Noble Energy Inc.- Weld County, CO (Grid North)

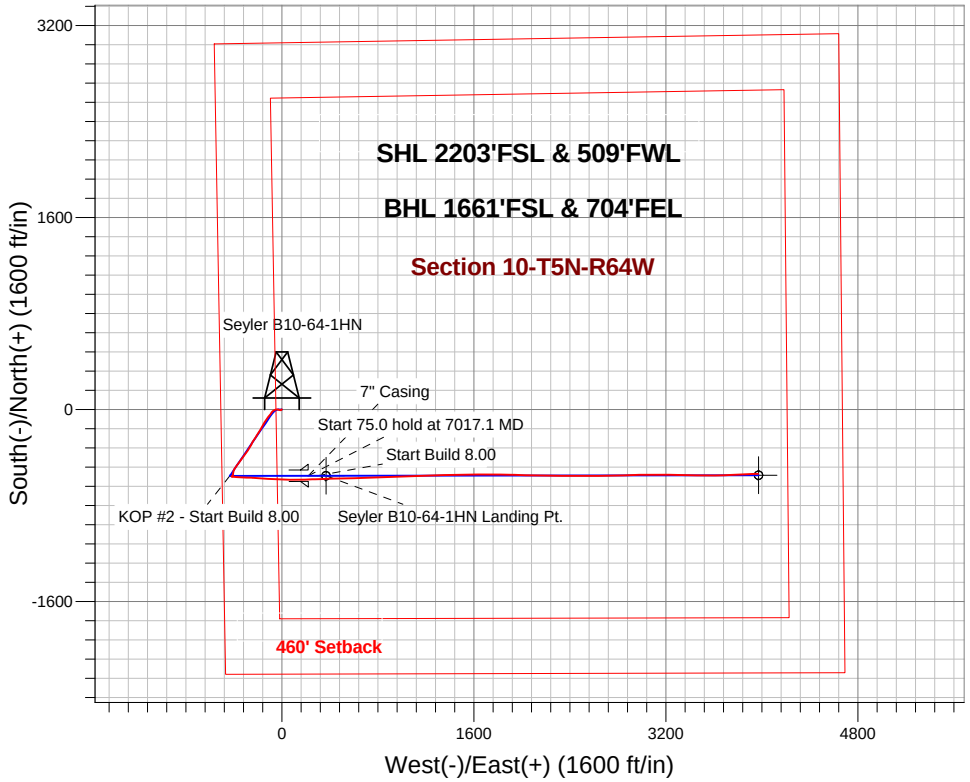
Well Name: **Seyler B10-64-1HN**
Surface Location: Seyler B10-64-1HN Pad Sec.10-T5N-R64W
North American Datum 1983 , US State Plane 1983 , Colorado Northern Zone
Ground Elevation: 4597.0

