31	2.57	394383.11	560047.27	N 32 5 3.21	W 104 16 22.52
	2425.00	0.40	322.81	2424.88	-957.12	-10.27	0.36	10.07	2.31	394383.87	560047.01	N 32 5 3.22	W 104 16 22.52
	2519.00	0.48	297.10	2518.88	-863.12	-10.64	0.22	10.51	1.77	394384.31	560046.47	N 32 5 3.22	W 104 16 22.53
	2614.00	0.79	288.10	2613.87	-768.13	-10.92	0.34	10.90	0.79	394384.70	560045.49	N 32 5 3.22	W 104 16 22.54
	2708.00	0.79	285.90	2707.86	-674.14	-11.16	0.03	11.28	-0.45	394385.08	560044.25	N 32 5 3.23	W 104 16 22.55
	2803.00	0.79	282.38	2802.85	-579.15	-11.34	0.05	11.60	-1.72	394385.40	560042.98	N 32 5 3.23	W 104 16 22.57
	2898.00	1.01	276.01	2897.84	-484.16	-11.40	0.25	11.82	-3.19	394385.62	560041.51	N 32 5 3.23	W 104 16 22.58
	2993.00	1.41	277.02	2992.82	-389.18	-11.41	0.42	12.06	-5.19	394385.85	560039.52	N 32 5 3.23	W 104 16 22.61
	3088.00	4.09	279.61	3087.70	-294.30	-11.62	2.82	12.76	-9.69	394386.56	560035.01	N 32 5 3.24	W 104 16 22.66
	3184.00	4.31	277.81	3183.44	-198.56	-11.91	0.27	13.83	-16.64	394387.62	560028.07	N 32 5 3.25	W 104 16 22.74
	3278.00	5.80	287.48	3277.08	-104.92	-12.92	1.82	15.73	-24.67	394389.53	560020.04	N 32 5 3.27	W 104 16 22.83
	3372.00	6.42	293.72	3370.54	-11.46	-15.41	0.97	19.27	-34.01	394393.07	560010.70	N 32 5 3.31	W 104 16 22.94
	3467.00	6.02	292.62	3464.98	82.98	-18.39	0.44	23.33	-43.47	394397.12	560001.24	N 32 5 3.35	W 104 16 23.05
	3561.00	6.02	291.48	3558.47	176.47	-21.06	0.13	27.03	-52.61	394400.82	559992.10	N 32 5 3.38	W 104 16 23.16
	3655.00	5.80	289.59	3651.97	269.97	-23.44	0.31	30.42	-81.67	394404.22	559983.04	N 32 5 3.42	W 104 16 23.26
	3843.00	6.90	301.41	3838.82	456.82	-30.41	0.91	39.49	-80.26	394413.29	559964.45	N 32 5 3.51	W 104 16 23.48
	3937.00	6.28	303.61	3932.20	550.20	-35.16	0.71	45.28	-89.36	394419.08	559955.35	N 32 5 3.56	W 104 16 23.59
	4031.00	5.80	302.20	4025.68	643.68	-39.58	0.53	50.66	-97.66	394424.46	559947.05	N 32 5 3.62	W 104 16 23.68
	4126.00	5.41	301.10	4120.22	738.22	-43.56	0.43	55.53	-105.55	394429.33	559939.16	N 32 5 3.67	W 104 16 23.77
	4222.00	4.92	300.00	4215.83	833.83	-47.10	0.52	59.93	-112.98	394433.72	559931.72	N 32 5 3.71	W 104 16 23.86
	4317.00	5.58	296.88	4310.43	928.43	-50.36	0.76	64.05	-120.64	394437.85	559924.07	N 32 5 3.75	W 104 16 23.95
	4413.00	5.58	294.51	4405.98	1023.98	-53.46	0.24	68.10	-129.05	394441.89	559915.66	N 32 5 3.79	W 104 16 24.05
	4507.00	5.32	295.21	4499.55	1117.55	-56.29	0.29	71.85	-137.15	394445.64	559907.56	N 32 5 3.83	W 104 16 24.14
	4602.00	5.89	297.10	4594.10	1212.10	-59.45	0.63	75.95	-145.48	394449.74	559899.24	N 32 5 3.87	W 104 16 24.24
	4698.00	6.59	298.11	4689.53	1307.53	-63.24	0.74	80.79	-154.72	394454.58	559889.99	N 32 5 3.92	W 104 16 24.35
	4792.00	6.59	298.69	4782.91	1400.91	-67.29	0.07	85.92	-164.21	394459.71	559880.50	N 32 5 3.97	W 104 16 24.46
