Commonwealth of Massachusetts
Executive Office of Energy & Environmental Affairs

Department of Environmental Protection
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September 30, 2020

Mr. Brian A. Quinn
Massachusetts Municipal Wholesale
Electric Company
327 Moody Street
Ludlow, MA 01056

RE: **PEABODY**
Transmittal No.: X273353
Approval No.: NE-17-001
Class: OP2
FMF No. 609784
FINAL AIR QUALITY PLAN APPROVAL

Dear Mr. Quinn:

The Massachusetts Department of Environmental Protection (MassDEP), Bureau of Air and Waste, has reviewed your Non-Major Comprehensive Plan Application (Application) listed above, received on January 20, 2017. The Application was supplemented with amendments thereto dated November 14, 2017, June 8, 2018, February 21, 2019, August 29, 2019, February 7, 2020, February 25, 2020, April 24, 2020, May 19, 2020, and June 2, 2020. This Application concerns the proposed construction and operation of a new 60 megawatt (MW) nominal simple cycle electric generating facility (proposed Facility or Project) at 58 R Pulaski Street in Peabody, Massachusetts, adjacent to the location of an existing 68 MW power generating facility (Peabody Municipal Light Plant - Waters River Station). The Application bears the seal and signature of George S. Lipka, P.E., Massachusetts Registered Professional Engineer number 29704.

This Application was submitted in accordance with 310 CMR 7.02 Plan Approval and Emission Limitations as contained in 310 CMR 7.00 “Air Pollution Control” regulations adopted by MassDEP pursuant to the authority granted by Massachusetts General Laws, Chapter 111, Section 142 A-O, Chapter 21C, Section 4 and 6, and Chapter 21E, Section 6. MassDEP’s review of your Application has been limited to air pollution control regulation compliance and does not relieve you of the obligation to comply with any other regulatory requirements.

MassDEP has determined that the Application is administratively and technically complete and that the Application is in conformance with the Air Pollution Control regulations and current air pollution control engineering practice, and hereby grants this **Plan Approval** for said Application, as submitted, subject to the conditions listed below.

Please review the entire Plan Approval, as it stipulates the conditions with which the Facility owner/operator (Permittee) must comply in order for the Facility to be operated in compliance with this Plan Approval.

On August 20, 2020, public notice was published on the MassDEP website for public review and comment on the proposed Non-Major Comprehensive Plan Approval (Transmittal No. X273353) for your proposed Facility located at 58 R Pulaski Street in Peabody, Massachusetts. The public comment period ended September 21, 2020.

No comments were received.

1. DESCRIPTION OF FACILITY AND APPLICATION

A. SITE DESCRIPTION

Peabody Municipal Light Plant (PMLP) operates the existing equipment at Waters River Station, which consists of two simple cycle electric generating units totaling 68 MW, two exhaust emission stacks, three aboveground fuel oil storage tanks (110,000 gallon capacity each), and a 115 kilovolt (KV) substation whose interface with the transmission system is controlled by REMVEC, a satellite of the Independent System Operator-New England (ISO-NE). In 1971, a 20 MW Pratt & Whitney FT4A-9 oil fired combustion turbine (PMLP-1) was installed, exhausting through a 31-foot-tall rectangular stack. In 1989, PMLP-1 was converted to a dual fuel unit which allows PMLP to select either oil or natural gas to burn at any given time. A General Electric LM5000 dual fuel combustion turbine (PMLP-2) was installed in 1991 with a power output of 48 MW. PMLP-2 exhausts into a 60.4-foot-tall rectangular stack and is equipped with water injection for Oxides of Nitrogen (NO_x) emissions control and an oxidation catalyst for Carbon Monoxide (CO) emissions control. PMLP-1 and PMLP-2 are designated as Emission Unit 1 (EU1) and Emission Unit 2 (EU2) in PMLP's Air Quality Final Operating Permit Renewal (Approval No. MBR-95-OPP-005R, Transmittal No. X238345).

Massachusetts Municipal Wholesale Electric Company (MMWEC or the Permittee) proposes to construct the Project on an approximately 0.6-acre portion in the northeast portion of the 4.0-acre Waters River Station site (Property) adjacent to where PMLP-1 and PMLP-2 are currently located. The Property is bordered by an abandoned railroad spur to the south; a New England Power (National Grid) transmission right-of-way (ROW) and the Waters River to the north; a trailer storage yard to the east; and an abandoned Boston & Maine ROW to the west. The Property is owned by the City of Peabody. A determination of whether PMLP and MMWEC should be considered as a single source for air regulatory purposes follows.

In accordance with the United States Environmental Protection Agency (EPA) definition of "stationary source", there are three factors which must all be satisfied for two entities to be considered part of the same source for air regulatory purposes. These factors are if the two

entities are (1) part of the same industrial grouping (based on the 2-digit Standard Industrial Classification or SIC code), (2) located on contiguous properties, and (3) under common control. The Project and PMLP meet the first two criteria since they have the same two digit SIC Code and are located on the same Property. However, the Project and PMLP are not under common control as defined in EPA's April 30, 2018 policy guidance. Current EPA policy simplifies the determination of common control to focus on *the power of authority of one entity to dictate decisions of the other that could affect applicability of or compliance with relevant air pollution control regulatory requirements*.

The Project is completely controlled by MMWEC, which is a non-profit, body politic and corporate and political subdivision of the Commonwealth of Massachusetts created by Special Act of the Massachusetts Legislature (St. 1975, c.775, as amended), and constituted as a public instrumentality. Among other things, MMWEC is empowered to own, operate and issue tax-exempt revenue bonds to finance energy facilities. The Project will be owned, operated, financed and controlled by MMWEC. For these purposes, MMWEC is governed by a nine-member Board of Directors, seven of whom are elected by the MMWEC members and two of whom are appointed by the Governor of the Commonwealth. PMLP is a Massachusetts municipal lighting plant operating pursuant to G.L. c. 164 §§ 34-69. It is governed by a five-member Board of Light Commissioners elected by the citizens of the City of Peabody. The City of Peabody owns, but PMLP controls and operates the existing generating assets at Waters River Station. While both MMWEC and PMLP are public entities, neither MMWEC nor PMLP (or the City of Peabody) has a statutory power or authority to dictate decisions regarding the other entity. Likewise, neither MMWEC, nor PMLP have the power to direct the actions of the other to the extent of affecting applicability and compliance with permitting requirements.

MMWEC will place the Project on the parcel of land owned by the City of Peabody (not PMLP) under a License and Use Agreement and will have "arms-length" agreements for shared facilities and maintenance support with PMLP and interconnection with the PMLP substation. The Project will share (and pay PMLP for the use of) some ancillary facilities at the site with PMLP (e.g. oil unloading facility), and MMWEC plans to contract certain routine maintenance activities to PMLP, which will be performed under the supervision of MMWEC. However, all operation, all other maintenance, and all dispatch of the Project will be performed by and under the control of MMWEC.

Of specific concern is a determination that would hold otherwise separate business entities responsible for each other's actions, even if they do not have the power or authority to dictate such actions. If PMLP and MMWEC were determined to be a single source for air regulatory purposes, then the Project would be a modification to an existing major source (PMLP) of air emissions, a single Operating Permit would be required under 310 CMR 7.00: Appendix C, and a responsible official would need to take responsibility for compliance activities over which they have no control. Based on the foregoing analysis, the Project is properly categorized as a separate, independent new source from the existing Waters River Station PMLP facility.

The Permittee proposes to construct and operate a new, fast starting, dual fuel fired simple cycle electric generating facility (MMWEC-1) with a maximum heat input rate, based on higher heating value (HHV), of 646 million British thermal units per hour (MMBtu/hr) while firing natural gas and 606 MMBtu/hr while firing ultra-low sulfur distillate (ULSD) fuel oil with a maximum sulfur content of 15 parts per million by weight (0.0015 percent by weight). The Project will include a single Pratt & Whitney FT4000 highly efficient aero-derivative combustion turbine generator (CTG), or comparable unit, with an approximate nominal capacity of 60 MW. MMWEC-1 will operate as a fast start reserve unit that will only be dispatched during peaking periods or system emergencies. MMWEC-1 will be limited to 1,250 hours of full load operation per twelve month rolling period at maximum firing rate, of which a maximum of 250 hours per twelve month rolling period will be on ULSD. The Permittee intends to startup and operate MMWEC-1 using natural gas, unless natural gas is unavailable, in which case ULSD will be used. Maximum projected emissions from the Project reflect a conservative scenario of 200 startup/shutdown cycles on natural gas and 50 startup/shutdown cycles on ULSD.

The CTG is composed of three major sections: the compressor, the combustor, and the power turbine. In the compressor section, ambient air is drawn through an inlet air filtering system. Under certain meteorological and unit load conditions, an inlet air fogging and/or wet compression system may be used to increase power output by cooling the inlet air and increasing the mass flow through the turbine. Inlet air fogging and/or wet compression are intended for use at ambient temperatures of 59 Degrees Fahrenheit and above. The inlet air is then compressed and directed to the combustor section. In the combustor section, natural gas or ULSD is mixed with the inlet air and combusted. For both natural gas and ULSD firing, demineralized water will be injected into the combustor to minimize peak flame temperature and reduce NO_x formation. Hot exhaust gases from combustion are diluted with additional air from the compressor section and directed to the power turbine section at high temperature and pressure. In the power turbine section, the hot exhaust gases expand and rotate the turbine blades, which are coupled to a shaft. The rotating shaft drives the compressor and the generator, which generates electricity. After passing through the combustion turbine, the hot exhaust gases will be sent through an oxidation catalyst and Selective Catalytic Reduction (SCR) to control NO_x, CO, and Volatile Organic Compound (VOC) emissions. The hot exhaust gases will be routed to a new emissions stack constructed of steel with dimensions of approximately 90 feet tall and 14 feet in diameter.

Natural gas will be provided to MMWEC-1 via a natural gas connection available on the Waters River Station site. An electric powered natural gas compressor will be installed to increase natural gas pressure. MMWEC-1 will interconnect with the regional high voltage transmission system by connecting into the existing PMLP owned substation located on the northwestern corner of the Property. One (of three) existing 110,000-gallon PMLP fuel oil storage tanks, Tank No. 25, will be decommissioned and removed to make room for one new 200,000-gallon ULSD storage tank which will be utilized jointly by both the Project and PMLP. The two remaining existing 110,000-gallon PMLP fuel oil storage tanks will remain in service for use by PMLP. The Project will use either 19 percent (%) aqueous ammonia or 40% aqueous urea for the SCR reagent. If the Project uses aqueous ammonia, a new 7,050-gallon tank will be installed to hold the aqueous ammonia. If the Project uses aqueous urea, a new 2,500-gallon tank will be installed

to hold the aqueous urea. The Project will not require steam cooling; air cooled fin fan coolers will be used for ancillary equipment cooling.

The purpose of the Project is to respond to an acknowledged need for additional electrical generating capacity in the Northeast Massachusetts zone of the ISO-NE system, especially during periods of peak demand. MMWEC's capacity bid for the Project was accepted in ISO-NE's forward capacity auction (FCA #12), which took place in February 2018. The Project is currently obligated to supply electricity by June 1, 2021. The Project will provide needed highly efficient, fast starting, peak electric generation. Further, with a simple cycle turbine having dual fuel capability, the Project will provide increased reliability to the ISO-NE system. The proposed completion date for the Project is currently in Quarter 1 or Quarter 2 2021.

To satisfy the requirements of this Application, the Project will employ Best Available Control Technology (BACT) emissions control technology. The BACT emission controls for NO_x will include water injection and SCR (90% overall NO_x control efficiency). Emissions of CO and VOC will be controlled with good combustion practices and an oxidation catalyst system (90% overall CO control efficiency and 34% overall VOC control efficiency at full load). Emissions of Particulate Matter (PM, PM_{10}, $PM_{2.5}$), Sulfur Dioxide (SO_2), and Sulfuric Acid (H_2SO_4) will be controlled by the limited use of ultra-low sulfur fuels, with natural gas as the primary fuel and ULSD as the back-up fuel. Greenhouse Gas (GHG) emissions will be minimized by the use of a high efficiency simple cycle combustion turbine, with natural gas as the primary fuel and limited firing of ULSD as the back-up fuel. The project will comply with National Ambient Air Quality Standards (NAAQS), Massachusetts Ambient Air Quality Standards (MAAQS), applicable New Source Performance Standards (NSPS), and MassDEP's Policy regarding sound emissions.

B. REGULATORY APPLICABILITY ANALYSIS

40 CFR Part 52.21 Prevention of Significant Deterioration of Air Quality

Prevention of Significant Deterioration (PSD) applies to new major sources or major modifications at existing sources for pollutants where the area the source is located is in attainment or unclassifiable with the National Ambient Air Quality Standards (NAAQS). PSD review and permitting is intended to allow construction of new or modified sources of air pollution in these areas while protecting (i.e., not significantly degrading) air quality.

MassDEP administers the federal PSD Program pursuant to the April 11, 2011 agreement between MassDEP and the New England Region of the United States Environmental Protection Agency (EPA) identified as "Agreement for Delegation of the Federal PSD Program by EPA to MassDEP" (PSD Delegation Agreement) and Title 40 CFR Part 124 – Procedures for Decision Making. Therefore, MassDEP evaluated whether PSD under Regulation 40 CFR 52.21 is applicable to the proposed project. The PSD Delegation Agreement directs that all PSD Permits issued by MassDEP under the Agreement follow the applicable procedures in 40 CFR Part 52, Section 52.21 and 40 CFR Part 124 regarding permit issuance, modification and appeals.

The Project will be a new source located in an area whose air quality is classified as either "attainment" or "unclassifiable" with respect to the National Ambient Air Quality Standards (NAAQS) for SO_2, NO_x, CO, PM_{10}, $PM_{2.5}$, and lead (Pb). 40 CFR 52.21(b)(1) of the federal PSD regulations defines a "major" source as either (a) any of 28 designated stationary source categories with potential emissions of 100 tons per year (TPY) or more of any regulated PSD pollutant, or (b) any other stationary source with potential emissions of 250 TPY or more of any regulated PSD pollutant. Under 40 CFR 52.21, the applicable PSD major source threshold for a simple cycle combustion turbine is 250 tons per year (TPY) of any PSD pollutant, except Greenhouse Gases (GHG).

Table A presents a comparison of the Project's potential emissions with the applicable PSD major source thresholds for all regulated PSD pollutants. As summarized in Table A, the Project's potential emissions are less than the PSD major source thresholds for all regulated PSD pollutants. Therefore, the Project is not subject to PSD review under 40 CFR 52.21.

Table A

PSD Pollutant	Project Potential to Emit (TPY)	PSD Major Source Threshold (TPY)	PSD Applies?
PM	6.0	250	No
PM_{10}	6.0	250	No
$PM_{2.5}$	6.0	250	No
SO_2	0.6	250	No
NO_x	6.3	250	No
CO	8.3	250	No
Ozone (VOC)	1.8	250	No
H_2SO_4	0.6	250	No
Pb	< 0.0003	250	No
Fluorides	None Expected	250	No
H_2S	None Expected	250	No
Total Reduced Sulfur (including H_2S)	None Expected	250	No
Reduced Sulfur Compounds (including H_2S)	None Expected	250	No
GHG ($CO2_e$)	50,779	NA [1]	No

Table A Note:

1. PSD review for GHG applies if source is otherwise subject to PSD for another PSD regulated pollutant and GHG potential to emit emissions of ≥ 75,000 TPY for a new source **or** source has GHG potential to emit emissions of ≥ 100,000 TPY.

Table A Key:
PSD = Prevention of Significant Deterioration
TPY = tons per year
PM = Particulate Matter
PM_{10} = Particulate Matter less than or equal to 10 microns in diameter
$PM_{2.5}$ = Particulate Matter less than or equal to 2.5 microns in diameter
SO_2 = Sulfur Dioxide
NO_x = Nitrogen Oxides
CO = Carbon Monoxide
VOC = Volatile Organic Compounds
H_2SO_4 = Sulfuric Acid
Pb = Lead
H_2S = Hydrogen Sulfide
GHG = Greenhouse Gases
$CO2_e$ = Greenhouse Gases expressed as Carbon Dioxide equivalent and calculated by multiplying each of the six greenhouse gases (Carbon Dioxide, Nitrous Oxide, methane, Hydrofluorocarbons, Perfluorocarbons, Sulfur Hexafluoride) mass amount of emissions, in tons per year, by the gas's associated global warming potential published at Table A-1 of 40 CFR Part 98, Subpart A and summing the six resultant values.
NA = Not Applicable
≥ = greater than or equal to

310 CMR 7.00: Appendix A - Emission Offsets and Nonattainment Review

All of Massachusetts was recently designated as in attainment with the 2008 8-hour Ozone (O_3) standard, with the exception of Dukes County. However, all of Massachusetts is within the Ozone Transport Region (OTR) as designated by the Clean Air Act. New major sources or major modifications in the OTR are subject to the provisions of Nonattainment New Source Review (NNSR) that apply to moderate O_3 nonattainment areas. Also, 40 CFR Part 81 still retains a moderate nonattainment designation for all of Massachusetts for the 1997 8-hour O_3 standard.

Under 310 CMR 7.00: Appendix A, NNSR applies to a new major source with potential NO_x or VOC emissions of greater than or equal to 50 TPY, or a major modification of an existing major source that results in a net increase of NO_x or VOC emissions of greater than or equal to 25 TPY, with applicability determined separately for NO_x and VOC. Applicable requirements for a project subject to NNSR include: 1) meeting Lowest Achievable Emission Rate (LAER), 2) obtaining emission offsets, and 3) demonstrating that the benefits of the proposed source significantly outweigh the environmental and social costs.

