



STATE OF MAINE
DEPARTMENT OF ENVIRONMENTAL PROTECTION

PAUL R. LEPAGE
GOVERNOR

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COMMISSIONER

**Bath Iron Works Corporation
Sagadahoc County
Bath, Maine
A-333-77-2-A**

**Departmental
Findings of Fact and Order
Part 70 Air Emission License
Amendment # 2**

After review of the air emissions license amendment application, staff investigation reports and other documents in the applicant's file in the Bureau of Air Quality, and pursuant to 38 M.R.S.A, §344 and §590, the Department finds the following facts:

I. REGISTRATION

A. Introduction

1. Bath Iron Works Corporation (BIW) was issued A-333-70-I-R on September 4, 2007 permitting the operation of emission sources associated with their shipbuilding and repair facility.
2. BIW has requested a minor revision to their air emissions license, A-333-70-I-R in order to allow the firing of natural gas in Boilers #1, #2, #3, #11 and #12.

FACILITY	Bath Iron Works Corporation (BIW)
INITIAL LICENSE NUMBER	A-333-70-A-1
LICENSE TYPE	06-096 CMR 115 Minor Modification
NAICS CODES	336611
NATURE OF BUSINESS	Shipbuilding and Repair
FACILITY LOCATION	Bath, Maine
INITIAL LICENSE ISSUANCE DATE	September 4, 2007
AMENDMENT ISSUANCE DATE	October 21, 2011
LICENSE EXPIRATION DATE	September 4, 2012

B. Emission Equipment

The following emission units are addressed by this Part 70 License:

<u>EMISSION UNIT ID</u>	<u>UNIT CAPACITY</u>	<u>UNIT TYPE</u>
#1, Boiler #1	29.3 MMBtu/hr	fuel burning equipment
#2, Boiler #2	29.3 MMBtu/hr	fuel burning equipment
#3, Boiler #3	29.3 MMBtu/hr	fuel burning equipment
#5, Boiler #9	25.1 MMBtu/hr	fuel burning equipment
#6, Boiler #10	25.1 MMBtu/hr	fuel burning equipment
#7, Boiler #11	29.3 MMBtu/hr	fuel burning equipment
#8, Boiler #12	25.1 MMBtu/hr	fuel burning equipment

AUGUSTA
17 STATE HOUSE STATION
AUGUSTA, MAINE 04333-0017
(207) 287-7688 FAX: (207) 287-7826
RAY BLDG., HOSPITAL ST.

BANGOR
106 HOGAN ROAD, SUITE 6
BANGOR, MAINE 04401
(207) 941-4570 FAX: (207) 941-4584

PORTLAND
312 CANCO ROAD
PORTLAND, MAINE 04103
(207) 822-6300 FAX: (207) 822-6303

PRESQUE ISLE
1235 CENTRAL DRIVE, SKYWAY PARK
PRESQUE ISLE, MAINE 04679-2094
(207) 764-0477 FAX: (207) 760-3143

These boilers are currently licensed to burn #5 fuel oil with a sulfur content not to exceed 0.5%. BIW is requesting a minor modification to their existing license to allow for the firing of natural gas in Boilers #1, #2, #3, #11 and #12. Boilers #9 and #10 will continue to burn #5 fuel oil until such a time as they are removed from service.

The application was submitted pursuant to the minor modification procedures in 06-096 CMR 115 (as amended). The application for BIW does not violate any applicable federal or state requirements and does not reduce monitoring, reporting, testing or record keeping.

The modification of a major source is considered a major modification based on whether or not expected emission increases exceed the "Significant Emission Increase Levels" as defined in the Department's regulations.

The emission increases are determined by subtracting the average actual emissions based on firing No. 5 fuel oil during the two calendar years preceding the modification from the Future Actual Predicted emissions. BIW is limited to firing 2,650,000 gallons of fuel oil or a heat input of 392,200 MMBtu/yr. The Future Actual Predicted emissions were based on the firing of natural gas only equating to a heat input of 392,200 MMBtu/hr. The past average actual emission and future actual predicted emissions were calculated using emission factors from AP-42 and WebFIRE. The results of the comparison are as follows:

<i>Pollutant</i>	<i>2009/2010 Ave. Actual (TPY)</i>	<i>Future Actual Predicted Emissions (TPY)</i>	<i>Net Change (TPY)</i>	<i>Sig. Level</i>
<i>PM</i>	<i>15.5</i>	<i>9.81</i>	<i>-5.7</i>	<i>25</i>
<i>PM₁₀</i>	<i>15.5</i>	<i>9.81</i>	<i>-5.7</i>	<i>15</i>
<i>SO₂</i>	<i>68.76</i>	<i>0.12</i>	<i>-68.6</i>	<i>40</i>
<i>NO_x</i>	<i>58.11</i>	<i>19.23</i>	<i>-38.9</i>	<i>40</i>
<i>CO</i>	<i>4.36</i>	<i>16.15</i>	<i>11.8</i>	<i>100</i>
<i>VOC</i>	<i>0.24</i>	<i>1.06</i>	<i>0.8</i>	<i>40</i>

* Calculations can be found in the applicant's licensing file.

The emission increases are below the significance levels for all pollutants, therefore, this modification is determined to be a minor modification under 06-096 CMR 115 (as amended) and has been processed as such. This amendment will be incorporated into the Part 70 air emission license no later than 12 months from commencement of the requested operation.

II. BEST PRACTICAL TREATMENT (BPT)

A. Introduction

In order to receive a license the applicant must control emissions from each unit to a level considered by the Department to represent Best Practical Treatment (BPT), as defined in *Definitions Regulation*, 06-096 CMR 100 (as amended). Separate control requirement categories exist for new and existing equipment as well as for those sources located in designated non-attainment areas.

BPT for new sources and modifications requires a demonstration that emissions are receiving Best Available Control Technology (BACT), as defined in *Definitions Regulation*, 06-096 CMR 100 (as amended). BACT is a top-down approach to selecting air emission controls considering economic, environmental and energy impacts.

B. Natural Gas in Boilers #1, #2, #3, #11 and #12

BIW is requesting this modification for the conversion of their licensed boilers from firing #5 fuel oil to the dual fuel firing of #5 fuel oil and natural gas. In order to fire natural gas, dual fuel burners and associated piping will be installed.

BIW is proposing to increase their licensed CO limit from 6.6 tpy to 16.2 tpy and to increase their VOC license limit from 0.4 to 1.1 tpy. BIW's fuel oil limit will be changed to a heat input based limit when BIW fires a combination of natural gas and fuel. The facility will have a heat input limit of 392,200 MMBtu/yr based on the sum of heat input from natural gas and fuel oil on a 12 month rolling total.

BACT for firing natural gas in boilers is the use of good combustion control based on similar license sources and information in EPA's RACT/BACT/LAER Clearinghouse listings. Based on a comparison of criteria pollution emission factors from boilers firing oil and boilers firing natural gas, all factors are lower for natural gas except CO and VOC, both of which are only slightly higher.

The Department approves the firing of natural gas in boilers #1, #2, #3, #11 and #12. The current license requirements in Air Emission license A-333-70-I-R will continue to apply, including: recording the type and amount of each fuel consumed.

C. Incorporation into the Part 70 air Emission License

The requirements in this 06-096 CMR 115 (as amended) New Source Review amendment shall apply to the facility upon amendment issuance. Per Part 70 Air

Emission License Regulation 06-096 CMR 140 (as amended), Section 2 (J)2(d), for a modification that has undergone an NSR requirement or been processed through 06-096 CMR 115 (as amended), the source must then apply for an amendment to the Part 70 license within one year of commencing the proposed operations provided in 40 CFR part 70.5.

D. Annual Emissions

Due to the increases in CO and VOC, Annual Emissions have been recalculated.

**Total Annual Emissions for the Facility
(Tons/year)
(used to calculate the license fee)**

Pollutant	PM	PM₁₀	SO₂	NO_x	CO	VOC
Boilers	23.9	23.9	104.4	99.4	16.2	1.1
North Stores Generator	0.2	0.2	0.1	4.3	1.2	0.1
Main Boiler Generator	0.1	0.1	0.1	4.3	0.9	0.3
(2) Dry Dock Diesels	0.7	0.7	0.3	19.5	5.2	0.6
Painting Operations	--	--	--	--	--	99.9
Total	24.9	24.9	104.9	127.5	23.4	102.0

III. AMBIENT AIR QUALITY ANALYSIS

According to 06-096 CMR 115 (as amended), the level of air quality analysis required for a minor modification shall be determined on a case-by-base basis. Based on the information available in the file and the similarity to existing sources, Maine Ambient Air Quality Standards (MAAQS) will not be violated by this source.

