



Commonwealth of Massachusetts
Executive Office of Energy & Environmental Affairs

Department of Environmental Protection

Central Regional Office • 8 New Bond Street, Worcester MA 01606 • 508-792-7650

DEVAL L. PATRICK
Governor

MAEVE VALLELY BARTLETT
Secretary

DAVID W. CASH
Commissioner

August 11, 2015

Mr. John T. Baker
University of Massachusetts Medical
School
55 Lake Avenue North
Worcester, MA 01655

RE: Worcester
Transmittal No.: X229362-A1
Class: OP
FMF No.: 51203
AIR QUALITY PLAN APPROVAL

Dear Mr. Baker:

The Massachusetts Department of Environmental Protection, Central Region-Bureau of Waste Prevention, Permitting Section, ("MassDEP"), has reviewed the request dated September 24, 2014 to modify the existing Plan Approval Transmittal #X229362 for the combined heat and power plant serving the University of Massachusetts Medical School, located at 55 Lake Avenue North in Worcester, Massachusetts ("the Facility"). The request was to modify the emission factors in the Plan Approval, and to remove Condition VI.B., which limited the firing of natural gas in the Solar Taurus turbine's duct burner.

MassDEP is of the opinion that the material submitted is in conformance with the current Massachusetts Air Pollution Control Regulations and hereby approves the modification request subject to the conditions and provisions stated herein.

This Plan Approval is limited to the applicable air pollution control regulations and does not constitute approval as may be required by other MassDEP regulations or statutes in order for the above-mentioned facility to be installed and operated. This Plan Approval provides information on the project description, equipment to be installed, emission limitations associated with the project, operating restrictions and specific conditions, as well as record keeping, reporting and testing requirements.

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

I. HISTORY

A. University of Massachusetts Medical School (“the Permittee”) is a teaching hospital with a place of business located at 55 Lake Avenue North, Worcester, Massachusetts. The facility commenced operations in the 1970’s and has slowly expanded over the years. Currently the medical school’s power plant produces all its steam and chilled water required for heating, air conditioning and for generation of all critical electric power.

B. In 1999 the Permittee installed two new Babcock and Wilcox high pressure water tube boilers (noted as boilers No. 3 and No. 4) with low NOx burners and flue gas recirculation (FGR) at the Facility. At the same time the Permittee removed one existing Cleaver Brooks High Pressure boiler, added an emergency diesel generator and removed a crematory incinerator. The two existing Cleaver Brooks boilers, (No. 1 and No. 2), remain at the facility and are not modified. The B&W boilers No. 3 and No. 4 are used as the primary boilers. The Cleaver Brooks boilers No. 1 and No. 2 are used as backup.

C. The emissions from boilers No. 1 & No. 2 are emitted through an existing flue located in a refractory lined exhaust stack. Boilers No. 3 & No.4 are emitted through their own flue also located within the refractory lined exhaust stack. Specifications on the exhaust stack are presented in Table 4.

D. MassDEP previously issued Air Pollution Control Plan approvals to the Permittee as noted below. Currently all terms and conditions in the following plan approvals remain in full force and effect.

<u>Project</u>	<u>Plan Application</u>	<u>Date Approved</u>
• NOx Emission Control Plan	Transmittal No.131657	February 21, 1997
• Power Plant Re-Powering	Transmittal No. W003896	July 28, 1999
• Emergency Generator	Transmittal No. W014499	January 2, 2001
• Emergency Generator (Revised)	Transmittal No. W014499	February 21, 2001
• Final Operating Permit	Transmittal No. W044653	July 19, 2005

E. On September 17, 2009 the Permittee submitted Plan Application Transmittal No. X229362 for the installation of a new Solar T-70 combustion turbine and gas fired heat recovery steam generator (“HRSG”). On December 11, 2009 the Permittee received a Massachusetts Environmental Policy Act - Final Record of Decision from the Executive Office Energy and Environmental Affairs that granted a waiver to this project from the requirement to complete an Environmental Impact Report.

