



STATE OF MAINE
DEPARTMENT OF ENVIRONMENTAL PROTECTION



PAUL R. LEPAGE
GOVERNOR

PATRICIA W. AHO
COMMISSIONER

**Westbrook Energy Center, LLC
Cumberland County
Westbrook, Maine
A-743-70-D-R**

**Departmental
Findings of Fact and Order
Part 70 Air Emission License
Renewal**

FINDINGS OF FACT

After review of the Part 70 License renewal 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

FACILITY	Westbrook Energy Center, LLC (Westbrook Energy Center)
LICENSE TYPE	Part 70 License Renewal
NAICS CODES	221112
NATURE OF BUSINESS	Fossil Fuel Electric Power Generation
FACILITY LOCATION	60 Eisenhower Drive, Westbrook, Maine

Westbrook Energy Center is a nominally rated 528 megawatt (MW) combined cycle facility with two combined cycle systems, one condensing steam turbine generator, and ancillary equipment. Each combined cycle system consists of a natural gas fired combustion turbine and an unfired heat recovery steam generator (HRSG). The steam from the HRSGs is routed through the condensing steam turbine generator. The facility produces electricity for sale to the electrical grid.

Westbrook Energy Center has the potential to emit more than 100 tons per year (TPY) of particulate matter (PM), Particulate Matter under 10 micrometers (PM₁₀), nitrogen oxides (NO_x), and carbon monoxide (CO) and 100,000 tons of carbon dioxide equivalent (CO_{2e}); therefore, the source is a major source for criteria pollutants. Westbrook Energy Center does not have the potential to emit more than 10 TPY of a single hazardous air pollutant (HAP) or more than 25 TPY of combined HAP, therefore, the source is an area source for HAP.

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

B. Emission Equipment

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

Turbines and Boilers

Equipment	Maximum Heat Input Capacity (MMBtu/hr)	Max. Firing Rate (scf/hr)	Fuel Type	Installation Date	Stack #
Combustion Turbine #1	2,013*	2,013,000	Natural gas	2000	1
Combustion Turbine #2	2,013*	2,013,000	Natural gas	2000	2
Auxiliary Boiler	29.1	29,100	Natural gas	2000	3

Table Note: * Maximum design heat input is based on the unit operating at base load with an ambient temperature of -20°F and firing natural gas at a higher heating value of 1,000 Btu/scf.

Generators

Equipment	Maximum Heat Input Capacity (MMBtu/hr)	Max. Firing Rate (gal/hr)	Fuel Type, % sulfur	Manufacture Date	Installation Date
Emergency Generator	8.1	59.1	Distillate, 0.0015% S	2000	2000
Diesel Fire Pump	3.2	23.4	Distillate, 0.0015% S	2000	2000

Process Equipment

Equipment	Pollution Control Equipment
Cooling Tower *	Drift Eliminators

* The previous Initial Part 70 license A-743-70-A-I (August 12, 2003) didn't include the Cooling Tower except in the facility-wide tons per year table. However, the equipment is being listed in this Part 70 license renewal since the Cooling Tower went through a BACT analysis for license A-743-71-A-N (December 4, 1998), and that analysis is still applicable.

Westbrook Energy Center has additional insignificant activities which do not need to be listed in the emission equipment tables above. The list of insignificant activities can be found in the Part 70 license application and in Appendix B of *Part 70 Air Emission License Regulations*, 06-096 Code of Maine Rules (CMR)

140 (as amended). The insignificant activities include, but are not limited to, liquid storage tanks, space heaters, and other smaller pieces of equipment.

C. Application Classification

The application for Westbrook Energy Center does not include the licensing of increased emissions or the installation of new or modified equipment; therefore, the license is considered to be a Part 70 License renewal issued under 06-096 CMR 140 (as amended).

D. Facility Description

The original license was issued to Westbrook Power, LLC for the installation and operation of air emission sources associated with a proposed combine cycle electrical generating facility. Subsequent name changes and transfers included licenses issued to Westbrook Energy Center and Calpine Construction Finance Company, L.P. This Part 70 air emission license renewal is issued to Westbrook Energy Center, LLC (Westbrook Energy Center).

Westbrook Energy Center operates two combined cycle systems. These systems each consist of a natural gas combustion turbine and an unfired heat recovery steam generator (HRSG). A single condensing steam turbine generator utilizes the steam to produce electricity. The facility has a nominal electric production rating of 528 MW.

Each combined cycle system starts with combustion air entering the inlet of the gas turbine where it is compressed and mixed with the incoming fuel. This combination is burned in the combustion section of the turbine, which incorporates a dry low NO_x system to minimize NO_x emissions and create a high pressure, hot gas. The gas is expanded through the power section of the turbine where most of its thermal energy is converted to work as it rotates the turbine, producing electricity.

Exhaust from each combustion turbine is directed to its associated HRSG where it passes over tubes to create high-pressure steam. An SCR system within each HRSG controls NO_x emissions from the exhaust gases. Each system exhausts to a separate 165 foot stack.

The steam produced from each of the HRSGs is routed to the steam turbine, contributing additional electrical power output for the facility.

A natural gas fired package Auxiliary Boiler is used to assist with steam turbine startup. An Emergency Generator and Fire Pump are also located at the facility. A Cooling Tower is used to transfer waste heat from cooling water to the

atmosphere. The cooling water is used to cool the condensed steam from the steam turbine.

E. General Facility Requirements

Westbrook Energy Center is subject to the following state and federal regulations listed below, in addition to the regulations listed for specific units as described further in this license.

Citation	Requirement Title
06-096 CMR 101	Visible Emissions
06-096 CMR 102	Open Burning
06-096 CMR 103	Fuel Burning Equipment Particulate Emission Standard
06-096 CMR 106	Low Sulfur Fuel
06-096 CMR 109	Emergency Episode Regulation
06-096 CMR 110	Ambient Air Quality Standard
06-096 CMR 116	Prohibited Dispersion Techniques
06-096 CMR 117	Source Surveillance
06-096 CMR 137	Emission Statements
06-096 CMR 140	Part 70 Air Emission License Regulations
06-096 CMR 143	New Source Performance Standards
06-096 CMR 144	National Emission Standards for Hazardous Air Pollutants (NESHAP)
06-096 CMR 156	CO ₂ Budget Trading Program
40 CFR Part 60, Subpart Dc	Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units
40 CFR Part 60, Subpart KKKK	Standards of Performance for Stationary Combustion Turbines
40 CFR Part 63, Subpart ZZZZ	National Emission Standard for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines
40 CFR Part 68	Chemical Accident Prevention Provisions
40 CFR Part 70	State Operating Permit Programs
40 CFR Part 72	Permits Regulation (Acid Rain)
40 CFR Part 73	Sulfur Dioxide Allowance System
40 CFR Part 75	Continuous Emissions Monitoring
40 CFR Part 77	Excess Emissions
40 CFR Part 82	Protection of Stratospheric Ozone
40 CFR Part 98	Mandatory Greenhouse Gas Reporting

Note: CMR = Code of Maine Regulations
 CFR = Code of Federal Regulations

F. Units of Measurement

The following units of measurement are used in this license:

°F	degrees Fahrenheit
Btu/scf	British Thermal Units per standard cubic feet
gal/hr	gallons per hour
gr	grains
hr	hour(s)
hrs/yr	hours per year
lb/hr	pounds per hour
lb/MMBtu	pounds per million British Thermal Units
lb/MW-hr	pounds per megawatt hour
MMBtu/hr	million British Thermal Units per hour
MMBtu/scf	million British Thermal Units per standard cubic feet
MW	megawatt
ppm	parts per million
ppmvd	parts per million by volume on a dry basis
scf	standard cubic feet
scf/hr	standard cubic feet per hour
tpy or tons/yr	tons per year

II. BEST PRACTICAL TREATMENT (BPT) AND EMISSION STANDARDS

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 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 existing emissions equipment means that method which controls or reduces emissions to the lowest possible level considering:

- the existing state of technology;
- the effectiveness of available alternatives for reducing emission from the source being considered; and
- the economic feasibility for the type of establishment involved.

B. NO_x and VOC RACT (Reasonable Available Control Technology)

Neither *Reasonably Available Control Technology for Facilities that Emit Nitrogen Oxides*, 06-096 CMR 138 (as amended) or *Reasonably Available Control Technology for Facilities that Emit Volatile Organic Compounds*, 06-096 CMR 134 (as amended) is applicable to Westbrook Energy Center.

NO_x RACT is applicable to existing sources that were operating prior to May 31, 1995. As a new source in 1998, Westbrook Energy Center is not subject to 06-096 CMR 138.

VOC RACT is applicable to sources that have the potential to emit quantities of VOC equal to or greater than 40 tons/year; however, the generator, boilers, and turbines are classified as VOC-emitting equipment from which the VOCs emitted are from the incomplete combustion of any material and are considered exempt per 06-096 CMR 134(1)(C)(4) when determining the facility's total VOC emissions. With the exemption of the VOC emissions from these units, the total emitted quantity of VOC emissions for the facility is under the 40 TPY threshold. In addition, the facility underwent a Best Available Control Technology (BACT) analysis for VOCs when it was originally licensed in 1998.

C. Acid Rain

Westbrook Energy Center's Combustion Turbines #1 and #2 are subject to the federal Acid Rain Program, 40 CFR Part 70, *State Operating Permits Program*, and 40 CFR Part 72, *Permits Regulation*; therefore the facility is required to have a Phase II acid rain permit. Westbrook Energy Center was issued an acid rain permit, A-743-70-A-S, on October 10, 2001 and the acid rain permit is incorporated in this renewal.

D. Mandatory Greenhouse Gas (GHG) Reporting

Federal regulation 40 CFR Part 98, *Mandatory Greenhouse Gas Reporting*, which contains GHG reporting and related monitoring and recordkeeping requirements, is applicable to the owners/operators of any facility which falls into any one of the following three categories, per 40 CFR Part 98, Subpart A, *General Provision*, § 98.2, *Who must report?*:

- (a)(1) A facility that contains any source category that is listed in Table A-3 of this subpart in any calendar year starting in 2010
- (a)(2) A facility that contains any source category that is listed in Table A-4 of this subpart and that emits 25,000 metric tons CO₂e or more per year in combined emissions from stationary fuel combustion units, miscellaneous uses of carbonate, and all applicable source categories that are listed in Table A-3 and Table A-4 of this subpart.
- (a)(3) A facility that in any calendar year starting in 2010 meets all three of the conditions listed in this paragraph (a)(3). For these facilities, the annual GHG report must cover emissions from stationary fuel combustion sources only.
 - (i) The facility does not meet the requirements of either paragraph (a)(1) or (a)(2) of this section.

- (ii) The aggregate maximum rated heat input capacity of the stationary fuel combustion units at the facility is 30 MMBtu/hour or greater.
- (iii) The facility emits 25,000 metric tons CO₂e or more per year in combined emissions from all stationary fuel combustion sources.

Westbrook Energy Center falls within the category of electrical generation units that report CO₂ mass emissions year round through 40 CFR Part 75 (Subpart D), as found in Table A-3 of this subpart, and thus is subject under (a)(1) above.

This facility shall fulfill the recordkeeping and reporting requirements of 40 CFR Part 98.

E. CO₂ Budget Source

Westbrook Energy Center was issued license A-743-78-A-N on January 15, 2009 per Maine's *CO₂ Budget Trading Program*, 06-096 CMR 156 (as amended) for Combustion Turbines #1 and #2.

F. Prevention of Significant Deterioration (PSD)/New Source Review (NSR)/Best Available Control Technology (BACT) and Non-Attainment NSR/Lowest Achievable Emission Rate (LAER) Review

The Department issued Air License A-743-71-A-N on December 4, 1998 to Westbrook Power, LLC. The license was issued to permit construction of the combined cycle electrical generation systems. The license was issued pursuant to federal Prevention of Significant Deterioration (PSD) and non-attainment NSR requirements and the Department's air licensing requirements for major new sources. The facility underwent a BACT analysis for PM, SO₂, CO and VOC, and a LAER analysis for NO_x. In addition, 240 tons/year of NO_x offsets were obtained through the purchase of certified credits from a federally enforceable shutdown of a Massachusetts facility.

