Commonwealth of Massachusetts
Executive Office of Energy & Environmental Affairs

Department of Environmental Protection
Northeast Regional Office • 205B Lowell Street, Wilmington MA 01887 • 978-694-3200

DATE STAMPED JUNE 21, 2017

Mr. Louis DiBerardinis
Director of EHS Office
Massachusetts Institute of Technology
N52-496
77 Massachusetts Avenue
Cambridge, MA 02139-4307

RE: **CAMBRIDGE**
Transmittal No.: X262144
Application No.: NE-15-018
Class: OP
FMF No. 314888; RO No. 314889
AIR QUALITY PLAN APPROVAL

Dear Mr. DiBerardinis:

The Massachusetts Department of Environmental Protection (MassDEP or Department), Bureau of Air and Waste, has reviewed the Massachusetts Institute of Technology (MIT or Facility) Major Comprehensive Plan Application (Application) listed above, dated December, 2015. This Application concerns the proposed construction and operation of two nominal 22 megawatt (MW) combined heat and power (CHP) units, each consisting of a combustion turbine generator (CTG) with an associated heat recovery steam generator (HRSG) equipped with a natural gas-fired duct burner (DB), to be located in a building that will be constructed on Albany Street at the site of an existing surface parking lot on the Cambridge, Massachusetts campus, between MIT Building N16 at 60 Albany Street and MIT's existing Albany Parking Garage at 32 Albany Street. The new building will be designated as MIT Building 42C.

Your Application also involves the proposed construction and operation of a 2 MW Ultra-Low Sulfur Distillate (ULSD)-fired emergency engine to be operated in the event of a power outage in order to start the proposed combustion turbines. In addition, your Application proposes to cease the burning of the higher polluting residual fuel oil in your existing boilers, BLR-42-3, BLR-42-4, and BLR-42-5, in favor of committing to burn natural gas as the primary fuel with limited ULSD as a backup fuel in said boilers and to also significantly reduce the quantity of allowable backup ULSD firing in your existing boilers BLR-42-7 and BLR-42-9. Collectively these changes at your Facility are referred to by MIT as the Combustion Turbine Expansion Project (hereinafter referred to as "Project" for purposes of this Plan Approval).

Additionally, MIT recently installed, independent of the Project, three new cooling towers, Cooling Tower 11, Cooling Tower 12, and Cooling Tower 13 and these units are also considered by MassDEP as part of the Project.

The December 2015 Application was revised and resubmitted in May 2016 and on December 21, 2016 and insert pages were submitted on March 31, 2017. The Application bears the seal and signature of Andrew Jablonowski, P.E., Massachusetts Registered Professional Engineer number 39123.

This Application was submitted in accordance with 310 Code of Massachusetts Regulations (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.

This Plan Approval allows for construction and operation of the Project and provides information on the Project description, emission control systems, emissions limits, Continuous Emissions Monitoring Systems (CEMS), Continuous Opacity Monitoring Systems (COMS), monitoring/testing, record keeping, and reporting requirements as well as applicable special conditions.

On April 11, 2011, MassDEP and the U.S. Environmental Protection Agency Region 1 (EPA) executed an agreement regarding the Federal Prevention of Significant Deterioration of Air Quality (PSD) titled "Agreement for Delegation of the Federal PSD program by EPA to MassDEP" (PSD Delegation Agreement). This PSD Delegation Agreement directs that all Permits issued by MassDEP under the Agreement follow the applicable procedures in 40 CFR 52.21 and 40 CFR Part 124 regarding permit issuance, modification and appeals. MIT's Project triggers PSD review for particulate matter (PM) including PM having a diameter of less than or equal to 10 microns (PM_{10}) and PM having a diameter of less than or equal to 2.5 microns ($PM_{2.5}$), collectively referred to as PM/PM_{10}/ $PM_{2.5}$, and greenhouse gases (GHG) expressed as carbon dioxide equivalents (CO_2e). Therefore, MassDEP is concurrently issuing a separate PSD Permit for emissions of those pollutants as well as an accompanying PSD Fact Sheet for the Project.

The PSD Fact Sheet for the PSD Permit is attached to this Plan Approval. The Fact Sheet explains MassDEP's evaluation of Best Available Control Technology (BACT) for PSD-applicable emissions of PM/PM_{10}/$PM_{2.5}$ and GHG expressed as CO_2e, of air quality impacts, and of other special considerations of PSD review.

Pursuant to 310 CMR 7.02(3)(j)6., the emission limits in MassDEP's approval of the Project must represent the most stringent emission limit as specified in 310 CMR 7.02(8). Under 310 CMR 7.02(8)(a)2., such limits must represent BACT. Under 310 CMR 7.00 Definitions,

> BEST AVAILABLE CONTROL TECHNOLOGY means an emission limitation based on the maximum degree of reduction of any regulated air contaminant emitted from or which results from any regulated facility which the Department, on a case-by-case basis taking into account energy, environmental, and economic impacts and other costs, determines is achievable for such facility through application of production processes and available methods, systems and techniques for control of each such contaminant. The best available control technology determination shall not allow emissions in excess of any emission standard established under the New Source Performance Standards, National Emission Standards for Hazardous Air Pollutants or under any other applicable section of 310 CMR 7.00, and may include a design feature, equipment specification, work practice, operating standard, or combination thereof.

As such, MIT has provided, in the application, a BACT analysis for the subject Emission Units which are proposed to be installed and operated (two nominal 22 MW CHP units, each consisting of a CTG with an associated HRSG and one 2 MW ULSD-fired emergency engine). MassDEP has reviewed said BACT analysis and has established BACT emission rates for the PSD and non-PSD subject air contaminants that are regulated by this Plan Approval including: nitrogen oxides (NO_X), volatile organic compounds (VOC), carbon monoxide (CO), PM/PM_{10}/$PM_{2.5}$, sulfur dioxide (SO_2), sulfuric acid mist (H_2SO_4), GHG expressed as CO_2e, and ammonia (NH_3). The BACT determinations contained in this Plan Approval, as applicable to the two nominal 22 MW CHP units (each consisting of a CTG with an associated HRSG) and one 2 MW ULSD-fired emergency engine conform to MassDEP's regulations and guidance and result in BACT emission limits consistent with those established and published in EPA's RACT/BACT/LAER Clearinghouse (RBLC) and BACT determinations made in Massachusetts.

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

1. DESCRIPTION OF FACILITY AND APPLICATION

MIT currently operates its Central Utilities Plant (CUP), which includes one 21 MW CTG with an associated HRSG equipped with duct burner, one 2 MW emergency generator, BLR-42-3, BLR-42-4, and BLR-42-5, all located in MIT Building 42 at 59 Vassar Street in Cambridge. In addition, MIT operates, as part of the CUP, two additional boilers, BLR-42-7 and BLR-42-9, in MIT Building N16, located to the rear of the CUP, at 60 Albany Street, and seven cooling towers also located near the CUP between Vassar and Albany Streets. The emission units currently operated by MIT's CUP are described in Table 1 below:

Table 1: Existing Central Utility Plant Emission Units			
EU	Description of EU	EU Design Capacity	Post-Project Status
GT-42-1A	ASEA Brown Boveri GT10 Combustion Turbine Generator	229 MMBtu/hr input 21 megawatt output	Unit will be permanently **removed** from service.
HRSG-42-1B	Applied Thermal Systems Supplementary-fired Heat Recovery Steam Generator	210.7 MMBtu/hr input total, of which 64.7 MMBtu/hr is input from duct burner firing	Unit will be permanently **removed** from service.
BLR-42-3	Wickes Type R Boiler	116.2 MMBtu/hr input	Unit will remain; switch from natural gas and No. 6 fuel oil firing capability to natural gas as primary fuel with ULSD as limited backup fuel and with decreased total allowable fuel oil usage.
BLR-42-4	Wickes Type R Boiler	116.2 MMBtu/hr input	Unit will remain; switch from natural gas and No. 6 fuel oil firing capability to natural gas as primary fuel with ULSD as limited backup fuel and with decreased total allowable fuel oil usage.
BLR-42-5	Riley Type VP Boiler	145.2 MMBtu/hr input	Unit will remain; switch from Natural gas and No. 6 fuel oil firing capability to natural gas as primary fuel with ULSD as limited backup fuel and with decreased total allowable fuel oil usage.
BLR-42-7	Indeck boiler	99.7 MMBtu/hr input	Unit will remain; natural gas as primary fuel with ULSD as limited backup fuel and with decreased total allowable fuel oil usage.

Table 1: Existing Central Utility Plant Emission Units			
EU	Description of EU	EU Design Capacity	Post-Project Status
BLR-42-9	Rentech Model 0	119.2 MMBtu/hr input (ULSD) 125.8 MMBtu/hr input (Natural gas)	Unit will remain; natural gas as primary fuel with ULSD as limited backup fuel and with decreased total allowable fuel oil usage.
DG-42-6	Caterpillar 3516 Diesel Generator	20.2 MMBtu/hr input 2 megawatt output	Unit will remain
Cooling Tower 7	Wet mechanical cooling towers	varies	Unit will remain
Cooling Tower 8			Unit will remain
Cooling Tower 9			Unit will remain
Cooling Tower 10			Unit will remain
Cooling Tower 11			Unit will remain
Cooling Tower 12			Unit will remain
Cooling Tower 13			Unit will remain

Table 1 Key:
EU = Emission Unit
MMBtu/hr = 1,000,000 British thermal units per hour
ULSD = Ultra-Low Sulfur Distillate, having a sulfur content of no more than 0.0015 percent by weight

MIT's proposed Project includes the construction and operation of two new nominal 22 MW Solar Titan 250 CTGs, identified as CTG 200 and CTG 300, which will each utilize natural gas as the primary fuel with ULSD as a limited backup fuel including no more than 48 hours per consecutive twelve month period (C12MP) for testing and no more than 168 hours per C12MP including testing and during periods when natural gas is unavailable or unable to be burned in the equipment. Combustion exhaust gases from each of the proposed CTGs, CTG 200 and CTG 300, will pass through its own associated HRSG, identified as HRSG 200 and HRSG 300, respectively. As such the two proposed CHPs are referred to as CTG 200/HRSG 200 and CTG 300/HRSG 300. Each HRSG will be equipped with supplementary firing capability via a natural gas-fired DB having a maximum design input rating of 134.0 million British thermal units (MMBtu) per hour (MMBtu/hr). Each HRSG's DB will be solely natural gas-fired without any backup fuel firing capability whatsoever. Each CTG will feature a Dry Low NO_X (DLN) combustor during both

natural gas and limited backup ULSD firing for control of NO_X. Each HRSG will be equipped with a selective catalytic reduction (SCR) system for post-combustion control of NO_X and with an oxidation catalyst for post-combustion control of both CO and VOC. The two proposed CHPs, CTG 200/HRSG 200 and CTG 300/HRSG 300, will be housed entirely within a building to be designated as MIT Building 42C, which will be constructed at the site of an existing ground level parking lot between Albany and Vassar Streets near the rear of the existing CUP. In addition to the construction and operation of CTG 200/HRSG 200 and CTG 300/HRSG 300, the Project includes the construction and operation of one 2 MW ULSD-fired emergency engine, identified by MIT as Cold Start Engine, which will be housed on the roof of Building 42C. Though independent of the Project, three new cooling towers, identified as Cooling Tower 11, Cooling Tower 12, and Cooling Tower 13 were recently installed in 2016 to the rear of the CUP and emissions from said units are included in the emission calculations and air dispersion modeling and, as such, they are considered part of the Project.

In addition to the above-mentioned installations, the Project also proposes specific alterations to the current operating scenarios of certain existing CUP emission units. Specifically the Project includes switching to a less polluting fuel use scenario in existing CUP boilers, BLR-42-3, BLR-42-4, BLR-42-5, BLR-42-7 and BLR-42-9. Boilers BLR-42-3, BLR-42-4, and BLR-42-5 will each switch from their current capability of burning either No.6 residual oil or natural gas to the capability of burning natural gas as the primary fuel with ULSD as the only backup fuel for no more than 48 hours per C12MP for testing and for no more than 168 hours per C12MP including testing and when natural gas is unavailable or unable to be burned in the equipment. In addition to the fuel oil usage restriction in BLR-42-3, BLR-42-4, and BLR-42-5, the Project also includes imposing a more stringent fuel oil restriction in two other existing boilers, BLR-42-7 and BLR-42-9. Currently BLR-42-7 and BLR-42-9 are each permitted to burn ULSD for a maximum of 720 hours per C12MP. The alteration to their operating scenario as a result of the Project will reduce allowable ULSD firing in each boiler to no more than 48 hours of ULSD firing per C12MP for testing and to no more than 168 hours of ULSD firing per C12MP, including testing and as a backup fuel when natural gas is unavailable or unable to be burned in the equipment.

One dedicated extractive CEMS shall be installed and operated on each of the two CHPs, CTG 200/HRSG 200 and CTG 300/HRSG 300, to continuously sample, analyze and record NO_X, CO and NH_3 concentration levels plus the percentage of oxygen (O_2) in each of the HRSGs exhausts. There will be no bypass of its associated HRSG from either CTG such that NO_X emissions from each CTG shall be controlled by its associated SCR and CO and VOC emissions from each CTG shall be controlled by its associated oxidation catalyst. Each CEMS shall have an associated data acquisition and handling system (DAHS) to collect, record, and process each CHP's air emissions data and to calculate the air emissions in units of parts per million, pounds per hour and pounds per MMBtu heat input.

As of issuance of this Plan Approval, MIT has not submitted a Quality Assurance and Quality Control (QA/QC) Plan to describe detailed, complete, step-by-step procedures and operations for activities relating to the CEMS. MIT shall be required to submit such a Plan ninety (90) days prior to commencement of operation of the subject Emission Units. Please see Table 10, Reporting Requirements of this Approval.

2. EMISSION OFFSETS AND NONATTAINMENT REVIEW

MassDEP evaluated whether the Emission Offsets and Nonattainment Review provisions of 310 CMR 7.00 Appendix A apply to the Project.

310 CMR 7.00: Appendix A: Emission Offsets and Nonattainment Review applies to a new major source or major modification of an existing major source located in a non-attainment area; or a new major source or major modification for NO_X or VOC emissions anywhere in Massachusetts, with applicability determined separately for NO_X and VOC. The Facility is not located in a nonattainment area. With respect to NO_X and/or VOC emissions, Appendix A applies for a new major source of 50 or more tons per year (TPY) or a major modification of an existing major source that causes a net emissions increase of 25 TPY.

MIT is an existing major source of NO_X emissions. As such, the proposed Project must be evaluated to determine potential applicability of Non-Attainment New Source Review for NO_X under Regulation 310 CMR 7.00: Appendix A. The proposed permitted emissions increase from this Project is 26.4 tons per year for NO_X. However, Regulation 310 CMR 7.00: Appendix A provides for calculating a Project's net emissions increase of NO_X by accounting for increases and decreases in emissions in order to determine applicability. MIT provided an analysis to determine the net emissions increase of NO_X in Appendix B of their Application for the Project. As illustrated therein, in addition to the emissions increase of 26.4 tons per year from the Project, MIT accounted for all other increases and decreases in NO_X emissions over the contemporaneous period for the Project, 2016-2020. MIT is a dynamic campus, installing and removing combustion equipment as campus needs dictate, and therefore maintains a tracking procedure in order to monitor Facility-wide changes in NO_X emissions over time. As such, MIT demonstrated in its Application that, over the 5 year period applicable to Nonattainment Review for NO_X for operation of the Project, the emissions increase in NO_X from this Project in addition to other increases amount to 62.43 tons NO_X and the decreases in NO_X emissions amount to 52.95 tons which results in a net NO_X emission increase of 9.48 tons which is considerably less than the applicability threshold of 25 tons. Therefore the proposed Project does not trigger Non-Attainment New Source Review for NO_X and, as such, is not subject to Regulation 310 CMR 7.00: Appendix A.

