

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

Well Name: **Steadfast E27-62-1HN**

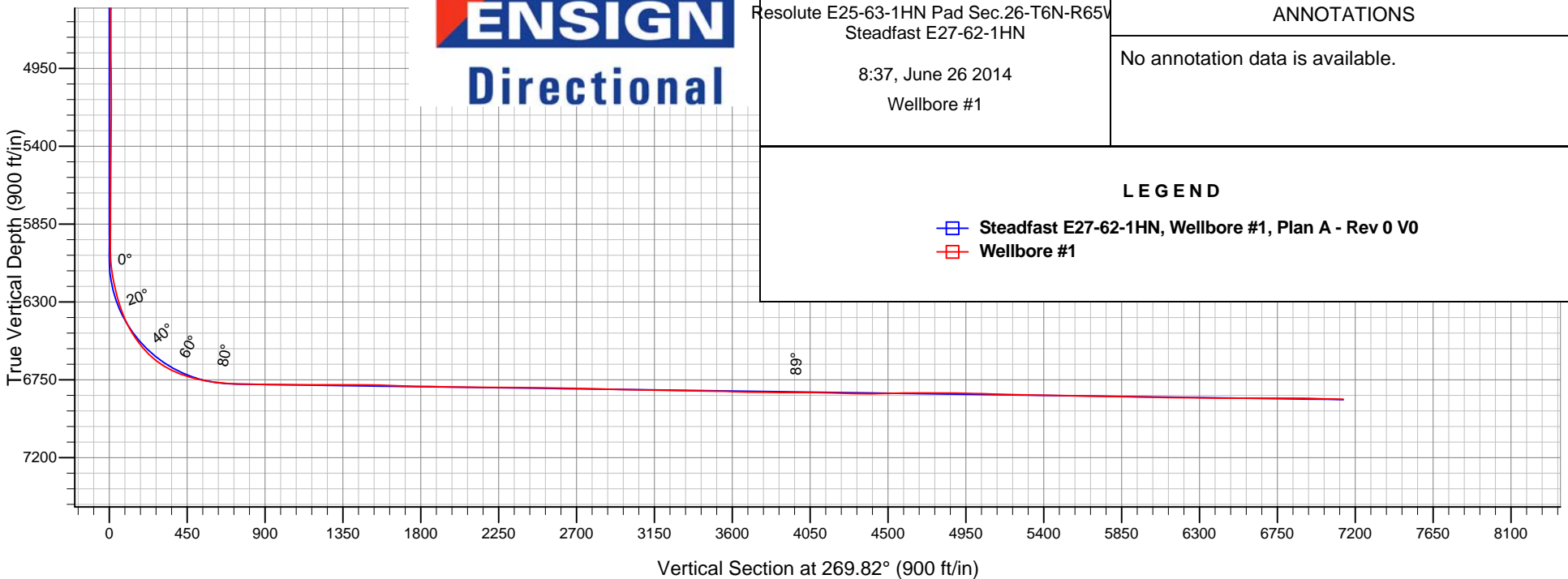
