

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

Well Name: **Resolute E25-63HC**

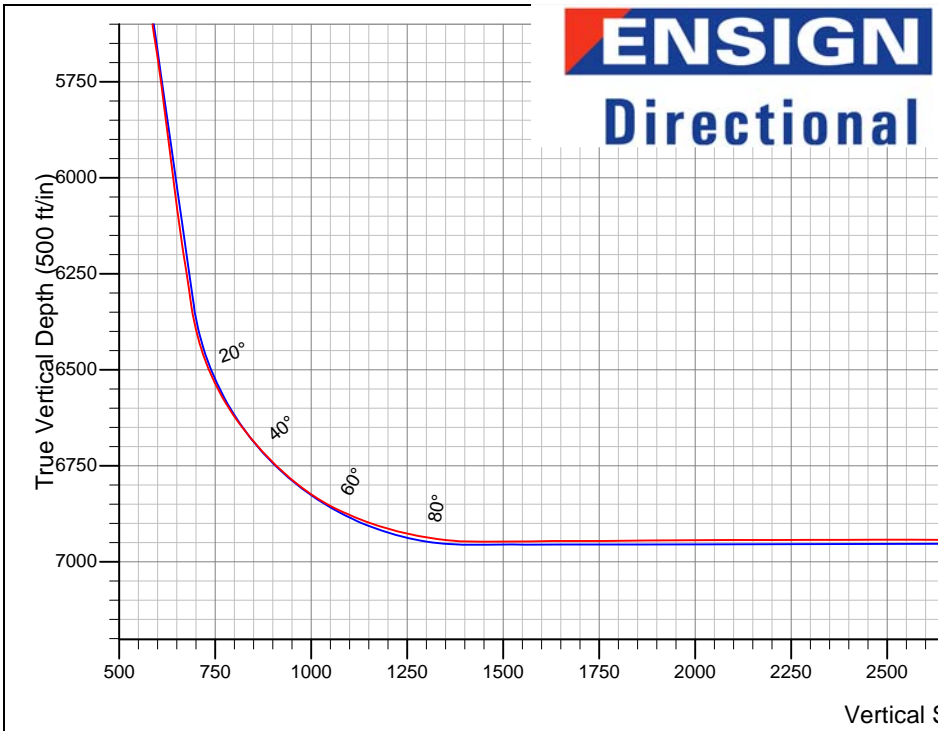
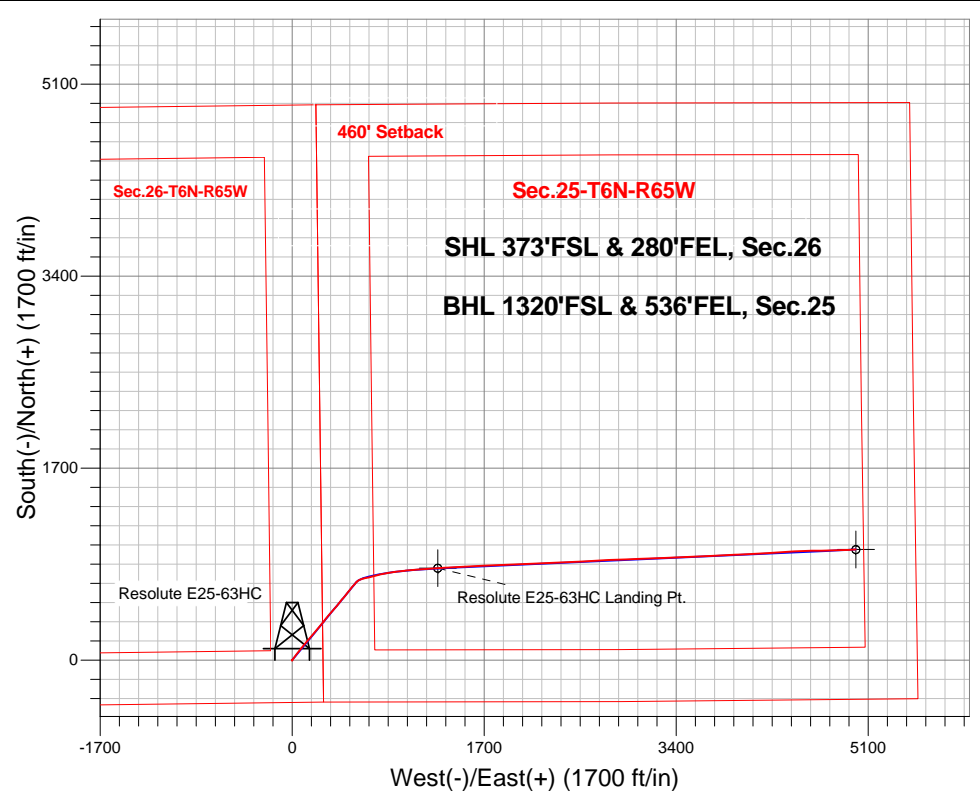
Surface Location: Resolute E25-63-1HN Pad Sec.26-T6N-R65W
 North American Datum 1983 , US State Plane 1983 , Colorado Northern Zone
 Ground Elevation: 4676.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	1408244.36	3244414.76	40.450710	-104.621750	