MIT is not an existing major source of VOC emissions and proposed VOC emissions from this Project are less than 25 tons per year. Therefore the proposed Project does not trigger Non-Attainment New Source Review for VOC and, as such, is not subject to Regulation 310 CMR 7.00: Appendix A.

3. AIR QUALITY IMPACT ANALYSIS

The EPA has promulgated National Ambient Air Quality Standards (NAAQS) for six air contaminants known as criteria pollutants for the protection of public health and welfare. MassDEP has also promulgated Massachusetts Ambient Air Quality Standards (MAAQS) for the same six pollutants, but has not updated the MAAQS recently. The criteria pollutants are Nitrogen Dioxide (NO_2), Sulfur Dioxide (SO_2), Particulate Matter (PM_{10} and $PM_{2.5}$), Carbon Monoxide

(CO), Ozone (O_3), and Lead (Pb). The NAAQS and MAAQS include both primary and secondary standards of different averaging periods. The primary standards protect public health and the secondary standards protect public welfare, such as damage to property or vegetation.

MassDEP holds that a demonstration of compliance with the NAAQS is sufficient to assure compliance with the MAAQS, except for the 24-hour and annual SO_2 MAAQS and annual PM_{10} MAAQS, which averaging periods are no longer regulated by the NAAQS.

Pursuant to 310 CMR 7.02(3)(j)1., the emission limits in MassDEP's approval of the Project must ensure that the emissions from the Project and the Facility do not result in air quality exceeding either the Massachusetts or National Ambient Air Quality Standards.

Under PSD review, new major sources and major modifications of existing sources are required to use air quality dispersion modeling to predict the air quality impact of their new emissions with respect to pollutants subject to PSD review. MassDEP's June 2011 Modeling Guidance for Significant Stationary Sources of Air Pollution establishes thresholds for prescriptive modeling requirements that apply to the Project, regardless of PSD review. Furthermore, for PSD review and for non-PSD pollutants, modeling related to 310 CMR 7.02 Plan Approvals, as the Massachusetts EPA-approved new source review regulation, must conform to 40 CFR 51 Appendix W, Guideline on Air Quality Models, and associated EPA guidance. Emissions from new major sources and major modification must not cause or contribute to an exceedance of the NAAQS or MAAQS.

MassDEP also requires modeling for non-PSD-regulated pollutant emissions under 310 CMR 7.02 at projects that trigger PSD review.For this Project, the Application includes the analyses required to demonstrate compliance with the MassDEP Ambient Air Toxics Guidelines. The sections below describe those analyses.

Modeling Approach

MIT used dispersion modeling analyses to assess the Facility's and the Project's air impacts of criteria air pollutants and air toxics against applicable significant impact levels (SILs), NAAQS, MAAQS, and MassDEP's Threshold Effects Exposure Limits (TELs) and Allowable Ambient Levels (AALs) Guideline values for air toxics. These analyses were conducted in accordance with EPA's "Guideline on Air Quality Models" (November 2005) and MassDEP's "Modeling Guidance for Significant Stationary Sources of Air Pollution" (June 2011) and as described in the Air Quality Modeling Protocol submitted to MassDEP (June 2015).

MIT used the EPA-recommended AERMOD model (AERMOD version 15181, AERMAP version 11103, and AERMET version 15181) to perform the dispersion modeling. MIT conducted dispersion modeling in a manner that evaluated emissions over a range of operating conditions in an effort to identify the worst case operating scenarios, that is, those that result in the highest predicted ambient impact for each pollutant and averaging period.

Below is the recommendation from MassDEP's modeling guidance:

For existing facilities, "*If maximum predicted impacts of a pollutant due to proposed emission increases from the existing facility are below applicable SILs, the predicted emissions from the modification are considered to be in compliance with the NAAQS for that pollutant. However, a compliance demonstration may be required to ensure that the combined emissions from the existing facility and the modification will not cause or contribute to a NAAQS violation for that pollutant.*"

In accordance with this guidance, the Project's emissions (i.e., the proposed modification) were modeled for comparison to the SILs (results shown in Table 2) and the emissions from the future configuration of the entire facility were modeled for comparison to the NAAQS (results shown in Table 3). As the Project's impacts from 1-hr NO_2, annual NO_2, 24-hr PM_{10}, 24-hr $PM_{2.5}$ and annual $PM_{2.5}$, were greater than the SIL; the Project's impacts along with emissions from the future configuration of the entire CUP were modeled along with nearby interactive sources in a cumulative analysis for comparison to the NAAQS (results shown in Table 4).

MIT used five years (2010 through 2014) of surface Automated Surface Observing System (ASOS) data collected by the National Weather Service (NWS) from the Logan Airport weather station in Boston, Massachusetts and the corresponding upper air data from the Gray, Maine station in the dispersion modeling. The Logan Airport station is located approximately 4.0 miles to the east of MIT and is the closest first order NWS station to the facility. This surface station is representative of the Project area since they are in close proximity and therefore are exposed to the same weather systems and conditions such as urban heat island effects and coastal air-land-sea interactions. The upper air station in Gray, Maine is the most representative upper station for the Boston area. The meteorological data was processed by MIT using the latest versions of U.S. EPA AERMINUTE (version 14337), AERSURFACE (version 13016) and AERMET (version 15181). The Applicant used default processing options in the AERMET

processing for this analysis. The preferred ASOS 1-minute wind data was used in the processing to reduce the number of calm hours input to the model.

MIT characterized land use within a 3 kilometer radius of the Facility as urban and therefore used urban dispersion coefficients in the dispersion modeling.

For 1-hr NO_2 impacts the plume volume molar ratio method was utilized (PVMRM); a non-default methodology for determining the conversion rate for NO_x to NO_2 based on the calculation of NO_x moles emitted into the plume, and the amount of O_3 moles contained within the volume of the plume between the source and the receptor. Use of this methodology requires regulatory pre-approval which was sought and granted by MassDEP on October 19th 2015. For annual NO_2 impacts the ambient ratio method (ARM) was used.

For 24-hour $PM_{2.5}$, the Tier 2 approach which uses the 98th percentile seasonal concentration averaged over three years as the background concentration was utilized. The range of seasonal 24-hour background concentrations input to the model were 16.9 (winter), 16.8 (spring), 16.3 (summer) and 12.5 $\mu g/m^3$ (fall).

The modeling predicted air quality concentration impacts on a nested Cartesian coordinate receptor grid extending 10 kilometers from the Facility's main stack (CUP stack). Receptors are discrete points that represent a specific location on a coordinate grid. MIT used a total of 2,415 receptors in the dispersion modeling analysis. The spacing of the receptors ranged from 20 meters close to the MIT facility and increased to 1,000 meters beyond 5 kilometers. This means the receptor field was denser (i.e., more receptors per unit of area) closer in to the facility and less dense with increasing distance away from the facility. The denser part of the grid covered the surrounding area including most of Cambridge and parts of Boston.

Significant Impact Analysis

The first part of the analysis was to predict which pollutants at which averaging times have more than a 'significant' impact on air quality. To identify new pollution sources with the potential to alter significantly ambient air quality, the EPA and MassDEP have adopted "significant impact levels" for the criteria pollutants except ozone and lead. If the predicted impact of the new or modified emission source is less than the SIL for a particular pollutant and averaging period, and the difference between background ambient air quality and the NAAQS is greater than the SIL, then no further evaluation is needed for that pollutant and averaging period. However, if the predicted impact of the new or modified emission 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 background levels of pollutants, as well as emissions from both the proposed new or modified source and any existing emission sources that may interact with emissions from the proposed new emissions source (referred to as facility-wide and cumulative modeling).

To determine the operating scenario that results in the highest impact for each pollutant and averaging period, the modeling analysis includes the operation of the proposed CTGs and HRSGs

at fourteen different operating conditions. The operating conditions were defined by the following parameters: two fuels - natural gas and ULSD, three ambient temperatures – 0, 50, and 60 °F, and five operating loads – 100%, 75%, 65%, 50%, and 40%, plus duct burners on and off. Of the fourteen sets of results for each pollutant and averaging period, the maximum is compared to the respective SIL and carried forward for comparison to NAAQS and MAAQS if necessary.

Table 2 presents the maximum predicted ambient air quality impacts for the Project (new sources only). Results are presented in concentrations of micrograms per cubic meter ($\mu g/m^3$). For each pollutant and averaging period, it shows the overall maximum predicted Project impact, the SIL, percent of SIL, and operating case. The Project is predicted to have maximum ambient air quality impact concentrations well below SILs for SO_2 and CO for all averaging periods. Maximum impacts are over the SILs for 1-hour and annual NO_2, 24-hour and annual $PM_{2.5}$ and 24-hour PM_{10}.

Table 2 – Results of Significant Impact Level Analysis

Criteria Pollutant	Averaging Period	Significant Impact Level ($\mu g/m^3$)	Maximum Predicted Project Impact [1] ($\mu g/m^3$)	Above SIL?	Operating Case (CTG/HRSG)
NO_2	Annual	1	1.57	**Yes**	NG/ULSD, 60F, 100%, On
	1-Hour	7.5	15.6	**Yes**	ULSD, 0F, 100%, On
SO_2	Annual	1	0.15	No	NG/ULSD, 60F, 100%, On
	24-Hour	5	1.62	No	NG, 60F, 75%, On
	3-Hour	25	2.0	No	NG, 50F, 100%, On
	1-Hour	7.8	2.4	No	NG, 50F, 100%, On
$PM_{2.5}$	Annual	0.3	0.98	**Yes**	NG/ULSD, 60F, 100%, On
	24-Hour	1.2	10.1	**Yes**	ULSD, 0F, 100%, On
PM_{10}	24-Hour	5	14.2	**Yes**	ULSD, 60F, 75%, On
CO	8-Hour	500	7.9	No	ULSD, 60F, 100%, On
	1-Hour	2,000	10.2	No	ULSD, 60F, 75%, On

Table 2 Notes:

1. Maximum predicted Project impacts are the overall highest result in $\mu g/m^3$ output by AERMOD for each respective averaging time.

Table 2 Key:

SIL = Significant Impact Level
NO_2 = Nitrogen Dioxide
SO_2 = Sulfur Dioxide
$PM_{2.5}$ = Particulate Matter less than or equal to 2.5 microns in diameter
PM_{10} = Particulate Matter less than or equal to 10 microns in diameter
CO = Carbon Monoxide
NG = Natural Gas
ULSD = Ultra Low Sulfur Diesel Fuel
$\mu g/m^3$ = micrograms per cubic meter
F = degrees Fahrenheit
% = percent
On = duct burners on

CTG/HRSG = combustion turbine generator/heat recovery steam generator

Facility-Wide Modeling Analysis

In accordance with MassDEP modeling guidance, MIT used dispersion modeling to assess the air quality impacts from the entire future configuration of the Facility, all pollutants over all averaging times, including both the existing emission sources and all proposed new sources for comparison to the NAAQS. MIT added these model-predicted impacts to background levels of air quality. MIT used the MassDEP air quality monitoring station closest to and most representative of the Facility, Kenmore Square in Boston, which is only approximately 0.9 miles south of the Facility for representative background air quality. All pollutants are measured at Kenmore Square and the urban environment surrounding the station is similar to the urban environment in Cambridge near the MIT CUP. The actual background values used in the analysis were derived from three years of data recorded over the period from 2012-2014. The same operating cases as shown in Table 2 for each pollutant and averaging period are carried forward for the facility-wide modeling.

Table 3 presents a summary of the facility-wide NAAQS analysis results showing the cumulative impact of both the new and existing sources at MIT when added to background air quality. Results are presented in concentrations of micrograms per cubic meter (ug/m^3). For each pollutant and averaging period, it shows the maximum predicted Facility impact in the form of the standard, the background concentration, the total impact (modeled-predicted impact plus background), the primary and secondary NAAQS, and percent of primary NAAQS.

As shown in Table 3, the future configuration of the Facility is predicted to have maximum ambient air quality impact concentrations below the NAAQS for all pollutants and averaging periods. The results in the table represent worst-case impacts over the entire receptor grid, including the densely spaced receptors in the immediate surrounding neighborhoods. Accordingly, it can be concluded that the NAAQS will remain protected with the addition of the MIT Project, and therefore, the public health and welfare remained protected, even to residents in adjacent neighborhoods.

Table 3 – Results of Facility-Wide Modeling Analysis

Criteria Pollutant	Averaging Period	Primary NAAQS ($\mu g/m^3$)	Secondary NAAQS ($\mu g/m^3$)	Maximum Predicted Facility Impact ($\mu g/m^3$)	Background Concentration ($\mu g/m^3$)	Total Impact ($\mu g/m^3$)	Percent NAAQS (%)
NO_2	Annual [1]	100	Same	4.05	46.2	50.25	50
	1-Hour [2]	188	None	92.7	73.7	166.4	89
SO_2	Annual [1,3]	80	None	0.22	4.9	5.1	6
	24-Hour [3,4]	365	None	1.7	15.7	17.4	5
		None	1,300	2.7	36.4	39.1	3
	3-Hour [3]	196	None	3.0	23.3	26.3	13
	1-Hour [5,6]						

Table 3 – Results of Facility-Wide Modeling Analysis							
Criteria Pollutant	**Averaging Period**	**Primary NAAQS ($\mu g/m^3$)**	**Secondary NAAQS ($\mu g/m^3$)**	**Maximum Predicted Facility Impact ($\mu g/m^3$)**	**Background Concentration ($\mu g/m^3$)**	**Total Impact ($\mu g/m^3$)**	**Percent NAAQS (%)**
$PM_{2.5}$	Annual [7]	12	Same	1.9	7.7	9.6	80
	24-Hour [8]	35	Same	16.9	16.7	33.6	96
PM_{10}	24-Hour [9]	150	Same	23.6	53.0	76.6	51
CO	8-Hour [3]	10,000	None	38.5	1260.2	1298.7	13
	1-Hour [3]	40,000	None	57.0	1962.4	2019.4	5
O_3	8-Hour [10]	147	Same	NA	NA	NA	NA
Pb	3-Month [1]	0.15	Same	0.00376	NA	0.00376	3

Table 3 Notes:

1. Not to be exceeded.
2. Compliance based on 5-year average of the annual 98th percentile of the daily maximum 1 hour average at each modeled receptor. The 1 hour NO_2 standard was effective April 12, 2010.
3. EPA has indicated that the 24 hour and annual average primary standards for SO_2 will be revoked.
4. Not to be exceeded more than once per year.
5. Compliance based on 5-year average of the annual 99th percentile of the daily maximum 1 hour average at each modeled receptor.
6. The 1 hour SO_2 standard was effective as of August 23, 2010.
7. Compliance based on 5-year average of annual arithmetic mean $PM_{2.5}$ concentrations at each modeled receptor.
8. Compliance based on 5-year average of the annual 98th percentile of 24 hour concentrations at each modeled receptor.
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.