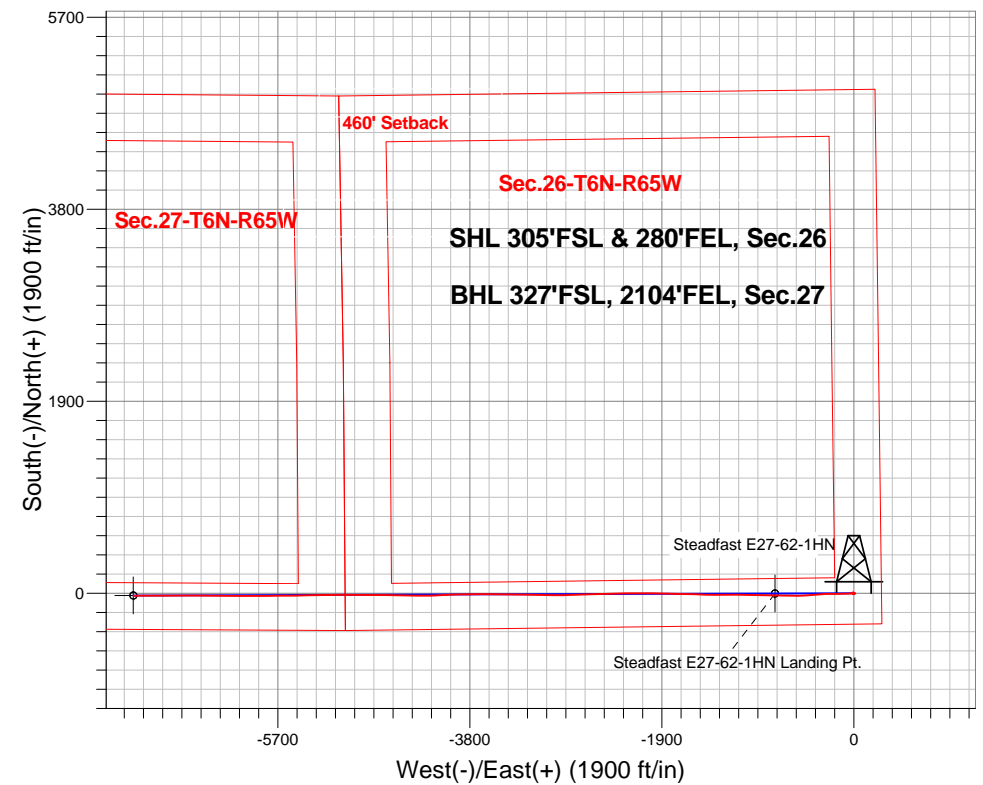
Surface Location: Resolute E25-63-1HN Pad Sec.26-T6N-R65W
North American Datum 1983 , US State Plane 1983 , Colorado Northern Zone