F. On February 2, 2010 MassDEP issued Plan Approval Transmittal No. X229362 to the Permittee for the installation of the new Solar T-70 combustion turbine and HRSG. The Plan Approval described the project as follows:

“A. The Permittee is proposing to expand capacity of the combined heat and power plant to serve increased campus power demand. The expansion will include installing a new Solar T-70 dual fuel fired combustion turbine and gas fired waste heat recovery steam generator, one new steam chiller, one new electric chiller, two evaporative cooling towers and supporting equipment. The project is to be located in an extension area added to the existing central utilities plant.

B. The combustion turbine will exhaust to a new heat recovery steam generator, (“HRSG”), equipped with a natural gas fired duct burner rated at a maximum of 39 million Btu per hour input. The duct burner will fire only natural gas. The HRSG will house a catalyst to control emissions of carbon monoxide (“CO”) followed by an ammonia injection grid and selective catalyst reduction (“SCR”) for the control of Oxides of Nitrogen (“NOx”). The turbine will be fired primarily with natural gas with the capability to burn ultra low sulfur fuel oil (“ULSF”) as a backup on a limited basis. Steam produced in the HRSG will be fed into a steam turbine. The proposed project will generate a nominal output of 7.5 MW of electrical power and 60,000 pounds of high pressure steam.

C. In addition a new two cell cooling tower will be added adjacent to the existing set of four cooling towers to serve the new turbine and HRSG. The new cooling towers will be equipped with drift eliminators and operate with limits on total water circulation and dissolved solids which limit total particulate emissions from the cooling towers. Also one of the five existing fuel oil storage tanks will be converted for use of ULSF and a new ammonia tank will be installed.

D. The emissions from the turbine and HRSG will be emitted through a single dedicated flue to be located within the existing refractory lined exhaust stack. Specifications on this exhaust flue are presented in table 4.”

Plan Approval No. X229362 contained a restriction (Condition No. VI.B) on the total yearly firing rate of natural gas in the HRSG as follows: “The Permittee shall limit the use of natural gas in the duct burner to no more than 212 million cubic feet of natural gas per 12 month rolling total.” MassDEP included this restriction based on the Permittee’s calculations that this was the maximum amount of gas that could be burned in the HRSG without the total project becoming subject to Prevention of Significant Deterioration (“PSD”) review for emissions of PM_{2.5} over 10 tons per year.

G. From November through December of 2012, the Permittee performed emission testing on the new combustion turbine and HRSG. The results of this testing indicated that firing natural gas in the HRSG and turbine at the same time did not significantly increase the emissions of PM_{2.5} compared to firing natural gas in the turbine only.

H. On April 1, 2014, MassDEP issued Notice of Noncompliance, NON-CE-14-7003, to the Permittee. This NON stated in part that the Permittee had exceeded the Condition VI.B., natural

gas burning limit in the duct burner, and required that the Permittee submit a Plan Application under 310 CMR 7.02 for modifying the Plan Approval to revise the turbine/duct burner emission factors.

I. On October 2, 2014, the Permittee submitted Plan Application Transmittal No. X262988 as required by NON-CE-14-7003. This Plan Application proposed to modify Plan Approval Transmittal No. X229362 by changing the emission factors and removing the natural gas burning restriction on the duct burner of the HRSG. The Permittee made the case that the 2012 test results indicated that the original Application Transmittal No. X229362 had over-estimated the amount of PM_{2.5} that would be emitted due to the burning of gas in the HRSG, and that the project would not be subject to PSD even if there was unrestricted firing of gas in the HRSG. Furthermore, the Permittee represented that increased fuel use in the HRSG would bring about a reduction in the amount of fuel used in the existing boilers, (which have significantly higher emission rates than the HRSG per unit of heat input), resulting in an overall reduction in emissions.

