



COMMONWEALTH OF MASSACHUSETTS
EXECUTIVE OFFICE OF ENERGY & ENVIRONMENTAL AFFAIRS
DEPARTMENT OF ENVIRONMENTAL PROTECTION
SOUTHEAST REGIONAL OFFICE
20 RIVERSIDE DRIVE, LAKEVILLE, MA 02347 508-946-2700

DEVAL L. PATRICK
Governor

TIMOTHY P. MURRAY
Lieutenant Governor

IAN A. BOWLES
Secretary

LAURIE BURT
Commissioner

May 3, 2010

Mr. Jonathan Winslow
Brockton Power Company LLC
31 Milk Street, Suite 1001
Boston, Massachusetts 02110

RE: **PROPOSED CONDITIONAL APPROVAL**

Application for: BWP AQ 03
Major Comprehensive Plan Application
310 CMR 7.02: Plan Approval and Emission Limitations
310 CMR 7.00: Appendix A Emission Offsets and Nonattainment Review
Transmittal No. W207973
Application No. 4B08015
Facility No. 323268

AT: Brockton Power LLC
Oak Hill Way
Brockton, Massachusetts 02301

Dear Mr. Winslow:

The Department of Environmental Protection (the "Department"), Southeast Regional Office (SERO), Bureau of Waste Prevention, has reviewed the Major Comprehensive Plan Application (MCPA) submitted by Brockton Power Company LLC (the "Applicant") for the proposed construction and operation of a 350 megawatt (MW) quick-start, combined-cycle, natural gas-fired power plant ("facility" or "Brockton Power") in the Oak Hill Industrial Park, Oak Hill Way, Brockton, Massachusetts. The application bears the seal and signature of Stephen H. Slocomb, Massachusetts Professional Engineer Number 41355.

The Department is of the opinion that the submitted MCPA is in conformance with the current Massachusetts Air Pollution Control Regulations and hereby PROPOSES to

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CONDITIONALLY APPROVE the construction and operation of the facility, subject to the conditions and provisions stated herein.

The MCPA was submitted in accordance with Section 7.02 Plan Approval and Emission Limitations as contained in 310 CMR 7.00 "Air Pollution Control Regulations," adopted by the Department pursuant to the authority granted by Massachusetts General Laws, Chapter 111, Section 142 A-M. The Department's review has been limited to compliance with applicable Air Pollution Control Regulations and does not relieve you of the obligation to comply with all other permitting requirements contained in other regulations or statutes.

This PROPOSED CONDITIONAL APPROVAL combines and includes: the 310 CMR 7.02 Comprehensive Plan Approval; and the 310 CMR 7.00: Appendix A: Emission Offsets and Nonattainment Review analysis; and hereby incorporates the MCPA submitted by Brockton Power Company dated April 25, 2008, updated on March 25, 2010, and revision dated April 29, 2010. The PROPOSED CONDITIONAL APPROVAL is subject to a public comment period and a public hearing as specified in the Commonwealth's Air Pollution Control Regulations 310 CMR 7.00: Appendix A.

On March 28, 2008, Ian Bowles, the Secretary of the Executive Office of Energy and Environmental Affairs, issued a certificate that the Final Environmental Impact Report (FEIR) (EEA #14017) adequately complied with the Massachusetts Environmental Policy Act (MEPA) (310 CMR 11.00) and its implementing regulations and Massachusetts General Laws (M.G.L.) Chapter 30, Sections 61-62H.

On August 7, 2009, the Energy Facilities Siting Board issued approval under M.G.L. Chapter 164, §69J of Brockton Power Company LLC's Petition to construct and operate Brockton Power.

Should you have any questions concerning this matter, please feel free to contact Mr. Dan Kamieniecki at (508) 946-2717.

Very truly yours,

John K. Winkler, Chief
Permit Section
Bureau of Waste Prevention

Enclosures

ecc: Steve Slocomb, Epsilon Associates, Maynard, MA
Ted Barten, Epsilon Associates, Maynard, MA
Gus Sambrano, Advance Power, Boston, MA
Barry Fogel, Keegan Werlin LLP, Boston, MA
Ida McDonnell, US EPA Region I, Boston, MA
Linda Balzotti, Mayor, Brockton, MA
Paul Studenski, Councilman Ward 4, Brockton, MA
Board of Health, Brockton, MA
Fire Department, Brockton, MA
Elizabeth Faricy, Town Administrator, West Bridgewater, MA
Board of Health, West Bridgewater, MA
Doug McVay, DEM, Providence, RI
Josephine Winox, EOEEA/MEPA, Boston, MA
Barbara Kehoe, EOEEA/MEPA, Boston, MA
Gary Moran, MassDEP/CO, Boston, MA
Phillip Weinberg, MassDEP/CO, Boston, MA
Marilyn Levenson, MassDEP/OGC, Boston, MA
James Colman, MassDEP/BWP, Boston, MA
Sarah Weinstein, MassDEP/BWP, Boston, MA
Nancy Seidman, MassDEP/BWP, Boston, MA
Marc Wolman, MassDEP/BWP, Boston, MA
Yi Tian, MassDEP/BWP, Boston, MA
Patricio Silva, Mass DEP/BWP, Boston, MA
David Johnston, MassDEP, Lakeville, MA
Laurel Carlson, MassDEP/BWP, Lakeville, MA
Dan d'Hedouville, MassDEP/OGC, Lakeville, MA
Laura Black, MassDEP/BWP, Lakeville, MA

TABLE OF CONTENTS

I.	LIST OF ABBREVIATIONS.....	5
II.	FACILITY DESCRIPTION	7
III.	EMISSIONS	10
IV.	EMISSION LIMITS	10
V.	PREVENTION OF SIGNIFICANT DETERIORATION (PSD).....	15
VI.	EMISSION OFFSETS AND NONATTAINMENT REVIEW	16
VII.	NEW SOURCE PERFORMANCE STANDARDS (NSPS).....	21
VIII.	BACT ANALYSIS	22
IX.	FEDERAL SO ₂ AND NOX EMISSION TRADING PROGRAMS.....	23
X.	MASSACHUSETTS CO ₂ BUDGET TRADING PROGRAM.....	24
XI.	SOUND.....	24
XII.	SPECIAL CONDITIONS	26
XIII.	MONITORING AND RECORDING REQUIREMENTS	28
XIV.	RECORD KEEPING REQUIREMENTS.....	32
XV.	REPORTING REQUIREMENTS	34
XVI.	TESTING REQUIREMENTS.....	36
XVII.	GENERAL REQUIREMENTS.....	37
XVIII.	CONSTRUCTION REQUIREMENTS	39
XIX.	SECTION 61 FINDINGS.....	40
XX.	LIST OF PERTINENT INFORMATION.....	46
XXI.	APPEAL PROCESS.....	46

I. LIST OF ABBREVIATIONS

AWRF	Advanced Wastewater Reclamation Facility
BACT	Best Available Control Technology
Btu	British thermal unit
BWP	Bureau of Waste Prevention
CEM(S)	continuous emission monitor (system)
CFR	Code of Federal Regulations
CMR	Code of Massachusetts Regulations
COM(S)	continuous opacity monitor (system)
CO	carbon monoxide
CO ₂	carbon dioxide
CTG	Combustion Turbine Generator
c.y.	cubic yard
dB(A)	decibels (A-weighted sound level)
DAHS	Data Acquisition and Handling System
DEIR	Draft Environmental Impact Report
DR	Designated Representative
e.g.	for example
EIR	Environmental Impact Report
ENF	Environmental Notification Form
EJ	Environmental Justice
EPA	U.S. Environmental Protection Agency
EPC	Engineering, Procurement and Construction
ERCs	Emission Reduction Credits
FEIR	Final Environmental Impact Report
GTCC	Gas Turbine Combined Cycle
GHG	greenhouse gas
gm/bhp-hr	grams per brake horsepower for one hour
gpd	gallons per day
HAP(s)	Hazardous Air Pollutant(s)
hp	horsepower
HRSG	heat recovery steam generator
HHV	higher heating value
ISO-NE	Independent System Operator-North East
kV	kilovolt
kW	kilowatt
lbs/hr	pounds per hour
lbs/MMBtu	pounds per million British thermal units
lb/MWh	pound per megawatt hour
L	Level, sound
LAER	lowest achievable emission rate
<	less than
≤	less than or equal to
MassDEP	Massachusetts Department of Environmental Protection

MEPA	Massachusetts Environmental Protection Act
MCPA	Major Comprehensive Plan Application
MMBtu	Million British thermal units
MMBtu/hr	Million British thermal units per hour
MMCF	Million cubic feet
MW	megawatt
MWh	megawatt-hour net electrical output
n/a	not applicable
NAAQS	National Ambient Air Quality Standards
NESHAPS	National Emissions Standards for Hazardous Air Pollutants
NH ₃	ammonia
NO ₂	nitrogen dioxide
NO _x	nitrogen oxides
NSPS	New Source Performance Standards
O ₂	oxygen
O ₃	ozone
OGC	Office of General Counsel
ppm	parts per million
ppmvd @ 15% O ₂	parts per million volume dry corrected to fifteen percent oxygen
ppmw	parts per million by weight
%	percent
Pb	lead
Prop.	Property
PM	particulate matter
PM ₁₀	particulate matter less than or equal to 10 microns in diameter
PM _{2.5}	particulate matter less than or equal to 2.5 microns in diameter
PSD	Prevention of Significant Deterioration
RACT	Reasonably Available Control Technology
RATA	Relative Accuracy Test Audit
RGGI	Regional Greenhouse Gas Initiative
SCR	selective catalytic reduction
s.f.	square foot
SILs	significant impact levels
SO ₂	sulfur dioxide
SOMP	Standard Operating and Maintenance Procedures
STG	Steam Turbine Generator
TDS	Total Dissolved Solids
tpy	tons per year
ug/m ³	microgram per cubic meter
unfired	no duct firing
ULSD	Ultra Low Sulfur Distillate
US EPA	United States Environmental Protection Agency
VOCs	volatile organic compounds
WA_MMBtu/hr	weighted average MMBtu/hr
x	times (multiplication)

II. FACILITY DESCRIPTION

Brockton Power Company LLC proposes to construct and operate Brockton Power, a quick-start, combined-cycle, natural gas-fired generating unit rated at approximately 350 MW in Brockton, Massachusetts.

SITE DESCRIPTION

The project will be located on a 13.2 acre parcel located off of Oak Hill Way and Industrial Drive in the Oak Hill Industrial Park, located off Route 28 in southern Brockton. The site is surrounded by warehouse space and industrial uses to the north and east, the Brockton Advanced Water Reclamation Facility (AWRF) and its landfill to the south. To the west, a wooded buffer separates a heavily developed commercial area along Route 28 from the project site.

The Oak Hill Industrial Park is an area of 70 acres specifically set aside for industrial facilities (and not residential uses). The electric generating facility is allowed as a permitted use under the City of Brockton zoning ordinance. The project site is not located in an Environmental Justice area as determined by the Executive Office of Energy and Environmental Affairs. The nearest Environmental Justice areas with low-income and/or minority populations are 1,000 feet (to the west), 1,700 feet (to the north), and 2,100 feet (to the east) from the project stack.

Natural gas will be supplied to the site via a new 1,500 foot pipeline from a Bay State Gas interconnection. Electricity from the proposed plant will be fed into a new National Grid interconnection substation through a 3,000 foot 115 kV overhead transmission line.

PROJECT DESCRIPTION

The project will consist of construction and operation of a new natural gas-fired combined-cycle electric generating facility configured to generate a nominal 350 MW of electric power. The facility will operate as a mid-merit plant that is typically dispatched by ISO-NE after all of the base load (nuclear, hydro-electric, renewable, etc.) facilities have been dispatched.