	4887.00	6.28	297.72	4877.31	1495.31	-71.26	0.35	90.95	-173.59	394464.74	559871.12	N 32 5 4.02	W 104 16 24.56
	4983.00	6.28	298.69	4972.73	1590.73	-75.17	0.11	95.91	-182.85	394469.71	559861.87	N 32 5 4.07	W 104 16 24.67
	5077.00	6.28	300.18	5066.17	1684.17	-79.21	0.17	100.97	-191.80	394474.76	559852.92	N 32 5 4.12	W 104 16 24.78
	5172.00	6.02	300.09	5160.62	1778.62	-83.31	0.27	106.08	-200.60	394479.87	559844.12	N 32 5 4.17	W 104 16 24.88
	5265.00	5.89	301.19	5253.12	1871.12	-87.28	0.19	110.99	-208.90	394484.78	559835.82	N 32 5 4.22	W 104 16 24.98
	5360.00	5.49	301.41	5347.65	1965.65	-91.26	0.42	115.89	-216.95	394489.68	559827.77	N 32 5 4.26	W 104 16 25.07
	5455.00	5.01	297.98	5442.25	2060.25	-94.72	0.60	120.20	-224.49	394493.99	559820.23	N 32 5 4.31	W 104 16 25.16
	5551.00	5.01	294.82	5537.89	2155.89	-97.59	0.29	123.93	-232.00	394497.72	559812.72	N 32 5 4.34	W 104 16 25.24
	5646.00	4.61	293.81	5632.55	2250.55	-100.05	0.43	127.21	-239.26	394501.00	559805.46	N 32 5 4.38	W 104 16 25.33
	5739.00	4.31	298.69	5725.27	2343.27	-102.51	0.52	130.40	-245.74	394504.18	559798.98	N 32 5 4.41	W 104 16 25.40
	5834.00	4.79	303.21	5819.97	2437.97	-105.66	0.63	134.28	-252.19	394508.07	559792.53	N 32 5 4.45	W 104 16 25.48
	5930.00	4.79	294.99	5915.64	2533.64	-108.75	0.71	138.17	-259.18	394511.96	559785.54	N 32 5 4.48	W 104 16 25.56
	6024.00	5.19	294.20	6009.28	2627.28	-111.31	0.43	141.57	-266.62	394515.36	559778.11	N 32 5 4.52	W 104 16 25.65
	6118.00	5.58	293.19	6102.87	2720.87	-113.94	0.43	145.11	-274.69	394518.90	559770.03	N 32 5 4.55	W 104 16 25.74
	6211.00	6.90	295.21	6195.31	2813.31	-117.06	1.44	149.27	-283.90	394523.06	559760.82	N 32 5 4.59	W 104 16 25.85
	6300.00	7.38	299.21	6283.62	2901.62	-121.01	0.78	154.34	-293.73	394528.13	559751.00	N 32 5 4.64	W 104 16 25.96
	6394.00	7.12	301.02	6376.87	2994.87	-125.80	0.37	160.29	-303.99	394534.07	559740.74	N 32 5 4.70	W 104 16 26.08
	6486.00	7.38	298.11	6468.14	3086.14	-130.37	0.49	166.01	-314.09	394539.80	559730.64	N 32 5 4.76	W 104 16 26.20
	6582.00	7.60	302.20	6563.32	3181.32	-135.43	0.60	172.30	-324.90	394546.08	559719.83	N 32 5 4.82	W 104 16 26.32
	6676.00	7.60	301.98	6656.49	3274.49	-140.83	0.03	178.90	-335.43	394552.69	559709.30	N 32 5 4.89	W 104 16 26.45

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Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	TVDSS (ft)	VSEC (ft)	DLS (°/100ft)	NS (ft)	EW (ft)	Northing (RUS)	Easting (RUS)	Latitude (N/S ° ' ")	Longitude (E/W ° ' ")
	6770.00	7.69	299.78	6749.66	3367.66	-146.02	0.33	185.32	-346.16	394559.10	559698.57	N 32 5 4.95	W 104 16 26.57
	6865.00	7.21	298.29	6843.85	3461.85	-150.78	0.54	191.30	-356.93	394565.08	559687.80	N 32 5 5.01	W 104 16 26.70