Precision 828 RKB - 16' WELL @ 4692.0ft (Precision 828 RKB - 16')

FINAL SURVEY

Projected Bottom Hole Location
 11166'MD 6944'TVD 979'N & 4991'E of SHL
 91.6 degree Incl @ 87.6 degree AZM




Resolute E25-63-1HN Pad Sec.26-T6N-R65W
 Resolute E25-63HC
 11:23, May 29 2014
 Wellbore #1

ANNOTATIONS

No annotation data is available.

LEGEND

-  Resolute E25-63HC, Wellbore #1, Plan B - Rev 0 V0
-  Wellbore #1



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

Sec.26-T6N-R65W

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

Resolute E25-63HC

Wellbore #1

Design: Wellbore #1

Standard Survey Report

29 May, 2014

Company:	Noble Energy Inc.- Weld County, CO (Grid North)	Local Co-ordinate Reference:	Well Resolute E25-63HC
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:	Resolute E25-63HC	North Reference:	Grid
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	Landmark

Project	Sec.26-T6N-R65W, 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	Resolute E25-63-1HN Pad Sec.26-T6N-R65W				
Site Position:		Northing:	1,408,200.65 ft	Latitude:	40.450590
From:	Lat/Long	Easting:	3,244,415.19 ft	Longitude:	-104.621750
Position Uncertainty:	0.0 ft	Slot Radius:	"	Grid Convergence:	0.57 °

Well	Resolute E25-63HC					
Well Position	+N-S	0.0 ft	Northing:	1,408,244.36 ft	Latitude:	40.450710
	+E-W	0.0 ft	Easting:	3,244,414.76 ft	Longitude:	-104.621750
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	4,676.0 ft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	5/13/2014	8.40	67.01	52,867

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	78.90	

Survey Program	Date	5/29/2014			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description	
321.0	640.0	Surface (Wellbore #1)	Flexi-Shot	VES Flexi-Shot Tool	
705.0	7,443.0	Intermediate/Curve (Wellbore #1)	MWD	MWD - Standard	
7,534.0	11,166.0	Lateral (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	
321.0	0.70	179.23	321.0	-2.0	0.0	-0.4	0.22	0.22	0.00	
640.0	0.20	176.53	640.0	-4.5	0.1	-0.8	0.16	-0.16	-0.85	
705.0	0.20	285.20	705.0	-4.5	0.0	-0.9	0.50	0.00	167.18	
791.0	0.30	12.10	791.0	-4.3	-0.1	-0.9	0.41	0.12	101.05	
881.0	0.40	357.30	881.0	-3.7	-0.1	-0.8	0.15	0.11	-16.44	
971.0	0.30	317.20	971.0	-3.3	-0.3	-0.9	0.29	-0.11	-44.56	
1,061.0	0.40	312.10	1,061.0	-2.9	-0.6	-1.2	0.12	0.11	-5.67	
1,156.0	0.10	284.90	1,156.0	-2.6	-1.0	-1.5	0.33	-0.32	-28.63	
1,251.0	2.10	38.90	1,251.0	-1.3	0.0	-0.2	2.26	2.11	120.00	