Westbrook Energy Center has made modifications to equipment and processes, following the appropriate air licensing procedures to address these changes. Since the previous Part 70 license was issued, two New Source Review (NSR) amendments were issued and subsequently incorporated into the Title V license. NSR minor modification amendment A-743-77-1-A was issued on November 3, 2010 addressing the implementation of an advanced gas path project on the combustion turbines consisting of replacement of the combustion turbine hot gas path components with metallurgical parts capable of withstanding higher firing temperatures, allowing the combustion turbines to operate at higher combustion temperatures resulting in increased power generation and improved operating efficiencies. Each combustion turbine's maximum heat input increased from 1954 MMBtu/hr to 2013 MMBtu/hr (on a higher heating value basis). A PSD

major modification amendment A-743-77-2-A was issued on August 14, 2013 to increase the facility's allowable tons per year of carbon monoxide (CO) emissions to take into account more frequently occurring startup and shutdown operational cycles due to the fluctuation of electricity market conditions.

G. Compliance Assurance Monitoring (CAM)

40 CFR Part 64, *Compliance Assurance Monitoring*, is applicable to units at major sources if the unit has emission limits, a control device to meet the limits, and pre-control emissions greater than 100 tons/year for any pollutant. The only units that satisfy the three general applicability criteria for CAM are Combustion Turbines #1 and #2 for the pollutant NO_x. However, 40 CFR §64.2(b)(vi) of the CAM rule specifies an exemption for any emission limitation or standard for which a Part 70 permit specifies a continuous compliance determination method. Westbrook Energy Center is required per the Part 70 license to use a continuous emission monitoring system (CEMS) to determine compliance with the NO_x emission limits (both the NO_x ppm and lb/hr limits) for Combustion Turbines #1 and #2, thus the units are exempt from 40 CFR Part 64. All other pollutant emission units contained in this license do not meet the general applicability criteria. Therefore, CAM is not applicable to any emission units at Westbrook Energy Center.

H. Combustion Turbines #1 and #2

Combustion Turbines #1 and #2 are General Electric Model number MS7001FA combustion turbines, manufactured and installed in 2000. Each turbine has fourteen burners and fires natural gas. The units are currently each rated at maximum heat input rating of 2013 MMBtu/hr, based on the results of an advanced gas path project licensed in 2010, operation at base load with an ambient temperature of -20°F, and firing natural gas at a higher heat value of 1000 Btu/scf.

The combustion turbines produce electricity as part of a combined cycle system, including an unfired heat recovery steam generator (HRSG) on each combustion turbine which utilizes the exhaust gases and one steam turbine which utilizes the steam.

Emissions from the turbines exit through separate stacks designated Stack 1 and Stack 2, respectively. The two stacks each have an inside diameter of 18 feet and an above ground level (AGL) height of 165 feet.

1. Best Practical Treatment (BPT) Summary

BPT for each of the gas turbines was determined to be the following:

Pollutant	BPT Practices
PM/PM ₁₀	Good combustion practices and combustion of natural gas
SO ₂	Combustion of natural gas
NO _x	Dry low-NO _x combustors and selective catalytic reduction (SCR)
CO	Good combustion practices
VOC	Good combustion practices
Ammonia (NH ₃)	Optimizing the ratio of NH ₃ to NO _x to a near stoichiometric balance to minimize NH ₃ slip while maintaining the appropriate NO _x control through the use of SCR controls.

2. Control Equipment

Combustion Turbines #1 and #2 are each equipped with dry low-NO_x combustors and a selective catalytic reduction (SCR) system with ammonia injection for the control of NO_x emissions.

3. New Source Performance Standards (NSPS)

a. 40 CFR Part 60, Subpart GG

When installed in 2000, Combustion Turbines #1 and #2 were subject to the New Source Performance Standards (NSPS) 40 CFR Part 60, Subpart GG, *Standards of Performance for Stationary Gas Turbines* for stationary gas turbines with a heat input capacity of 10 MMBtu/hr or more, based on the lower heating value of the fuel fired, that are constructed, modified, or reconstructed after October 3, 1977. However, with the completion of the advanced gas path project in 2010/2011, the units were modified and 40 CFR Part 60, Subpart KKKK, *Standards of Performance for Stationary Combustion Turbines*, is now the applicable NSPS for the facility. Units regulated under 40 CFR Part 60, Subpart KKKK are exempt from the requirements of 40 CFR Part 60, Subpart GG (§60.4305(b)).

b. 40 CFR Part 60, Subpart KKKK

Due to the modification of Combustion Turbines #1 and #2 in 2010/2011 through the advanced gas path project, the units are subject to 40 CFR Part 60, Subpart KKKK, *Standards of Performance for Stationary Combustion Turbines*, for stationary combustion turbines with a heat input capacity of 10 MMBtu/hr or more that are constructed, reconstructed, or modified after February 18, 2005. NO_x and SO₂ are regulated under 40 CFR Part 60, Subpart KKKK.

The BACT and LAER emission limits are more stringent than the NO_x and SO₂ limits in 40 CFR Part 60, Subpart KKKK, therefore by meeting the license limits, the NSPS limits are also met.

	SO ₂ Limit	NO _x Limit
License Requirement	Firing 2 gr sulfur/100 scf gas * and 12 lb/hr emissions	2.5 ppm _{dv} at 15% O ₂ on a 3 hr ave basis
40 CFR Part 60, Subpart KKKK Requirement	Firing 0.06 lb SO ₂ /MMBtu fuel, or 0.90 lb/MW-hr gross output emissions	15 ppm at 15% O ₂ of useful output **

Table Notes:

- * 2 gr sulfur/100 scf = 0.0056 lb SO₂/MMBtu, using conversions of 7000 gr/lb, 64 lb SO₂/32 lb S, and 1000 Btu/scf.
- ** 40 CFR Part 60, Subpart KKKK defines excess emissions in which the 4 hour or 30-day rolling average NO_x emission rate exceeds the 15 ppm limit (§60.4380).

The facility is subject to additional requirements in 40 CFR Part 60, Subpart KKKK, including requirements for equipment operations and maintenance, monitoring, reporting, and performance testing.

4. National Emissions Standards for Hazardous Air Pollutants (NESHAP)

Combustion Turbines #1 and #2 are not subject to 40 CFR Part 63, Subpart YYYY *National Emission Standards for Hazardous Air Pollutants for Stationary Combustion Turbines* because the facility is not classified as a major source for HAPs.

5. Emission Limits and Streamlining

For each turbine, Combustion Turbine #1 and #2, a listing of potentially applicable emission standards, the origin and authority of the standards, notation if streamlining of the standards has been requested, and the applicable emission limits can be found below. This section also includes startup, shutdown, and runback language, clarified from the previous license.

Pollutant	Applicable Emission Standard(s)	Origin and Authority	Licensed Emission Limit(s)
PM	120 lb/hr (based on 0.06 lb/MMBtu)	06-096 CMR 103 §2(B)(1)(c)	22 lb/hr *
	22 lb/hr	A-743-71-A-N (12/4/1998) and A-743-77-1-A (11/3/2010), BACT	
PM ₁₀	22 lb/hr	A-743-71-A-N (12/4/1998) and A-743-77-1-A (11/3/2010), BACT	22 lb/hr
SO ₂	0.90 lb/MW-hr gross output ...OR... 0.06 lb/MMBtu fuel	40 CFR Part 60, Subpart KKKK, § 60.4330(a)(1) & (2)	12 lb/hr*
	12 lb/hr (based on 2 gr sulfur/100 scf gas)	A-743-71-A-N (12/4/1998) and A-743-77-1-A (11/3/2010), BACT	
NO _x	15 ppm @ 15%O ₂	40 CFR Part 60, Subpart KKKK, §60.4320	2.5 ppmdv @ 15% O ₂ * (3-hr block avg, excluding startup, shutdown, and runback events)
	2.5 ppmdv@15% O ₂ (3-hr block avg, excluding startup, shutdown, and runback events)	A-743-71-A-N (12/4/1998), LAER and A-743-77-1-A (11/3/2010), BACT	
	18 lb/hr (1-hr block avg, steady state load operation, excluding startup, shutdown, and runback events)	A-743-71-A-N (12/4/1998), LAER and A-743-77-1-A (11/3/2010), BACT	18 lb/hr (1-hr block avg, steady state load operation, excluding startup, shutdown, and runback events)
	160 lb/hr (startup, shutdown, and runback events, 24-hr block avg)	A-743-70-A-I (8/12/2003), BPT	160 lb/hr (startup, shutdown, and runback events, 24-hr block avg ***)
CO	15 ppmdv @ 15% O ₂ (24-hr block avg, excluding startup, shutdown, and runback events)	A-743-71-A-N (12/4/1998), A-743-77-1-A (11/3/2010), and A-743-77-2-A (8/14/2013), BACT	15 ppmdv @ 15% O ₂ (24-hr block avg, excluding startup, shutdown, and runback events)
	53 lb/hr (1-hr block avg, steady state load operation, excluding startup, shutdown, and runback events)	A-743-71-A-N (12/4/1998) and A-743-77-1-A (11/3/2010), and A-743-77-2-A (8/14/2013), BACT	53 lb/hr (1-hr block avg, steady state load operation, excluding startup, shutdown, and runback events)

Pollutant	Applicable Emission Standard(s)	Origin and Authority	Licensed Emission Limit(s)
	200 lb/hr <i>(startup, shutdown, and runback events, 24-hr block avg)</i>	A-743-70-A-I (8/12/2003), BPT and A-743-77-2-A (8/14/2013) BACT	200 lb/hr <i>(startup, shutdown, and runback events, 24-hr block avg***)</i>
VOC	3 lb/hr	A-743-71-A-N (12/4/1998) and A-743-77-1-A (11/3/2010), BACT	3 lb/hr
NH ₃	10 ppm _{dv} @15% O ₂ <i>(30-day rolling avg)</i>	A-743-71-A-N (12/4/1998) and A-743-77-1-A (11/3/2010), BACT	10 ppm _{dv} @15% O ₂ <i>(30-day rolling avg)</i>
	20 ppm _{dv} @15% O ₂ <i>(24-hr block avg)</i>	A-743-71-A-N (12/4/1998) and A-743-77-1-A (11/3/2010), BACT	20 ppm _{dv} @15% O ₂ <i>(24-hr block avg)</i>
	27 lb/hr	A-743-77-1-A (11/3/2010), BACT	27 lb/hr
Visible Emissions **	No greater than 30% opacity on a 6-minute block average basis, except for two 6-minute block averages in a 3-hr period	06-096 CMR 101, §2(B)(1)(f)	No greater than 20% opacity on a 6-minute block average basis, except for one 6-minute period per hour of not more than 27% opacity, including during startup and shutdown periods *
	No greater than 20% opacity on a 6-minute block average basis, except for one 6-minute period per hour of not more than 27% opacity, including during startup and shutdown periods	A-743-77-1-A (11/3/2010), BACT	

Table Notes: * streamlining requested

**The original Title V included a visible emissions limit with an exception during startup and shutdown. In amendments A-743-77-1-A and A-743-70-E-A, that condition was revised to include startup and shutdown as seen in the table above. However, the visible emission condition of 30% opacity for startup and shutdown was never removed (A-743-70-A-I, condition 15(K)(4)), but it will no longer be included per this license.

*** The 24-hour average startup and shutdown lb/hr emission limit shall be defined as the period between 12:00am and 11:59pm, during which startup(s) and/or shutdown(s) have taken place.