Ground Elevation: 4676.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	1408175.14	3244415.44	40.450520	-104.621750	
Precision 828 RKB - 16' WELL @ 4692.0ft (Precision 828 RKB - 16')						

FINAL SURVEY

Projected Bottom Hole Location
13603'MD 6862'TVD 25'S & 7130'W of SHL
89.0 degree Incl @ 269.6 degree AZM





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

Sec.26-T6N-R65W

Resolute E25-63-1HN Pad Sec.26-T6N-R65W

Steadfast E27-62-1HN

Wellbore #1

Design: Wellbore #1

Final Survey

26 June, 2014

Company:	Noble Energy Inc.- Weld County, CO (Grid North)	Local Co-ordinate Reference:	Well Steadfast E27-62-1HN
Project:	Sec.26-T6N-R65W	TVD Reference:	WELL @ 4692.0ft (Precision 828 RKB - 16')
Site:	Resolute E25-63-1HN Pad Sec.26-T6N-R65W	MD Reference:	WELL @ 4692.0ft (Precision 828 RKB - 16')
Well:	Steadfast E27-62-1HN	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)
1,346.0	0.50	151.30	1,346.0	-8.0	2.3	-2.3	0.25
1,440.0	1.10	359.50	1,439.9	-7.5	2.5	-2.5	1.66
1,535.0	0.90	17.70	1,534.9	-5.9	2.7	-2.7	0.39
1,629.0	0.80	0.80	1,628.9	-4.5	2.9	-2.9	0.29
1,724.0	0.50	11.60	1,723.9	-3.4	3.0	-3.0	0.34
1,818.0	1.10	359.50	1,817.9	-2.1	3.1	-3.1	0.66
1,913.0	1.30	5.10	1,912.9	-0.1	3.2	-3.2	0.24
2,008.0	0.80	22.50	2,007.9	1.5	3.5	-3.5	0.62
2,101.0	0.60	35.50	2,100.9	2.5	4.1	-4.1	0.27
2,191.0	0.40	63.50	2,190.9	3.1	4.6	-4.6	0.34
2,280.0	0.30	92.00	2,279.9	3.2	5.1	-5.1	0.22
2,370.0	0.90	94.50	2,369.9	3.1	6.1	-6.1	0.67
2,460.0	1.10	85.00	2,459.8	3.2	7.6	-7.6	0.29
2,550.0	1.00	138.60	2,549.8	2.6	9.0	-9.0	1.06
2,640.0	1.50	115.30	2,639.8	1.5	10.6	-10.6	0.78
2,730.0	0.90	175.20	2,729.8	0.3	11.7	-11.7	1.45
2,820.0	0.80	184.60	2,819.8	-1.0	11.7	-11.7	0.19
2,910.0	1.30	253.10	2,909.8	-1.9	10.7	-10.7	1.39
3,000.0	1.10	245.50	2,999.7	-2.6	8.9	-8.9	0.28
3,089.0	1.50	252.40	3,088.7	-3.3	7.1	-7.0	0.48
3,179.0	1.50	259.00	3,178.7	-3.9	4.8	-4.8	0.19
3,269.0	1.40	256.00	3,268.7	-4.4	2.6	-2.5	0.14
3,359.0	1.40	213.70	3,358.6	-5.5	0.9	-0.9	1.12
3,449.0	1.60	233.90	3,448.6	-7.2	-0.7	0.8	0.62
3,539.0	1.60	223.30	3,538.6	-8.8	-2.6	2.7	0.33
3,629.0	1.30	267.20	3,628.5	-9.8	-4.5	4.5	1.24
3,718.0	1.90	261.50	3,717.5	-10.1	-7.0	7.0	0.70
3,808.0	2.00	295.00	3,807.5	-9.6	-9.9	9.9	1.25
3,898.0	1.90	320.00	3,897.4	-7.8	-12.3	12.3	0.94
3,988.0	1.60	333.30	3,987.4	-5.6	-13.8	13.8	0.56
4,078.0	1.50	18.10	4,077.3	-3.3	-14.0	14.0	1.32
4,168.0	1.30	15.60	4,167.3	-1.2	-13.3	13.3	0.23
4,258.0	1.30	14.10	4,257.3	0.8	-12.8	12.8	0.04
4,347.0	1.50	18.30	4,346.3	2.8	-12.2	12.2	0.25
4,437.0	1.30	21.90	4,436.2	4.9	-11.5	11.4	0.24
4,527.0	1.10	62.30	4,526.2	6.3	-10.3	10.3	0.94
4,617.0	0.90	25.00	4,616.2	7.3	-9.2	9.2	0.74
4,706.0	0.40	359.20	4,705.2	8.2	-9.0	8.9	0.64
4,796.0	0.10	242.00	4,795.2	8.5	-9.0	9.0	0.50
4,886.0	0.70	212.50	4,885.2	8.0	-9.4	9.4	0.68
4,976.0	1.00	201.00	4,975.2	6.8	-10.0	9.9	0.38
5,066.0	0.80	203.60	5,065.2	5.5	-10.5	10.5	0.23
5,156.0	0.80	208.60	5,155.2	4.4	-11.1	11.0	0.08
5,246.0	0.80	112.60	5,245.2	3.6	-10.8	10.8	1.32
5,336.0	0.40	112.00	5,335.2	3.2	-9.9	9.9	0.44