	6960.00	7.12	301.41	6938.11	3556.11	-155.51	0.42	197.20	-367.21	394570.98	559677.53	N 32 5 5.07	W 104 16 26.81
	7054.00	6.68	299.78	7031.43	3649.43	-160.15	0.51	202.95	-376.92	394576.73	559667.81	N 32 5 5.13	W 104 16 26.93
	7148.00	6.81	299.70	7124.78	3742.78	-164.54	0.14	208.42	-386.51	394582.20	559658.23	N 32 5 5.18	W 104 16 27.04
	7242.00	6.59	297.72	7218.14	3836.14	-168.72	0.34	213.69	-396.12	394587.47	559648.51	N 32 5 5.23	W 104 16 27.15
	7337.00	6.11	295.92	7312.56	3930.56	-172.40	0.55	218.44	-405.50	394592.22	559639.24	N 32 5 5.28	W 104 16 27.26
	7432.00	5.10	289.90	7407.10	4025.10	-175.09	1.23	222.09	-414.02	394595.87	559630.72	N 32 5 5.32	W 104 16 27.36
	7525.00	6.68	293.72	7499.61	4117.61	-177.67	1.75	225.67	-422.86	394599.45	559621.88	N 32 5 5.35	W 104 16 27.46
	7618.00	6.11	296.09	7592.03	4210.03	-180.96	0.68	230.02	-432.25	394603.80	559612.49	N 32 5 5.39	W 104 16 27.57
	7713.00	5.58	287.70	7686.54	4304.54	-183.58	1.06	233.65	-441.19	394607.43	559603.55	N 32 5 5.43	W 104 16 27.67
	7807.00	6.11	284.89	7780.05	4398.05	-185.23	0.64	236.33	-450.38	394610.10	559594.36	N 32 5 5.46	W 104 16 27.78
	7902.00	5.89	280.01	7874.53	4492.53	-186.29	0.58	238.47	-460.07	394612.25	559584.67	N 32 5 5.48	W 104 16 27.89
	7998.00	5.89	284.89	7970.02	4588.02	-187.34	0.52	240.59	-469.68	394614.37	559575.06	N 32 5 5.50	W 104 16 28.01
	8091.00	6.20	291.00	8062.51	4680.51	-189.33	0.77	243.62	-478.98	394617.40	559565.77	N 32 5 5.53	W 104 16 28.11
	8186.00	6.50	292.01	8156.92	4774.92	-192.08	0.34	247.47	-488.75	394621.25	559555.99	N 32 5 5.57	W 104 16 28.23
	8280.00	6.02	287.48	8250.36	4868.36	-194.47	0.73	250.95	-498.39	394624.72	559546.36	N 32 5 5.60	W 104 16 28.34
	8377.00	5.80	284.18	8346.85	4964.85	-196.12	0.42	253.68	-507.99	394627.45	559536.76	N 32 5 5.63	W 104 16 28.45
	8470.00	5.80	281.81	8439.37	5057.37	-197.21	0.26	255.79	-517.15	394629.57	559527.60	N 32 5 5.65	W 104 16 28.56
	8565.00	5.58	278.60	8533.90	5151.90	-197.85	0.41	257.46	-526.41	394631.24	559518.34	N 32 5 5.67	W 104 16 28.66
	8660.00	5.41	276.58	8628.47	5246.47	-198.06	0.27	258.67	-535.43	394632.44	559509.32	N 32 5 5.68	W 104 16 28.77
	8754.00	5.01	272.19	8722.08	5340.08	-197.78	0.60	259.33	-543.93	394633.11	559500.82	N 32 5 5.68	W 104 16 28.87
	8847.00	4.79	271.88	8814.74	5432.74	-197.19	0.24	259.61	-551.87	394633.39	559492.88	N 32 5 5.69	W 104 16 28.96
	8940.00	4.61	269.99	8907.43	5525.43	-196.47	0.26	259.74	-559.49	394633.52	559485.26	N 32 5 5.69	W 104 16 29.05
	9034.00	4.22	268.10	9001.15	5619.15	-195.56	0.44	259.63	-566.72	394633.40	559478.03	N 32 5 5.69	W 104 16 29.13
Last XEM Survey	9114.00	4.00	264.41	9080.94	5698.94	-194.56	0.43	259.26	-572.44	394633.03	559472.31	N 32 5 5.68	W 104 16 29.20
First Pathfinder MWD Survey	9158.00	4.05	258.68	9124.83	5742.83	-193.77	0.92	258.80	-575.49	394632.58	559469.26	N 32 5 5.68	W 104 16 29.24