MMWEC is proposing to construct a new source in the OTR. The proposed NO_x or VOC emissions from the Project are below 50 TPY, therefore the Project is not a new major source. Consequently, as shown in Table B below, the Project is not subject to NNSR under 310 CMR 7.00: Appendix A**.**

Table B			
Pollutant	**Project Potential to Emit (TPY)**	**NNSR Major Source Threshold (TPY)**	**NNSR Applies?**
NO_x	6.3	50	No
VOC	1.8	50	No

Table B Key:

NNSR = Nonattainment New Source Review
TPY = tons per year
NO_x = Nitrogen Oxides
VOC = Volatile Organic Compounds

National and Massachusetts Ambient Air Quality Standards

The EPA has developed National Ambient Air Quality Standards (NAAQS) for six air contaminants known as criteria pollutants for the protection of public health and welfare. These criteria pollutants are Nitrogen Dioxide (NO_2), Sulfur Dioxide (SO_2), Particulate Matter (PM), Carbon Monoxide (CO), Ozone (O_3), and Lead (Pb). PM is characterized according to size. PM having an effective aerodynamic diameter of 10 microns or less is referred to as PM_{10}, or "respirable particulate". PM having an effective aerodynamic diameter of 2.5 microns or less is referred to as $PM_{2.5}$, or "fine particulate". $PM_{2.5}$ is a subset of PM_{10}. The NAAQS include both primary and secondary standards of different averaging periods, which protect public health and public welfare, respectively. MassDEP has generally adopted the NAAQS as Massachusetts Ambient Air Quality Standards (MAAQS) under 310 CMR 6.00.

One of the basic goals of federal and state air pollution control regulations is to ensure that ambient air quality, including background concentrations, emissions from existing sources, and new source emissions, is in compliance with the NAAQS/MAAQS. To identify new emission sources with the potential to significantly alter ambient air quality, the EPA and MassDEP have adopted significant impact levels (SILs) for the criteria pollutants, except O_3 and Pb. Applicants for new major sources (or major modifications of existing major sources) are required to perform an air quality dispersion modeling analysis to predict air quality impacts of the new (or modified) source in comparison to the SILs. If the predicted impact of the new or modified source is less than the SIL for a particular pollutant and averaging period, then the impact is considered "insignificant" for that pollutant and averaging period. However, if the predicted impact of the new or modified source is equal to or greater than the SIL for a particular pollutant and averaging period, then further impact evaluation is required. This additional evaluation must include measured ambient background levels of pollutants, and emissions from both the proposed new (or modified) source and existing interactive sources (referred to as cumulative dispersion modeling).

An air quality dispersion modeling analysis was performed to demonstrate compliance with the NAAQS/MAAQS. The modeling analysis conservatively accounted for the proposed turbine

(MMWEC-1) as well as the two existing turbines at the adjacent Peabody Municipal Light Waters River Station site (PMLP-1 and PMLP-2) and included a SIL analysis to assess the Project's air impacts of criteria air pollutants against applicable SILs. The modeling analysis was conducted for: Project (MMWEC-1) emissions only for comparison to the SILs; Project (MMWEC-1) plus adjacent sources emissions (PMLP-1 and PMLP-2) for comparison to the NAAQS/MAAQS; and cumulative emissions (MMWEC-1, PMLP-1, PMLP-2, and existing offsite interactive sources) for the three pollutants that exceeded their respective SILs for the Project as compared to the NAAQS/MAAQS.

The most recent version of EPA's regulatory model, AERMOD (v18081) was used to perform the dispersion modeling. The analysis was conducted in accordance with 40 CFR Part 51 Appendix W, EPA's *Guideline on Air Quality Models, Modeling Guidance for Significant Stationary Sources of Air Pollution* (MassDEP, 2011), the AERMOD Implementation Guide, and as described in the Air Quality Modeling Protocol submitted to MassDEP and supplemented with additional agency guidance. Dispersion modeling was conducted in a manner that evaluated worst case operating conditions, including start-up and shutdown emissions, to predict the maximum ground level concentration for each pollutant and averaging period.

Significant Impact Analysis

Table C presents the maximum predicted ambient air quality impact concentrations for the Project as compared to the SILs for each criteria pollutant and averaging period, except for O_3 and Pb for which there is no corresponding SILs. The Project was predicted to have maximum ambient air quality impact concentrations below SILs for all pollutants and averaging periods, except for 1-Hour NO_2, 24-Hour $PM_{2.5}$, and 24-Hour PM_{10}.

Table C

Criteria Pollutant	Averaging Period	Primary NAAQS/ MAAQS (ug/m^3)	Secondary NAAQS/ MAAQS (ug/m^3)	Significant Impact Level (ug/m^3)	Maximum Predicted Project Impact (ug/m^3)
NO_2	Annual (1)	100	Same	1	0.02
	1-Hour (2)	188	None	7.5	16.19
SO_2	Annual (1,3)	80	None	1	0.001
	24-Hour (3,4)	365	None	5	0.18
	3-Hour (4)	None	1,300	25	0.40
	1-Hour (5)	196	None	7.8	0.37
$PM_{2.5}$	Annual (6)	12	Same	0.3	0.01
	24-Hour (7)	35	Same	1.2	3.60
PM_{10}	Annual (8)	50	Same	1	0.02
	24-Hour (9)	150	Same	5	6.15
CO	8-Hour (4)	10,000	None	500	13.33
	1-Hour (4)	40,000	None	2,000	34.95

Table C					
Criteria Pollutant	**Averaging Period**	**Primary NAAQS/ MAAQS (ug/m^3)**	**Secondary NAAQS/ MAAQS (ug/m^3)**	**Significant Impact Level (ug/m^3)**	**Maximum Predicted Project Impact (ug/m^3)**
O_3	8-Hour (9)	147	Same	None	NA
	1-Hour (10)	235	Same	None	NA
Pb	3-Month (1)	0.15	Same	None	NA

Table C Notes:

1. Not to be exceeded.

2. Compliance based on 3-year average of the 98th percentile of the daily maximum 1-hour average at each monitor within an area.

3. The 24 hour and annual average primary standards for SO_2 have been revoked. However, these standards remain in effect until one year after an area is designated for the new 1-Hour standard, and they also remain in effect as MAAQS.

4. Not to be exceeded more than once per year.

5. Compliance based on 3-year average of 99th percentile of the daily maximum 1-hour average at each monitor within an area.

6. Compliance based on 3-year average of weighted annual mean $PM_{2.5}$ concentrations at community-oriented monitors.

7. Compliance based on 3-year average of 98th percentile of 24-hour concentrations at each population-oriented monitor within an area.

8. MAAQS only. NAAQS no longer exists. Compliance based on 3-year average.

9. Not to be exceeded more than once per year on average over 3 years.

10. Compliance based on 3-year average of fourth highest daily maximum 8-hour average ozone concentrations measured at each monitor within an area over each year.

Table C Key:

NAAQS = National Ambient Air Quality Standards
MAAQS = Massachusetts Ambient Air Quality Standards
ug/m^3 = microgram per cubic meter
NO_2 = Nitrogen Dioxide
PM_{10} = Particulate Matter less than or equal to 10 microns in diameter
$PM_{2.5}$ = Particulate Matter less than or equal to 2.5 microns in diameter
SO_2 = Sulfur Dioxide
CO = Carbon Monoxide
O_3 = Ozone
Pb = Lead
NA = Not Applicable

Dispersion Modeling (Project and Waters River Station)

A compliance demonstration was conducted to ensure that the combined emissions from the existing Waters River Station (PMLP-1 and PMLP-2) managed by PMLP and the proposed Project owned and managed by MMWEC will not cause or contribute to a NAAQS/MAAQS violation. The cumulative modeled concentrations of the Project and existing Waters River Station were combined with ambient background concentrations and compared with the NAAQS/MAAQS. Table D demonstrates that the predicted total ambient criteria pollutant concentrations (modeled plus background) are below the NAAQS/MAAQS for all pollutants.

Table D

Criteria Pollutant	Averaging Period	Modeled Impact, Project Plus Waters River Station (ug/m^3)	Ambient Background (ug/m3)	Modeled Impact Plus Ambient Background (ug/m^3)	NAAQS/ MAAQS (ug/m^3)
NO_2	Annual	2.53	10.3	12.8	100
	1-Hour	95.31	65.8	161.1	188
SO_2	Annual	0.01	1.3	1.3	80
	24-Hour	0.32	5.6	5.9	365
	3-Hour	1.07	11.2	12.3	1,300
	1-Hour	0.63	10.8	11.4	196
$PM_{2.5}$	Annual	0.29	5.5	5.8	12
	24-Hour	4.28	17.0	21.3	35
PM_{10}	Annual	0.41	13.2	13.6	50
	24-Hour	11.12	29.0	40.1	150
CO	8-Hour	63.34	649	711	10,000
	1-Hour	130.87	1,221	1,352	40,000

Table D Key:

NAAQS = National Ambient Air Quality Standards
MAAQS = Massachusetts Ambient Air Quality Standards
ug/m^3 = microgram per cubic meter
NO_2 = Nitrogen Dioxide
PM_{10} = Particulate Matter less than or equal to 10 microns in diameter
$PM_{2.5}$ = Particulate Matter less than or equal to 2.5 microns in diameter
SO_2 = Sulfur Dioxide
CO = Carbon Monoxide

Cumulative Dispersion Modeling (Project and Existing Interactive Sources, including Waters River Station)

Since dispersion modeling predicted maximum impact concentrations above SILs for 1 Hour NO_2, 24-Hour $PM_{2.5}$, and 24-PM_{10}, cumulative dispersion modeling was performed for these pollutants and averaging periods with emissions from the Project (MMWEC-1), existing adjacent

Peabody Municipal Light Waters River Station site turbines (PMLP-1 and PMLP-2), existing offsite interactive sources, and measured background levels to compare against the corresponding NAAQS/MAAQS. Ambient background concentrations were obtained from MassDEP's Lynn Waste Treatment Plant and Boston Kenmore Square monitoring locations for the calendar years of 2015 through 2017. The existing offsite interactive sources in Massachusetts nearby the Project considered in the cumulative modeling were a) General Electric Lynn; b) Wheelabrator Saugus; and c) Footprint Power Salem Harbor Development. Table E shows the cumulative impacts. The results of the cumulative impact analysis show that under no condition did the Facility's worst-case emissions in combination with emissions from the existing interactive sources plus measured ambient background levels result in concentrations which exceeded the applicable NAAQS/MAAQS.

Table E

Criteria Pollutant	Averaging Period	Cumulative Modeled Impact, Project Plus Existing Interactive Sources (ug/m^3)	Ambient Background (ug/m3)	Cumulative Modeled Impact Plus Ambient Background (ug/m^3)	Primary NAAQS/ MAAQS (ug/m^3)
NO_2	1-Hour	96.92	65.8	162.7	188
$PM_{2.5}$	24-Hour	4.75	17.0	21.8	35
PM_{10}	24-Hour	9.31	29.0	38.3	150

Table E Key:

NAAQS = National Ambient Air Quality Standards
MAAQS = Massachusetts Ambient Air Quality Standards
ug/m^3 = microgram per cubic meter
NO_2 = Nitrogen Dioxide
PM_{10} = Particulate Matter less than or equal to 10 microns in diameter
$PM_{2.5}$ = Particulate Matter less than or equal to 2.5 microns in diameter

Massachusetts Ambient Air Limits and Threshold Exposure Levels

MassDEP has established health based ambient air guidelines for a variety of chemicals (air toxics). These air guidelines establish two limits for each chemical listed: An Ambient Air Limit (AAL), which is based on an annual average concentration; and a Threshold Exposure Level (TEL), which is based on a 24-hour time period. In general, AALs are lower than TELs, and represent the concentration associated with a one in one million excess lifetime cancer risk, assuming a lifetime of continuous exposure to that concentration. For chemicals that do not pose cancer risks, the AAL is equal to the TEL.

Modeling for air toxics was performed to demonstrate compliance with the TELs and AALs. The highest 24-hour and annual AERMOD predicted concentrations were determined and then scaled by the appropriate pollutant emission rates to obtain the predicted concentration of each pollutant. Table F presents the projected maximum impacts for each air toxic that will potentially

be emitted by the Project (MMWEC-1) and the existing Waters River Station sources (PMLP-1 and PMLP-2) managed by PMLP. As shown in Table F, the maximum impact concentrations were significantly below the applicable AALs and TELs for all the air toxics modeled.

Table F

Pollutant	Averaging Period	AAL/TEL (ug/m^3)	Maximum Modeled Impact Only MMWEC-1 Unit Operating (ug/m^3) (1)	Maximum Modeled Impact PMLP-1, PMLP-2 and MMWEC-1 Units Operating (ug/m^3) (1)
Acetaldehyde	24-Hour (TEL)	30	0.00474	0.0145
	Annual (AAL)	0.4	0.0000287	0.000286
Acrolein	24-Hour (TEL)	0.07	0.000759	0.00232
	Annual (AAL)	0.07	0.00000460	0.0000458
Ammonia (2)	24-Hour (TEL)	100	0.819	0.819
	Annual (AAL)	100	0.00488	0.00488
Arsenic	24-Hour (TEL)	0.003	0.00000526	0.0000161
	Annual (AAL)	0.0003	0.00000000582	0.000000283
Benzene	24-Hour (TEL)	0.6	0.00626	0.0191
	Annual (AAL)	0.1	0.0000138	0.000406
1,3-Butadiene	24-Hour (TEL)	1.2	0.00182	0.00556
	Annual (AAL)	0.003	0.00000226	0.000101
Cadmium	24-Hour (TEL)	0.002	0.000000584	0.00000178
	Annual (AAL)	0.0002	0.000000000646	0.0000000315
Chromium (metal)	24-Hour (TEL)	1.36	0.00141	0.00431
	Annual (AAL)	0.68	0.00000156	0.0000761
Ethylbenzene	24-Hour (TEL)	300	0.00379	0.0116
	Annual (AAL)	300	0.000023	0.000229
Formaldehyde	24-Hour (TEL)	2	0.0842	0.258
	Annual (AAL)	0.08	0.000510	0.00578
Lead	24-Hour (TEL)	0.14	0.0000875	0.000268
	Annual (AAL)	0.07	0.0000000969	0.00000472
Mercury (elemental)	24-Hour (TEL)	0.14	0.00000117	0.00000358
	Annual (AAL)	0.07	0.0000000013	0.0000000632
Nickel (metal)	24-Hour (TEL)	0.27	0.000168	0.000515
	Annual (AAL)	0.18	0.000000186	0.00000908
Propylene Oxide	24-Hour (TEL)	6	0.00344	0.0105
	Annual (AAL)	0.3	0.0000208	0.000208
Selenium	24-Hour (TEL)	0.54	0.0000291	0.0000890
	Annual (AAL)	0.54	0.0000000323	0.00000157
Sulfuric Acid (3)	24-Hour (TEL)	2.72	0.178	0.544
	Annual (AAL)	2.72	0.00108	0.0178

Table F				
Pollutant	**Averaging Period**	**AAL/TEL (ug/m^3)**	**Maximum Modeled Impact Only MMWEC-1 Unit Operating (ug/m^3) (1)**	**Maximum Modeled Impact PMLP-1, PMLP-2 and MMWEC-1 Units Operating (ug/m^3) (1)**
Toluene	24-Hour (TEL) Annual (AAL)	80 20	0.0154 0.0000934	0.0472 0.000930
Xylenes (m-, o-, p-isomers)	24-Hour (TEL) Annual (AAL)	11.8 11.8	0.00759 0.0000460	0.0232 0.000458

Table F Notes:

1. Gaseous emissions based on AP-42 emission factors except where noted. Metal emissions based on *Survey of Ultra-Trace Metals in Gas Turbine Fuels* by Rising, Sorurbaksh, and Wu, American Chemical Society Paper, Division of Fuel Chemistry, 2004. Operation for PMLP-2 conservatively based on 8,760 hour per year.

2. Ammonia emissions for Project only.

3. Sulfuric acid emissions based on 0.0015 lb/MMBtu for all units.

Table F Key:

AAL = Ambient Air Limits
TEL = Threshold Exposure Levels
ug/m^3 = micrograms per cubic meter
lb/MMBtu = pounds per million British thermal units

Accidental Release Modeling of Aqueous Ammonia

The Project will use either a 19% solution of aqueous ammonia or a 40% aqueous urea solution in the Facility's SCR system to control NO_x emissions.

If a 40% urea solution is used as the SCR reagent, the urea solution will be stored onsite in a nominal 2,500-gallon tank with secondary containment. A hydrolyzer will then be utilized to dissociate the urea into ammonia (NH_3) vapor on an as-needed basis for the SCR system.

The storage of 40% aqueous urea solution does not require an accidental release modeling analysis, however, the storage of 19% aqueous ammonia solution does require an accidental release modeling analysis for purposes of 310 CMR 7.02. An accidental release modeling analysis for a 19% solution of aqueous ammonia follows.

If a 19% solution of aqueous ammonia is used as the SCR reagent, the ammonia solution will be stored onsite in an above-ground nominal 7,050-gallon single-walled cylindrical vertical steel

tank having a 10-foot diameter. The tank will have a containment dike designed to contain greater than 110 percent of the total volume of the tank. The containment dike will have inside horizontal dimensions of 13.17 by 13.17 feet and will have side walls with inside height dimensions of 6 feet in order to provide the necessary containment. Passive evaporative controls (plastic spheres or equivalent) will be placed in the containment dike to reduce the effective surface area for evaporation of NH_3 to the ambient air by 90 percent. The containment dike will also be equipped with a metal cover, covering at least 90 percent exposed surface area over the plastic spheres to further mitigate evaporation of NH_3.

Transfer from NH_3 delivery trucks to the storage tank will take place within a contained concrete sloped unloading pad with drainage design such that any spills during NH_3 delivery will drain into the above-described tank dike containment area via an enclosed sump and gravity drainpipe. The dike surrounding the nominal 7,050-gallon storage tank will be constructed with adequate storage below the elevation of the point where this drain enters the dike so that a full delivery truck volume can be accommodated in the dike. The NH_3 unloading pad sump/drain will be interlocked with the pump/piping used to fill the NH_3 storage tank such that truck unloading of aqueous NH_3 will not function unless the gravity pad sump/drain system is open. Delivery trucks will be required to have fast-acting shutoff valves in the unlikely event that a leak or other problem should arise. A hose from the top of the NH_3 tank connected to the back of the truck will return displaced vapor to the truck, or an equivalent method for control of transfer losses will be used. The transfer pumps and valves for delivering aqueous NH_3 to the Project's SCR system will be in an enclosed concrete vault that is adjacent and drains to the NH_3 storage tank containment dike via a check valve system with redundancy.

