Commonwealth of Massachusetts
Executive Office of Energy & Environmental Affairs

Department of Environmental Protection

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

DEVAL L. PATRICK
Governor

RICHARD K. SULLIVAN JR.
Secretary

KENNETH L. KIMMELL
Commissioner

Mr. Scott G. Silverstein
Footprint Power Salem Harbor
Development LP
1140 Route 22 East, Suite 303
Bridgewater, NJ 08807

RE: **SALEM**
Transmittal No.: X254064
Application No.: NE-12-022
Class: OP119
FMF No. 546374
AIR QUALITY PLAN APPROVAL

Issued: January 30, 2014

Dear Mr. Silverstein:

The Massachusetts Department of Environmental Protection (MassDEP), Bureau of Waste Prevention, has reviewed your Major Comprehensive Plan Application (Application) listed above, dated December 21, 2012. The Application was supplemented with amendments thereto dated April 12, 2013, June 10, 2013, June 18, 2013, August 6, 2013, August 20, 2013, September 4, 2013, September 9, 2013, November 1, 2013, December 11, 2013, January 10, 2014, January 16, 2014, January 17, 2014 and January 21, 2014. This Application concerns the proposed construction and operation of a 630 megawatt (MW) nominal combined cycle electric generating facility (the Facility) to be located at 24 Fort Avenue in Salem, Massachusetts, the location of your existing power generating facility (Salem Harbor Station). With duct firing under summer conditions, the proposed Facility will be capable of generating an additional 62 MW, for a total of 692 MW. The Application bears the seal and signature of George S. Lipka, P.E., Massachusetts Registered Professional Engineer number 29704.

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

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

This **Plan Approval** combines and includes: the 310 CMR 7.02 Comprehensive Plan Approval and 310 CMR 7.00: Appendix A Emission Offsets and Nonattainment Review Approval. This **Plan Approval** allows for construction and operation of the proposed Facility, and provides information on the proposed Facility description, emission control systems, emissions limits, Continuous Emissions Monitoring Systems (CEMS), Continuous Opacity Monitoring Systems (COMS), monitoring/testing, record keeping, and reporting requirements.

Effective April 11, 2011, a Delegation Agreement between MassDEP and EPA Region 1 was finalized for MassDEP to resume administration of the Prevention of Significant Deterioration (PSD) Program in Massachusetts pursuant to 40 CFR 52.21 and the terms of the Delegation Agreement. Therefore, MassDEP is concurrently issuing a separate **PSD Permit** for the above described Facility.

Pursuant to 310 CMR 7.02(3)(j)6., this **Plan Approval** includes a determination that the emissions limits represent the most stringent emission limitation as specified in 310 CMR 7.02(8). Such limitations include Lowest Achievable Emission Rate (LAER) for nitrogen oxides ($NO_{x)}$ (the pollutant subject to the requirements of Emission Offsets and Non-attainment Review in 310 CMR 7.00: Appendix A), and Best Available Control Technology (BACT) for all air contaminants addressed in the **Plan Approval**. The **Fact Sheet** for the **PSD Permit**, attached to this **Plan Approval**, addresses MassDEP's determination of BACT for emissions of regulated New Source Review (NSR) pollutants subject to PSD review, a subset of the air contaminants subject to BACT in this **Plan Approval**, along with air quality impacts and other special considerations of PSD review.

MassDEP verified and concurs with the BACT analyses submitted by the Applicant for all air contaminants emitted by this proposed project including: nitrogen oxides (NO_x), volatile organic compounds (VOC), carbon monoxide (CO), particulate matter ($PM/PM_{10}/PM_{2.5}$), sulfur dioxide (SO_2), sulfuric acid mist (H_2SO_4), greenhouse gases (GHG) and ammonia (NH_3). The BACT determinations contained in this **Plan Approval** are lower than or equal to BACT emission limits established and published in EPA's RACT/BACT/LAER Clearinghouse (RBLC) and other BACT determinations made in other states including California and New Jersey. MassDEP therefore has determined that the emission limits contained in this **Plan Approval** are BACT for this Facility.

MassDEP also has verified and concluded that the Lowest Achievable Emission Rate (LAER) analysis for NO_x, included in the Application was the most stringent NO_x emission rate demonstrated in practice for the all emission units included in the Application.

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

1. DESCRIPTION OF FACILITY AND APPLICATION

Footprint Power Salem Harbor Development LP (the Permittee) proposes to construct and operate a nominal 630 Megawatt (MW) natural gas fired, quick start (capable of producing

300 MW within 10 minutes of startup) combined cycle electric generating facility (the proposed Facility or Facility) at Salem Harbor Station. With duct firing under summer conditions, the Facility will be capable of generating an additional 62 MW, for a total of 692 MW. Construction of the Facility is scheduled to begin in June 2014 and continue for a period of approximately 23 months. The Facility is expected to commence commercial operation in June 2016. The existing Salem Harbor Station is comprised of four (4) steam electric generating units (Boiler Units 1, 2, 3, and 4). Boiler Units 1 and 2, 84 MW and 81 MW, respectively, and both primarily coal fired, were removed from service on or prior to December 31, 2011. Boiler Unit 3, a 150 MW primarily coal-fired unit, and Boiler Unit 4, a 440 MW primarily oil fired unit, are required to cease operation, permanently shutdown, and be rendered inoperable no later than June 1, 2014 (see Final Amended Emission Control Plan Approval, Application No. NE-12-003, Transmittal No. X241756).