J. On December 4, 2014, MassDEP determined that the Plan Application Transmittal No. X262988 was not required for the request to remove the natural gas burning restriction on the duct burner of the HRSG. This determination was based on MassDEP's own calculations that showed that removing the gas burning restriction would result in less than one ton per year increases in emissions of air contaminants. MassDEP sent a letter to the Permittee on this date explaining the determination, and stating that MassDEP intended to issue an Administrative Amendment to the existing Plan Approval Transmittal No. X229362 in order to remove the natural gas firing limit on the duct burner for the Solar Taurus combustion turbine.

II. PROJECT DESCRIPTION

The Permittee did not request any changes in the testing, monitoring, record keeping and reporting requirements and General Conditions (Sections VII through XI) of the approval. Several of those requirements have already been completed following construction and startup of the approved project.

This Plan Approval, Transmittal No. X229362-A1, makes the following changes:

1. The previous Condition VI.B., limiting the use of natural gas in the duct burner to no more than 212 million cubic feet of natural gas per year, is removed.
2. The separate emission limits for the HRSG are removed, since the HRSG is not operated without the combustion turbine also operating.
3. Pounds per hour NO_x and CO emission limits for the turbine/HRSG combination have been added, equal to the sum of the previous separate turbine and HRSG limits.
4. Pounds per hour emission limits for the turbine/HRSG combination for particulate matter less than 10 microns in diameter ("PM₁₀") and particulate matter less than 2.5 microns in diameter ("PM_{2.5}") have been added. These pounds per hour limits are equal to the previously approved limits that were stated for the turbine alone. This change was made to

reflect the finding (based on the stack test results) that the HRSG does not add significantly to the PM emissions.

5. Pound per million Btu per hour limits are presented for all air contaminants, equal to the pound per hour limits divided by 123.9 million Btu per hour.
6. Lead (“Pb”) is removed from the list of emitted air contaminants, as its previously listed emission rate of 0.0004 tons per year (or 0.8 pounds per year) is insignificant.
7. The tons per year emissions of all air contaminants are recalculated based on unrestricted firing of the duct burner year round.
8. It is noted here that the re-calculated figure for tons per year of PM_{2.5} (including the previous figure of 0.06 tons per year from the cooling towers) is 8.73 tons per year, below the PSD significant level of 10 tons per year.
9. The previous Tables 2 and 3 emission limits have been combined into one Table 2.
10. Section VI. Special Condition F. has been added, indicating that the Permittee may use a common gas meter to track total natural gas usage to the combustion turbine and duct burner (together the combined heat and power system or CHP).

This Plan Approval No. X229362-A1 supersedes and replaces Plan Approval No. X229362 in its entirety. The previously submitted plan application materials remain applicable where not in conflict with this Plan Approval.

III.EMISSION UNIT IDENTIFICATION

The facility Emission Units (“EU”) current and to be installed or modified are noted in Table 1.

Table 1 - Emission Units			
EU	Description Of Emission Unit	Max Design Capacity	Pollution Control Device
7	Solar model Taurus T-70 dual fuel combustion turbine with duct fired Heat Recovery Steam Generator (“HRSG”)	7.5 MW Electric Power (Nominal at ISO conditions)	Selective Catalytic Reduction, Oxidation Catalysts & fuel of use restrictions.

Table 1 Key:

ISO =International Standards Organization conditions of 59°F, 60% relative humidity and 29.92 inches mercury at sea level

IV.EMISSIONS

The operation of EU# 7 utilizing natural gas and/or ULSF will result in emissions to the ambient air of the following pollutants: Particulate Matter (“PM”), Sulfur Dioxide (“SO₂”), Nitrogen Oxides (“NO_x”), Carbon Monoxide (“CO”), Volatile Organic Compounds (“VOC’s”), Sulfuric

Acid (“H₂SO₄”) and Ammonia (“NH₃”). Ammonia used to control NO_x emissions is injected into the HRSG. Un-reacted NH₃ will exit the HRSG as ammonia slip.