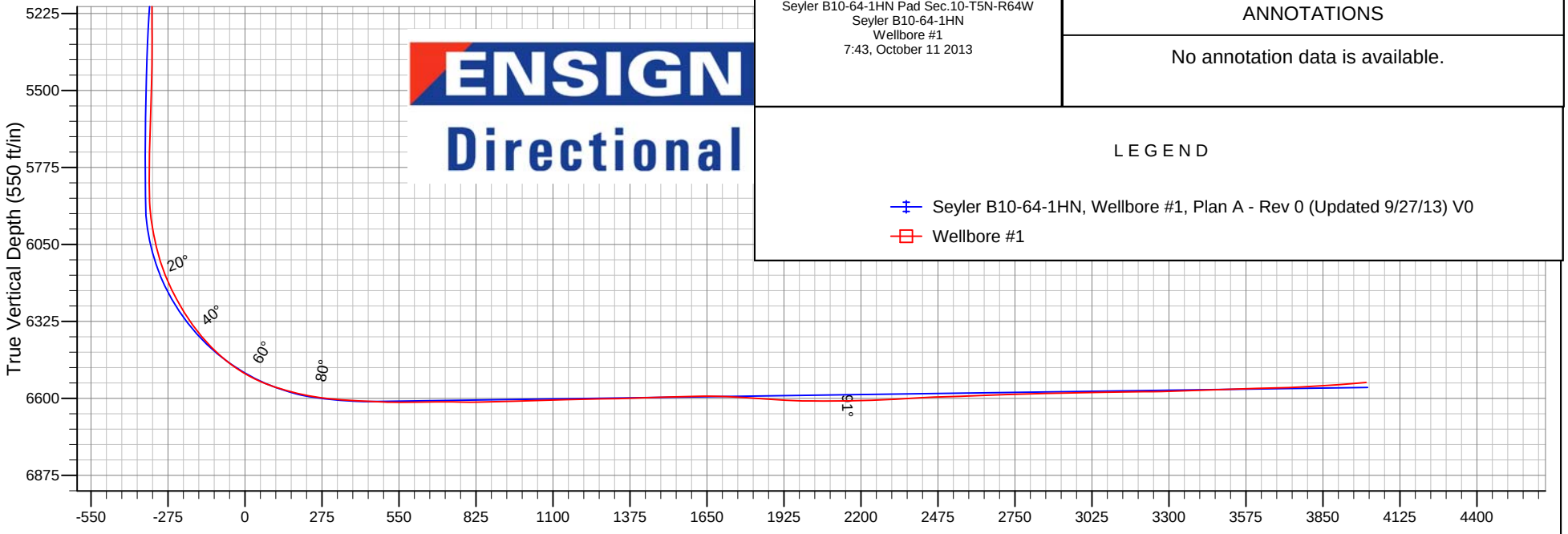
+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	1394593.35	3266254.08	40.412620	-104.543810	

Ensign 121 RKB - 13' WELL @ 4610.0ft (Ensign 121 RKB - 13')

FINAL SURVEY

Projected Bottom Hole Location
10758' MD 6543' TVD 536' S & 3968' E of SHL
94.7 degree Incl @ 87.8 degree AZM





Seyler B10-64-1HN Pad Sec.10-T5N-R64W
Seyler B10-64-1HN
Wellbore #1
7:43, October 11 2013

ANNOTATIONS

No annotation data is available.

LEGEND

Seyler B10-64-1HN, Wellbore #1, Plan A - Rev 0 (Updated 9/27/13) V0

Wellbore #1

Noble Energy Inc.- Weld County, CO (Grid North)

Sec.10-T5N-R64W
Seyler B10-64-1HN Pad Sec.10-T5N-R64W
Seyler B10-64-1HN

Wellbore #1

Design: Wellbore #1

Standard Survey Report

11 October, 2013

ENSIGN Directional

Survey Report

Company:	Noble Energy Inc.- Weld County, CO (Grid North)	**Local Co-ordinate Reference:**	Well Seyler B10-64-1HN
Project:	Sec.10-T5N-R64W	**TVD Reference:**	WELL @ 4610.0ft (Ensign 121 RKB - 13')
Site:	Seyler B10-64-1HN Pad Sec.10-T5N-R64W	**MD Reference:**	WELL @ 4610.0ft (Ensign 121 RKB - 13')
Well:	Seyler B10-64-1HN	**North Reference:**	Grid
Wellbore:	Wellbore #1	**Survey Calculation Method:**	Minimum Curvature
Design:	Wellbore #1	**Database:**	Landmark

Project Sec.10-T5N-R64W, Weld County, CO

Map System:	US State Plane 1983	**System Datum:**	Mean Sea Level
Geo Datum:	North American Datum 1983		Using Well Reference Point
Map Zone:	Colorado Northern Zone		Using geodetic scale factor

Site Seyler B10-64-1HN Pad Sec.10-T5N-R64W

Site Position:		**Northing:**	1,394,593.36 ft	**Latitude:**	40.412620
From:	Lat/Long	**Easting:**	3,266,254.08 ft	**Longitude:**	-104.543810
Position Uncertainty:	0.0 ft	**Slot Radius:**	"	**Grid Convergence:**	0.62 °

Well Seyler B10-64-1HN

Well Position	**+N/-S**	0.0 ft	**Northing:**	1,394,593.35 ft	**Latitude:**	40.412620
	+E/-W	0.0 ft	**Easting:**	3,266,254.08 ft	**Longitude:**	-104.543810
Position Uncertainty		0.0 ft	**Wellhead Elevation:**	ft	**Ground Level:**	4,597.0 ft