The Facility will be constructed on approximately 20 acres in the northwestern portion of the approximately 65 acre Salem Harbor Station site. The Salem Harbor Station site is bordered by Fort Avenue and the South Essex Sewerage District wastewater treatment plant to the north; Salem Harbor and Cat Cove to the east and northeast; the Blaney Street Ferry terminal and several mixed-use buildings to the southeast; and by Derby Street and Fort Avenue to the west. Residential neighborhoods and the Bentley Elementary School are located to the west across Fort Avenue and Derby Street. Terrain elevations rise gradually to the north, west, and southwest, with elevations rising 200 feet or more within approximately 10 kilometers.

The Facility will be configured as two emission units (EU1 and EU2) each capable of operating independently in order to respond to Independent System Operator – New England (ISO – NE) dispatch requirements. EU1 and EU2 each will include one General Electric (GE) Model 107F Series 5 combustion turbine generator (CTG), one duct burner, one Heat Recovery Steam Generator (HRSG), and one steam turbine generator (STG). EU1 and EU2 each will have a nominal generating capacity of approximately 315 MW (346 MW with duct firing). EU1 and EU2 each shall burn only natural gas with a sulfur content that does not exceed 0.5 grains per 100 standard cubic feet (pipeline natural gas) in the CTG and duct burner. Based on an ambient temperature of 90 degrees Fahrenheit, each CTG/duct burner pair shall be restricted to a maximum design firing rate of 2,449 million British thermal units per hour (MMBtu/hr), higher heating value (HHV), in combination. EU1 and EU2 shall each be restricted to a maximum fuel heat input of 18,888,480 MMBtu per twelve month rolling period.

Other auxiliary equipment at the Facility will include an 80 MMBtu/hr, HHV auxiliary boiler (EU3), a 750 Kilowatt (KW) electrical output emergency engine/generator set (EU4), a 371 brake horsepower (bhp) fire pump engine (EU5), an aqueous ammonia (NH_3) storage tank, an auxiliary cooling tower, a demineralized water tank, a fire protection service water tank, and generator step-up transformers.

EU3 shall be equipped with Ultra Low NO_x burners and an oxidation catalyst for carbon monoxide (CO) and volatile organic compounds (VOC) control. EU3 shall burn pipeline natural gas only. EU3 shall be restricted to a maximum fuel heat input of 525,600 MMBtu per twelve month rolling period and will primarily be used to provide steam needed for plant start-up if the combustion turbines are off-line, but also to provide process steam for other plant equipment.

EU4 and EU5 shall each burn ultra low sulfur diesel (ULSD) fuel oi,l with a sulfur content that does not exceed 15 parts per million, only and will be required for backup electrical power if no power is available internally or from the utility grid and for fire protection service, respectively. EU4 and EU5 shall each be used for emergency purposes only and each shall be restricted to no more than 300 hours of operation per twelve month rolling period.

During normal operating conditions, EU1 and EU2 shall each operate in combined cycle mode only. The first stage in combined cycle mode involves combustion of natural gas in the combustion turbine with Dry Low Oxides of Nitrogen (NO_x) Combustors to produce thermal energy that is converted into mechanical energy to drive the turbine compressor section as well as the generator that produces electrical energy. Under periods of operation when more electrical power is needed, evaporative coolers located at the inlet air assembly of each turbine are employed to evaporate a water mist into the turbine inlet air in order to cool the inlet air to the combustion turbine. Cooler inlet air is denser, and with higher mass flow of inlet air, the turbine can fire more natural gas and therefore produce more electrical energy than it otherwise would produce if the evaporative coolers were not in operation.

In the second stage of combined cycle mode, the hot exhaust gases, with temperatures in excess of 1000 degrees Fahrenheit exiting the combustion turbine, pass through a three pressure level HRSG, which uses the heat from these gases to produce steam. Each HRSG houses an oxidation catalyst for CO and VOC control, followed by an NH_3 injection grid and selective catalytic reduction (SCR) catalyst for control of NO_x. The steam produced by the HRSG is then directed to the STG where heat energy is extracted and converted to additional electrical energy. The exhaust gases exiting the combustion turbine also contain sufficient oxygen to allow the placement of a supplemental firing burner in the duct (duct burner) allowing the production of additional steam, which increases electrical energy production in the STG. An air-cooled condenser (ACC) is used to condense the steam exiting the steam turbine and return the water produced to the HRSG through a system of pumps and control mechanisms. Efficiency is enhanced in this cycle by using reheat systems as well as using waste steam to heat feed water in the HRSG, thereby improving overall efficiency.