Table 3 Key:

NAAQS = National Ambient Air Quality Standards
EPA = United States Environmental Protection Agency
NO_2 = Nitrogen Dioxide
SO_2 = Sulfur Dioxide
$PM_{2.5}$ = Particulate Matter less than or equal to 2.5 microns in diameter
PM_{10} = Particulate Matter less than or equal to 10 microns in diameter
CO = Carbon Monoxide
O_3 = Ozone
Pb = Lead
$\mu g/m^3$ = micrograms per cubic meter
NA = Not Applicable
% = percent

Cumulative Source Analysis

Modeled impacts from the proposed modification are below SILs for SO_2 and CO for all averaging times; therefore, a cumulative analysis including potential nearby interacting sources is only required for $PM_{2.5,}$ PM_{10} and NO_2. Therefore, MIT performed a cumulative source analysis where the impacts from the facility were considered in conjunction with nearby significant sources of air pollution. The following nearby sources were included for the pollutants noted:

- Kendall Station (1.2 km) - NO_2, PM_{10} and $PM_{2.5}$
- Blackstone Steam Plant (1.8 km) - NO_2, PM_{10} and $PM_{2.5}$
- MATEP (3.0 km) - NO_2, PM_{10} and $PM_{2.5}$
- Exelon Mystic (3.8 km) - NO_2, PM_{10} and $PM_{2.5}$
- Logan Airport Central Boilers (5.9 km) – NO_2 only
- Veolia Kneeland Street Plant (3.2 km) – NO_2 only

The results of the cumulative analysis are shown in Table 4. Results are presented in concentrations of micrograms per cubic meter ($\mu g/m^3$). For each pollutant and averaging period, it shows the maximum predicted Facility impact in the form of the standard, the interactive source contribution, the background concentration, the total impact (modeled-predicted impacts plus background), the primary and secondary NAAQS, and percent of primary NAAQS.

As shown in Table 4, the cumulative results show the future configuration of the Facility along with significant nearby sources are predicted to have maximum ambient air quality impact concentrations below the NAAQS for all pollutants and averaging periods. The results in the table represent worst-case impacts over portions of the receptor grid where impacts from the Project were significant (i.e., Project only impacts greater than or equal to the SIL). Accordingly, it can be concluded that the NAAQS will remain protected with the addition of the MIT Project, and therefore, the public health and welfare remained protected, even to residents in adjacent neighborhoods.

Table 4 – Results of Cumulative Modeling Analysis

Criteria Pollutant	Averaging Period	Primary NAAQS ($\mu g/m^3$)	Secondary NAAQS ($\mu g/m^3$)	Maximum Predicted Facility Impact ($\mu g/m^3$)	Interactive Source Contribution ($\mu g/m^3$)	Background Concentration ($\mu g/m^3$)	Total Impact ($\mu g/m^3$)	Percent NAAQS (%)
NO_2	Annual [1]	100	Same	4.1	4.1	46.2	54.4	54
	1-Hour [2]	188	None	54.3	0.4	85.0	139.7	74
$PM_{2.5}$	Annual [3]	12	Same	2.34	1.0	7.7	11.0	92
	24-Hour [4]	35	Same	18.1	0.4	15.9	34.4	98
PM_{10}	24-Hour [5]	150	Same	23.6	0.1	53.0	76.7	51

Table 4 Notes:

1. Not to be exceeded.
2. Compliance based on 5-year average of the annual 98th percentile of the daily maximum 1 hour average at each modeled receptor. The 1 hour NO_2 standard was effective April 12, 2010.
3. Compliance based on 5-year average of annual arithmetic mean $PM_{2.5}$ concentrations at each modeled receptor.
4. Compliance based on 5-year average of the annual 98th percentile of 24 hour concentrations at each modeled receptor.

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

Table 4 Key:

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

Air Toxics Analysis

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 Allowable Ambient Limit (AAL), which is based on an annual average concentration; and a Threshold Effects Exposure Limit (TEL), which is based on a 24-hour time period. In general, AALs represent the concentration associated with a one in one million excess lifetime cancer risk, assuming a lifetime of continuous exposure to that concentration. The TELs protect the general population from non-cancer health effects. For air toxics that do not pose cancer risks, the AAL is equal to the TEL.

Table 5 presents the projected maximum impacts for each air toxic that will potentially be emitted by the Project at MIT for which an AAL or TEL has been established. Predicted impacts are based on the worst case emission scenarios input to AERMOD. As shown in Table 5, the Project's maximum predicted ambient air quality impact concentrations were significantly below applicable AALs and TELs for all of the air toxics modeled. Accordingly, it can be concluded that residents in adjacent neighborhoods will not be exposed to air toxic compounds above the AALs/TELs from emissions from the MIT Project.

Table 5[1] – Results of Air Toxics Modeling

Pollutant	Averaging Period	AAL/TEL ($\mu g/m^3$)	Maximum Predicted Project Impact ($\mu g/m^3$)
Acetaldehyde	24-Hour (TEL)	30	1.20E-2
	Annual (AAL)	0.4	1.09E-3
Acrolein	24-Hour (TEL)	0.07	2.12E-3
	Annual (AAL)	0.07	1.76E-4
Benzene	24-Hour (TEL)	0.6	8.21E-2
	Annual (AAL)	0.1	1.05E-3
1,3-Butadiene	24-Hour (TEL)	1.20	4.29E-3
	Annual (AAL)	0.002	2.18E-5
o-Dichlorobenzene	24-Hour (TEL)	81.74	3.51E-4
	Annual (AAL)	81.74	2.50E-5
Ethylbenzene	24-Hour (TEL)	300	8.56E-3
	Annual (AAL)	300	8.70E-4
Formaldehyde	24-Hour (TEL)	2	2.16E-1
	Annual (AAL)	0.08	1.17E-2

Table 5[1] – Results of Air Toxics Modeling			
Pollutant	**Averaging Period**	**AAL/TEL ($\mu g/m^3$)**	**Maximum Predicted Project Impact ($\mu g/m^3$)**
Hexane	24-Hour (TEL) Annual (AAL)	95.24 47.62	5.26E-1 3.74E-2
Naphthalene	24-Hour (TEL) Annual (AAL)	14.25 14.25	1.65E-2 1.80E-4
Propylene Oxide	24-Hour (TEL) Annual (AAL)	6 0.3	7.75E-3 7.89E-4
Toluene	24-Hour (TEL) Annual (AAL)	80 20	5.03E-2 3.67E-3
Xylenes	24-Hour (TEL) Annual (AAL)	11.80 11.80	2.71E-2 1.78E-3
Arsenic	24-Hour (TEL) Annual (AAL)	0.003 0.0003	5.84E-5 5.51E-6
Beryllium	24-Hour (TEL) Annual (AAL)	0.001 0.0004	3.51E-6 4.64E-7
Cadmium	24-Hour (TEL) Annual (AAL)	0.003 0.001	3.21E-4 2.31E-5
Chromium (total)	24-Hour (TEL) Annual (AAL)	1.36 0.68	4.09E-4 3.09E-5
Lead	24-Hour (TEL) Annual (AAL)	0.14 0.07	3.76E-3 7.64E-6
Mercury (elemental)	24-Hour (TEL) Annual (AAL)	0.14 0.07	3.80E-4 5.54E-4
Nickel	24-Hour (TEL) Annual (AAL)	0.27 0.18	1.70E-3 4.45E-5
Selenium	24-Hour (TEL) Annual (AAL)	0.54 0.54	6.71E-3 3.69E-6

Table 5 Notes:

1. Air toxics do not have a NAAQS, with the exception of lead. Modeled values for lead are well below the NAAQS standard of 0.15 $\mu g/m^3$.

Table 5 Key:

AAL = Allowable Ambient Limit
TEL = Threshold Effects Exposure Limit
NAAQS = National Ambient Air Quality Standards
$\mu g/m^3$ = micrograms per cubic meter
E- = exponential to the negative power
E+ = exponential to the positive power

4. ENVIRONMENTAL JUSTICE

Title VI of the federal Civil Rights Act of 1964 applies to all recipients of federal financial assistance. The Executive Office of Energy and Environmental Affairs (EOEEA) is a recipient of federal financial assistance for the administration of the Department's air pollution control program. Section 601 of Title VI provides that:

No person in the United States shall, on the ground of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be subject to discrimination under any program or activity receiving federal financial assistance.

On October 2, 2002, EOEEA adopted an Environmental Justice Policy (EJ Policy) that requires the Department to make environmental justice an integral consideration in the implementation and enforcement of laws, regulations, and policies as a way to comply with Title VI of the federal Civil Rights Act of 1964.

EOEEA, in the July 1, 2016 MEPA Certificate for the MIT Project, concluded that the Project exceeds an Environmental Impact Report (EIR) threshold for air and is located within five miles of designated Environmental Justice (EJ) populations. Therefore, the Project is subject to the EJ Policy which requires enhanced public participation and enhanced analysis of impacts and mitigation under MEPA.

MIT's enhanced public participation has included publishing public notices in multiple languages for both the Expanded Environmental Notification Form (EENF) and the Single Environmental Impact Report (SEIR) which were filed under the Massachusetts Environmental Policy Act (MEPA). These publications were provided in multiple languages and consisted of a Project summary and an invitation to comment on the Project to MEPA. The notifications for the EENF and the SEIR were published in English in *The Cambridge Chronicle* on January 7, 2016 and on May 26, 2016, in Spanish in *El Mundo* on January 7, 2016 and on May 19, 2016, in Chinese in *Sampan* on January 8, 2016 and on May 27, 2016, and in Portuguese in *O Jornal* on January 8, 2016 and on May 20, 2016 respectively. Electronic versions of the SEIR summary fact sheet/public notice in English as well as translated versions in Chinese, French, Portuguese, and Spanish as well as the EENF and SEIR filings were and remain posted on MIT's outreach webpage for the Project, https://powering.mit.edu. Additionally the EENF and SEIR filings were also made available at the Cambridge Public Library's Central Square Branch, located at 45 Pearl Street. A public scoping session was held on January 14, 2016 from 6:00 to 8:00 p.m. at 182 Memorial Drive in Cambridge at which MIT provided interpretation services in Spanish, Portuguese, French, and Cantonese.

Continuing with MIT's public participation efforts, in order to ensure that the local community, including minority and low-income populations, were provided ample opportunity to understand and comment on the Project, MIT published the Notice of Public Hearing and Public Comment Period on the Draft PSD Permit in English, Spanish, Portuguese, French and Chinese (Cantonese). MIT also ensured that interpreters for these languages were available at the Public Hearing. MIT posted electronic copies of the Notice of Public Hearing and Public Comment Period, Proposed

Plan Approval, Draft PSD Permit and Draft PSD Fact sheet on its website, https://powering.mit.edu.

In addition to enhanced public participation, the EJ Policy requires analysis of impacts and mitigation under MEPA. The proposed Project's ambient air impacts, combined with the pre-existing background levels, will meet the federal NAAQS which are designed to protect public health against health effects of air pollutants with a margin of safety and will therefore have no disproportionately high adverse human health or environmental impacts upon any Environmental Justice population. Further, MIT's analysis has shown that, in terms of potential air emission impacts on EJ communities, the proposed Project represents an environmental improvement over existing conditions in nearby areas, including those with minority and low-income populations.

5. EMISSION UNIT IDENTIFICATION

Each Emission Unit (EU) identified in Table 6 is subject to and regulated by this Plan Approval:

Table 6

EU	Description	Heat Rate Input Design Capacity in MMBtu/hr	Pollution Control Device (PCD)
CTG 200	Solar Titan 250 Combustion Turbine, Natural gas as primary fuel, with ULSD as limited backup fuel	219 (HHV) for natural gas firing 212 (HHV) for ULSD firing	Dry Low NO_X Combustor
HRSG 200	Heat Recovery Steam Generator with supplemental natural gas firing via a Duct Burner (DB)	134 (HHV) for natural gas	Selective Catalytic Reduction Oxidation Catalyst
CTG 300	Solar Titan 250 Combustion Turbine, Natural gas as primary fuel, with ULSD as limited backup fuel	219 (HHV) for natural gas firing 212 (HHV) for ULSD firing	Dry Low NO_X Combustor
HRSG 300	Heat Recovery Steam Generator with supplemental natural gas firing via a Duct Burner	134 (HHV) for natural gas	Selective Catalytic Reduction Oxidation Catalyst
Cold Start Engine	CAT DM8263 or equivalent	19.04 (HHV) for ULSD firing	None
BLR-42-3	Wickes Type R Boiler (existing)	116.2	
BLR-42-4	Wickes Type R Boiler (existing)	116.2	
BLR-42-5	Riley Type VP Boiler (existing)	145.2	Coen Low NO_X burner
BLR-42-7[1]	Indeck Dual Fuel Boiler (existing)	99.7	Ultra Low NO_X burner and Flue Gas Recirculation
BLR-42-9[1]	Rentech Boiler Model 0 (existing)	125.8 for natural gas firing 119.2 for ULSD firing	Ultra Low NO_X burner and Flue Gas Recirculation

Table 6			
EU	**Description**	**Heat Rate Input Design Capacity in MMBtu/hr**	**Pollution Control Device (PCD)**
Cooling Tower 11, Cooling Tower 12, Cooling Tower 13	Wet mechanical cooling towers	Varies	High efficiency drift eliminators

Table 6 Notes:

1. Emission Units are considered part of Project solely due to inclusion in increment modeling

Table 6 Key:

EU= Emission Unit
MMBtu/hr = 1,000,000 British thermal units per hour
HHV = higher heating value basis, from Table C-1 to Subpart C of 40 CFR Part 98: 0.138 MMBtu per gallon ULSD and $1.026*10^{-3}$ MMBtu per standard cubic foot natural gas
NO_X = Nitrogen Oxides
ULSD = Ultra Low Sulfur Distillate, having a sulfur content of no more than 0.0015 percent by weight
CTG = combustion turbine generator
HRSG = heat recovery steam generator

6. APPLICABLE REQUIREMENTS

A. OPERATIONAL, PRODUCTION and EMISSION LIMITS

The Project is subject to, and the Permittee shall ensure that the Project shall not exceed the Operational, Production, and Emission Limits as contained in Table 7 below, including notes:

Table 7:			
EU	**Operational / Production Limit**	**Air Contaminant**	**Emission Limit**
CTG 200/ HRSG 200, CTG 300/ HRSG 300, each	**Natural Gas Firing in the CTGs:** Operation at ≥ MECL [2] Natural Gas Heat Input Rate in each CTG ≤ 223.7 MMBtu per hour, HHV [1] Heat Input Rate in each DB: ≤ 134.0 MMBtu per hour, HHV Natural Gas Firing[1] (only fuel of use) Shakedown period for both units shall not exceed 180 days from first fire of either unit. Prior to completion of shakedown of either CTG 200/HRSG 200 or CTG 300/HRSG 300, the existing GT-42-1A and HRSG-42-1B shall be permanently removed from service. (See Table 11, Special Terms and Conditions, of this Approval)	NO_X (no duct firing)	≤ 1.65 lb/hr[1] ≤ 0.0074 lb/MMBtu[1] ≤ 2.0 ppmvd@15% O_2[1]
		NO_X (with duct firing)	≤ 2.65 lb/hr[1] ≤ 0.0074 lb/MMBtu[1] ≤ 2.0 ppmvd@15% O_2[1]
		CO (no duct firing)	≤ 1.00 lb/hr[1] ≤ 0.0045 lb/MMBtu[1] ≤ 2.0 ppmvd@15% O_2[1]
		CO (with duct firing)	≤ 1.61 lb/hr [1] ≤ 0.0045 lb/MMBtu[1] ≤ 2.0 ppmvd @15% O_2[1]
		VOC (no duct firing), as Methane (CH_4)	≤ 0.49 lb/hr[1] ≤ 0.0022 lb/MMBtu[1] ≤ 1.70 ppmvd@15% O_2[1]
		VOC (with duct firing), as Methane (CH_4)	≤ 1.86 lb/hr[1] ≤ 0.0052 lb/MMBtu[1] ≤ 4.0 ppmvd@15% O_2[1]
		Sulfur (S) in Fuel	≤ 1.0 grains/100 scf[1] natural gas
		SO_2 (no duct firing)	≤ 0.64 lb/hr[1] ≤ 0.0029 lb/MMBtu[1]
		SO_2 (with duct firing)	≤ 1.04 lb/hr[1] ≤ 0.0029 lb/MMBtu[1]
		H_2SO_4 (no duct firing)	≤ 0.49 lb/hr[1] ≤ 0.0022 lb/MMBtu[1]
		H_2SO_4 (with duct firing)	≤ 0.79 lb/hr[1] ≤ 0.0022 lb/MMBtu[1]
		$PM/PM_{10}/PM_{2.5}$ (no duct firing)[5]	≤ 4.47 lb/hr[1] ≤ 0.020 lb/MMBtu[1]
		$PM/PM_{10}/PM_{2.5}$ (with duct firing)[5]	≤ 7.14 lb/hr[1] ≤ 0.020 lb/MMBtu[1]
		NH_3 (no duct firing)	≤ 0.61 lb/hr[1] ≤ 0.0027 lb/MMBtu[1] ≤ 2.0 ppmvd@15% O_2[1]
		NH_3 (with duct firing)	≤ 0.97 lb/hr[1] ≤ 0.0027 lb/MMBtu[1] ≤ 2.0 ppmvd@15% O_2[1]
		Greenhouse Gases (GHG)[9], as CO_2e (no duct firing)	≤ 26,194 lb/hr[1] ≤ 117.098 lb/MMBtu[1]
		Greenhouse Gases (GHG)[9], as CO_2e (with duct firing)	≤ 41,885 lb/hr[1] ≤ 117.098 lb/MMBtu[1]
		Opacity	< 5%, except 5% to <10% for ≤ 2 minutes during any one hour[10]

Table 7:			
EU	**Operational / Production Limit**	**Air Contaminant**	**Emission Limit**
CTG 200/ HRSG 200, CTG 300/ HRSG 300, each	**ULSD Firing in the CTGs:** Operation at ≥ MECL[2] ULSD Heat Input Rate in each CTG: ≤ 229.3 MMBtu per hour, HHV[1] Heat Input Rate in each HRSG's DB: ≤ 135.2 MMBtu per hour, HHV Natural Gas Firing[1] (only fuel of use) ≤ 48 hours on ULSD for testing per C12MP, per CTG, ≤ 279,216 gallons ULSD per C12MP, per CTG[6], ≤ 168 operating hours on ULSD per C12MP, per CTG, including ≤ 48 hours on ULSD for testing per C12MP, per CTG, ≤ 1,662 gallons per hour, per CTG ULSD firing in each CTG is restricted to periods during which any of the following events occur: 1. When natural gas is unable to be burned in the equipment; 2. When natural gas is unavailable; and 3. During testing which requires the use of ULSD firing. Shakedown period for both units shall not exceed 180 days from first fire of either unit. Prior to completion of shakedown of either CTG 200/HRSG 200 or CTG 300/HRSG 300, the existing GT-42-1A and HRSG-42-1B shall be permanently removed from service. (See Table 11, Special Terms and Conditions, of this Approval)	NO_X (no duct firing)	≤ 8.02 lb/hr[1] ≤ 0.035 lb/MMBtu[1] ≤ 9.0 ppmvd @ 15% O_2[1]
		NO_X (with duct firing)	≤ 9.50 lb/hr[1] ≤ 0.026 lb/MMBtu[1] ≤ 6.8 ppmvd @15% O_2[1]
		CO (no duct firing)	≤ 3.80 lb/hr[1] ≤ 0.017 lb/MMBtu[1] ≤ 7.0 ppmvd @ 15% O_2[1]
		CO (with duct firing)	≤ 5.29 lb/hr[1] ≤ 0.0145 lb/MMBtu[1] ≤ 6.3 ppmvd @ 15% O_2[1,13]
		VOC (no duct firing), as Methane (CH_4)	≤ 2.02 lb/hr[1] ≤ 0.0088 lb/MMBtu[1] ≤ 6.5 ppmvd @ 15% O_2[1]
		VOC (with duct firing), as Methane (CH_4)	≤ 3.40 lb/hr[1] ≤ 0.0093 lb/MMBtu[1] ≤ 7.0 ppmvd @ 15% O_2[1]
		Sulfur (S) in Fuel	≤ 0.0015 percent Sulfur by weight
		SO_2 (no duct firing)	≤ 0.37 lb/hr[1] ≤ 0.0016 lb/MMBtu[1] ≤ 0.3 ppm @ 15% O_2[1]
		SO_2 (with duct firing)	≤ 0.76 lb/hr[1] ≤ 0.0021 lb/MMBtu[1] ≤ 0.4 ppm @ 15% O_2[1]
		H_2SO_4 (no duct firing)	≤ 0.28 lb/hr[1] ≤ 0.0012 lb/MMBtu[1]
		H_2SO_4 (with duct firing)	≤ 0.58 lb/hr[1] ≤ 0.0016 lb/MMBtu[1]
		$PM/PM_{10}/PM_{2.5}$ (no duct firing)[5]	≤ 7.8 lb/hr[1] ≤ 0.034 lb/MMBtu[1, 12]
		$PM/PM_{10}/PM_{2.5}$ (with duct firing)[5]	≤ 10.6 lb/hr[1] ≤ 0.029 lb/MMBtu[1]
		NH_3 (no duct firing)	≤ 0.66 lb/hr[1] ≤ 0.0029 lb/MMBtu[1] ≤ 2.0 ppmvd @ 15 % O_2[1]
		NH_3 (with duct firing)	≤ 0.98 lb/hr[1] ≤ 0.0029 lb/MMBtu[1] ≤ 2.0 ppmvd @ 15 % O_2[1]
		Greenhouse Gases (GHG)[9], as CO_2e (no duct firing)	≤ 37,516 lb/hr[1] ≤ 163.61 lb/MMBtu[1]
		Greenhouse Gases (GHG)[9], as CO_2e (with duct firing)	≤ 53,347 lb/hr[1] ≤ 146.36 lb/MMBtu[1]
		Opacity	< 5%, except 5% to <10% for < 2 minutes during any one hour[10]

Table 7:			
EU	**Operational / Production Limit**	**Air Contaminant**	**Emission Limit**
CTG 200/ HRSG 200, CTG 300/ HRSG 300, each	Natural Gas Firing in CTG, with or without DB firing **during start-ups**[3,4] Start-up event duration: ≤ 180 minutes	NO_X	≤ 32.0 lb per event
		CO	≤ 201 lb per event
	Natural Gas Firing in CTG, with or without DB firing **during shutdowns**[3,4] Shutdown event duration: ≤ 60 minutes	NO_X	≤ 12.4 lb per event
		CO	≤ 26.3 lb per event
	ULSD Firing in CTG, with or without DB firing **during start-ups**[3,4] Start-up event duration: ≤ 180 minutes	NO_X	≤ 65 lb per event
		CO	≤ 453 lb per event
	ULSD Firing in CTG with or without DB firing **during shutdowns**[3,4] Shutdown event duration: ≤ 60 minutes	NO_X	≤ 25 lb per event
		CO	≤ 129 lb per event
	Operation during transient conditions, which are identified as those while firing natural gas in the CTG when its associated HRSG's Duct Burner heat input is changing by more than 30 MMBtu per hour ≤ 1 hour per occurrence ≤ 20 occurrences per C12MP	NO_X	≤ 4.0 lb/hour[1,8]
		CO	≤ 3.8 lb/hour[1,8]
		VOC	≤ 4.6 lb/hour[1,8]
		NH_3	≤ 1.8 lb/hour[1,8]
CTG 200/ HRSG 200, and CTG 300/ HRSG 300, **combined**	Operation during all conditions **including start-ups, shutdowns, and transient which are identified as those while firing natural gas in the CTG when its associated HRSG's Duct Burner heat input is changing by more than 30 MMBtu per hour**	NO_X	≤ 21.1 tons per C12MP[7]
		CO	≤ 15.3 tons per C12MP[7]
		VOC	≤ 10.15 tons per C12MP[7]
		NH_3	≤ 6.8 tons per C12MP[7]
		H_2SO_4	≤ 5.4 tons per C12MP[7]
		$PM/PM_{10}/ PM_{2.5}$[5]	≤ 50.7 tons per C12MP[7]
		SO_2	≤ 7.2 tons per C12MP[7]
		Greenhouse Gases (GHG)[9], as CO_2e	≤ 295,480 tons per C12MP[7]

Table 7:			
EU	**Operational / Production Limit**	**Air Contaminant**	**Emission Limit**
Cold Start Engine	ULSD is the only fuel of use, ≤ 300 hours per consecutive 12 month period, ≤ 19.04 MMBtu per hour, HHV ≤ 8 hours per day	NO_X	≤ 35.09 lb/hr ≤ 5.3 tons per C12MP
		CO	≤ 2.2 lb/hr ≤ 0.33 tons per C12MP
		VOC	≤ 0.85 lb/hr ≤ 0.13 tons per C12MP
		Sulfur (S) in Fuel	≤ 0.0015 percent Sulfur by weight
		SO_2	≤ 0.029 lb/hr ≤ 0.004 tons per C12MP
		H_2SO_4	≤ 0.022 lb/hr ≤ 0.003 tons per C12MP
		$PM/PM_{10}/ PM_{2.5}$[5]	≤ 0.4 lb/hr ≤ 0.06 tons per C12MP
		Greenhouse Gases (GHG)[9], as CO_2e	≤163.61 lb/MMBtu[1] ≤ 3,115 lb/hr ≤ 467.3 tons per C12MP
		Opacity	< 20%
	The Permittee shall operate and maintain the unit such that it complies with the emission standards as required in 40 CFR 60.4205 over the entire life of the engine.	NA	40 CFR Part 60 Subpart IIII Section 60.4206 and Section 60.4211

Table 7:			
EU	**Operational / Production Limit**	**Air Contaminant**	**Emission Limit**
BLR-42-3, BLR-42-4, BLR-42-5	Within 12 months of initial start-up of either CTG 200/HRSG 200 or CTG 300/HRSG 300 or after either CTG 200/HRSG 200 or CTG 300/HRSG 300 commences normal operations (after shakedown), whichever occurs earlier: Natural gas is primary fuel; ULSD firing is restricted to periods during which any of the following events occur: 1. When natural gas is unable to be burned in the equipment; 2. When natural gas is unavailable; and 3. During testing which requires the use of ULSD firing. $\leq$ 48 hours on ULSD for testing per C12MP, each, $\leq$ 168 operating hours on ULSD per C12MP, each, including $\leq$ 48 hours on ULSD for testing per C12MP, each The back-up fuel oil switch from No. 6 to ULSD shall occur within 12 months of initial start-up of either CTG 200/HRSG 200 or CTG 300/HRSG 300 or after either CTG 200/HRSG 200 or CTG 300/HRSG 300 commences normal operations (after shakedown), whichever occurs earlier. (See Table 11, Special Terms and Conditions, of this Approval) Heat Input Rate in each boiler: BLR-42-3: $\leq$ 116.2 MMBtu per hour, HHV BLR-42-4: $\leq$ 116.2 MMBtu per hour, HHV BLR-42-5: $\leq$ 145.2 MMBtu per hour, HHV	PM/PM_{10}/ $PM_{2.5}$[5]	0.0076 lb/MMBtu when firing natural gas[14] 0.055 lb/MMBtu when firing ULSD[14]

Table 7:			
EU	**Operational / Production Limit**	**Air Contaminant**	**Emission Limit**
BLR-42-7	Natural gas is primary fuel; ULSD firing is restricted to periods during which any of the following events occur: 1. When natural gas is unable to be burned in the equipment, 2. When natural gas is unavailable, and 3. During testing which requires the use of ULSD firing. ≤ 48 hours on ULSD for testing per C12MP, per CTG, ≤ 168 operating hours on ULSD per C12MP, each, including ≤ 48 hours on ULSD for testing per C12MP, each Heat Input Rate in each boiler: BLR-42-7: ≤ 99.7 MMBtu per hour, HHV BLR-42-9 on ULSD: ≤ 119.2 MMBtu per hour, HHV BLR-42-9 on Natural Gas: ≤ 125.8 MMBtu per hour, HHV	$PM/PM_{10}/ PM_{2.5}$[5]	0.01 lb/MMBtu when firing natural gas[15] 0.03 lb/MMBtu when firing ULSD[15]
BLR-42-9			0.01 lb/MMBtu when firing natural gas[16] 0.03 lb/MMBtu when firing ULSD[16]
CTG 200/HRSG 200 and CTG 300/HRSG 300, and Cold Start Engine, combined	NA	NO_X[11]	≤ 26.4 tons per C12MP
		CO	≤ 15.7 tons per C12MP
		VOC	≤ 10.3 tons per C12MP
		$PM/PM_{10}/ PM_{2.5}$[5]	≤ 50.8 tons per C12MP
		SO_2	≤ 7.3 tons per C12MP
		Greenhouse Gases (GHG)[9], as CO_2e	≤ 295,948 tons per C12MP
		NH_3	≤ 6.8 tons per C12MP
		H_2SO_4	≤ 5.4 tons per C12MP

Table 7 Notes:

1. BACT emission limits are one hour block averages, and do not include those in which a start-up, shutdown, or transient condition occurs, except heat input and GHG as CO_2e which are 24 hour averages based on one hour block averages.
2. The Minimum Emissions Compliance Load (MECL) is defined as the lowest operational load achievable to maintain compliance with the emission limitations following start-up, pending the completion of an MECL optimization study, as required in Table 8.
3. Start-ups shall last no longer than 180 minutes beginning from the time of flame-on in the combustor (after a period of downtime) until the MECL is reached. Shutdowns shall last no longer than 60 minutes and include the time from dropping below the MECL until flame-out. Start-up and shutdown emission limits and durations apply only to NO_X

and CO as other pollutants are not expected to have emissions in excess of normal operating condition limits and are subject to revision by MassDEP based on review of compliance data and CEMS data generated from the first year of operation.

4. Emissions of SO_2, VOC, PM/PM_{10}/ $PM_{2.5}$, GHG and H_2SO_4 during start-up and shutdown events are not expected to be elevated.
5. Emission limit is for the sum of filterable and condensable particulate matter via EPA Reference Methods 201A and 202 or an equivalent test method(s) approved by MassDEP.
6. The total allowable fuel heat input is based on ULSD usage in each CTG at 229.3 MMBtu/hr for 168 hours per C12MP.
7. C12MP emission limits are based on nominal ratings and include start-up, shutdown, and transient operation emissions and are based on ULSD usage in each CTG at 212 MMBtu/hr for 168 hours per C12MP and of natural gas usage at 219 MMBtu/hr for 8,592 hours per C12MP and natural gas usage in each HRSG's Duct Burner at 125 MMBtu/hr for 4,380 hour per C12MP.
8. Limit applies to the full hour in which transient operations, which are limited to 20 occurrences per C12MP, occur.
9. The CO_2 emission factors from combustion of natural gas and ULSD were obtained from 40 CFR Part 98, Subpart C, Table C-1. The emission factors for other greenhouse gases of consideration, methane (CH_4) and nitrous oxide (N_2O), from combustion of natural gas and ULSD were obtained from 40 CFR Part 98, Subpart C, Table C-2. Greenhouse Gases expressed as Carbon Dioxide equivalent (CO_2e) was calculated by multiplying the individual GHG emission rates for CO_2, CH_4, and N_2O by its 100-year time horizon Global Warming Potential (GWP) factor from 40 CFR Part 98, Subpart A, Table A-1 (GWP factors used were: CO_2 = 1, CH_4 = 25, and N_2O = 298) and summing.

