



Noble Energy, Inc

Weld County, CO (NAD 83)

Sec 14, T06N-R65W (Eagle E14 Pad)

Eagle E14-65-1HN

Wellbore #1

Design: OH

Standard Survey Report

12 June, 2014





IDS Survey Report



Company:	Noble Energy, Inc	Local Co-ordinate Reference:	Well Eagle E14-65-1HN
Project:	Weld County, CO (NAD 83)	TVD Reference:	Well @ 4748.0usft (H&P 330)
Site:	Sec 14, T06N-R65W (Eagle E14 Pad)	MD Reference:	Well @ 4748.0usft (H&P 330)
Well:	Eagle E14-65-1HN	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	EDM 5000.1 Single User Db

Project	Weld County, CO (NAD 83)		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	Colorado Northern Zone		

Site	Sec 14, T06N-R65W (Eagle E14 Pad)				
Site Position:		Northing:	1,420,783.97 usft	Latitude:	40° 29' 6.936 N
From:	Lat/Long	Easting:	3,239,556.05 usft	Longitude:	104° 38' 19.572 W
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.56 °

Well	Eagle E14-65-1HN					
Well Position	+N-S	0.0 usft	Northing:	1,420,783.96 usft	Latitude:	40° 29' 6.936 N
	+E-W	0.0 usft	Easting:	3,239,556.05 usft	Longitude:	104° 38' 19.572 W
Position Uncertainty		0.0 usft	Wellhead Elevation:	0.0 usft	Ground Level:	4,718.0 usft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF200510	5/20/2014	8.36	67.05	52,909

Design	OH				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD) (usft)	+N-S (usft)	+E-W (usft)	Direction (°)	
	0.0	0.0	0.0	89.95	

Survey Program	Date	6/12/2014			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
290.0	675.0	Surface (Wellbore #1)	Flexi-Shot	VES Flexi-Shot Tool	
726.0	7,270.0	Intermediate (Wellbore #1)	MWD	MWD - Standard	
7,342.0	12,381.0	Lateral (Wellbore #1)	MWD	MWD - Standard	

Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N-S (usft)	+E-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
290.0	0.40	220.40	290.0	-0.8	-0.7	-0.7	0.14	0.14	0.00
675.0	0.40	220.40	675.0	-2.8	-2.4	-2.4	0.00	0.00	0.00
First MWD									
726.0	0.70	210.39	726.0	-3.2	-2.7	-2.7	0.62	0.59	-19.63
818.0	0.79	206.43	818.0	-4.3	-3.2	-3.2	0.11	0.10	-4.30
912.0	0.62	208.54	912.0	-5.3	-3.8	-3.8	0.18	-0.18	2.24
1,006.0	0.88	215.75	1,006.0	-6.3	-4.4	-4.4	0.29	0.28	7.67
1,098.0	0.70	205.11	1,098.0	-7.4	-5.1	-5.1	0.25	-0.20	-11.57



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Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	EDM 5000.1 Single User Db

Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
1,192.0	0.53	210.56	1,191.9	-8.3	-5.5	-5.6	0.19	-0.18	5.80
1,286.0	0.53	208.98	1,285.9	-9.1	-6.0	-6.0	0.02	0.00	-1.68
1,380.0	0.44	201.34	1,379.9	-9.8	-6.3	-6.3	0.12	-0.10	-8.13
1,474.0	0.53	223.40	1,473.9	-10.4	-6.8	-6.8	0.22	0.10	23.47
1,569.0	0.44	190.70	1,568.9	-11.1	-7.1	-7.1	0.30	-0.09	-34.42
1,664.0	0.35	161.08	1,663.9	-11.7	-7.1	-7.1	0.23	-0.09	-31.18
1,759.0	0.44	131.11	1,758.9	-12.3	-6.7	-6.7	0.23	0.09	-31.55
1,854.0	0.18	125.13	1,853.9	-12.6	-6.3	-6.3	0.28	-0.27	-6.29
1,949.0	0.09	122.50	1,948.9	-12.7	-6.1	-6.2	0.09	-0.09	-2.77
2,044.0	0.26	211.53	2,043.9	-12.9	-6.2	-6.2	0.29	0.18	93.72
2,139.0	0.44	223.31	2,138.9	-13.4	-6.6	-6.6	0.20	0.19	12.40
2,234.0	0.62	224.36	2,233.9	-14.0	-7.2	-7.2	0.19	0.19	1.11
2,329.0	0.79	242.64	2,328.9	-14.7	-8.1	-8.1	0.29	0.18	19.24
2,424.0	0.88	229.37	2,423.9	-15.5	-9.2	-9.3	0.22	0.09	-13.97
2,519.0	0.62	229.64	2,518.9	-16.3	-10.2	-10.2	0.27	-0.27	0.28
2,614.0	0.70	238.16	2,613.9	-16.9	-11.1	-11.1	0.13	0.08	8.97
2,709.0	0.70	227.53	2,708.9	-17.6	-12.0	-12.0	0.14	0.00	-11.19
2,804.0	0.62	226.03	2,803.9	-18.4	-12.8	-12.8	0.09	-0.08	-1.58
2,899.0	0.70	232.01	2,898.9	-19.1	-13.6	-13.6	0.11	0.08	6.29
2,994.0	0.26	233.50	2,993.9	-19.6	-14.3	-14.3	0.46	-0.46	1.57
3,089.0	0.18	281.40	3,088.9	-19.7	-14.6	-14.6	0.20	-0.08	50.42
3,184.0	0.26	111.77	3,183.9	-19.7	-14.5	-14.5	0.46	0.08	-178.56
3,279.0	0.44	171.98	3,278.9	-20.1	-14.3	-14.3	0.40	0.19	63.38
3,374.0	0.26	160.11	3,373.9	-20.7	-14.1	-14.2	0.20	-0.19	-12.49
3,469.0	0.53	71.87	3,468.9	-20.8	-13.7	-13.7	0.61	0.28	-92.88
3,565.0	0.62	90.42	3,564.9	-20.6	-12.7	-12.7	0.21	0.09	19.32
3,660.0	0.18	110.54	3,659.9	-20.7	-12.1	-12.1	0.48	-0.46	21.18
3,755.0	0.62	104.74	3,754.9	-20.9	-11.4	-11.4	0.46	0.46	-6.11
3,850.0	0.35	117.84	3,849.8	-21.1	-10.7	-10.7	0.31	-0.28	13.79
3,945.0	0.26	132.69	3,944.8	-21.4	-10.3	-10.3	0.13	-0.09	15.63
4,041.0	0.26	213.29	4,040.8	-21.8	-10.2	-10.2	0.35	0.00	83.96
4,136.0	0.26	213.73	4,135.8	-22.1	-10.4	-10.5	0.00	0.00	0.46
4,231.0	0.70	209.68	4,230.8	-22.8	-10.9	-10.9	0.46	0.46	-4.26
4,326.0	0.53	229.46	4,325.8	-23.6	-11.5	-11.5	0.28	-0.18	20.82
4,421.0	0.44	152.20	4,420.8	-24.2	-11.6	-11.7	0.64	-0.09	-81.33
4,516.0	0.70	183.67	4,515.8	-25.1	-11.5	-11.5	0.42	0.27	33.13
4,611.0	0.18	147.63	4,610.8	-25.8	-11.5	-11.5	0.59	-0.55	-37.94
4,706.0	0.62	305.92	4,705.8	-25.6	-11.8	-11.8	0.83	0.46	166.62
4,801.0	0.44	302.59	4,800.8	-25.1	-12.5	-12.5	0.19	-0.19	-3.51
4,896.0	1.14	329.83	4,895.8	-24.1	-13.3	-13.3	0.82	0.74	28.67
4,991.0	1.41	323.59	4,990.8	-22.4	-14.5	-14.5	0.32	0.28	-6.57
5,087.0	1.32	320.95	5,086.8	-20.6	-15.9	-15.9	0.11	-0.09	-2.75
5,182.0	1.23	320.34	5,181.7	-18.9	-17.2	-17.2	0.10	-0.09	-0.64



