STATE OF MAINE
DEPARTMENT OF ENVIRONMENTAL PROTECTION

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Inland Hospital
Kennebec County
Waterville, Maine
A-110-71-L-M

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

FINDINGS OF FACT

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, pursuant to 38 Maine Revised Statutes Annotated (M.R.S.A.), §344 and §590, the Maine Department of Environmental Protection (Department) finds the following facts:

I. REGISTRATION

A. Introduction

Inland Hospital (Inland) was issued Air Emission License A-110-71-J-R on December 18, 2012, permitting the operation of emission sources associated with their healthcare facility. The license was subsequently amended on May 13, 2013 (A-110-71-K-M) to replace the firing of #4 fuel oil with #2 fuel oil as the fuel combusted in their boilers.

Inland has requested a minor revision to their license in order to have the capability to burn natural gas in Boilers #1, #2, and #3.

The equipment addressed in this license is located at 200 Kennedy Memorial Drive, Waterville, Maine.

B. Emission Equipment

The following equipment is addressed in this air emission license:

Boilers

Equipment	Maximum Capacity (MMBtu/hr)	Maximum Firing Rate	Fuel Type	Install. Date	Stack #
Boiler #1	5.3	37.9 gal/hr 5146 scf/hr	#2 fuel oil, 0.5% S Natural gas	1972	1
Boiler #2	5.3	37.9 gal/hr 5146 scf/hr	#2 fuel oil, 0.5% S Natural gas	1972	2
Boiler #3	3.3	23.6 gal/hr 3204 scf/hr	#2 fuel oil, 0.5% S Natural gas	1989	3

C. Application Classification

This amendment will increase emissions by less than 4 ton/year for each single pollutant and less than 8 ton/year for all pollutants combined. Therefore, this modification is determined to be a minor revision and has been processed as such.

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. Amendment Description

Inland has requested to install dual fuel burners on all three boilers in order for the boilers to be capable of firing natural gas or #2 fuel oil. Natural gas inherently emits fewer emissions and is generally accepted as a cleaner fuel in comparison to

#2 fuel oil. All pollutant emissions will decrease when Inland is firing natural gas with the exception of CO and VOC which total to an increase of less than 1 ton per year.

C. Boilers #1, #2, and #3

1. BACT Findings

The BACT emission limits for the boilers when burning natural gas were based on the following:

Natural Gas

PM/PM_{10}	–	0.05 lb/MMBtu based on 06-096 CMR 115, BPT
SO_2	–	0.6 lb/MMscf based on AP-42, Table 1.4-2, dated 7/98
NO_x	–	100 lb/MMscf based on AP-42, Table 1.4-1, dated 7/98
CO	–	84 lb/MMscf based on AP-42, Table 1.4-1, dated 7/98
VOC	–	5.5 lb/MMscf based on AP-42, Table 1.4-2, dated 7/98
Opacity	–	06-096 CMR 101

The BACT emission limits for each boiler are the following:

Unit	PM (lb/hr)	PM_{10} (lb/hr)	SO_2 (lb/hr)	NO_x (lb/hr)	CO (lb/hr)	VOC (lb/hr)
Boiler #1 (5.3 MMBtu/hr) natural gas	0.27	0.27	0.01	0.51	0.43	0.03
Boiler #2 (5.3 MMBtu/hr) natural gas	0.27	0.27	0.01	0.51	0.43	0.03
Boiler #3 (3.3 MMBtu/hr) natural gas	0.17	0.17	0.01	0.32	0.27	0.02

Visible emissions from each boiler shall not exceed 10% opacity on a 6 minute block average, except for no more than one (1) six (6) minute block average in a 3 hour period when firing natural gas.

Inland shall be limited to 200,000 gallons a year of #2 fuel oil or a heat input of 28,000 MMBtu/yr if natural gas is fired in combination with #2 fuel oil or on its own.

Periodic Monitoring

Periodic monitoring for the boiler shall include recordkeeping to document fuel use both on a monthly and calendar year basis. Documentation shall include the type of fuel used and sulfur content of the fuel, if applicable.