Emission rates were converted from kg/MMBtu to pounds/MMBtu using the 2.20462 lb/kg conversion factor from 40 CFR Part 98, Table A-2.

For example, natural gas:
{(53.06 kg CO_2/MMBtu * 1 kg CO_2e/kg CO_2) + (0.001 kg CH_4/MMBtu * 25 kg CO_2e/kg CH_4) + (0.0001 kg N_2O/MMBtu * 298 kg CO_2e/kg N_2O)} * 2.20462 pounds/kg = 117.098 lb CO_2e/MMBtu
For example, ULSD:
{(73.96 kg CO_2/MMBtu * 1 kg CO_2e/kg CO_2) + (0.003 kg CH_4/MMBtu * 25 kg CO_2e/kg CH_4) + (0.0006 kg N_2O/MMBtu * 298 kg CO_2e/kg N_2O)} * 2.20462 pounds/kg = 163.61 lb CO_2e/MMBtu

10. Opacity based on one minute averages per COMS.
11. Facility-wide net NO_X emission increases remain below 25 tons over 5 years due to netting, therefore Nonattainment New Source Review is not applicable.
12. Subject to revision by MassDEP based on review of compliance (stack) testing data generated for the first year of operation in which this operating condition occurs; however, not to exceed the emission rate utilized in the National Ambient Air Quality Standards compliance demonstration.
13. Subject to revision by MassDEP based on review of compliance data generated for the first year of operation in which this operating condition occurs.
14. Emission limits from applicable MassDEP approval, No. MBR-91-COM-027.
15. Emission limits from applicable MassDEP approval, No. MBR-09-COM-007.
16. Emission limits from applicable MassDEP approval, No. MBR-10-COM-007.

Table 7 Key:
EU = Emission Unit
NO_X = Nitrogen Oxides
CO = Carbon Monoxide
VOC = Volatile Organic Compounds, excludes methane and ethane.
S = Sulfur
SO_2 = Sulfur Dioxide
PM = Particulate Matter
PM_{10} = Particulate Matter with particle diameter less than or equal to 10 microns
$PM_{2.5}$ = Particulate Matter with particle diameter less than or equal to 2.5 microns
NH_3 = Ammonia

O_2 = oxygen
H_2SO_4 = sulfuric acid
HAPS = Hazardous Air Pollutants
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.
No. = Number
C12MP = consecutive twelve month period
lb/hr = pounds per hour
grains/scf = grains per standard cubic foot
MMBtu = 1,000,000 British thermal units
lb/MMBtu = pounds per 1,000,000 British thermal units
ppmvd = parts per million by volume, dry basis
scf = standard cubic feet
@ = at
% = percent
EPA = Unites States Environmental Protection Agency
CFR = Code of Federal Regulations
CMR = Code of Massachusetts Regulations
ULSD = Ultra-Low Sulfur Distillate, having a sulfur content of no more than 0.0015 percent by weight
CTG = Combustion Turbine Generator
DB = Duct Burner
HHV = higher heating value basis, from Table C-1 to Subpart C of 40 CFR Part 98: 0.138 MMBtu per gallon ULSD and $1.026*10^{-3}$ MMBtu per standard cubic foot natural gas
MECL = minimum emissions compliance load
< = less than
> = greater than
$\leq$ = less than or equal to
$\geq$ = greater than or equal to
NA = Not Applicable
CEMS = Continuous Emissions Monitoring System

B. NEW SOURCE PERFORMANCE STANDARDS (NSPS)

CTG 200/HRSG 200 and CTG 300/HRSG 300

Federal Regulation 40 CFR Part 60 Subpart KKKK, applies to stationary combustion turbines with a heat input rating greater than or equal to 10 MMBtu/hr, and which commenced construction, reconstruction, or modification after February 18, 2005 as well as any associated HRSGs or DBs.

The NSPS allows the turbine owner or operator the choice of either a concentration based or output based NO_X emission standard. The output based limit is expressed in units of pounds per megawatt-hour output (lb/MW-hr). The applicable NO_X emission standard for CTG 200/HRSG 200 and CTG 300/HRSG 300 is 1.2 lb/MW-hr while combusting natural gas and 3.6 lb/MW-hr when combusting ULSD. The applicable NO_X limits for a 22 MW CTG, such as those proposed for this Project, would be 26.4 pounds per hour (lb/hr) during natural gas firing and 79.2 lb/hr during ULSD firing based on the lb/MW-hr emission standards contained in the regulation. The Permittee has proposed that the Project will comply with these limits for each CHP through the use of dry low-NO_X combustion technology in conjunction with SCR to control NO_X emissions to 2.65 lb/hr during natural gas firing

and to 9.50 lb/hr during ULSD firing. Demonstration of compliance with the more stringent NO_X emission limits contained in this Approval for each the Project's two CHPs will demonstrate compliance with the applicable NO_X emission limits contained in 40 CFR Part 60 Subpart KKKK for said emission units.

40 CFR Part 60 Subpart KKKK also includes SO_2 emission limits. For a turbine located in a continental area, the NSPS fuel sulfur content limit is 26 ng/J (0.060 lb SO_2/MMBtu) heat input. The Permittee will meet the applicable SO_2 emission limit when combusting natural gas with a sulfur dioxide emission rate of 0.0029 lb/MMBtu and of 0.0021 lb/MMBtu when combusting ULSD, both of which are well below the applicable NSPS SO_2 limit of 0.06 lb/MMBtu.

Therefore by complying with the emission limits established in this Approval, the Permittee will meet the applicable SO_2 and NO_X emission standards contained in 40 CFR Part 60 Subpart KKKK. The Permittee shall be required to also comply with all applicable monitoring, record keeping, and reporting requirements of 40 CFR Part 60 Subpart KKKK for each of the two proposed CHPs.

Cold Start Engine

The Cold Start Engine must meet the applicable requirements contained in 40 CFR Part 60, Subpart IIII, "Standards of Performance for Stationary Compression Ignition Internal Combustion Engines." The requirements applicable to emergency engines such as the Cold Start Engine, contained therein, include the purchasing of an engine that is certified to the applicable emission standard contained in 40 CFR 60.4205 for the same model year and maximum engine power, installing and configuring the engine according to the manufacturer's emission-related specifications, limiting maintenance checks and readiness testing to those recommended by manufacturer and for up to 100 hours per year, in addition to performing specific maintenance activities pertaining to filters, hoses, and belts. MIT has proposed to purchase and operate the Cold Start Engine in compliance with the applicable requirements contained in Regulation 40 CFR 60 Subpart IIII.

C. NATIONAL EMISSION STANDARDS FOR HAZARDOUS AIR POLLUTANTS (NESHAP)

CTG 200/HRSG 200 and CTG 300/HRSG 300

Regulation 40 CFR Part 63, Subpart YYYY, "National Emission Standards for Hazardous Air Pollutants for Stationary Combustion Turbines" applies to combustion turbines at major sources of hazardous air pollutant (HAP) emissions. A major source of HAP emissions is a source which has the potential to emit ten or more tons per year of any single HAP, or twenty-five or more tons per year of all HAPs combined. MIT maintains a tracking system to document its status as a non-major (area) source of HAPS. MIT reports and certifies to MassDEP its area source HAP status on an annual basis via Regulation 310 CMR 7.12 Source Registration submittals. MIT is not a major source of HAP emissions and therefore, the Project's combustion turbines are not subject to requirements contained under 40 CFR Part 63 Subpart YYYY.

Cold Start Engine

The proposed Cold Start Engine is subject to 40 CFR Part 63 Subpart ZZZZ, "National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines." Per 40 CFR 63.6590(c)(1), the Cold Start Engine will meet the applicable requirements of 40 CFR Part 63 Subpart ZZZZ by meeting the applicable requirements of 40 CFR Part 60, Subpart IIII, "Standards of Performance for Stationary Compression Ignition Internal Combustion Engines."

D. EMISSIONS TRADING PROGRAM

The Facility is not subject to any of the emissions allowance trading programs such as the Massachusetts CO_2 Budget Trading Program - 310 CMR 7.70.

E. COMPLIANCE DEMONSTRATION

The Project is subject to, and the Permittee shall ensure that the Project shall comply with, the monitoring, testing, record keeping, and reporting requirements as contained in Tables 8, 9, and 10 below:

Table 8

EU	Monitoring and Testing Requirements
CTG 200/ HRSG 200, CTG 300/ HRSG 300	1. The Permittee shall ensure that CTG 200/HRSG 200 and CTG 300/HRSG 300 are 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 half 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 monitor date(s) of startup(s) and compliance testing to ensure that compliance testing of CTG 200/HRSG 200 and CTG 300/HRSG 300 is completed within 180 days after initial start-up of the Emission Unit to demonstrate compliance with the emission limits specified in Table 7 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 and 40 CFR Part 51, Appendix M, or by another method which has been approved in writing by both MassDEP and EPA. The Permittee shall schedule the compliance testing such that MassDEP personnel can witness it.

Table 8	
EU	**Monitoring and Testing Requirements**
CTG 200/ HRSG 200, CTG 300/ HRSG 300	3. The Permittee shall conduct initial compliance tests on CTG 200/HRSG 200 and CTG 300/HRSG 300 to document actual emissions of each Emission Unit so as to determine its compliance status with respect to the emission limits in lb/hr, lb/MMBtu, and ppmvd, both with and without DB operation as contained in Table 7 for the pollutants listed below: a. NO_X b. CO c. VOC d. SO_2 e. $PM/PM_{10}/ PM_{2.5}$ f. NH_3 g. H_2SO_4 h. Greenhouse gases as measured by CO_2e Testing for these pollutants for each Emission Unit shall be conducted on natural gas at three (3) load conditions, both with and without duct firing, that cover the entire normal operating range: the minimum emissions compliance load (MECL),100 percent load, and a minimum of one additional load that fall between MECL and 100 percent. Testing on ULSD shall be conducted at one load condition without Duct Burner firing.
	4. During the initial compliance test and all subsequent emissions testing, the Permittee shall monitor emissions to establish a correlation between CO and VOC emissions such that a correlation curve shall be developed. Said correlation curve shall subsequently be used to track VOC emissions based on CEMS data for CO emissions in order to monitor compliance with the emission limits in Table 7 until the next compliance testing is conducted and a new correlation curve is developed at which time that curve shall be utilized to track VOC emissions.
	5. During the initial compliance test and all subsequent emissions testing, the Permittee shall monitor emissions to establish a parametric monitoring system utilizing the Facility's operations data acquisition handling system – DAHS for tracking $PM/PM_{10}/PM_{2.5}$ emissions, both including filterable and condensable particulate matter. Said parametric system shall be used to track emissions of $PM/PM_{10}/PM_{2.5}$ in order to monitor compliance with the emission limits in Table 7 until the next compliance testing is conducted and a new system is developed at which time that system shall be utilized to track $PM/PM_{10}/PM_{2.5}$ emissions.
	6. During the initial compliance test and all subsequent emissions testing, the Permittee shall monitor emissions to establish a parametric monitoring system[1] for tracking H_2SO_4 emissions. Said parametric system shall be used to track emissions of H_2SO_4 in order to monitor compliance with the emission limits in Table 7 until the next compliance testing is conducted and a new system is developed at which time that system shall be utilized to track H_2SO_4 emissions.

[1] Parametric monitoring for H_2SO_4 shall be determined by fuel analysis. Fuel analysis shall consist of 2 samples of natural gas annually and each ULSD delivery. A MassDEP approved methodology shall determine the ratio between sulfur percent in fuel to emitted H_2SO_4.

Table 8	
EU	**Monitoring and Testing Requirements**
CTG 200/ HRSG 200, CTG 300/ HRSG 300	7. The Permittee shall prepare and complete an MECL optimization study. The results of which shall be submitted with the compliance test results report.
	8. Whenever required by MassDEP, the Permittee shall conduct compliance tests on CTG 200/HRSG 200 and CTG 300/HRSG 300 to document actual emissions of each Emission Unit so as to determine its compliance status with respect to the emission limits in lb/hr, lb/MMBtu, and ppmvd, both with and without DB operation as contained in Table 7 for the pollutants listed below: a. VOC b. SO_2 c. $PM/PM_{10}/PM_{2.5}$ d. H_2SO_4 e. Greenhouse gases as measured by CO_2e During said compliance testing, the Permittee shall monitor emissions and update the CO/VOC correlation curve and the $PM/PM_{10}/PM_{2.5}$ and H_2SO_4 parametric monitoring systems, as well as MECL optimization, as deemed appropriate by testing results.
	9. The Permittee shall install, calibrate, test, and operate a Data Acquisition and Handling System(s) (DAHS), CEMS, and COMS serving each CHP to accurately measure and record the following from each CHP: a. O_2 b. NO_X c. CO d. NH_3 e. opacity The CEMS shall include diluents gas (O_2) and fuel flow meters.
	10. The Permittee shall ensure that all emission monitors and recorders serving each Emission Unit 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.
	11. The Permittee shall ensure that the subject CEMS and COMS are equipped with properly operated and properly maintained audible and visible alarms to activate whenever emissions or opacity from its associated Emission Unit exceed the applicable short term emission limits established in Table 7 of this Plan Approval.
	12. The Permittee shall operate the CEMS and/or COMS serving each Emission Unit at all times except for periods of CEMS and/or COMS calibration checks, zero and span adjustments, preventative maintenance, and periods of unavoidable malfunction.
	13. The Permittee shall obtain and record emissions data from the CEMS serving each Emission Unit for at least ninety five (95) percent of each Emission Unit's operating hours per quarter, except for periods of CEMS calibration checks, zero and span adjustments, and preventive maintenance.