Startup of a turbine is defined as that period of time from initiation of combustion turbine firing until the unit reaches steady state load operation. Steady state operation shall be reached when the combustion turbine reaches 60% base load and the steam turbine is declared available for load changes. Start-up shall be completed as soon as practicable, and shall not exceed 300 minutes. There are occasions when a turbine startup may be required to exceed 300 minutes based on OEM (original equipment manufacturer) recommendations. Specifically, instances when a turbine startup may exceed 300 minutes are typically following a major outage when turbine parts have been replaced. Due to the parts' metallurgical properties, slower initial load changes may be required or due to an extended tuning schedule based on OEM recommendations, additional time may be necessary to properly complete the startup. Upon prior approval by the Department, Westbrook Energy Center may complete a startup that exceeds 300 minutes.

Runback: Occasionally a combustion turbine, without warning, automatically initiates a shutdown and drops out of Mode 6Q. (Each turbine has 14 combustion chambers and each chamber consists of six fuel nozzles that are surrounded by a series of quaternary pegs. Mode 6Q occurs when all six fuel nozzles and quaternary pegs within each combustion chamber are firing and NOx emissions are minimized by the turbine's dry low NOx (DLN) system. When a turbine reaches Mode 6Q, the flow of ammonia to the SCR is introduced and NOx emissions are further reduced. During a runback when a turbine drops out of Mode 6Q, NOx emissions increase because the DLN system is not fully operating). Potential reasons for unplanned shutdowns include but are not limited to a drop in natural gas supply or sensor malfunction where there is no operational issue with the unit. During this time Westbrook Energy Center may determine that the unit is functioning properly and it can return to steady state operation without ceasing operation. A turbine runback shall be defined as that period of time during which a turbine is returned to steady state operation after the initiation of an unplanned shutdown. Runbacks shall be completed as soon as practicable but in no case shall the period exceed 60 minutes. Westbrook Energy Center shall track and record all runback times and durations.

Shutdown of a turbine is defined as that period of time from steady state operation to cessation of combustion turbine firing. This period shall not exceed 60 minutes.

6. Emission Limit Compliance Methods

Compliance with the emission limits associated with Combustion Turbines #1 and #2 shall be demonstrated in accordance with the methods and frequencies

indicated in the table below or other methods or frequencies as approved by the Department.

Pollutant	Applicable Emission Limit	Compliance Method	Frequency
PM	lb/hr	Stack Testing: 40 CFR Part 60, App. A, Method 5	As requested
PM ₁₀	lb/hr	Stack Testing: 40 CFR Part 60, App. A, Method 5 or EPA Test Method 201 or 201A	As requested
SO ₂	lb/hr	Fuel sulfur quality and fuel flow rate	As purchased and utilized
NO _x	ppmdv	NO _x CEMS	Continuously
	lb/hr	DAHS (Data Acquisition and Handling System) calculated	
CO	ppmdv	CO CEMS	Continuously
	lb/hr	DAHS calculated	
VOC	lb/hr	Stack Testing: 40 CFR Part 60, App. A, Methods 18 and 25A	As requested
NH ₃	ppmdv	NH ₃ CEMS	Continuously
	lb/hr	Stack Testing: 40 CFR Part 60, App. A	As requested
Visible Emissions	opacity	40 CFR Part 60, App. A, Method 9	As requested

7. Periodic Monitoring

Periodic Monitoring for Combustion Turbines #1 and #2 shall include the following whenever the equipment is operating:

Combustion Turbines #1 and #2			
Parameter	Units of Measure	Monitoring Tool/Method	Frequency
Total natural gas use	MMBtu	Fuel supplier records	Monthly and 12-month rolling total
Operating time, including specifics on startup and shutdown durations	Hours	Recordkeeping	Daily, monthly, annually
Air pollution control system malfunctions	N/A	Recordkeeping	As malfunctions occur

8. Parameter Monitoring

Parameter Monitoring for Combustion Turbines #1 and #2 shall include the following whenever the equipment is operating:

Combustion Turbines #1 and #2			
Parameter	Units of Measure	Monitoring Tool/Method	Frequency
Natural gas flow rate for each unit	scf input/ hr	Fuel flowmeter	Continuously <i>(with recordings of flow rate on a one-hour block average basis)</i>

The parameter monitors must record accurate and reliable data. If the parameter monitor is recording accurate and reliable data less than 98% of the source operating time within any quarter of the calendar year, the Department may initiate enforcement action and may include in that enforcement action any period of time that the parameter monitor was not recording accurate and reliable data during that quarter unless the licensee can demonstrate to the satisfaction of the Department that the failure of the system to record accurate and reliable data was due to the performance of established quality assurance and quality control procedures or unavoidable malfunctions.

9. Continuous Emissions Monitoring Systems (CEMS)

For each of the Combustion Turbines #1 and #2, the table below lists the required continuous emission monitoring systems (CEMS). The most comprehensive CEM requirements should be used for CEM operations when more than one regulation is applicable which are the requirements found in 40 CFR Part 75.

Pollutant and Continuous Monitor	Unit of Measurement	Origin and Authority
NO _x CEMS	ppmvd	06-096 CMR 117; 40 CFR Part 60, Subpart KKKK, and 40 CFR Part 75
	lb/hr (calculated)	
CO CEMS	ppmvd	06-096 CMR 117
	lb/hr (calculated)	
O ₂ CEMS	%	06-096 CMR 117; 40 CFR Part 60, Subpart KKKK, and 40 CFR Part 75
NH ₃ CEMS	ppmvd	06-096 CMR 117

10. Annual Combustion Turbine Limits

In order to demonstrate that the modification to the Combustion Turbines #1 and #2 addressed in A-743-77-1-A remains a minor modification for PM, PM₁₀, SO₂, and NO_x, actual emissions from the combustion turbines combined shall not exceed the following annual emission rates which are based on past “actual emissions” plus slightly less than “significant emission increase” levels:

Emission Units	PM (TPY)	PM₁₀ (TPY)	SO₂ (TPY)	NO_x (TPY)
Combustion Turbines #1 and #2 total	36	26	90	137

Compliance with the PM, PM₁₀, SO₂, and NO_x annual emission limits shall be determined on a 12-month rolling total basis for a period of ten years following commencing operation of the modification. The ten year period began on December 1, 2012 and ends on November 30, 2022.

CO and VOC shall not exceed the following annual licensed allowed emission rates, on a 12 month rolling total basis:

Emission Units	CO (TPY)	VOC (TPY)
Combustion Turbines #1 and #2 total	525	26

Calculations of annual emissions from the gas turbines shall be based on the best information available, including, but not limited to continuous emission monitoring system data, stack test data, and mass balance methods as appropriate.

I. Auxiliary Boiler

Westbrook Energy Center operates a natural gas Auxiliary Boiler rated at a maximum heat input of 29.1 MMBtu/hr (29,100 scf/hr). The unit is a Nebraska model number NS-B-39 with a Todd Combustion burner, installed and manufactured in 2000.

The Auxiliary Boiler is used to provide steam to the auxiliary steam system during plant startup conditions. Normally, the auxiliary steam system receives

steam from the main steam system through a pressure reducing valve and desuperheater, providing steam to the steam turbine seals and the deaerating condenser at low unit loads. However, during startup conditions, the Auxiliary Boiler is used as the steam source for the system.

The Auxiliary Boiler is limited to 98 MMscf/yr of natural gas on a 12-month rolling total basis. The Auxiliary Boiler exhausts through a 90 foot high stack with a 24 inch diameter.

The Auxiliary Boiler was originally licensed with a maximum design heat input capacity of 25 MMBtu/hr, but was corrected to its actual maximum design heat input capacity rating of 29.1 MMBtu/hr through amendment A-743-71-B-M (10/27/2000). The lb/hr emission limits were updated accordingly in that amendment. Amendment A-743-71-C-M (10/19/2001) addressed revisions to the method of determining the Auxiliary Boiler's annual emissions from a limit based on annual hours of operation at maximum load to an equivalent limit based on an annual fuel use limit. A-743-71-C-M also corrected the PM lb/MMBtu limit.

1. BPT

BPT for the Auxiliary Boiler was determined to be the firing of natural gas, use of efficient combustion practices, minimization of NO_x through low NO_x burners and flue gas recirculation, and meeting the emission limits and requirements set forth in this license.

2. Control Equipment

The Auxiliary Boiler is equipped with a low NO_x burner and flue gas recirculation. These controls lower the flame temperature, thereby reducing NO_x formation.

3. New Source Performance Standards (NSPS)

The Auxiliary Boiler is subject to *Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units*, 40 CFR Part 60, Subpart Dc for steam generating units with a heat input capacity of more than 10 MMBtu/hr, but less than or equal to 100 MMBtu/hr that are constructed after June 9, 1989. Due to the boiler firing only natural gas, there are no applicable emission standards or monitoring and testing requirements; however, Westbrook Energy Center shall maintain records of the amount of natural gas combusted during each calendar month per 40 CFR Part 60, §60.48c(g)(2).

4. National Emissions Standards for Hazardous Air Pollutants (NESHAP)

The Auxiliary Boiler is not subject to the *National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers Area Sources* (40 CFR Part 63, Subpart JJJJJ). Gas-fired boilers are exempt from 40 CFR Part 63, Subpart JJJJJ, where 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. Due to the Auxiliary Boiler only being licensed to fire natural gas, the boiler meets the definition of a “gas-fired boiler” and is exempt from the federal regulation per 40 CFR Parts §63.11195 and §63.11237.

5. Emission Limits and Streamlining

For the Auxiliary Boiler, a listing of potentially applicable emission standards, the origin and authority of the standards, notation if streamlining of the standards has been requested, and the applicable emission limits can be found below.

Pollutant	Applicable Emission Standards	Origin and Authority	Licensed Emission Limits
PM	0.12 lb/MMBtu	06-096 CMR 103 §(2)(B)(1)(a)	0.01 lb/MMBtu *
	0.01 lb/MMBtu	A-743-71-C-M (10/19/2001)	
	0.29 lb/hr	A-743-71-B-M (10/22/2000)	0.29 lb/hr
PM ₁₀	0.29 lb/hr	A-743-71-B-M (10/22/2000)	0.29 lb/hr
SO ₂	0.03 lb/hr	A-743-71-B-M (10/22/2000)	0.03 lb/hr
NO _x	0.035 lb/MMBtu	A-743-71-A-N (12/4/1998), BACT	0.035 lb/MMBtu
	1.02 lb/hr	A-743-71-B-M (10/22/2000)	1.02 lb/hr
CO	4.40 lb/hr	A-743-71-B-M (10/22/2000)	4.40 lb/hr
VOC	0.58 lb/hr	A-743-71-B-M (10/22/2000)	0.58 lb/hr
Visible Emissions **	No greater than 10% opacity on a six (6) minute block average basis, except for no more than one (1) six (6) minute block average in a 3-hr period	06-096 CMR 101 (2)(B)(c)	No greater than 10% opacity on a six (6) minute block average basis, except for no more than one (1) six (6) minute block average in a 3-hr period

Table Notes: * streamlining requested
 ** Visible emissions in the initial Part 70 License A-743-70-A-I (8/12/2003) stated 20% opacity on a 6 minute block average,

except for no more than two (6) minute block averages in a 3 hour period. The limit has been updated as seen in the Table above based on the standards effective in 06-096 CMR 101 as of July 1, 2003.

6. Emission Limit Compliance Methods

Compliance with the emission limits associated with the Auxiliary Boiler shall be demonstrated in accordance with the appropriate test methods upon request of the Department. Westbrook Energy Center shall conduct emission testing to demonstrate compliance with the applicable standard within 60 days after receipt of notice from the Department to test.

7. Periodic Monitoring

Periodic monitoring for the Auxiliary Boiler shall include the following whenever the equipment is operating.