The storage tank shall be equipped with level monitoring instrumentation that will be continuously monitored. If the tank level approaches an overfill condition during filling, a high-level alarm will sound at the truck unloading pad and in the control room, initiating an immediate response to the situation. In addition, NH_3 sensors in the enclosed vault or tank area will alert plant staff and prevent the accumulation of significant amounts of NH_3 at or near the containment area.

Ammonia in aqueous solution is volatile, and the accidental release of this material would result in some release of NH_3 to the ambient air. Therefore, a worst-case accidental release scenario was performed to evaluate the potential health impacts of such a release. This scenario assumed a release of the entire contents of the tank (nominal 7,050 gallons) into the containment area, and conservatively evaluated the air quality impacts of such a release at the fence line and nearby residences or sensitive receptors. The NH_3 emissions resulting from this hypothetical worst-case release scenario were calculated using Risk Management Program/Off-Site Consequences Analysis (RMP/OCA) guidance.

In order to conservatively evaluate offsite consequences of an NH_3 release, the AERMOD dispersion model used for evaluation of air quality impacts from the exhaust stack was used to determine maximum NH_3 concentrations at the fence line and nearby receptors, and compared against the American Industrial Hygiene Association (AIHA) Emergency Response Planning

Guideline Level 1 (ERPG-1) of 25 parts per million (ppm) by volume, and the ERPG-2 of 150 ppm by volume. ERPG-1 is defined as the maximum airborne concentration below which nearly all individuals could be exposed to for up to one hour without experiencing either mild transient health effects and/or a clearly defined objectionable odor. ERPG-2 is defined as the maximum airborne concentration which it is believed that nearly all individuals could be exposed to for up to one hour without experiencing or developing irreversible or other serious health effects or symptoms that could impair the ability to take self-directed protective action.

The results of the AERMOD model indicate that in the event of a hypothetical worst-case release with the passive mitigation measures described above, the NH_3 concentrations would be less than the ERPG-1 and ERPG-2 levels at all locations at or beyond the fence line. The maximum 1-Hour concentration is predicted at a fence line receptor. Therefore, there are no residences or sensitive receptors that are predicted to be subject to NH3 concentrations which exceed either ERPG-1 or ERPG-2 thresholds. Table G presents the results of the predicted 1-Hour maximum concentrations of NH_3.

Table G

Pollutant	Averaging Period	ERPG-1 (ppm)	ERPG-2 (ppm)	NH_3 Concentration (Maximum Hourly Value, ppm)
NH_3	1-Hour	25	150	8.6

Table G Key:

ERPG-1 = Emergency Response Planning Guideline Level 1
ERPG-2 = Emergency Response Planning Guideline Level 2
NH_3 = Ammonia
ppm = parts per million by volume

In addition, Section 112(r) of the Clean Air Act and associated EPA regulations at 40 CFR Part 68 apply to owners or operators of stationary sources producing, processing, handling or storing toxic or flammable substances. The substances regulated under Section 112(r) and their threshold quantities are listed at Section 68.130 of 40 CFR Part 68. Aqueous ammonia in concentration of 20% or greater and quantity of 20,000 pounds or greater is listed as one of the regulated substances under Section 112(r). Since the Permittee will be utilizing a 19% aqueous ammonia solution, the Permittee will not store regulated substances above the threshold quantities. However, the general duty clause in Section 112(r)(1) applies:

"The owners and operators of stationary sources producing, processing, handling or storing hazardous substances have a general duty in the same manner and to the same extent as Section 654, Title 29 of the United States Code, to identify hazards which may result from accidental releases using appropriate hazard assessment techniques, to design and maintain a safe facility taking such steps as are necessary to prevent releases, and to minimize the consequences of accidental releases which do occur."

The Permittee shall take all steps necessary to meet the general duty clause above.

310 CMR 7.10 Noise

Sound Analysis

In the "Air Pollution Control" regulations at 310 CMR 7.00, "air contaminant" is defined to include sound, and a condition of "air pollution" includes the presence of an air contaminant in such concentration and duration as to "cause a nuisance" or "unreasonably interfere with the comfortable enjoyment of life and property". The regulations at 310 CMR 7.10 prohibit "unnecessary emissions" of sound that may cause noise. MassDEP regulates sound emissions through its Noise Policy 90-001 (February 1, 1990) and interprets a violation of 310 CMR 7.10 or noise to have occurred if sources cause either: a) an increase in the broadband sound pressure level of more than 10 A-weighted decibels (dBA) above the ambient background level; or b) a pure tone condition. The ambient background level is defined as the lowest background level observed during either nighttime or daytime equipment operating hours where the sound pressure level is exceeded 90 percent of the time (L_{90} sound level). The L_{90} sound level can also be thought of as the level representing the quietest 10 percent of any time period. A pure tone condition or tonal sounds is defined to occur when any octave band sound pressure level exceeds both of the two adjacent octave band sound pressure levels by 3 dBA or more. These sound limits are applicable both at the property line and at the nearest noise sensitive areas. In some circumstances, the policy limits can be waived at property line locations when the adjacent land uses are not considered sensitive to elevated sound levels and are likely to remain so. The policy limits typically apply at the quietest period analyzed (i.e. nighttime) unless the measurement location is associated with daytime use only.

The area in the vicinity of the Project site is composed of commercial and industrial development, with the closest residences located approximately 1,150 feet away (Location ST-1 in Table J) from the planned location of the new MMWEC-1 unit. The Project site borders a trailer storage facility and lies adjacent to two existing power generating units (PMLP-1 and PMLP-2) at the Waters River Station. The Waters River, which forms the northern border of the property is tidal and non-navigable. Across the river lies Massachusetts General North Shore Cancer Center and the Brightview Danvers retirement community. With respect to the Peabody noise sensitive locations, ST-3, 4, and 5 are all just beyond the outer boundary of the industrially zoned area which includes the Waters River Station site. ST-1 and 2 are at the closest residences to the west; there is an area zoned residential just east of ST-1. This area east of ST-1 includes two long, narrow parcels, which contain a cemetery and a wooded buffer between the cemetery and the industrial area. The cemetery is not a sensitive receptor for nighttime noise but is included in the sound analysis for daytime sound impacts based on daytime ambient background measurements. The areas in Danvers closest to the Project site are all zoned industrial, and ST-6, 7, and 8 represent the closest non-industrial noise sensitive locations to the Project.

Daytime and nighttime sound measurements to determine ambient (background) sound levels were taken at eight locations (ST-1 through ST-8 in Table J), in addition to the daytime only

sound measurements taken at ST-1A. The baseline sound measurements were taken on October 16, 2016 (a Sunday) and into the overnight period on October 17, 2016 (Sunday night/early Monday morning). All nighttime measurements were taken between midnight and 4AM. Waters River Station's existing units PMLP-1 and PMLP-2 were not operating during the measurement time periods. The sound measurements consisted of both A-weighted sound levels and octave band sound levels. A-weighted sound levels emphasize the middle frequency sounds and de-emphasize lower and higher frequency sounds. The A-weighted sound levels were recorded for four categories used to describe ambient environments: L_{90}, L_{50}, L_{10}, and L_{eq}. The L_{90} level represents the sound level exceeded 90 percent of the time and is used by MassDEP for determining background (ambient) sound levels. Measured ambient sound levels exhibited typical diurnal patterns, with higher ambient sound levels during the daytime than nighttime. Background (L_{90}) levels (in dBA) at locations ST-1 through ST-8 averaged from 39 dBA at ST-6 to 51 dBA at ST-8 during nighttime hours (except for location ST-1A where no nighttime measurements were taken) and from 48 dBA at ST-3 to 55 dBA at ST-2 and ST-8 during daytime hours.

In order to meet MassDEP's recommendation that the maximum projected sound impact with all three units (PMLP-1, PMLP-2, and MMWEC-1) operating results in an increase of 7 dBA above ambient background, a supplemental operational sound level survey was conducted on April 25, 2017 at the PMLP Waters River location to measure the sound impact contribution from the existing PMLP facility with both existing units (PMLP-1 and PMLP-2) operating in a base-load operating condition. Sound levels were measured at three continuously attended locations (ST-1, ST-1A, and ST-3). The results showed that PMLP-1 and PMLP-2 were operating at the MassDEP Noise Policy level of 10 dBA above background at ST-1 and ST-3 (see Table H).

Table H

Location	Ambient Background (L_{90}, dBA) (1)	Existing Units PMLP-1 and PMLP-2 Operating (dBA)	Existing Units PMLP-1 and PMLP-2 Operating plus Ambient (dBA)	Increase Over Ambient (dBA) (2)
ST-1 Residential 31 Wiseman Drive	42	52	52	10
ST-1A Cemetery Workman's Circle (3)	52	53	56	4
ST-3 Residential 36 Buxton Lane	41	50	51	10

Table H Notes:

1. The lowest ambient background level observed during either nighttime or daytime equipment operating hours where the sound level is exceeded 90 percent of the time (L_{90}), which is the level regulated by MassDEP Noise Policy 90-001. Waters River Station's existing units PMLP-1 and PMLP-2 were not operating during the measurement time periods.

2. MassDEP Noise Policy 90-001 limits sound level increases to no more than 10 dBA over the L_{90} ambient levels. Pure tone conditions or tonal sounds, defined as any octave band level which exceeds the levels in adjacent octave bands by 3 dBA or more, are not allowed. These noise limits are applicable both at the property line and at the nearest noise sensitive areas. In some circumstances, the policy limits can be waived at property line locations when the adjacent land uses are not considered sensitive to elevated sound levels and are likely to remain so. The policy limits typically apply at the quietest period analyzed (i.e. nighttime) unless the measurement location is associated with daytime use only.

3. ST-1A is a non-residential land use type (cemetery) and considered noise sensitive during daytime periods only. Therefore, the ambient background sound level is based on daytime measurements only.

Table H Key:

L_{90} = sound level exceeded 90 percent of the time
dBA = decibels, A-weighted

Hence, sound level measurements of major sound source components of the existing PMLP Waters River Station facility were conducted to determine the most audible sound sources. The sound level measurements showed that the existing exhaust stack silencers with sound from the exhaust stack exits of PMLP-1 and PMLP-2 were the most audible existing PMLP facility sound sources. Since sound from the exhaust stack exit of PMLP-2 was the greater of the two sound sources, it was determined that retrofitting the exhaust stack with extra baffle silencers to achieve a 7 to 10 dBA reduction in sound power level would be the preferred sound mitigation strategy. The Permittee has committed to ensuring that the exhaust stack exit of PMLP-2 will be retrofitted with a dB Noise Reduction Inc. Model 133-157036 (or equivalent) exhaust stack baffle system that will provide the additional silencing needed to achieve said power levels. The projected sound level impacts of the Waters River Station facility after additional silencing of the PMLP-2 exhaust stack exit is shown in Table I. The new exhaust stack silencer or equivalent is expected to achieve an increase of no more than 6 dBA above background at the closest noise sensitive receptors.

Table I				
Location	**Ambient Background (L_{90}, dBA) (1)**	**Existing Units PMLP-1 and PMLP-2 Operating (dBA) (4)**	**Existing Units PMLP-1 and PMLP-2 Operating plus Ambient (dBA) (4)**	**Increase Over Ambient (dBA) (2)**
ST-1 Residential 31 Wiseman Drive	42	47	48	6
ST-1A Cemetery Workman's Circle (3)	52	49	54	2
ST-3 Residential 36 Buxton Lane	41	45	47	6

Table I Notes:

1. The lowest background level observed during equipment operating hours of either nighttime or daytime where the sound level is exceeded 90 percent of the time (L_{90}), which is the level regulated by MassDEP Noise Policy 90-001. Waters River Station's existing units PMLP-1 and PMLP-2 were not operating during the measurement time periods.

2. MassDEP Noise Policy 90-001 limits sound level increases to no more than 10 dBA over the L_{90} ambient levels. Pure tone conditions or tonal sounds, defined as any octave band level which exceeds the levels in adjacent octave bands by 3 dBA or more, are not allowed. These noise limits are applicable both at the property line and at the nearest noise sensitive areas. In some circumstances, the policy limits can be waived at property line locations when the adjacent land uses are not considered sensitive to elevated sound levels and are likely to remain so. The policy limits typically apply at the quietest period analyzed (i.e. nighttime) unless the measurement location is associated with daytime use only.

3. ST-1A is a non-residential land use type (cemetery) and considered noise sensitive during daytime periods only. Therefore, the ambient background sound level is based on daytime measurements only.

4. Projected sound level impacts after retrofitting the Waters River Station unit PMLP-2 exhaust stack exit with extra baffle silencers.

Table I Key:

L_{90} = sound level exceeded 90 percent of the time
dBA = decibels, A-weighted

A sound impact analysis was performed conservatively assuming that the Waters River Station existing units PMLP-1 and PMLP-2 are simultaneously operating at full load with the proposed new unit MMWEC-1. The sound impact analysis was conducted with the Cadna-A sound model from DataKustik GmbH. The sound model is based on ISO 9613, Part 1: "Calculation of the absorption of sound by the atmosphere (1993)", and Part 2: "General method of calculation

(1996)". The method evaluated A-weighted sound pressure levels under meteorological conditions favorable to propagation from sources of known sound emissions. The projected sound level impacts are summarized in Table J. Combined operation of all 3 units (PMLP-1, PMLP-2, and MMWEC-1) is expected to increase the lowest ambient background levels by less than 7 dBA at any of the noise sensitive locations, which is less than the 10 dBA above background limit allowed by MassDEP's Noise Policy 90-001.

Table J

Location	Ambient Background (L_{90}, dBA) (1)	Existing Units PMLP-1 and PMLP-2 Operating (dBA) (4)	New MMWEC-1 Unit Operating (dBA) (5)	Cumulative PMLP-1, PMLP-2, and MMWEC-1 Units Operating plus Ambient (dBA) (4)	Increase Over Ambient (dBA) (2)
ST-1 Residential 31 Wiseman Drive	42	47	35	48	6
ST-1A Cemetery Workman's Circle (3)	52	49	38	54	2
ST-2 Residential/Cemetery 13A Esquire Circle	43	45	30	47	4
ST-3 Residential 36 Buxton Lane	41	45	30	47	6
ST-4 Residential/Business 55 Pulaski Street	43	40	24	45	2
ST-5 Residential 6 Pulaski Street	40	44	30	46	6
ST-6 Residential 10 Bates Road	39	39	28	42	3
ST-7 Residential 15 Broad Street	42	39	28	44	2
ST-8 Hospital 102-104 Endicott Street	51	42	32	52	1

Table J Notes:

1. The lowest background level observed during equipment operating hours of either nighttime or daytime where the sound level is exceeded 90 percent of the time (L_{90}), which is the level regulated by MassDEP Noise Policy 90-001. Waters River Station's existing units PMLP-1 and PMLP-2 were not operating during the measurement time periods.

2. MassDEP Noise Policy 90-001 limits sound level increases to no more than 10 dBA over the L_{90} ambient levels. Pure tone conditions or tonal sounds, defined as any octave band level which exceeds the levels in adjacent octave bands by 3 dBA or more, are not allowed. These noise limits are applicable both at the property line and at the nearest noise sensitive areas. In some circumstances, the policy limits can be waived at property line locations when the adjacent land uses are not considered sensitive to elevated sound levels and are likely to remain so. The policy limits typically apply at the quietest period analyzed (i.e. nighttime) unless the measurement location is associated with daytime use only.

3. ST-1A is a non-residential land use type (cemetery) and considered noise sensitive during daytime periods only. Therefore, the ambient background sound level is based on daytime measurements only.

4. Projected sound level impacts after retrofitting the Waters River Station unit PMLP-2 exhaust stack exit with extra baffle silencers.

5. Projected sound level impacts after installing the sound mitigation upgrade package to achieve a 45-dBA sound power level at 400 feet (see Commercial Operation Sound Requirements, Item 4 below in this section).

Table J Key:

L_{90} = sound level exceeded 90 percent of the time
dBA = decibels, A-weighted

Commercial Operation Sound Requirements

1. The Permittee shall purchase, construct, and/or otherwise ensure that the exhaust stack exit of the adjacent Waters River Station unit PMLP-2 will be retrofitted with a dB Noise Reduction Inc. Model 133-157036 (or equivalent) exhaust stack baffle system and maintained such that it will achieve a 7 to 10 dBA reduction in sound power level emitted from the PMLP-2 stack compared to the PMLP-2 stack baseline measurements.

2. The Project shall always be operated and maintained such that:

   a) No condition of air pollution shall be caused by sound as provided in 310 CMR 7.01.

   b) No sound emissions resulting in noise shall occur as provided in 310 CMR 7.10 and MassDEP's Noise Policy 90-001. MassDEP's Noise Policy 90-001 limits increases over the existing L_{90} background level to 10 dBA. Additionally, "pure tone" sounds, defined as any octave band level which exceeds the levels in adjacent octave bands by 3 dBA or more, are also prohibited. The Permittee, at a minimum, shall ensure that the Project complies with said Policy.

3. MMWEC personnel shall continue to identify and evaluate all plant equipment that may cause a noise condition. Sound sources with potential to cause noise include but are not limited to main exhaust stack outlet, combustion turbine air inlet, generator ventilation inlet and exhaust, transformer, water injection skid, and fuel oil pump.

4. The Permittee shall perform the following measures or equivalent alternative measures for the Project to minimize sound emissions:

   a) install exhaust stack outlet silencing, combustion turbine inlet air silencing, and generator ventilation inlet and exhaust silencing; and,

   b) install combustion turbine, SCR, and generator enclosure casings; and,

   c) install onsite barrier walls and/or sound enclosures to attenuate sound from the combustion turbine and generator.