Wellbore Wellbore #1

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	9/27/2013	8.44	67.02	52,922

Design Wellbore #1

Audit Notes:

Version:	1.0	**Phase:**	ACTUAL	**Tie On Depth:**	0.0

Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.0	0.0	0.0	97.69

Survey Program **Date** 10/11/2013

From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
290.0	598.0	Survey #1 (Wellbore #1)	Flexi-Shot	VES Flexi-Shot Tool
645.0	10,758.0	Survey #2 (Wellbore #1)	MWD	MWD - Standard

Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
290.0	1.00	301.58	290.0	1.3	-2.2	-2.3	0.34	0.34	0.00
384.0	0.20	346.38	384.0	1.9	-2.9	-3.1	0.93	-0.85	47.66
598.0	0.30	102.80	598.0	2.2	-2.4	-2.7	0.20	0.05	54.40
645.0	1.10	238.60	645.0	1.9	-2.7	-2.9	2.83	1.70	288.94
930.0	1.20	220.90	929.9	-1.8	-7.0	-6.7	0.13	0.04	-6.21
1,120.0	0.90	217.20	1,119.9	-4.5	-9.2	-8.5	0.16	-0.16	-1.95
1,214.0	2.10	264.60	1,213.9	-5.2	-11.4	-10.6	1.74	1.28	50.43
1,309.0	4.50	284.90	1,308.7	-4.4	-16.7	-15.9	2.77	2.53	21.37
1,402.0	4.10	289.90	1,401.4	-2.4	-23.3	-22.8	0.59	-0.43	5.38
1,497.0	4.40	279.80	1,496.2	-0.6	-30.1	-29.8	0.85	0.32	-10.63

Company:	Noble Energy Inc.- Weld County, CO (Grid North)	**Local Co-ordinate Reference:**	Well Seyler B10-64-1HN
Project:	Sec.10-T5N-R64W	**TVD Reference:**	WELL @ 4610.0ft (Ensign 121 RKB - 13')
Site:	Seyler B10-64-1HN Pad Sec.10-T5N-R64W	**MD Reference:**	WELL @ 4610.0ft (Ensign 121 RKB - 13')
Well:	Seyler B10-64-1HN	**North Reference:**	Grid
Wellbore:	Wellbore #1	**Survey Calculation Method:**	Minimum Curvature
Design:	Wellbore #1	**Database:**	Landmark

Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
1,590.0	5.40	272.90	1,588.8	0.2	-38.0	-37.7	1.25	1.08	-7.42
1,683.0	4.70	269.60	1,681.5	0.4	-46.2	-45.8	0.81	-0.75	-3.55
1,777.0	5.10	251.60	1,775.1	-0.9	-54.0	-53.4	1.68	0.43	-19.15
1,872.0	5.80	246.20	1,869.7	-4.2	-62.4	-61.3	0.91	0.74	-5.68
1,967.0	6.10	233.20	1,964.2	-9.1	-70.8	-69.0	1.45	0.32	-13.68
2,062.0	6.90	225.30	2,058.6	-16.2	-78.9	-76.1	1.26	0.84	-8.32
2,157.0	7.90	211.40	2,152.8	-25.8	-86.4	-82.2	2.15	1.05	-14.63
2,250.0	8.20	214.50	2,244.9	-36.7	-93.5	-87.7	0.57	0.32	3.33
2,345.0	8.80	220.20	2,338.8	-47.8	-102.0	-94.7	1.09	0.63	6.00
2,439.0	10.30	218.90	2,431.5	-59.9	-111.9	-102.9	1.61	1.60	-1.38
2,534.0	11.20	217.00	2,524.9	-73.8	-122.8	-111.8	1.02	0.95	-2.00
2,628.0	12.80	214.40	2,616.8	-89.7	-134.2	-121.0	1.80	1.70	-2.77
2,722.0	12.70	213.00	2,708.5	-107.0	-145.7	-130.1	0.35	-0.11	-1.49
2,817.0	12.20	210.10	2,801.3	-124.4	-156.4	-138.4	0.84	-0.53	-3.05
2,912.0	11.70	206.10	2,894.2	-141.8	-165.7	-145.2	1.02	-0.53	-4.21
3,007.0	11.80	209.10	2,987.2	-158.9	-174.7	-151.8	0.65	0.11	3.16
3,102.0	10.80	210.50	3,080.4	-175.1	-183.9	-158.8	1.09	-1.05	1.47
3,196.0	10.40	211.90	3,172.8	-189.8	-192.9	-165.7	0.51	-0.43	1.49
3,291.0	10.40	212.30	3,266.2	-204.4	-202.0	-172.8	0.08	0.00	0.42
3,386.0	10.70	214.70	3,359.6	-218.9	-211.6	-180.4	0.56	0.32	2.53
3,481.0	12.20	212.30	3,452.7	-234.6	-222.0	-188.6	1.66	1.58	-2.53
3,576.0	12.10	212.10	3,545.6	-251.5	-232.6	-196.9	0.11	-0.11	-0.21
3,671.0	12.70	211.00	3,638.4	-268.9	-243.3	-205.1	0.68	0.63	-1.16
3,765.0	12.90	208.90	3,730.0	-287.0	-253.7	-213.0	0.54	0.21	-2.23
3,860.0	12.80	206.80	3,822.7	-305.6	-263.5	-220.3	0.50	-0.11	-2.21
3,955.0	10.20	208.60	3,915.7	-322.4	-272.3	-226.7	2.76	-2.74	1.89
4,050.0	9.50	215.80	4,009.3	-336.2	-280.9	-233.4	1.49	-0.74	7.58
4,145.0	9.80	215.10	4,103.0	-349.1	-290.2	-240.8	0.34	0.32	-0.74
4,239.0	10.70	215.40	4,195.5	-362.8	-299.8	-248.6	0.96	0.96	0.32
4,334.0	11.20	215.90	4,288.8	-377.4	-310.3	-257.0	0.54	0.53	0.53
4,429.0	12.40	217.00	4,381.8	-393.1	-321.9	-266.4	1.29	1.26	1.16
4,524.0	11.40	216.10	4,474.7	-408.8	-333.6	-275.9	1.07	-1.05	-0.95
4,619.0	11.70	215.90	4,567.8	-424.2	-344.7	-284.9	0.32	0.32	-0.21
4,714.0	11.20	217.70	4,660.9	-439.3	-356.0	-294.0	0.65	-0.53	1.89
4,808.0	11.70	215.20	4,753.0	-454.3	-367.1	-303.0	0.75	0.53	-2.66
4,903.0	13.00	216.50	4,845.8	-470.8	-379.0	-312.6	1.40	1.37	1.37
4,998.0	12.10	212.10	4,938.6	-487.8	-390.7	-321.9	1.38	-0.95	-4.63
5,093.0	9.70	202.90	5,031.8	-503.6	-399.1	-328.1	3.11	-2.53	-9.68
5,188.0	8.00	197.80	5,125.7	-517.3	-404.2	-331.4	1.97	-1.79	-5.37
5,282.0	6.30	186.10	5,219.0	-528.6	-406.8	-332.4	2.37	-1.81	-12.45
5,377.0	4.90	185.90	5,313.5	-537.8	-407.7	-332.1	1.47	-1.47	-0.21
5,472.0	4.50	198.00	5,408.2	-545.4	-409.3	-332.6	1.12	-0.42	12.74
5,567.0	3.20	218.60	5,503.0	-551.0	-412.1	-334.7	1.98	-1.37	21.68
5,662.0	2.50	234.20	5,597.9	-554.3	-415.4	-337.5	1.09	-0.74	16.42
5,757.0	2.00	252.00	5,692.8	-556.1	-418.7	-340.5	0.90	-0.53	18.74
5,851.0	0.40	219.80	5,786.8	-556.8	-420.5	-342.2	1.78	-1.70	-34.26
5,946.0	1.60	140.70	5,881.8	-558.1	-419.8	-341.4	1.66	1.26	-83.26
6,041.0	9.10	90.80	5,976.3	-559.2	-411.5	-332.9	8.59	7.89	-52.53
6,136.0	13.80	95.50	6,069.4	-560.4	-392.7	-314.2	5.04	4.95	4.95
6,230.0	21.80	96.40	6,158.8	-563.4	-364.1	-285.5	8.52	8.51	0.96
6,325.0	28.80	91.10	6,244.7	-565.9	-323.6	-245.0	7.74	7.37	-5.58
6,420.0	34.60	92.20	6,325.5	-567.3	-273.8	-195.4	6.14	6.11	1.16
6,514.0	42.00	94.10	6,399.2	-570.6	-215.7	-137.4	7.97	7.87	2.02
6,609.0	51.20	93.20	6,464.4	-575.0	-146.8	-68.6	9.71	9.68	-0.95

