



STATE OF MAINE
DEPARTMENT OF ENVIRONMENTAL PROTECTION



PAUL R. LEPAGE
GOVERNOR

PATRICIA W. AHO
COMMISSIONER

**Western Polymer Corporation
Aroostook County
Fort Fairfield, Maine
A-817-71-E-A**

**Departmental
Findings of Fact and Order
Air Emission License
Amendment #1**

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

Western Polymer Corporation (Western Polymer) was issued air emission license A-817-71-D-R/T on October 29, 2013, permitting the operation of emission sources associated with their starch plant.

Western Polymer has requested an amendment to their air emission license to install and operate a direct-fire propane burner for production process needs, replacing the two oil fired boilers currently on-site. The heated process air will be utilized in the three starch dryers. Additional small oil fired heaters below the insignificant activity threshold of 1.0 MMBtu/hr will continue to be used to heat the plant.

The equipment addressed in this license is located at 145 Presque Isle Street, Fort Fairfield, Maine.

B. Emission Equipment

The following equipment is addressed in this air emission license:

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 04769
(207) 764-0477 FAX: (207) 760-3143

Furnace

Equipment	Maximum Capacity (MMBtu/hr)	Maximum Firing Rate (gal/hr)	Fuel Type	Manufacture Date	Installation Date
Direct-Fire Furnace 1	12	131	Propane	2013	2014

The direct-fire propane furnace will replace the two 25.1 MMBtu/hr fuel oil boilers. The boilers will remain as backup until the new direct-fired unit is fully operational. This license allows for operation of the boilers as back-up, although Western Polymer plans to eventually remove the units from the site.

C. Application Classification

The modification of a minor source is considered a major or minor modification based on whether or not expected emission increases exceed the "Significant Emission Levels" as defined in the Department's regulations. The change in emissions are determined by subtracting the current licensed emissions preceding the modification from the maximum future licensed allowed emissions, as follows:

Pollutant	Current License (TPY)	Future License (TPY)	Net Change (TPY)	Sig. Level
PM	5.6	3.5	-2.1	100
PM ₁₀	5.6	3.5	-2.1	100
SO ₂	47.5	21.0	-26.5	100
NO _x	31.7	21.5	-10.2	100
CO	10.7	9.0	-1.7	100
VOC	4.4	2.6	-1.8	50
CO ₂ e	<100,000	<100,000	<100,000	100,000

Based on the change in licensed emissions shown in the preceding table (all pollutants are decreasing), this modification is determined to be a minor modification 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.

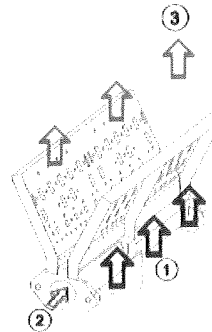
BPT for new sources and modifications requires a demonstration that emissions are receiving Best Available Control Technology (BACT), as defined in *Definitions Regulation*, 06-096 CMR 100 (as amended). BACT is a top-down approach to selecting air emission controls considering economic, environmental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

B. Direct-Fire Furnace 1

The direct-fire propane furnace is rated at 12 MMBtu/hr. The unit is a Maxon NP-LE Low Emissions Airflo® in-duct firing line gas burner, consisting of a burner body which serves as the gas manifold, drilled to discharge the gaseous fuel between diverging mixing plates. The burner is mounted directly into the air stream being heated and gaseous fuel is injected into the process air stream. The gas and process air is mixed by the v-shaped designed burner mixing plates, with the required oxygen for combustion drawn from the process stream. All available heat from the gaseous fuel is released into the air stream. The controlled aeration patterns provide progressive mixing, superior cross ignition, flame retention and odor-free combustion. Profile plates are used to establish uniform air velocities across the burner for optimal performance.

The following diagram was copied from the manufacture specification sheet and shows the NP-LE AIRLOW® principle:

- 1) fresh air
- 2) fuel/gal
- 3) hot air



The direct-fire furnace will be used to heat an air stream and does not have a separate exhaust. It is expected to be operational within the first quarter of 2014.

1. Federal Rule Applicability

The direct-fire furnace is not subject to New Source Performance Standards (NSPS) 40 CFR Part 60, Subpart Dc, *Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units*, for units greater than 10 MMBtu/hr manufactured after June 9, 1989. 40 CFR Part 60, Subpart Dc defines 'steam generating unit' as: "a device that combusts any fuel and produces steam or heats water or heats any heat transfer medium. This term

includes any duct burner that combusts fuel and is part of a combined cycle system. This term does not include process heaters as defined in this subpart." 'Process heaters' are defined as: "a device that is primarily used to heat a material to initiate or promote a chemical reaction in which the material participates as a reactant or catalyst." As proposed to be operated, the direct-fire furnace will not be part of a combined cycle system that provides exhaust gas to a steam generating unit.