	9188.00	6.80	254.89	9154.70	5772.70	-192.80	9.24	258.13	-578.25	394631.91	559466.51	N 32 5 5.67	W 104 16 29.27
	9221.00	11.24	247.02	9187.28	5805.28	-190.51	13.93	256.36	-583.10	394630.14	559461.66	N 32 5 5.66	W 104 16 29.32
	9252.00	15.72	242.89	9217.42	5835.42	-186.72	14.77	253.27	-589.62	394627.05	559455.14	N 32 5 5.63	W 104 16 29.40
	9281.00	20.23	239.76	9245.00	5863.00	-181.56	15.90	248.95	-597.45	394622.73	559447.30	N 32 5 5.58	W 104 16 29.49
	9315.00	24.45	236.50	9276.44	5894.44	-173.55	12.93	242.10	-608.40	394615.88	559436.35	N 32 5 5.51	W 104 16 29.62
	9346.00	27.56	232.39	9304.30	5922.30	-164.46	11.59	234.18	-619.44	394607.96	559425.32	N 32 5 5.44	W 104 16 29.75
	9376.00	29.88	227.65	9330.61	5948.61	-154.03	10.83	224.91	-630.46	394598.69	559414.30	N 32 5 5.34	W 104 16 29.87
	9409.00	31.62	220.19	9358.98	5976.98	-140.67	12.69	212.76	-642.12	394586.54	559402.64	N 32 5 5.22	W 104 16 30.01
	9440.00	34.49	213.80	9384.97	6002.97	-126.12	14.55	199.25	-652.26	394573.03	559392.50	N 32 5 5.09	W 104 16 30.13
	9470.00	37.17	207.74	9409.30	6027.30	-110.14	14.81	184.17	-661.20	394557.95	559383.56	N 32 5 4.94	W 104 16 30.23
	9503.00	40.02	205.67	9435.09	6053.09	-90.84	9.48	165.77	-670.44	394539.56	559374.32	N 32 5 4.76	W 104 16 30.34
	9564.00	47.40	199.36	9479.17	6097.17	-50.39	14.04	126.84	-686.41	394500.63	559358.35	N 32 5 4.37	W 104 16 30.53
	9597.00	52.09	195.77	9500.49	6118.49	-25.70	16.46	102.84	-693.98	394476.63	559350.78	N 32 5 4.14	W 104 16 30.61
	9629.00	56.39	193.05	9519.19	6137.19	0.00	15.10	77.69	-700.43	394451.49	559344.34	N 32 5 3.89	W 104 16 30.69
	9658.00	59.57	189.34	9534.57	6152.57	24.50	15.42	53.58	-705.18	394427.38	559339.58	N 32 5 3.65	W 104 16 30.74
	9692.00	61.89	185.15	9551.20	6169.20	54.14	12.73	24.17	-708.91	394397.97	559335.86	N 32 5 3.36	W 104 16 30.79
	9723.00	64.32	181.66	9565.22	6183.22	81.74	12.74	-3.42	-710.54	394370.38	559334.22	N 32 5 3.09	W 104 16 30.81
	9756.00	67.62	179.18	9578.66	6196.66	111.71	12.13	-33.55	-710.75	394340.25	559334.01	N 32 5 2.79	W 104 16 30.81
	9844.00	76.48	177.78	9605.76	6223.76	194.56	10.18	-117.15	-708.51	394256.66	559336.25	N 32 5 1.96	W 104 16 30.78
	9875.00	78.77	177.83	9612.40	6230.40	224.50	7.39	-147.41	-707.35	394226.40	559337.41	N 32 5 1.66	W 104 16 30.77
	9906.00	80.75	177.99	9617.91	6235.91	254.68	6.41	-177.89	-706.24	394195.92	559338.53	N 32 5 1.36	W 104 16 30.76
	9938.00	82.79	178.30	9622.49	6240.49	286.02	6.45	-209.55	-705.21	394164.27	559339.55	N 32 5 1.05	W 104 16 30.75
	10032.00	87.01	178.40	9630.85	6248.85	378.72	4.49	-303.11	-702.52	394070.71	559342.25	N 32 5 0.12	W 104 16 30.72
	10131.00	87.93	178.92	9635.22	6253.22	476.74	1.07	-401.99	-700.21	393971.85	559344.56	N 32 4 59.14	W 104 16 30.69