The project will include a Siemens SGT6-PAC 5000F combustion turbine generator (CTG), a Heat Recovery Steam Generator (HRSG), and a steam turbine generator (STG). The CTG will have a nominal generating capacity of 197 MW in simple-cycle mode, and can be quick-started to achieve this load in 30 minutes. The hot exhaust gases from the CTG will pass through the HRSG, which will use the heat from these gases to produce steam. The HRSG will house an oxidation catalyst for carbon monoxide (CO) control, followed by an ammonia (NH₃) injection grid and selective catalytic reduction (SCR) system for control of nitrogen oxides (NO_x). The steam produced by the HRSG will be fed to the STG, which will have a nominal generating capacity of approximately 103 MW. Additional steam may be produced by supplemental firing of natural gas (i.e., duct-firing) just upstream of the HRSG equipment. When employed, duct-firing and evaporative cooling of the intake air will increase the nominal power output to 350 MW.

The Siemens SGT6-PAC 5000F turbine will have a maximum energy input at -3°F of 2,227 million British thermal units per hour (MMBtu/hr), HHV (higher heating value), while operating on natural gas. Supplemental gas firing of the HRSG will have a maximum energy input of 641 MMBtu/hr HHV. Combined, the turbine and supplementary-fired HRSG in combination will have a maximum energy input (at -3°F) of 2,780 MMBtu/hr HHV during natural gas firing.

The CTG/HRSG will burn natural gas, with a sulfur content that does not exceed 0.2 grains per 100 cubic feet (equivalent to 0.00029 pounds of sulfur / MMBtu) as the only fuel of use. The facility will be designed to operate continuously (24 hours per day, 7 days per week), except for equipment downtime to allow for servicing, maintenance, and repair activities.

Auxiliary equipment will include an enclosed aqueous ammonia storage tank, a continuous emissions monitoring system (CEMS), an auxiliary boiler, three emergency generator sets, one emergency engine powered fire pump, and a cooling tower.

The auxiliary boiler will provide steam when the gas turbine is off line, and will burn natural gas with a sulfur content that does not exceed 0.2 grains per 100 cubic feet (equivalent to 0.00029 pounds of sulfur / MMBtu) as the sole fuel of use. The auxiliary boiler has a maximum energy input of 60 MMBtu/hr HHV. This boiler will be limited to 72 million cubic feet (MMCF) of fuel per 12-month rolling period.

One 100 horsepower (hp) (75kW), or approximately 0.75 MMBtu/hr heat input, emergency engine powered water pump (emergency fire pump) will operate in the event of an emergency and three emergency engine generator sets (emergency generators), each rated at 2,000 kilowatts (kW) or approximately 20 MMBtu/hr heat input each, will enable the plant to start up when no power is available from the utility grid. The emergency generators and fire pump will burn Ultra Low Sulfur Distillate (ULSD) oil with a sulfur content that does not exceed 0.0015 percent by weight. The emergency generators combined fuel consumption will be limited to 57,142 gallons per 12-month rolling period, and the emergency fire pump fuel consumption will be limited to 1,599 gallons per 12-month rolling period. The emergency engine / generator sets and emergency fire pump will be subject to the applicable federal New Source Performance Standards (NSPS) requirements of 40 CFR 60 Subpart IIII 60.4200 through 60.4219, National Emissions Standards for Hazardous Air Pollutants (NESHAPS) 40 CFR 63 Subpart ZZZZ, and the Industry Performance Standards requirements of 310 CMR 7.26 (40) through 310 CMR 7.26 (42).

One seven-cell wet mechanical draft cooling tower will dissipate waste heat from the steam turbine condenser. The cooling tower will have a circulating water flow of 92,500 gallons per minute, and make-up water (filtered and purified) will come either from the Brockton Advanced Wastewater Reclamation Facility (AWRF) or from the City of Brockton municipal water system, and will be stored in a one million gallon on-site storage tank. Circulating water flow dissolved solids will not exceed 3,235 parts per million by weight. Each cooling tower cell will be constructed of steel, and equipped with a mist/drift eliminator capable of achieving a maximum drift rate per cell of 0.0005% to minimize water drift losses and associated particulate matter (PM), emissions with an aerodynamic diameter equal or less than 10 microns (PM_{10}), and particulate matter emissions with an aerodynamic diameter equal or less than 2.5 microns ($\text{PM}_{2.5}$).

The exhaust gases from the proposed facility will be emitted from a total of 11 emission points. The three emergency generators will use one combined stack; the emergency engine powered fire pump will use one stack; the turbine/HRSG and the auxiliary boiler will use one stack each. The remaining seven emission points will each service one of the seven cooling tower cells. The turbine/HRSG stack will have an inside diameter of 19 feet, which provides for a maximum exit velocity of 75.9 feet per second and a maximum temperature of 275 degrees Fahrenheit. The turbine/HRSG stack height will be 250 feet above ground level, and 325 feet above sea level. The auxiliary boiler stack will have an inside diameter of 19 inches, which provides for a maximum exit velocity of 150 feet per second at a maximum temperature of 300 degrees Fahrenheit. The stack for the emergency generators will have an inside diameter of 27 inches, which provides for a maximum exit velocity of 99 feet per second at a maximum temperature of 973 degrees Fahrenheit. Each cooling tower cell exhaust will have an inside diameter of 32 feet, which provides for an exit velocity of 27.5 feet per second. Each cooling cell exhaust height will be 50 feet above ground level, and 125 feet above sea level.

The CTG will use dry low NO_x-burners to control NO_x emissions, and the exhaust gases will pass through the HRSG that includes an ammonia injection grid followed by an SCR system for further NO_x emission control. The SCR system will achieve 84 percent NO_x removal efficiency. This corresponds to maximum controlled NO_x emissions of 2.0 ppmvd corrected to 15 percent oxygen (O₂), based on vendor guaranteed values.

The CTG will utilize good combustion practices, equipment design, and an oxidation catalyst to control CO emissions to 2.0 ppmvd corrected to 15 percent O₂ (ppmvd at 15% O₂) at 100% load. Volatile organic compound (VOCs) emissions will be 2.5 ppmvd @ 15% O₂, when the duct is fired, and 1.0 ppmvd @ 15% O₂ otherwise.

Stack emissions will be monitored and recorded by continuous emission monitoring systems (CEMS) for O₂, NO_x, CO and NH₃ to verify compliance with emission limits. O₂ will be used as the reference gas.

The gas turbine and steam turbine will be located in acoustically treated steel framed building. The HRSG will be enclosed by four sound attenuating walls to a height of approximately 116 feet. The sound levels from the air inlet will be mitigated by the evaporative cooler. Additional noise control features include a turbine exhaust stack silencer, barriers around the main transformers, and a building to house the natural gas compressors.

III. EMISSIONS

The operation of the turbine, duct burner, and auxiliary boiler on natural gas, and emergency engine generator sets and emergency engine powered fire pump on ULSD oil, will result in emissions to the ambient air of the following criteria air pollutants: Particulate matter less than 10 microns in aerodynamic diameter (PM₁₀), Particulate matter less than 2.5 microns in aerodynamic diameter (PM_{2.5}), Sulfur Dioxide (SO₂), Carbon Monoxide (CO), Nitrogen Oxides (NO_x), and Volatile Organic Compounds (VOC). The turbine, duct burner, emergency engine powered fire pump, emergency engine generator sets will also be the source of the non-criteria air pollutants, amongst which carbon dioxide (CO₂) will be emitted in the largest quantity. The combustion turbines will also be the source of several air toxics, amongst which ammonia (NH₃) will be emitted in the largest quantity, and emissions of hazardous air pollutants (HAPs), a subset of air toxics, from the combustion turbines will be less than 10 tons per year of any single HAP, and 25 tons per year of total HAPs combined.

IV. EMISSION LIMITS

- A. Air pollutant emission rates from Brockton Power shall be kept at the lowest practical level at all times, and shall not exceed the emission limitations as specified in Tables 1A, 1B, 1C, 1D, 2, and 3, below.

Table 1A: Short Term Emission Limits for the Combustion Turbine^(1,2,3)			
Pollutant	Units		
	Pounds per Hour	Pounds per MMBtu	ppmvd @ 15% O₂
NO_x	20.5	0.0074	2.0
CO	12.5	0.0045	2.0
VOC, unfired	2.9	0.0013	1.0
VOC, duct-fired	8.9	0.0032	2.5
SO₂	1.6	0.0006	0.1
PM	17.4	0.007	n/a
PM₁₀⁽⁴⁾	17.4	0.007	n/a
PM_{2.5}⁽⁴⁾	17.4	0.007	n/a
NH₃⁽⁵⁾	7.6	0.0027	2.0
Opacity	<5%, except 5 to < 10% for ≤ 2 minutes during any one hour		
Smoke	Limitation contained in 310 CMR 7.06 (1) (a)		

Table 1B: Short Term Emission Limits Per Emission Unit ⁽¹⁾			
Pollutant	Auxiliary Boiler ⁽³⁾	Each Emergency Generator ⁽³⁾	Emergency Fire Pump
NO_x	0.66 lbs/hr	32.2 lbs/hr	1.80 lbs/hr
CO	4.8 lbs/hr	2.9 lbs/hr	0.16 lbs/hr
VOC	1.8 lbs/hr	0.7 lbs/hr	0.04 lbs/hr
SO₂	0.6 lbs/hr	0.03 lbs/hr	0.002 lbs/hr
PM	0.036 lbs/hr	0.2 lbs/hr	0.010 lbs/hr
PM₁₀ ⁽⁴⁾	0.036 lbs/hr	0.2 lbs/hr	0.010 lbs/hr
PM_{2.5} ⁽⁴⁾	0.036 lbs/hr	0.2 lbs/hr	0.010 lbs/hr
NO_x	0.011 lbs/MMBtu	0.248 gm/bhp-hr	0.248 gm/bhp-hr
CO	0.08 lbs/MMBtu	0.023 gm/bhp-hr	0.023 gm/bhp-hr
VOC	0.03 lbs/MMBtu	0.005 gm/bhp-hr	0.005 gm/bhp-hr
SO₂	0.0006 lbs/MMBtu	0.0015 lbs/MMBtu	0.0015 lbs/MMBtu
PM	0.01 lbs/MMBtu	0.001 gm/bhp-hr	0.001 gm/bhp-hr
PM₁₀ ⁽⁴⁾	0.01 lbs/MMBtu	0.001 gm/bhp-hr	0.001 gm/bhp-hr
PM_{2.5} ⁽⁴⁾	0.01 lbs/MMBtu	0.001 gm/bhp-hr	0.001 gm/bhp-hr
Opacity	<5%, except 5 to < 10% for ≤ 2 minutes during any one hour		
Smoke	Limitation contained in 310 CMR 7.06 (1) (a)		

Table 1C: Carbon Dioxide (CO₂) Emission Limits		
Facility ⁽⁹⁾	870 lb/MWh (month average)	842 lb/MWh (12-month rolling average)

Table 1D: Cooling Tower PM / PM₁₀ / PM_{2.5} Emission Limits ⁽¹⁰⁾		
Pollutant	Pounds Per Hour	Tons per 12-Month Rolling Period
PM	0.75	3.3
PM₁₀ ⁽⁴⁾	0.75	3.3
PM_{2.5} ⁽⁴⁾	0.09	0.4

Table 2: Combustion Turbine Startup & Shutdown Emission Limits ⁽¹¹⁾		
Pollutant	Startup Emission Limits	Shutdown Emission Limits
NOx	31.6 lbs/hr	29.8 lbs/hr
CO	784 lbs/hr	312 lbs/hr
VOC	30.2 lbs/hr	10.4 lbs/hr
NOx	0.022 lbs/MMBtu	0.016 lbs/MMBtu
CO	0.54 lbs/MMBtu	0.17 lbs/MMBtu
VOC	0.02 lbs/MMBtu	0.006 lbs/MMBtu
NOx	5.9 ppm@3%O ₂	4.4 ppm@3%O ₂
CO	241 ppm@3%O ₂	75 ppm@3%O ₂
VOC	16 ppm@3%O ₂	2.5 ppm@3%O ₂

Table 3: Facility Long Term Emission Limits (6,7,8,12)	
Pollutant	Tons per 12-month rolling period
NOx	76.1
CO	98.5
VOC	19.2
SO ₂	5.3
PM	51.8
PM ₁₀ ⁽⁴⁾	51.8
PM _{2.5} ⁽⁴⁾	49.1
NH ₃	25.5
CO ₂	1,094,900
Individual HAP	3.1
Total HAPs	5.1