Overall energy efficiency at the Facility will be further improved by reducing the plant parasitic load. High efficiency exterior and industrial interior Light Emitting Diode (LED) lighting will be used throughout the Facility, including in the Administration Building and Operations Center. The analysis provided by the Permittee shows that operational energy savings in Watts of 30 percent and 38 percent are expected for exterior and industrial interior lighting, respectively, when compared to standard lighting. Based on a total energy savings of 248 MW-hours per year and the Facility's carbon dioxide equivalents (CO_{2e}) emission rate of 895 pounds per MW-hour net to the grid after the first year of operation, avoided CO_{2e} emissions via usage of LED lighting amount to 111.0 tons per year. Per the "Section 61 Findings" (see Section 10, pages 54to 58), there are a number of other Greenhouse Gases (GHG) efficiency measures that will be implemented. As described in the Final Environmental Impact Report (FEIR), these measures include the following. The Administrative Building has been designed to meet the Massachusetts Energy Stretch Code and the U.S. Green Building Council's Leadership in Energy and Environmental Design (LEED) at the Platinum level. The Administrative Building includes a green roof, geothermal heat pumps for heating and cooling, variable volume ventilation fans, increased insulation to minimize heat loss, lighting motion sensors, climate control and building energy management systems, a 10% reduction beyond Code for lighting power density, and water conserving fixtures. The Operations Building includes geothermal heat pumps for heating and cooling, increased insulation to minimize heat loss, day lighting, lighting motion sensors, climate control, building energy management systems and a 10% reduction in lighting power density, a high albedo roof and water conserving fixtures. These measures will result in a reduction of GHG of 57 tons per year or a 29.4% reduction in GHG emissions. The buildings have been elevated 6 feet above the existing 100-year flood level to protect the Facility from the reasonable anticipated affects of sea level rise. All of these energy efficiency measures are additional GHG mitigation strategies required by the Energy Facilities Siting Board (EFSB) Final Decision and the Massachusets Environmental Policy Act (MEPA) FEIR Certificate and are not associated with the Applicant’s GHG BACT evaluation.

Variable speed drives will be used for all ACC fan motors and the primary boiler feed water pump and condensate pump motors. Piping and valves to reduce pressure losses will be considered in the detailed plant design. The highest efficiency commercially available transformers compatible for interconnection with the nearby National Grid switchyard will be installed.

Continuous Emissions Monitoring System (CEMS) shall be installed on EU1 and EU2 to sample, analyze and record NO_x, CO, and NH_3 concentration levels, and the percentage of oxygen (O_2), in the exhaust gas from each of the two HRSG exhaust flues. Samples shall also be taken in the turbine exhaust upstream of the SCR system in order to provide data to optimize usage of the NH_3 injection control systems. In addition, Continuous Opacity Monitoring System (COMS) shall be installed in the stacks of EU1, EU2, and EU3 to monitor and record opacity.

Most of the Facility’s power plant equipment will be housed in a building structure that will be approximately 115,000 square feet. In addition, the Facility will include areas within other buildings for administrative and operating staff, warehousing of parts and consumables, and maintenance shops and equipment servicing. All of the operations at the Facility will be contained within these buildings or conducted behind screening to minimize visual impacts.

The Facility will interconnect with the National Grid transmission system at two (2) locations within the existing National Grid switchyard located on site. One unit of the Facility will interconnect at the same location where the existing Boiler Unit 4 is presently connected. The other unit of the Facility will interconnect at a new circuit breaker bay to be constructed within the existing National Grid switchyard. The Permittee shall ensure that its sulfur hexafluoride (SF_6) mitigation approach shall be at least as stringent as measures currently used by National Grid for its circuit breakers and switchers to be located in the new switchyard and plant areas to be constructed by the Permittee. The Permittee shall consult with National Grid and develop a joint comprehensive SF_6 reduction plan in connection with the anticipated National Grid upgrades to the Salem Harbor Substation (and shall file the joint plan as a compliance filing to the EFSB prior to operation of the Facility).

Natural gas will be delivered to the site via a new pipeline owned and operated by Algonquin Gas Transmission, a subsidiary of Spectra Energy (Spectra). The pressure, capacity, and route of the new pipeline are still being developed by Spectra. Spectra will also construct an onsite natural gas metering station. Spectra will obtain all federal, state, and local approvals for the above equipment, as necessary.

2. EMISSION OFFSETS AND NONATTAINMENT REVIEW

Review considerations with respect to 310 CMR 7.00: Appendix A Emission Offsets and Nonattainment Review (Appendix A) are not part of the PSD Review Process and are therefore not addressed in the **PSD Fact Sheet**. Therefore, MassDEP's evaluation of Emission Offsets and Nonattainment Review for the construction of the Facility is provided below.