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Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
5,277.0	1.14	338.53	5,276.7	-17.3	-18.2	-18.2	0.41	-0.09	19.15
5,372.0	1.14	335.63	5,371.7	-15.5	-18.9	-19.0	0.06	0.00	-3.05
5,467.0	1.32	1.38	5,466.7	-13.6	-19.3	-19.3	0.61	0.19	27.11
5,562.0	1.14	358.48	5,561.7	-11.5	-19.3	-19.3	0.20	-0.19	-3.05
5,658.0	1.67	354.88	5,657.6	-9.2	-19.5	-19.5	0.56	0.55	-3.75
5,753.0	1.06	356.46	5,752.6	-6.9	-19.6	-19.6	0.64	-0.64	1.66
5,848.0	1.23	354.18	5,847.6	-5.0	-19.8	-19.8	0.19	0.18	-2.40
5,943.0	0.88	338.01	5,942.6	-3.3	-20.2	-20.2	0.48	-0.37	-17.02
6,038.0	0.62	327.02	6,037.6	-2.2	-20.7	-20.7	0.31	-0.27	-11.57
6,139.0	0.79	328.42	6,138.5	-1.2	-21.4	-21.4	0.17	0.17	1.39
6,175.0	0.79	341.78	6,174.5	-0.7	-21.6	-21.6	0.51	0.00	37.11
6,223.0	3.25	64.93	6,222.5	0.2	-20.5	-20.5	6.77	5.13	173.23
6,270.0	8.18	74.42	6,269.3	1.6	-16.0	-16.0	10.64	10.49	20.19
6,318.0	12.71	87.08	6,316.5	2.8	-7.5	-7.5	10.53	9.44	26.38
6,365.0	15.48	93.67	6,362.1	2.7	4.0	4.0	6.80	5.89	14.02
6,413.0	17.50	95.43	6,408.1	1.6	17.5	17.5	4.33	4.21	3.67
6,460.0	23.21	94.46	6,452.1	0.2	33.8	33.8	12.17	12.15	-2.06
6,508.0	28.40	92.88	6,495.3	-1.1	54.7	54.7	10.91	10.81	-3.29
6,555.0	34.56	92.61	6,535.4	-2.3	79.2	79.2	13.11	13.11	-0.57
6,603.0	37.46	91.21	6,574.2	-3.2	107.4	107.4	6.28	6.04	-2.92
6,651.0	40.54	87.87	6,611.5	-2.9	137.6	137.6	7.77	6.42	-6.96
6,699.0	40.71	86.90	6,647.9	-1.5	168.8	168.8	1.36	0.35	-2.02
6,746.0	40.54	86.81	6,683.6	0.2	199.3	199.3	0.38	-0.36	-0.19
6,794.0	42.65	88.40	6,719.5	1.5	231.2	231.2	4.91	4.40	3.31
6,841.0	44.76	90.24	6,753.5	1.9	263.6	263.6	5.24	4.49	3.91
6,889.0	48.28	91.30	6,786.5	1.4	298.5	298.5	7.51	7.33	2.21
6,936.0	52.58	91.38	6,816.4	0.5	334.7	334.7	9.15	9.15	0.17
6,984.0	57.07	90.33	6,844.1	0.0	373.9	373.9	9.52	9.35	-2.19
7,031.0	60.94	88.92	6,868.3	0.2	414.2	414.2	8.63	8.23	-3.00
7,079.0	65.25	88.22	6,890.0	1.3	457.0	457.0	9.07	8.98	-1.46
7,127.0	70.00	88.92	6,908.3	2.4	501.3	501.3	9.99	9.90	1.46
7,175.0	74.04	89.54	6,923.1	3.0	547.0	547.0	8.51	8.42	1.29
7,222.0	77.65	90.15	6,934.6	3.1	592.5	592.5	7.78	7.68	1.30
7,270.0	78.08	90.59	6,944.7	2.8	639.4	639.4	1.27	0.90	0.92
7,323.0	82.10	90.92	6,953.8	2.2	691.6	691.6	7.61	7.58	0.61
Actual 7" @ 7323' MD / 6954' TVD / - 7"									
7,342.0	83.54	91.03	6,956.2	1.8	710.5	710.5	7.61	7.58	0.60
7,435.0	86.70	91.65	6,964.1	-0.3	803.1	803.1	3.46	3.40	0.67
7,529.0	91.10	89.63	6,965.9	-1.4	897.1	897.1	5.15	4.68	-2.15
7,624.0	92.24	89.98	6,963.1	-1.1	992.0	992.0	1.26	1.20	0.37
7,717.0	91.10	91.47	6,960.4	-2.2	1,085.0	1,085.0	2.02	-1.23	1.60
7,812.0	88.20	93.05	6,961.0	-6.0	1,179.9	1,179.9	3.48	-3.05	1.66
7,907.0	88.11	93.05	6,964.0	-11.0	1,274.7	1,274.7	0.09	-0.09	0.00
8,002.0	89.78	89.45	6,965.8	-13.1	1,369.6	1,369.6	4.18	1.76	-3.79