Tables 1A, 1B, 1C, 1D, 2 & 3 Notes:

1. Emission limits are one-hour block averages, other than opacity and smoke, and apply during start-up/shutdown, other than as identified in Table 2. Start-ups will last no longer than 0.47 hours. Shutdowns will last no longer than 0.40 hours. (See Special Condition XII.2.).
2. Emission rates are based on 100% load at an ambient air temperature of -3 degrees Fahrenheit (°F). Except where noted, these emission rates constitute worst-case emissions for operating loads between 60% and 100%. The CTG CO emission is based on 100% load.
3. Emission limits are one-hour block averages and apply over the normal operating range up to 100% load.
4. Includes condensable particulate matter, as determined by 40 CFR Part 51, Appendix M, Method 202 – Condensable Particulate Matter. Maximum emission rates are based on a 60% load.
5. SCR maximum ammonia (NH₃) slip of 2.0 ppmvd @15% O₂.
6. Subject facility emissions include the CTG/HRSG with supplemental duct firing burners, an auxiliary boiler, three emergency generator sets, one emergency fire pump, and a cooling tower. Emissions for the combustion turbine are based upon 6,760 hours of natural gas firing at 100% load at an annual average inlet temperature of 59°F ambient and 2,000 hours of natural gas firing at 100% duct-fired load at an average inlet temperature 59°F ambient, and includes combustion turbine start-up and shutdown emissions.
7. Emissions for the auxiliary boiler are based on the following fuel restrictions: 72 MMCF of natural gas per 12-month rolling period.
8. Emissions for the three emergency generators are based on restricted operation of 400 hours in total, firing ULSD oil at a total rate of 57,142 gallons per 12-month rolling period. The emergency generators will operate as required to startup the CTG and only in the event that power to achieve shutdown is not available from the electric power grid, and periodic readiness testing. Emissions for the fire pump are based on restricted operation of 300 hours, firing ULSD oil at a rate of 1,599 gallons per 12-month rolling period. The fire pump will operate as required to support fire fighting activities, and periodic readiness testing.
9. Total for facility excluding emergency engines, engine powered fire pump, and auxiliary boiler.

- 10. Emissions for the cooling towers are based on unrestricted operation, circulating water flow of 92,500 gallons per minute, a total dissolved solids (TDS) content of 3,235 parts per million by weight (ppmw) with a maximum drift rate of 0.0005% per cell.
 - 11. Table 1A emission limits apply during startup and shutdown other than as identified in Table 2.
 - 12. Equation G-4 of 40 CFR 75, Appendix G will be used to calculate CO₂ mass emissions.
- B. Brockton Power shall burn natural gas with a sulfur content that does not exceed 0.2 grains per 100 cubic feet.
- C. In accordance with 310 CMR 7.26 (42)(b)(1), the emergency engine generator sets and the emergency engine powered water pump (fire pump) shall comply with the applicable emission limitations set by the US EPA for non-road engines (40 CFR 89 as in effect October 23, 1998) at the time of on-site installation. The engine supplier shall provide Brockton Power a written statement that a certificate of conformity has been obtained from the Administrator pursuant to 40 CFR 89.105 as in effect October 23, 1998.
- D. Brockton Power shall not exceed the fuel limitations specified in Table 4.

Table 4: Facility Fuel Restrictions					
		CTG/HRSG	Auxiliary Boiler	Emergency Generators	Emergency Fire Pump
Monthly Maximum	Natural Gas	none	45 MMCF ⁽¹⁾	n/a	n/a
	ULSD Oil	n/a	n/a	57,142 gallons ⁽²⁾	1,599 gallons ⁽⁴⁾
Rolling 12-month period	Natural Gas	none	72 MMCF ⁽³⁾	n/a	n/a
	ULSD Oil	n/a	n/a	57,142 gallons ⁽²⁾	1,599 gallons ⁽⁴⁾

Table 4 Notes:

- 1. Equivalent to 744 hours of operation.
- 2. Equivalent to 400 hours of operation, all emergency generators combined
- 3. Equivalent to 1200 hours of operation.
- 4. Equivalent to 300 hours of operation.

V. PREVENTION OF SIGNIFICANT DETERIORATION (PSD)

I. Background

The federal government under the jurisdiction of the United States Environmental Protection Agency (US EPA) established National Ambient Air Quality Standards (NAAQS) for seven air contaminants, known as criteria pollutants, for the protection of public health and welfare. These criteria pollutants are SO₂, PM₁₀, PM_{2.5}, NO₂, CO, ozone (O₃), and Lead (Pb).

The state government under the jurisdiction of MassDEP has adopted these ambient air quality standards, other than PM_{2.5}, for the Commonwealth of Massachusetts as stated under 310 CMR 6.00 of the Air Pollution Control Regulations. One of the basic goals of federal and state air regulations is to ensure that ambient air quality, including the impact of existing and new facilities, complies with ambient standards. Towards this end, US EPA classified all areas of the country as "attainment," "nonattainment," or "unclassified" with respect to the NAAQS.

New major stationary sources of regulated air pollutants or major modifications to existing major sources of regulated air pollutants that are located in areas classified as either "attainment" or "unclassified" are subject to Prevention of Significant Deterioration ("PSD") regulations promulgated under 40 CFR Section 52.21. Pursuant to 40 CFR 52.21(b)(1)(I)(a.) of the PSD Regulations, an attainment pollutant source is considered "major" if it has the potential to emit 100 tons per year (tpy) or more of any pollutant and is listed as one of the 28 designated PSD stationary source categories, and a modification is considered a "major modification" if the physical change or change in the method of operation of a "major" stationary source would result in a significant net emission increase.

Effective July 1, 1982, the PSD program was implemented by MassDEP in accordance with MassDEP's "Procedures for Implementing Federal Prevention of Significant Deterioration Regulations." The proposed facility is one of the 28 designated PSD stationary source categories, namely a fossil fuel fired steam electric plant of more than 250 million Btu/hr heat input.

Effective March 3, 2003, the Department notified US EPA Region I that Massachusetts would no longer implement the PSD program, and returned delegation of the PSD program to the US EPA. Therefore, the US EPA Region I has the responsibility to determine PSD applicability for the project.

II. General Information

The Applicant is proposing to construct Brockton Power, a combined-cycle, natural gas-fired electric power generation unit in Brockton, Massachusetts. The subject equipment is located in an area which is either in "attainment" or "unclassified" for SO₂, NO₂, CO, PM, PM₁₀, PM_{2.5} and Pb. Therefore, the subject unit is located in a PSD area for these pollutants. Since the Project's emissions are below 100 tpy for all attainment pollutants, the Applicant has identified that the facility is not subject to PSD.

VI. EMISSION OFFSETS AND NONATTAINMENT REVIEW

The entire Commonwealth of Massachusetts is designated “moderate” Nonattainment for the pollutant ozone (O₃) NAAQS. Applicable requirements for any new major stationary source or major modification of nonattainment pollutants require the source to meet Lowest Achievable Emission Rate (LAER) and obtain emission offsets. Nonattainment review applies to any Applicant whose project proposes potential emissions of O₃ (ozone) precursor pollutants, Nitrogen Oxides (NO_x) and/or Volatile Organic Compounds (VOCs) from a stationary source that is at or above the “major source” threshold criterion of 50 tons per year, as well as to “major modifications” at existing “major” stationary sources, as defined in 310 CMR 7.00: Appendix A. A “major modification” is defined as a net emissions increase of 25 or more tpy of nonattainment pollutants or their precursors at an existing “major” stationary source. NO_x and VOC emissions are precursors to the formation of ozone and “major” NO_x and VOC emitters are regulated pursuant to Appendix A.

The Applicant has proposed NO_x emission limits of 2.0 ppmvd at 15% O₂ one hour block average as achieving LAER. MassDEP has verified and concurs with the Applicant’s LAER analysis as presented in its Major Comprehensive Plan Application (4B08015, Transmittal W207973) and that this proposed NO_x emission limit constitutes NO_x LAER for the project.

The Applicant has proposed maximum potential NO_x emissions from the Brockton Power project of 76.1 tons per year. The Brockton Power project is thus a “major source” with respect to NO_x emissions. Since the Project is a major source for NO_x, NO_x offsets are required. 310 CMR 7.00: Appendix B(3) requires that the Applicant must obtain 5% more emission reduction credits (ERCs) than the number of ERCs needed for offsets (over the 1.2:1 ratio). This 5% must be held as a set aside and neither sold nor used. Offsets must be from the same nonattainment area or from another nonattainment area of equal or more severe nonattainment classification if emissions from this other area contribute to ozone nonattainment in the area where the new project will be constructed. The total NO_x offsets needed for Brockton Power are 76.1 tons of proposed NO_x emissions x 1.2 offset ratio = 92 tons offsets plus 5% set aside (4 tons) = 96 tons total offsets.

Brockton Power Company LLC has an agreement to purchase at least 96 tons of NO_x Emission Reduction Credits (ERCs) from Evolution Markets Inc.'s rights, title, and interest in the ERCs that were banked by Osram Sylvania Inc. pursuant to the provisions of State of Rhode Island Air Pollution Control Regulation No. 9, on March 11, 2004. In accordance with "The Memorandum of Understanding by and between the State of Rhode Island Department of Environmental Management and Commonwealth of Massachusetts Department of Environmental Protection on the Interstate Trading of NO_x Emission Reduction Credits (ERCs), dated April 2005, NO_x ERCs generated in the State of Rhode Island may be used in the Commonwealth of Massachusetts to meet emission offset requirements set forth in 310 CMR 7.0 Appendix A of the MassDEP’s Regulations. The Osram Sylvania Inc. facility is located approximately 22 miles to the southwest of the City of Brockton, which is generally upwind of Brockton Power. Furthermore, the Osram Sylvania Inc. facility is located in a nonattainment

area contiguous to and of equal nonattainment classification for Brockton and the eastern Massachusetts area. The 96 tons of NOx ERCs generated by Osram Sylvania Inc. will be used to offset NOx emissions from the Brockton Power project. 96 tons of NOx ERCs must be surrendered by the Applicant to the Department prior to the initial burning of any fuel in any emission unit.

The Applicant has proposed maximum potential VOC emissions from the Brockton Power project of 19.2 tons per year. This VOC emission rate is less than the "major source" threshold criteria, and is therefore not subject to VOC LAER or VOC offsets.

One additional requirement of 310 CMR 7.00: Appendix A is for the Applicant to demonstrate, and the Department to concur, that the benefits of the proposed project significantly outweighs the environmental and social costs imposed as a result of the project's location, construction or modification (310 CMR 7.00: Appendix A (8)(b)). This demonstration requires analysis of alternative sites, sizes, production processes, and environmental control techniques. The MCPA (Transmittal W207973) contains the details of the required demonstration, a summary of which is provided here.

Alternative site evaluation considered the following:

- Availability of land;
- Proximity to natural gas supply;
- Proximity to electric transmission power lines;
- Proximity to water/wastewater interconnections;
- Noise control considerations;
- Compatible land uses and adequate site sizes and appropriate zoning;
- Distance from residences;
- Protection of wetland resources; and
- Minimization of visual impacts.

Alternative project sizes, production processes and environmental control techniques evaluation considered the following:

- Turbine configurations (simple or combined cycle with and without duct firing);
- Turbine sizes (F-Class and G-Class);
- Multiple turbines versus one turbine;
- Air cooled versus water cooled; and
- Fuel (ULSD oil or natural gas).