   These measures, which result in a 45 dBA overall sound power level at 400 feet, represents the most stringent sound mitigation upgrade package selected by the Permittee after evaluation of the four potential levels of sound mitigation measures recommended by the manufacturer (Pratt & Whitney) for the FT4000 combustion turbine (see the Application supplement dated August 29, 2019).

5. The Permittee shall complete a sound survey in accordance with MassDEP procedures/guidelines within one hundred eighty (180) days after the Project commences commercial operation, while the Project and Waters River Station are in operation, to verify that sound emissions do not exceed the levels in Table J. Prior to conducting the sound survey, the Permittee shall submit in writing to MassDEP for review a sound survey protocol at least thirty (30) days prior to commencing the sound survey. The Permittee shall submit to MassDEP a written report, describing the results of the required sound survey, within 45 days after its completion.

<u>Construction Sound Requirements</u>

Construction of the Project will result in a temporary increase in sound levels near the Project site. The construction process will require the use of equipment that could be audible from off-site locations at certain times. Project construction consists of site clearing, excavation, foundation work, steel erection, and finishing work. Work on these phases will overlap. No blasting or pile driving will be performed.

The Permittee shall comply with the following conditions during the construction phases of the Project:

1. The Permittee shall ensure that Facility personnel take all reasonable precautions (noted below) to minimize air pollution episodes (dust, odor, and noise):

a) Personnel shall exercise care in operating any noise generating equipment (including mobile power equipment, power tools, etc.) to minimize noise. Construction activities that produce significant noise shall be limited to the daytime hours between 7AM and 7PM, except as otherwise coordinated with the City of Peabody.

b) Construction equipment shall be well maintained and vehicles using internal combustion engines equipped with mufflers shall be routinely checked to ensure they are in good working order.

c) Quieter-type adjustable backup alarms shall be used for vehicles.

d) Portable noise barriers and enclosures shall be used when appropriate.

e) Construction vehicles transporting loose aggregate to or from the Facility shall be covered.

f) Open storage areas, piles of soil, loose aggregate, etc. shall be covered or watered down as necessary to minimize dust emissions.

g) Any spillage of loose aggregate and dirt deposits on any public roadway, leading to or from the Facility shall be removed by the next business day or sooner, if necessary. (A mobile mechanical sweeper equipped with a water spray is an acceptable method to minimize dust emissions).

h) On-site roadways/excavation areas subject to vehicular traffic shall be watered down as necessary or treated with the application of a dust suppressant to minimize the generation of dust.

i) Soil shall be stabilized using vegetative cover, mulch, riprap, or pavement. Exposed soil surfaces shall be covered, and/or wind breaks to reduce wind velocity across exposed soil surfaces shall be installed, where appropriate, to minimize dust emissions.

2. The Permittee shall ensure that all contractors associated with the construction of the Facility shall comply with MassDEP's Clean Air Construction Initiative. The main aspects of this program include:

a) All contractors shall use ULSD fuel oil in diesel-powered non-road vehicles.

b) All non-road engines used on the construction site shall meet the applicable non-road engine standard limitations per 40 CFR 89.112.

c) All contractors shall utilize the best available technology for reducing the emission of PM and NO_x from diesel-powered non-road vehicles. The best available technology for reducing the emission of pollutants is that which has been verified by EPA or the California Air Resources Board for use in non-road vehicles or on-road vehicles where such technology may also be used in non-road vehicles. All diesel-powered non-road construction equipment with engine horsepower ratings of 50 and above to be used for 30 or more days over the course of project construction shall have EPA-verified (or equivalent) emission control devices, such as oxidation catalysts or other comparable technologies (to the extent that they are commercially available) installed on the exhaust system side of the diesel combustion engine.

d) All contractors shall turn off diesel combustion engines on construction equipment not in active use and on dump trucks that are idling while waiting to load or unload material for five minutes or more.

e) All contractors shall establish a staging zone for trucks that are waiting to load or unload material at the work zone in a location where diesel emissions from the trucks will not be noticeable to the public.

f) All contractors shall locate construction equipment as far as possible away from sensitive receptors, fresh air intakes to buildings, air conditioners, and windows.

3. The Permittee shall make available to the general public a noise complaint hotline to address any noise-related issues.

40 CFR Part 60 New Source Performance Standards

Subpart A General Provisions

Any source subject to an applicable standard under 40 CFR Part 60 is also subject to the general provisions under Subpart A, as identified in the applicable Subpart. Since the Project is subject to specific subparts of 40 CFR Part 60, the Permittee is subject to the applicable notifications, performance testing, record keeping, and reporting requirements stated in Subpart A and the applicable Subparts of the regulation.

Subpart KKKK Stationary Combustion Turbines

Subpart KKKK applies to a stationary combustion turbine with a heat input rating greater than or equal to 10 MMBtu/hr, and which commenced construction, reconstruction, or modification after February 18, 2005. The proposed combustion turbine will be subject to Subpart KKKK, which places emission limits on NO_x and SO_2 emissions from a new combustion turbine.

Subpart KKKK allows the turbine owner or operator the choice of either a concentration based or output based NO_x emission standard. The concentration-based limit is expressed in units of parts per million by volume, dry basis corrected to 15% Oxygen (ppmvdc). The output-based emission limit is expressed in units of mass emissions per unit of useful energy output, nanograms per Joule (ng/J), or pound per Megawatt-hour (lb/MW-hr).

For a new combustion turbine with a rated heat input between 50 and 850 MMBtu/hr, NO_x emissions are limited as follows:

- 25 ppmvdc for natural gas and 74 ppmvdc for ULSD fuel oil; or,

- 150 ng/J (1.2 lb/MW-hr) for natural gas and 460 ng/J (3.6 lb/MW-hr) for ULSD fuel oil.

The Permittee will comply with these NO_x emission limits using water injection in conjunction with SCR add-on NO_x control technology to control NO_x emissions to 2.5 ppmvdc during natural gas firing and 5.0 ppmvdc during ULSD fuel oil firing, well below the Subpart KKKK NO_x emission limits.

The Subpart KKKK SO_2 emission standards apply for all turbines regardless of size or fuel type. For a combustion turbine located in a continental area, Subpart KKKK prohibits the discharge into the atmosphere of any gases that contain SO_2 in excess of 110 ng/J (0.90 lb/MW-hr) of gross energy output. The owner or operator of the turbine can choose to comply with either the SO_2 limit above or alternatively the limit on the sulfur content of the fuel burned. For a turbine located in a continental area, the fuel sulfur content limit is 26 ng SO_2/J (0.060 lb SO_2/MMBtu) of fuel heat input. The Permittee will comply with these SO_2 emission limits by burning pipeline quality natural gas with sulfur content not exceeding 0.5 grains sulfur per 100 standard cubic feet of gas fired and ULSD fuel oil with sulfur content not exceeding 0.0015 percent by weight of fuel oil fired (0.0015 lb SO_2/MMBtu for each fuel), well below the Subpart KKKK SO_2 emission limit.

<u>Subpart TTTT Greenhouse Gas Emissions for Electric Generating Units</u>

Subpart TTTT applies to a stationary combustion turbine with a base load heat input rating greater than 250 MMBtu/hr of fossil fuel (either alone or in combination with any other fuel), and serves a generator or generators capable of selling greater than 25 MW of electricity to a utility power distribution system, and which commenced construction after January 8, 2014 or commenced modification or reconstruction after June 18, 2014. The proposed combustion turbine will be subject to Subpart TTTT, which regulates Greenhouse Gas emissions by limiting Carbon Dioxide (CO_2) emissions.

A combustion turbine subject to Subpart TTTT must not discharge any gases that contain CO_2 in excess of the applicable CO_2 emission standard specified in Table 2 of this subpart, consistent with paragraphs (b), (c), and (d) of Section 60.5520. A combustion turbine with an annual capacity factor (on both a twelve month and a three-year rolling average basis) that exceeds the combustion turbine's "design efficiency" (expressed as a percent) as defined in the rule, or fifty

percent, whichever is less, is considered a "baseload" unit. The applicable emission standard for a newly constructed or reconstructed baseload combustion turbine that combusts more than 90 percent natural gas on a heat input basis per twelve month rolling period is 1,000 lb CO_2/MW-hr of gross energy output or 1,030 lb CO_2/MW-hr of net energy output. The "design efficiency" is the rated efficiency of the turbine at ISO conditions, net basis.

The design efficiency for the Pratt & Whitney FT4000 or equivalent combustion turbine in a simple cycle configuration is approximately 39%. Accordingly, if the combustion turbine were to operate on a three-year rolling average basis in excess of a capacity factor of 39%, the combustion turbine would be required to meet the CO_2 emission limits in the above paragraph if it burned more than 90 percent natural gas on a heat input basis per twelve month rolling period. However, the combustion turbine will operate as a non-baseload unit since its annual capacity factor will be limited to 1,250 hours out of a potential 8,760 hours per rolling twelve-month period, which is only a 14.2% capacity factor. Under Subpart TTTT, a non-baseload, multi-fuel combustion turbine (burning more than or less than or equal to 90 percent natural gas on a heat input basis per twelve month rolling period) like MMWEC-1 must comply with a sliding scale emission standard in the range of 120 to 160 lb CO_2/MMBtu of heat input, where the specific limit is calculated based on the heat input percentages of the various fuels during a twelve month period as determined by the procedures in Section 60.5525. However, since MMWEC-1 will only burn "uniform" fuels (natural gas and ULSD) with a consistent emission rate of 160 lb CO_2/MMBtu of heat input or less, the Permittee is not subject to the monitoring and reporting requirements of Subpart TTTT. The Permittee is only required to maintain purchase records for permitted fuels (natural gas and ULSD) in accordance with paragraph (d)(1) of Section 60.5520.

<u>Subpart Kb Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels)</u>

Subpart Kb applies to each storage vessel with a capacity greater than or equal to 75 cubic meters (19,813 gallons) that is used to store volatile organic liquids and for which construction, reconstruction, or modification is commenced after July 23, 1984. However, Subpart Kb does not apply to storage vessels with a capacity greater than or equal to 151 cubic meters (39,890 gallons) storing a liquid with a maximum true vapor pressure less than 3.5 kilopascals (0.51 pounds per square inch absolute pressure). ULSD has a maximum true vapor pressure at all ambient temperatures less than 0.51 pounds per square inch absolute pressure, therefore, Subpart Kb will not apply to the proposed 200,000-gallon ULSD storage tank.

40 CFR Parts 61 and 63 National Emission Standards for Hazardous Air Pollutants

Subpart YYYY of Part 63 applies to a combustion turbine at a major source of hazardous air pollutant (HAP) emissions. A major source of HAP emissions is a source which has the potential to emit ten (10) or more tons per year of any single HAP, or twenty-five (25) or more tons per year of all HAPs combined. The proposed Project will be limited to single HAP and combined HAP emissions of 0.29 and 0.41 tons per year, respectively. The proposed Project will not be a

major source of HAP emissions. Therefore, the proposed Project's combustion turbine will not be subject to the Subpart YYYY requirements.

40 CFR Parts 72, 73, and 75 Acid Rain Program

Title IV of the Clean Air Act Amendments of 1990 required EPA to establish a program to reduce emissions of acid rain forming pollutants, called the Acid Rain Program. The overall goal of this program is to achieve significant environmental benefits through reduction in SO_2 and NO_x emissions. To achieve this goal, the program employs a market-based approach to controlling air pollution. Under the market-based aspect of the program, affected units are allocated SO_2 allowances by EPA under Part 73, which may be used to offset emissions, or traded under the market allowance program. In addition, to ensure that facilities do not exceed their allowances, affected units are required to monitor and report their emissions in accordance with Part 75.

Under Section 72.6(a)(3)(i) of Part 72, a utility unit that is a new unit and does not meet the exemptions listed under paragraph (b) of Section 72.6 is an affected unit under the Acid Rain Program. The proposed Project will be subject to the Acid Rain Program. In accordance with Sections 72.9(a)(1)(i) and 72.30(b)(2)(ii) of Part 72, the Permittee's "designated representative" submitted an Acid Rain permit application governing MMWEC-1 to MassDEP (delegated by EPA to issue Acid Rain Permits). MassDEP is issuing the Acid Rain Permit concurrently with this Plan Approval.

310 CMR 7.34 Massachusetts NO_x Ozone Season Program

MassDEP promulgated Regulation 310 CMR 7.34 ($MassNO_x$) for existing units ($MassNO_x$ facilities) listed in 310 CMR 7.34(7)(b): Table A. The purpose of 310 CMR 7.34 is to control mass NO_x emissions during the ozone season (May 1st through September 30th of each year). Regulation 310 CMR 7.34 establishes a statewide budget of 1,799 tons of NO_x emissions from $MassNO_x$ facilities for each ozone season.

Under 310 CMR 7.34, new units are not subject to $MassNO_x$ since new units are required to meet low emission rates to satisfy BACT. Therefore, $MassNO_x$ does not apply to the proposed Project.

40 CFR Part 70 and 310 CMR 7.00: Appendix C Operating Permit Program

EPA has delegated MassDEP the authority to administer the Title V of the Clean Air Act Operating Permit Program (40 CFR Part 70) under Massachusetts Regulation 310 CMR 7.00: Appendix C. Under 310 CMR 7.00: Appendix C(2)(a)4., the proposed Project is an affected source as defined in 42 U.S.C. 7401, Title IV (acid rain provisions). Therefore, in accordance with 310 CMR 7.00: Appendix C(4)(a)5., for new construction subject to the requirements of 310 CMR 7.00: Appendix C, an application for an Operating Permit shall be submitted to MassDEP no later than one year after commencement of operation.

310 CMR 7.70 Massachusetts CO_2 Budget Trading Program

Regulation 310 CMR 7.70 applies to any unit that, at any time after January 1, 2005, serves an electricity generator with a nameplate capacity equal to or greater than 25 Megawatts electric power output. The proposed Project's combustion turbine is rated at 60 Megawatts nominal electric power output; therefore, the combustion turbine (MMWEC-1) is considered a CO_2 budget unit located at a CO_2 budget source (proposed Facility) and is subject to the requirements of 310 CMR 7.70. Regulation 310 CMR 7.70 implements the Regional Greenhouse Gas Initiative (RGGI). RGGI is a cooperative effort of nine Northeast and Mid-Atlantic states (Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New York, Rhode Island, and Vermont) to implement a regional cap-and-trade program to control CO_2 emissions from electricity generating facilities. Affected sources must submit an emission control plan and a monitoring plan for CO_2 emissions. In general, emission units already required to monitor CO_2 emissions in accordance with 40 CFR Part 75 will meet the monitoring requirements of 310 CMR 7.70. In accordance with 310 CMR 7.70(1)(e)1.a.i. and 310 CMR 7.70(3)(b), the Permittee's "CO_2 authorized account representative" shall submit to MassDEP a complete CO_2 budget emission control plan under 310 CMR 7.70(3)(c) governing MMWEC-1 at least 12 months before the date on which the CO_2 budget source commences operation.

310 CMR 7.74 Reducing CO_2 Emissions from Electricity Generating Facilities

Regulation 310 CMR 7.74 applies to all owners and operators of an electricity generating facility. The purpose of 310 CMR 7.74 is to assist the Commonwealth in achieving Greenhouse Gas emissions reduction goals by establishing declining annual aggregate CO_2 emission limits on existing and new electricity generating facilities, which would include the proposed Facility. In accordance with 310 CMR 7.74(12), the requirements in 310 CMR 7.74 supersede the CO_2 emission limits in this Plan Approval. The Permittee shall comply with all requirements of 310 CMR 7.74 for the proposed Project.