Parameter	Unit of Measure	Monitoring Tool/Method	Frequency
Natural gas use	scf	Fuel flow meter	Monthly & 12-Month Rolling Total

J. Cooling Tower

Westbrook Energy Center operates a wet mechanical cooling tower to transfer waste heat from cooling water to the atmosphere. Cooling water is used to cool and condense steam exiting the steam turbine.

The Cooling Tower functions by spraying cool water over a column of packing, while a fan draws air up through the packing to promote evaporative cooling. During the process, water mist droplets can become entrained in the circulating air and get discharged to the atmosphere. The 'drift' droplets can be a source of particulate matter emissions as the water evaporates and the dissolved salts in the water solidify.

Westbrook Energy Center minimizes emissions from the Cooling Tower by the use of drift eliminators within the tower to capture the mist and droplets from the air stream before exiting the tower, subsequently reducing PM and PM₁₀ emissions.

1. BPT

The Department determined that BACT for the Cooling Tower was the use of the drift eliminators in the towers and the use of the Portland Water District's water source which has been found to have a low salt content. The previous BACT is now considered BPT.

2. Control Equipment

The Cooling Tower is equipped with drift eliminators.

3. Emission Limits

Taking into account the operation and control of the Cooling Tower, total annual emission of PM and PM₁₀ are each limited to 12.3 tons/year.

The 12.3 tons/year emission limits are worst case scenario values based on 100% facility capacity, a design drift rate of 0.005%, and a concentration of total dissolved solids (TDS) in the water based on a Portland Water District sample of 31 ppm with an additional 10% factored into the concentration calculations.

4. Periodic Monitoring

Westbrook Energy Center shall maintain proper operation and maintenance of the Cooling Tower, including the drift eliminators. Westbrook Energy Center shall maintain documentation of inspection dates, times and reasons for inspections, and any maintenance conducted on the Cooling Tower.

K. Emergency Generator and Fire Pump

Westbrook Energy Center has an Emergency Generator and Fire Pump. Both units were manufactured and installed in 2000. The Emergency Generator is rated at a maximum heat input capacity of 8.1 MMBtu/hr (59.1 gal/hr). The Fire Pump is rated at a maximum heat input capacity of 3.2 MMBtu/hr (23.4 gal/hr).

The Emergency Generator and Fire Pump were previously licensed to fire distillate fuel with a sulfur content of 0.05% by weight; however, based on similar sources and Best Practical Treatment, the sulfur content of the distillate fuel fired in the units shall be limited to 0.0015% sulfur (ultra-low sulfur diesel). Westbrook Energy Center may fire the distillate fuel currently on-site, but future distillate fuel purchases shall contain a maximum 0.0015% sulfur content by weight.

In order to be consistent with federal regulations, the Emergency Generator and Fire Pump shall each be limited to 100 hours per year of non-emergency operation for licensing and fee calculation purposes, with no operating restrictions during emergency situations. This is an update from the previous license which limited the Emergency Generator to 275 hrs/year and the Fire Pump to 200 hrs/year, including emergency situations.

The Emergency Generator and Fire Pump were both originally licensed with maximum design heat input capacities which were corrected through amendment A-743-71-B-M (10/27/2000). The Emergency Generator was corrected from 5.4 MMBtu/hr to 8.1 MMBtu/hr and the Fire Pump was corrected from 1.8 MMBtu/hr to 3.2 MMBtu/hr. The lb/hr emission limits were updated accordingly in that amendment.

1. BPT

BPT for the Emergency Generator and Fire Pump was determined to be limiting operation to less than 100 hours per year, not including emergency use, and limiting fuel use to distillate fuel with a sulfur content not to exceed 0.0015% by weight.

2. New Source Performance Standards (NSPS)

The federal regulation 40 CFR Part 60, Subpart IIII, Standards of Performance for Stationary Compression Ignition Internal Combustion Engines (CI ICE) is not applicable to the Emergency Generator and Fire Pump since the unit(s) were ordered prior to July 11, 2005 and manufactured prior to April 1, 2006.

3. National Emissions Standards for Hazardous Air Pollutants (NESHAP)

The federal regulation 40 CFR Part 63, Subpart ZZZZ, *National Emission Standards for Hazardous Air Pollutants (NESHAP) for Stationary Reciprocating Internal Combustion Engines* is applicable to the Emergency Generator and Fire Pump. The units are considered existing, emergency stationary reciprocating internal combustion engines at an area HAP source and are not subject to New Source Performance Standards regulations. EPA's August 9, 2010 memo (*Guidance Regarding Definition of Residential, Commercial, and Institutional Emergency Stationary RICE in the NESHAP for Stationary RICE*) specifically does not exempt these units from the federal requirements.

a. Emergency Definition:

Emergency stationary RICE means any stationary reciprocating internal combustion engine that meets all of the following criteria:

- (1) The stationary RICE is operated to provide electrical power or mechanical work during an emergency situation. Examples include stationary RICE used to produce power for critical networks or equipment (including power supplied to portions of a facility) when electric power from the local utility (or the normal power source, if the facility runs on its own power production) is interrupted, or stationary RICE used to pump water in the case of fire or flood, etc. There is no time limit on the use of emergency stationary ICE in emergency situations.
- (2) Paragraph (1) above notwithstanding, the emergency stationary RICE may be operated for any combination of the purposes specified below for a maximum of 100 hours per calendar year:
 - (i) Maintenance checks and readiness testing, provided that the tests are recommended by federal, state or local government, the manufacturer, the vendor, the regional transmission organization or equivalent balancing authority and transmission operator, or the insurance company associated with the engine. The owner or operator may petition the Administrator for approval of additional hours to be used for maintenance checks and readiness testing, but a petition is not required if the owner or operator maintains records indicating that federal, state, or local standards require maintenance and testing of emergency RICE beyond 100 hours per calendar year.
 - (ii) Emergency demand response for periods in which the Reliability Coordinator under the North American Electric Reliability Corporation (NERC) Reliability Standard EOP-002-3, Capacity and Energy Emergencies (incorporated by reference, see §63.14), or other authorized entity as determined by the Reliability Coordinator, has declared an Energy Emergency Alert Level 2 as defined in the NERC Reliability Standard EOP-002-3.
 - (iii) Periods where there is a deviation of voltage or frequency of 5 percent or greater below standard voltage or frequency.
- (3) Paragraphs (1) and (2) above notwithstanding, emergency stationary RICE may be operated for up to 50 hours per calendar year in non-emergency situations. These 50 hours are counted as part of the 100 hours per calendar year for maintenance checks and readiness testing,

emergency demand response, and periods of voltage deviation or low frequency, as provided in paragraph (2) above.

The 50 hours per calendar year for non-emergency situations cannot be used for peak shaving, non-emergency demand response, or to generate income for a facility by providing power to an electric grid or otherwise supply power as part of a financial arrangement with another entity, except as specifically provided by in the rule. The emergency RICE at Westbrook Energy does not currently have the capability of providing power to the electrical grid or another entity.

The Emergency Generator and Fire Pump shall be limited to the usage outlined in §63.6640(f) and therefore may be classified as existing emergency stationary RICE as defined in 40 CFR Part 63, Subpart ZZZZ. Failure to comply with all of the requirements listed in §63.6640(f) may cause these engines to not be considered emergency engines and therefore subject to all the requirements for non-emergency engines.

b. 40 CFR Part 63, Subpart ZZZZ Requirements:

(1) Operation and Maintenance Requirements

	Operating Limitations (40 CFR §63.6603(a) and Table 2(d))
Compression ignition (diesel, fuel oil) units: Emergency Generator and Fire Pump	<ul style="list-style-type: none">- Change oil and filter every 500 hours of operation or annually, whichever comes first;- Inspect the air cleaner every 1000 hours of operation or annually, whichever comes first, and replace as necessary; and- Inspect all hoses and belts every 500 hours of operation or annually, whichever comes first, and replace as necessary.

The engines shall be operated and maintained according to the manufacturer's emission-related written instructions or Westbrook Energy Center shall develop a maintenance plan which must provide to the extent practicable for the maintenance and operation of the engines in a manner consistent with good air pollution control practice for minimizing emissions. [40 CFR §63.6625(e)]

(2) Optional Oil Analysis Program

Westbrook Energy Center has the option of utilizing an oil analysis program which complies with the requirements of §63.6625(i) in order to extend the specified oil change requirement. If this option is used, Westbrook Energy Center must keep records of the parameters that are analyzed as part of the program, the results of the analysis, and the oil

changes for the engine. The analysis program must be part of the maintenance plan for the engine. [40 CFR§63.6625(i)]

(3) Non-Resettable Hour Meter Requirement

Non-resettable hour meters shall be installed and operated on the Emergency Generator and the Fire Pump. [40 CFR §63.6625(f)]

(4) Startup Idle and Startup Time Minimization Requirements

During periods of startup the facility must minimize the engine's time spent at idle and minimize the engine's startup time to a period needed for appropriate and safe loading of the engine, not to exceed 30 minutes, after which time the non-startup emission limitations apply. [40 CFR §63.6625(h) & 40 CFR Part 63, Subpart ZZZZ Table 2d]

(5) Annual Time Limit For Maintenance and Testing

The Emergency Generator and Fire Pump shall each be limited to 100 hours/year for maintenance checks and readiness testing, emergency demand response, and periods of voltage or frequency deviation from standards. Up to 50 hours/year of the 100 hours/year may be used in non-emergency situations (this does not include peak shaving, non-emergency demand response, or to generate income for a facility by providing power to an electric grid or otherwise supply power as part of a financial arrangement with another entity unless the conditions in §63.6640(f)(4)(ii) are met). [40 CFR §63.6640(f)]

(6) Recordkeeping

Westbrook Energy Center shall keep records that include maintenance conducted on the Emergency Generator and the Fire Pump and the hours of operation of each engine recorded through the non-resettable hour meter. Documentation shall include the hours spent for emergency operation, including what classified the operation as emergency and how many hours spent for non-emergency.

4. Emission Limits and Streamlining

For the Emergency Generator and Fire Pump, a listing of potentially applicable emission standards, the origin and authority of the standards, notation if streamlining of the standards has been requested, and the applicable emission limits can be found below.

Emergency Generator			
Pollutant	Applicable Emission Standard(s)	Origin and Authority	Licensed Emission Limit(s)
PM	0.12 lb/MMBtu	06-096 CMR 103 §2(B)(1)(a) & A-743-71-A/N (12/4/1998), BACT	0.12 lb/MMBtu
	0.81 lb/hr	A-743-71-B-M (10/22/2000)	0.81 lb/hr
PM ₁₀	0.81 lb/hr	A-743-71-B-M (10/22/2000)	0.81 lb/hr
SO ₂	2% S fuel	06-096 CMR 106 §2(A)(2)	0.0015% sulfur by weight distillate fuel *
	0.05% S fuel	A-743-71-A-N (12/4/1998), BACT	
	0.0015% S fuel	06-096 CMR 140, BPT	
	0.01 lb/hr (based on 0.0015% S)	06-096 CMR 140, BPT	0.01 lb/hr
NO _x	25.6 lb/hr	A-743-71-B-M (10/22/2000)	25.6 lb/hr
CO	6.8 lb/hr	A-743-71-B-M (10/22/2000)	6.8 lb/hr
VOC	0.64 lb/hr	A-743-71-B-M (10/22/2000)	0.64 lb/hr
Visible Emissions	No greater than 20% opacity on a six (6) minute block average	A-743-70-A-I (8/12/2003), BPT	No greater than 20% opacity on a six (6) minute block average

Table Notes: * streamlining requested
 % S = percent fuel sulfur, by weight

Fire Pump			
Pollutant	Applicable Emission Standard(s)	Origin and Authority	Licensed Emission Limit(s)
PM	0.12 lb/MMBtu	06-096 CMR 103 §2(B)(1)(a) & A-743-71-A/N (12/4/1998), BACT	0.12 lb/MMBtu
	0.37 lb/hr	A-743-71-B-M (10/22/2000)	0.37 lb/hr
PM ₁₀	0.37 lb/hr	A-743-71-B-M (10/22/2000)	0.37 lb/hr
SO ₂	2% S fuel	06-096 CMR 106 §2(A)(2)	0.0015% sulfur by weight distillate fuel *
	0.05% S fuel	A-743-71-A-N (12/4/1998), BACT	
	0.0015% S fuel	06-096 CMR 140, BPT	
	0.005 lb/hr (based on 0.0015% S)	06-096 CMR 140, BPT	0.005 lb/hr
NO _x	13.9 lb/hr	A-743-71-B-M (10/22/2000)	13.9 lb/hr
CO	3.0 lb/hr	A-743-71-B-M (10/22/2000)	3.0 lb/hr
VOC	0.11 lb/hr	A-743-71-B-M (10/22/2000)	0.11 lb/hr

Fire Pump			
Pollutant	Applicable Emission Standard(s)	Origin and Authority	Licensed Emission Limit(s)
Visible Emissions	No greater than 20% opacity on a six (6) minute block average	A-743-70-A-I (8/12/2003), BPT	No greater than 20% opacity on a six (6) minute block average

Table Notes: * streamlining requested
 % S = percent fuel sulfur, by weight

5. Emission Limit Compliance Methods

Compliance with the emission limits associated with the Emergency Generator and the Fire Pump shall be demonstrated in accordance with the appropriate test methods upon request of the Department.