Appendix A applies to a new major source or major modification of an existing major source located in a non-attainment area; or that is major for NO_x or VOC emissions. With respect to NO_x and/or VOC emissions, Appendix A applies for a new major source of fifty (50) or more tons per year or a major modification of an existing major source amounting to an increase of twenty five (25) or more tons per year. Appendix A requires new major sources, or major modifications thereat, to meet Lowest Achievable Emission Rate (LAER) and to obtain emission offsets at a ratio of 1.20 to 1, plus a five (5) percent set aside that must be held and can neither be sold nor used elsewhere. This yields an overall offset ratio of 1.26 to 1. LAER is defined in Appendix A as the more stringent rate of emissions of: (a) the most stringent emissions limitation which is contained in any State Implementation Plan (SIP) for such class or category of stationary source, unless the owner or operator of the stationary source demonstrates that such limitations are not achievable; or, (b) the most stringent emissions limitation which is achieved in practice by such class or category of stationary source.

The Facility is expected to commence commercial operation in June 2016. The Facility shall be restricted to 144.8 and 28.0 tons per year of NO_x and VOC emissions, respectively. Therefore, the Facility is a new major source of NO_x emissions and is subject to Appendix A for its NO_x emissions. The Facility is required to meet LAER for NO_x emissions and the Permittee must obtain NO_x emission offsets at a ratio of 1.26 to 1. Since VOC emissions from the Facility are below the new major source threshold of fifty (50) or more tons per year, the Permittee is not subject to regulation under Appendix A for LAER and emission offsets pertaining to VOC emissions. However, the VOC emissions from the Facility are subject to, and must comply with, Best Available Control Technology (BACT) pursuant to 310 CMR 7.02.

The Permittee has proposed a NO_x emission limit for EU1 and EU2 of 2.0 parts per million by volume, dry basis, corrected to 15 percent Oxygen (ppmvd @ 15% O_2), one hour block average. The Permittee provided a LAER analysis in the Application that included the sources of data reviewed in support of this NO_x LAER determination. These sources were EPA's RACT/BACT/LAER Clearinghouse, EPA's Region IV National Combustion Turbine Spreadsheet, the California Air Resources Board BACT Clearinghouse, the South Coast Air Quality Management District BACT Clearinghouse, and New Jersey's State of the Art Manual for combustion turbines. The LAER analysis concluded that there are no large natural gas fired combined cycle turbines where a NO_x emission limit of less than 2.0 ppmvd @ 15% O_2 has been approved and subsequently demonstrated in practice. In addition, the two most recent NO_x LAER determinations for similar Massachusetts projects such as Brockton Power Company LLC (Application No. 4B08015, Transmittal No. W207973 dated July 20, 2011) and Pioneer Valley

Energy Center LLC (Application No. 1-B-08-037, Transmittal No. X223780 dated December 31, 2010) were also 2.0 ppmvd @ 15% O_2, one hour block average, during natural gas firing. MassDEP has verified and concurred with the Permittee's LAER analysis as presented in this Application that this NO_x emission limit constitutes NO_x LAER for the Facility.

The NOx emission limits for the auxiliary boiler (EU3) is 9.0 ppmvd @ 3% O_2. There were no lower LAER determinations found in the RACT/BACT LAER Clearinghouse for boilers in the Applicant's size range, achieved in practice. The emergency reciprocating internal combustion engine/generator (RICE) set (EU4) is 6.4 gm/KW-hr and for the fire pump engine (EU5) is 4.0 gm/KW-hr. There were no more stringent applicable SIP emission limitations, no projects found with lower emissions performance achieved in practice, or lower emissions limits set in permits on the basis of LAER for RICE.

The Facility is a new major source of NOx emissions restricted to 144.8 tons per year and the Permittee must obtain NO_x emission offsets at a ratio of 1.26 to 1. The total number of NO_x emission offsets needed for the Facility is (144.8) multiplied by (1.26), or 183 tons per year. In accordance with 310 CMR 7.00: Appendix A(6)(b), for a new major stationary source of NO_x located in an area that is not a nonattainment area, prior to commencing operation of any emission unit(s), for which offsets are required under Appendix A, NO_x emission offsets must actually occur and be obtained from the same source or other sources within the Ozone Transport Region.

The Permittee entered into an agreement on February 5, 2013 to purchase 59 tons per year of rate-based NO_x Emission Reduction Credits (ERCs) from The Newark Group Inc. These ERCs were created and banked on April 7, 2010 by MassDEP, pursuant to the provisions of the Commonwealth of Massachusetts Air Pollution Control Regulation at 310 CMR 7.00: Appendix B, due to the shutdown of two (2) Massachusetts facilities owned and operated by The Newark Group Inc. Thirty seven (37) tons per year of NO_x ERCs were created and banked from the shutdown of Natick Paperboard, 90 North Main Street, Natick and twenty two (22) tons per year of NO_x ERCs were created and banked from the shutdown of Haverhill Paperboard, 100 South Kimball Street, Haverhill. ERCs in the Massachusetts Rate ERC Bank shall revert to the state to be retired for the benefit of the environment if they have not been used by midnight of the date ten years from the date of MassDEP approval, or in this case, on April 7, 2020.