Company:	Noble Energy Inc.- Weld County, CO (Grid North)	**Local Co-ordinate Reference:**	Well Seyler B10-64-1HN
Project:	Sec.10-T5N-R64W	**TVD Reference:**	WELL @ 4610.0ft (Ensign 121 RKB - 13')
Site:	Seyler B10-64-1HN Pad Sec.10-T5N-R64W	**MD Reference:**	WELL @ 4610.0ft (Ensign 121 RKB - 13')
Well:	Seyler B10-64-1HN	**North Reference:**	Grid
Wellbore:	Wellbore #1	**Survey Calculation Method:**	Minimum Curvature
Design:	Wellbore #1	**Database:**	Landmark

Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
6,704.0	60.90	93.60	6,517.4	-579.6	-68.3	9.9	10.22	10.21	0.42
6,799.0	71.30	91.80	6,555.8	-583.7	18.4	96.3	11.08	10.95	-1.89
6,846.0	74.20	91.30	6,569.8	-584.9	63.2	140.9	6.25	6.17	-1.06
6,894.0	76.00	88.90	6,582.1	-585.0	109.6	186.9	6.12	3.75	-5.00
6,953.0	80.90	89.00	6,593.9	-583.9	167.4	244.0	8.31	8.31	0.17
7,017.0	84.60	87.60	6,602.0	-582.0	230.8	306.6	6.17	5.78	-2.19
7,064.0	86.10	88.90	6,605.8	-580.6	277.7	352.8	4.22	3.19	2.77
7,111.0	87.50	88.00	6,608.4	-579.3	324.6	399.2	3.54	2.98	-1.91
7,154.3	87.32	88.18	6,610.4	-577.9	367.8	441.8	0.60	-0.43	0.43
Seyler B10-64-1HN Landing Pt.									
7,158.0	87.30	88.20	6,610.6	-577.8	371.5	445.5	0.60	-0.43	0.43
7,206.0	87.20	88.20	6,612.9	-576.2	419.4	492.7	0.21	-0.21	0.00
7,253.0	89.50	88.00	6,614.2	-574.7	466.4	539.1	4.91	4.89	-0.43
7,301.0	91.50	88.50	6,613.8	-573.2	514.3	586.4	4.29	4.17	1.04
7,396.0	89.70	88.00	6,612.8	-570.3	609.3	680.1	1.97	-1.89	-0.53
7,491.0	89.50	87.60	6,613.5	-566.7	704.2	773.7	0.47	-0.21	-0.42
7,586.0	91.40	89.00	6,612.7	-563.9	799.2	867.4	2.48	2.00	1.47
7,680.0	92.00	89.00	6,609.9	-562.2	893.1	960.3	0.64	0.64	0.00
7,775.0	91.30	87.80	6,607.2	-559.6	988.0	1,054.0	1.46	-0.74	-1.26
7,870.0	91.70	87.80	6,604.7	-555.9	1,082.9	1,147.6	0.42	0.42	0.00
7,965.0	90.70	88.20	6,602.7	-552.6	1,177.8	1,241.2	1.13	-1.05	0.42
8,060.0	91.50	88.00	6,600.9	-549.5	1,272.8	1,334.8	0.87	0.84	-0.21
8,154.0	92.20	88.00	6,597.9	-546.2	1,366.7	1,427.5	0.74	0.74	0.00
8,249.0	91.40	88.30	6,594.9	-543.1	1,461.6	1,521.1	0.90	-0.84	0.32
8,344.0	91.30	88.70	6,592.6	-540.6	1,556.5	1,614.8	0.43	-0.11	0.42
8,438.0	87.80	90.30	6,593.4	-539.8	1,650.5	1,707.9	4.09	-3.72	1.70
8,533.0	86.40	91.00	6,598.2	-540.9	1,745.4	1,802.0	1.65	-1.47	0.74