The direct-fire furnace is not subject to 40 CFR Part 63 Subpart JJJJJ, *National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers Area Sources*. 40 CFR Part 63, Subpart JJJJJ defines 'boiler' as: "an enclosed device using controlled flame combustion in which water is heated to recover thermal energy in the form of steam and/or hot water. Controlled flame combustion refers to a steady-state, or near steady-state, process wherein fuel and/or oxidizer feed rates are controlled. A device combusting solid waste, as defined in §241.3 of this chapter, is not a boiler unless the device is exempt from the definition of a solid waste incineration unit as provided in section 129(g)(1) of the Clean Air Act. Waste heat boilers, process heaters, and autoclaves are excluded from the definition of boiler." The direct-fire furnace will not produce steam or hot water.

2. BACT Findings

The BACT emission limits for the direct-fire furnace were based on the following:

- PM/PM₁₀ – 0.2 lb/1000 gal based on AP-42, Table 1.5-1, dated 7/08
- SO₂ – 0.02 lb/1000 gal based on AP-42, Table 1.5-1, dated 7/08
(0.10S, where S=0.18)
- NO_x – 13 lb/1000 gal based on AP-42, Table 1.5-1, dated 7/08
- CO – 7.5 lb/1000 gal based on AP-42, Table 1.5-1, dated 7/08
- VOC – 1.0 lb/1000 gal based on AP-42, Table 1.5-1, dated 7/08

The BACT emission limits for the direct-fire furnace 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)
Direct-Fire Furnace 1 (12 MMBtu/hr) propane	0.03	0.03	0.003	1.7	0.98	0.13

The direct-fire furnace will exhaust through the starch dryer systems. Visible emissions from each dryer cyclone and scrubber unit shall continue to be limited to 10% opacity based on a 6 minute average.

There shall be no annual restriction on the amount of propane fired.

C. Boilers 1 and 2

Boilers 1 and 2 are existing 25.1 MMBtu/hr distillate oil fired units. Western Polymer eventually plans to remove Boilers 1 and 2 from site once the new direct-fired furnace is installed and operational. However, for operational flexibility purposes to allow the boilers to run while the direct-fired furnace is installed and then to be used as back-up as needed, Western Polymer shall be limited to 1,000,000 gallons/year combined of #1 fuel oil, #2 fuel oil, or diesel fuel on a calendar year. This limit is a reduction from the current fuel limit of 2,206,838 gallons/year and brings the licensed allowed emissions below the inventory reporting thresholds in *Emission Statements*, 06-096 CMR 137 (as amended).

D. Annual Emissions

1. Total Annual Emissions

Western Polymer shall be restricted to the following annual emissions, based on a calendar year. The tons per year limits were calculated based on 8760 hours/year of propane use in the direct-fired unit, use of the two existing oil boilers as back-up with a distillate fuel oil limit of 1,000,000 gallons/year, and particulate matter from the dryers using worst case 8760 hours/year:

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

	PM	PM₁₀	SO₂	NO_x	CO	VOC
Direct-Fired Furnace 1	0.1	0.1	0.01	7.5	4.3	0.6
Boilers 1 and 2 total	1.8	1.8	21.0	14.0	4.7	2.0
Dryers	1.6	1.6	-	-	-	-
Total TPY	3.5	3.5	21.0	21.5	9.0	2.6

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 (CO₂e).

Based on the facility's fuel use limit(s), 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, Western Polymer is below the major source threshold of 100,000 tons of CO₂e 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:

<u>Pollutant</u>	<u>Tons/Year</u>
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-817-71-E-A subject to the conditions found in Air Emission License A-817-71-D-R/T 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:

REPLACED CONDITIONS

The following shall replace condition (17) in air emission license A-817-71-D-R/T:

(17) **Boilers 1 and 2**

A. Fuel

1. Total fuel use for Boilers 1 and 2 shall not exceed a total of 1,000,000 gal/yr of #1 fuel oil, #2 fuel oil, or diesel fuel based on a calendar 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, #1 fuel oil, or diesel fired in the boilers shall have a maximum sulfur content of 0.3% 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 of the fuel delivered (if applicable). Records of annual fuel use shall be kept on a monthly and 12-month rolling total basis. [06-096 CMR 115, BPT]

B. Emissions from Boilers 1 and 2 shall each not exceed the following:

Emission Unit	PM (lb/MMBtu)	NO_x (lb/MMBtu)	Origin and Authority
Boiler 1	0.025	0.20	06-096 CMR 115, BPT
Boiler 2	0.025	0.20	06-096 CMR 115, BPT