Table 8	
EU	**Monitoring and Testing Requirements**
CTG 200/ HRSG 200, CTG 300/ HRSG 300	14. All periods of excess emissions occurring, 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 7 of this Plan Approval. ("Excess Emissions" are defined as emissions which are in excess of the emission limits as stated in Table 7).
	15. The Permittee shall use and maintain its CEMS and/or COMS serving each Emission Unit as "direct-compliance" monitors to measure NO_X, CO, NH_3, O_2, and opacity. "Direct-compliance" monitors generate data that legally documents the compliance status of a source.
	16. The Permittee shall install, operate, and maintain a separate fuel metering device and recorder for each CTG that monitors and records natural gas consumption in standard cubic feet such that MMBtu/hr heat input can be calculated based on HHV to ensure compliance with Table 7 limits.
	17. The Permittee shall install, operate, and maintain a separate fuel metering device and recorder for each HRSG's Duct Burner that monitors and records natural gas consumption in standard cubic feet such that MMBtu/hr heat input can be calculated based on HHV to ensure compliance with Table 7 limits.
	18. The Permittee shall install, operate, and maintain a separate fuel metering device and recorder for each CTG which shall monitor and record ULSD consumption such that gallons per hour and per C12MP and MMBtu/hr heat input can be calculated based on HHV to ensure compliance with Table 7 limits.
	19. The Permittee shall monitor each date and daily hours of operation and total hours of operation for each Emission Unit per month and per C12MP.
	20. The Permittee shall ensure that initial compliance tests for natural gas firing are conducted for start-up periods, shutdown periods, and periods of transient conditions as defined in the Permittee's Application to ensure compliance with the NO_X, CO, VOC and NH_3 limits for those conditions in Table 7. These compliance tests shall represent periods of operation below the MECL for each Emission Unit.
	21. Whenever operating during transient conditions, VOC emissions shall be considered as occurring at the rate determined in the most recent compliance test for transient conditions. NO_X, CO, and NH_3 emissions during transient conditions shall be monitored via CEMS.
	22. If operating at the MECL or greater, and if CO emissions are below the CO emission limit at the given combustion turbine operating conditions, VOC emissions shall be considered as complying with the emission limits contained in this Plan Approval.

Table 8	
EU	**Monitoring and Testing Requirements**
CTG 200/ HRSG 200, CTG 300/ HRSG 300	23. If operating at the MECL or greater, and if CO emissions are above the applicable CO emission limit, VOC emissions shall be considered as occurring at a rate determined according to the equation: $VOC_{actual} = VOC_{limit} \times (CO_{actual}/CO_{limit})$ pending the outcome of compliance testing, after which a VOC/CO correlation curve for each combustion turbine will be developed and used for VOC compliance determination purposes.
	24. The Permittee shall monitor the natural gas and ULSD consumption of each Emission Unit in accordance with 40 CFR Part 60 Subpart KKKK utilizing a continuous monitoring system as approved by MassDEP.
	25. The Permittee shall monitor the sulfur content of the fuel combusted in each Emission Unit in accordance with 40 CFR Part 60 Subpart KKKK, or pursuant to any alternative fuel monitoring schedule developed in accordance with 40 CFR Part 60 Subpart KKKK.
	26. The Permittee shall monitor the load, start-up and shutdown duration, and mass emissions in pounds per event during start-up and shutdown periods.
	27. The Permittee shall monitor the number of occurrences of transient condition events, the duration of each transient condition event, and the mass emissions in pounds per event.
	28. The Permittee shall monitor the operation of each Emission Unit, in accordance with the surrogate methodology or parametric monitoring developed during the most recent compliance test concerning $PM/PM_{10}/PM_{2.5}$ and H_2SO_4 emission limits.
	29. The Permittee shall monitor the hours of operation for testing purposes while firing ULSD in each CTG on a monthly and C12MP basis.
	30. The Permittee shall monitor operations to ensure that the shakedown period for both units shall not exceed 180 days from first fire of either unit.
	31. The Permittee shall monitor operations to ensure that prior to completion of shakedown of either unit, the existing GT-42-1A and HRSG-42-1B shall be permanently removed from service.
Cold Start Engine	32. The Permittee shall monitor operations to ensure compliance with the requirements applicable to emergency engines, as contained in 40 CFR Part 60, Subpart IIII, which include but are not limited to purchasing an engine that has been certified by EPA, operating said emergency engine in accordance with 60.4211(f), not including 60.4211(f)(ii)-(iii), and installing, configuring, operating, and maintaining the engine per the manufacturer's instructions.
	33. The Permittee shall monitor the sulfur content of ULSD fuel oil burned.
	34. The Permittee shall monitor hourly operations to ensure compliance with the operational limits in terms of hours per day and hours per C12MP and emission limits in Table 7.
	35. The Permittee shall monitor operations to ensure that the Cold Start Engine shall not be operated more than 300 hours during any C12MP, including normal maintenance and testing procedures as recommended by the manufacturer.

Table 8	
EU	**Monitoring and Testing Requirements**
Cold Start Engine	36. The Permittee shall monitor operations to ensure that the Cold Start Engine is equipped and operated with a non-turnback hour counter which shall be maintained in good working order.
BLR-42-3, BLR-42-4, BLR-42-5	37. The Permittee shall monitor the date(s) of startup(s) and commencement of normal operation of CTG 200/HRSG 200 and CTG 300/HRSG 300 to ensure that the required fuel switch occurs within twelve months of initial start-up of either CTG 200/HRSG 200 or CTG 300/HRSG 300 or after either CTG 200/HRSG 200 or CTG 300/HRSG 300 commences normal operation (after conclusion of shakedown), whichever occurs earlier.
CTG 200, CTG 300, BLR-42-3, BLR-42-4, BLR-42-5, BLR-42-7, BLR-42-9	38. The Permittee shall monitor each Emission Unit's ULSD-fired operations to ensure compliance with the requirement that natural gas shall be the primary fuel and that ULSD firing is restricted to no more than 48 hours for testing per C12MP and 168 hours per C12MP including periods during which any of the following events occur: a. When natural gas is unable to be burned in the equipment; b. When natural gas is unavailable; and c. During testing which requires the use of ULSD firing.
	39. For each Emission Unit, the Permittee shall monitor the sulfur content of ULSD burned as well as the reason for and number of hours of ULSD firing, both on a C12MP basis.
BLR-42-3, BLR-42-4, BLR-42-5, BLR-42-7, BLR-42-9	40. The Permittee shall monitor operations to ensure compliance with limits contained in Table 7 above.
Project-Wide	41. The Permittee shall comply with all required monitoring contained in any applicable New Source Performance Standards (NSPS) contained in 40 CFR Part 60.
	42. The Permittee shall comply with all required monitoring contained in any applicable National Emission Standards for Hazardous Air Pollutants (NESHAPS) contained in 40 CFR Part 63.
	43. The Permittee shall monitor all operations to ensure sufficient information is available to comply with 310 CMR 7.12 Source Registration.
	44. 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 8 Key:
EU = Emission Unit
EPA = United States Environmental Protection Agency
CFR = Code of Federal Regulations
CMR = Code of Massachusetts Regulations
DAHS = Data Acquisition and Handling System
CEMS = Continuous Emission Monitoring System
COMS = Continuous Opacity Monitoring System
SCR = Selective Catalytic Reduction
DB = Duct Burner
CTG = Combustion Turbine Generator
CHP = Combined Heat and Power

O_2 = Oxygen
NO_X = Nitrogen Oxides
CO = Carbon Monoxide
NH_3 = Ammonia
HAP = Hazardous Air Pollutants
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_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.
SO_2 = Sulfur Dioxide
H_2SO_4 = Sulfuric Acid
C12MP = Consecutive twelve month period
lb/hr = pounds per hour
lb/MMBtu = pounds per million British thermal units
ppmvd = parts per million by volume, dry basis
MMBtu/hr = million British thermal units per hour
MassDEP = The Massachusetts Department of Environmental Protection
HHV = higher heating value basis, from Table C-1 to Subpart C of 40 CFR Part 98: 0.138 MMBtu per gallon ULSD and $1.026*10^{-3}$ MMBtu per standard cubic foot natural gas
MECL = Minimum Emissions Compliance Load
ULSD = Ultra-Low Sulfur Distillate, having a sulfur content of no more than 0.0015 percent by weight
Project-wide = CTG 200/HRSG 200, CTG 300/HRSG 300, Cold Start Engine, BLR-42-3, BLR-42-4, BLR-42-5, BLR-42-7, and BLR-42-9

Table 9	
EU	**Record Keeping Requirements**
CTG 200/HRSG 200, CTG 300/HRSG 300	1. The Permittee shall maintain records of CTG 200/HRSG 200's and of CTG 300/HRSG 300's hourly fuel heat input rate (MMBtu/hr, HHV) and natural gas consumption in standard cubic feet and ULSD in gallons, both per month and per C12MP, each.
	2. The Permittee shall maintain records of each date and daily hours of operation and total hours of operation of CTG 200/HRSG 200 and CTG 300/HRSG 300 per month and per C12MP.
	3. The Permittee shall maintain on-site permanent records for a period of 5 years of output from all continuous monitors (including CEMS and COMS) for flue gas emissions and opacity.
	4. The Permittee shall maintain a log to record problems, upsets or failures associated with the subject Emission Units' emission control systems, DAHS, CEMS, and/or COMS.
	5. The Permittee shall maintain a record of the CO/VOC correlation curve developed from the most recent compliance test and shall continuously record VOC emissions on the DAHS using said CO/VOC correlation curve.

Table 9	
EU	**Record Keeping Requirements**
CTG 200/HRSG 200, CTG 300/HRSG 300	6. The Permittee shall maintain a record of the date(s) of startup(s) and compliance testing to verify that compliance testing of CTG 200/HRSG 200 and CTG 300/HRSG 300 is completed within 180 days after initial start-up of the Emission Unit to demonstrate compliance with the emission limits specified in Table 7 of this Plan Approval.
	7. The Permittee shall maintain a record of the stack emissions test results report(s) including start-up, shutdown and transient operation data, CO/VOC correlation curve, and parametric monitoring strategies for PM/PM_{10}/$PM_{2.5}$ and H_2SO_4 emissions as well as MECL optimization such that the Final test results report can be submitted to MassDEP as required in Table 10 of this Plan Approval.
	8. The Permittee shall continuously record PM/PM_{10}/$PM_{2.5}$ emissions on the DAHS using the surrogate methodology or parametric monitoring derived from the most recent compliance test.
	9. The Permittee shall maintain a record of all periods of excess emissions, even if attributable to an emergency/malfunction, start-up/shutdown or equipment cleaning, which 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 7 of this Plan Approval.
	10. The Permittee shall continuously record H_2SO_4 emissions on the DAHS using the surrogate methodology or parametric monitoring derived from the most recent compliance test. Parametric monitoring for H_2SO_4 shall be determined by fuel analysis. Fuel analysis shall consist of two samples of natural gas annually and each ULSD delivery. A MassDEP approved methodology shall determine the ratio between sulfur percent in fuel to emitted H_2SO_4.
	11. The Permittee shall maintain records of the load, start-up and shutdown duration, and mass emissions in pounds per event during start-up and shutdown periods.
	12. The Permittee shall maintain records of the number of occurrences of transient condition events, the duration of each transient condition event, and the mass emissions in pounds per event.
	13. The Permittee shall maintain records of consumption of and the sulfur content of the fuel combusted at the frequency required pursuant to 40 CFR Part 60 Subpart KKKK, or pursuant to any alternative fuel monitoring schedule issued in accordance with 40 CFR Part 60 Subpart KKKK.
	14. The Permittee shall maintain continuous records of SCR and oxidation catalyst inlet temperatures, combustion turbine inlet temperatures and ambient temperatures.
	15. The Permittee shall maintain the SOMP for the urea handling systems serving CTG 200/HRSG 200 and CTG 300/HRSG 300 in a convenient location and make them readily available to all CUP employees.
	16. The Permittee shall maintain a copy of this Plan Approval, underlying Application, and the most up-to-date SOMP for CTG 200/HRSG 200 and CTG 300/HRSG 300.

Table 9	
EU	**Record Keeping Requirements**
CTG 200/HRSG 200, CTG 300/HRSG 300	17. The Permittee shall install, operate, and maintain a separate fuel metering device and recorder for each CTG that records natural gas consumption in standard cubic feet.
	18. The Permittee shall install, operate, and maintain a separate fuel metering device and recorder for each HRSG's Duct Burner that records natural gas consumption in standard cubic feet.
	19. The Permittee shall install, operate, and maintain a separate fuel metering device and recorder for each CTG which shall record ULSD consumption in gallons per hour and per C12MP.
	20. The Permittee shall maintain a record of the hours of operation for testing purposes while firing ULSD in each CTG on a monthly and C12MP basis.
	21. The Permittee shall maintain records of first fire and the completion of the shakedown period for both units to verify that the shakedown period shall not exceed 180 days from first fire of either unit.
	22. The Permittee shall maintain records of the dates of completion of shakedown of both units as well as the date that the existing GT-42-1A and HRSG-42-1B are permanently removed from service to verify that the existing GT-42-1A and HRSG-42-1B are permanently removed from service prior to the completion of the shakedown of either CTG 200/HRSG 200 or CTG 300/HRSG 300.
Cold Start Engine	23. The Permittee shall maintain a record of the sulfur content of ULSD fuel oil burned.
	24. The Permittee shall maintain records documenting compliance with the requirements applicable to emergency engines, as contained in 40 CFR Part 60, Subpart IIII, which include but are not limited to purchasing an engine that has been certified by EPA, operating said emergency engine in accordance with 60.4211(f), not including 60.4211(f)(ii)-(iii), and installing, configuring, operating, and maintaining the engine per the manufacturer's instructions.
	25. The Permittee shall maintain a record of hourly operations to verify compliance with the operational limits in terms of hours per day and hours per C12MP and emission limits in Table 7.
	26. The Permittee shall maintain records to verify that the Cold Start Engine shall not be operated more than 300 hours during any C12MP, including normal maintenance and testing procedures as recommended by the manufacturer.
	27. The Permittee shall maintain records to verify that the Cold Start Engine is equipped and operated with a non-turnback hour counter which shall be maintained in good working order.
BLR-42-3, BLR-42-4, BLR-42-5	28. The Permittee shall maintain records of date(s) of startup(s) and commencement of normal operation of CTG 200/HRSG 200 or CTG 300/HRSG 300 to verify that the required fuel switch occurs within twelve months of initial start-up of either CTG 200/HRSG 200 or CTG 300/HRSG 300 or after either CTG 200/HRSG 200 or CTG 300/HRSG 300 commences normal operation (after conclusion of shakedown), whichever occurs earlier.

Table 9	
EU	**Record Keeping Requirements**
CTG 200, CTG 300, BLR-42-3, BLR-42-4, BLR-42-5, BLR-42-7, BLR-42-9	29. The Permittee shall maintain a record of each emission unit's ULSD-fired operations to document compliance with the requirement that natural gas shall be the primary fuel and that ULSD firing for purposes shall not exceed 48 hours per C12MP and is restricted to no more than 168 hours per C12MP including only periods during which any of the following events occur: a. When natural gas is unable to be burned in the equipment; b. When natural gas is unavailable; and c. During testing which requires the use of ULSD firing.
	30. For each Emission Unit, the Permittee shall maintain records of the sulfur content of ULSD burned as well as the reason for and number of hours of ULSD firing, both on a C12MP basis.
BLR-42-3, BLR-42-4, BLR-42-5, BLR-42-7, BLR-42-9	31. The Permittee shall maintain records to verify compliance with limits contained in Table 7 above.
Project-Wide	32. The Permittee shall maintain adequate records on-site to demonstrate compliance status with all operational, production, and emission limits contained in Table 7 above. Records shall also include the actual emissions of air contaminant(s) emitted for each calendar month and for each C12MP (current month plus prior eleven months). These records shall be compiled no later than the 30th day following each month. An electronic version of the MassDEP approved record keeping form, in Microsoft Excel format, can be downloaded at http://www.mass.gov/eea/agencies/massdep/air/approvals/limited-emissions-record-keeping-and-reporting.html#WorkbookforReportingOn-SiteRecordKeeping.
	33. The Permittee shall maintain records of monitoring and testing as required by Table 8.
	34. The Permittee shall comply with all required recordkeeping contained in any applicable New Source Performance Standards (NSPS) contained in 40 CFR Part 60.
	35. The Permittee shall comply with all required recordkeeping contained in any applicable National Emission Standards for Hazardous Air Pollutants (NESHAPS) contained in 40 CFR Part 63.
	36. The Permittee shall maintain a copy of this Plan Approval, underlying Application and the most up-to-date SOMP for the emission units and pollution control devices approved herein on-site.
	37. The Permittee shall maintain a record of routine maintenance activities performed on the approved emission units and pollution control devices and monitoring equipment. The records shall include, at a minimum, the type or a description of the maintenance performed and the date and time the work was completed.