In addition, the Permittee entered into an agreement on April 4, 2013 to purchase 135 tons per year of rate-based NO_x ERCs from Osram Sylvania Inc. These ERCs were created and banked on March 11, 2004 by the Rhode Island Department of Environmental Management, Office of Air Resources (OAR), pursuant to the provisions of the State of Rhode Island Air Pollution Control Regulation No. 9, due to the shutdown of a number of operations at Osram Sylvania Inc., 1193 Broad Street, Central Falls, Rhode Island. In accordance with the Memorandum of Understanding by and between the State of Rhode Island Department of Environmental Management and the Commonwealth of Massachusetts Department of Environmental Protection on the Interstate Trading of NO_x 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 7.00: Appendix A. The Osram Sylvania Inc. facility is located in the Ozone Transport Region. Unlike Massachusetts ERCs in the Rate ERC Bank, Rhode Island ERCs are not subject to retirement.

In total, the Permittee has entered into agreements to purchase 194 tons of rate-based NO_x ERCs. Since 183 tons per year of NO_x emission offsets will be used to offset NO_x emissions from the Facility, 183 tons per year of NO_x ERCs in the Rate ERC Bank must be retired at the approved annual offset rate regardless of the Facility’s annual actual NO_x emissions. ERCs utilized as offsets are considered “used” commencing with start-up of the Facility. If the Facility start-up occurs after April 7, 2020, then the Permittee shall not use the abovementioned Newark Group ERCs.

Appendix A requires the Permittee to demonstrate, and MassDEP to concur, that the benefits of the project significantly outweigh 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 Application contains the details of the required demonstration, a summary of which is provided here.

Alternative Site Evaluation

The Permittee’s site selection process focused on sites with shuttered or challenged coal and/or oil fired electric generating facilities. The sites where these smaller, older oil and coal fired electric generating facilities presently operate also typically offer ready access to transmission, available water supply, and proximity to electric load. Developing a natural gas fired facility at these challenged sites offers numerous and substantial benefits to the State and local community. In addition to retention of jobs and tax revenues, when an older fossil fuel fired electric generating facility is replaced by a state of the art natural gas fired electric generating facility with sophisticated emissions controls, significant decreases in sulfur dioxide (SO_2), CO_2, NO_x, particulates, and emissions of other air pollutants are realized. Moreover, while site contamination associated with an older coal or oil fired electric generating facility may go unaddressed or, at least, may not get addressed in a timely manner when a facility is simply shut down, the Permittee will address contamination and other environmental liability issues as an integral part of the plans to construct and operate the Facility.

The Salem site presents a significant number of attributes that satisfy the Permittee’s location, environmental and community criteria set forth above. For example:

- The existing Salem Harbor Station facility was considered to be one of the “Filthy Five” electric generation plants in Massachusetts, with a long history of environmental challenges. Indeed, construction of the Facility on the landward portion of the site will afford the Permittee the opportunity to clean up the portion of the site currently occupied by the soon-to-be shutdown existing Salem Harbor Station facility, and return that valuable waterfront land to productive use, consistent with State law. Having entered commercial operation as an electric generating facility in 1951, the Salem Harbor site has a long history as a site for electricity generation.

- The existing Salem Harbor Station facility has been required by ISO - New England to operate for reliability purposes through May 2014, offering the Permittee the opportunity to minimize any gaps in electricity generation beyond that date through the development and permitting of the new state of the art Facility. ISO-New England has also determined that the Facility is needed to ensure reliability beginning in 2016.

- The site is nearby (less than two miles from) a natural gas pipeline facility, namely the Maritimes and Northeast pipeline.

- There is local support for the continuation of electric generation on the site as a means of maximizing tax revenues and local employment. The Mayor, other city officials, and state senators and representatives, have been supporters of continued presence of electric generation at the site, in general, and particularly of the development of this Facility.

- There is support for potential reuse of the site as demonstrated by (1) the 2011 decision to use Regional Greenhouse Gas Initiative (RGGI) funds to supplement the City of Salem's tax revenues for an eight-year period; (2) funding of the Salem Site Reuse Study by the Massachusetts Clean Energy Center; and (3) the enactment of Chapter 209 of the Acts of 2012 and the establishment of the Salem Harbor Power Station Plan Revitalization Task Force.

- The site is located in close proximity to the electric grid (National Grid system) and a water supply.

- The 65-acre site is sufficiently large to accommodate the Facility and enable further redevelopment opportunities.

- The absence of new electric generation in the Northeastern Massachusetts/Boston (NEMA/Boston) load zone. Indeed, it has been nearly a decade since any significant new electric generation, i.e. Mystic 8 and 9, has been added in NEMA/Boston. Over the course of these last ten years, there have been several unit retirements and still more retirements are anticipated, while load in the NEMA/Boston area is not expected to decrease. This is the only site that met Footprint's criteria and was located in the NEMA/Boston load zone.