2. 40 CFR Part 63 Subpart JJJJJJ

Boilers #1, #2, and #3 may be subject to the *National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers Area Sources* (40 CFR Part 63 Subpart JJJJJJ). The units are considered existing oil boiler rated less than 10 MMBtu/hr unless they meet the gas-fired boiler definition listed below.

Gas-fired boilers are exempt from 40 CFR Part 63, Subpart JJJJJJ. However, boilers which fire #2 fuel oil are not. A "gas-fired boiler" is defined as any boiler that burns gaseous fuels not combined with any solid fuels and burns liquid fuel only during periods of gas curtailment, gas supply interruption, startups, or periodic testing on liquid fuel. Periodic testing of liquid fuel shall not exceed a combined total of 48 hours during any calendar year.[40 CFR Part 63.11237]

Any boilers designed to burn fuels besides natural gas prior to June 4, 2010 will be considered an existing boiler under this rule. A boiler which currently fires natural gas, but converts back to firing another fuel (such as #2 fuel oil) in the future, would become subject as an existing boiler at the time it is converted back to fuel oil.

For informational purposes, a summary of the currently applicable federal 40 CFR Part 63 Subpart JJJJJJ requirements is listed below. At this time, the Department has not taken delegation of this area source MACT (Maximum Achievable Control Technology) rule promulgated by EPA, however Inland is still subject to the requirements. Notification forms and additional rule information can be found on the following website: http://www.epa.gov/ttn/atw/boiler/boilerpg.html.

a. Compliance Dates, Notifications, and Work Practice Requirements

i. Initial Notification of Compliance

An Initial Notification submittal to EPA is due no later than January 20, 2014. [40 CFR Part 63.11225(a)(2)]

ii. Boiler Tune-Up Program

(a) A boiler tune-up program shall be implemented to include the initial tune-up of applicable boilers no later than March 21, 2014. [40 CFR Part 63.11196(a)(1)]

(b) The boiler tune-up program, conducted to demonstrate continuous compliance, shall be performed as specified below:

1. As applicable, inspect the burner, and clean or replace any component of the burner as necessary. Delay of the burner inspection until the next scheduled shutdown is permitted; not to exceed 36 months from the previous inspection for boilers greater than 5 MMBtu/hr or 72 months from the previous inspection for oil fired boilers less than 5 MMBtu/hr, boilers with oxygen trim system, seasonal boilers, and limited use boilers. [40 CFR Part 63.11223(b)(1)]
2. Inspect the flame pattern, as applicable, and adjust the burner as necessary to optimize the flame pattern, consistent with the manufacturer's specifications. [40 CFR Part 63.11223(b)(2)]
3. Inspect the system controlling the air-to-fuel ratio, as applicable, and ensure it is correctly calibrated and functioning properly. Delay of the inspection until the next scheduled shutdown is permitted; not to exceed 36 months from the previous inspection for boilers greater than 5 MMBtu/hr or 72 months from the previous inspection for oil fired boilers less than 5 MMBtu/hr, boilers with oxygen trim system, seasonal boilers, and limited use boilers. [40 CFR Part 63.11223(b)(3)]
4. Optimize total emissions of CO, consistent with manufacturer's specifications. [40 CFR Part 63.11223(b)(4)]
5. Measure the concentration in the effluent stream of CO in parts per million by volume (ppmv), and oxygen in volume percent, before and after adjustments are made (measurements may be either on a dry or wet basis, as long as it is the same basis before and after the adjustments are made). Measurements may be taken using a portable CO analyzer. [40 CFR Part 63.11223(b)(5)]
6. If a unit is not operating on the required date for a tune-up, the tune-up must be conducted within 30 days of start-up. [40 CFR Part 63.11223(b)(7)]

(c) After conducting the initial boiler tune-up, a Notification of Compliance Status shall be submitted to EPA no later than July 19, 2014. [40 CFR Part 63.11225(a)(4) and 40 CFR Part 63.11214(b)]

(d) The facility shall implement a boiler tune-up program after the initial tune-up and initial compliance report (called a Notification of Compliance Status) has been submitted.