Table 9	
EU	**Record Keeping Requirements**
Project-Wide	38. The Permittee shall maintain a record of all malfunctions affecting air contaminant emission rates on the approved emission units and pollution control devices and monitoring equipment. At a minimum, the records shall include: date and time the malfunction occurred; description of the malfunction; corrective actions taken; the date and time corrective actions were initiated and completed; and the date and time emission rates and monitoring equipment returned to compliant operation.
	39. The Permittee shall maintain records to ensure sufficient information is available to comply with 310 CMR 7.12 Source Registration.
	40. The Permittee shall maintain records required by this Plan Approval on site for a minimum of five (5) years.
	41. The Permittee shall make records required by this Plan Approval available to MassDEP and EPA personnel upon request.

Table 9 Key:
EU = Emission Unit
PCD = Pollution Control Device
SOMP = Standard Operating and Maintenance Procedures
EPA = United States Environmental Protection Agency
DAHS = Data Acquisition and Handling System
CEMS = Continuous Emission Monitoring System
COMS = Continuous Opacity Monitoring System
SCR = Selective Catalytic Reduction
CFR = Code of Federal Regulations
CMR = Code of Massachusetts Regulations
CO = Carbon Monoxide
NO_X = Nitrogen Oxides
HAP = Hazardous Air Pollutant
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
SO_2 = Sulfur Dioxide
ULSD = Ultra-Low Sulfur Distillate Fuel Oil containing a maximum of 0.0015 weight percent sulfur
H_2SO_4 = Sulfuric Acid
C12MP = Consecutive twelve month period
CUP = Central Utility Plant
CTG = Combustion Turbine Generator
HRSG = Heat Recovery Steam Generator
MassDEP = The Massachusetts Department of Environmental Protection
CHP = Combined Heat and Power
MMBtu/hr = pounds per million British thermal units
HHV = higher heating value basis, from Table C-1 to Subpart C of 40 CFR Part 98: 0.138 MMBtu per gallon ULSD and $1.026*10^{-3}$ MMBtu per standard cubic foot natural gas
Project-wide = CTG 200/HRSG 200, CTG 300/HRSG 300, Cold Start Engine, BLR-42-3, BLR-42-4, BLR-42-5, BLR-42-7, and BLR-42-9

Table 10	
EU	**Reporting Requirements**
CTG 200/HRSG 200, CTG 300/HRSG 300	1. The Permittee must obtain written MassDEP approval of an emissions test protocol prior to initial compliance emissions testing of CTG 200/HRSG 200 and CTG 300/HRSG 300 at the Facility. The Permittee shall submit a pre-test protocol at least 30 days prior to the 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) the required CO and VOC correlation for CTG 200/HRSG 200 and CTG 300/HRSG 300; and b) parametric monitoring strategies to ensure continuous monitoring of $PM/PM_{10}/PM_{2.5}$ and H_2SO_4 emissions from CTG 200/HRSG 200 and CTG 300/HRSG 30; and c) the MECL optimization plan.
	2. The Permittee shall submit a final stack emissions test results report including start-up, shutdown and transient operation data, CO/VOC correlation curve, and parametric monitoring strategies for $PM/PM_{10}/PM_{2.5}$ and H_2SO_4 emissions as well as MECL optimization to MassDEP within 60 days after completion of the initial and all subsequent compliance emissions testing.
	3. A QA/QC program plan for the CEMS and/or COMS serving CTG 200/HRSG 200 and CTG 300/HRSG 300 must be submitted, in writing, at least 90 days prior to commencement of operation of the subject emission units. 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 approval prior to their implementation.
	4. Within 30 days of start-up, the Permittee shall submit a written final CEMS quality assurance/quality (QA/QC) control plan for the long-term operation of the CEMS so as to conform with 40 CFR Part 60 Appendices B and F.

Table 10	
EU	**Reporting Requirements**
CTG 200/HRSG 200, CTG 300/HRSG 300	5. 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 CEMS, COMS, as well parametric monitoring of PM/PM_{10}/$PM_{2.5}$, and H_2SO_4 emissions excess emissions/opacity data, in a format acceptable to MassDEP. b) For each period of excess emissions/opacity or excursions from allowable operating conditions for the emission unit(s), the Permittee shall list the duration, cause, the response taken, and the amount of excess emissions. Periods of excess emissions shall include, but not be limited to, periods of start-up, shutdown, malfunction, emergency, equipment cleaning, and upsets or failures associated with the emission control system or CEMS 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 of each emission unit and total hours of operation of each emission unit during the calendar quarter. d) The facility CEMS data capture which shows the Facility's compliance status with regard to the required data capture and recording requirements contained in Table 8 above.
	6. After completion of the initial compliance emissions testing program, the Permittee shall submit information for MassDEP review that documents the actual emissions impacts generated by CTG 200/HRSG 200 and CTG 300/HRSG 300 during start-up, shutdown, and transient periods. This information shall be submitted to MassDEP as part of the final emissions test results report.

Table 10	
EU	**Reporting Requirements**
CTG 200/HRSG 200, CTG 300/HRSG 300	7. The Permittee shall submit to MassDEP, in accordance with the provisions of Regulation 310 CMR 7.02(5)(c), plans and specifications for CTG 200/HRSG 200 and CTG 300/HRSG 300, the SCR control system, the oxidation catalyst control system, and the CEMS, COMS, and DAHS once the specific information has been determined, but in any case not later than 30 days prior to commencement of construction/installation of each component of the emission unit.
	8. The Permittee shall submit, in writing, the following notifications to MassDEP within fourteen (14) days after each occurrence: a) date(s) of commencement of construction of CTG 200/HRSG 200 and of CTG 300/HRSG 300; b) date(s) when construction has been completed on CTG 200/HRSG 200 and on CTG 300/HRSG 300; c) date(s) of initial firing of CTG 200/HRSG 200 and of CTG 300/HRSG 300; d) date(s) upon which CTG 200/HRSG 200 and CTG 300/HRSG 300 are either ready for operation or have commenced operation.
	9. The Permittee shall submit to MassDEP a SOMP for the Emission Units and associated control and monitoring/recording systems no later than 30 days prior to commencement of operation of the units. 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.
Cold Start Engine	10. The Permittee shall submit to MassDEP, in accordance with the provisions of 310 CMR 7.02(5)(c), the plans and specifications for the Cold Start Engine and its associated exhaust stack once the specific information has been determined, but in any case not later than 30 days before the construction or installation.
Project-Wide	11. 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 to EPA no later than the date the regulated substance is first present above a threshold quantity.
	12. The Permittee shall submit an application to update the Facility's Operating Permit. The Permittee may commence construction of the Project. However operation of the proposed equipment/proposed modifications to existing equipment operation cannot occur prior to final approval of the updated Operating Permit.

Table 10	
EU	**Reporting Requirements**
Project-Wide	13. The Permittee shall comply with all applicable reporting requirements of 310 CMR 7.71 (Reporting of Greenhouse Gas Emissions), and 40 CFR Part 98 (Mandatory Greenhouse Gas Emissions Reporting).
	14. 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).
	15. The Permittee shall notify the Northeast Regional Office of MassDEP, BAW Permit Chief by telephone at (978) 694-3200, by email to nero.air@massmail.state.ma.us , or by fax to (978) 694-3499, as soon as possible, but no later than three (3) business days after discovery of an exceedance(s) of Table 7 requirements. A written report shall be submitted to the following address within ten (10) business days thereafter and shall include: identification of exceedance(s), duration of exceedance(s), reason for the exceedance(s), corrective actions taken, and action plan to prevent future exceedance(s): Department of Environmental Protection 205B Lowell Street Wilmington, Massachusetts 01887 Attn: Permit Chief, Bureau of Air and Waste
	16. 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, etc.), which did not require Plan Approval.
	17. 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.
	18. The Permittee shall comply with all required reporting contained in any applicable New Source Performance Standards (NSPS) contained in 40 CFR Part 60.
	19. The Permittee shall comply with all required reporting contained in any applicable National Emission Standards for Hazardous Air Pollutants (NESHAPS) contained in 40 CFR Part 63.

Table 10 Key:
EU = Emission Unit
CEMS = Continuous Emission Monitoring System
COMS = Continuous Opacity Monitoring System
DAHS = Data Acquisition and Handling System
CFR = Code of Federal Regulations
CMR = Code of Massachusetts Regulations
SOMP = Standard Operating and Maintenance Procedures
QA/QC = Quality Assurance/Quality Control
CTG = Combustion Turbine Generator
CO = Carbon Monoxide
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
H_2SO_4 = Sulfuric Acid

MassDEP = The Massachusetts Department of Environmental Protection
MECL = Minimum Emissions Compliance Load
Project-wide = CTG 200/HRSG 200, CTG 300/HRSG 300, Cold Start Engine, BLR-42-3, BLR-42-4, BLR-42-5, BLR-42-7, and BLR-42-9

7. SPECIAL TERMS AND CONDITIONS

A. The Permittee is subject to, and the Permittee shall ensure that the Project shall comply with, the Special Terms and Conditions as contained in Table 11 below:

Table 11	
EU	**Special Terms and Conditions**
CTG 200/HRSG 200, CTG 300/HRSG 300	1. The Permittee shall ensure that natural gas shall be the sole fuel of use in each of the HRSG's DBs. The Permittee shall ensure that natural gas shall be the primary fuel of use in the CTGs. ULSD firing in the CTGs shall not exceed 48 hours for testing per C12MP, per CHP, and is restricted to no more than 168 hours per C12MP, per CHP, including only periods during which any of the following events occur: a. When natural gas is unable to be burned in the equipment; b. When natural gas is unavailable; and c. During testing which requires the use of ULSD firing.
	2. The Permittee is restricted to a maximum fuel usage for ULSD of 279,216 gallons per C12MP, per CTG.
	3. The Permittee is restricted to a maximum hourly ULSD input rate of 1,662 gallons per hour and maximum operation on ULSD of 168 hours per C12MP, per CTG.
	4. The Permittee shall not allow operation below the MECL, except for start-ups, shutdowns, and transient conditions. Emissions during start-ups, shutdowns, and transient conditions shall be included in the C12MP limits specified in Table 7.
	5. The Permittee shall ensure that the SCR and oxidation catalyst control equipment serving CTG 200/HRSG 200 and CTG 300/HRSG 300 are operational whenever the exhaust temperature at the devices attain the minimum exhaust temperature specified by the vendor and other system parameters are satisfied for their operation. The specific time period required to achieve these exhaust temperature(s) and other system parameters are achieved will vary based on ambient conditions and whether the start-up is cold, warm, or hot.
	6. The Permittee shall develop as part of the Standard Operating Procedures for CTG 200/HRSG 200 and CTG 300/HRSG 300, an MECL optimization protocol to establish minimum operating load(s) that maintain compliance with all emission limits.
	7. The Permittee shall conduct catalyst testing and shall replace the catalysts as appropriate to maintain emissions compliance but at a frequency no less than that recommended by the manufacturer. The Permittee shall maintain records of all testing and replacement actions.

Table 11	
EU	**Special Terms and Conditions**
CTG 200/HRSG 200, CTG 300/HRSG 300	8. The Permittee shall maintain an adequate supply of spare parts on-site to maintain the on-line availability and data capture requirements for the CEMS and COMS equipment serving the CTG 200/HRSG 200 and CTG 300/HRSG 300.
	9. The Permittee shall properly train all personnel to operate CTG 200/HRSG 200 and CTG 300/HRSG 300 and the control and monitoring equipment serving said units in accordance with vendor specifications, including refresher training as warranted by operational changes but not less than once every five (5) years. All persons responsible for the operation of said units shall sign a statement affirming that they have read and understand the approved SOMP.
	10. The Permittee shall comply with all applicable emission standards, monitoring, record keeping, and reporting requirements of 40 CFR Part 60 Subpart KKKK for each of the two proposed CHPs.
	11. The Permittee shall ensure that the shakedown period for both units shall not exceed 180 days from first fire of either unit.
	12. The Permittee shall ensure that prior to completion of shakedown of either unit, the existing GT-42-1A and HRSG-42-1B shall be permanently removed from service and the Permittee shall submit to MassDEP notification of the date that the existing GT-42-1A and HRSG-42-1B are removed from service.
CTG 200/HRSG 200, CTG 300/HRSG 300, Cold Start Engine	13. The Permittee shall operate each Emission Unit in accordance with its manufacturer's recommendations as included in each unit's SOMP. MIT shall monitor operations and shall maintain a record of operations and maintenance to verify compliance with this requirement.
Cold Start Engine	14. The Permittee shall comply with all applicable emission standards, monitoring, record keeping, and reporting requirements contained in 40 CFR Part 60 Subpart IIII.
	15. The Permittee shall ensure that the Cold Start Engine shall not be operated more than 300 hours during any C12MP, including normal maintenance and testing procedures as recommended by the manufacturer.
	16. The Permittee shall ensure that the Cold Start Engine is equipped and operated with a non-turnback hour counter which shall be maintained in good working order.
BLR-42-3, BLR-42-4, BLR-42-5	17. The Permittee shall ensure that the required fuel switch occurs within twelve months of initial start-up of either CTG 200/HRSG 200 or CTG 300/HRSG 300 or after either CTG 200/HRSG 200 or CTG 300/HRSG 300 commences normal operations (after conclusion of shakedown), whichever occurs earlier.

Table 11	
EU	**Special Terms and Conditions**
BLR-42-3, BLR-42-4, BLR-42-5	18. Within twelve months of initial start-up of either CTG 200/HRSG 200 or CTG 300/HRSG 300 or after either CTG 200/HRSG 200 or CTG 300/HRSG 300 commences normal operations (after shakedown), whichever occurs earlier: The Permittee shall ensure that natural gas shall be the primary fuel of use. ULSD firing in each boiler shall not exceed 48 hours for testing per C12MP and is restricted to no more than 168 hours per C12MP including only periods during which any of the following events occur: a. When natural gas is unable to be burned in the equipment; b. When natural gas is unavailable; and c. During testing which requires the use of ULSD firing.
BLR-42-7, BLR-42-9	19. The Permittee shall ensure that natural gas shall be the primary fuel of use. ULSD firing in each boiler shall not exceed 48 hours for testing per C12MP and is restricted to no more than 168 hours per C12MP including only periods during which any of the following events occur: a. When natural gas is unable to be burned in the equipment; b. When natural gas is unavailable; and c. During testing which requires the use of ULSD firing.
Project-Wide	20. The Permittee shall comply with all provisions of 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 Project.
	21. The Permittee shall commit to funding all of the mitigation measures discussed in the Section 61 Findings as contained in Section 10 of this Plan Approval. The implementation schedule shall ensure mitigation is implemented prior to or when appropriate in relation to environmental impacts.
	22. The Permittee shall maintain monitoring to ensure and recordkeeping to verify that applicable requirements set forth under Section 61 Findings, as contained in Section 10 of this Plan Approval are complied with.
	23. All requirements of this Approval which apply to the Permittee shall apply to all subsequent owners and/or operators of the Project.
	24. The Permittee shall monitor operations and maintain records of net NO_X emissions over rolling five year periods to verify that that Facility-wide net NO_X emissions increases do not cause 310 CMR 7.00: Appendix A to be applicable.