Company:	Noble Energy Inc.- Weld County, CO (Grid North)	Local Co-ordinate Reference:	Well Steadfast E27-62-1HN
Project:	Sec.26-T6N-R65W	TVD Reference:	WELL @ 4692.0ft (Precision 828 RKB - 16')
Site:	Resolute E25-63-1HN Pad Sec.26-T6N-R65W	MD Reference:	WELL @ 4692.0ft (Precision 828 RKB - 16')
Well:	Steadfast E27-62-1HN	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)
5,425.0	1.00	83.90	5,424.2	3.2	-8.8	8.8	0.76
5,515.0	0.30	4.30	5,514.1	3.5	-8.0	8.0	1.10
5,605.0	0.60	343.80	5,604.1	4.2	-8.2	8.1	0.37
5,695.0	0.70	89.90	5,694.1	4.7	-7.7	7.7	1.16
5,785.0	0.40	130.20	5,784.1	4.5	-6.9	6.9	0.52
5,875.0	0.50	140.80	5,874.1	4.0	-6.5	6.4	0.14
5,964.0	0.40	156.60	5,963.1	3.4	-6.1	6.1	0.18
6,009.0	0.40	200.70	6,008.1	3.1	-6.1	6.1	0.67
6,054.0	3.40	260.00	6,053.1	2.7	-7.5	7.4	7.14
6,099.0	7.10	261.80	6,097.9	2.1	-11.5	11.5	8.23
6,143.0	9.70	258.40	6,141.4	0.9	-17.8	17.8	6.01
6,188.0	11.70	261.30	6,185.6	-0.5	-26.1	26.1	4.60
6,233.0	13.10	263.10	6,229.6	-1.8	-35.6	35.6	3.23
6,278.0	15.50	268.60	6,273.2	-2.6	-46.7	46.7	6.12
6,323.0	17.30	272.50	6,316.4	-2.4	-59.4	59.4	4.69
6,368.0	20.70	268.50	6,358.9	-2.3	-74.1	74.1	8.09
6,413.0	24.10	265.80	6,400.5	-3.2	-91.2	91.2	7.89
6,458.0	27.70	265.20	6,441.0	-4.8	-110.8	110.8	8.02
6,503.0	31.50	266.50	6,480.1	-6.4	-132.9	133.0	8.56
6,548.0	35.30	268.80	6,517.7	-7.4	-157.7	157.7	8.90
6,593.0	39.10	271.80	6,553.5	-7.2	-184.9	184.9	9.35
6,638.0	43.60	270.30	6,587.3	-6.7	-214.6	214.6	10.24
6,683.0	48.20	269.70	6,618.6	-6.7	-246.9	246.9	10.27
6,728.0	53.10	267.40	6,647.1	-7.6	-281.7	281.7	11.58
6,772.0	58.90	265.60	6,671.7	-9.8	-318.1	318.1	13.61
6,817.0	64.70	265.00	6,693.0	-13.1	-357.6	357.6	12.94
6,862.0	68.80	265.40	6,710.7	-16.5	-398.8	398.8	9.15
6,907.0	71.70	266.60	6,725.9	-19.5	-441.0	441.1	6.92
6,952.0	74.80	266.70	6,738.9	-22.0	-484.0	484.1	6.89
6,997.0	77.90	267.40	6,749.5	-24.2	-527.7	527.7	7.05
7,042.0	81.10	269.80	6,757.7	-25.3	-571.9	572.0	8.84
7,087.0	82.90	271.50	6,764.0	-24.8	-616.5	616.5	5.48
7,135.0	85.70	271.60	6,768.7	-23.5	-664.2	664.3	5.84
7,210.0	88.40	271.30	6,772.6	-21.6	-739.1	739.1	3.62
7,252.4	88.73	270.97	6,773.7	-20.8	-781.4	781.5	1.10
Steadfast E27-62-1HN Landing Pt.							
7,300.0	89.10	270.60	6,774.6	-20.1	-829.0	829.1	1.10
7,390.0	89.00	271.10	6,776.1	-18.8	-919.0	919.1	0.57
7,480.0	89.50	271.10	6,777.2	-17.1	-1,009.0	1,009.0	0.56
7,574.0	89.40	270.30	6,778.1	-15.9	-1,103.0	1,103.0	0.86
7,665.0	90.20	269.50	6,778.5	-16.1	-1,194.0	1,194.0	1.24
7,758.0	89.90	270.00	6,778.4	-16.5	-1,287.0	1,287.0	0.63
7,851.0	90.40	270.90	6,778.1	-15.8	-1,380.0	1,380.0	1.11
7,946.0	89.80	271.60	6,778.0	-13.7	-1,474.9	1,475.0	0.97