1. Each tune-up shall be conducted at a frequency specified by the rule and based on the size, age, and operations of the boiler. See chart below:

Boiler Category	Tune-Up Frequency
Existing Oil with a heat input capacity >5 MMBtu/hr (Boilers #1 & #2)	Every 2 years
Existing Oil with a heat input capacity <5MMBtu/hr (Boiler #3)	Every 5 years

[40 CFR Part 63.11223(a) and Table 2]

2. The tune-up compliance report shall be maintained onsite and, if requested, submitted to EPA. The report shall contain the concentration of CO in the effluent stream (ppmv) and oxygen in volume percent, measured at high fire or typical operating load, before and after the boiler tune-up, a description of any corrective actions taken as part of the tune-up of the boiler, and the types and amounts of fuels used over the 12 months prior to the tune-up of the boiler. [40 CFR Part 63.11223(b)(6)] The compliance report shall also include the company name and address; a compliance statement signed by a responsible official certifying truth, accuracy, and completeness; and a description of any deviations and corrective actions. [40 CFR Part 63.11225(b)]

D. Annual Emissions

1. Total Annual Emissions
Inland shall be restricted to the following annual emissions, based on a calendar year basis. The tons per year emission limits were calculated based on total fuel fired in all three boilers limited to 200,000 gallons per year of #2 fuel oil or a heat input of 28,000 MMBtu/yr if a combination of natural gas and oil are fired. The annual emissions include the worst case pollutant emissions scenario of burning #2 fuel oil and natural gas:

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

	PM	PM_{10}	SO_2	NO_x	CO	VOC
Boilers #1,#2, and #3	1.1	1.1	7.1	2.0	1.2	0.1
Emergency Generator #1	0.1	0.1	0.1	3.9	0.8	0.3
Total TPY	**1.2**	**1.2**	**7.2**	**5.9**	**2.0**	**0.4**

2. Greenhouse Gases
Greenhouse gases are considered regulated pollutants as of January 2, 2011, through 'Tailoring' revisions made to EPA's *Approval and Promulgation of Implementation Plans,* 40 CFR Part 52, Subpart A, §52.21 Prevention of Significant Deterioration of Air Quality rule. Greenhouse gases, as defined in 06-096 CMR 100 (as amended), are the aggregate group of the following gases: Carbon dioxide, nitrous oxide, methane, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. For licensing purposes, greenhouse gases (GHG) are calculated and reported as carbon dioxide equivalents (CO_2e).

Based on the facility's fuel use limits, the worst case emission factors from AP-42, IPCC (Intergovernmental Panel on Climate Change), and *Mandatory Greenhouse Gas Reporting*, 40 CFR Part 98, and the global warming potentials contained in 40 CFR Part 98, Inland is below the major source threshold of 100,000 tons of CO_2e per year. Therefore, no additional licensing requirements are needed to address GHG emissions at this time.

III. AMBIENT AIR QUALITY ANALYSIS

The level of ambient air quality impact modeling required for a minor source shall be determined by the Department on a case-by case basis. In accordance with 06-096 CMR 115, an ambient air quality impact analysis is not required for a minor source if the total emissions of any pollutant released do not exceed the following levels and there are no extenuating circumstances:

Pollutant	Tons/Year
PM_{10}	25
SO_2	50
NO_x	50
CO	250

The total facility licensed emissions are below the emission levels contained in the table above and there are no extenuating circumstances; therefore, an ambient air quality impact analysis is not required as part of this license.

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, and
- will not violate applicable ambient air quality standards in conjunction with emissions from other sources.

The Department hereby grants Air Emission License A-110-71-L-M subject to the conditions found in Air Emission License A-110-71-J-R, in amendments A-110-71-K-M, and in the following conditions.

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 provisions. This License shall be construed and enforced in all respects as if such invalid or unenforceable provision or part thereof had been omitted.