6. Periodic Monitoring

Periodic Monitoring for the Emergency Generator and Fire Pump shall include the following for each whenever the equipment is operating.

Parameter	Units of Measure	Monitoring Tool/Method	Frequency
Distillate fuel sulfur content	Percent, by weight	Fuel receipts from supplier	As fuel is purchased
Operating time	Hours	Hour Meter	Annually
Type of Operation (emergency, maintenance, etc.)	N/A	Logbook	As occurs

L. **Facility Annual Emissions**

1. Total Annual Emissions

Westbrook Energy Center is licensed for the following annual emissions, based on a 12 month rolling total. The tons per year limits were calculated based on license limitations on the combustion turbines (from licenses A-743-77-1-A and A-743-77-2-A), the auxiliary boiler fuel limit of 98 MMscf/year, the Emergency Generator non-emergency operational limit of 100 hours/year and the Fire Pump non-emergency operational limit of 100 hours/year.

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	NH ₃
Combustion Turbines #1 and #2 (total)	36***	26***	90	137	525	26	188
Auxiliary Boiler	0.49	0.49	0.05	1.72	7.41	0.98**	--
Emergency Generator*	0.04	0.04	negl	1.28	0.34	0.03	--
Emergency Fire Pump*	0.02	0.02	negl	0.70	0.15	0.01	--
Cooling Tower	12.3	12.3	--	--	--	--	--
Total TPY	48.9	38.9	90.1	140.7	532.9	27.0	188

- Notes: * The annual emissions from the Emergency Generator and Fire Pump were changed from being based on an operation of 275 hrs/yr and 200 hr/yr, respectively, to 100 hrs/yr each to align with the federal regulation; and the Emergency Generator and Fire Pump SO₂ annual emissions were changed due to the lower sulfur content of the fuel.
- ** Although the VOC annual limit from the Auxiliary Boiler was listed in A-743-77-1-A, the number was a typo and the correct limit is 0.98 tons/year, as listed in the Initial Part 70 License A-743-70-A-I.
- *** The PM and PM₁₀ limits annual limits are not the same number based on A-743-77-1-A in which calculations were based on keeping the amendment a minor modification. Actual emissions were increased by slightly less than 'significant emission increase' levels (i.e., actual emissions of PM and PM₁₀ were 12 tons/year and significance levels are 25 tons/year and 15 tons/year, respectively). PM was calculated using 12+24 = 36 and PM₁₀ was calculated using 12+14 = 26.

Westbrook Energy Center is an area source for hazardous air pollutants; therefore HAP emissions shall not exceed the following:

Pollutant	Tons/year
Single HAP	9.9
Total HAP	24.9

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).

The quantity of CO₂e emissions from this facility is greater than 100,000 tons per year, based on the following:

- the facility's fuel use limit(s);
- worst case emission factors from the following sources: U.S. EPA's AP-42, the Intergovernmental Panel on Climate Change (IPCC), and 40 CFR Part 98, *Mandatory Greenhouse Gas Reporting*; and
- global warming potentials contained in 40 CFR Part 98.

Currently the federal rules do not define "major for GHG", but 06-096 CMR 100 identifies any source emitting 100,000 tpy CO₂e or more as major for GHG. No additional licensing actions to address GHG emissions are required for the renewal at this time.

III. AMBIENT AIR QUALITY ANALYSIS

Westbrook Energy Center previously submitted an ambient air quality analysis demonstrating that emissions from the facility, in conjunction with all other sources, do not violate ambient air quality standards (A-743-71-A-N, issued on December 4, 1998). Through a letter dated September 9, 2005, updated ambient air quality analysis results were submitted taking into account operations at reduced loads. The initial ambient air quality analysis, performed pre-construction, included a lower load of 50% capacity and the updated ambient air quality analysis included various load scenarios down to approximately 37% capacity to reflect occasional real-world operational situations. The lower capacity ambient air quality analysis results showed insignificant Class I and II impacts. An ambient air quality analysis was performed for CO in amendment A-743-77-2-A, issued August 14, 2013.

An additional ambient air quality analysis is not required for this Part 70 License.

ORDER

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

- will receive Best Practical Treatment;
- will not violate applicable emissions standards; and

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

The Department hereby grants the Part 70 License A-743-70-D-R pursuant to 06-096 CMR 140 and the preconstruction permitting requirements of 06-096 CMR 115 and subject to the standard and specific conditions below.

All federally enforceable and State-only enforceable conditions in existing air licenses previously issued to Westbrook Energy Center pursuant to the Department's preconstruction permitting requirements in 06-096 CMR 108 or 115 have been incorporated into this Part 70 license, except for such conditions that the Department has determined are obsolete, extraneous or otherwise environmentally insignificant, as explained in the findings of fact accompanying this permit. As such, the conditions in this license supercede all previously issued air license conditions.

Federally enforceable conditions in this Part 70 license must be changed pursuant to the applicable requirements in 06-096 CMR 115 for making such changes and pursuant to the applicable requirements in 06-096 CMR 140.

For each standard and specific condition which is state enforceable only, state-only enforceability is designated with the following statement: **Enforceable by State-only.**

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.

STANDARD STATEMENTS

- (1) Approval to construct shall become invalid if the source has not commenced construction within eighteen (18) months after receipt of such approval or if construction is discontinued for a period of eighteen (18) months or more. The Department may extend this time period upon a satisfactory showing that an extension is justified, but may condition such extension upon a review of either the control technology analysis or the ambient air quality standards analysis, or both; [06-096 CMR 140]
- (2) The Part 70 license does not convey any property rights of any sort, or any exclusive privilege; [06-096 CMR 140]
- (3) All terms and conditions are enforceable by EPA and citizens under the CAA unless specifically designated as state enforceable. [06-096 CMR 140]

- (4) The licensee may not use as a defense in an enforcement action that the disruption, cessation, or reduction of licensed operations would have been necessary in order to maintain compliance with the conditions of the air emission license; [06-096 CMR 140]
- (5) Notwithstanding any other provision in the State Implementation Plan approved by the EPA or Section 114(a) of the CAA, any credible evidence may be used for the purpose of establishing whether a person has violated or is in violation of any statute, regulation, or Part 70 license requirement. [06-096 CMR 140]
- (6) Compliance with the conditions of this Part 70 license shall be deemed compliance with any Applicable requirement as of the date of license issuance and is deemed a permit shield, provided that:
- A. Such Applicable and state requirements are included and are specifically identified in the Part 70 license, except where the Part 70 license term or condition is specifically identified as not having a permit shield; or
 - B. The Department, in acting on the Part 70 license application or revision, determines in writing that other requirements specifically identified are not applicable to the source, and the Part 70 license includes the determination or a concise summary, thereof.

Nothing in this section or any Part 70 license shall alter or affect the provisions of Section 303 of the CAA (emergency orders), including the authority of EPA under Section 303; the liability of an owner or operator of a source for any violation of Applicable requirements prior to or at the time of permit issuance; or the ability of EPA to obtain information from a source pursuant to Section 114 of the CAA.

The following requirements have been specifically identified as not applicable based upon information submitted by the licensee for the Initial Part 70 License.

Source	Citation	Description	Basis for Determination
Facility	40 CFR Part 60, Subpart Db	Standards of Performance for Industrial-Commercial-Institutional Steam Generating Units	Westbrook Energy Center does not operate Boilers > 100 MMBtu/hr

[06-096 CMR 140]

- (7) The Part 70 license shall be reopened for cause by the Department or EPA, prior to the expiration of the Part 70 license, if:

- A. Additional Applicable requirements under the CAA become applicable to a Part 70 major source with a remaining Part 70 license term of 3 or more years. However, no opening is required if the effective date of the requirement is later than the date on which the Part 70 license is due to expire, unless the original Part 70 license or any of its terms and conditions has been extended pursuant to 06-096 CMR 140;
- B. Additional requirements (including excess emissions requirements) become applicable to a Title IV source under the acid rain program. Upon approval by EPA, excess emissions offset plans shall be deemed to be incorporated into the Part 70 license;
- C. The Department or EPA determines that the Part 70 license contains a material mistake or that inaccurate statements were made in establishing the emissions standards or other terms or conditions of the Part 70 license; or
- D. The Department or EPA determines that the Part 70 license must be revised or revoked to assure compliance with the Applicable requirements.

The licensee shall furnish to the Department within a reasonable time any information that the Department may request in writing to determine whether cause exists for modifying, revoking and reissuing, or terminating the Part 70 license or to determine compliance with the Part 70 license.

[06-096 CMR 140]

- (8) No license revision or amendment shall be required, under any approved economic incentives, marketable licenses, emissions trading and other similar programs or processes for changes that are provided for in the Part 70 license.
[06-096 CMR 140]

STANDARD CONDITIONS

- (1) Employees and authorized representatives of the Department shall be allowed access to the licensee's premises during business hours, or any time during which any emissions units are in operation, and at such other times as the Department deems necessary for the purpose of performing tests, collecting samples, conducting inspections, or examining and copying records relating to emissions and this license (38 M.R.S.A. §347-C).
- (2) The licensee shall acquire a new or amended air emission license prior to commencing construction of a modification, unless specifically provided for in Chapter 140. [06-096 CMR 140]

- (3) The licensee shall establish and maintain a continuing program of best management practices for suppression of fugitive particulate matter during any period of construction, reconstruction, or operation which may result in fugitive dust, and shall submit a description of the program to the Department upon request. [06-096 CMR 140]
Enforceable by State-only
- (4) The licensee shall pay the annual air emission license fee to the Department, calculated pursuant to 38 M.R.S.A. §353-A.
- (5) The licensee shall maintain and operate all emission units and air pollution control systems required by the air emission license in a manner consistent with good air pollution control practice for minimizing emissions. [06-096 CMR 140]
Enforceable by State-only
- (6) The licensee shall retain records of all required monitoring data and support information for a period of at least six (6) years from the date of the monitoring sample, measurement, report, or application. Support information includes all calibration and maintenance records and all original strip-chart recordings for continuous monitoring instrumentation, and copies of all reports required by the Part 70 license. The records shall be submitted to the Department upon written request or in accordance with other provisions of this license. [06-096 CMR 140]
- (7) The licensee shall comply with all terms and conditions of the air emission license. The submission of notice of intent to reopen for cause by the Department, the filing of an appeal by the licensee, the notification of planned changes or anticipated noncompliance by the licensee, or the filing of an application by the licensee for the renewal of a Part 70 license or amendment shall not stay any condition of the Part 70 license. [06-096 CMR 140]
- (8) In accordance with the Department's air emission compliance test protocol and 40 CFR Part 60 or other method approved or required by the Department, the licensee shall:
- A. perform stack testing under circumstances representative of the facility's normal process and operating conditions:
1. within sixty (60) calendar days of receipt of a notification to test from the Department or EPA, if visible emissions, equipment operating parameters, staff inspection, air monitoring or other cause indicate to the Department that equipment may be operating out of compliance with emission standards or license conditions;