Company:	Noble Energy Inc.- Weld County, CO (Grid North)	Local Co-ordinate Reference:	Well Steadfast E27-62-1HN
Project:	Sec.26-T6N-R65W	TVD Reference:	WELL @ 4692.0ft (Precision 828 RKB - 16')
Site:	Resolute E25-63-1HN Pad Sec.26-T6N-R65W	MD Reference:	WELL @ 4692.0ft (Precision 828 RKB - 16')
Well:	Steadfast E27-62-1HN	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)
8,038.0	87.30	271.60	6,780.3	-11.1	-1,566.9	1,566.9	2.72
8,132.0	88.30	271.60	6,783.9	-8.5	-1,660.8	1,660.8	1.06
8,225.0	88.70	271.30	6,786.3	-6.1	-1,753.7	1,753.7	0.54
8,319.0	90.00	271.70	6,787.4	-3.7	-1,847.7	1,847.7	1.45
8,413.0	88.00	270.40	6,789.0	-2.0	-1,941.6	1,941.6	2.54
8,506.0	88.50	271.00	6,791.9	-0.8	-2,034.6	2,034.6	0.84
8,600.0	89.20	270.10	6,793.8	0.1	-2,128.5	2,128.5	1.21
8,695.0	90.00	269.50	6,794.4	-0.3	-2,223.5	2,223.5	1.05
8,788.0	90.40	268.10	6,794.1	-2.2	-2,316.5	2,316.5	1.57
8,880.0	89.70	268.90	6,794.0	-4.6	-2,408.5	2,408.5	1.16
8,974.0	88.80	268.30	6,795.3	-6.9	-2,502.4	2,502.5	1.15
9,069.0	88.80	268.20	6,797.3	-9.8	-2,597.4	2,597.4	0.11
9,163.0	88.90	268.00	6,799.1	-12.9	-2,691.3	2,691.3	0.24
9,255.0	89.00	267.70	6,800.8	-16.4	-2,783.2	2,783.3	0.34
9,350.0	88.70	269.00	6,802.7	-19.1	-2,878.2	2,878.2	1.40
9,444.0	88.10	270.00	6,805.4	-19.9	-2,972.1	2,972.2	1.24
9,537.0	88.70	271.40	6,808.0	-18.8	-3,065.1	3,065.1	1.64
9,631.0	88.70	271.10	6,810.1	-16.7	-3,159.0	3,159.1	0.32
9,725.0	89.70	271.70	6,811.4	-14.4	-3,253.0	3,253.0	1.24
9,819.0	89.10	271.00	6,812.4	-12.2	-3,347.0	3,347.0	0.98
9,912.0	89.00	270.50	6,813.9	-11.0	-3,439.9	3,440.0	0.55
9,989.0	89.10	270.40	6,815.2	-10.4	-3,516.9	3,516.9	0.18
10,078.0	87.70	270.30	6,817.7	-9.9	-3,605.9	3,605.9	1.58
10,168.0	88.70	270.20	6,820.5	-9.5	-3,695.8	3,695.9	1.12
10,258.0	89.30	269.40	6,822.1	-9.8	-3,785.8	3,785.8	1.11
10,348.0	89.70	269.00	6,822.9	-11.0	-3,875.8	3,875.8	0.63
10,438.0	90.50	267.70	6,822.7	-13.6	-3,965.8	3,965.8	1.70
10,527.0	89.20	266.80	6,822.9	-17.9	-4,054.7	4,054.7	1.78
10,617.0	88.90	268.20	6,824.4	-21.8	-4,144.6	4,144.6	1.59
10,707.0	87.90	269.50	6,826.9	-23.6	-4,234.5	4,234.6	1.82
10,797.0	88.90	270.40	6,829.5	-23.7	-4,324.5	4,324.5	1.49
10,887.0	90.60	270.80	6,829.9	-22.8	-4,414.5	4,414.5	1.94
10,977.0	91.60	271.60	6,828.1	-20.9	-4,504.4	4,504.5	1.42
11,067.0	90.80	271.10	6,826.2	-18.8	-4,594.4	4,594.4	1.05
11,156.0	89.40	270.30	6,826.1	-17.7	-4,683.4	4,683.4	1.81
11,246.0	91.10	271.00	6,825.7	-16.7	-4,773.4	4,773.4	2.04
11,336.0	88.30	270.20	6,826.2	-15.7	-4,863.3	4,863.4	3.24
11,426.0	89.50	269.70	6,827.9	-15.8	-4,953.3	4,953.4	1.44
11,516.0	88.30	269.60	6,829.6	-16.3	-5,043.3	5,043.3	1.34
11,605.0	88.40	269.50	6,832.2	-17.0	-5,132.3	5,132.3	0.16
11,695.0	88.10	269.10	6,834.9	-18.1	-5,222.2	5,222.3	0.56
11,785.0	88.80	269.10	6,837.4	-19.6	-5,312.2	5,312.2	0.78
11,875.0	89.00	269.40	6,839.1	-20.7	-5,402.2	5,402.2	0.40
11,965.0	88.80	268.70	6,840.8	-22.2	-5,492.1	5,492.2	0.81