V. EMISSION LIMITS

The Permittee shall install and operate EU# 7 in a manner that ensures continuous compliance with the emission limits noted in Table 2.

Table 2						
EU	Operational / Production Limit	Air Contaminant	Emission Limit (Notes 1 and 2)			
			ppm	lb/hr	lb/MMBtu	TPY
7	The Permittee shall limit the burning of the ULSF oil in the Solar Turbine to no more than 720 total hours during any 12 month rolling period. Each hour or partial hour of fuel use shall be counted toward the 720 hour restriction.	NO _x (on gas)	2	0.93	0.0075	-
		NO _x (on oil)	6	2.13	0.0172	-
		NO _x (total)	-	-	-	4.51
		CO (on gas)	2	0.57	0.0046	-
		CO (on oil)	-	1.11	0.0090	-
		CO (total)	-	-	-	2.69
		Volatile Organic Compounds	-	0.33	0.0027	1.45
		Sulfur Dioxide	-	0.28	0.0022	1.23
		Sulfuric Acid	-	0.13	0.0010	0.57
		Ammonia	2	0.23	0.0019	1.01
		PM ₁₀ (on gas)	-	1.9	0.0153	-
		PM ₁₀ (on oil)	-	2.88	0.0232	-
		PM ₁₀ (total)	-	-	-	8.67
		PM _{2.5} (on gas)	-	1.9	0.0153	-
		PM _{2.5} (on oil)	-	2.88	0.0232	-
PM _{2.5} (total)	-	-	-	8.67		

Table 2 Key:

ppm = parts per million by volume dry @ 15% O₂

% = percent

lb/hr = pounds per hour

lb/MMBtu = pounds per million British thermal units

NO_x = Nitrogen Oxides

CO = Carbon Monoxide

PM₁₀ = Particulate Matter less than or equal to 10 microns in diameter, includes filterable and condensable

PM_{2.5} = Particulate Matter less than or equal to 2.5 microns in diameter, includes filterable and condensable

TPY = tons per consecutive 12-month period

Table 2 Notes:

Note 1: The lb/hr, ppm, and lb/MMBtu limits are based on one hour block averages and on operation at the nominal maximum combined heat input of 123.9 million Btu per hour.

Note 2: TPY limits are based on the combustion turbine firing fuel oil at the operating limit of 720 hours per year and natural gas for 8,040 hours per year, plus the duct burner firing natural gas for 8760 hours per year.

VI. SPECIAL CONDITIONS

A. Final Plans - No later than 60 days after installation of each piece of equipment related to this approval the Permittee shall submit specific manufacturer, model number, and operational parameters for equipment as installed, including detailed information on the turbine combustor, heat recovery steam generator (“HRSG”), duct burner and emission control system(s). The information shall also include “as built” construction plans, detailed operational and maintenance procedures and detailed information on all Continuous Emission Monitors (“CEMs”)and Continuous Opacity Monitors (“COMs”) to be utilized.

B. Exhaust Stack - The facilities existing common exhaust stack will be equipped with a third flue to serve the turbine and HRSG. This flue shall conform to the specifications presented in Table 4.

Table 4 –EU 7 Stack Information					
EU	Stack Material	Flue Diameter	Stack Exit Height	Stack Velocity	Stack Exit Temperature
7	Refractory	5.5 feet	206 Feet	11 to 15 feet per second	350°F to 428 °F

Table 4 Key:

°F = degrees Fahrenheit

C. Fuel

1. Fuel of use shall be limited to natural gas and/or ultra low sulfur fuel oil. The fuel oil shall have a sulfur content that does not exceed 0.0015 percent (15 ppm) sulfur by weight.
2. For the purpose of calculating emissions resulting from each type of fuel burned, the following values shall be used:
 - Heat Content of Natural Gas = 1,000 BTU per cubic foot
 - Heat Content of Ultra Low Sulfur Fuel Oil = 140,000 BTU per gallon