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Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
8,097.0	90.92	88.66	6,965.2	-11.5	1,464.6	1,464.6	1.46	1.20	-0.83
8,193.0	92.95	88.84	6,962.0	-9.4	1,560.5	1,560.5	2.12	2.11	0.19
8,288.0	91.45	89.54	6,958.3	-8.1	1,655.5	1,655.4	1.74	-1.58	0.74
8,383.0	88.72	89.63	6,958.2	-7.4	1,750.4	1,750.4	2.88	-2.87	0.09
8,478.0	88.99	89.01	6,960.1	-6.3	1,845.4	1,845.4	0.71	0.28	-0.65
8,573.0	89.08	88.57	6,961.7	-4.3	1,940.4	1,940.4	0.47	0.09	-0.46
8,668.0	89.60	89.01	6,962.8	-2.3	2,035.4	2,035.3	0.72	0.55	0.46
8,763.0	89.60	89.36	6,963.4	-0.9	2,130.3	2,130.3	0.37	0.00	0.37
8,858.0	90.84	89.71	6,963.1	-0.2	2,225.3	2,225.3	1.36	1.31	0.37
8,953.0	92.68	89.19	6,960.2	0.8	2,320.3	2,320.3	2.01	1.94	-0.55
9,049.0	91.10	90.42	6,957.0	1.1	2,416.2	2,416.2	2.09	-1.65	1.28
9,143.0	90.04	91.38	6,956.0	-0.4	2,510.2	2,510.2	1.52	-1.13	1.02
9,238.0	91.80	91.65	6,954.5	-2.9	2,605.2	2,605.2	1.87	1.85	0.28
9,333.0	91.89	89.80	6,951.5	-4.1	2,700.1	2,700.1	1.95	0.09	-1.95
9,429.0	89.87	89.63	6,950.0	-3.6	2,796.1	2,796.1	2.11	-2.10	-0.18
9,524.0	88.37	89.80	6,951.5	-3.2	2,891.1	2,891.1	1.59	-1.58	0.18
9,619.0	89.96	89.80	6,952.8	-2.8	2,986.0	2,986.0	1.67	1.67	0.00
9,714.0	89.60	90.59	6,953.2	-3.1	3,081.0	3,081.0	0.91	-0.38	0.83
9,809.0	87.23	90.86	6,955.8	-4.4	3,176.0	3,176.0	2.51	-2.49	0.28
9,904.0	87.76	91.82	6,960.0	-6.6	3,270.9	3,270.9	1.15	0.56	1.01
10,000.0	87.05	90.07	6,964.3	-8.2	3,366.8	3,366.8	1.97	-0.74	-1.82
10,095.0	88.11	89.89	6,968.3	-8.1	3,461.7	3,461.7	1.13	1.12	-0.19
10,190.0	88.55	90.15	6,971.1	-8.2	3,556.6	3,556.6	0.54	0.46	0.27
10,285.0	89.34	89.80	6,972.9	-8.1	3,651.6	3,651.6	0.91	0.83	-0.37
10,380.0	89.34	88.84	6,973.9	-7.0	3,746.6	3,746.6	1.01	0.00	-1.01
10,476.0	91.01	88.48	6,973.7	-4.7	3,842.6	3,842.6	1.78	1.74	-0.38
10,571.0	92.07	88.31	6,971.1	-2.1	3,937.5	3,937.5	1.13	1.12	-0.18
10,666.0	93.65	87.87	6,966.4	1.1	4,032.3	4,032.3	1.73	1.66	-0.46
10,761.0	93.56	89.36	6,960.4	3.4	4,127.1	4,127.1	1.57	-0.09	1.57
10,856.0	91.63	91.91	6,956.1	2.3	4,222.0	4,222.0	3.36	-2.03	2.68
10,952.0	92.68	92.35	6,952.5	-1.2	4,317.9	4,317.9	1.19	1.09	0.46
11,047.0	90.57	92.88	6,949.8	-5.6	4,412.7	4,412.7	2.29	-2.22	0.56
11,142.0	89.16	91.65	6,950.0	-9.3	4,507.6	4,507.6	1.97	-1.48	-1.29
11,237.0	90.31	91.12	6,950.4	-11.6	4,602.6	4,602.6	1.33	1.21	-0.56
11,332.0	91.98	90.77	6,948.5	-13.2	4,697.6	4,697.6	1.80	1.76	-0.37
11,428.0	89.16	90.15	6,947.6	-14.0	4,793.6	4,793.5	3.01	-2.94	-0.65
11,523.0	88.29	89.63	6,949.7	-13.8	4,888.5	4,888.5	1.07	-0.92	-0.55
11,618.0	89.69	89.36	6,951.4	-12.9	4,983.5	4,983.5	1.50	1.47	-0.28
11,713.0	89.25	89.01	6,952.3	-11.6	5,078.5	5,078.5	0.59	-0.46	-0.37
11,808.0	90.84	89.27	6,952.2	-10.2	5,173.5	5,173.5	1.70	1.67	0.27
11,903.0	90.04	88.92	6,951.5	-8.7	5,268.5	5,268.5	0.92	-0.84	-0.37
11,998.0	88.29	88.84	6,952.8	-6.8	5,363.4	5,363.4	1.84	-1.84	-0.08
12,093.0	89.25	88.40	6,954.9	-4.5	5,458.4	5,458.4	1.11	1.01	-0.46