2. EMISSION UNIT IDENTIFICATION

Each Emission Unit (EU) identified in Table 1 is subject to and regulated by this Plan Approval:

Table 1

EU	Description	Design Capacity	Pollution Control Device (PCD)
EU1	Pratt & Whitney Model No. FT4000 or equivalent Combustion Turbine Generator	646 MMBtu/hr, HHV (Natural Gas energy input) 606 MMBtu/hr, HHV (ULSD energy input) 67 MW gross electric power output	Water Injection (PCD1) Selective Catalytic Reduction (PCD2) Oxidation Catalyst (PCD3)

Table 1 Key:

EU# = Emission Unit Number
No. = Number
MMBtu/hr = fuel heat input, million British thermal units per hour
HHV = higher heating value basis
MW = Megawatts

3. APPLICABLE REQUIREMENTS

A. OPERATIONAL, PRODUCTION and EMISSION LIMITS

The Permittee is subject to, and shall not exceed the Operational, Production, and Emission Limits as contained in Table 2 below, including footnotes:

Table 2

EU	Operational / Production Limit	Air Contaminant	Emission Limit
EU1	Operation at ≥ MECL, (18) **excluding start-ups and shutdowns** Natural Gas Fuel Heat Input Rate: ≤ 646 MMBtu per hour, HHV Natural Gas Fuel Heat Input: ≤ 807,500 MMBtu, HHV per 12-month rolling period (9) ≤ Qgas MMBtu, HHV per 12-month rolling period (19)	NO_x	≤ 5.94 lb/hr (1, 2) ≤ 0.0092 lb/MMBtu (1, 2) ≤ 2.5 ppmvd @ 15% O_2 (1, 2) ≤ 0.093 lb/MW-hr (1, 2, 10) ≤ 25.0 ppmvd @ 15% O_2 (16) or ≤ 1.2 lb/MW-hr (16)
		CO	≤ 7.24 lb/hr (1, 2) ≤ 0.0112 lb/MMBtu (1, 2) ≤ 5.0 ppmvd @ 15% O_2 (1, 2) ≤ 0.113 lb/MW-hr (1, 2, 10)
		VOC, as Methane (CH_4)	≤ 2.07 lb/hr (1, 2, 5) ≤ 0.0032 lb/MMBtu (1, 2, 5) ≤ 2.5 ppmvd @ 15% O_2 (1, 2, 5) ≤ 0.032 lb/MW-hr (1, 2, 10)
		S in Fuel	≤ 0.5 grains/100 scf
		SO_2	≤ 0.97 lb/hr (1, 2) ≤ 0.0015 lb/MMBtu (1, 2) ≤ 0.3 ppmvd @ 15% O_2 (1, 2) ≤ 0.015 lb/MW-hr (1, 2, 10) ≤ 0.060 lb/MMBtu (17) or ≤ 0.90 lb/MW-hr (17)
		H_2SO_4	≤ 0.97 lb/hr (1, 2) ≤ 0.0015 lb/MMBtu (1, 2) ≤ 0.2 ppmvd @ 15% O_2 (1, 2) ≤ 0.015 lb/MW-hr (1, 2, 10)
		$PM/PM_{10}/PM_{2.5}$	≤ 5.9 lb/hr (1, 8, 12) ≤ 0.021 lb/MMBtu (1, 8, 12) ≤ 0.092 lb/MW-hr (1, 8, 10)

Table 2

EU	Operational / Production Limit	Air Contaminant	Emission Limit
EU1	Same as Above	NH_3	$\leq$ 4.39 lb/hr (1, 2) $\leq$ 0.0068 lb/MMBtu (1, 2) $\leq$ 5.0 ppmvd @ 15% O_2 (1, 2) $\leq$ 0.068 lb/MW-hr (1, 2, 10)
		Pb	NA
		Greenhouse Gases, CO_{2e}	$\leq$ 76,874 lb/hr (13) $\leq$ 1,197 lb/MW-hr (13)
		Opacity	< 5%, except 5% to < 10% for $\leq$ 2 minutes during any one hour (6)
	Operation at $\geq$ MECL, (18) **excluding start-ups and shutdowns** ULSD Fuel Heat Input Rate: $\leq$ 606 MMBtu per hour, HHV ULSD Fuel Heat Input: $\leq$ 151,500 MMBtu, HHV per 12-month rolling period (9) $\leq$ Q_{ULSD} MMBtu, HHV per 12-month rolling period (19)	NO_x	$\leq$ 11.76 lb/hr (1, 3) $\leq$ 0.0194 lb/MMBtu (1, 3) $\leq$ 5.0 ppmvd @ 15% O_2 (1, 3) $\leq$ 0.190 lb/MW-hr (1, 3, 11) $\leq$ 74.0 ppmvd @ 15% O_2 (16) or $\leq$ 3.6 lb/MW-hr (16)
		CO	$\leq$ 7.15 lb/hr (1, 3) $\leq$ 0.0118 lb/MMBtu (1, 3) $\leq$ 5.0 ppmvd @ 15% O_2 (1, 3) $\leq$ 0.116 lb/MW-hr (1, 3, 11)
		VOC, as Methane (CH_4)	$\leq$ 3.70 lb/hr (1, 3, 5) $\leq$ 0.0061 lb/MMBtu (1, 3, 5) $\leq$ 4.5 ppmvd @ 15% O_2 (1, 3, 5) $\leq$ 0.060 lb/MW-hr (1, 3, 11)
		S in Fuel	$\leq$ 0.0015 % by weight
		SO_2	$\leq$ 0.91 lb/hr (1, 3) $\leq$ 0.0015 lb/MMBtu (1, 3) $\leq$ 0.3 ppmvd @ 15% O_2 (1, 3) $\leq$ 0.015 lb/MW-hr (1, 3, 11) $\leq$ 0.060 lb/MMBtu (17) or $\leq$ 0.90 lb/MW-hr (17)
		H_2SO_4	$\leq$ 0.91 lb/hr (1, 3) $\leq$ 0.0015 lb/MMBtu (1, 3) $\leq$ 0.2 ppmvd @ 15% O_2 (1, 3) $\leq$ 0.015 lb/MW-hr (1, 3, 11)

Table 2

EU	Operational / Production Limit	Air Contaminant	Emission Limit
EU1	Same as Above	$PM/PM_{10}/PM_{2.5}$	$\leq$ 18.0 lb/hr (1, 8, 12) $\leq$ 0.066 lb/MMBtu (1, 8, 12) $\leq$ 0.304 lb/MW-hr (1, 8, 11)
		NH_3	$\leq$ 4.36 lb/hr (1, 3) $\leq$ 0.0072 lb/MMBtu (1, 3) $\leq$ 5.0 ppmvd @ 15% O_2 (1, 3) $\leq$ 0.071 lb/MW-hr (1, 3, 11)
		Pb	$\leq$ 0.00000313 lb/MMBtu
		Greenhouse Gases, CO_{2e}	$\leq$ 98,687 lb/hr (14) $\leq$ 1,597 lb/MW-hr (14)
		Opacity	< 10%, except 10% to < 15% for $\leq$ 2 minutes during any one hour (6)
	Operation at < MECL **during start-ups** (4, 15, 18) Start-up duration: $\leq$ 25 minutes (4, 15) Natural Gas	NO_x	$\leq$ 10.3 lb per event (15)
		CO	$\leq$ 21.4 lb per event (15)
		VOC, as Methane (CH_4)	$\leq$ 1.9 lb per event (15)
		S in Fuel	$\leq$ 0.5 grains/100 scf
		SO_2	$\leq$ 0.28 lb per event (15)
		H_2SO_4	$\leq$ 0.28 lb per event (15)
		$PM/PM_{10}/PM_{2.5}$	$\leq$ 2.7 lb per event (8, 15)
		NH_3	NA
		Opacity	< 10% (6, 15)
	Operation at < MECL **during start-ups** (4, 15, 18) Start-up duration: $\leq$ 25 minutes (4, 15) ULSD	NO_x	$\leq$ 17.6 lb per event (15)
		CO	$\leq$ 5.5 lb per event (15)
		VOC, as Methane (CH_4)	$\leq$ 0.24 lb per event (15)
		S in Fuel	$\leq$ 0.0015 % by weight
		SO_2	$\leq$ 0.28 lb per event (15)
		H_2SO_4	$\leq$ 0.28 lb per event (15)
		$PM/PM_{10}/PM_{2.5}$	$\leq$ 8.3 lb per event (8, 15)
		NH_3	NA
		Opacity	< 15% (6, 15)

Table 2			
EU	**Operational / Production Limit**	**Air Contaminant**	**Emission Limit**
EU1	Operation at < MECL **during shutdowns** (4, 15, 18) Shutdown duration: ≤ 10 minutes (4, 15) Natural Gas	NO_x	≤ 2.5 lb per event (15)
		CO	≤ 9.0 lb per event (15)
		VOC, as Methane (CH_4)	≤ 0.78 lb per event (15)
		S in Fuel	≤ 0.5 grains/100 scf
		SO_2	≤ 0.04 lb per event (15)
		H_2SO_4	≤ 0.04 lb per event (15)
		$PM/PM_{10}/PM_{2.5}$	≤ 1.9 lb per event (8, 15)
		NH_3	NA
		Opacity	< 10% (6, 15)
	Operation at < MECL **during shutdowns** (4, 15, 18) Shutdown duration: ≤ 10 minutes (4, 15) ULSD	NO_x	≤ 3.9 lb per event (15)
		CO	≤ 2.2 lb per event (15)
		VOC, as Methane (CH_4)	≤ 0.56 lb per event (15)
		S in Fuel	≤ 0.0015 % by weight
		SO_2	≤ 0.04 lb per event (15)
		H_2SO_4	≤ 0.04 lb per event (15)
		$PM/PM_{10}/PM_{2.5}$	≤ 6.0 lb per event (8, 15)
		NH_3	NA
		Opacity	< 15% (6, 15)
	NA	Smoke	310 CMR 7.06 (1)(a)
		NO_x	≤ 6.3 TPY (7)
		CO	≤ 8.3 TPY (7)
		VOC	≤ 1.8 TPY (7)
		SO_2	≤ 0.6 TPY (7)
		$PM/PM_{10}/PM_{2.5}$	≤ 6.0 TPY (7, 8)
		NH_3	≤ 2.7 TPY (7)
		H_2SO_4	≤ 0.6 TPY (7)
		Pb	≤ 0.00025 TPY (7)
		Formaldehyde or Single HAP	≤ 0.29 TPY (7)
		Total HAPs	≤ 0.41 TPY (7)
		Greenhouse Gases, CO_{2e}	≤ 50,779 TPY (7)

Table 2 Notes:

1. Emission limits are one-hour block averages and do not apply during start-ups and shutdowns.

2. Emission rates are based on burning natural gas at a maximum (100% load) firing rate of 646 MMBtu/hr, HHV at 59ºF ambient temperature, 14.7 psia ambient pressure, and 60% ambient relative humidity with

inlet foggers, wet compression, and burner water injection in service. This constitutes worst case emissions for natural gas firing after allowing for a 3% marginal increase in maximum firing rate.

3. Emission rates are based on burning ULSD at a maximum (100% load) firing rate of 606 MMBtu/hr, HHV at 30ºF ambient temperature, 14.7 psia ambient pressure, and 60% ambient relative humidity with only burner water injection in service. This constitutes worst case emissions for ULSD firing after allowing for a 3% marginal increase in maximum firing rate.

4. Start-ups include the time from flame-on in the combustor (after a period of downtime) until the minimum emissions compliance load (MECL) is reached. Shutdowns include the time from dropping below the MECL until flame-out.

5. VOC emission limit is guaranteed at full (100%) load only. During initial compliance testing (stack testing), the Permittee shall establish the MECL for which compliance with the VOC emission limit will be achieved.

6. Opacity emission limits are one-minute block averages.

7. Worst case emissions for all pollutants, except CO and Total HAP emissions, are based on 1,000 hours of natural gas firing per 12 month rolling period at 646 MMBtu/hr, HHV and 250 hours of ULSD firing per 12 month rolling period at 606 MMBtu/hr, HHV and include 200 startup/shutdown cycles on natural gas and 50 start-up/shutdown cycles on ULSD. Worst case CO and Total HAP emissions are based on 1,250 hours of natural gas firing per 12 month rolling period at 646 MMBtu/hr, HHV and include 250 startup/shutdown cycles on natural gas.

8. $PM/PM_{10}/PM_{2.5}$ emission limit is for the sum of filterable and condensable particulates, including sulfates and apply at all steady state operating loads.

9. Maximum natural gas fuel heat input is based on 1,250 hours of operation per 12 month rolling period at 646 MMBtu/hr, HHV heat input. Maximum ULSD fuel heat input is based on 250 hours of operation per 12 month rolling period at 606 MMBtu/hr, HHV heat input. Maximum combined natural gas and ULSD fuel heat input and hours of operation per 12 month rolling period are based on compliance with the equations in Table 2, Note 19 below.

10. The Project will utilize a high efficiency simple cycle aero-derivative combustion turbine. Based upon the Project design, with inclusion of a performance plus degradation of 7.1% for the life of the Project, the CTG will meet a heat rate of 10.058 MMBtu/MW-hr, HHV gross electric power output at full load (100% load) ISO corrected (59 ºF, 14.7 psia, 60% humidity) for natural gas firing with inlet air fogging, wet compression, and burner water injection in service. Emission limits in lb/MW-hr for all pollutants, except $PM/PM_{10}/PM_{2.5}$, are based on multiplying the full load (100% load) ISO corrected (59 ºF, 14.7 psia, 60% humidity) heat rate of 10.058 MMBtu/MW-hr, HHV gross electric power output for natural gas firing with inlet air fogging, wet compression, and burner water injection in service by the lb/MMBtu emission limits. Emission limit in lb/MW-hr for $PM/PM_{10}/PM_{2.5}$ is based on dividing the emission limit (5.9 lb/hr) by the ISO Pratt & Whitney design MMBtu/hr HHV natural gas firing rate (646 MMBtu/hr) and multiplying by the full load (100% load) ISO corrected (59 ºF, 14.7 psia, 60% humidity) heat rate of 10.058 MMBtu/MW-hr, HHV gross electric power output with inlet air fogging, wet compression, and burner water injection in service. The firing rate of 646 MMBtu/hr HHV is the maximum natural gas firing rate with inlet air fogging, wet compression, and burner water injection in service after allowing for a 3% marginal increase in maximum firing rate. Compliance shall be determined by stack testing at full load (100% load), with turbine parameters corrected to ISO conditions.

11. The Project will utilize a high efficiency simple cycle aero-derivative combustion turbine. Based upon the Project design, with inclusion of a performance plus degradation of 7.1% for the life of the Project, the

CTG will meet a heat rate of 9.807 MMBtu/MW-hr, HHV gross electric power output at full load (100% load) ISO corrected (59 ºF, 14.7 psia, 60% humidity) for ULSD firing with inlet air fogging, wet compression, and burner water injection in service. Emission limits in lb/MW-hr for all pollutants, except $PM/PM_{10}/PM_{2.5}$, are based on multiplying the full load (100% load) ISO corrected (59 ºF, 14.7 psia, 60% humidity) heat rate of 9.807 MMBtu/MW-hr, HHV gross electric power output for ULSD firing with inlet air fogging, wet compression, and burner water injection in service by the lb/MMBtu emission limits. Emission limit in lb/MW-hr for $PM/PM_{10}/PM_{2.5}$ is based on dividing the emission limit (18.0 lb/hr) by the ISO Pratt & Whitney design MMBtu/hr HHV ULSD firing rate (580 MMBtu/hr, HHV) and multiplying by the full load (100% load) ISO corrected (59 ºF, 14.7 psia, 60% humidity) heat rate of 9.807 MMBtu/MW-hr, HHV gross electric power output with inlet air fogging, wet compression, and burner water injection in service. The firing rate of 580 MMBtu/hr, HHV is the maximum ULSD firing rate with inlet air fogging, wet compression, and burner water injection in service after allowing for a 3% marginal increase in maximum firing rate. Compliance shall be determined by stack testing at full load (100% load), with turbine parameters corrected to ISO conditions.

12. $PM/PM_{10}/PM_{2.5}$ emission limit in lb/hr applies at all steady state loads for each fuel (natural gas and ULSD). $PM/PM_{10}/PM_{2.5}$ emission limit in lb/MMBtu is based on dividing the lb/hr limit by the minimum steady state (estimated 50% load) firing rate in MMBtu/hr for each fuel (283 MMBtu/hr, HHV for natural gas and 273 MMBtu/hr, HHV for ULSD).

13. Emission limit is based on full load (100% load) ISO corrected (59 ºF, 14.7 psia, 60% humidity) heat rate of 10.058 MMBtu/MW-hr, HHV gross electrical power output for natural gas firing, with inlet air fogging, wet compression, and burner water injection in service, and a CO_{2e} emission factor of 119.0 lb/MMBtu. This emission factor is based on a CO_2 emission factor of 118.9 lb/MMBtu calculated from Equation G-4 of 40 CFR Part 75 Appendix G plus an emission factor of 0.1 lb/MMBtu for other greenhouse gases (methane and nitrous oxide) calculated utilizing the emission factors for these two pollutants from Table C-2 of 40 CFR Part 98 Subpart C and the global warming potentials for these two pollutants from Table A-1 of 40 CFR Part 98 Subpart A.

14. Emission limit is based on full load (100% load) ISO corrected (59 ºF, 14.7 psia, 60% humidity) heat rate of 9.807 MMBtu/MW-hr, HHV gross electrical power output for ULSD firing, with inlet air fogging, wet compression, and burner water injection in service, and a CO_{2e} emission factor of 162.85 lb/MMBtu. This emission factor is based on a CO_2 emission factor of 162.29 lb/MMBtu calculated from Equation G-4 of 40 CFR Part 75 Appendix G plus an emission factor of 0.56 lb/MMBtu for other greenhouse gases (methane and nitrous oxide) calculated utilizing the emission factors for these two pollutants from Table C-2 of 40 CFR Part 98 Subpart C and the global warming potentials for these two pollutants from Table A-1 of 40 CFR Part 98 Subpart A.

15. Start-up and shutdown emission limits and duration are subject to revision by MassDEP based upon review of initial compliance testing (stack testing) and operational data.

16. NO_x emission limits are from 40 CFR Part 60 Subpart KKKK. Compliance with the BACT NO_x emission limits of this Plan Approval shall be deemed compliance with the NO_x limits from 40 CFR Part 60 Subpart KKKK.

17. SO_2 emission limits are from 40 CFR Part 60 Subpart KKKK. Compliance with the BACT SO_2 emission limits of this Plan Approval shall be deemed compliance with the SO_2 limits from 40 CFR Part 60 Subpart KKKK.

18. Minimum Emissions Compliance Load (MECL) for EU1 shall be a function of ambient temperature and other system parameters and shall be determined during the initial emissions compliance testing to be performed within 180 days after initial firing of EU1.