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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)
1,346.0	4.50	35.70	1,345.8	3.1	3.3	3.8	2.53	2.53	-3.37
1,441.0	6.50	35.00	1,440.3	10.6	8.6	10.4	2.11	2.11	-0.74
1,536.0	7.40	36.80	1,534.6	19.9	15.3	18.9	0.97	0.95	1.89
1,631.0	8.00	39.00	1,628.8	29.9	23.1	28.5	0.70	0.63	2.32
1,726.0	8.50	33.10	1,722.8	40.9	31.1	38.4	1.03	0.53	-6.21
1,820.0	8.30	37.40	1,815.8	52.1	39.1	48.4	0.70	-0.21	4.57
1,915.0	8.70	41.40	1,909.8	63.0	48.0	59.2	0.75	0.42	4.21
2,010.0	10.20	36.90	2,003.5	75.1	57.8	71.1	1.76	1.58	-4.74
2,103.0	11.70	36.90	2,094.8	89.2	68.4	84.3	1.61	1.61	0.00
2,193.0	12.50	36.70	2,182.8	104.3	79.7	98.3	0.89	0.89	-0.22
2,283.0	12.00	40.70	2,270.7	119.2	91.6	112.8	1.09	-0.56	4.44
2,373.0	11.30	36.60	2,358.9	133.4	103.0	126.7	1.20	-0.78	-4.56
2,463.0	11.90	43.30	2,447.0	147.2	114.6	140.8	1.64	0.67	7.44
2,553.0	11.60	44.10	2,535.2	160.5	127.2	155.7	0.38	-0.33	0.89
2,642.0	10.90	41.40	2,622.4	173.2	139.0	169.8	0.98	-0.79	-3.03
2,732.0	11.10	39.30	2,710.8	186.3	150.1	183.2	0.50	0.22	-2.33
2,822.0	11.10	36.90	2,799.1	199.9	160.8	196.3	0.51	0.00	-2.67
2,912.0	10.90	42.40	2,887.5	213.1	171.8	209.6	1.19	-0.22	6.11
3,002.0	10.70	41.70	2,975.9	225.7	183.1	223.1	0.27	-0.22	-0.78
3,092.0	9.70	39.60	3,064.4	237.7	193.5	235.6	1.19	-1.11	-2.33
3,182.0	8.00	35.40	3,153.4	248.7	201.9	246.0	2.02	-1.89	-4.67
3,272.0	8.00	36.30	3,242.5	258.8	209.3	255.2	0.14	0.00	1.00
3,362.0	8.20	39.70	3,331.6	268.8	217.1	264.7	0.58	0.22	3.78
3,452.0	9.30	41.90	3,420.5	279.2	226.0	275.5	1.28	1.22	2.44
3,541.0	9.10	44.20	3,508.4	289.6	235.7	287.1	0.47	-0.22	2.58
3,631.0	9.90	41.30	3,597.2	300.5	245.8	299.0	1.04	0.89	-3.22
3,721.0	10.50	39.70	3,685.7	312.6	256.1	311.5	0.74	0.67	-1.78
3,811.0	11.00	38.20	3,774.2	325.7	266.7	324.4	0.64	0.56	-1.67
3,901.0	11.50	38.90	3,862.4	339.4	277.6	337.8	0.58	0.56	0.78
3,991.0	11.90	37.70	3,950.6	353.7	288.9	351.6	0.52	0.44	-1.33
4,081.0	10.90	37.70	4,038.8	367.8	299.8	365.0	1.11	-1.11	0.00
4,171.0	10.60	35.70	4,127.2	381.3	309.9	377.4	0.53	-0.33	-2.22
4,261.0	10.00	42.40	4,215.8	393.8	320.0	389.8	1.49	-0.67	7.44
4,351.0	9.10	42.70	4,304.5	404.8	330.1	401.8	1.00	-1.00	0.33
4,440.0	9.70	38.60	4,392.3	415.8	339.5	413.2	1.01	0.67	-4.61
4,530.0	9.80	42.00	4,481.0	427.4	349.4	425.1	0.65	0.11	3.78
4,620.0	10.50	41.90	4,569.6	439.2	360.0	437.8	0.78	0.78	-0.11
4,710.0	10.70	40.00	4,658.1	451.7	370.8	450.8	0.45	0.22	-2.11
4,799.0	11.30	40.30	4,745.4	464.7	381.8	464.1	0.68	0.67	0.34
4,889.0	10.50	42.20	4,833.8	477.5	393.0	477.5	0.97	-0.89	2.11
4,979.0	11.10	39.40	4,922.2	490.3	404.0	490.8	0.89	0.67	-3.11
5,069.0	10.50	37.80	5,010.6	503.4	414.5	503.6	0.75	-0.67	-1.78
5,159.0	9.40	38.30	5,099.3	515.7	424.1	515.4	1.23	-1.22	0.56
5,249.0	9.60	38.90	5,188.0	527.3	433.4	526.7	0.25	0.22	0.67
5,338.0	9.80	39.90	5,275.8	538.9	442.9	538.3	0.29	0.22	1.12
5,428.0	11.00	42.20	5,364.3	551.1	453.6	551.1	1.41	1.33	2.56
5,518.0	11.00	40.80	5,452.6	564.0	464.9	564.8	0.30	0.00	-1.56
5,608.0	11.30	37.90	5,540.9	577.4	476.0	578.2	0.71	0.33	-3.22
5,698.0	11.80	34.80	5,629.1	591.9	486.6	591.5	0.89	0.56	-3.44
5,788.0	10.50	40.00	5,717.4	605.8	497.2	604.4	1.82	-1.44	5.78
5,878.0	9.20	40.90	5,806.1	617.5	507.1	616.5	1.45	-1.44	1.00
5,967.0	9.40	38.20	5,893.9	628.6	516.3	627.6	0.54	0.22	-3.03
6,057.0	9.40	35.10	5,982.7	640.4	525.1	638.5	0.56	0.00	-3.44
6,147.0	9.60	39.90	6,071.5	652.2	534.1	649.6	0.91	0.22	5.33