IDS Survey Report



Company:	Noble Energy, Inc	Local Co-ordinate Reference:	Well Eagle E14-65-1HN
Project:	Weld County, CO (NAD 83)	TVD Reference:	Well @ 4748.0usft (H&P 330)
Site:	Sec 14, T06N-R65W (Eagle E14 Pad)	MD Reference:	Well @ 4748.0usft (H&P 330)
Well:	Eagle E14-65-1HN	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	OH	Database:	EDM 5000.1 Single User Db

Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
12,188.0	91.01	88.31	6,954.7	-1.8	5,553.3	5,553.3	1.86	1.85	-0.09	
12,283.0	92.42	87.78	6,951.8	1.4	5,648.2	5,648.2	1.59	1.48	-0.56	
Last MWD										
12,381.0	92.42	87.78	6,947.7	5.2	5,746.1	5,746.1	0.00	0.00	0.00	
PTD @ 12381' MD / 6948' TVD										

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name		Casing Diameter (")	Hole Diameter (")
7,323.0	6,953.8	7"		7	8-3/4

Design Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment	
		+N/-S (usft)	+E/-W (usft)		
675.0	675.0	-2.8	-2.4	First MWD	
7,323.0	6,953.8	2.2	691.6	Actual 7' @ 7323' MD / 6954' TVD /	
12,283.0	6,951.8	1.4	5,648.2	Last MWD	
12,381.0	6,947.7	5.2	5,746.1	PTD @ 12381' MD / 6948' TVD	

Checked By: _____ Approved By: _____ Date: _____



Weld County, CO (NAD 83)