Project benefits identified include:

- The use of a vacant and unused 13-acre parcel in an industrial park originally developed in the early 1960's and zoned for heavy industrial use (including power plants);
- Private capital investment of more than \$350,000,000;
- Highly efficient generating capacity;
- New generating capacity in market dominated by 75% of existing generation more than 30 years old (38% more than 40 years old);
- Economic benefits:
 - Construction phase - 750 new jobs created and estimated direct payroll in excess of \$47,000,000 (450 indirect and induced jobs (95 jobs in Brockton));
 - Construction phase - total regional salary impact in excess of \$83,000,000;
 - Construction phase - regional purchase of supplies, materials and services of approximately \$58,000,000;
 - Operational phase - approximately 58 new jobs (22 skilled workers) with an estimated direct payroll of \$2,600,000 (approximately 36 indirect and induced jobs regionally);
 - Operational phase - total regional impact in new salaries over \$5,000,000 annually;
 - Operational phase - regional purchases will be in excess of \$3,000,000 annually;
 - Estimated \$1,500,000 per year property taxes will be paid to the City of Brockton (becoming the City's largest tax payer);
- Estimated \$500,000 per year payment to the City of Brockton for purchase of reclaimed water from the Brockton Advanced Water Reclamation Facility (if the City agrees);
- 76.1 tpy of NOx emissions will be offset by the purchase of 96 tpy of NOx emission offsets;
- Expected net reduction in regional emissions via the displacement of older less efficient generating units;
- Adds dispatch flexibility to the electric grid through use of an F-Class turbine with quick start capability;
- Anticipate increased use of intermittent renewable power generation, which will result in increased need for quick start, mid-merit generators;
- Black start engine generator sets will add improved reliability to the area and regional power grid;
- Limited electrical transmission lines (3,000 feet) to connect to the electric grid will be built in existing public rights of way and property under the control of Brockton Power; and
- Use of the existing roads, water and sewer infrastructure within the industrial park in keeping with the Commonwealth's Smart Growth policy.

Environmental costs and social costs have been minimized as follows:

- Fuel of utilization will be natural gas, the cleanest available fossil fuel;
- Emissions will be minimized through the use of highly efficient combined cycle generating technology;
- Use of Best Available Control Technology (BACT) and LAER emission control technology results in very low emission rates;
- The project's 76.1 tpy of NOx emissions will be offset by the purchase of 96 tpy of NOx emission offsets from an upwind source;
- The project will have no significant ambient air impact and impacts are deemed de minimis by US EPA since all impacts will be below all existing and proposed SILs as defined in the Table 5A below:

Table 5A: Comparison of Maximum Predicted Impacts with Significant Impact Levels				
Pollutant	Avg. Period	Max Impact (ug/m³)	SIL (ug/m³)	Max Impact % of SIL
NO₂	Annual	0.0265	1	3%
	3-Hour	0.098	25	0.4%
SO₂	24-Hour	0.055	5	1%
	Annual	0.002	1	0.2%
	24-Hour	1.90	5	38%
PM₁₀	Annual	0.24	1	24%
	24-Hour	0.61	1.2	51%
PM_{2.5}¹	Annual	0.03	0.3	9%
	1-Hour	1.44	2,000	0.07%
CO	8-Hour	0.69	500	0.14%

Table 5A Note:

1. PM_{2.5} does not have an approved SIL; the lowest EPA-proposed SILs are presented here.
- The project's ambient air impacts, combined with the pre-existing background levels, will meet all NAAQS that are designed to protect public's health against health effects of air pollutants with a margin of safety and will therefore have no adverse health impacts, as indicated in Table 5B below:

Pollutant	Average Period	Brockton Power Impact (ug/m ³)	Measured Background (ug/m ³)	Background plus Brockton Power Total Impact (ug/m ³)	NAAQS (ug/m ³)	Background plus Brockton Power % of NAAQS
NO ₂	1-Hour	2.36	53.1	55.5	188	29.4%
	Annual	0.0265	9.4	9.4	100	9.4%
SO ₂	3-Hour	0.088	57	57.1	1,300	4.4%
	24-Hour	0.027	34	34.0	365	9.3%
	Annual	0.002	0.002	8.00	80	10.0%
PM ₁₀	24-Hour	1.55	35	36.6	150	24.4%
	Annual	0.24	18.3	18.5	50	37.1%
PM _{2.5}	24-Hour	0.41	27.9	28.3	35	80.9%
	Annual	0.03	9.43	9.46	15	63.1%
CO	1-Hour	0.99	3,429	3,430	40,000	8.6%
	8-Hour	0.53	1,889	1,890	10,000	18.9%

When the City of Brockton's Advanced Wastewater Reclamation Facility PM_{2.5} emission impacts are included, the cumulative impacts from Brockton Power and the AWRF incinerator combined with the pre-existing background levels will meet the PM_{2.5} NAAQS with a margin of safety and will therefore have no adverse health impacts, as indicated in Table 5C below:

Pollutant	Project (ug/m ³)	AWRF (ug/m ³)	Project and AWRF (ug/m ³)	Background (ug/m ³)	Total Impact (ug/m ³)	NAAQS (ug/m ³)	Background plus Project plus AWRF % of NAAQS
PM _{2.5} 24-Hour	0.41	0.49	0.57	27.9	28.5	35	81%
PM _{2.5} Annual	0.03	0.04	0.05	9.43	9.48	15	63%

- The project will meet MassDEP's Acceptable Ambient Limits and Threshold Effects Levels, established to protect the public's health from emissions of chemicals for which no NAAQS exists;

- The project is anticipated to provide a net improvement in regional air quality due to anticipated displacement of existing older less efficient generating units;
- The project will have no significant impact on existing sound levels at residential or other sensitive receptor locations and will meet MassDEP's Noise Policy by a significant margin;
- Very substantial tax payments will be made to the City of Brockton to help meet the needs of the community (public education, police, etc.);
- Use of a vacant previously disturbed barren industrially zoned land;
- Hundreds of much needed construction jobs;
- Dozens of well paying long-term jobs,
- Injection of revenue through purchase of services and supplies,
- Anticipated new business development to provide supplies and services;
- Establishment of a project mitigation fund of \$250,000 available for a five year period, commencing on the date of the start of construction, to provide support for emission reduction projects within the City of Brockton as the City considers appropriate.
- Maximum 24-hour $PM_{10}/PM_{2.5}$ impact location and the maximum annual $PM_{10}/PM_{2.5}$ location are not within an Environmental Justice (EJ) community, nor within a community for citizens over 55 years of age;
- Air quality impacts of the project will not have a discriminatory effect on adjacent EJ or at the nearest mobile home community for citizens over 55 years of age since these communities will not bear a disproportionate share of the air quality impacts of the Brockton Power project; and
- Background $PM_{2.5}$ emission levels in Brockton are below the state average and further reductions may be realized by improved regional air quality.

While the Department acknowledges that there is an environmental cost from this project in the form of new emissions to the air, these emissions are minimized and offset through addition of control technology and purchase of NOx emission offsets. Further, the impacts to the ambient air from the project are well within the standards designed to protect public health. Therefore, MassDEP finds that the benefits of the project significantly outweigh this project's environmental and social costs and further finds that the project will not have a discriminatory effect or overburden any surrounding area on the basis of race, color, nation or origin, or age.

VII. NEW SOURCE PERFORMANCE STANDARDS (NSPS)

The New Source Performance Standards (NSPS) for gas turbines, 40 CFR 60 Subpart KKKK of the Code of Federal Regulations (CFR), is applicable to Brockton Power. This requirement applies to all stationary combustion turbines with a heat input greater than 10 MMBtu/hr constructed after February 18, 2005, and presented here in Table 6.

Table 6: BACT and NSPS Limits				
	NO_x		SO₂ (based on sulfur content in fuel)	
	BACT¹	NSPS Limit	BACT¹	NSPS Limit
Natural Gas	2.0 ppm @15%O ₂ or 0.54 lb/MWh	15 ppm @ 15%O ₂ or 1.2 lbs/MWh	0.0006 lb/MMBtu	0.060 lb/MMBtu or 0.90 lb/MWh

Table 6 Note:

1. BACT: Best Available Control Technology. See Section VIII for Comparative BACT Analysis

The NSPS for small boilers, 40 CFR 60 Subpart Dc, is applicable to Brockton Power's 60 MMBtu/hr boiler used to keep the HRSG warm. Subpart Dc limits the sulfur content of oil to 0.5 lb/MMBtu or 0.5% by weight and the opacity to 20% with one 6-minute period of no greater than 27% opacity allowed.

The NSPS for Stationary Compression Ignition Internal Combustion Engines, 40 CFR Part 60 Subpart IIII 60.4200 through 60.4219, is applicable to the Project's emergency engine / generator sets and emergency engine powered water pump (fire pump).

The emergency engine / generator sets and emergency fire pump are also subject to 40 CFR Part 63, Subpart ZZZZ - NESHAPS for Stationary Reciprocating Internal Combustion Engines. Pursuant to § 63.6585(c), these engines meet the requirements of this part by meeting the requirements of the 40 CFR Part 60 Subpart IIII addressed in the paragraph above. No further requirements apply to these engines under 40 CFR Part 63.

VIII. BACT ANALYSIS

The Applicant was required to evaluate Best Available Control Technology (BACT) as it applies to emissions of NO_x, VOCs, PM, PM₁₀, PM_{2.5}, SO₂, CO₂, NH₃, and CO. As previously discussed, NO_x is also subject to Lowest Achievable Emission Rate (LAER) since NO_x is an ozone precursor. Brockton Power is a minor source of VOCs, and is thus not subject to LAER. BACT is defined as an emission limit based upon the maximum level of control with consideration of technical, economic, and environmental factors.

The Applicant submitted a "top down" BACT analysis for all equipment, emissions and pollutants, the results of which are summarized here.

NO_x emissions will be controlled by the use of a dry low-NO_x combustor combined with a Selective Catalytic Reactor (SCR) system, which meet LAER and BACT. The design of the

SCR system will minimize NH₃ emissions and meet BACT.

For conventional natural gas-fired dry low-NOx burners, an oxidation catalyst is the most stringent level of control for CO and VOC. CO and VOC emissions will be controlled with an oxidation catalyst.

BACT for PM, PM₁₀, PM_{2.5}, and SO₂ for the CTG/HRSG will be achieved by using natural gas exclusively. Particle capture methods were evaluated, and not considered technically feasible or cost effective for PM, PM₁₀, and PM_{2.5}. Flue gas desulfurization is not considered technically feasible or cost effective for SO₂ due to the low sulfur content of natural gas.

BACT for CO₂ emissions for the CTG/HRSG will be achieved by using a highly efficient water cooled F-Class turbine in a combined-cycle mode firing natural gas exclusively.

BACT for NH₃ emissions for the CTG/HRSG will be achieved by using an effective NH₃ injection grid, process controls, and catalyst design

Inside the cooling tower, circulating water mixes with the moving airstream, and the resultant drift droplets get carried out of the tower, eventually evaporate, and leave behind a fine particulate matter formed by the crystallization of dissolved solids. To control these PM, PM₁₀, and PM_{2.5} emission from the cooling tower, each of the seven cells will be equipped with a high efficiency drift eliminator with a maximum drift rate of 0.0005% which will prevent water droplets from leaving the cooling tower and reduce particulate matter emissions to the atmosphere. The proposed drift rate is the lowest drift rate in US EPA's RACT/BACT/LAER Clearinghouse. BACT for PM, PM₁₀, and PM_{2.5} will be achieved by using drift eliminators with a maximum drift rate of 0.0005% and limiting dissolved solids in the circulating water.

The Department has therefore verified and concurs with the BACT/LAER Analysis contained within the Applicant's Major Comprehensive Plan Application. BACT/LAER emission limits are contained in Section IV. Emission Limits of this Approval.

IX. FEDERAL SO₂ AND NOX EMISSION TRADING PROGRAMS

According to 40 CFR Part 72, Brockton Power's CTG/HRSG unit will be designated as a Phase II Acid Rain "New Affected Unit" 90 days after commencement of activities, but not after the date that Brockton Power declares the generation unit commercial. The Phase II application for Brockton Power must be submitted to the Department 24 months before the commencement of operation.

The Acid Rain Program effects reductions of sulfur dioxide (SO₂) from existing power plants by allocating SO₂ allowances to existing power plants and by requiring new plants to purchase SO₂ allowances to offset their actual SO₂ emissions during each year of operation. The Applicant shall secure SO₂ allowances for the "affected unit."