D. Noise

1. The Permittee shall not allow the facility to produce an increase in sound by more than 10dBA over the existing L90 ambient level (1-hour A-weighted), unless otherwise specified herein. Additionally, pure tone sounds, defined, as any octave or 1/3 octave band level, which exceeds the levels in adjacent octave bands by 3dBA or more, is prohibited.
2. The Permittee shall install, and have operational, noise suppressants (muffler) on all steam release vents so that sound emissions from the CHP will not cause or contribute to a condition of air pollution.

E. Ammonia

1. The Permittee shall ensure that the facility control room is equipped with properly functioning portable ammonia detectors for use during a spill or atmospheric release.
2. The Permittee shall calibrate the portable ammonia monitors at least once per year or at a frequency recommend by the manufacturer.
3. The Permittee shall install high and low level ammonia detectors equipped with an audible alarm in the control room, at the ammonia tanker unloading pit and near the storage tanks. The high and low alarm set points should be set such as to allow ample margin of error so as to prevent over-filling at the high level and to prevent loss of catalytic control of the exhaust gases at low ammonia supply levels.
4. Aqueous ammonia will be used as the reducing agent in the SCR system. The aqueous ammonia mixture will be stored on site. In the event of an accidental spill, the aqueous ammonia solution would be pooled into a containment dike covered with a floating layer of ball-like baffles which reduce the liquid surface area by 91% and reduce the ammonia vaporization rate. The balls shall be kept free of ice and other restrictions that would inhibit their floatation. The Permittee shall at all times keep enough of the ball-like plastic baffles within the containment area around the aqueous ammonia storage tank to provide coverage of at least 91% of the surface area.
5. The high and low level alarm system shall receive periodic maintenance, testing and calibration as recommended by the manufacturer of the alarm system. The ammonia tank shall be emptied, cleaned and inspected at intervals as recommended by the tank manufacturer.
6. The aqueous ammonia storage tank shall be equipped with high and low level audible alarm monitors.

7. The Permittee shall store the standard operating and maintenance procedures for the ammonia handling system in the control room and make them readily available to all employees.

F. Common Gas Meter

The Permittee may use a common gas meter to track total natural gas usage to the combustion turbine and duct burner (together the combined heat and power system or CHP).

VII. TESTING REQUIREMENTS

A. EMISSION COMPLIANCE TESTING - The Permittee shall conduct compliance testing of the Solar Turbine and the HRSG within 180 days of start up or at a later time as may be approved in writing by MassDEP. The following pollutants shall be tested for compliance with the emission limits contained in this Approval: Particulate Matter, Sulfur Dioxide, Nitrogen Oxides, Carbon Monoxide, Volatile Organic Compounds and Opacity.

B. TESTING PROCEDURES - Emission Testing to demonstrate compliance with the emission limits specified shall be in accordance with EPA approved reference test methods unless otherwise approved by EPA or MassDEP. The facility will be constructed to accommodate emission-testing requirements contained herein. All emission testing shall be conducted in accordance with MassDEP's "Guidelines for Source Emission Testing" and in accordance with the Environmental Protection Agency tests as specified in the Code of Federal Regulations Title 40, Part 60, Appendix A, Standards of Performance for New Stationary Sources of Air Pollution.

C. PRETEST PROTOCOL - The Permittee shall submit a pre-test protocol, describing the test methods for the emissions testing. The protocol shall also include the sampling point locations, sampling equipment and sampling and analytical procedures as well as expected turbine operating conditions during the testing. The Permittee shall also propose a parametric monitoring strategy to ensure continuous compliance with the emission limitations specified in this Approval. The required testing must be submitted to this office, attention Bureau of Waste Prevention Section Chief, for review and MassDEP approval at least 30 days prior to the commencement of emission testing at the facility.