2. to demonstrate compliance with the applicable emission standards; or
 3. pursuant to any other requirement of this license to perform stack testing.
- B. install or make provisions to install test ports that meet the criteria of 40 CFR Part 60, Appendix A, and test platforms, if necessary, and other accommodations necessary to allow emission testing; and
- C. submit a written report to the Department within thirty (30) days from date of test completion.
[06-096 CMR 140]
Enforceable by State-only
- (9) If the results of a stack test performed under circumstances representative of the facility's normal process and operating conditions indicates emissions in excess of the applicable standards, then:
- A. within thirty (30) days following receipt of such test results, the licensee shall re-test the non-complying emission source under circumstances representative of the facility's normal process and operating conditions and in accordance with the Department's air emission compliance test protocol and 40 CFR Part 60 or other method approved or required by the Department; and
 - B. the days of violation shall be presumed to include the date of stack test and each and every day of operation thereafter until compliance is demonstrated under normal and representative process and operating conditions, except to the extent that the facility can prove to the satisfaction of the Department that there were intervening days during which no violation occurred or that the violation was not continuing in nature; and
 - C. the licensee may, upon the approval of the Department following the successful demonstration of compliance at alternative load conditions, operate under such alternative load conditions on an interim basis prior to a demonstration of compliance under normal and representative process and operating conditions.
[06-096 CMR 140]
Enforceable by State-only
- (10) The licensee shall maintain records of all deviations from license requirements. Such deviations shall include, but are not limited to malfunctions, failures, downtime, and any other similar change in operation of air pollution control systems or the emission unit itself that is not consistent with the terms and conditions of the air emission license.

- A. The licensee shall notify the Commissioner within 48 hours of a violation of any emission standard and/or a malfunction or breakdown in any component part that causes a violation of any emission standard, and shall report the probable cause, corrective action, and any excess emissions in the units of the applicable emission limitation;
- B. The licensee shall submit a report to the Department on a quarterly basis if a malfunction or breakdown in any component part causes a violation of any emission standard, together with any exemption requests.

Pursuant to 38 M.R.S.A. § 349(9), the Commissioner may exempt from civil penalty an air emission in excess of license limitations if the emission occurs during start-up or shutdown or results exclusively from an unavoidable malfunction entirely beyond the control of the licensee and the licensee has taken all reasonable steps to minimize or prevent any emission and takes corrective action as soon as possible. There may be no exemption if the malfunction is caused, entirely or in part, by poor maintenance, careless operation, poor design or any other reasonably preventable condition or preventable equipment breakdown. The burden of proof is on the licensee seeking the exemption under this subsection.

- C. All other deviations shall be reported to the Department in the facility's semiannual report.

[06-096 CMR 140]

- (11) Upon the written request of the Department, the licensee shall establish and maintain such records, make such reports, install, use, and maintain such monitoring equipment, sample such emissions (in accordance with such methods, at such locations, at such intervals, and in such manner as the Department shall prescribe), and provide other information as the Department may reasonably require to determine the licensee's compliance status. [06-096 CMR 140]
- (12) The licensee shall submit semiannual reports of any required periodic monitoring. All instances of deviations from Part 70 license requirements must be clearly identified in such reports. All required reports must be certified by a responsible official. [06-096 CMR 140]
- (13) The licensee shall submit a compliance certification to the Department and EPA at least annually, or more frequently if specified in the applicable requirement or by the Department. The compliance certification shall include the following:
 - A. The identification of each term or condition of the Part 70 license that is the basis of the certification;
 - B. The compliance status;

- C. Whether compliance was continuous or intermittent;
- D. The method(s) used for determining the compliance status of the source, currently and over the reporting period; and
- E. Such other facts as the Department may require to determine the compliance status of the source.

[06-096 CMR 140]

SPECIFIC CONDITIONS

- (14) The following shall apply to the conditions in this order as appropriate, unless it is stated otherwise for such unit [A-743-71-A-N (12/4/1998) and A-743-70-A-I (8/12/2003)]:
 - A. A 24-hour block average basis shall be calculated as the arithmetic average of not more than 24 and not less than 8 one (1) hour block average periods. Only one 24-hour block average shall be calculated for one day, beginning at midnight. Any hour that has been impacted by a start-up or shut down shall not be included in the 24-hour block average. This refers to the NO_x, CO, and NH₃ ppm limits of Condition 15(D).
 - B. A 3-hour block average basis shall be calculated as the arithmetic average of not more than 3 one (1) hour block average periods. No more than eight 3-hour block averages shall be calculated for one day. One 3-hour block average shall be calculated for the period from midnight to 3:00 a.m., one from 3:00 a.m. to 6:00 a.m., one from 6:00 a.m. to 9:00 a.m., etc. Any hour that has been impacted by a start-up or shut down shall not be included in the 3-hour block average.
 - C. A 1-hour block average shall be calculated as the arithmetic average of the pound per hour values that are calculated every minute.
 - D. A 30-day rolling average basis shall be calculated as the arithmetic average of not more than 30 twenty-four (24) hour block averages, made up of data from 30 consecutive operating days.
 - E. A 6-minute block average basis shall be calculated as the arithmetic average of 24 consecutive fifteen-second block average periods. No more than 10 six-minute block averages shall be calculated for any one-hour period.

(15) **Combustion Turbines #1 and #2**

A. Allowable Fuels

1. Combustion Turbines #1 and #2 are licensed to fire only natural gas. The natural gas shall be pipeline quality (2 gr sulfur/100 scf gas). [06-096 CMR 140, BPT]
2. Westbrook Energy Center shall maintain records of the quantity of fuel consumed on a monthly and 12-month rolling total basis. [06-096 CMR 140, BPT]

B. The exhaust from each combustion turbine shall be vented through separate 165-foot above ground level stacks. [A-743-70-A-I (8/12/2003), BPT]

C. Control Equipment

1. Westbrook Energy Center shall operate selective catalytic reduction (SCR) systems on each combustion turbine to reduce NO_x emissions during all times the associated turbine is operating, except during startup and shutdown. [A-743-71-A-N (12/4/1998), BACT]
2. Westbrook Energy Center shall operate dry low-NO_x combustors on each combustion turbine to reduce NO_x emissions during all times the associated turbine is operating. [A-743-71-A-N (12/4/1998), BACT]

D. Combustion Turbines #1 and #2 Emission Limits

1. Emissions from Combustion Turbines #1 and #2 shall each not exceed the following concentration emission limits, except during turbine startup, shutdown, and runback events:

Combustion Turbines #1 and #2			
Pollutant	Emission Limit	Averaging Time	Origin and Authority
NO _x	2.5 ppmdv @ 15% O ₂	3-hr block avg	A-743-71-A-N (12/4/1998), LAER and A-743-77-1-A (11/3/2010), BACT
CO	15 ppmdv @ 15% O ₂	24-hr block avg	A-743-71-A-N (12/4/1998), A-743-77-1-A (11/3/2010), and A-743-77-2-A (8/14/2013), BACT
NH ₃	10 ppmdv @15% O ₂	30-day rolling avg	A-743-71-A-N (12/4/1998) and A-743-77-1-A (11/3/2010), BACT
	20 ppmdv @15% O ₂	24-hr block avg	A-743-71-A-N (12/4/1998) and A-743-77-1-A (11/3/2010), BACT

2. Emissions from Combustion Turbines #1 and #2 shall each not exceed the following mass emission limits:

Combustion Turbines #1 and #2			
Pollutant	lb/hr	Averaging Time	Origin and Authority
PM	22	-	A-743-71-A-N (12/4/1998) and A-743-77-1-A (11/3/2010), BACT
PM ₁₀	22	-	A-743-71-A-N (12/4/1998) and A-743-77-1-A (11/3/2010), BACT
SO ₂	12	-	A-743-71-A-N (12/4/1998) and A-743-77-1-A (11/3/2010), BACT
NO _x	18 <i>(steady state operations, excluding startup, shutdown, and runback events)</i>	1-hr block avg	A-743-71-A-N (12/4/1998), LAER and A-743-77-1-A (11/3/2010), BACT
	160 <i>(startup, shutdown, and runback events)</i>	24-hr block avg*	A-743-70-A-I (8/12/2003), BPT
CO	53 <i>(steady state operations, excluding startup, shutdown, and runback events)</i>	1-hr block avg	A-743-71-A-N (12/4/1998) and A-743-77-1-A (11/3/2010), and A-743-77-2-A (8/14/2013), BACT
	200 <i>(startup, shutdown, and runback events)</i>	24-hr block avg*	A-743-70-A-I (8/12/2003), BPT and A-743-77-2-A (8/14/2013) BACT
VOC	3	-	A-743-71-A-N (12/4/1998) and A-743-77-1-A (11/3/2010), BACT
NH ₃	27	-	A-743-77-1-A (11/3/2010), BACT

* For the purposes of calculating startup and shutdown lb/hr during startup and shutdown conditions, 24 hours shall be defined as the period between 12:00 am and 11:59 pm during which startup(s) and/or shutdown(s) have taken place.

- Visible emissions from each of the combustion turbines shall not exceed 20% opacity on a 6-minute block average basis, except for one 6-minute period per hour of not more than 27% opacity, including during startup and shutdown periods. [A-743-77-1-A (11/3/2010), BACT]

E. Compliance Methods

Compliance with the emission limits listed above shall be demonstrated in accordance with the following methods and frequencies, or other methods and frequencies as approved by the Department:

Combustion Turbines #1 and #2			
Pollutant	Units	Compliance Method	Frequency
PM	lb/hr	Stack Testing: 40 CFR Part 60, Appendix A, Method 5	As requested
PM ₁₀	lb/hr	Stack Testing: 40 CFR Part 60, Appendix A, Method 5 or EPA Test Method 201 or 201A	As requested
SO ₂	lb/hr	Fuel sulfur quality and fuel flow rate	As purchased and utilized
NO _x	ppmdv	NO _x CEMS	Continuously
	lb/hr	DAHS calculated	
CO	ppmdv	CO CEMS	Continuously
	lb/hr	DAHS calculated	
VOC	lb/hr	Stack Testing: 40 CFR Part 60, Appendix A, Methods 18 and 25A	As requested
NH ₃	ppmdv	NH ₃ CEMS	Continuously
	lb/hr	Stack Testing: 40 CFR Part 60, Appendix A	As requested
Visible Emissions	opacity	40 CFR Part 60, Appendix A, Method 9	As requested

Westbrook Energy Center shall conduct emission testing to demonstrate compliance with the applicable standard within 60 days after receipt of notice from the Department.

[A-743-71-A-N (12/4/1998) and A-743-70-A-I (8/12/2003)]

F. Combustion Turbine Startup/Shutdown/Runback

1. Turbine start-up shall be defined as that period of time from initiation of combustion turbine firing until the unit reaches steady state load operation. Steady state operation shall be reached when the combustion turbine reaches 60% base load and the steam turbine is declared available for load changes. Start-up shall be completed as soon as practicable, and shall not exceed 300 minutes. However, there are occasions when a turbine startup may be required to exceed 300 minutes based on OEM (original equipment manufacturer) recommendations. Specifically, instances when a turbine startup may exceed 300 minutes are typically following a major outage when turbine parts have been replaced. Due to the parts' metallurgical properties, slower initial load changes may be required or due to an extended tuning schedule based on OEM recommendations, additional time may be necessary to properly complete the startup. Upon prior approval by the Department, Westbrook Energy Center may complete a startup that exceeds 300 minutes. Westbrook Energy Center shall track and record all start-up times and durations. Records on start-ups

lasting longer than 240 minutes shall include an explanation of the circumstances that led to the longer start-up.