The Applicant will be required to have a Designated Representative (DR) and to install a Continuous Emissions Monitoring System (CEMS) to service the "affected unit." The DR is the Applicant's facility representative responsible for preparing and certifying the required submittals under the Acid Rain Program (e.g., applications, monitoring plans, emission reports, etc.), and is responsible for administering the requirements specified in 40 CFR Part 75 for monitoring and/or reporting SO₂, NO_x and CO₂ emissions as well as heat input at the facility's "affected unit."

In place of direct SO₂ monitoring and flue gas flow monitoring, Brockton Power will conduct fuel quality monitoring and maintain certified fuel flow meters in accordance with 40 CFR Part 75 Appendix D. Pursuant to 40 CFR 75.13, CO₂ emissions will be calculated in accordance with 40 CFR Part 75 Appendix G.

Brockton Power's CTG/HRSG unit is also subject to the ozone season (May 1 – September 30) NO_x emission trading component of the federal Clean Air Interstate Rule, implemented in Massachusetts as 310 CMR 7.32. As with the Acid Rain Program, the rule is based on a cap and trade system where each ton of emitted ozone season NO_x is offset through the allocation or purchase of allowances, and NO_x monitoring is to be conducted using methods specified in 40 CFR Part 75. Accordingly, Brockton Power will assign a CAIR Designated Representative (DR), who will administer the monitoring, reporting, recordkeeping and allowance trading required under this rule, including a CAIR permit application due 18 months prior to the commencement of operations.

X. MASSACHUSETTS CO₂ BUDGET TRADING PROGRAM

Brockton Power's CTG/HRSG unit will be subject to 310 CMR 7.70, Massachusetts CO₂ Budget Trading Program. The Massachusetts CO₂ Budget Trading Program is a state-only regulation. The Massachusetts CO₂ Budget Trading Program is a "cap-and-trade" system addressing carbon dioxide emissions and became effective on January 1, 2009. CO₂ monitoring is to be conducted using methods specified in 40 CFR 75 (already required under the Acid Rain Program). Accordingly, Brockton Power will assign a CO₂ Authorized Account Representative, who will administer the monitoring, reporting, recordkeeping and allowance trading required under this rule, including a CO₂ Budget permit application due 12 months prior to the commencement of operations.

XI. SOUND

Daytime and nighttime background sound levels were monitored at several locations that surround the proposed project site, as well as the site itself. In general, monitoring locations were selected on the basis of where sound impact from the Project was anticipated to be greatest. A review of the existing land use in the vicinity of the project site was conducted to identify the closest and most representative inhabited residential locations. The selected locations generally correspond to the nearest sound-sensitive locations in various directions from the site. A comprehensive sound level assessment and modeling program using short-term and continuous monitoring techniques was conducted. This program was performed January 3-12, 2007.

In total, existing sound levels were measured at four representative community locations, and the site itself. These locations are identified in Tables 7A and 7B below. The monitors were programmed to record the following hourly A-weighted sound levels: L_{max} , L_{min} , L_{90} , L_{10} percentile sound levels, and L_{eq} (average energy equivalent sound level). A-weighted sound level, which is reported in decibels designated as "dB(A)," emphasizes the middle frequency sounds to which the human ear is most sensitive and de-emphasizes lower and higher frequency sounds. The L_{90} level represents the sound level exceeded 90 percent of the time and is used by the Department for the regulation of sound emissions. The objective of the measurements performed at these locations was to characterize typical daytime and late night/early morning sound at the nearby residential properties that surround the Project site.

Brockton Power shall comply with the following provisions concerning sound:

1. The facility shall be designed, constructed, operated, and maintained such that at all times, sound emissions from the facility will not cause a condition of air pollution as provided in 310 CMR 7.01 and 310 CMR 7.10.
2. The Applicant shall install and have the following noise mitigation measures:
 - a. Acoustically treated enclosures for housing the gas turbine and steam turbine and 116-foot barrier walls for the HRSG.
 - b. Combustion air inlet filter containing an evaporative cooler and a pulse jet cartridge system.
 - c. Three-sided 30-foot tall barriers around the main transformers.
 - d. Gas compressors and lube oil cooling system housed within an enclosed building.
 - e. Turbine exhaust stack silencer.
 - f. Cooling tower fan deck barrier walls.
 - g. Reduced cooling tower fan speeds.
 - h. Cooling tower splash attenuation.
 - i. Orienting the cooling tower open sides to face north and south, away from the residential areas to the east and west.
 - j. Enclosures housing the emergency generators.
3. The Applicant shall not exceed the sound levels in Tables 7A and 7B. No combination of sound emitting sources shall result in a "pure tone condition". A "pure tone" is defined as any octave band level which exceeds the levels in adjacent octave bands by 3dB or more.

Table 7A: Brockton Power Allowable Sound Impacts (Nighttime) ¹				
Receptor	Brockton Power dB(A)	Lowest L90 Background dB(A)	Ambient & Brockton Power dB(A)	Change dB(A)
Residential ST-1, End of Mobile Dr.	38	39	42	+3
Residential ST-2, Hayward Ave./Route 28 Int.	42	39	44	+5
Residential ST-3, Crown Place Condos	41	41	44	+3
Residential ST-4, 71 Appleby St.	40	36	41	+5
Residential ST-6, Brockton Housing Main St.	34	40	41	+1
Brockton Power Prop. Line, ST-5, Southwest	49	36	49	+13
Brockton Power Property Line, ST-5, North	58	36	58	+22
Brockton Power Property Line, ST-5, East	53	36	53	+17
Brockton Power Property Line, ST-5, South	63	36	63	+27

Table 7B: Brockton Power Allowable Sound Impacts (Day / Evening) ²				
Receptor	Brockton Power dB(A)	Lowest L90 Background dB(A)	Ambient & Brockton Power dB(A)	Change dB(A)
Residential ST-1, End of Mobile Dr.	38	41	43	+2
Residential ST-2, Hayward Ave./Route 28 Int.	42	56	56	0
Residential ST-3, Crown Place Condos	42	42	45	+3
Residential ST-4, 71 Appleby St.	41	36	42	+6
Residential ST-6, Brockton Housing Main St.	35	43	44	+1
Brockton Power Prop. Line, ST-5, Southwest	50	39	50	+11
Brockton Power Property Line, ST-5, North	59	36	59	+23
Brockton Power Property Line, ST-5, East	56	36	56	+20
Brockton Power Property Line, ST-5, South	63	36	63	+27

Tables 7A and 7B Notes:

1. Nighttime is between the hours of 10:00 pm and 7:00 am.
2. Includes operation of one (1) emergency engine generator set under load for readiness test purposes.

XII. SPECIAL CONDITIONS

1. The Applicant shall submit to the Department, in accordance with the provisions of Regulation 310 CMR 7.02(5)(c), plans and specifications for the exhaust stack, combustion turbine generator set, the SCR control system (including the ammonia handling and storage system), the CO catalyst control system, and each CEMS and COMS 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 subject unit.

2. Following initial commencement of commercial operation, the Applicant shall not allow the combustion turbine generator to operate at less than 60% power, excluding startups and shutdowns. Operation below 60% power is limited to no more than 0.47 hours duration for each startup, 0.40 hours duration for each shutdown, and 0.50 hours duration for unforeseen equipment malfunctions.
3. The Applicant shall ensure that the SCR control equipment for the gas turbine generator is operational whenever the turbine exhaust temperature attains 650 °F at the SCR. The above temperature point corresponds approximately to 60% combustion turbine power.
4. The Applicant shall maintain at the facility properly maintained, operable, portable ammonia detectors for use in the event of an ammonia spill, or an emergency situation involving ammonia at the facility.
5. The Applicant shall equip the ammonia storage tank with high & low level audible alarm monitors.
6. The Applicant shall file an application for an Operating Permit no later than 12 months after the commencement of operation pursuant to 310 CMR 7.00, Appendix C(4)(a)(5).
7. The Applicant shall ensure that the subject unit complies with all applicable requirements contained in 40 CFR Parts 72 and 75, 40 CFR Part 60, 310 CMR 7.32, and 310 CMR 7.70.
8. The Applicant shall submit Standard Operating and Maintenance Procedures (SOMP) to the Department for Approval no later than 30 days prior to commencement of commercial operation of the unit. Thereafter, the Applicant shall submit updated versions of the SOMP to the Department no later than 30 days prior to the occurrence of a significant change. The Department must approve of significant changes to the SOMP prior to the SOMP becoming effective. The updated SOMP shall supersede prior versions of the SOMP.
9. The Applicant shall examine and propose, as part of the final emissions test results report, a surrogate methodology or parametric monitoring for PM, PM₁₀, and PM_{2.5} based on initial compliance test results. PM, PM₁₀, and PM_{2.5} emissions will be continuously estimated by a Data Acquisition and Handling System(s) (DAHS) using emission factors (lb/MMBtu) derived from the initial compliance testing.
10. The Applicant shall maintain a residual chlorine concentration at no less than 1.0 mg/liter and not greater than 6.0 mg/liter in the circulating water contained in the cooling tower basin.
11. The Applicant shall equip each cooling tower cell with a drift eliminator designed (manufacturers design guarantee) to limit the maximum drift rate to 0.0005%.
12. The Applicant shall not exceed a circulating water flow rate of 92,500 gallons per hour in the cooling tower.
13. The Applicant shall not exceed total dissolved solids concentration of 3,235 parts per million by weight (ppmw) in the circulating water contained in the cooling tower basin.

14. Pursuant to 310 CMR 7.00 Appendix A(6), prior to commencing initial operation and at all times thereafter, the Applicant shall have under their ownership and control 96 tons per year of NOx offset ERCs.
15. In the event that the Applicant will rely on ERCs from the Massachusetts ERC Bank, pursuant to 310 CMR 7.00 Appendix A(3)(e), ERCs in the Massachusetts ERC Bank used as offsets pursuant to 310 CMR 7.00 Appendix A approval, must be obtained for the current year of operation plus four subsequent years of operation; and five years worth of ERCs in the Mass ERC Bank (480 tons) must be held at all times for use in each subsequent five year period for the approval to remain valid. The Applicant shall surrender 96 tons of ERCs in the Mass ERC Bank to MassDEP on or before January 1 of each year.
16. Final design information for the engine powered water pump (fire pump) shall be submitted 60 days prior to commencing construction of the fire pump. The final design information shall include, as a minimum, a revised Departmental Form BWP AQ CPA-1.
17. Operation of the emergency engine generator sets, in total, shall not exceed 400 hours per 12-month rolling period and any one generator set shall not operate in excess of 300 hours per 12-month rolling period. No more than one (1) emergency generator at a time shall be operated for readiness testing, and only between 7:00 am and 10:00 pm.
18. The emergency engine powered fire pump shall not operate in excess of 300 hours in any 12-month rolling period.
19. The Applicant shall comply with all applicable requirements of 40 CFR 60, Subpart III – Standards of Performance for Stationary Compression Ignition Internal Combustion Engines for the emergency engines approved herein.
20. The Applicant shall comply with all applicable requirements of 310 CMR 7.71 (Reporting of Greenhouse Gas Emissions).