19. For each 12-month rolling period, the amount of natural gas and ULSD fired in EU1, the hours of operation at $\geq$ MECL on natural gas and ULSD for EU1, and the number of startup and shutdown events on natural gas and ULSD for EU1 shall be limited so that all of the following equations related to 12-month rolling period emission limits for each pollutant are satisfied:

NOx: $[(Qgas)(0.0092\ lb/MMBtu) + (N_1)(10.3\ lb/event) + (N_2)(2.5\ lb/event) + (Q_{ULSD})(0.0194\ lb/MMBtu) + (N_3)(17.6\ lb/event) + (N_4)(3.9\ lb/event)]/(2000\ lbs/ton) \leq 6.3$ TPY NOx

CO: $[(Qgas)(0.0112\ lb/MMBtu) + (N_1)(21.4\ lb/event) + (N_2)(9.0\ lb/event) + (Q_{ULSD})(0.0118\ lb/MMBtu) + (N_3)(5.5\ lb/event) + (N_4)(2.2\ lb/event)]/(2000\ lbs/ton) \leq 8.3$ TPY CO

VOC: $[(Qgas)(0.0032\ lb/MMBtu) + (N_1)(1.9\ lb/event) + (N_2)(0.78\ lb/event) + (Q_{ULSD})(0.0061\ lb/MMBtu) + (N_3)(0.24\ lb/event) + (N_4)(0.56\ lb/event)]/(2000\ lbs/ton) \leq 1.8$ TPY VOC

SO_2/H_2SO_4: $[(Qgas)(0.0015\ lb/MMBtu) + (N_1)(0.28\ lb/event) + (N_2)(0.04\ lb/event) + (Q_{ULSD})(0.0015\ lb/MMBtu) + (N_3)(0.28\ lb/event) + (N_4)(0.04\ lb/event)]/(2000\ lbs/ton) \leq 0.6$ TPY SO_2/H_2SO_4

$PM/PM_{10}/PM_{2.5}$: $[(Hgas)(5.9\ lb/hr) + (N_1)(2.7\ lb/event) + (N_2)(1.9\ lb/event) + (H_{ULSD})(18.0\ lb/hr) + (N_3)(8.3\ lb/event) + (N_4)(6.0\ lb/event)]/(2000\ lbs/ton) \leq 6.0$ TPY $PM/PM_{10}/PM_{2.5}$

Where:
Q = MMBtu HHV of natural gas or ULSD fired in EU1 over the previous 12 month period
N_1 = Number of EU1 startup events on natural gas over the previous 12 month period
N_2 = Number of EU1 shutdown events on natural gas over the previous 12 month period
N_3 = Number of EU1 startup events on ULSD over the previous 12 month period
N_4 = Number of EU1 shutdown events on ULSD over the previous 12 month period
H = Hours of operation of EU1 on natural gas or ULSD at $\geq$ MECL over the previous 12 month period

See also Table 2, Note 15 regarding the startup and shutdown lb/event emission limits, which are subject to revision by MassDEP based upon review of initial compliance testing (stack testing) and operational data.

Table 2 Key:

EU# = Emission Unit Number
No. = Number
NO_x = Nitrogen Oxides
CO = Carbon Monoxide
VOC = Volatile Organic Compounds
S = Sulfur
SO_2 = Sulfur Dioxide
PM = Total Particulate Matter
PM_{10} = Particulate Matter less than or equal to 10 microns in diameter
$PM_{2.5}$ = Particulate Matter less than or equal to 2.5 microns in diameter
NH_3 = Ammonia
H_2SO_4 = Sulfuric Acid
Pb = Lead
HAP = Hazardous Air Pollutants
CO_2 = Carbon Dioxide
CO_{2e} = Greenhouse Gases expressed as Carbon Dioxide equivalent and calculated by multiplying each of the six greenhouse gases (Carbon Dioxide, Nitrous Oxide, Methane, Hydrofluorocarbons, Perfluorocarbons, Sulfur Hexafluoride) mass amount of emissions, in tons per year, by the gas's associated global warming potential published at Table A-1 of 40 CFR Part 98, Subpart A and summing the six resultant values.
CH_4 = Methane

lb = pounds
lb/hr = pounds per hour
MMBtu = million British thermal units, higher heating value (HHV) basis
MMBtu/hr = million British thermal units per hour
lb/MMBtu = pounds per million British thermal units
ppmvd @ 15% O_2 = parts per million by volume, dry basis, corrected to 15 percent oxygen
scf = standard cubic feet
% = percent
lb/MW-hr = pounds per Megawatt-hour gross electrical output
Btu/KW-hr = British thermal units per Kilowatt-hour gross electrical output
TPY = tons per 12-month rolling period
°F = degrees Fahrenheit
psia = pounds per square inch, absolute
CFR = Code of Federal Regulations
ISO = International Organization for Standardization
CTG = combustion turbine generator
ULSD = Ultra Low Sulfur Diesel Fuel Oil containing a maximum of 0.0015 weight percent sulfur
HHV = higher heating value basis
MECL = minimum emissions compliance load
< = less than
≤ = less than or equal to
≥ = greater than or equal to
NA = Not Applicable

B. COMPLIANCE DEMONSTRATION

The Permittee is subject to, and shall comply with, the monitoring, testing, record keeping, and reporting requirements as contained in Tables 3, 4, and 5:

Table 3

EU	Monitoring and Testing Requirements
EU1	1. The Permittee shall ensure that the Facility is constructed to accommodate the emissions (compliance) testing requirements as stipulated in 40 CFR Part 60 Appendix A. The two outlet sampling ports (90 degrees apart from each other) for each emission unit must be located at a minimum of one duct diameter upstream and two duct diameters downstream of any flow disturbance. In addition, the Permittee shall facilitate access to the sampling ports and testing equipment by constructing platforms, ladders, or other necessary equipment.
	2. The Permittee shall ensure that compliance testing of the Facility is completed within 180 days after initial firing of the EU to demonstrate compliance with the emission limits specified in Table 2 of this Plan Approval. All emissions testing shall be conducted in accordance with MassDEP's "Guidelines for Source Emissions Testing" and in accordance with EPA reference test methods as specified in 40 CFR Part 60, Appendix A, 40 CFR Part 60 Subpart KKKK, 40 CFR Parts 72 and 75, or by another method which has been approved in writing by MassDEP. The Permittee shall schedule the compliance testing such that MassDEP personnel can witness it.

Table 3	
EU	**Monitoring and Testing Requirements**
EU1	3. The Permittee shall conduct initial compliance tests of the Facility to document actual emissions of EU1 so as to determine its compliance status versus the emission limits (in lb/hr, lb/MMBtu, ppmvd, and lb/MW-hr, as applicable) in Table 2. Testing shall be conducted at three (3) load conditions that cover the entire normal operating range for each of the fuels burned (natural gas and ULSD): the minimum emissions compliance load (MECL); 75 percent load; and 100 percent load. The Permittee shall test for the following pollutants: NO_x, CO, VOC, SO_2, PM, PM_{10}, $PM_{2.5}$, NH_3, CO_2/CO_{2e}, H_2SO_4, Opacity
	4. The above referenced emissions testing in Table 3, Item 3. shall include testing to develop a correlation between CO and VOC emissions and parametric monitoring testing for NO_x, CO, PM, PM_{10}, $PM_{2.5}$, NH_3, SO_2, and H_2SO_4 emissions.
	5. The Permittee shall install, calibrate, test, and operate a Data Acquisition and Handling System (DAHS) and a Continuous Opacity Monitoring System (COMS) in the stack of EU1 to measure and record Opacity.
	6. The Permittee shall ensure that all emission monitors and recorders serving EU1 comply with MassDEP approved performance and location specifications and conform with the EPA monitoring specifications at 40 CFR 60.13 and 40 CFR Part 60 Appendices B and F.
	7. The Permittee shall ensure that the subject COMS are equipped with properly operated and properly maintained audible and visible alarms to activate whenever emissions from the Facility exceed the Opacity limits established in Table 2 of this Plan Approval.
	8. The Permittee shall operate the COMS at all times except for periods of COMS calibration checks, zero and span adjustments, preventative maintenance, and periods of unavoidable malfunction.
	9. The Permittee shall obtain and record emissions data from the COMS for at least seventy (75) percent of the emission unit's operating hours per day, for at least seventy five (75) percent of the emission unit's operating hours per month, and for at least ninety five (95) percent of the emission unit's operating hours per quarter, except for periods of COMS calibration checks, zero and span adjustments, and preventive maintenance.
	10. All periods of excess emissions occurring at the Facility, even if attributable to an emergency/malfunction, start-up/shutdown or equipment cleaning, shall be quantified and included by the Permittee in the compilation of emissions and determination of compliance with the emission limits as stated in Table 2 of this Plan Approval. ("**Excess Emissions**" are defined as emissions which are in excess of the emission limits as stated in Table 2). An exceedance of emission limits in Table 2 due to an emergency or malfunction shall not be deemed a federally permitted release as that term is used in 42 U.S.C. Section 9601(10).
	11. The Permittee shall use and maintain its COMS as "direct-compliance" monitors to measure Opacity. "Direct-compliance" monitors generate data that legally documents the compliance status of a source.

Table 3	
EU	**Monitoring and Testing Requirements**
EU1	12. The Permittee shall develop a quality assurance/quality control program for the long-term operation of the COMS so as to conform with 40 CFR Part 60 Appendices B and F.
	13. The Permittee shall install, operate, and maintain fuel metering devices and recorders that record natural gas consumption in standard cubic feet (scf) and ULSD consumption in gallons.
	14. The Permittee shall monitor fuel heat input rate (MMBtu/hr, HHV) and total fuel heat input (MMBtu) for each fuel burned (natural gas and ULSD).
	15. The Permittee shall monitor each date and daily hours of operation and total hours of operation per month and twelve-month rolling period.
	16. The Permittee shall ensure that initial compliance tests of the Facility are conducted for start-up and shutdown periods. These compliance tests shall represent periods of operation below the MECL. Emission data generated from this testing shall be made available for review by MassDEP prior to determining and approving the maximum allowable emission limits for all pollutants listed in Table 2 (lb per event) and opacity limits, for these periods of time. MassDEP will incorporate these emission limits into this Plan Approval for the as-built Facility upon issuance and such limits shall be considered enforceable.
	17. The Permittee shall install and operate continuous monitors fitted with alarms to monitor continuously the temperatures at the inlets to the SCR and oxidation catalysts. In addition, the Permittee shall continuously monitor the combustion turbine inlet and ambient temperatures.
	18. If aqueous ammonia is used as a SCR reagent, the Permittee shall install and operate high- and low-level audible alarm monitors on the ammonia storage tank and shall ensure that they are properly maintained.
	19. The Permittee shall monitor the load, start-up and shutdown duration, and calculated mass emissions (lb/event) during start-up and shutdown periods.
	20. The Permittee shall monitor the operation of EU1 in accordance with the surrogate methodology or parametric monitoring developed during the most recent compliance test concerning NO_x, CO, VOC, PM, PM_{10}, $PM_{2.5}$, NH_3, SO_2, and H_2SO_4 emission limits.
	21. The Permittee shall monitor Greenhouse Gas emissions utilizing the calculation procedures in 40 CFR Part 75 Appendix G, Equation G-4; 40 CFR Part 98 Subpart C, Table C-2; and 40 CFR Part 98 Subpart A, Table A-1.
	22. In accordance with 40 CFR Part 60 Subpart KKKK § 60.4335(a), the Permittee shall install, calibrate, maintain and operate a continuous monitoring system to monitor the fuel consumption and the ratio of water-to-fuel being fired in the turbine.

Table 3	
EU	**Monitoring and Testing Requirements**
EU1	23. In accordance with 40 CFR Part 60 Subpart KKKK § 60.4355(a), the water-to-fuel ratio that is continuously monitored must be monitored during the performance test required under § 60.8, to establish acceptable values and ranges. The Permittee may supplement the performance test data with engineering analyses, design specifications, manufacturer's recommendations and other relevant information to define the acceptable parametric ranges more precisely. The Permittee must develop and keep on-site a parameter monitoring plan which explains the procedures used to document proper operation of the NO_X emission controls. The plan must: (1) Include the indicators to be monitored and show there is a significant relationship to emissions and proper operation of the NO_X emission controls, (2) Pick ranges (or designated conditions) of the indicators, or describe the process by which such range (or designated condition) will be established, (3) Explain the process used to make certain that obtained data are representative of the emissions or parameters being monitored (such as detector location, installation specification if applicable), (4) Describe quality assurance and control practices that are adequate to ensure the continuing validity of the data, (5) Describe the frequency of monitoring and the data collection procedures used (e.g., computerized data acquisition over a number of discrete data points with the average (or maximum value) being used for purposes of determining whether an exceedance has occurred), and (6) Submit justification for the proposed elements of the monitoring. If a proposed performance specification differs from manufacturer recommendation, explain the reasons for the differences. Submit the data supporting the justification, but generally available sources of information used to support the justification may be referred to. Engineering assessments and other data may be relied on, provided factors which assure compliance are demonstrated or explain why performance testing is unnecessary to establish indicator ranges. Establishment of indicator ranges shall follow 40 CFR Part 60 Subpart KKKK § 60.4355(a)(6)(i) and (ii).
	24. In accordance with 40 CFR Part 60 Subpart KKKK § 60.4355(b), for affected units that are also subject to 40 CFR Part 75 and that have state approval to use the low mass emissions methodology in 40 CFR Part 75 § 75.19 or the NOx emission measurement methodology in 40 CFR Part 75 Appendix E, develop and keep on-site (or at a central location for unmanned facilities) a QA plan, as described in 40 CFR Part 75 § 75.19(e)(5) or 40 CFR Part 75 Appendix E Section 2.3 and 40 CFR Part 75 Appendix B Section 1.3.6.
	25. In order to satisfy the 40 CFR Part 60 Subpart KKKK CPMS requirements, the Permittee shall continuously monitor, during unit operation, the following parameters which may be used to indicate compliance with NO_x and NH_3 emission limits: burner water injection rate; ambient temperature; SCR system ammonia injection rate; combustion turbine operating load; combustion turbine power output; combustion turbine fuel flow; SCR catalyst temperature; pressure differential across SCR catalyst. Other parameters may be proposed and included in the CPMS.

Table 3	
EU	**Monitoring and Testing Requirements**
EU1	26. In accordance with 40 CFR Part 60 Subpart KKKK, the Permittee shall monitor the sulfur content of natural gas and ULSD in accordance with 40 CFR Part 60 Subpart KKKK § 60.4360 and § 60.4370, or pursuant to alternate fuel sulfur demonstration requirements in accordance with 40 CFR Part 60 Subpart KKKK § 60.4365.
	27. In accordance with 40 CFR Part 60 Subpart KKKK, the Permittee shall monitor the sulfur content of ULSD fuel oil in accordance with 40 CFR Part 60 Subpart KKKK 60.4370(a) by sampling from the ULSD storage tank after each addition of ULSD fuel oil to the tank, or sampling each delivery prior to combining it with ULSD fuel oil already in the storage tank.
	28. In accordance with 40 CFR Part 72 § 72.9 and 40 CFR Part 75, the Permittee shall monitor NO_x, SO_2, and CO_2 emissions in accordance with 40 CFR Part 75 § 75.19 (optional SO_2, NO_x, and CO_2 emissions calculation for low mass emissions units).
	29. The Permittee shall continuously monitor, during unit operation, the following parameters which may be used to indicate compliance with CO and VOC emission limits: burner water injection rate; ambient temperature; oxidation catalyst temperature; combustion turbine operating load; combustion turbine power output; combustion turbine fuel flow; pressure differential across oxidation catalyst.
	30. In accordance with 310 CMR 7.70(8), the Permittee shall comply with all monitoring and testing requirements for annual CO_2 emissions, net electrical output, and net steam output.
Facility-Wide	31. In accordance with 310 CMR 7.71(1), the Permittee shall establish and maintain data systems or record keeping practices (e.g. fuel use records, SF_6 usage documentation) for greenhouse gas emissions to ensure compliance with the reporting provisions of M.G.L. c. 21N, the Climate Protection and Green Economy Act, St. 2008, c. 298, § 6.
	32. The Permittee shall monitor all operations to ensure sufficient information is available to comply with 310 CMR 7.12 Source Registration.
	33. If and when MassDEP requires it, the Permittee shall conduct compliance testing in accordance with EPA Reference Test Methods and 310 CMR 7.13.

Table 3 Key:

EU# = Emission Unit Number
EPA = United States Environmental Protection Agency
CFR = Code of Federal Regulations
CMR = Code of Massachusetts Regulations
DAHS = Data Acquisition and Handling System
COMS = Continuous Opacity Monitoring System
CPMS = Continuous Parametric Monitoring System
SCR = Selective Catalytic Reduction
ULSD = Ultra Low Sulfur Diesel Fuel Oil containing a maximum of 0.0015 weight percent sulfur
NO_x = Nitrogen Oxides
CO = Carbon Monoxide
NH_3 = Ammonia
PM = Particulate Matter
PM_{10} = Particulate Matter less than or equal to 10 microns in size
$PM_{2.5}$ = Particulate Matter less than or equal to 2.5 microns in size

VOC = Volatile Organic Compounds
CO_2 = Carbon Dioxide
CO_{2e} = Greenhouse Gases
SO_2 = Sulfur Dioxide
H_2SO_4 = Sulfuric Acid
SF_6 = Sulfur Hexafluoride
lb = pounds
lb/hr = pounds per hour
lb/MMBtu = pounds per million British thermal units
ppmvd = parts per million by volume, dry basis
lb/MW-hr = pounds per megawatt-hr gross electrical output
scf = standard cubic feet
MMBtu/hr = million British thermal units per hour
MMBtu = million British thermal units
HHV = higher heating value basis
MECL = Minimum Emissions Compliance Load

Table 4

EU	Record Keeping Requirements
EU1	1. The Permittee shall maintain records of all initial compliance and parametric monitoring testing.
	2. The Permittee shall maintain on-site permanent records of flue gas Opacity as measured by the COMS.
	3. The Permittee shall maintain records of natural gas consumption (scf) per month and twelve-month rolling period.
	4. The Permittee shall maintain records of ULSD consumption (gallons) per month and twelve-month rolling period.
	5. The Permittee shall maintain records of hourly fuel heat input rate (MMBtu/hr, HHV), and total fuel heat input (MMBtu) for each fuel burned (natural gas and ULSD) per month and twelve-month rolling period.
	6. The Permittee shall maintain records of each date and daily hours of operation and total hours of operation per month and twelve-month rolling period.
	7. The Permittee shall maintain a log to record problems, upsets or failures associated with the subject emission control systems, DAHS and/or COMS, and the aqueous ammonia or urea handling system.
	8. The Permittee shall maintain continuous records of SCR and oxidation catalyst inlet temperatures. In addition, the Permittee shall continuously record combustion turbine inlet and ambient temperatures.
	9. The Permittee shall maintain the SOMP for the ammonia handling system in a convenient location and make them readily available to all employees.
	10. The Permittee shall continuously estimate and record NO_x, CO, VOC, PM, PM_{10}, $PM_{2.5}$, NH_3, SO_2, and H_2SO_4 emissions using the surrogate methodology or parametric monitoring derived from the most recent compliance test.
	11. The Permittee shall maintain records of the load, start-up and shutdown duration, and calculated mass emissions (lb/event) during start-up and shutdown periods.