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Site:	Resolute E25-63-1HN Pad Sec.26-T6N-R65W	MD Reference:	WELL @ 4692.0ft (Precision 828 RKB - 16')
Well:	Resolute E25-63HC	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)
6,237.0	10.80	42.60	6,160.0	664.1	544.6	662.3	1.43	1.33	3.00
6,327.0	10.60	43.10	6,248.5	676.4	556.0	675.8	0.24	-0.22	0.56
6,372.0	9.90	41.00	6,292.8	682.3	561.4	682.2	1.76	-1.56	-4.67
6,417.0	10.90	43.20	6,337.0	688.3	566.8	688.7	2.39	2.22	4.89
6,462.0	13.90	49.70	6,381.0	694.9	573.8	696.9	7.34	6.67	14.44
6,507.0	17.10	53.40	6,424.3	702.4	583.3	707.5	7.44	7.11	8.22
6,552.0	20.30	62.10	6,467.0	710.0	595.5	721.0	9.42	7.11	19.33
6,597.0	23.80	71.00	6,508.7	716.6	611.0	737.5	10.73	7.78	19.78
6,642.0	27.20	75.20	6,549.3	722.2	629.5	756.7	8.55	7.56	9.33
6,686.0	31.40	77.80	6,587.6	727.2	650.5	778.2	9.97	9.55	5.91
6,731.0	34.70	78.90	6,625.4	732.1	674.5	802.8	7.45	7.33	2.44
6,776.0	38.00	76.60	6,661.6	737.8	700.5	829.4	7.93	7.33	-5.11
6,821.0	41.50	74.60	6,696.2	745.0	728.4	858.2	8.28	7.78	-4.44
6,866.0	44.40	74.80	6,729.1	753.0	758.0	888.7	6.45	6.44	0.44
6,911.0	46.90	76.70	6,760.6	761.0	789.2	920.9	6.32	5.56	4.22
6,956.0	50.50	80.20	6,790.3	767.7	822.3	954.6	9.90	8.00	7.78
7,001.0	54.40	81.70	6,817.7	773.3	857.5	990.3	9.06	8.67	3.33
7,046.0	59.60	81.70	6,842.2	778.7	894.8	1,028.0	11.56	11.56	0.00
7,091.0	64.50	82.20	6,863.3	784.3	934.2	1,067.7	10.93	10.89	1.11
7,136.0	67.10	83.00	6,881.7	789.6	974.9	1,108.6	6.00	5.78	1.78
7,181.0	70.40	84.40	6,898.0	794.2	1,016.6	1,150.4	7.89	7.33	3.11
7,225.0	73.20	84.90	6,911.8	798.1	1,058.2	1,192.0	6.45	6.36	1.14
7,270.0	76.30	85.10	6,923.6	801.9	1,101.4	1,235.2	6.90	6.89	0.44
7,315.0	79.90	85.90	6,932.9	805.3	1,145.3	1,278.9	8.19	8.00	1.78
7,360.0	81.90	86.40	6,940.0	808.3	1,189.6	1,323.0	4.58	4.44	1.11