XIII. MONITORING AND RECORDING REQUIREMENTS

1. The Applicant shall install, calibrate, test and operate a Data Acquisition and Handling System(s) (DAHS), CEMS, and COMS to measure and record the following from the CTG/HRSG stack:
 - a) Oxygen (O₂)
 - b) Oxides of Nitrogen (NO_x)
 - c) Carbon Monoxide (CO)
 - d) Ammonia (NH₃)
 - e) Opacity

2. In accordance with 40 CFR Part 60, Subpart KKKK, 60.4335(a), the Applicant shall install and operate a continuous monitoring system to monitor and record natural gas consumption. The system shall be accurate to within ± 5 percent and shall be approved by the Department.
3. The Applicant shall ensure continuous monitoring and compliance with PM, PM₁₀, and PM_{2.5} limits utilizing the parametric monitoring methodology developed during the initial compliance test.
4. The Applicant shall ensure that all emission monitors and recording equipment complies with Department approved performance and location specifications, and conforms with the US EPA monitoring specifications at 40 CFR Part 60.13 and 40 CFR Part 60 Appendices B and F, and all applicable portions of 40 CFR Parts 72 and 75 (Acid Rain Program), 310 CMR 7.32 (Massachusetts Clean Air Interstate Rule), and 310 CMR 7.70 (Massachusetts CO₂ Budget Trading Program).
5. The Applicant shall equip the CEMS and COMS with audible and visible alarms to activate whenever emissions exceed the limits established in Table 1A and Table 2 of this CONDITIONAL APPROVAL.
6. The Applicant shall operate each CEMS at all times except for periods of CEMS calibration checks, zero and span adjustments, preventive maintenance, and periods of unavoidable malfunction.
7. The Applicant shall obtain and record emission data from each CEMS for at least 75% of the emission unit's operating hours per day, except for periods of CEMS calibration checks, zero and span adjustments, and maintenance, for at least 75% of the emission unit operating hours per month, and for at least 95% of the emission unit's operating hours per quarter.
8. All periods of excess emissions, even if attributable to an emergency/malfunction, start up/shutdown or equipment cleaning, shall be quantified and included by the Applicant in the determination of monthly average and 12-month rolling period emission limits as stated in this CONDITIONAL APPROVAL. ("Excess Emissions" are defined as emissions, which are in excess of the emissions as stipulated in Tables 1A, 1B, 1C, 1D, 2, and 3). Exceedance of emission limits in Tables 1A, 1B, 1C, 1D, 2, and 3 due to an emergency or malfunction shall not be deemed a federally permitted release as that term is used in 42 U.S.C. Section 9601(10).
9. The Applicant shall use and maintain its CEMS and COMS as "direct-compliance" monitors to measure NO_x, CO, NH₃, O₂, and Opacity. "Direct-compliance" monitors generate data that legally documents the compliance status of a source.
10. Whenever the gas combustion turbine is operating below 60% load, the VOC emissions shall be considered as occurring at the rate determined in the initial stack test for start up conditions.

11. If the gas turbine is operating at 60% load or greater, and if CO emissions are below the CO emission limit at the given gas turbine operating conditions, the VOC emissions shall be considered as meeting the emission limits contained in this CONDITIONAL APPROVAL subject to correlation as contained in Proviso XIII.12 immediately below.
12. If the gas turbine is operating at 60% load or greater, and if CO emissions are above the CO emission limit at the given gas turbine operating conditions, the VOC emissions shall be considered as occurring at a rate determined by the equation: $VOC_{actual} = VOC_{LIMIT} \times (CO_{actual}/CO_{limit})$, pending the outcome of the initial compliance testing after which a VOC/CO correlation curve for each turbine will be developed and used for VOC compliance determination purposes.
13. The Applicant shall monitor and record the sulfur content in natural gas on a daily basis, or pursuant to any alternative fuel monitoring schedule issued for the facility, in accordance with 40 CFR Part 60, Subpart KKKK, 60.4370.
14. The Applicant shall install and operate continuous monitors fitted with alarms to record the temperature at the inlets to both the SCR and CO catalysts.
15. A quality control/quality assurance (QA/QC) program plan shall be developed for the long-term operation of the CEMS which conforms to 40 CFR Part 60, Appendix F, all applicable portions of 40 CFR Parts 72 and 75, 310 CMR 7.32 (Massachusetts Clean Air Interstate Rule), and 310 CMR 7.70 (Massachusetts CO₂ Budget Trading Program).

The QA/QC program plan must be submitted in writing, and reviewed and approved in writing by MassDEP at least 30 days prior to commencement of operation of the facility. Subsequent changes to the program plan will require submittal to MassDEP and MassDEP approval prior to implementing the changes.

16. Upon certification, the NH₃ CEM shall be used as a direct compliance level monitor. The NH₃ CEM shall comply with the CEM linearity check and Relative Accuracy Test Audit (RATA) frequencies and grace periods specified in 40 CFR 75 in conducting linearities and RATAs. The relative accuracy of the NH₃ CEM systems shall be within the greater of +/- 15% or +/- 0.75 ppmvd @15% O₂ of the reference method or +/- 0.001 lb/MMBtu or lb/hr = +/- 0.001 lb/MMBtu x WA_MMBtu/hr, where WA_MMBtu/hr = the weighted average MMBtu/hr determined by the DAHS over the hours during which the RATA was performed. The NH₃ CEM shall obtain valid data for at least 90% of the hours per calendar quarter during which the emission unit is operating.
17. In the event that a given NH₃ CEM RATA does not meet the relative accuracy specified in Proviso XIII.16. above, the following shall apply:
 - a. Brockton Power shall investigate the possible reasons for a RATA failure and whether repairs or adjustments are necessary for the NH₃ CEM or its sampling location/path. If such NH₃ CEM repairs or adjustments are necessary prior to a

- successful RATA, or if sampling location/path adjustments are required, then the NH₃ CEM data shall be considered invalid from the time of the failed RATA until a successful RATA occurs.
- b. If no repairs or adjustments to the NH₃ CEM are necessary between the time of a failed RATA and a successful RATA, and no sampling location/path adjustments are needed, then the NH₃ CEM data shall be considered valid during the period between the failed RATA and successful RATA.
18. In the event data from a NH₃ CEM is not available, corrective action shall be implemented as quickly as practical to bring the NH₃ CEM back to service.
19. At least 30 days prior to commencing construction of the NH₃ CEM systems, the NH₃ CEM monitoring plan shall be submitted to MassDEP for review and approval. The NH₃ CEM monitoring plan shall include:
- Source identification
 - Source description
 - Control technology description
 - Applicable regulations
 - Type of monitor
 - A monitoring system flow diagram
 - A description of the data handling system
 - A sample calculation demonstrating compliance with the emission limits using conversion factors from 40 CFR 60 or approved by MassDEP.
20. The NH₃ CEM system certification protocol shall be submitted to MassDEP at least 60 days prior to certification testing for the CEM.
21. The NH₃ CEM system certification report shall be submitted to MassDEP within 45 days from the completion of testing.
22. The Applicant 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 servicing the facility.
23. The Applicant shall continuously monitor and continuously record the residual chlorine concentration, of the circulating water in the cooling tower basin
24. The Applicant shall continuously monitor and continuously record the circulating water flow rate in the cooling tower.
25. The Applicant shall monitor and continuously record (in ppmw units) the total dissolved solids (TDS) in the circulating water in the cooling tower basin using a continuous conductivity meter.

26. Each emergency engine and the engine powered water pump (fire pump) shall be equipped with a non-turnback hour counter that shall be operated and maintained in good working order.
27. The Applicant shall continuously monitor and continuously record the MWh electrical output.

XIV. RECORD KEEPING REQUIREMENTS

1. A record keeping system shall be established and maintained on site by the Applicant. All such records shall be maintained up-to-date such that year-to-date information is readily available for MassDEP examination upon request and shall be kept on-site for a minimum of five (5) years. Record keeping shall, at a minimum, include:
 - a) Compliance records sufficient to demonstrate that emissions from the facility have not exceeded what is allowed by this **CONDITIONAL APPROVAL**. Such records may include, but are not limited to, fuel usage rates, emissions test results, monitoring equipment data and reports.
 - b) Maintenance: A record of routine maintenance activities performed on the 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.
 - c) Malfunctions: A record of all malfunctions of the emission control 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.
2. The Applicant shall maintain a record of the Certification of Analysis, verified by a qualified laboratory, of the sulfur and nitrogen content of each fuel oil delivery (for the emergency engines, and for the engine powered fire pump).
3. The Applicant shall maintain a record of the total hours of operation per month and total hours of operation for each rolling 12-month period for each emergency engine, and the engine powered fire pump.
4. The Applicant shall record the natural gas sulfur content daily, or at the frequency required pursuant to any alternative fuel monitoring schedule issued for the facility, in accordance with 40 CFR Part 60, Subpart KKKK.
5. The Applicant shall maintain on-site for five (5) years all records of output from all continuous monitors for flue gas emissions, fuel consumption, SCR and CO control system

inlet temperatures, and turbines inlet and ambient temperatures, and shall make these records available to the Department upon request.

6. The Applicant shall maintain a log to record problems, upsets or failures associated with the emission control systems, DAH, CEMS, COMS, or ammonia handling system.
7. The Applicant shall comply with all applicable record keeping requirements regarding the subject unit and facility contained in 40 CFR Parts 72 and 75, 40 CFR 60, 310 CMR 7.32 and 310 CMR 7.70.
8. The Applicant shall maintain monthly records to demonstrate the facility's compliance with NO_x, CO, CO₂, VOC, SO₂, PM, PM₁₀, PM_{2.5}, NH₃, individual HAPs, and total HAPs emission limits specified in Tables 1C, 1D, and 3 of this CONDITIONAL APPROVAL. At a minimum, the information shall include the fuel heating value, amount of fuel used during the month for each unit, MWh electrical output, and the actual emissions (i.e. actual fuel times emission rate) of NO_x, CO, CO₂, VOC, SO₂, PM, PM₁₀, PM_{2.5}, NH₃, individual HAPs, and total HAPs for the month for each unit as well as the prior 11 months, as well as adequate records to document facility emissions (An example of a format that is acceptable to the Department can be downloaded at <http://www.mass.gov/dep/air/approvals/aqforms.htm> in Microsoft Excel format.)
9. The Applicant shall maintain a record of the residual chlorine concentration in the cooling tower basin on a continuous basis.
10. The Applicant shall maintain a record of the circulating water conductivity in the cooling tower basin on a continuous basis.
11. The Applicant shall maintain a record of the circulating water flow rate in the cooling tower basin on an hourly basis.
12. The Applicant shall maintain a record of the weekly grab sample results of the circulating water's TDS content as well as the results of any additional grab samples of the circulating water contained in the cooling tower basin.
13. The Applicant shall maintain records concerning engine certifications as described in 310 CMR 7.26 (42)(e)1.
14. The Applicant shall maintain a record of the actual MWh electrical output for each month and for each rolling 12-month period.

XV. REPORTING REQUIREMENTS

1. All notifications and reporting required by this CONDITIONAL APPROVAL shall be made to the attention of:

Department of Environmental Protection
Bureau of Waste Prevention
20 Riverside Drive
Lakeville, Massachusetts 02347
ATTN: John Winkler, Permit Chief
Phone: (508) 946-2779
Fax: (508) 947-6557

2. The Applicant must notify MassDEP by telephone or fax as soon as possible, but in any case no later than three (3) business days after the occurrence of any upsets or malfunctions to the facility's equipment, air pollution control equipment, or monitoring equipment which result in an excess emission to the air and/or a condition of air pollution.
3. The Applicant shall notify MassDEP immediately by telephone or fax and within three (3) working days, in writing, of any upset or malfunction to the ammonia handling or delivery systems that resulted in a release or threat of release of ammonia to the ambient air at the facility. In addition, the Applicant must comply with all notification procedures required under M.G.L. c. 21 E for any release or threat of release of ammonia.
4. The Applicant shall submit a report to MassDEP by the 30th of April, July, October, and January for the previous calendar quarter, and shall contain at least the following information:
 - a) The Brockton Power COMS and CEMS excess emission data, in a format acceptable to MassDEP.
 - b) For each period of excess emissions or excursions from allowable operating conditions for the facility, the Applicant shall list the duration, cause, the response taken, and the amount of excess emissions. Excess emissions shall include but not limited to periods of startup, shutdown, malfunction, emergency, equipment cleaning, and upsets or failures associated with the emission control system or CEMS. ("**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 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 the CTG/HRSG.
5. The Applicant shall ensure that the subject unit and facility complies with all applicable reporting requirements contained in 40 CFR Parts 72 and 75, 40 CFR 60, 310 CMR 7.32 and 310 CMR 7.70.
 6. The Applicant shall submit, to MassDEP, an annual NH₃ CEM Emission Report by January 30th that defines highest hourly average NH₃ emissions (ppmvd corrected to 15% O₂) per calendar day and the average calendar day NH₃ emissions (ppmvd corrected to 15% O₂).
 7. In accordance with 310 CMR 7.12, the Applicant shall ensure that the facility registers on a form obtained from MassDEP such information as MassDEP may specify including:
 - a) The nature and amounts of emissions from each unit at the facility.
 - b) Information, which may be needed to determine the nature and amounts of emissions from the facility.
 - c) Any other information pertaining to the facility, which MassDEP requires.
 - d) Information required by 310 CMR 7.12 shall be submitted annually.
 8. The Applicant shall notify this Office, in writing, attention Permit Chief, Bureau of Waste Prevention, when the installation of the equipment approved herein is complete and deemed available for commercial dispatch by ISO-NE, within 14 days thereof.
 9. The Applicant shall, prior to commencing initial operation of the facility, submit documentation to MassDEP that documents ownership and control of 96 tons per year of NO_x ERCs.
 10. In the event that the Applicant will rely on ERCs in the Mass ERC Bank, the Applicant shall submit a written report to MassDEP on or before January 15th of each year after the initial operation of the facility that documents that the Applicant owns and controls 480 tons of NO_x ERCs in the Mass ERC Bank (96 tons per year x 5 years), less any ERCs under the ownership and control of the Applicant.
 11. The Applicant shall submit, to MassDEP, a certification for each engine in accordance with 310 CMR 7.26 (42)(e)1. within 60 days of commencement of operation.