2. A turbine shutdown shall be defined as that period of time from steady state operation to cessation of combustion turbine firing. This period shall not exceed 60 minutes. Westbrook Energy Center shall track and record all shut down times and durations.

3. A turbine runback shall be defined as that period of time during which a turbine is returned to steady state operation after the initiation of an unplanned shutdown – i.e. occasionally a combustion turbine, without warning, automatically initiates a shutdown and drops out of Mode 6Q. Potential reasons for unplanned shutdowns include, but are not limited to, a drop in natural gas supply or sensor malfunction where there is no operational issue with the unit. During this time Westbrook Energy Center may determine that the unit is functioning properly and it can return to steady state operation without ceasing operation. Runbacks shall be completed as soon as practicable but in no case shall the period exceed 60 minutes. Westbrook Energy Center shall track and record all runback times and durations.

4. Westbrook Energy Center shall minimize emissions from the combustion turbines to the maximum extent practicable during start-up, shutdown, and rundown events, under maintenance or adjustment conditions, and during equipment cleaning conditions.

[A-743-70-A-I (8/12/2003) and 06-096 CMR 140, BPT]

G. Periodic Monitoring

Westbrook Energy Center shall monitor and record the following as specified for each combustion turbine [A-743-71-A-N (12/4/1998), A-743-70-A-I (8/12/2003), and 06-096 CMR 140, BPT]:

Combustion Turbines #1 and #2			
Parameter	Units of Measure	Monitoring Tool/Method	Frequency
Total natural gas use	MMBtu	Fuel supplier records	Monthly and 12-month rolling total
Operating time, including specifics on startup and shutdown durations	Hours	Recordkeeping	Daily, monthly, annually

Combustion Turbines #1 and #2			
Parameter	Units of Measure	Monitoring Tool/Method	Frequency
Air pollution control system malfunctions	N/A	Recordkeeping	As malfunctions occur

H. Parameter Monitoring

1. Westbrook Energy Center shall monitor and record the following as specified for each combustion turbine [A-743-71-A-N (12/4/1998), A-743-70-A-I (8/12/2003), and 06-096 CMR 140, BPT]:

Combustion Turbines #1 and #2			
Parameter	Units of Measure	Monitoring Tool/Method	Frequency
Natural gas flow rate for each unit	scf input/hr	Fuel flowmeter	Continuously <i>(with recordings of flow rate on a one-hour block average basis)</i>

2. The parameter monitor required by this license shall be installed, operated, maintained, and calibrated in accordance with manufacturer recommendations or as otherwise required by the Department. [06-096 CMR 140, BPT]
3. The parameter monitor required by this license shall continuously monitor data at all times the associated emissions unit is in operation. "Continuously" with respect to the operation of parameter monitors required by this license means providing equally spaced data points with at least one valid data point in each successive 15-minute period. A minimum of three valid 15-minute periods constitute a valid hour. [06-096 CMR 140, BPT]
4. The parameter monitor must record accurate and reliable data. If the parameter monitor is recording accurate and reliable data less than 98% of the associated emissions unit operating time within any quarter of the calendar year, the Department may initiate enforcement action and may include in that enforcement action any period of time that the parameter monitor was not recording accurate and reliable data during that quarter unless the licensee can demonstrate to the satisfaction of the Department that the failure of the system to record accurate and reliable data was due to the performance of established quality assurance and quality control

procedures or unavoidable malfunctions. [A-743-70-A-I (8/12/2003) and 06-096 CMR 140, BPT]]

Enforceable by State-only

I. Continuous Emissions Monitoring Systems (CEMS)

1. Westbrook Energy Center shall operate and maintain the following CEMS for each combustion turbine:

Combustion Turbines #1 and #2		
Pollutant and Continuous Monitor	Unit of Measurement	Origin and Authority
NO _x CEMS	ppmvd	06-096 CMR 117; 40 CFR Part 60, Subpart KKKK, and 40 CFR Part 75
	lb/hr (calculated)	
CO CEMS	ppmvd	06-096 CMR 117
	lb/hr (calculated)	
O ₂ CEMS	%	06-096 CMR 117; 40 CFR Part 60, Subpart KKKK, and 40 CFR Part 75
NH ₃ CEMS	ppmvd	06-096 CMR 117

The most comprehensive CEM requirements should be used for CEM operations when more than one regulation is applicable. [A-743-71-A-N (12/4/1998), A-743-70-A-I (8/12/2003), and 06-096 CMR 140, BPT]

2. The licensee shall maintain records documenting that all CEMS are continuously accurate, reliable and operated in accordance with 06-096 CMR 117, 40 CFR Part 51, Appendix P, 40 CFR Part 60.13, 40 CFR Part 60, Appendices B and F, all applicable portions of 40 CFR parts 72 and 75, and 40 CFR Part 52.1020(c)(24). [A-743-70-A-I (8/12/2003)]
3. The licensee shall maintain records of all measurements, performance evaluations, calibration checks, and maintenance or adjustments for each CEMS as required by 40 CFR Part 51 Appendix P. [A-743-70-A-I (8/12/2003)]
4. The licensee shall maintain records of other data indicative of compliance with the applicable emission standards for those periods when the CEMS were not in operation or produced invalid data. In the event the Department does not concur with the licensee's compliance determination, the licensee shall, upon the Department's request, provide additional data, and shall have the burden of demonstrating that the data is indicative of

compliance with the applicable standard.[06-096 CMR 140] **Enforceable by State-only**

J. Annual Combustion Turbine Limits

1. In order to demonstrate that the modification to the Combustion Turbines #1 and #2 addressed in A-743-77-1-A remains a minor modification for PM, PM₁₀, SO₂, and NO_x, actual emissions from the combustion turbines combined shall not exceed the following annual emission rates which are based on past “actual emissions” plus slightly less than “significant emission increase” levels:

Emission Units	PM (TPY)	PM₁₀ (TPY)	SO₂ (TPY)	NO_x (TPY)
Combustion Turbines #1 and #2 total	36	26	90	137

Compliance with the PM, PM₁₀, SO₂, and NO_x annual emission limits shall be determined on a 12-month rolling total basis for a period of ten years following commencing operation of the modification. The ten year period began on December 1, 2012 and ends on November 30, 2022.

2. CO and VOC shall not exceed the following annual licensed allowed emission rates, on a 12 month rolling total basis:

Emission Units	CO (TPY)	VOC (TPY)
Combustion Turbines #1 and #2 total	525	26

3. Calculations of annual emissions from the combustion turbines shall be based on the best information available, including, but not limited to continuous emission monitoring system data, stack test data, and mass balance methods as appropriate.

[A-743-77-1-A (Nov. 3, 2010) and A-743-77-2-A (August 14, 2013)]

K. Federal Regulations

Westbrook Energy Center shall comply with the applicable requirements in 40 CFR Part 60, Subparts A and KKKK, *Standards of Performance for Stationary Combustion Turbines* for Combustion Turbines #1 and #2. [40 CFR Part 60, Subparts A and KKKK]

(16) **Auxiliary Boiler**

A. Allowable Fuels

1. The Auxiliary Boiler is licensed to fire natural gas. [06-096 CMR 140, BPT]
2. Fuel use in the Auxiliary Boiler shall not exceed 98 MMBscf/yr based on a 12 month rolling total. [A-743-71-C-M (10/19/2001)]
3. Westbrook Energy Center shall maintain records of the quantity of fuel consumed on a monthly and 12-month rolling total basis. [06-096 CMR 140, BPT and 40 CFR §60.48c(g)(2)]

B. Auxiliary Boiler Emission Limits

1. Emissions from the Auxiliary Boiler shall not exceed the following limits:

Pollutant	lb/MMBtu	Origin and Authority
PM	0.01	A-743-71-C-M (10/19/2001)
NO _x	0.035	A-743-71-A-N (12/4/1998), BACT

Pollutant	lb/hr	Origin and Authority
PM	0.29 lb/hr	A-743-71-B-M (10/22/2000)
PM ₁₀	0.29 lb/hr	A-743-71-B-M (10/22/2000)
SO ₂	0.03 lb/hr	A-743-71-B-M (10/22/2000)
NO _x	1.02 lb/hr	A-743-71-B-M (10/22/2000)
CO	4.40 lb/hr	A-743-71-B-M (10/22/2000)
VOC	0.58 lb/hr	A-743-71-B-M (10/22/2000)

2. Visible emissions from the Auxiliary Boiler shall not exceed 10% opacity on a six (6) minute block average basis, except for no more than one (1) six (6) minute block average in a 3-hr period. Compliance with the visible emission limitation shall be demonstrated in accordance with 40 CFR Part 60, Appendix A, Method 9, when requested by the Department. [06-096 CMR 101 (2)(B)(c)]

C. Compliance Methods

Compliance with the emission limits associated with the Auxiliary Boiler shall be demonstrated in accordance with the appropriate test methods and frequencies upon request of the Department. The licensee shall conduct emission stack testing, and demonstrate compliance with the applicable standard within 60 days after receipt of notice from the Department. [06-096 CMR 140 and A-743-70-A-I (8/12/2003), BPT]

D. Periodic Monitoring

Westbrook Energy Center shall monitor and record the following whenever the Auxiliary Boiler is operating. [06-096 CMR 140, BPT and A-743-71-C-M (10/19/2001), BACT]

Parameter	Unit of Measure	Monitoring Tool/Method	Frequency
Natural gas use	scf	Fuel flow meter	Monthly & 12-Month Rolling Total

E. Federal Regulation

Westbrook Energy Center shall comply with the applicable requirements in 40 CFR Part 60, Subpart Dc, *Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units* for the Auxiliary Boiler. [40 CFR Part 60, Subpart Dc]

(17) **Cooling Tower**

- A. Westbrook Energy Center shall use drift eliminators in the Cooling Tower to reduce drift and resulting PM and PM₁₀ emissions. [06-096 CMR 140, BPT]
- B. Westbrook Energy Center shall maintain proper operation and maintenance of the Cooling Tower, including the drift eliminators. [06-096 Chapter 140, BPT]
- C. Westbrook Energy Center shall maintain documentation of inspection dates, times and reasons for inspections, and maintenance conducted on the Cooling Tower. [06-096 Chapter 140, BPT]

(18) **Emergency Generator and Fire Pump**

- A. Allowable Operation and Fuels
 - 1. The Emergency Generator and Fire Pump are licensed to fire distillate fuel. [06-096 CMR 140, BPT]
 - 2. The units are each limited to 100 hours per year total operation for non-emergency purposes, based on a calendar year. [06-096 CMR 140, BPT]
- B. Fuel Sulfur Content
 - 1. The distillate fuel sulfur content for the Emergency Generator and Fire Pump shall be limited to 0.0015% sulfur. Westbrook Energy Center may fire any 0.05% sulfur distillate fuel currently on-site, but future distillate

fuel purchases shall contain a maximum 0.0015% sulfur content by weight. [06-096 CMR 140, BPT]

2. Fuel sulfur content compliance shall be demonstrated by fuel delivery receipts from the supplier documenting the type of fuel delivered and the sulfur content of the fuel. [06-096 CMR 140, BPT]

C. Emergency Generator and Fire Pump Emission Limits

1. Emissions from the Emergency Generator shall not exceed the following limits:

Emergency Generator		
Pollutant	lb/MMBtu	Origin and Authority
PM	0.12	06-096 CMR 103 §2(B)(1)(a) & A-743-71-A/N (12/4/1998), BACT