ORDER

Based on the above findings and subject to conditions listed below, the Department concludes that the emissions from this source:

- will receive Best Practical Treatment,
- will not violate applicable emission standards,
- will not violate applicable ambient air quality standards in conjunction with emissions from other sources.

The Department hereby grants Air Emission License A-333-77-2-A pursuant to the preconstruction licensing requirements of 06-096 CMR 115 (as amended) and subject to the standard and special conditions below.

Severability. The invalidity or unenforceability of any provision, or part thereof, of this License shall not affect the remainder of the provision or any other provision. This License shall be construed and enforced in all respects as if such invalid or unenforceable provision or part thereof had been omitted.

SPECIAL CONDITIONS

(14) **Boilers #1 and #2**

B. Boilers #1 and #2 shall each not exceed the following

1. Emission limits when firing fuel oil:

Pollutant	lb/MMBtu	Origin and Authority	Enforceability
PM	0.12	A-333-72-E-A (07/06/1995), BACT	-
PM ₁₀	0.12	A-333-72-E-A (07/06/1995), BACT	-
NO _x	0.50	A-333-72-E-A (07/06/1995), BACT	-

Pollutant	lb/hr	Origin and Authority	Enforceability
PM	3.5	A-333-72-E-A (07/06/1995), BACT	-
PM ₁₀	3.5	A-333-72-E-A (07/06/1995), BACT	-
SO ₂	15.3	A-333-72-E-A (07/06/1995), BACT	-
NO _x	14.7	A-333-72-E-A (07/06/1995), BACT	-
CO	0.98	A-333-72-E-A (07/06/1995), BACT	-
VOC	0.05	A-333-72-E-A (07/06/1995), BACT	-

2. Emission limits when firing natural gas:

Pollutant	lb/MMBtu	Origin and Authority	Enforceability
PM	0.05	06-096 CMR 115, BACT	-

Pollutant	lb/hr	Origin and Authority	Enforceability
PM	1.47	06-096 CMR 115, BACT	-
PM ₁₀	1.47	06-096 CMR 115, BACT	-
SO ₂	0.017	06-096 CMR 115, BACT	-
NO _x	2.87	06-096 CMR 115, BACT	-
CO	2.41	06-096 CMR 115, BACT	-
VOC	0.158	06-096 CMR 115, BACT	-

(15) **Boiler #3**

B. Boilers # 3 shall not exceed the following

1. Emission limits when firing fuel oil:

Pollutant	lb/MMBtu	Origin and Authority	Enforceability
PM	0.12	A-333-71-G-A (9/12/1996), BACT	-
PM ₁₀	0.12	A-333-71-G-A (9/12/1996), BACT	-
NO _x	0.50	A-333-71-G-A (9/12/1996), BACT	-

Pollutant	lb/hr	Origin and Authority	Enforceability
PM	3.5	A-333-71-G-A (9/12/1996), BACT	-
PM ₁₀	3.5	A-333-71-G-A (9/12/1996), BACT	-
SO ₂	15.3	A-333-71-G-A (9/12/1996), BACT	-
NO _x	14.7	A-333-71-G-A (9/12/1996), BACT	-
CO	0.98	A-333-71-G-A (9/12/1996), BACT	-
VOC	0.05	A-333-71-G-A (9/12/1996), BACT	-

2. Emission limits when firing natural gas:

Pollutant	lb/MMBtu	Origin and Authority	Enforceability
PM	0.05	06-096 CMR 115, BACT	-

Pollutant	lb/hr	Origin and Authority	Enforceability
PM	1.47	06-096 CMR 115, BACT	-
PM ₁₀	1.47	06-096 CMR 115, BACT	-
SO ₂	0.017	06-096 CMR 115, BACT	-
NO _x	2.87	06-096 CMR 115, BACT	-
CO	2.41	06-096 CMR 115, BACT	-
VOC	0.158	06-096 CMR 115, BACT	-

(18) **Boiler #11**

B. Boiler #11 shall not exceed the following

1. Emission limits when firing fuel oil:

Pollutant	lb/MMBtu	Origin and Authority	Enforceability
PM	0.12	A-333-71-K-A (7/13/2000), BACT	-
PM ₁₀	0.12	A-333-70-A-I (5/25/2001), BPT	State Only
NO _x	0.50	A-333-71-K-A (7/13/2000), BACT	-