- The construction of the Facility, along with demolition of the existing facility and attendant remediation of the site, will bring a significant number of jobs over the course of the next several years. The Permittee expects that approximately 30-40 permanent employees will be needed to operate the Facility, assuring that operations related employment at the Salem Harbor Station site will continue beyond the June 1, 2014 retirement date of the existing facility.

- The demolition of the existing facility and remediation of the site will enable future use of the remainder of the site for a variety of marine industrial purposes, thereby providing opportunities to revitalize this valuable waterfront area.

- In sum, the site satisfied the Permittee's overall site selection objectives, as well as most, if not all, of its location, environmental and community criteria. Accordingly, the site was deemed to be superior to the alternative sites analyzed by the Permittee.

Alternative Project Sizes, Production Processes, and Environmental Control Techniques Evaluation

The Permittee considered positioning the Facility on the portion of the site located outside of Chapter 91 jurisdiction. However, the Permittee concluded that the approximately 14.5 acre, irregularly shaped, non-Chapter 91 portion of the site is not large enough to accommodate the Facility.

The Permittee also considered a wet-cooling system as a design alternative for the proposed Facility. However, wet cooling was not considered to be a reasonable option because it would result in greater impacts to Salem Harbor from withdrawal/discharge in terms of water quality and impingement/entrainment versus the air cooled condenser option chosen.

The Permittee also considered a "dual fuel" alternative in which the Facility could run on either natural gas or diesel fuel oil. This alternative was considered not to be a reasonable alternative due to intense local opposition to diesel fuel oil at the site and the potential increased environmental risks (both to Salem Harbor and on and near the site) associated with fuel delivery to/use on the site.

State and Regional Project Benefits

ISO has determined that electric generation that will be provided by the Facility is essential to ensure reliability in the NEMA/Boston load zone. The need for reliability of the electric power grid clearly constitutes an overriding public benefit.

In addition, the public benefit served by the redevelopment of the site represented by the Facility has been expressly identified in recently enacted special legislation. Section 42 of Chapter 209 of the Acts of 2012 expressly provides:

> "There shall be a plant revitalization task force established to implement a plan, adopt rules and regulation and recommend necessary legislative action to ensure the full deconstruction, remediation and redevelopment or repowering of the Salem Harbor Station by December 31, 2016."

The Facility achieves all of the legislative goals of full demolition, remediation and redevelopment of the site within the legislatively prescribed deadline of December 31, 2016. It is difficult to conceive of any other project that could implement a plan for redevelopment of the site by December 31, 2016.

The Facility also serves the Commonwealth's interest in developing renewable energy sources. That is, the quick-start technology designed into the Facility facilitates and supports the development of wind generation. Because wind power is an intermittent resource, it is especially important for the region to be able to rely on clean and cost effective quick-start electric generation during those periods when wind output is not available. While a number of quick-start “peaking” facilities have recently been sited in New England, the proposed state of the art quick-start technology at the Facility will be more efficient and will have fewer emissions than the peaking units that presently fill the gap when wind is unavailable.

While the Facility clearly fulfills the need for electricity reliability, the state of the art natural gas fired emission units also offer significant air quality benefits. An analysis prepared for the Permittee by Charles River Associates concludes that because the Facility “displaces other, less efficient generation on the New England Grid, operation of [the Facility] reduces annual regional air emissions including GHG emissions.[1]

The important air quality improvements resulting from the Facility are also recognized in the Massachusetts Clean Energy and Climate Action Plan for 2020, which estimates that the displacement of the former Salem Harbor Station and Somerset Station facilities by natural gas fired power plants would result in a net reduction in Greenhouse Gases (CO_{2e}) in 2020.[2]

Notes:

1. “Analysis of the Impact of Salem Harbor Repowering on New England Air Emissions” dated November 21, 2012, p. 1, included in Appendix C to the Draft Environmental Impact Report, EEA# 14937; values updated per June 10, 2013 letter to MassDEP, Attachment 4.

2. “Massachusetts Clean Energy and Climate Plan for 2020, A Report to the Great and General Court pursuant to the Global Warming Solutions Act (Chapter 298 of the Acts of 2008, and as codified at M.G.L. c. 21N)” dated December 29, 2010, submitted by Secretary of Energy and Environmental Affairs Ian A. Bowles, p. 44.

Local Project Benefits

Without the Facility, the upcoming retirement of the Salem Harbor Station facility would result in a significant loss of tax revenues for the City of Salem. In fiscal year 2010, former owner and operator of Salem Harbor Station, Dominion Energy Salem Harbor LLC, paid $4.75 million in taxes, making the facility the largest contributor of tax revenue in the City of Salem. The $4.75 million included a negotiated usage fee of $1.75 million, and property taxes of $3 million, which included $800,000 attributable to the land. The Facility will help ensure that tax revenues associated with the site are maintained, thus not adversely affecting the City’s budget and it will permit dollars from the RGGI Trust Account to be redirected away from Salem and to other environmentally beneficial uses.