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Site:	Resolute E25-63-1HN Pad Sec.26-T6N-R65W	MD Reference:	WELL @ 4692.0ft (Precision 828 RKB - 16')
Well:	Steadfast E27-62-1HN	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)
12,054.0	89.40	269.90	6,842.2	-23.3	-5,581.1	5,581.1	1.51
12,144.0	89.80	269.00	6,842.8	-24.2	-5,671.1	5,671.1	1.09
12,234.0	88.30	269.40	6,844.3	-25.4	-5,761.1	5,761.1	1.72
12,324.0	88.10	269.10	6,847.2	-26.6	-5,851.0	5,851.1	0.40
12,414.0	88.40	269.30	6,849.9	-27.9	-5,941.0	5,941.0	0.40
12,504.0	89.30	271.50	6,851.7	-27.2	-6,030.9	6,031.0	2.64
12,593.0	89.50	270.80	6,852.7	-25.5	-6,119.9	6,120.0	0.82
12,683.0	90.10	270.30	6,853.0	-24.6	-6,209.9	6,210.0	0.87
12,773.0	89.10	270.50	6,853.6	-24.0	-6,299.9	6,300.0	1.13
12,863.0	89.10	270.20	6,855.0	-23.4	-6,389.9	6,389.9	0.33
12,953.0	89.70	270.00	6,856.0	-23.3	-6,479.9	6,479.9	0.70
13,043.0	90.90	270.30	6,855.5	-23.0	-6,569.9	6,569.9	1.37
13,133.0	90.00	270.20	6,854.8	-22.6	-6,659.9	6,659.9	1.01
13,223.0	89.20	269.60	6,855.4	-22.8	-6,749.9	6,749.9	1.11
13,312.0	90.60	269.50	6,855.6	-23.5	-6,838.9	6,838.9	1.58
13,402.0	88.10	270.00	6,856.6	-23.9	-6,928.9	6,928.9	2.83
13,492.0	88.40	269.50	6,859.3	-24.3	-7,018.8	7,018.9	0.65
13,541.0	88.70	269.60	6,860.6	-24.7	-7,067.8	7,067.8	0.65
13,603.0	89.00	269.60	6,861.8	-25.1	-7,129.8	7,129.8	0.48
Steadfast E27-62-1HN BHL 330'FSL, 2105'FEL							

Checked By: _____ Approved By: _____ Date: _____