D. FINAL REPORT - The final test report must be submitted within sixty days of completion to MassDEP, Bureau of Waste Prevention, Permitting Section, 627 Main Street, Worcester, Massachusetts, 01608.

E. GENERAL REQUIREMENTS for EMISSION TESTING – In accordance with 310 CMR 7.13, MassDEP may require testing of any pollutants if deemed necessary to ascertain the mass emission rates and relationship to equipment design and operation. The Permittee shall conduct stack testing when MassDEP has determined that such stack testing is necessary to ascertain compliance with MassDEP's regulations or design approval provisions. Such stack testing shall be:

1. Conducted by a person knowledgeable in stack testing, and
2. Conducted in accordance with the procedures contained in a test protocol, which has been approved in writing by MassDEP, and
3. In the presence of a representative of MassDEP when such is deemed necessary in accordance with 310 CMR 7.13(1).

VIII. MONITORING REQUIREMENTS

A. The Permittee shall install, calibrate, test, and operate a data acquisition system(s) (DAS) and stack continuous emission monitors (CEMS) to measure and record the following:

1. Oxygen (O₂)
2. Oxides of Nitrogen (NO_x)
3. Carbon Monoxide (CO)
4. Ammonia (NH₃)

B. All CEMS shall be installed, calibrated, certified, maintained, and operated in accordance with 40 CFR 60 Appendix B (Performance Specifications) and 40 CFR 60 Appendix F (Quality Control Procedures).

C. The Permittee shall use and maintain its CEM system as a "direct-compliance" monitor to measure NO_x, CO and Ammonia. "Direct-compliance" monitors generate data that legally documents the compliance status of a source. MassDEP shall utilize the data generated by the "direct-compliance" monitors, MassDEP recognized emission testing or other credible evidence for compliance and enforcement purposes.

D. The Permittee shall equip the CEMS with audible and visible alarms to activate when emissions exceed the limits established in Table 2 of this Plan Approval.

E. The Permittee shall operate each CEM at all times except for periods of CEM calibration checks, zero and span adjustments, preventive maintenance, and periods of malfunction.

F. If a CEMS certification event occurs, then the requirement to demonstrate compliance continuously with the applicable NO_x, SO₂, and ammonia emission limits for Furnaces 15 and 16 will be suspended until the Certification is completed (provided the seven day test required for Certification is commenced the first Operating Day following the conclusion of the CEMS Certification Event).

G. The Permittee shall obtain and record emission data from each CEM for at least 75% of the emission unit operating hours per day, for at least 84% of the emission unit operating hours per month, and for at least 95% of the emission unit operating hours per calendar quarter that the CEMS unit(s) operates except for periods of calibration checks, zero and span adjustments, and preventive maintenance.

H. All periods of excess emissions, even if attributable to an emergency/malfunction, startup/shutdown or equipment cleaning, shall be quantified and included in the determination of annual emissions and compliance with the annual emission limits as stated in Table 2 of this Plan Approval.

I. The Permittee shall install and operate continuous monitors and alarm systems to monitor temperature at the inlet to the SCR and CO catalysts.

J. The Permittee shall not be subject to pre-construction monitoring as specified in 40 CFR Part 52.21(m). This determination has been made since the maximum predicted air quality impacts of the facility are less than the PSD monitoring exemption levels.

K. The Permittee shall maintain on-site for the CEMS an adequate supply of spare parts to maintain the on-line availability and data capture requirements.

L. Compliance with the allowable opacity limits shall be determined in accordance with EPA Method 9, as specified in 40 CFR 60, Appendix A and in accordance with 310 CMR 7.00 Appendix C(9)(b).

M. The Permittee shall calibrate, test and operate any portable emission monitoring equipment used in the PEMS according to the manufacturer's recommendations.

N. The Permittee shall ensure that the NO_x, CO, and NH₃ CEMS monitor continuously and record the hourly NO_x, CO, and ammonia emission concentration. The DAHS shall calculate the emissions in pounds per hour to determine compliance with Table 2 emission limits.