Table 4	
EU	**Record Keeping Requirements**
EU1	12. The Permittee shall develop and maintain on-site a CPMS parameter monitoring plan and equipment SOMP which explains the procedures used, including parameter ranges or designated conditions, to document proper operation of the air pollution control equipment and compliance with NO_x, CO, VOC, PM, PM_{10}, $PM_{2.5}$, NH_3, SO_2, and H_2SO_4 emission limitations. The SOMP shall include CPMS validation methods and accuracy audit procedures and frequencies as recommended by the equipment manufacturer, or as required at 40 CFR Part 60 Subpart KKKK, to ensure proper operation.
	13. In accordance with 40 CFR Part 60 Subpart KKKK § 60.4335(a), the Permittee shall install, calibrate, maintain and operate a continuous monitoring system to record the fuel consumption and the ratio of water-to-fuel being fired in the turbine when burning a fuel that requires water injection for compliance.
	14. The Permittee shall maintain continuous records of the unit's burner water injection rate, water-to-fuel ratio, ambient temperature, SCR system ammonia injection rate, combustion turbine operating load, combustion turbine power output, combustion turbine fuel flow, SCR catalyst temperature, and pressure differential across SCR catalyst in order to demonstrate the compliance status of EU1 with respect to NO_x and NH_3 emission limits.
	15. The Permittee shall maintain records of the sulfur content of the natural gas at the frequency required pursuant to 40 CFR Part 60 Subpart KKKK § 60.4360 and § 60.4370, or pursuant to alternate fuel sulfur demonstration requirements in accordance with 40 CFR 60 Subpart KKKK § 60.4365.
	16. The Permittee shall maintain records of the sulfur content of the fuel oil obtained pursuant to 40 CFR Part 60 Subpart KKKK § 60.4370(a).
	17. The Permittee shall maintain continuous records of the unit's burner water injection rate, water-to-fuel ratio, ambient Temperature, oxidation catalyst temperature, combustion turbine operating load, combustion turbine power output, combustion turbine fuel flow, and pressure differential across oxidation catalyst in order to demonstrate the compliance status of EU1 with respect to CO and VOC emission limits.
	18. The Permittee shall maintain records of calculated NO_x, SO_2 and CO_2 emissions and other required records in accordance with 40 CFR Part 75 § 75.19.
	19. In accordance with 40 CFR Part 72 § 72.9 and 40 CFR Part 75, the Permittee shall keep onsite at the source each of the following documents for a period of 5 years from the date the document is created. This period may be extended for cause, at any time prior to the end of 5 years, in writing by EPA or MassDEP: (1) Certificate of representation for the designated representative for the source and all supporting documents; (2) All emissions monitoring information, to the extent that a three (3) year retention period applies under 40 CFR Part 75, the records shall be kept on site for a period of three (3) years instead of five (5) years; (3) Copies of all reports, compliance certifications, other submissions, and all records made or required by the Acid Rain Program.

Table 4	
EU	**Record Keeping Requirements**
EU1	20. In accordance with 310 CMR 7.70(1), (2), and (8), the Permittee shall keep on site at the source all records required under 310 CMR 7.70(1), 310 CMR 7.70(2), and 310 CMR 7.70(8), or unless otherwise stated by MassDEP, for a period of 10 years.
	21. In accordance with 310 CMR 7.74(8), the Permittee shall keep on site at the source all records required under 310 CMR 7.74, for a period of three (3) years, unless otherwise required by MassDEP.
	22. In accordance with 40 CFR Part 60 Subpart TTTT § 60.5520 paragraph (d)(1), the Permittee shall maintain purchase records for natural gas and ULSD.
Facility-Wide	23. In accordance with 310 CMR 7.71(6)(b) and (c), the Permittee shall keep on site at the facility documents of the methodology and data used to quantify emissions for a period of five (5) years from the date the document is created. The Permittee shall make these documents available to MassDEP upon request.
	24. A record keeping system for the Facility shall be established and maintained up to date by the Permittee such that year-to-date information is readily available. Record keeping shall, at a minimum, include: a) Compliance records sufficient to document calculated emissions from the Facility in order to determine compliance with what is allowed by this Plan Approval. Such records shall include, but are not limited to, fuel usage rates, emissions test results, monitoring equipment data and reports; b) Maintenance: A record of routine maintenance activities performed on the subject emission units' control equipment and monitoring equipment at the Facility including, at a minimum, the type or a description of the maintenance performed and the date(s) and time(s) the work was commenced and completed; and, c) Malfunctions: A record of all malfunctions on the subject emission units' control and monitoring equipment at the Facility including, at a minimum: the date and time the malfunction occurred; a description of the malfunction and the corrective action taken; the date and time corrective actions were initiated; and the date and time corrective actions were completed.
	25. The Permittee shall maintain all records required by 310 CMR 7.70, 310 CMR 7.71 (Reporting of Greenhouse Gas Emissions), and 40 CFR Part 98 (Mandatory Greenhouse Gas Emissions Reporting) at the Facility.
	26. The Permittee shall maintain monthly records to demonstrate the Facility's compliance status regarding the Facility-Wide emission limits (TPY) specified in Table 2. Records shall include calculated emissions for the month as well as for the previous 11 months. (The MassDEP approved format can be downloaded at http://www.mass.gov/eea/agencies/massdep/air/approvals/limited-emissions-record-keeping-and-reporting.html#WorkbookforReportingOn-SiteRecordKeeping in Microsoft Excel format.)

Table 4	
EU	**Record Keeping Requirements**
Facility-Wide	27. The Permittee shall maintain a copy of this Plan Approval, underlying Application, and the most up to date SOMP for EU1 and its PCDs approved herein on-site.
	28. The Permittee shall maintain a complaint log concerning emissions, odor, and noise from the Facility. The Permittee shall make available to the general public a telephone number which receives and records complaints concerning the Facility 24 hours per day, 7 days per week. The complaint log shall be maintained for the most recent five (5) year period. The complaint log shall be made available to the public or MassDEP upon request. The Permittee shall take all reasonable actions to respond to said complaints in a timely manner.
	29. The Permittee shall maintain records for the annual preparation of a Source Registration/Emission Statement Form in accordance with 310 CMR 7.12.
	30. The Permittee shall maintain records of monitoring and testing as required by Table 3. All records required by this Plan Approval shall be kept on site for five (5) years and made available for inspection by MassDEP or EPA upon request.

Table 4 Key:

EU# = Emission Unit Number
EPA = United States Environmental Protection Agency
CFR = Code of Federal Regulations
CMR = Code of Massachusetts Regulations
DAHS = Data Acquisition and Handling System
COMS = Continuous Opacity Monitoring System
CPMS = Continuous Parametric Monitoring System
SCR = Selective Catalytic Reduction
ULSD = Ultra Low Sulfur Diesel Fuel Oil containing a maximum of 0.0015 weight percent sulfur
PCD = Pollution Control Device
SOMP = Standard Operating and Maintenance Procedures
NO_x = Nitrogen Oxides
CO = Carbon Monoxide
NH_3 = Ammonia
PM = Particulate Matter
PM_{10} = Particulate Matter less than or equal to 10 microns in size
$PM_{2.5}$ = Particulate Matter less than or equal to 2.5 microns in size
VOC = Volatile Organic Compounds
CO_2 = Carbon Dioxide
SO_2 = Sulfur Dioxide
H_2SO_4 = Sulfuric Acid
lb = pounds
scf = standard cubic feet
MMBtu/hr = million British thermal units per hour
MMBtu = million British thermal units
HHV = higher heating value basis

Table 5	
EU	**Reporting Requirements**
EU1	1. The Permittee must obtain written MassDEP approval of an emissions test protocol prior to initial compliance emissions testing. The protocol shall include a detailed description of sampling port locations, sampling equipment, sampling and analytical procedures, and operating conditions for any such emissions testing. In addition, the protocol shall include procedures for a parametric monitoring strategy to ensure continuous monitoring of NO_x, CO, VOC, PM, PM_{10}, $PM_{2.5}$, NH_3, SO_2, and H_2SO_4 emissions. The protocol must be submitted to MassDEP at least sixty (60) days prior to commencement of testing.
	2. The Permittee shall submit a final emissions test results report to MassDEP within sixty (60) days after completion of the initial compliance emissions testing program.
	3. A QA/QC program plan for the COMS must be submitted, in writing, at least thirty (30) days prior to commencement of commercial operation of the subject emission unit. MassDEP must approve the QA/QC program prior to its implementation. Subsequent changes to the QA/QC program plan shall be submitted to MassDEP for MassDEP approval prior to their implementation.
	4. The Permittee shall submit a quarterly Excess Emissions Report to MassDEP by the thirtieth (30th) day of April, July, October, and January covering the previous calendar periods of January through March, April through June, July through September, and October through December, respectively. The report shall contain at least the following information: a) The Facility COMS excess emissions data, in a format acceptable to MassDEP. b) For each period of excess emissions or excursions from allowable operating conditions for the emission unit, the Permittee shall list the duration, cause, the response taken, and the amount of excess emissions. Periods of excess emissions shall include periods of start-up, shutdown, malfunction, emergency, equipment cleaning, and upsets or failures associated with the emission control system or COMS. ("**Malfunction**" means any sudden and unavoidable failure of air pollution control equipment or process equipment or of a process to operate in a normal or usual manner. Failures that are caused entirely or in part by poor maintenance, careless operation, or any other preventable upset condition or preventable equipment breakdown shall not be considered malfunctions. "**Emergency**" means any situation arising from sudden and reasonably unforeseeable events beyond the control of this source, including acts of God, which situation would require immediate corrective action to restore normal operation, and that causes the source to exceed a technology based limitation under the Plan Approval, due to unavoidable increases in emissions attributable to the emergency. An emergency shall not include noncompliance to the extent caused by improperly designed equipment, lack of preventative maintenance, careless or improper operations, operator error or decision to keep operating despite knowledge of these things.) c) A tabulation of periods of operation (including dispatch) and total hours of operation during the calendar quarter.

Table 5	
EU	**Reporting Requirements**
EU1	5. After completion of the initial compliance emissions testing program, the Permittee shall submit information for MassDEP review that documents the actual emissions impacts generated during start-up and shutdown periods versus any applicable NAAQS and SILs or the AALs and TELs for air toxics. This information shall be submitted to MassDEP as part of the final emissions test results report.
	6. The Permittee shall submit to MassDEP, in accordance with the provisions of Regulation 310 CMR 7.02(5)(c), plans and specifications for the main exhaust stack, CTG, the SCR control system (including the ammonia or urea handling and storage system), the oxidation catalyst control system, and the COMS, and DAHS once the specific information has been determined, but in any case not later than thirty (30) days prior to commencement of construction/installation of each component of the subject emission unit.
	7. The Permittee shall submit a plan for testing the proposed continuous parametric monitoring system (CPMS) to determine appropriate indicator ranges for each candidate parameter along with justification for the parameters to be used. The required test protocol and candidate indicator monitoring plan shall be submitted at least sixty (60) days prior to the commencement of compliance testing at the Facility.
	8. The Permittee shall submit the Final Standard Operating and Maintenance Procedures (SOMP) for EU1, along with the final parameter monitoring plan and established ranges for the CPMS parameters, to MassDEP within sixty (60) days of completion of the required initial compliance testing.

Table 5	
EU	**Reporting Requirements**
EU1	9. In accordance with 40 CFR 60 Subpart KKKK § 60.4375(a), for each affected unit required to monitor parameters or emissions, the Permittee shall submit a report of excess emissions and monitor downtime in accordance with 40 CFR Part 60 § 60.7(c). In accordance with 40 CFR Part 60 Subpart KKKK § 60.4395, all reports required under 40 CFR Part 60 § 60.7(c) must be postmarked by the thirtieth (30^{th}) day following the end of each 6-month period. The semi-annual report for the first six months of each year is due by July 30 of that year. The semi-annual report for the last six months of each year is due by January 30 of the following year. Consistent with 40 CFR Part 60 Subpart KKKK § 60.4380(a)(1), for combustion turbines using water-to-fuel ratio monitoring, an excess emission is any unit operating hour for which the 4-hour rolling average water-to-fuel ratio, as measured by the continuous monitoring system, falls below the acceptable water-to-fuel ratio needed to demonstrate compliance, as established during the initial compliance test. Any unit operating hour in which no water is injected into the combustion turbine when a fuel is being burned that requires water injection for NO_x control will also be considered an excess emission. In accordance with 40 CFR Part 60 Subpart KKKK § 60.4380(a)(2), for combustion turbines using water-to-fuel ratio monitoring, a period of monitor downtime is any unit operating hour in which water is injected into the combustion turbine, but the essential parametric data needed to determine the water-to-fuel ratio are unavailable or invalid. In accordance with 40 CFR Part 60 Subpart KKKK § 60.4380(a)(3), for combustion turbines using water-to-fuel ratio monitoring, each report submitted to MassDEP must include the average water-to-fuel ratio, average fuel consumption, and the combustion turbine load during each excess emission.

Table 5	
EU	**Reporting Requirements**
EU1	10. In accordance with 40 CFR 60 Subpart KKKK § 60.4375(a), for each affected unit required to periodically determine the fuel sulfur content under this subpart, the Permittee shall submit a report of excess emissions and monitor downtime in accordance with 40 CFR Part 60 § 60.7(c). In accordance with 40 CFR Part 60 Subpart KKKK § 60.4395, all reports required under 40 CFR Part 60 § 60.7(c) must be postmarked by the thirtieth (30^{th}) day following the end of each 6-month period. The semi-annual report for the first six months of each year is due by July 30 of that year. The semi-annual report for the last six months of each year is due by January 30 of the following year. Consistent with 40 CFR 60 Subpart KKKK § 60.4385(a), for samples of gaseous fuel and for oil samples obtained by sampling from the unit's storage tank, an excess emission occurs each unit operating hour included in the period beginning on the date and hour of any sample for which the sulfur content of the fuel being fired in the combustion turbine exceeds the applicable limit and ending on the date and hour that a subsequent sample is taken that demonstrates compliance with the sulfur limit. In accordance with 40 CFR 60 Subpart KKKK § 60.4385(b), if the option to sample each delivery of fuel oil has been selected, the Permittee shall immediately switch to one of the other oil sampling options (i.e. sampling from the unit's storage tank) if the sulfur content of a delivery exceeds the sulfur limit. The Permittee shall continue to use one of the other sampling options until all of the oil from the delivery has been combusted and the Permittee must evaluate excess emissions according to 40 CFR 60 Subpart KKKK § 60.4385(a). When all of the fuel from the delivery has been burned, the Permittee may resume using the as-delivered sampling option. In accordance with 40 CFR 60 Subpart KKKK § 60.4385(c), a period of monitor downtime begins when a required sample is not taken by its due date. A period of monitor downtime also begins on the date and hour of a required sample, if invalid results are obtained. The period of monitor downtime ends on the date and hour of the next valid sample.
	11. In accordance with 40 CFR Part 75, the Permittee shall comply with applicable reporting requirements under 40 CFR Part 75, Subpart G. Requirements for notifications are specified in 40 CFR Part 75 § 75.61. Requirements for monitoring plan submittals are specified in 40 CFR Part 75 § 75.62. Requirements for certification applications are specified in 40 CFR Part 75 § 75.63. Requirements for quarterly reports are specified in 40 CFR Part 75 § 75.64.
	12. In accordance with 40 CFR Part 72 § 72.9 and 40 CFR Part 75, the Permittee shall submit to the appropriate MassDEP Regional Office and EPA any notification of testing or any testing protocol.
	13. In accordance with 40 CFR Part 72 § 72.9 and 40 CFR Part 75, the Permittee shall submit a Quarterly SO_2 report to EPA within 30 days following the end of each calendar quarter.
	14. In accordance with 40 CFR Part 72 § 72.9 and 40 CFR Part 75, the Permittee shall submit a Quarterly NO_X report to EPA within 30 days following the end of each calendar quarter.

Table 5	
EU	**Reporting Requirements**
EU1	15. In accordance with 40 CFR Part 77, the Permittee shall submit a proposed offset plan in any calendar year where EU1 has excess emissions. In addition, the Permittee shall pay any penalties specified in 40 CFR Part 77 and comply with the terms of an approved offset plan.
	16. In accordance with 310 CMR 7.70(1)(e)1.a.i. and 310 CMR 7.70(3)(b), the Permittee's "CO_2 authorized account representative" shall submit to MassDEP a complete CO_2 budget emission control plan under 310 CMR 7.70(3)(c) governing EU1 at least 12 months before the date on which the CO_2 budget source commences operation.
	17. In accordance with 310 CMR 7.70(8)(d), the Permittee shall submit to the MassDEP Northeast Regional Office and EPA any notification of testing or any testing protocol in compliance with the requirements of 40 CFR Part 75 § 75.61.
	18. In accordance with 310 CMR 7.70(8)(e)3., the Permittee shall submit a Monitoring System certification to the MassDEP Northeast Regional Office within forty five (45) days after completing all CO_2 monitoring system initial certification or recertification tests required under 310 CMR 7.70(8)(b).
	19. In accordance with 310 CMR 7.70(4)(a)1., the Permittee shall submit a Triennial Compliance Certification Report for each control period electronically in the RGGI CO_2 Allowance Tracking System (COATS) to MassDEP by March 1st of the calendar year following the control period.
	20. In accordance with 310 CMR 7.70(8)(h)6.c., the Permittee shall submit an Annual Net Output Report for each calendar year electronically to MassDEP's agent in a format prescribed by MassDEP by March 1st of the preceding calendar year.
	21. In accordance with 310 CMR 7.70(8)(e)4.b., the Permittee shall submit a Quarterly CO_2 Emissions Report electronically to EPA within 30 days following the end of the calendar quarter covered by the report.
	22. In accordance with 310 CMR 7.74(7)(a), the Permittee shall submit to MassDEP by February 1st, 2019, and each February 1st thereafter, a CO_2 Emissions Report.
	23. In accordance with 310 CMR 7.74(7)(b), the Permittee shall submit to MassDEP by March 1st, 2019 and each March 1st thereafter, a Compliance Certification Report.
Facility-Wide	24. In accordance with 310 CMR 7.71(5), the Permittee shall electronically submit and certify by April 15th of each year a greenhouse gas emissions report to MassDEP.
	25 The Permittee shall submit to MassDEP a plan for monitoring and abating air and noise impacts during the period of construction of the Facility, not later than 30 days prior to commencement of construction.
	26. The Permittee shall submit, in writing, the following notifications to MassDEP within fourteen (14) days after each occurrence: a) date of commencement of construction of the subject emission unit at the Facility; b) date when construction has been completed of the subject emission unit at the Facility; c) date of initial startup of the subject emission unit at the Facility; d) date when the subject emission unit at the Facility is either ready for commercial operation or has commenced commercial operation.