- C. Emissions from Boilers 1 and 2 shall not exceed the following [06-096 CMR 115, BPT]:

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	0.63	0.63	7.53	5.02	1.70	0.70
Boiler 2	0.63	0.63	7.53	5.02	1.70	0.70

- D. Visible emissions from the combined stack shall not exceed 20% opacity on a six (6) minute block average, except for no more than two (2) six (6) minute block averages in a continuous 3-hour period. [06-096 CMR 115, BPT]

- E. 40 CFR Part 60, Subpart Dc

Western Polymer shall comply with all requirements of 40 CFR Part 60, Subpart Dc applicable to Boilers 1 and 2 including, but not limited to, the following:

1. Western Polymer shall record and maintain records of the amounts of each fuel combusted during each day or, if applicable, monthly records with fuel certifications. [40 CFR §60.48c(g)]
2. Western Polymer shall submit to EPA and the Department semi-annual reports. These reports shall include the calendar dates covered in the reporting period and records of fuel supplier certifications. The semi-annual reports are due within 30 days of the end of each 6-month period.
3. The following address for EPA shall be used for any reports or notifications required to be copied to them:

Compliance Clerk
USEPA Region 1
5 Post Office Sq. Suite 100
Boston, MA 02109-3912

The following shall replace condition (18) in air emission license A-817-71-D-R/T:

- (18) **Starch Dryer Systems 1, 2, and 3** (including dryers, cyclones, and scrubbers)

- A. Emissions from each of the starch dryers shall be controlled by the use of a cyclone and scrubber unit. [06-096 CMR 115, BPT]
- B. Emissions due to the process (excluding the propane direct-fired furnace emissions) from each of the starch dryer systems, consisting of the dryer, the cyclone and the scrubber, shall not exceed the following [06-096 CMR 115, BPT]:

Unit	PM (lb/hr)	PM ₁₀ (lb/hr)
Starch Dryer 1 System	0.15	0.15
Starch Dryer 2 System	0.15	0.15
Starch Dryer 3 System	0.06	0.06

- C. Opacity from each starch dryer system shall be limited to 10%, based on a 6 minute average. [06-096 CMR 115, BPT]
- D. Western Polymer shall keep a maintenance log for the starch dryer systems to document maintenance activities and dryer, cyclone, or scrubber malfunctions. Recordkeeping for maintenance activities shall include the date and maintenance performed. Recordkeeping for malfunctions shall include the date, reason for the malfunction, and explanation of any correction actions taken (if applicable), including the date and time of when the malfunction was resolved. [06-096 CMR 115, BPT]

The following shall replace Condition (20) in air emission license A-817-71-D-R/T:

(20) Annual Emission Statement (reporting year 2013)

In accordance with *Emission Statements*, 06-096 CMR 137 (as amended), the licensee shall annually report to the Department the information necessary to accurately update the State's emission inventory by means of either:

- 1) A computer program and accompanying instructions supplied by the Department; or
- 2) A written emission statement containing the information required in 06-096 CMR 137

This condition applies only for the reporting year 2013. Once this license amendment is issued, the facility will be below the reporting threshold.

The emission statement must be submitted as specified by the date in 06-096 CMR 137.

NEW CONDITION

(22) Direct-Fire Furnace 1

- A. Western Polymer may install and operate a propane direct-fire furnace. [09-096 CMR 115]

- B. Emissions from the fuel fired in the Direct-Fired Furnace 1 shall not exceed the following [06-096 CMR 115, BACT]:

Unit	PM (lb/hr)	PM ₁₀ (lb/hr)	SO ₂ (lb/hr)	NO _x (lb/hr)	CO (lb/hr)	VOC (lb/hr)
Direct-Fire Furnace 1 (12 MMBtu/hr) propane	0.03	0.03	0.003	1.7	0.98	0.13

- C. The Direct-Fire Furnace 1 exhaust shall vent through the existing starch dryers. [06-096 CMR 115, BACT]

DONE AND DATED IN AUGUSTA, MAINE THIS 30 DAY OF December, 2013.

DEPARTMENT OF ENVIRONMENTAL PROTECTION

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

The term of this amendment shall be concurrent with the term of Air Emission License A-817-71-D-R/T.

PLEASE NOTE ATTACHED SHEET FOR GUIDANCE ON APPEAL PROCEDURES

Date of initial receipt of application: November 6, 2013

Date of application acceptance: November 7, 2013

Date filed with the Board of Environmental Protection:

This Order prepared by Kathleen E. Tarbuck, Bureau of Air Quality.