Emergency Generator		
Pollutant	lb/hr	Origin and Authority
PM	0.81	A-743-71-B-M (10/22/2000)
PM ₁₀	0.81	A-743-71-B-M (10/22/2000)
SO ₂	0.01	06-096 CMR 140, BPT
NO _x	25.6	A-743-71-B-M (10/22/2000)
CO	6.8	A-743-71-B-M (10/22/2000)
VOC	0.64	A-743-71-B-M (10/22/2000)

2. Emissions from the Fire Pump shall not exceed the following limits:

Fire Pump		
Pollutant	lb/MMBtu	Origin and Authority
PM	0.12	06-096 CMR 103 §2(B)(1)(a) & A-743-71-A/N (12/4/1998), BACT

Fire Pump		
Pollutant	lb/hr	Origin and Authority
PM	0.37	A-743-71-B-M (10/22/2000)
PM ₁₀	0.37	A-743-71-B-M (10/22/2000)
SO ₂	0.005	06-096 CMR 140, BPT
NO _x	13.9	A-743-71-B-M (10/22/2000)
CO	3.0	A-743-71-B-M (10/22/2000)
VOC	0.11	A-743-71-B-M (10/22/2000)

3. Visible Emissions from the Emergency Generator and Fire Pump

Visible emissions from the Emergency Generator and Fire Pump shall each not exceed 20% opacity on a six (6) minute block average basis. [A-743-70-A-I (8/12/2003), BPT]

D. Compliance Methods

1. Compliance with the emission limits associated with the Emergency Generator and Fire Pump shall be demonstrated in accordance with the appropriate test methods upon request of the Department. [09-096 CMR 140]
2. Compliance with the visible emission limits associated with the Emergency Generator and Fire Pump shall be demonstrated in accordance with 40 CFR Part 60, Appendix A, Method 9 upon request of the Department. [09-096 CMR 140]

E. Periodic Monitoring

Westbrook Energy Center shall monitor and record parameters for the Emergency Generator and Fire Pump as indicated in the following table whenever the equipment is operating. [06-096 CMR 140, BPT]

Parameter	Units of Measure	Monitoring Tool/Method	Frequency
Distillate fuel sulfur content	Percent, by weight	Fuel receipts from supplier	As fuel is purchased
Operating time	Hours	Hour Meter	Annually
Type of Operation (emergency, maintenance, etc.)	N/A	Logbook	As occurs

F. Federal Regulation

The Emergency Generator and Fire Pump shall meet the applicable requirements of 40 CFR Part 63, Subpart ZZZZ, including the following:

1. Westbrook Energy Center shall meet the following operational limitations for each of the compression ignition emergency engines (Emergency Generator and Fire Pump):
 - a. Change the oil and filter every 500 hours or annually, whichever comes first,

- b. Inspect the air cleaner every 1000 hours or annually, whichever comes first, and replace as necessary, and
- c. Inspect the hoses and belts every 500 hours or annually, whichever comes first, and replace as necessary.

A log shall be maintained documenting compliance with the operational limitations.

[40 CFR §63.6603(a) and Table 2(d); and 06-096 CMR 140, BPT]

- 2. Oil Analysis Program Option
Westbrook Energy Center has the option of utilizing an oil analysis program which complies with the requirements of §63.6625(i) in order to extend the specified oil change requirement. If this option is used, Westbrook Energy Center must keep records of the parameters that are analyzed as part of the program, the results of the analysis, and the oil changes for the engine. The analysis program must be part of the maintenance plan for the engine. [40 CFR §63.6625(i)]
- 3. Non-Resettable Hour Meter
A non-resettable hour meter shall be installed and operated on each engine. [40 CFR §63.6625(f)]
- 4. Maintenance, Testing, and Non-Emergency Operating Situations
 - a. The engines shall each be limited to 100 hours/year for maintenance checks and readiness testing, emergency demand response, and periods of voltage or frequency deviation from standards. Up to 50 hours/year of the 100 hours/year may be used in non-emergency situations (this does not include peak shaving, non-emergency demand response, or to generate income for a facility by providing power to an electric grid or otherwise supply power as part of a financial arrangement with another entity unless the conditions in §63.6640(f)(4)(ii) are met). These limits are based on a calendar year. Compliance shall be demonstrated by a written log of all generator operating hours. [40 CFR §63.6640(f) and 06-096 CMR 140, BPT]
 - b. Westbrook Energy Center shall keep records that include maintenance conducted on the engines and the hours of operation of each engine recorded through the non-resettable hour meter. Documentation shall include the hours spent for emergency operation, including what classified the operation as emergency and how many hours spent for non-emergency. If the engines are operated during a period of demand response or deviation from standard voltage or frequency, or supplying power during a non-emergency situation as part of a financial

arrangement with another entity as specified in §63.6640(f)(4)(ii), Westbrook Energy Center must keep records of the notification of the emergency situation, and the date, start time, and end time of engine operation for these purposes. [40 CFR §63.6655(e) and (f)]

5. Operation and Maintenance

The engines shall be operated and maintained according to the manufacturer's emission-related written instructions, or Westbrook Energy Center shall develop a maintenance plan which must provide to the extent practicable for the maintenance and operation of the engine in a manner consistent with good air pollution control practice for minimizing emissions. [40 CFR §63.6625(e)]

6. Startup Idle and Startup Time Minimization

During periods of startup the facility must minimize the engine's time spent at idle and minimize the engine's startup time to a period needed for appropriate and safe loading of the engine, not to exceed 30 minutes, after which time the non-startup emission limitations apply. [40 CFR §63.6625(h) & 40 CFR Part 63, Subpart ZZZZ Table 2d]

(19) **Fugitive Emissions**

Visible emissions from a fugitive emission source (including stockpiles and roadways) shall not exceed an opacity of 20 percent, except for no more than five (5) minutes in any 1-hour period. Compliance shall be determined by an aggregate of the individual fifteen (15)-second opacity observations which exceed 20 percent in any one (1) hour. [06-096 CMR 101]

(20) **Quarterly Reporting**

The licensee shall submit a Quarterly Report to the Bureau of Air Quality within 30 days after the end of each calendar quarter, detailing the following, for the control equipment, parameter monitors, and Continuous Emission Monitoring Systems (CEMS) required by this license. [06-096 CMR 117]

- A. All control equipment downtimes and malfunctions;
- B. All CEMS downtimes and malfunctions;
- C. All parameter monitor downtimes and malfunctions;
- D. All excess events of emission and operational limitations set by this Order, Statute, state or federal regulations, as appropriate. The following information shall be reported for each excess event;
 1. Standard exceeded;
 2. Date, time, and duration of excess event;
 3. Amount of air contaminant emitted in excess of the applicable emission standard expressed in the units of the standard;

4. A description of what caused the excess event;
 5. The strategy employed to minimize the excess event; and
 6. The strategy employed to prevent reoccurrence.
- E. A report certifying there were no excess emissions, if that is the case.

(21) **Semiannual Reporting** [06-096 CMR 140]

- A. The licensee shall submit to the Bureau of Air Quality semiannual reports which are due on **January 31st** and **July 31st** of each year. The facility's designated responsible official must sign this report.
- B. The semiannual report shall be considered on-time if the postmark of the submittal is on or before the due date or if the report is received by the DEP within seven calendar days of the due date.
- C. Each semiannual report shall include a summary of the periodic monitoring required by this license.
- D. All instances of deviations from license requirements and the corrective action taken must be clearly identified and provided to the Department in summary form for each six-month interval.

(22) **Annual Compliance Certification**

Westbrook Energy Center shall submit an annual compliance certification to the Department in accordance with Standard Condition (13) of this license. The annual compliance certification is due January 31 of each year. The facility's designated responsible official must sign this report.

The annual compliance certification shall be considered on-time if the postmark of the submittal is on or before the due date or if the report is received by the Department within seven calendar days of the due date. Certification of compliance is to be based on the stack testing or monitoring data required by this license. Where the license does not require such data, or the license requires such data upon request of the Department and the Department has not requested the testing or monitoring, compliance may be certified based upon other reasonably available information such as the design of the equipment or applicable emission factors. [06-096 CMR 140]

(23) **Annual Emission Statement**

In accordance with *Emission Statements*, 06-096 CMR 137 (as amended), the licensee shall annually report to the Department, in a format prescribed by the Department, the information necessary to accurately update the State's emission inventory. The emission statement shall be submitted as specified by the date in 06-096 CMR 137.

(24) **General Applicable State Regulations**

The licensee is subject to the State regulations listed below.

<u>Origin and Authority</u>	<u>Requirement Summary</u>	<u>Enforceability</u>
06-096 CMR 102	Open Burning	-
06-096 CMR 109	Emergency Episode Regulation	-
06-096 CMR 110	Ambient Air Quality Standard	-
06-096 CMR 116	Prohibited Dispersion Techniques	-
38 M.R.S.A. §585-B, §§5	Mercury Emission Limit	Enforceable by State-only

(25) **Units Containing Ozone Depleting Substances**

When repairing or disposing of units containing ozone depleting substances, the licensee shall comply with the standards for recycling and emission reduction pursuant to 40 CFR Part 82, Subpart F, except as provided for motor vehicle air conditioning units in Subpart B. Examples of such units include refrigerators and any size air conditioners that contain CFCs. [40 CFR, Part 82, Subpart F]

(26) **Asbestos Abatement**

When undertaking Asbestos abatement activities, Westbrook Energy Center shall comply with the Standard for Asbestos Demolition and Renovation 40 CFR Part 61, Subpart M. [40 CFR, Part 61, Subpart M]

(27) **Acid Rain**

Westbrook Energy Center shall continue to comply with the federal Acid Rain Program, 40 CFR Part 70, *State Operating Permits Program*, and Part 72, *Permits Regulation*, in accordance with the Phase II acid rain permit, A-743-70-A-S, issued on October 10, 2001.

(28) **CO₂ Budget Source**

Westbrook Energy Center shall continue to comply with the requirements of license A-743-78-A-N, issued January 15, 2009, per Maine's *CO₂ Budget Trading Program*, 06-096 CMR 156 for Combustion Turbines #1 and #2. [06-096 CMR 156] **Enforceable by State-only**

(29) **Risk Management Plan**

The licensee is subject to all applicable requirements of 40 CFR Part 68 (Risk Management Plan), including requirements for the storage of aqueous ammonia and anhydrous ammonia.

(30) **Expiration of a Part 70 license**

- A. Westbrook Energy Center shall submit a complete Part 70 renewal application at least 6 months prior, but no more than 18 months prior, to the expiration of this air license.
- B. Pursuant to Title 5 MRSA §10002, and 06-096 CMR 140, the Part 70 license shall not expire and all terms and conditions shall remain in effect until the Department takes final action on the renewal application of the Part 70 license. An existing source submitting a complete renewal application under 06-096 CMR 140 prior to the expiration of the Part 70 license will not be in violation of operating without a Part 70 license. **Enforceable by State-only**

(31) **New Source Review**

Westbrook Energy Center is subject to all previous New Source Review (NSR) requirements summarized in this Part 70 air emissions license and the NSR requirements remain in effect even if this 06-096 CMR 140 Air Emissions License, A-743-70-D-R, expires.

DONE AND DATED IN AUGUSTA, MAINE THIS 9 DAY OF June, 2015.

DEPARTMENT OF ENVIRONMENTAL PROTECTION

BY:


PATRICIA W. AHO, COMMISSIONER

The term of this license shall be five (5) years from the signature date above.

[Note: If a complete renewal application as determined by the Department, is submitted at least 6 months prior to expiration but no earlier than 18 months, then pursuant to Title 5 MRSA §10002, all terms and conditions of the Part 70 license shall remain in effect until the Department takes final action on the renewal of the Part 70 license.]

PLEASE NOTE ATTACHED SHEET FOR GUIDANCE ON APPEAL PROCEDURES

Date of initial receipt of application: August 13, 2007

Date of application acceptance: August 15, 2007

Date filed with the Board of Environmental Protection:

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