Eagle E14-65-1HN

H&P 330

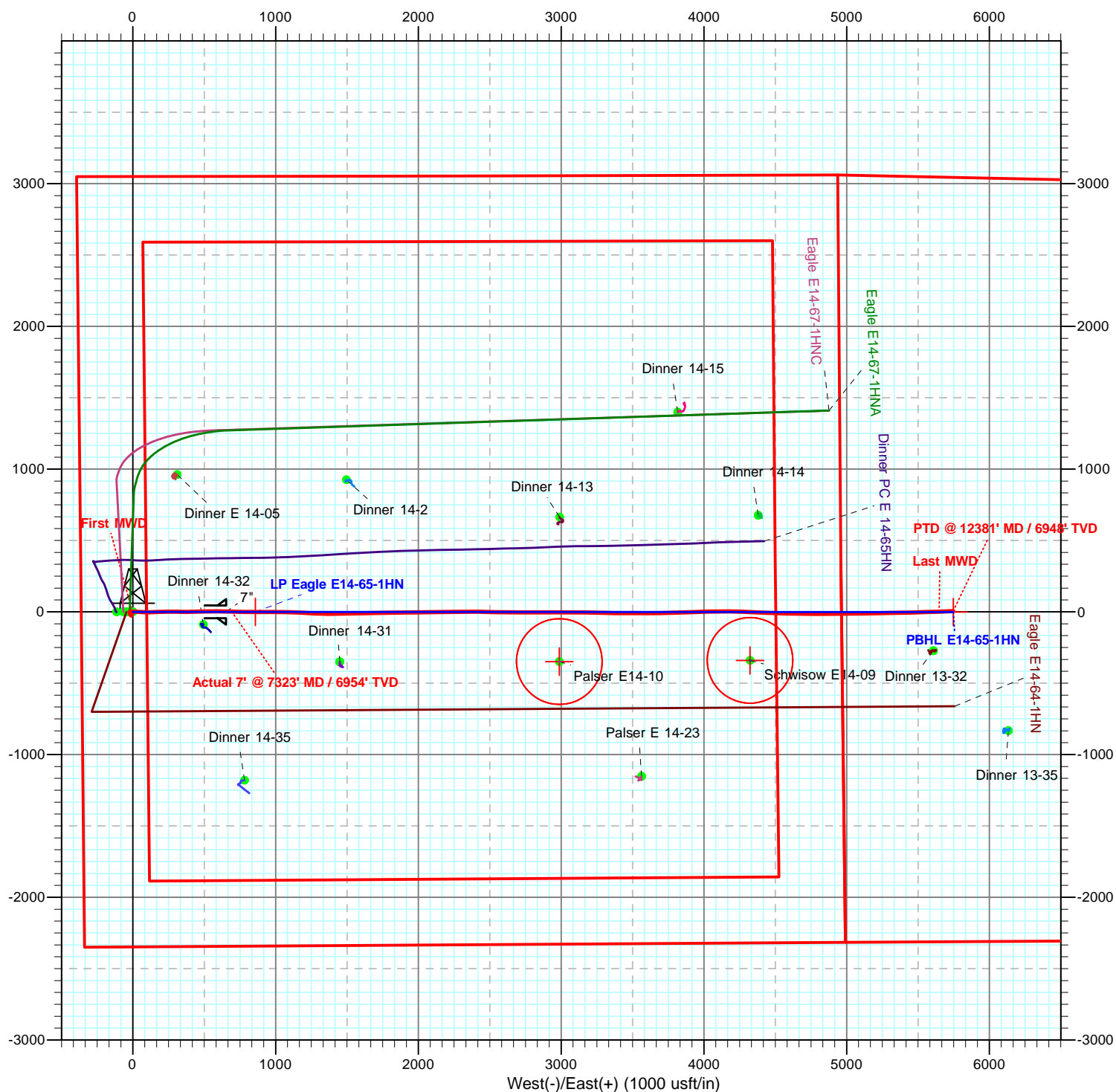
Plan #1



SHL @ 2350' FSL & 364' FWL Sec 14

7' Csg 2344' FSL & 1054' FWL Sec 14

PBHL @ 2317' FSL & 782' FWL Sec 13

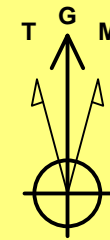




Weld County, CO (NAD 83)
Eagle E14-65-1HN
H&P 330
Plan #1



SHL @ 2350' FSL & 364 FWL Sec 14
7' Csg @ 2344' FSL & 1054' FWL Sec 14
PBHL @ 2317' FSL & 782' FWL Sec 13



Azimuths to Grid North
True North: -0.56°
Magnetic North: 7.80°

Magnetic Field
Strength: 52909.2snT
Dip Angle: 67.05°
Date: 5/20/2014
Model: IGRF200510