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Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	TVDSS (ft)	VSEC (ft)	DLS (°/100ft)	NS (ft)	EW (ft)	Northing (ftUS)	Easting (ftUS)	Latitude (N/S ° ' ")	Longitude (E/W ° ' ")
	10226.00	89.41	178.85	9637.42	6255.42	570.91	1.56	-496.94	-698.36	393876.90	559346.41	N 32 4 58.20	W 104 16 30.67
	10322.00	89.14	178.50	9638.64	6256.64	666.05	0.46	-592.91	-696.14	393780.94	559348.63	N 32 4 57.25	W 104 16 30.64
	10418.00	90.93	179.18	9638.58	6256.58	761.22	1.99	-688.89	-694.20	393684.98	559350.57	N 32 4 56.30	W 104 16 30.62
	10513.00	89.07	178.22	9638.58	6256.58	855.38	2.20	-783.86	-692.04	393590.02	559352.72	N 32 4 55.36	W 104 16 30.60
	10609.00	90.34	178.36	9639.07	6257.07	950.43	1.33	-879.81	-689.18	393494.07	559355.59	N 32 4 54.41	W 104 16 30.56
	10705.00	90.45	178.30	9638.41	6256.41	1045.49	0.13	-975.77	-686.38	393398.12	559358.39	N 32 4 53.46	W 104 16 30.53
	10801.00	90.72	178.68	9637.43	6255.43	1140.59	0.49	-1071.73	-683.85	393302.17	559360.92	N 32 4 52.51	W 104 16 30.50
	10897.00	90.34	178.63	9636.54	6254.54	1235.73	0.40	-1167.70	-681.59	393206.21	559363.17	N 32 4 51.56	W 104 16 30.48
	10992.00	90.58	178.03	9635.78	6253.78	1329.80	0.68	-1262.65	-678.83	393111.26	559365.94	N 32 4 50.62	W 104 16 30.45
	11088.00	89.90	178.19	9635.38	6253.38	1424.81	0.73	-1358.60	-675.66	393015.33	559369.10	N 32 4 49.68	W 104 16 30.41
	11183.00	89.62	177.30	9635.77	6253.77	1518.75	0.98	-1453.52	-671.92	392920.41	559372.84	N 32 4 48.74	W 104 16 30.37
	11279.00	89.76	179.44	9636.29	6254.29	1613.81	2.23	-1549.48	-669.19	392824.46	559375.57	N 32 4 47.79	W 104 16 30.34
	11374.00	90.21	180.07	9636.32	6254.32	1708.19	0.81	-1644.48	-666.79	392729.47	559375.98	N 32 4 46.85	W 104 16 30.33
	11470.00	92.13	180.20	9634.36	6252.36	1803.60	2.00	-1740.45	-669.01	392633.51	559375.75	N 32 4 45.90	W 104 16 30.33
	11565.00	89.52	179.49	9632.99	6250.99	1897.98	2.85	-1835.43	-668.75	392538.54	559376.01	N 32 4 44.96	W 104 16 30.33
	11662.00	89.48	182.86	9633.84	6251.84	1994.57	3.47	-1932.40	-670.74	392441.58	559374.02	N 32 4 44.00	W 104 16 30.36
	11758.00	89.76	181.60	9634.47	6252.47	2090.32	1.34	-2028.32	-674.48	392345.67	559370.28	N 32 4 43.05	W 104 16 30.40
	11854.00	90.03	182.24	9634.65	6252.65	2186.03	0.72	-2124.26	-677.70	392249.73	559367.07	N 32 4 42.10	W 104 16 30.44
	11951.00	90.86	181.69	9633.90	6251.90	2282.75	1.03	-2221.20	-681.02	392152.80	559363.74	N 32 4 41.14	W 104 16 30.48
	12046.00	90.03	179.13	9633.16	6251.16	2377.23	2.83	-2316.19	-681.70	392057.83	559363.06	N 32 4 40.20	W 104 16 30.49
	12142.00	90.38	179.56	9632.81	6250.81	2472.51	0.58	-2412.18	-680.60	391961.84	559364.16	N 32 4 39.25	W 104 16 30.47
	12236.00	90.24	179.79	9632.31	6250.31	2565.88	0.29	-2506.18	-680.07	391867.85	559364.69	N 32 4 38.32	W 104 16 30.47