XVI. TESTING REQUIREMENTS

1. The Applicant shall ensure that the facility is constructed to accommodate the emissions (compliance) testing requirements contained herein. All emissions testing shall be conducted in accordance with MassDEP's "Guidelines for Source Emissions Testing" and in accordance with the Environmental Protection Agency reference test methods as specified in 40 CFR Part 60, Appendix A, 40 CFR Part 60 Subpart KKKK, 40 CFR Parts 72 and 75, or by another method which has been approved in writing by MassDEP.
2. The Applicant shall conduct compliance testing within 180 days after initial start up of the combustion turbine to demonstrate compliance. MassDEP personnel shall witness compliance testing at a mutually agreeable time and date.
3. The Applicant must obtain written MassDEP approval of an emissions test protocol. The protocol shall describe the test methods for opacity, NO_x, CO, VOC, PM, PM₁₀, and PM_{2.5}, and NH₃ compliance testing and procedures for NO_x, CO, and VOC optimization/minimization, a detailed description of sampling port locations, sampling equipment, sampling and analytical procedures, a parametric monitoring strategy to ensure continuous monitoring and compliance with PM, PM₁₀, and PM_{2.5} emission limits utilizing the methodology developed and operating conditions for any such emissions testing. The protocol must be submitted to MassDEP at least 90 days prior to commencement of testing.
4. The Applicant shall ensure that a final emissions test results report is submitted to MassDEP within 60 days of completion of the emissions testing program.
5. The Applicant shall conduct initial compliance tests to demonstrate compliance with the emission limits (lb/hr, lb/MMBtu, ppmvd as applicable, and opacity) of the CTG/HRSG as specified in Section IV, Table 1A for the pollutants listed below. Testing for these pollutants for the CTG/HRSG as specified below shall be conducted at four (4) representative steady state base load conditions: 60 percent, 75 percent, 100 percent without duct firing (i.e., unfired), and 100 percent with duct firing.

Nitrogen Oxides (NO_x)
Carbon Monoxide (CO)
Volatile Organic Compounds (VOC)
(for both duct-fired and non duct-fired conditions)
Particulate Matter (PM, PM₁₀, PM_{2.5})
Ammonia (NH₃)
Opacity

6. Emissions testing for VOC, PM, PM₁₀, and PM_{2.5} shall include testing during start-up and shutdown so that emission rates for these pollutants can be inferred at future transitional loads by correlation with measured CO levels.
7. In accordance with 310 CMR 7.04(4)(a), the Applicant shall have the duct burner and auxiliary burner inspected and maintained in accordance with the manufacturer's

recommendations and tested for efficient operation at least once in each calendar year. The results of said inspection, maintenance and testing and the date upon which it was performed shall be recorded and posted conspicuously on or near the equipment.

8. In accordance with 310 CMR 7.13, the MassDEP may require additional emission testing of the facility at any time to ascertain compliance with MassDEP's Regulations or any proviso(s) contained in this CONDITIONAL APPROVAL.
9. The Applicant shall comply with all applicable testing requirements contained in 40 CFR Parts 72 and 75, 40 CFR 60, 310 CMR 7.32, and 310 CMR 7.70.
10. The Applicant shall take a grab sample of the cooling tower circulating water on a weekly basis and analyze within 24 hours to determine the TDS content of the cooling tower circulating water. If the conductivity measurement is outside of the normal operating range, as determined by the Applicant, a grab sample of the cooling tower circulating water shall be taken and analyzed within 8 hours to verify the accuracy of the conductivity measurement and the TDS content of the circulating water.
11. Upon request of the facility, MassDEP may change the frequency of the grab sample monitoring to a monthly basis once enough data has been established to verify compliance. MassDEP reserves the right to revert back to the sampling and analysis frequency as specified in Proviso XVI.10. above.

XVII. GENERAL REQUIREMENTS

1. The Applicant shall properly train all personnel to operate the unit and emission control equipment in accordance with vendor specifications. All persons responsible for the operation of the ammonia handling and SCR control systems shall sign a statement affirming that they have read and understand the approved standard operating and standard maintenance procedures. The Applicant shall give refresher training to Brockton Power personnel at least once annually.
2. All requirements of this CONDITIONAL APPROVAL, which apply to the Applicant, shall apply to all subsequent owners and/or operators of the facility.
3. The Applicant shall maintain the standard operating and maintenance procedures for the subject ammonia handling systems in a convenient location (e.g., control room/technical library) and make them readily available to all employees.
4. The Applicant shall comply with all provisions of 40 CFR Parts 72 and 75, 40 CFR 60, and 310 CMR 6.00-8.00 that are applicable.
5. Within 60 days of start up of the facility, the roadways servicing said facility shall be a paved or covered with crushed rock and maintained free of deposits that could result in excessive dust emissions to the ambient air.

6. SUSPENSION – This CONDITIONAL APPROVAL may be suspended, modified, or revoked by MassDEP if, at any time, MassDEP determines that Brockton Power is violating any condition or part of the Approval.
7. OTHER REGULATIONS – This CONDITIONAL 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. Nor does this CONDITIONAL APPROVAL imply compliance with any other applicable federal, state or local regulations now or in the future.
8. 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 Regulations 310 CMR 7.01 and 7.09.
9. ASBESTOS - Should asbestos remediation/removal be required as a result of this CONDITIONAL APPROVAL, such asbestos remediation/removal shall be done in accordance with Regulation 310 CMR 7.15 and 310 CMR 4.00.
10. MODIFICATIONS - Any proposed increase in emissions above the limits contained in this CONDITIONAL APPROVAL must first be approved in writing by MassDEP pursuant to 310 CMR 7.02. In addition, any emissions increase may subject the facility to additional regulatory requirements.
11. 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 by MassDEP.
12. The proposed facility shall be constructed and operated in strict accordance with the CONDITIONAL APPROVAL herein. Should there be any differences between the Applicant's Major Comprehensive Plan Application (Application No. 4B08015, Transmittal No. W207973) and this CONDITIONAL APPROVAL, this CONDITIONAL APPROVAL shall govern.
13. A copy of this Approval letter shall be affixed at or adjacent to the subject equipment. The Standard Operating and Maintenance Procedures for the subject CTG/HRSG air pollution control equipment shall be kept and maintained in the facility's office.
14. The Applicant shall allow MassDEP personnel access to the subject facility site, buildings, and all pertinent records at all times for the purpose of making inspections, surveys, collecting samples, obtaining data, and reviewing records.
15. MassDEP may revoke this CONDITIONAL APPROVAL if the construction work has not begun within two years from the date of issuance of this CONDITIONAL APPROVAL, or if the construction work is suspended for one year or more.

XVIII. CONSTRUCTION REQUIREMENTS

1. During the construction phase, the Applicant shall ensure that facility personnel take all reasonable precautions (noted below) to minimize air pollution episodes (dust, odor, and noise):
 - a. Personnel shall exercise care in operating any noise generating equipment (including mobile power equipment, power tools, etc.) at all times to minimize noise.
 - b. Construction vehicles transporting loose aggregate to or from the facility shall be covered.
 - c. During construction open storage areas, piles of soil, loose aggregate, etc. shall be covered or watered down as necessary to minimize dust emissions.
 - d. Any spillage of loose aggregate and dirt deposits on any public roadway, leading to or from the facility shall be removed by the next business day or sooner, if necessary. (A mobile mechanical sweeper equipped with a water spray is an acceptable method to minimize dust emissions).
 - e. 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.
2. All contractors associated with the construction of the Project shall comply with the MassDEP's Clean Air Construction Initiative. The main aspects of this program include:
 - a. All contractors shall use ULSD oil in diesel-powered non-road vehicles.
 - b. All non-road engines used on the construction site shall meet the applicable non-road engine standard limitations per 40 CFR 89.112.
 - c. All contractors shall utilize the best available technology for reducing the emission of particulate matter and nitrogen oxides for diesel-powered non-road vehicles. The best available technology for reducing the emission of pollutants is that which has been verified by the US EPA or the California Air Resources Board for use in non-road vehicles or on-road vehicles where such technology may also be used in non-road vehicles.
 - d. All contractors shall turn off diesel combustion engines on construction equipment not in active use and on dump trucks that are idling while waiting to load or unload material for five minutes or more.
 - e. All contractors shall establish a staging zone for trucks that are waiting to load or unload material at the work zone in a location where diesel emissions from the trucks will not be noticeable to the public, and;
 - f. All contractors shall locate construction equipment away from sensitive receptors such as fresh air intakes to buildings, air conditioners, and windows.

XIX. SECTION 61 FINDINGS

The Applicant's Environmental Impact Report (EIR) has been carefully considered prior to action on this air plan application approval request. MassDEP, in issuing this CONDITIONAL APPROVAL, requires the Applicant to use all feasible means and measures to avoid or minimize adverse environmental impacts. Measures MassDEP deems necessary to mitigate or prevent harm to the environment are included in the conditions on this CONDITIONAL APPROVAL. MassDEP has made its decision under applicable law based on a balancing, where appropriate, of environmental and socioeconomic objectives, as mandated by 301 CMR 11.01(4).

Pursuant to M.G.L. Chapter 30 Section 61 of the Massachusetts Environmental Policy Act, (MEPA), 301 CMR 11.12 of the MEPA Regulations, and the Secretary's Certificate of finding on the Final EIR, dated March 28, 2008 (EEA #14017), the MassDEP's Section 61 Findings on the Brockton Power project determining that all feasible measures have been taken to avoid, minimize, and mitigate impacts to the environment are presented here as follows.

Introduction

This Section 61 Finding has been prepared in compliance with the requirements of Massachusetts General Laws Chapter 30, Section 61. Chapter 30, Section 61 requires state agencies and authorities to review, evaluate and determine impacts on the natural environment of all projects or activities conducted or permitted by them, and to undertake all feasible means and measures to minimize and prevent damage to the environment. In making a determination, agencies are required to issue a "Section 61 Finding" describing project impacts, and certifying that all feasible mitigation measures have been taken.

The Section 61 Finding is associated with the construction of the Brockton Power, a 350 MW quick-start, combined-cycle, generating unit to be located at Oak Hill Way, Brockton, Massachusetts.

History of MEPA Review

Brockton Power Company LLC submitted an Environmental Notification Form (ENF) for the project to the MEPA Unit on April 30, 2007. The project was noticed in the Environmental Monitor on May 9, 2007. The Secretary of Energy and Environmental Affairs issued a Certificate on the ENF on June 8, 2007. The Secretary determined that the project required a Draft Environmental Impact Report (DEIR) and provided the scope of the DEIR.

The DEIR was submitted to the Secretary on September 17, 2007. It was noticed in the Environmental Monitor on September 25, 2007. The Secretary of Energy and Environmental Affairs issued a Certificate on the DEIR on November 1, 2007.