In addition, the Facility will result in opportunities for public enjoyment of the waterfront, consistent with the site’s location in a Designated Port Area. Currently, there is no public access to the waterfront on the site. In contrast, as a result of the Facility, the public will have the opportunity to access paths on the Derby Street (residential) side of the site, as well as linear access to view Salem Harbor. In addition, the demolition and remediation efforts to be undertaken by the Permittee will enable future development options for the rest of the site that could even further enhance public access to and enjoyment of the waterfront.

Minimization of Environmental and Social Costs

The Permittee has committed to reduce and/or mitigate any environmental and social impacts as a result of development of the site. The Facility will minimize emissions and will not cause or contribute to violation of any applicable air quality standard, through use of only clean burning natural gas as fuel, advanced pollution control equipment, and highly efficient combustion turbines. As a result, emissions from the Facility will be amongst the lowest of any fossil fuel fired electric generating facility in the United States.

MassDEP acknowledges that there will be environmental and social costs. There will be new emissions to the ambient air which will be minimized through addition of control technology, the GHG mitigation measures identified in the Section 61 Findings, the purchase of NO_x emission offsets and Regional Greenhouse Gas Initiative (RGGI) allowances. Further, the impacts to the ambient air from the project are well within the standards and guidelines designed to protect public health.

Based upon review of the detailed demonstration provided by the Permittee in the Application, MassDEP finds that the benefits of this project significantly outweigh this project's environmental and social costs.

3. AIR QUALITY IMPACT ANALYSIS

The EPA has developed National Ambient Air Quality Standards (NAAQS) for six air contaminants known as criteria pollutants for the protection of public health and welfare. These criteria pollutants are Nitrogen Dioxide (NO_2), Sulfur Dioxide (SO_2), Particulate Matter (PM), Carbon Monoxide (CO), Ozone (O_3), and Lead (Pb). The NAAQS include both primary and secondary standards of different averaging periods, which protect public health and public welfare, respectively.

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

Modeling Approach and Significant Impact Analysis

Dispersion modeling analyses were performed to assess the Facility's air impacts of criteria air pollutants and air toxics against applicable SILs, NAAQS, and MassDEP's Allowable Ambient Levels (AALs) and Threshold Effects Exposure Limits (TELs) Guidelines for air toxics. These analyses were conducted in accordance with EPA's "Guideline on Air Quality Models" (November 2005) and MassDEP's "Modeling Guidance of Significant Stationary Sources of Air Pollution" (June 2011) and as described in the Air Quality Modeling Protocol submitted to MassDEP on August 29, 2012. The EPA-recommended AERMOD model (current AERMOD version 12345, AERMAP version 11103) was used to perform the dispersion modeling. Dispersion modeling was conducted in a manner that evaluated worst case operating conditions in an effort to predict the highest impact for each pollutant and averaging period.

The dispersion modeling was conducted using five years (2006 through 2010) of surface data collected by the National Weather Service (NWS) from the Logan Airport Station in Boston, Massachusetts and the corresponding upper air data from Gray, Maine. These stations are the closest first order NWS Stations and most representative of the Salem area. AERMET (version 11059), AERMINUTE (version 11059), and AERSURFACE were employed to prepare the meteorological files. Land use within a 3 kilometer radius of the Facility was characterized as rural and significantly water covered (approximately 64 percent). Therefore, rural dispersion coefficients were used in the dispersion modeling. The modeling analyses included the two combustion turbine units, auxiliary boiler, emergency generator and fire pump engines, and the auxiliary cooling tower, all operating simultaneously. Three GE combustion turbine operating loads (46, 75, and 100 percent loads), plus a worst case combustion turbine start-up condition, were modeled. Table 1 presents the maximum predicted ambient air quality impact concentrations for the Facility. The Facility was predicted to have maximum ambient air quality impact concentrations below SILs for all pollutants and averaging periods, except for 1-Hour NO_2 and 24-Hour $PM_{2.5}$.

Table 1

Criteria Pollutant	Averaging Period	Primary NAAQS (ug/m^3)	Secondary NAAQS (ug/m^3)	Significant Impact Level (ug/m^3)	Maximum Predicted Facility Impact (ug/m^3)
NO_2	Annual (1)	100	Same	1	0.4
	1-Hour (2)	188	None	7.5	41.8
SO_2	Annual (1,3)	80	None	1	0.03
	24-Hour (3,4)	365	None	5	0.7
	3-Hour (4)	None	1,300	25	1.1
	1-Hour (5,6)	196	None	7.8	1.0
$PM_{2.5}$	Annual (7)	12	Same	0.3	0.11
	24-Hour (8)	35	Same	1.2	3.2
PM_{10}	24-Hour (9)	150	Same	5	4.3
CO	8-Hour (4)	10,000	None	500	112.4
	1-Hour (4)	40,000	None	2,000	313.6
O_3	8-Hour (10)	147	Same	NA	NA
Pb	3-Month (1)	0.15	Same	NA	< 0.00016

Table 1 Notes:

1. Not to be exceeded.

2. Compliance based on 3 year average of the 98th percentile of the daily maximum 1 hour average at each monitor within an area. The 1 hour NO_2 standard was effective April 12, 2010.