Table 11 Key:
EU = Emission Unit
CFR = Code of federal regulations
CMR = Code of Massachusetts Regulations
SOMP = Standard Operating and Maintenance Procedures
CEMS = Continuous Emission Monitoring System

COMS = Continuous Opacity Monitoring System
HAP = Hazardous Air Pollutant
NO_X = Nitrogen Oxides
SCR = Selective Catalytic Reduction
CHP = Combined Heat and Power
PSD = Federal Prevention of Significant Deterioration of Air Quality
C12MP = Consecutive twelve month period
ULSD = Ultra Low Sulfur Distillate Fuel Oil containing a maximum of 0.0015 weight percent sulfur
MECL = Minimum Emissions Compliance Load
CTG = Combustion Turbine Generator
MassDEP = The Massachusetts Department of Environmental Protection
QA/QC = Quality Assurance/Quality Control
< = less than
Project-wide = CTG 200/HRSG 200, CTG 300/HRSG 300, Cold Start Engine, BLR-42-3, BLR-42-4, BLR-42-5, BLR-42-7, and BLR-42-9

B. STACK INFORMATION

The Permittee shall maintain, and utilize exhaust stacks with the following parameters, as contained in Table 12 below, for the Emission Units that are regulated by this Plan Approval:

Table 12[1]

Emission Unit	Stack Height Above Ground (feet)	Stack Inside Exit Effective Diameter (feet)	Stack Gas Exit Velocity Range (feet per second)	Stack Gas Exit Temperature Range (degrees Fahrenheit)
CTG 200/ HRSG 200[2]	167	7.0	45-70	180-225
CTG 300/ HRSG 300[2]	167	7.0	45-70	180-225
Cold Start Engine	93.5	2.0	81.1	752.1

Table 12 Notes:
1. Stack heights for existing Emission Units have not changed as a result of the Project
2. CTG 200/ HRSG 200 and CTG 300/ HRSG 300 shall each emit through its own flue, both collocated within a single common stack.

C. SOUND

Sound measurements to determine ambient (background) sound levels were conducted at six locations representative of nearest residential receptors property lines in relevant directions from the Project (Table 13). Baseline nighttime sound measurements were taken August 8-August 10, 2014 in the vicinity of the CUP while it was operating under normal conditions. 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, and are reported in decibels designated as "dBA". The A-weighted sound levels were recorded for each of the five categories most commonly used to describe ambient

environments: L_{90}, L_{50}, L_{10}, L_{max}, 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.

In general, background (L_{90}) levels at the six locations, including three property lines (PL1-PL3) and three nearby residences (R1-R3) as summarized in Table 13 below, ranged from 56 to 63 dBA during nighttime hours.

Calculations of operational acoustic impacts from the Project were calculated using DataKustic's CadnaA noise calculation software, a computer-aided noise abatement program. CadnaA conforms to International Standard ISO-9613.2, "Acoustics – Attenuation of Sound during Propagation Outdoors." The noise model was developed using the primary sources of noise from the Project, which include the following pieces of equipment: CTG packages, the CTGs' air inlet, the CTGs' exhaust stack, the intake and discharge vents, the Cold Start Engine, the gas compressor cooling equipment and the gas compressor. The method evaluated A-weighted sound pressure levels under meteorological conditions favorable to propagation from sources of known sound emissions.

The impact sound levels generated from base load (100% load) operation of the Project modeled by the Permittee are summarized in Table 13 below with requirements pertaining to Sound contained in Table 14 below:

Table 13

Location	Ambient[1] Sound Level exceeded 90 percent of the time (L_{90}), in decibels, A-weighted (dBA)	Modeled Project Only Sound Level (dBA)	Combined Project and Ambient Sound Level (dBA)	Increase Over Ambient Sound Level (dBA)[2]
PL1	61	62	64	3
PL2	59	43	59	0
PL3	63	43	63	0
R1	58	44	58	0
R2	57	37	57	0
R3	56	38	56	0

Table 13 Notes:

1. The background levels observed during equipment operating hours 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.
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.

Table 14	
Emission Unit	**Sound/Noise Attenuation and Survey**
Project-wide	1. The Project shall be operated and maintained such that at all times: 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 Facility complies with said Policy.
	2. The Permittee shall continue to identify and evaluate all plant equipment that may cause a noise condition. Sound sources from the Project with potential to cause noise include, but are not limited to: CHP packages, CHPs' air inlets, CHPs' exhaust stack, CHPs' enclosure vents, Cold Start Engine, fuel gas compressor station and gas compressor cooling equipment.
	3. The Permittee shall perform the following measures or equivalent alternative measures for the Project to minimize sound emissions as indicated in the Application with regard to noise mitigation: a. The CTGs shall be enclosed and located within the southern section of the new acoustically-designed building toward the existing railroad tracks and other support systems; b. The new building's walls and roof shall have a Sound Transmission Class rating of STC30; c. The equipment and building air ventilation paths shall include treatments such as mufflers, lined ducts, acoustic louvers, and local barriers to provide suitable sound attenuation; d. Major ventilation openings shall be located on the South wall of the new building, facing the railroad tracks and shielded from direct line-of-sight to the community; e. Mufflers shall be installed, as needed, on the CTGs' air intakes, gas exhausts, and enclosure ventilation systems; f. Mufflers shall be installed as needed on non-emergency steam vents. g. Reduced noise lube oil cooler model shall be used or sound barrier walls shall be installed as needed; h. The fuel gas compressor and drive motor shall be installed in a sound-attenuated enclosure located on the roof of the new building and equipped with treated ventilation air paths; and i. The Cold Start Engine shall be installed in a sound-attenuated enclosure located on the roof and equipped with treated ventilation air paths.

Table 14	
Emission Unit	**Sound/Noise Attenuation and Survey**
Project-wide	4. The Permittee shall complete a sound survey in accordance with MassDEP procedures/guidelines within one hundred eighty (180) days after the Project commences operation, while the CUP is in operation, to verify that sound emissions from the Project do not exceed the predicted levels. The Permittee shall submit a sound survey protocol at least 30 days prior to commencing the sound survey for MassDEP review and approval. The Permittee shall submit to MassDEP a written report, describing the results of the required sound survey, within 45 days after its completion.

Table 14 Key:
CHP = Combined Heat and Power
CMR = Code of Massachusetts Regulations
CTG = Combustion turbine generator
CHP = Combined Heat and Power
CUP = Central Utility Plant
dBA = decibels, A-weighted
L_{90} = sound level exceeded 90 percent of the time
MassDEP = Massachusetts Department of Environmental Protection
Project-wide = CTG 200/HRSG 200, CTG 300/HRSG 300, Cold Start Engine, BLR-42-3, BLR-42-4, BLR-42-5, BLR-42-7, and BLR-42-9

8. 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 USEPA 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 regulations now or in the future.

F. 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.

9. MASSACHUSETTS ENVIRONMENTAL POLICY ACT

The Project was also subject to the requirements of the Massachusetts Environmental Policy Act (MEPA) Massachusetts General Laws (M.G.L.) Chapter 30, Sections 61-62I and Section 11.08 of the MEPA regulations at 301 CMR 11.00. MIT submitted to the Executive Office of Energy and Environmental Affairs (EOEEA), MEPA Office an expanded environmental notification form (EENF), dated December 15, 2015, and a Single Environmental Impact Report (SEIR), dated May 13, 2016. These documents addressed various environmental media impacts including an air toxics evaluation with an air dispersion modeling study. On July 1, 2016, the Secretary of the Executive Office of Energy and Environmental Affairs issued a certificate that the Single Environmental Impact Report (SEIR) (EEA #15453) adequately and properly complied with MEPA and its implementing regulations.

10. SECTION 61 FINDINGS

Mitigation/Draft Section 61 Findings

The Single EIR contained draft Section 61 Findings associated with each separate State Agency Action identified for the Project.

The Project includes the following mitigation measures to avoid, minimize, and mitigate impacts from the Project, as committed to by MIT:

GHG Emissions

- Use variable frequency drives (VFD) for fuel gas compressor;
- Review use of high-efficiency motors and VFDs in final project design;
- Use waste heat to assist in urea vaporization;
- Use of an adsorption rotary drum dryer associated with the compressed air system;
- Construct HRSGs with surface area and piping required to implement a Medium Temperature Hot Water system;
- Use light-emitting diode (LED) lighting and an occupancy lighting system in the building expansion to reduce electricity use; and,
- Provide a GHG self-certification to the MEPA Office.

Air Quality

- Use of clean-burning fuels (natural gas and ULSD) that are low in sulfur to control particulate matter (PM) and SO_2;
- Removal of residual oil firing for existing Boilers 3, 4, and 5 and removal of ULSD firing for existing Boilers 7 and 9*;
- Low-NO_X combustors and use of Selective Catalytic Reduction (SCR) to control NO_X;
- Minimize CO and VOC emissions through combustion control and use of Ammonia (NH_3) and oxidation catalysts;
- CTs include option to use low-NO_X combustors instead of water injection;
- High efficiency drift eliminators will minimize emissions from new cooling towers;
- Limit use of ULSD to 300 hours per 12-month period; and,
- Will comply with emission rates that meet EPA limits for off-road engines.

**BLR-42-7 and BLR-42-9 will retain their current ability to fire ULSD as a backup fuel for testing and when natural gas is unavailable however will do so at a rate reduced from a current maximum of 720 hours per C12MP to 168 hours per C12MP. The Section 61 Findings have been amended as described in email communications between AJ Jablonowski (Epsilon Associates) and Alexander Strysky (MEPA – EEA), dated January 26 and 30, 2017.*

Noise

- Noise producing equipment (e.g. CTGs, cogeneration equipment, fuel gas compressor and drive motor, and diesel generator) will be enclosed in sound-attenuating materials, enclosures, or behind sound barrier walls;
- Mufflers will be installed on the gas turbine air intake, gas exhaust, turbine enclosure, and ventilation systems;
- Mufflers will be installed on the non-emergency steam vents as necessary;
- Reduced-noise fans with VFDs will be used in the cooling towers;
- Equipment and building air ventilation paths will include treatments (mufflers, lined ducts, acoustic louvers, and local barriers) with suitable sound attenuation; and,
- The shell of the new building will be designed to reduce noise levels to 55 to 60 dBA directly outside the building walls facing the neighborhood.

Construction Period

- Use fencing and barricades to isolate construction areas from pedestrians;

- Encourage use of alternative transportation to the site by construction workers;
- Use construction equipment that meets or exceeds EPA Exhaust Emission Standards;
- Use wetting agents as necessary and covered trucks to reduce the spread of dust;
- Establish a tire cleaning area to prevent dirt from reaching city streets;
- Minimize exposed storage of debris on-site;
- Clean sidewalks and streets to minimize dust aggregation;
- Turn off idling equipment;
- Use and maintain mufflers on construction equipment and enclosures around continuously-operating equipment to reduce noise;
- Separate or shield noisy equipment from sensitive receptors;
- Divert construction waste from landfills by recycling waste material;
- Conduct a hazardous waste survey prior to the start of construction to ensure appropriate disposal of hazardous material, including asbestos;
- Install stormwater management controls to meet City of Cambridge requirements; and,
- Use a Certified Industrial Hygienist to develop and implement Dust Mitigation Plan and air quality requirements during activities that could expose people to contaminated soil or groundwater and other hazardous conditions.

The Permittee shall commit to funding all of the mitigation measures discussed in the Section 61 Findings. The implementation schedule shall ensure mitigation is implemented prior to or when appropriate in relation to environmental impacts.

Section 61 Findings

Based upon its review of the MEPA documents, the Plan Approval Application and amendments thereof submitted to date and MassDEP's regulations, MassDEP finds that the terms and conditions of this Plan Approval constitute all feasible measures to avoid damage to the environment and will minimize and mitigate such damage to the maximum extent practicable. Implementation, compliance and enforcement of the mitigation measures will occur in accordance with the terms and conditions set forth in this Plan Approval.

11. PUBLIC PARTICIPATION

On April 11, 2017 MassDEP issued a Proposed Plan Approval and Draft PSD Permit for this Application. MassDEP offered a Public Comment Period and held a Public Hearing on the proposed actions. Notice of the proposed actions was published in English in the *Boston Globe* on April 17, 2017 and in the *Cambridge Chronicle* on April 20, 2017, both newspapers of general circulation in proximity to the proposed new emission source noted above, in Portuguese in *OJornal* on April 21, 2017, in Spanish in *El Mundo* on April 20, 2017, in Chinese in *Sampan* on April 21, 2017, and in the April 19, 2017 issue of the *Environmental Monitor*. Copies of the notice and the Proposed Plan Approval and Draft PSD Permit were available at the Department of Environmental Protection Metropolitan Boston/Northeast Regional Office at 205B Lowell Street, in Wilmington and appeared on the MassDEP website: www.mass.gov/eea/agencies/massdep/news/comment/ and on the

MIT Project webpage at https://powering.mit.edu. The Public Comment Period closed at 5PM on Tuesday May 23, 2017. MassDEP held a Public Hearing on the Proposed Plan Approval and Draft PSD Permit on Monday May 22, 2017. No oral or written testimony was received at the Public Hearing. Any written comments received during the Public Comment Period have been considered and addressed, as appropriate, in this Plan Approval (and in the PSD Permit). See Response to Comment (RTC) Document attached to PSD Permit.

12. APPEAL PROCESS

This Plan Approval 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 Plan Approval.

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 Plan Approval 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) 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 Edward Braczyk by telephone at 978-694-3289, or in writing at the letterhead address.

Sincerely,

_____
Susan Ruch
Acting Permit Chief and
Deputy Regional Director
Bureau of Air and Waste

_____
Edward J. Braczyk
Supervising Environmental Engineer

_____
Susan McConnell
Environmental Engineer

Enclosure: Communication for Non-English Speaking Parties

cc: A.J. Jablonowski, Epsilon Associates, 3 Mill & Main Place, Suite 250, Maynard, MA 01754
Seth Kinderman, MIT Plant Engineering Manager MIT Central Utilities Plant - Bldg 42, 59 Vassar Street, Cambridge, MA 02139-4308
Cambridge Board of Health, 119 Windsor Street, Ground level, Cambridge, MA 02139
Fire Headquarters, 491 Broadway Street, Cambridge, MA 02138
Metropolitan Area Planning Council, 60 Temple Place, Boston, MA 02111
Cambridge Mayor's Office, 795 Massachusetts Ave., 2nd Floor, Cambridge, MA 02139
Deirdre Buckley, MEPA, Executive Office of Energy and Environmental Affairs, 100 Cambridge Street, Suite 900, Boston, MA 02114.
John Ballam, Department of Energy Resources, 100 Cambridge Street, Suite 1020, 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: Air Permits Program Manager

ecc: MIT: Zhanna Davidovitz
EPA-New England: Donald Dahl

MassDEP/Boston: Yi Tian
MassDEP/WERO: Marc Simpson
MassDEP/CERO: Roseanna Stanley
MassDEP/SERO: Thomas Cushing
MassDEP/NERO: Susan Ruch
MassDEP/NERO: Ed Braczyk
MassDEP/NERO: Susan McConnell
MassDEP/NERO: Martha Bolis
MassDEP/NERO: Mary Persky