Pollutant	lb/hr	Origin and Authority	Enforceability
PM	3.5	A-333-71-K-A (7/13/2000), BACT	-
PM ₁₀	3.5	A-333-71-K-A (7/13/2000), BACT	-
SO ₂	15.3	A-333-71-K-A (7/13/2000), BACT	-
NO _x	14.7	A-333-71-K-A (7/13/2000), BACT	-
CO	0.98	A-333-71-K-A (7/13/2000), BACT	-
VOC	0.05	A-333-71-K-A (7/13/2000), BACT	-

2. Emission limits when firing natural gas:

Pollutant	lb/MMBtu	Origin and Authority	Enforceability
PM	0.05	06-096 CMR 115, BACT	-

Pollutant	lb/hr	Origin and Authority	Enforceability
PM	1.47	06-096 CMR 115, BACT	-
PM ₁₀	1.47	06-096 CMR 115, BACT	-
SO ₂	0.017	06-096 CMR 115, BACT	-
NO _x	2.87	06-096 CMR 115, BACT	-
CO	2.41	06-096 CMR 115, BACT	-
VOC	0.158	06-096 CMR 115, BACT	-

(19) **Boiler #12**

B. Boiler #12 shall not exceed the following

1. Emission limits when firing fuel oil:

Pollutant	lb/MMBtu	Origin and Authority	Enforceability
PM	0.12	A-333-71-K-A (7/13/2000), BACT	-
PM ₁₀	0.12	A-333-70-A-I (5/25/2001), BPT	State Only
NO _x	0.50	A-333-71-K-A (7/13/2000), BACT	-

Pollutant	lb/hr	Origin and Authority	Enforceability
PM	3.0	A-333-70-C-M (3/7/2002), BACT	-
PM ₁₀	3.0	A-333-70-C-M (3/7/2002), BACT	-
SO ₂	13.19	A-333-70-C-M (3/7/2002), BACT	-
NO _x	12.6	A-333-70-C-M (3/7/2002), BACT	-
CO	0.84	A-333-70-C-M (3/7/2002), BACT	-
VOC	0.05	A-333-70-C-M (3/7/2002), BACT	-

2. Emission Limits when firing Natural Gas:

Pollutant	lb/MMBtu	Origin and Authority	Enforceability
PM	0.05	06-096 CMR 115, BACT	-

Pollutant	lb/hr	Origin and Authority	Enforceability
PM	1.26	06-096 CMR 115, BACT	-
PM ₁₀	1.26	06-096 CMR 115, BACT	-
SO ₂	0.015	06-096 CMR 115, BACT	-
NO _x	2.46	06-096 CMR 115, BACT	-
CO	2.07	06-096 CMR 115, BACT	-
VOC	0.135	06-096 CMR 115, BACT	-

(20) **Boiler Fuel Use Limits**

- A. BIW shall be limited to a combined fuel use in Boilers #1 and #2 of 1,700,000 gallons/year of fuel oil based on a 12 month rolling total or a heat input of 251,600 MMBtu/yr based on a 12 month rolling total if a combination of natural gas and oil are fired. [A-333-72-E-A (07/06/1995) BACT and 06-096 CMR 115]
- B. BIW shall be limited to a fuel oil use in Boiler #3 of 1,500,000 gallons per year based on a 12 month rolling total or a heat input of 222,000 MMBtu/yr based on a 12 month rolling total if a combination of natural gas and oil are fired. [A-333-71-G-A (9/12/1996), BACT and 06-096 CMR 115]
- C. BIW shall be limited to a combined fuel use in Boilers #1, #2, #3, #9, #10, #11 and #12 of 2,650,000 gallons of fuel oil or a heat input of 392,200 MMBtu/yr if a combination of natural gas and fuel oil are fired based on a 12 month rolling total. [06-096 CMR 115]
- D. BIW shall maintain records on a monthly basis of total fuel oil and natural gas consumed in Boilers #1, #2, #3, #9, #10, #11 and #12. [06-096 CMR 115 and A-333-71-K-A (7/13/2000), BPT]

(42) This amendment shall expire concurrently with Part 70 License A-333-70-I-R

DONE AND DATED IN AUGUSTA, MAINE THIS 21st DAY OF October, 2011.

DEPARTMENT OF ENVIRONMENTAL PROTECTION

BY: *Patricia W. Aho*
PATRICIA W. AHO, COMMISSIONER

PLEASE NOTE ATTACHED SHEET FOR GUIDANCE ON APPEAL PROCEDURES

Date of initial receipt of application: 3/4/2011
Date of application acceptance: 3/15/2011

Date filed with the Board of Environmental Protection:
This Order prepared by Lisa P. Higgins, Bureau of Air Quality.