Table 5	
EU	**Reporting Requirements**
Facility-Wide	27. In accordance with 310 CMR 7.00: Appendix C, an application for an Operating Permit shall be submitted to MassDEP no later than one year after commencement of operation.
	28. If the Facility is subject to 40 CFR Part 68, due to the presence of a regulated substance above a threshold quantity in a process, the Permittee must submit a Risk Management Plan no later than the date the regulated substance is first present above a threshold quantity.
	29. The Permittee must notify MassDEP by telephone or fax or e-mail [nero.air@mass.gov] as soon as possible, but in any case no later than three (3) business days after the occurrence of any upsets or malfunctions to the Facility equipment, air pollution control equipment, or monitoring equipment which result in an excess emission to the air and/or a condition of air pollution.
	30. If a 19% solution of aqueous ammonia is used as the SCR reagent, the Permittee shall notify MassDEP immediately by telephone or fax or e-mail [nero.air@mass.gov] and within three (3) working days, in writing, of any upset or malfunction to the ammonia handling or delivery systems that resulted in a release or threat of release of ammonia to the ambient air at the Facility. In addition, the Permittee must comply with all notification procedures required under M.G.L. c. 21 E for any release or threat of release of ammonia.
	31. The Permittee shall submit a semi-annual report to MassDEP by July 30 and January 30 of each year to demonstrate the Facility's compliance status regarding the Facility-Wide emission limits (TPY) specified in Table 2. Reports shall include calculated emissions for the previous 12 months. (The MassDEP approved format can be downloaded at http://www.mass.gov/eea/agencies/massdep/air/approvals/limited-emissions-record-keeping-and-reporting.html#WorkbookforReportingOn-SiteRecordKeeping in Microsoft Excel format.)
	32. The Permittee shall submit to MassDEP a SOMP for the subject emission unit and associated control and monitoring/recording systems at the Facility no later than thirty (30) days prior to commencement of commercial operation of the unit. Thereafter, the Permittee shall submit updated versions of the SOMP to MassDEP no later than thirty (30) days prior to the occurrence of a significant change. MassDEP must approve of significant changes to the SOMP prior to the SOMP becoming effective. The updated SOMP shall supersede prior versions of the SOMP.
	33. The Permittee shall submit to MassDEP all information required by this Plan Approval over the signature of a "Responsible Official" as defined in 310 CMR 7.00 and shall include the Certification statement as provided in 310 CMR 7.01(2)(c).

Table 5	
EU	**Reporting Requirements**
Facility-Wide	34. All notifications and reporting to MassDEP required by this Plan Approval shall be made to the attention of: Department of Environmental Protection/Bureau of Waste Prevention 205B Lowell Street Wilmington, Massachusetts 01887 Attn: Permit Chief Phone: (978) 694-3200 Fax: (978) 694-3499 E-Mail: nero.air@mass.gov
	35. The Permittee shall report annually to MassDEP, in accordance with 310 CMR 7.12, all information as required by the Source Registration/Emission Statement Form. The Permittee shall note therein any minor changes (under 310 CMR 7.02(2)(e), 7.03, 7.26, etc.), which did not require plan approval.
	36. The Permittee shall provide a copy to MassDEP of any record required to be maintained by this Plan Approval within thirty (30) days from MassDEP's request.
	37. If and when MassDEP requires compliance testing, the Permittee shall submit to MassDEP for approval a stack emission pretest protocol, at least sixty (60) days prior to emission testing, for emission testing as defined in Table 3 Monitoring and Testing Requirements.
	38. If and when MassDEP requires compliance testing, the Permittee shall submit to MassDEP a final stack emission test results report, within sixty (60) days after emission testing, for emission testing as defined in Table 3 Monitoring and Testing Requirements.

Table 5 Key:

EU# = Emission Unit Number
EPA = United States Environmental Protection Agency
COMS = Continuous Opacity Monitoring System
CPMS = Continuous Parametric Monitoring System
DAHS = Data Acquisition and Handling System
CFR = Code of Federal Regulations
CMR = Code of Massachusetts Regulations
M.G.L. = Massachusetts General Laws
SOMP = Standard Operating and Maintenance Procedures
QA/QC = Quality Assurance/Quality Control
CTG = Combustion Turbine Generator
SCR = Selective Catalytic Reduction
TPY = tons per 12 month rolling period
NO_x = Nitrogen Oxides
CO = Carbon Monoxide
NH_3 = Ammonia
PM = Particulate Matter
PM_{10} = Particulate Matter less than or equal to 10 microns in size
$PM_{2.5}$ = Particulate Matter less than or equal to 2.5 microns in size
VOC = Volatile Organic Compounds

CO_2 = Carbon Dioxide
SO_2 = Sulfur Dioxide
H_2SO_4 = Sulfuric Acid
NAAQS = National Ambient Air Quality Standards
SILs = Significant Impact Levels
AAL = Allowable Ambient Limit
TEL = Threshold Effects Exposure Limit
COATS = CO_2 Allowance Tracking System

4. SPECIAL TERMS AND CONDITIONS

A. The Permittee is subject to, and shall comply with, the Special Terms and Conditions as contained in Table 6 below:

Table 6

EU	Special Terms and Conditions
EU1	1. The Permittee shall retrofit the exhaust stack exit of PMLP-2 with extra baffle silencers capable of achieving a 7 to 10 dBA reduction in sound power level, emitted from the PMLP-2 stack compared to the PMLP-2 stack baseline measurements, prior to initial startup of EU1. The Permittee shall notify MassDEP within fourteen (14) days after completion of said retrofit.
	2. The Permittee shall not allow the combustion turbine to operate below the MECL, except for start-ups and shutdowns. Emissions during start-ups and shutdowns shall be included in the TPY limits specified in Table 2.
	3. The Permittee shall ensure that the SCR control equipment is operational whenever the turbine exhaust temperature at the SCR unit attains the minimum exhaust temperature specified by the SCR vendor and other system parameters are satisfied for SCR operation.
	4. If aqueous ammonia is used as a SCR reagent, the Permittee shall maintain in the Facility control room, properly maintained, operable, portable ammonia detectors for use during an ammonia spill, or other emergency situation involving ammonia at the Facility.
	5. The Permittee shall develop as part of the Standard Operating Procedures, an MECL optimization protocol to establish minimum operating load that maintains compliance with all emission limitations at various ambient temperatures.
	6. The Permittee shall maintain an adequate supply of spare parts on-site to maintain the on-line availability and data capture requirements for the COMS equipment.
	7. In accordance with 40 CFR 60 Subpart KKKK § 60.4333(a), the Permittee shall operate and maintain the stationary combustion turbine, air pollution control equipment, and monitoring equipment in a manner consistent with good air pollution control practices for minimizing emissions at all times including during startup, shutdown, and malfunction.
	In accordance with 40 CFR Part 72 § 72.9, the Permittee shall hold SO_2 allowances, as of the allowance transfer deadline in the Permittee's compliance account not less than the total annual emissions of SO_2 for the previous calendar year; and comply with the applicable Acid Rain emission limitations for SO_2.

Table 6	
EU	**Special Terms and Conditions**
EU1	In accordance with 310 CMR 7.70(1)(e)3., the Permittee shall hold CO_2 allowances in a compliance account in an amount not less than the CO_2 Budget Emissions Limitation.
	The Permittee shall comply with the CO_2 emissions limits contained in 310 CMR 7.74(5) for calendar year 2018 and each year thereafter. The Permittee may offset all emissions using allowances in the facility allowance registry account in accordance with 310 CMR 7.74(6)(b) or request deferred compliance due to an emergency in accordance with 310 CMR 7.74(6)(d).
	In accordance with 310 CMR 7.74(6)(e), the Permittee shall hold CO_2 allowances in an allowance registry account in an amount equal to or greater than the sum of either: (1) The prior calendar year CO_2 emissions, minus any emissions for which compliance is deferred in accordance with 310 CMR 7.74(6)(d); or (2) Twice the amount of CO_2 emissions emitted during the year before the prior calendar year if compliance was deferred pursuant to 310 CMR 7.74(6)(d).
Facility-Wide	6. The Permittee shall properly train all personnel to operate the Facility and the control and monitoring equipment serving the Facility in accordance with vendor specifications. All persons responsible for the operation of the Facility shall sign a statement affirming that they have read and understand the approved SOMP. Refresher training shall be given by the Permittee to Facility personnel at least once annually.
	7. Prior to commencing construction of EU1, the roadways serving said Facility shall be paved and maintained free of deposits that could result in excessive dust emissions.
	8. The Permittee shall comply with all provisions of 40 CFR Parts 72 and 75, 40 CFR Part 60, 40 CFR Part 63, 40 CFR Part 64, 40 CFR Part 68, 40 CFR Part 98, and 310 CMR 6.00 through 8.00 that are applicable to this Facility.
	9. All requirements of this Approval which apply to the Permittee shall apply to all subsequent owners and/or operators of the Facility.
	10. The Permittee shall comply with all applicable portions of Section 112(r) of the Clean Air Act and associated regulations at 40 CFR Part 68.

Table 6 Key:

EU# = Emission Unit Number
CFR = Code of Federal Regulations
CMR = Code of Massachusetts Regulations
SOMP = Standard Operating and Maintenance Procedures
COMS = Continuous Opacity Monitoring System
SCR = Selective Catalytic Reduction
SO_2 = Sulfur Dioxide
CO_2 = Carbon Dioxide
TPY = tons per 12 month rolling period
MECL = Minimum Emissions Compliance Load
dBA = Decibels, A-weighted
PMLP-2 = Peabody Municipal Light Plant Unit 2

B. The Permittee shall install and use an exhaust stack, as required in Table 7, on each of the Emission Units that is consistent with good air pollution control engineering practice and that discharges so as to not cause or contribute to a condition of air pollution. Each exhaust stack shall be configured to discharge the gases vertically and shall not be equipped with any part or device that restricts the vertical exhaust flow of the emitted gases, including, but not limited to, rain protection devices known as "shanty caps" and "egg beaters."

C. The Permittee shall install and utilize exhaust stacks with the following parameters, as contained in Table 7, for the Emission Unit that is regulated by this Plan Approval:

Table 7

EU	Stack Height Above Ground (feet)	Stack Inside Exit Diameter (feet)	Stack Gas Exit Velocity Range (feet per second)	Stack Gas Exit Temperature Range (ºF)
MMWEC-1	90	14	24 to 76	530 to 690

Table 7 Key:

EU# = Emission Unit Number
ºF = degrees Fahrenheit

5. GENERAL CONDITIONS

The Permittee is subject to, and shall comply with, the following general conditions:

A. Pursuant to 310 CMR 7.01, 7.02, 7.09 and 7.10, should any nuisance condition(s), including but not limited to smoke, dust, odor or noise, occur as the result of the operation of the Facility, then the Permittee shall immediately take appropriate steps including shutdown, if necessary, to abate said nuisance condition(s).

B. If asbestos remediation/removal will occur as a result of the approved construction, reconstruction, or alteration of this Facility, the Permittee shall ensure that all removal/remediation of asbestos shall be done in accordance with 310 CMR 7.15 in its entirety and 310 CMR 4.00.

C. If construction or demolition of an industrial, commercial or institutional building will occur as a result of the approved construction, reconstruction, or alteration of this Facility, the Permittee shall ensure that said construction or demolition shall be done in accordance with 310 CMR 7.09(2) and 310 CMR 4.00.

D. Pursuant to 310 CMR 7.01(2)(b) and 7.02(7)(b), the Permittee shall allow MassDEP and/or EPA personnel access to the Facility, buildings, and all pertinent records for the purpose of making inspections and surveys, collecting samples, obtaining data, and reviewing records.

E. This Plan Approval does not negate the responsibility of the Permittee to comply with any other applicable Federal, State, or local laws or regulations now or in the future.

F. The Application is incorporated into this Plan Approval by reference. Should there be any differences between the Application and this Plan Approval, the Plan Approval shall govern.

G. Pursuant to 310 CMR 7.02(3)(k), MassDEP may revoke this Plan Approval if the construction work is not commenced within two years from the date of issuance of this Plan Approval, or if the construction work is suspended for one year or more.

H. This Plan Approval may be suspended, modified, or revoked by MassDEP if MassDEP determines that any condition or part of this Plan Approval is being violated.

I. This Plan Approval may be modified or amended when in the opinion of MassDEP such is necessary or appropriate to clarify the Plan Approval conditions or after consideration of a written request by the Permittee to amend the Plan Approval conditions.

J. Pursuant to 310 CMR 7.01(3) and 7.02(3)(f), the Permittee shall comply with all conditions contained in this Plan Approval. Should there be any differences between provisions contained in the General Conditions and provisions contained elsewhere in the Plan Approval, the latter shall govern.

6. MASSACHUSETTS ENVIRONMENTAL POLICY ACT

The proposed Facility was subject to review under the Massachusetts Environmental Policy Act (MEPA) and its implementing regulations at 301 CMR 11.00, because it requires a State Agency Action and includes the expansion of an existing electric generating facility by 25 or more Megawatts pursuant to 301 CMR 11.03(7)(b)(2). An Environmental Notification Form (ENF) filed by the Permittee with the Executive Office of Energy and Environmental Affairs MEPA Office was noticed in the Environmental Monitor on September 7, 2016. Pursuant to the Massachusetts Environmental Policy Act (Massachusetts General Laws Chapter 30, Sections 61-62I) and Section 11.06 of the MEPA regulations (301 CMR 11.00), the Secretary of the Executive Office of Energy and Environmental Affairs determined in the certificate issued on October 7, 2016 that the ENF (EEA #15578) sufficiently defined the nature and general elements of the project for the purposes of MEPA review and demonstrated that the project's environmental impacts will be avoided, minimized and/or mitigated to the extent practicable. Based on review of the ENF and comments received, and in consultation with State Agencies, the Secretary determined that no further review was required and therefore, that the project did not require an Environmental Impact Report (EIR).

7. APPEAL OF DECISION

This Decision is an action of MassDEP. If you are aggrieved by this action, you may request an adjudicatory hearing. A request for a hearing must be made in writing and postmarked within twenty-one (21) days of the date of issuance of this Decision.

Under 310 CMR 1.01(6)(b), the request must state clearly and concisely the facts, which are the grounds for the request, and the relief sought. Additionally, the request must state why the Decision is not consistent with applicable laws and regulations.

The hearing request along with a valid check payable to the Commonwealth of Massachusetts in the amount of one hundred dollars ($100.00) and a completed Adjudicatory Hearing Fee Transmittal Form, http://www.mass.gov/eea/docs/dep/service/adr/adjherfm.doc must be mailed to:

Commonwealth of Massachusetts
Department of Environmental Protection
P.O. Box 4062
Boston, MA 02211

This request will be dismissed if the filing fee is not paid, unless the appellant is exempt or granted a waiver as described below. The filing fee is not required if the appellant is a city or town (or municipal agency), county, or district of the Commonwealth of Massachusetts, or a municipal housing authority.

MassDEP may waive the adjudicatory hearing-filing fee for a person who shows that paying the fee will create an undue financial hardship. A person seeking a waiver must file, together with the hearing request as provided above, an affidavit setting forth the facts believed to support the claim of undue financial hardship.

Should you have any questions concerning this Plan Approval, please contact Cosmo Buttaro by telephone at 978-694-3281, or in writing at the letterhead address.

Sincerely,

This final document copy is being provided to you electronically by the Department of Environmental Protection. A signed copy of this document is on file at the DEP office listed on the letterhead.

Cosmo Buttaro
Environmental Engineer

This final document copy is being provided to you electronically by the Department of Environmental Protection. A signed copy of this document is on file at the DEP office listed on the letterhead.

Edward J. Braczyk
Permit Chief
Bureau of Air and Waste

cc: George Lipka, Tetra Tech, 160 Federal Street, 3rd Floor, Boston, MA 02110
Department of Health & Human Services, 24 Lowell Street, Peabody, MA 01960
Fire Headquarters, 41 Lowell Street, Peabody, MA 01960
Metropolitan Area Planning Council, 60 Temple Place, Boston, MA 02111
Deirdre Buckley, MEPA, Executive Office of Energy and Environmental Affairs, 100 Cambridge Street, Suite 900, Boston, MA 02114
United States Environmental Protection Agency (EPA) – New England Regional Office, 5 Post Office Square, Suite 100, Mail Code OEP05-2, Boston, Massachusetts 02109-3912 Attn: Patrick Bird
EPA: Undine Kipka (e-copy)
MassDEP/Boston: Yi Tian (e-copy)
MassDEP/WERO: Marc Simpson (e-copy)
MassDEP/CERO: Thomas Hannah (e-copy)
MassDEP/SERO: Thomas Cushing (e-copy)
MassDEP/NERO: Martha Bolis (e-copy & hard copy), Edward Braczyk (e-copy), Mary Persky (hard copy), Cosmo Buttaro (hard copy)

Eric Worrall, Regional Director, MassDEP NERO
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