The Final Environmental Impact Report (FEIR) was submitted to the Secretary on February 15,

2008. It was noticed in the Environmental Monitor on February 20, 2008. On March 28, 2008, the Secretary of Energy and Environmental Affairs issued a Certificate stating that the FEIR adequately and properly complies with the Massachusetts Environmental Policy Act and with its implementing regulations.

A List of State Permits

The facility requires a number of state permits that trigger review under the Massachusetts Environmental Policy Act. The issuing authorities must comply with MGL Chapter 30, Section 61 to ensure that the proponent has described the impacts and proposed mitigation to minimize and prevent damage to the environment. A list of the state permits required by the project was provided in the FEIR.

Project Mitigation Measures

In this Section 61 Findings, individual mitigation measures that will be undertaken by the Applicant both during construction and the operational life of the Project are discussed. These measures are anticipated to reduce or eliminate many of the potential environmental impacts of the Project.

Table 8 summarizes the potential environmental impacts associated with the project and the mitigation measures.

Overview of Project Impacts

Potential impacts from the Brockton Power project are defined as either construction or post-construction and grouped by issue areas. The issue areas are:

- Air Quality
- Noise
- Wetlands
- Water Supply
- Wastewater
- Stormwater
- Construction and Traffic
- Visual
- Hazardous Materials and Waste Management
- Historic and Archaeological Resources
- Global Warming Solutions Act

Project impacts are summarized by issue area below. The potential environmental effects of each impact are described, followed by the proposed mitigation measures that will offset potential impacts.

TABLE 8 - Summary of Impacts and Mitigation Measures

Subject Matter	Impact	Mitigation
Air Quality	<p>The Project will emit the following pollutants (in tons per year): Nitrogen Oxides (NOx): 76.1 Carbon Monoxide (CO): 98.5 Volatile Organic Compounds (VOC): 19.2 Particulate Matter (PM): 51.8 Particulate Matter (PM₁₀): 51.8 Particulate Matter (PM_{2.5}): 49.1 Sulfur Dioxide (SO₂): 5.3 Carbon Dioxide (CO₂): 1,094,900</p> <p>Maximum ground-level concentrations of criteria pollutants will be well below U.S. Environmental Protection Agency (US EPA) and Massachusetts Significant Impact Levels (SILs).</p>	<p>Project emissions will be controlled to BACT/LAER levels.</p> <p>The Project proposes to use SCR to minimize NOx emissions during gas firing. Combustion controls and an Oxidation Catalyst will be used to minimize CO and VOC emissions. SO₂, PM, PM₁₀ and PM_{2.5} emissions will be controlled via the use of the cleanest fossil fuel, natural gas.</p> <p>The project proposed to maximize the CTG efficiency for a mid-merit plant and to utilize natural gas as the sole fuel of use to minimize CO₂ emissions.</p> <p>Brockton Power will obtain 96 tons per year of Emission Reduction Credits at the rate of 1.26:1 as well as the required RGGI emission offsets.</p> <p>Establishment of a project mitigation fund of \$250,000 available for a five year period, commencing on the date of the start of construction, to provide support for emission reduction projects within the City of Brockton as the City considers appropriate.</p>
Noise	<p>The expected nighttime (10:00 pm to 7:00 am) sound levels for Brockton Power at full load, incorporating all recommended mitigation, are 34 to 42 A-weighted decibels (dB(A)) at the closest residences to the site. Combined with existing ambient sound levels, the increases over background at the nearest residences range from 1 to 5 dBA during quietest nighttime conditions.</p> <p>The expected day and evening (7:00 am to 10:00 pm) sound levels for Brockton Power at full load (no emergency generator set in operation), incorporating all recommended mitigation, are 49 to 63dB(A) at the Brockton Power's property lines. Combined with existing ambient sound levels, the increases over background at the property lines range from 10 to 27 dB(A) during day and evening times. These impacts are on the property lines of industrially zoned land</p>	<p>The gas turbine, steam turbine, and other equipment with the exception of the HRSG and the transformers will be housed within weatherproof, acoustical buildings. The HRSG will be surrounded by 116-foot acoustical sound walls on all sides. The combustion air will be drawn in through an air inlet, which will house an evaporative cooler and a pulse cartridge cleaner system, providing sound mitigation. The gas turbine and steam turbine enclosures will include a ventilation system and an air handling system. This ventilation system will include intake and exhaust silencing. The AC generators, cooling tower pumps and gas compressors will be housed within a weatherproof, acoustical enclosure.</p> <p>The Project site layout has been oriented to direct its primary noise sources away from the closest residential receptors. The sound from the air inlet is directed to the southeast, towards the cooling towers, residuals landfill,</p>

TABLE 8 - Summary of Impacts and Mitigation Measures

Subject Matter	Impact	Mitigation
	<p>in a 70-acre industrial park. This land is not normally occupied during the middle of the night. There are no residences adjacent to the property line.</p> <p>The expected day and evening (7:00 am to 10:00 pm) sound levels for Brockton Power at full load, with one (1) emergency generator set in operation, incorporating all recommended mitigation, are 50 to 63dB(A) at the Brockton Power's property lines. Combined with existing ambient sound levels, the increases over background at the property lines range from 11 to 27 dB(A) during day and evening times. These impacts are on the property lines of industrially zoned land in a 70-acre industrial park. This land is not normally occupied during the middle of the night. There are no residences adjacent to the property line.</p>	<p>and the AWRF.</p> <p>The emergency engine generator sets and engine powered water pump (fire pump) will be equipped with an exhaust silencer.</p> <p>The readiness testing of the emergency generator sets will be limited to only one (1) set at a time, for approximately 30 minutes per week, between 7:00 am to 10:00 pm).</p>
Wetlands	<p>1,800 s.f. Bordering Vegetated Wetland (BVW) alteration (canopy clearing from transmission line work),</p> <p>23 s.f. BVW alteration (water line crossing work if HDD is not used),</p> <p>1,100 s.f. Riverfront Area alteration (canopy clearing from transmission line work),</p> <p>30 s.f./4 c.y. Bordering Land Subject to Flooding (BLSF) alteration (transmission line pole),</p> <p>9,000 s.f. (non jurisdictional Isolated Vegetative Wetland [IVW]) (transmission line switchyard work).</p>	<p>Compliance with applicable performance standards of MA Wetland Protection Act and Stormwater Management Policy.</p> <p>Altered BVW, Riverfront Area, and IVW resource areas will be restored with native shrubs and seed mixes and monitored by a qualified wetland scientist for at least 2 growing seasons.</p> <p>Restoration of 11,400 s.f. of Bordering Land Subject to Flooding (BLSF) altered by others on Project Site.</p> <p>Sedimentation and erosion control measures. Construction Storm Water Pollution Program Plan (see Stormwater) will protect against construction impacts to water quality.</p>
Water Supply	<p>Use of an annual average of 1.9 MGD of water from the Brockton AWRF or from the City of Brockton municipal system for cooling purposes.</p> <p>Use of an average of ~0.2 MGD of water from the City of Brockton for process and sanitary uses. This water will come from the City of Brockton municipal system.</p>	<p>Due to tightening of the City of Brockton's municipal system and the water contract from the Aquaria facility, Brockton Power has adequate water supply if Brockton AWRF effluent is not sold. Use surplus effluent discharge from AWRF (filtered and purified prior to use), or City of Brockton's contracted supply with Aquaria.</p> <p>Using its 275,000-gallon demineralized water</p>

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Subject Matter	Impact	Mitigation
		<p>tank, Brockton Power can limit its withdrawal from the City of Brockton's water system during high demand periods.</p> <p>Recycling the HRSG blowdown, evaporative cooler blowdown, and reverse osmosis reject flow to the cooling tower maximizes conservation.</p>
Wastewater	<p>Depending on the water source for cooling makeup, industrial discharge of approximately 140,000 gpd, consisting primarily of TDS from the water supply. Minimal amounts of sanitary wastewater.</p>	<p>Brockton Power will only be returning concentrated TDS in the water. The Applicant will be filtering and purifying the AWRP prior to use.</p> <p>Portable demineralizers for boiler makeup water will be trucked off-site for resin regeneration at a licensed dedicated facility.</p> <p>Diversion of treated water to Brockton Power will allow the AWRP to maintain more of its designed and authorized effluent discharge capacity for future growth.</p>
Stormwater	<p>Runoff from the Project site will be collected by a stormwater system.</p>	<p>Design will meet MassDEP Stormwater Management Policy and Wetlands Protection Act regulations and will maximize on-site recharge to groundwater to the extent practical. The system will be in place for construction and operation.</p>
Construction and Traffic	<p>Up to 300 construction personnel on site during peak times; up to 250 vehicles per day during peak construction period.</p> <p>Normal operational impacts negligible – few operations personnel.</p>	<p>Brockton Power and the EPC Contractor will be responsible for traffic management; dust control, noise control, and erosion/sedimentation control.</p> <p>The EPC Contractor will comply with Clean Air Construction Initiative.</p> <p>Restrict all trucks/construction vehicles to designated truck route with the exception of workers living in the local area. Schedule deliveries at off-peak hours. Identify construction lay-down areas.</p> <p>Construction workforce will arrive in advance of morning commute and leave prior to the evening commute.</p>

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Subject Matter	Impact	Mitigation
Visual	<p>The plant will be visible from certain areas within the surrounding community. Most of the views are from public locations such as roadways and shopping areas. At most of these locations, the stack top will be viewed deep within a cluster of current commercial buildings, poles and signs that make up the existing skyline. There are a few residential locations that will be visually affected by the facility. Even then, the view is consistent with the existing industrial land use in the Oak Hill Industrial Area.</p>	<p>The Project will use tree and shrub plantings around the Project site to minimize visual impacts on the Project site. Tree plantings along Oak Hill Way will provide an adequate visual buffer of the facility from this location.</p> <p>Proposed stack height less than the GEP formula height reduces visual impact.</p> <p>Visual massing of the facility is reduced by lower HRSG sound walls and elimination of oil tank.</p> <p>For locations outside of the immediate project site area, existing vegetation already provides visual screening for residential and commercial areas in the vicinity.</p> <p>The Project will utilize unobtrusive colors and materials in stack construction to minimize visual impact. The proposed project will not have any visible windows, reflective metal, or other potential glare-inducing on the building or stack.</p>
Hazardous Materials and Waste Management	<p>The Project will be a Very Small Quantity Generator of Waste Oil.</p> <p>15,000 gallon tank for on-site storage of aqueous ammonia</p> <p>Maintenance chemicals stored on site</p>	<p>Aqueous ammonia will be stored in fully diked tank with appropriate safety controls and emergency response plans. The tank will be located within ventilated building minimizing impacts in the event of a tank failure.</p> <p>Properly designated storage areas for maintenance chemicals.</p>
Historic and Archaeological Resources	<p>No identified historic or archaeological properties at the site.</p>	<p>No mitigation necessary.</p>
Global Warming Solutions Act	<p>The Project's CO₂ emissions will be approximately 1 million tons per year.</p>	<p>The Project will use only natural gas, the lowest GHG emitting fossil fuel. The Project will use Gas Turbine Combined Cycle (GTCC) technology, the power generating with the lowest heat rates (i.e., requiring the least amount of energy input to produce a unit of power). GTCC technology, with wet mechanical cooling, produces the lowest BACT CO₂ emission rate 842 lbs/MWh, on an annual average basis. The Project will obtain all GHG offsets required through the RGGI program.</p>

XX. LIST OF PERTINENT INFORMATION

Name of Project: Brockton Power LLC
Location: Oak Hill Way, Brockton, Massachusetts
Submitted By: Epsilon Associates, Inc.
Attested To By: Stephen H. Slocomb, P.E. Number 41355
Major Comprehensive Plan
Application (MCPA) Received: April 25, 2008
Major Comprehensive Plan
Application (MCPA) Update Received: March 25, 2010
MCPA Revision Dated: April 29, 2010

XXI. APPEAL PROCESS

This 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 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 the 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, Massachusetts 02211

The 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.

Please be advised that this Approval does not negate the responsibility of the Permittee to comply with this or any other applicable federal, state, or local regulations now or in the future. Nor does this Approval imply compliance with any other applicable federal, state, or local regulation now or in the future.