7,408.0	85.20	86.40	6,945.4	811.3	1,237.2	1,370.2	6.88	6.88	0.00
7,443.0	89.00	87.00	6,947.2	813.3	1,272.1	1,404.9	10.99	10.86	1.71
7,460.0	89.22	87.02	6,947.4	814.2	1,289.1	1,421.7	1.32	1.32	0.11
Resolute E25-63HC Landing Pt.									
7,534.0	90.20	87.10	6,947.8	818.0	1,363.0	1,494.9	1.32	1.32	0.11
7,624.0	90.90	87.00	6,947.0	822.6	1,452.9	1,584.0	0.79	0.78	-0.11
7,714.0	89.80	86.20	6,946.4	827.9	1,542.7	1,673.2	1.51	-1.22	-0.89
7,804.0	90.40	87.80	6,946.2	832.7	1,632.6	1,762.3	1.90	0.67	1.78
7,894.0	91.10	87.50	6,945.1	836.3	1,722.5	1,851.3	0.85	0.78	-0.33
7,983.0	90.00	87.10	6,944.2	840.5	1,811.4	1,939.3	1.32	-1.24	-0.45
8,073.0	90.40	86.70	6,943.9	845.4	1,901.3	2,028.4	0.63	0.44	-0.44
8,163.0	89.60	87.40	6,943.9	850.0	1,991.1	2,117.5	1.18	-0.89	0.78
8,253.0	90.70	87.50	6,943.7	854.0	2,081.1	2,206.5	1.23	1.22	0.11
8,343.0	90.10	88.20	6,943.0	857.4	2,171.0	2,295.4	1.02	-0.67	0.78
8,433.0	89.80	88.70	6,943.1	859.9	2,261.0	2,384.2	0.65	-0.33	0.56
8,523.0	90.60	87.90	6,942.8	862.5	2,350.9	2,473.0	1.26	0.89	-0.89
8,613.0	89.40	87.20	6,942.8	866.4	2,440.8	2,561.9	1.54	-1.33	-0.78
8,702.0	89.90	86.70	6,943.3	871.1	2,529.7	2,650.1	0.79	0.56	-0.56
8,792.0	90.70	86.20	6,942.9	876.7	2,619.5	2,739.3	1.05	0.89	-0.56
8,882.0	90.50	87.00	6,941.9	882.0	2,709.4	2,828.5	0.92	-0.22	0.89
8,972.0	90.10	87.70	6,941.5	886.2	2,799.3	2,917.5	0.90	-0.44	0.78
9,062.0	91.40	88.20	6,940.3	889.4	2,889.2	3,006.4	1.55	1.44	0.56
9,151.0	90.60	87.30	6,938.7	892.9	2,978.1	3,094.3	1.35	-0.90	-1.01
9,241.0	89.80	88.10	6,938.4	896.5	3,068.0	3,183.2	1.26	-0.89	0.89
9,331.0	90.60	87.80	6,938.1	899.7	3,158.0	3,272.1	0.95	0.89	-0.33
9,421.0	89.40	87.60	6,938.1	903.3	3,247.9	3,361.0	1.35	-1.33	-0.22
9,511.0	90.50	87.60	6,938.2	907.1	3,337.8	3,450.0	1.22	1.22	0.00
9,601.0	89.40	87.60	6,938.3	910.9	3,427.7	3,539.0	1.22	-1.22	0.00