IX. RECORD KEEPING REQUIREMENTS

A. A record keeping system shall be established and maintained on site by the Permittee. All records shall be maintained up-to-date such that year-to-date information is readily available for MassDEP examination. Record keeping shall, at a minimum, include:

1. Compliance records sufficient to demonstrate that emissions have not exceeded what is allowed by this Plan Approval. Such records may include daily production records, raw material usage rates, fuel purchase receipts, emissions test results, monitoring equipment data and reports.
2. A record of routine maintenance activities performed on the emission units, control equipment and monitoring equipment including, at a minimum, the type or a description of the maintenance performed and the date and time the work was completed.
3. A record of all malfunctions on the emission units, control device and monitoring equipment including, at a minimum: the date and time the malfunction occurred; a description of the malfunction and the corrective action taken; the date and time corrective

actions were initiated; and the date and time corrective actions were completed and the emission unit returned to compliance.

B. The Permittee shall maintain, for the life of the facility, all operating and monitoring records and logs. The Permittee shall make available to MassDEP for inspection upon request the five most recent years of data.

C. The Permittee shall maintain on-site necessary permanent records of output from all continuous emission monitors for flue gas emissions, fuel consumption, SCR and CO control system inlet temperatures, and turbine inlet and ambient temperatures, and shall make these records available to MassDEP on request.

D. The Permittee shall maintain a log to record problems, upsets or failures associated with the emission control system, CEMS, or the ammonia handling system.

E. The Permittee shall maintain an on-site record keeping system for EU #7. All records shall be maintained up-to-date such that year-to-date information is readily available for MassDEP examination. The Permittee shall keep records for five years. The record keeping requirements apply to EU# 7. Record keeping shall include, at a minimum:

1. On site the operating and maintenance procedures for EU #7,
2. Operating and Maintenance log books, (these log books shall contain the following information on a daily basis):
 - i) Date and hours of operation of the duct burner
 - ii) Date, time and description of any maintenance performed on EU #7, monitoring systems, breeching or stack.
3. Name of Company delivering the ULSF including as a minimum, date of delivery, amount of gallons, sulfur content of fuel oil and truck ID number.

F. The Permittee shall maintain sufficient records of operation and monitoring information for the preparation of a Source Registration/Emission Statement form as may be required by 310 CMR 7.12 (3).

X. REPORTING REQUIREMENTS

A. **REGISTRATION** - As required by 310 CMR 7.12(2), the facility shall register on a form obtained from MassDEP such information as MassDEP may specify including the nature and amounts of emissions from the facility, information which may be needed to determine the nature and amounts of emissions from the facility, any other information pertaining to the facility which MassDEP requires.

B. **UPSETS AND MALFUNCTIONS** - The Regional Bureau of Waste Prevention, Compliance and Enforcement Section, must be notified by telephone or fax as soon as possible and in writing within three business days after the occurrence of any UPSETS or MALFUNCTIONS to the

facility equipment, air pollution control equipment, or monitoring equipment which result in an excess emission to the ambient air (in violation of permitted emission level) and/or a condition of air pollution.

C. ON REQUEST - Upon written request from MassDEP the Permittee shall submit such records as may be determined by MassDEP to be necessary to ascertain compliance with the provisions of this Plan Approval. Said information shall be submitted to MassDEP within 30 days of the request or within a longer time period as indicated in writing by MassDEP. Said response shall be transmitted on paper, on computer disk, or electronically at the discretion of MassDEP.

XI. GENERAL CONDITIONS

A. Should there be any differences between the data submitted in Permit Transmittal #X229362 and this Plan Approval, this Plan Approval shall govern.

B. OPERATION - No person shall operate this facility except in conformance with the requirements established in this Plan Approval.