SPECIFIC CONDITIONS

The following shall replace Condition (16) in License A-110-71-J-R and A-110-71-K-M

(16) **Boiler #1, #2, and #3**

A. Fuel

1. Total fuel use for Boilers #1, #2, and #3 shall not exceed a combined 200,000 gal/year of #2 fuel oil or a total combined heat input capacity of 28,000 MMBtu/year when burning only natural gas or in combination with #2 fuel oil on a calendar year basis. [06-096 CMR 115, BPT]
2. Prior to July 1, 2016 or the date specified in 38 MRSA §603-A(2)(A)(3), the #2 fuel oil fired in the boiler shall be ASTM D396 compliant (max. sulfur content of 0.5% by weight). [06-096 CMR 115, BPT]
3. Beginning July 1, 2016 or on the date specified in 38 MRSA §603-A(2)(A)(3), the facility shall fire #2 fuel oil with a maximum sulfur content limit of 0.005% by weight (50 ppm). [38 MRSA §603-A(2)(A)(3)]
4. Beginning January 1, 2018 or on the date specified in 38 MRSA §603-A(2)(A)(3), the facility shall fire #2 fuel oil with a maximum sulfur content limit of 0.0015% by weight (15 ppm). [38 MRSA §603-A(2)(A)(3)]
5. Compliance shall be demonstrated by fuel records from the supplier showing the quantity, type, and the percent sulfur (if applicable) of the

fuel delivered. Records of annual fuel use shall be kept on a monthly and calendar year basis. [06-096 CMR 115, BPT]

B. Emissions shall not exceed the following:

1. Emission limits when firing #2 Fuel Oil:

Emission Unit	Pollutant	lb/MMBtu	Origin and Authority
Boiler #1, #2, #3	PM	0.08	06-096 CMR 115, BACT

2. Emission limits when firing natural gas:

Emission Unit	Pollutant	lb/MMBtu	Origin and Authority
Boiler #1, #2, #3	PM	0.05	06-096 CMR 115, BACT

C. Emissions shall not exceed the following [06-096 CMR 115, BPT]:

1. Emission limits when firing #2 Fuel Oil:

Emission Unit	PM (lb/hr)	PM_{10} (lb/hr)	SO_2 (lb/hr)	NO_x (lb/hr)	CO (lb/hr)	VOC (lb/hr)
Boiler #1	0.42	0.42	2.67	0.76	0.19	0.01
Boiler #2	0.42	0.42	2.67	0.76	0.19	0.01
Boiler #3	0.26	0.26	1.66	0.47	0.12	0.01

2. Emission limits when firing natural gas:

Emission Unit	PM (lb/hr)	PM_{10} (lb/hr)	SO_2 (lb/hr)	NO_x (lb/hr)	CO (lb/hr)	VOC (lb/hr)
Boiler #1	0.27	0.27	0.01	0.51	0.43	0.03
Boiler #2	0.27	0.27	0.01	0.51	0.43	0.03
Boiler #3	0.17	0.17	0.01	0.32	0.27	0.02

D. Visible Emissions

1. When firing No. 2 fuel oil, visible emissions from Boilers #1, #2, and #3 shall each not exceed 20% opacity on a six (6) minute block average, except for no more than one (1) six (6) minute block averages in a continuous 3-hour period. [06-096 CMR 101]

2. When firing natural gas, visible emissions from the Boilers #1, #2, and #3 shall each not exceed 10% opacity on a 6 minute block average, except for

no more than one (1) six (6) minute block average in a 3 hour period. [06-096 CMR 115, BACT]

DONE AND DATED IN AUGUSTA, MAINE THIS 7 DAY OF November, 2013.

DEPARTMENT OF ENVIRONMENTAL PROTECTION

BY: Marc Allen Robert Cone for
PATRICIA W. AHO, COMMISSIONER

The term of this amendment shall be concurrent with the term of Air Emission License A-110-71-J-R.

PLEASE NOTE ATTACHED SHEET FOR GUIDANCE ON APPEAL PROCEDURES

Date of initial receipt of application: 10/11/2013
Date of application acceptance: 10/15/2013

Date filed with the Board of Environmental Protection:

This Order prepared by Lisa P. Higgins Bureau of Air Quality.

Filed
NOV 08 2013
State of Maine
Board of Environmental Protection