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9,691.0	90.50	87.80	6,938.3	914.5	3,517.7	3,627.9	1.24	1.22	0.22
9,781.0	89.60	87.30	6,938.3	918.3	3,607.6	3,716.9	1.14	-1.00	-0.56
9,870.0	90.90	87.10	6,937.9	922.7	3,696.5	3,804.9	1.48	1.46	-0.22
9,960.0	89.30	86.90	6,937.7	927.4	3,786.3	3,894.0	1.79	-1.78	-0.22
10,050.0	90.10	86.90	6,938.2	932.3	3,876.2	3,983.2	0.89	0.89	0.00
10,140.0	90.10	88.00	6,938.0	936.3	3,966.1	4,072.2	1.22	0.00	1.22
10,230.0	91.10	87.70	6,937.1	939.6	4,056.1	4,161.1	1.16	1.11	-0.33
10,320.0	89.20	87.30	6,936.8	943.6	4,146.0	4,250.1	2.16	-2.11	-0.44
10,410.0	89.70	86.20	6,937.7	948.7	4,235.8	4,339.2	1.34	0.56	-1.22
10,500.0	88.10	85.30	6,939.4	955.3	4,325.5	4,428.5	2.04	-1.78	-1.00
10,590.0	87.40	86.50	6,943.0	961.8	4,415.2	4,517.8	1.54	-0.78	1.33
10,679.0	88.40	88.80	6,946.2	965.4	4,504.1	4,605.7	2.82	1.12	2.58
10,769.0	89.90	89.00	6,947.6	967.1	4,594.1	4,694.3	1.68	1.67	0.22
10,859.0	89.90	88.40	6,947.7	969.2	4,684.0	4,783.0	0.67	0.00	-0.67
10,949.0	90.20	88.30	6,947.6	971.8	4,774.0	4,871.8	0.35	0.33	-0.11
11,039.0	90.90	88.20	6,946.8	974.5	4,864.0	4,960.6	0.79	0.78	-0.11
11,106.0	91.20	87.60	6,945.6	977.0	4,930.9	5,026.8	1.00	0.45	-0.90
11,166.0	91.20	87.60	6,944.3	979.5	4,990.8	5,086.0	0.00	0.00	0.00
Resolute E25-63HC BHL 1320'FSL & 535'FEL									

Checked By: _____	Approved By: _____	Date: _____
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