C. SUSPENSION - This Plan Approval may be suspended, modified, or revoked by MassDEP if, at any time, MassDEP determines that the facility is violating any condition or part of the Plan Approval.

D. OTHER REGULATIONS - This Plan Approval does not negate the responsibility of the owner/operator to comply with this or any other applicable federal, state, or local regulations now or in the future. This Plan Approval does not imply compliance with any other applicable federal, state or local regulation now or in the future.

E. EXISTING APPROVALS - All Plan Approvals issued under 310 CMR 7.02(2) prior to the effective date of this Approval shall continue to be in effect. The facility shall meet the emission rates and approved conditions specified in the applicable Plan Approval(s) unless specifically altered by this Plan Approval.

F. DUST AND ODOR - The facility shall be operated in a manner to prevent the occurrence of dust or odor conditions which cause or contribute to a condition of air pollution as defined in Regulation 310 CMR 7.01 and 7.09.

G. ASBESTOS - Should asbestos remediation/removal be required as a result of this Plan Approval, such asbestos remediation/removal shall be done in accordance with Regulation 310 CMR 7.15.

H. MODIFICATIONS - Any proposed increase in emissions above the limits contained in this Plan Approval must first be approved in writing by MassDEP pursuant to 310 CMR 7.02. In addition, any increase may subject the facility to additional regulatory requirements.

I. REMOVAL OF AIR POLLUTION CONTROL EQUIPMENT - No person shall cause, suffer, allow, or permit the removal, alteration or shall otherwise render inoperative any air pollution control equipment or equipment used to monitor emissions which has been installed as a requirement of 310 CMR 7.00, other than for reasonable maintenance periods or unexpected and unavoidable failure of the equipment, provided that MassDEP has been notified of such failure, or in accordance with specific written approval of MassDEP.

XII. CONSTRUCTION REQUIREMENTS

A. During the construction phase, facility personnel shall take reasonable precautions as noted herein, to prevent the occurrence of air pollution episodes including excess dust, odor or noise.

B. Facility personnel shall exercise care in operating any sound generating equipment (mobile power equipment, power tools, etc.) to prevent a potential noise problem including limiting time of use and utilizing noise reduction equipment as may be necessary to prevent noise.

C. Construction vehicles transporting loose aggregate to or from the facility shall be covered and in containers that prevent aggregate and dust from escaping.

D. Any on site open storage material areas, piles of soil and loose aggregate, shall be covered or watered down as necessary to minimize dust emissions.

E. Spillage of loose aggregate and dirt deposits, resulting from construction activities, on the facility roadways and adjacent public roadways, leading to/from the facility shall be removed as necessary to prevent a condition of air pollution. The preferred method of removal shall be a mobile mechanical sweeper equipped with a water spray.

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

XIII. LIST OF PERTINENT INFORMATION, TRANSMITTAL # X229362-A1

Name of Facility: University of Massachusetts Medical School

Location: 55 Lake Avenue North, Worcester, Massachusetts

Submitted By: John Baker, Associate Vice Chancellor Facilities Management

- 1) Limited Air Plan Application Tr# X229362 dated as received September 18, 2009.
- 2) BWP AQ 02 Non-Major Comprehensive Plan Application Tr# X229362 dated received January 11, 2010
- 3) BWP AQ CPA-1 Comprehensive Plan Application for Fuel Utilization Facility
- 4) BWP AQ SFC-5 Supplemental Forms for Afterburners Selective Catalytic Reduction

- 5) BWP AQ SFC-7 Determination of Best Available Control Technology
- 6) EOE Final Record of Decision - December 14, 2009
- 7) Notice of Noncompliance NON-CE-14-7003 dated April 1, 2014
- 8) Plan Application Transmittal No. X262988 dated September 24, 2014

XIV. APPEAL

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 Paul Dwiggin by telephone at 508-767-2760 or in writing at the letterhead address.

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

Roseanna E. Stanley
Permit Chief
Bureau of Air and Waste