	12332.00	89.86	179.23	9632.22	6250.22	2661.20	0.70	-2602.17	-679.25	391771.87	559365.51	N 32 4 37.37	W 104 16 30.46
	12427.00	90.24	179.96	9632.14	6250.14	2755.54	0.87	-2697.17	-678.58	391676.88	559366.19	N 32 4 36.43	W 104 16 30.45
	12522.00	89.72	179.83	9632.17	6250.17	2849.94	0.56	-2792.17	-678.40	391581.89	559366.36	N 32 4 35.49	W 104 16 30.45
	12618.00	90.38	180.52	9632.09	6250.09	2945.39	0.99	-2888.17	-678.70	391485.90	559366.07	N 32 4 34.54	W 104 16 30.45
	12713.00	90.28	180.70	9631.54	6249.54	3039.92	0.22	-2983.16	-679.71	391390.91	559365.05	N 32 4 33.60	W 104 16 30.47
	12809.00	90.10	180.74	9631.22	6249.22	3135.46	0.19	-3079.15	-680.91	391294.93	559363.85	N 32 4 32.65	W 104 16 30.48
	12905.00	90.17	180.19	9631.00	6249.00	3230.95	0.58	-3175.15	-681.69	391198.94	559363.07	N 32 4 31.70	W 104 16 30.49
	13001.00	92.41	180.55	9628.84	6246.84	3326.40	2.36	-3271.12	-682.31	391102.99	559362.45	N 32 4 30.75	W 104 16 30.50
	13096.00	92.13	179.58	9625.07	6243.07	3420.76	1.06	-3366.04	-682.42	391008.07	559362.34	N 32 4 29.81	W 104 16 30.50
	13192.00	92.55	181.10	9621.15	6239.15	3516.15	1.64	-3461.96	-682.99	390912.16	559361.77	N 32 4 28.86	W 104 16 30.51
	13288.00	91.79	180.07	9617.52	6235.52	3611.60	1.33	-3557.88	-683.97	390816.25	559360.79	N 32 4 27.91	W 104 16 30.52
	13384.00	91.69	180.03	9614.60	6232.60	3706.98	0.11	-3653.84	-684.05	390720.30	559360.71	N 32 4 26.96	W 104 16 30.52
	13480.00	91.76	179.63	9611.71	6229.71	3802.32	0.42	-3749.79	-683.77	390624.35	559361.00	N 32 4 26.01	W 104 16 30.52
	13575.00	91.62	179.45	9608.91	6226.91	3896.61	0.24	-3844.75	-683.01	390529.41	559361.76	N 32 4 25.07	W 104 16 30.51
	13671.00	90.07	177.78	9607.50	6225.50	3991.73	2.37	-3940.70	-680.69	390433.46	559364.08	N 32 4 24.12	W 104 16 30.48
	13766.00	91.62	181.70	9606.09	6224.09	4086.07	4.44	-4035.67	-680.25	390338.50	559364.51	N 32 4 23.18	W 104 16 30.48
	13862.00	90.55	180.89	9604.28	6222.28	4181.68	1.40	-4131.63	-682.42	390242.56	559362.34	N 32 4 22.24	W 104 16 30.51
	13958.00	88.18	178.88	9605.34	6223.34	4277.05	3.24	-4227.61	-682.23	390146.58	559362.53	N 32 4 21.29	W 104 16 30.50
	14053.00	90.83	182.09	9606.16	6224.16	4371.54	4.38	-4322.58	-683.03	390051.62	559361.73	N 32 4 20.35	W 104 16 30.51
	14149.00	90.28	181.80	9605.23	6223.23	4467.25	0.65	-4418.52	-686.29	389955.69	559358.47	N 32 4 19.40	W 104 16 30.55
	14246.00	90.76	181.45	9604.35	6222.35	4563.92	0.61	-4515.48	-689.04	389858.74	559355.72	N 32 4 18.44	W 104 16 30.58
	14341.00	91.55	181.86	9602.44	6220.44	4658.58	0.94	-4610.42	-691.79	389763.81	559352.98	N 32 4 17.50	W 104 16 30.62
	14437.00	90.79	181.90	9600.48	6218.48	4754.27	0.79	-4706.35	-694.94	389667.89	559349.83	N 32 4 16.55	W 104 16 30.65