8,628.0	85.80	90.40	6,604.6	-542.0	1,840.1	1,896.1	0.89	-0.63	-0.63
8,723.0	88.80	91.80	6,609.1	-543.9	1,935.0	1,990.4	3.48	3.16	1.47
8,818.0	90.80	91.50	6,609.4	-546.6	2,029.9	2,084.8	2.13	2.11	-0.32
8,913.0	90.80	90.80	6,608.1	-548.5	2,124.9	2,179.2	0.74	0.00	-0.74
9,007.0	92.50	91.50	6,605.4	-550.4	2,218.9	2,272.5	1.96	1.81	0.74
9,102.0	93.60	91.00	6,600.4	-552.5	2,313.7	2,366.8	1.27	1.16	-0.53
9,197.0	91.80	90.30	6,595.9	-553.5	2,408.6	2,461.0	2.03	-1.89	-0.74
9,292.0	92.10	89.90	6,592.6	-553.7	2,503.5	2,555.1	0.53	0.32	-0.42
9,386.0	92.40	89.40	6,589.0	-553.1	2,597.4	2,648.1	0.62	0.32	-0.53
9,481.0	91.70	88.90	6,585.6	-551.7	2,692.4	2,742.0	0.91	-0.74	-0.53
9,576.0	91.20	88.90	6,583.2	-549.9	2,787.3	2,835.8	0.53	-0.53	0.00
9,671.0	91.40	87.40	6,581.0	-546.8	2,882.2	2,929.5	1.59	0.21	-1.58
9,766.0	90.90	89.40	6,579.1	-544.2	2,977.2	3,023.2	2.17	-0.53	2.11
9,860.0	91.20	89.60	6,577.4	-543.4	3,071.2	3,116.3	0.38	0.32	0.21
9,955.0	89.80	89.90	6,576.5	-542.9	3,166.2	3,210.3	1.51	-1.47	0.32
10,050.0	91.90	91.70	6,575.1	-544.3	3,261.1	3,304.6	2.91	2.21	1.89
10,145.0	92.30	91.10	6,571.6	-546.6	3,356.0	3,399.0	0.76	0.42	-0.63
10,240.0	92.10	91.30	6,568.0	-548.6	3,450.9	3,493.3	0.30	-0.21	0.21
10,335.0	91.10	89.40	6,565.4	-549.2	3,545.9	3,587.5	2.26	-1.05	-2.00
10,429.0	91.80	88.90	6,563.0	-547.8	3,639.9	3,680.4	0.92	0.74	-0.53
10,524.0	92.90	87.60	6,559.1	-544.9	3,734.7	3,774.1	1.79	1.16	-1.37
10,619.0	93.50	87.80	6,553.8	-541.1	3,829.5	3,867.5	0.67	0.63	0.21
10,703.0	94.70	87.80	6,547.8	-537.8	3,913.2	3,950.0	1.43	1.43	0.00
10,758.0	94.70	87.80	6,543.3	-535.7	3,968.0	4,004.0	0.00	0.00	0.00
Seyler B10-64-1HN BHL 1650'FSL & 700'FEL									

Company:	Noble Energy Inc.- Weld County, CO (Grid North)	**Local Co-ordinate Reference:**	Well Seyler B10-64-1HN
Project:	Sec.10-T5N-R64W	**TVD Reference:**	WELL @ 4610.0ft (Ensign 121 RKB - 13')
Site:	Seyler B10-64-1HN Pad Sec.10-T5N-R64W	**MD Reference:**	WELL @ 4610.0ft (Ensign 121 RKB - 13')
Well:	Seyler B10-64-1HN	**North Reference:**	Grid
Wellbore:	Wellbore #1	**Survey Calculation Method:**	Minimum Curvature
Design:	Wellbore #1	**Database:**	Landmark

Checked By: _____ Approved By: _____ Date: _____