	14531.00	91.51	182.24	9598.59	6216.59	4847.99	0.85	-4800.26	-698.33	389573.98	559346.43	N 32 4 15.62	W 104 16 30.69
	14627.00	91.24	181.69	9596.29	6214.29	4943.69	0.64	-4896.18	-701.62	389478.07	559343.14	N 32 4 14.67	W 104 16 30.73
	14722.00	91.62	182.10	9593.92	6211.92	5038.37	0.59	-4991.10	-704.76	389383.16	559340.00	N 32 4 13.73	W 104 16 30.77
	14818.00	91.96	180.64	9590.92	6208.92	5133.96	1.56	-5087.02	-707.06	389287.25	559337.71	N 32 4 12.78	W 104 16 30.80
	14913.00	89.79	179.59	9589.47	6207.47	5228.39	2.54	-5182.00	-707.25	389192.28	559337.52	N 32 4 11.84	W 104 16 30.80
	15009.00	90.79	179.45	9588.98	6206.98	5323.71	1.05	-5278.00	-706.44	389096.29	559338.32	N 32 4 10.89	W 104 16 30.79
	15105.00	90.31	180.16	9588.06	6206.06	5419.08	0.89	-5373.99	-706.11	389000.31	559338.65	N 32 4 9.94	W 104 16 30.79

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Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	TVDSS (ft)	VSEC (ft)	DLS (°/100ft)	NS (ft)	EW (ft)	Northing (ftUS)	Easting (ftUS)	Latitude (N/S ° ' ")	Longitude (E/W ° ' ")
	15202.00	91.07	180.64	9586.89	6204.89	5515.55	0.93	-5470.98	-706.79	388903.33	559337.97	N 32 4 8.98	W 104 16 30.80
	15298.00	90.79	179.62	9585.33	6203.33	5610.98	1.10	-5566.97	-707.01	388807.35	559337.76	N 32 4 8.03	W 104 16 30.80
	15394.00	90.48	179.83	9584.27	6202.27	5706.33	0.39	-5662.96	-706.55	388711.37	559338.22	N 32 4 7.08	W 104 16 30.80
	15489.00	90.28	179.10	9583.64	6201.64	5800.65	0.80	-5757.95	-705.66	388616.38	559339.10	N 32 4 6.14	W 104 16 30.79
	15584.00	90.86	180.25	9582.69	6200.69	5895.00	1.36	-5852.94	-705.12	388521.40	559339.64	N 32 4 5.20	W 104 16 30.78
	15680.00	91.34	179.32	9580.85	6198.85	5990.36	1.09	-5948.92	-704.76	388425.43	559340.00	N 32 4 4.25	W 104 16 30.78
	15775.00	90.07	179.99	9579.68	6197.68	6084.71	1.51	-6043.91	-704.19	388330.45	559340.57	N 32 4 3.31	W 104 16 30.77
	15869.00	90.00	179.84	9579.62	6197.62	6178.12	0.18	-6137.91	-704.05	388236.46	559340.71	N 32 4 2.38	W 104 16 30.77
	15965.00	89.00	177.90	9580.46	6198.46	6273.29	2.27	-6233.88	-702.16	388140.49	559342.61	N 32 4 1.43	W 104 16 30.75
Final Survey 10- July-2014	16060.00	91.34	179.63	9580.18	6198.18	6367.46	3.06	-6328.85	-700.11	388045.53	559344.65	N 32 4 0.49	W 104 16 30.72
TD - PTB	16105.00	91.34	179.63	9579.13	6197.13	6412.14	0.00	-6373.84	-699.82	388000.55	559344.94	N 32 4 0.05	W 104 16 30.72

Survey Type: Non-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	18.000	Act Stns	30.000	30.000	SLB_MWD-POOR-Depth Only	Original Borehole / Cimarex Hayduke 34 Federal Com #3H
	1	18.000	9114.000	Act Stns	30.000	30.000	SLB_MWD-POOR	Original Borehole / Cimarex Hayduke 34 Federal Com #3H
	1	9114.000	16105.000	Act Stns	30.000	30.000	SLB_MWD-STD	Original Borehole / Cimarex Hayduke 34 Federal Com #3H