3. EPA has indicated that the 24 hour and annual average primary standards for SO_2 will be revoked.

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

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

6. The 1 hour SO_2 standard was effective as of August 23, 2010.

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

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

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

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

Table 1 Key:

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

Cumulative Dispersion Modeling

Since dispersion modeling predicted maximum impact concentrations above SILs for 1 Hour NO_2 and 24-Hour $PM_{2.5}$, cumulative impact modeling was performed for these pollutants and averaging periods with emissions from existing interactive sources and measured background levels to compare against the corresponding NAAQS. Background concentrations were obtained from MassDEP's Lynn monitoring location, approximately 5.9 miles southwest of the Facility. The existing interactive sources in Massachusetts nearby the Facility considered in the cumulative modeling were: a) General Electric Lynn and Wheelabrator Saugus for 1-Hour NO_2 and 24-Hour $PM_{2.5}$; and b) Rousselot Peabody, Peabody Municipal Light, and Marblehead Municipal Light for 1-Hour NO_2. Table 2 shows the cumulative impacts. The results of the cumulative impact analysis show that under no condition did the Facility's worst case emissions in combination with emissions from the existing interactive sources plus measured background levels result in concentrations which exceeded the applicable NAAQS.

Table 2					
Criteria Pollutant	**Averaging Period**	**Cumulative Impact, Facility Plus Existing Sources (2) (ug/m^3)**	**Background (ug/m^3) (1)**	**Total Impact Plus Background (ug/m^3)**	**Primary NAAQS (ug/m^3)**
NO_2	1-Hour	83.7 (3)	82.3	166.0	188
$PM_{2.5}$	24-Hour	3.5	18.9	22.4	35

Table 2 Notes:

1. Background concentrations are based on the measured values from 2010 through 2012. Short term background concentrations for 24-Hour $PM_{2.5}$ and 1-Hour NO_2, are the average of the 98th percentile values over the 3 years (2010-2012). These assumptions are consistent with the form of the NAAQS for the pollutant.

2. Consistent with EPA modeling guidance for NAAQS compliance assessments, impact concentrations are based on the 5 year average of the 8th highest 24-hour average values occurring in each year for the 24-Hour $PM_{2.5}$ concentration, and the 5 year average of the 8th highest daily maximum concentrations occurring in each year for the 1-Hour NO_2 concentration.

3. The modeled cumulative NO_2 impacts represent an EPA-approved Tier 2 approach reflecting an 80 percent conversion of NO_x emissions to NO_2 in the ambient air. "Tier 2" is the Ambient Ratio Method for NO_x to NO_2 conversion of AERMOD modeling results. It specifies that the results of NO_x modeling be multiplied by an empirically-derived NO_2/NO_x ratio, using a value of 0.75 for the annual standard and 0.8 for the 1-hour standard. This modeling guidance is contained in USEPA's Clarification Memo, dated March 1, 2011, "Additional Clarification Regarding Application of Appendix W Modeling Guidance for the 1-hour NO_2 National Ambient Air Quality Standard".

Table 2 Key:

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

Air Toxics Analysis

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

Table 3 presents the projected maximum impacts for each air toxic that will potentially be emitted by the Facility for which an AAL or TEL has been established. Predicted impacts are based on the worst case emission scenarios input to AERMOD. As shown in Table 3, the Facility's maximum predicted ambient air quality impact concentrations were significantly below applicable AALs and TELs for all of the air toxics modeled.

Table 3

Pollutant	Averaging Period	AAL/TEL (ug/m^3)	Maximum Predicted Facility Impact (ug/m^3)
Acetaldehyde	24-Hour (TEL)	2	0.053708
	Annual (AAL)	0.5	0.000775
Ammonia	24-Hour (TEL)	100	1.093673
	Annual (AAL)	100	0.034497
Benzene	24-Hour (TEL)	1.74	0.080104
	Annual (AAL)	0.12	0.000591
1,3-Butadiene	24-Hour (TEL)	1.20	0.002035
	Annual (AAL)	0.003	0.000019
o-Dichlorobenzene	24-Hour (TEL)	81.74	0.000047
	Annual (AAL)	81.74	0.000006
p-Dichlorobenzene	24-Hour (TEL)	122.61	0.000047
	Annual (AAL)	0.18	0.000006
Ethylbenzene	24-Hour (TEL)	300	0.012962
	Annual (AAL)	300	0.000409
Formaldehyde	24-Hour (TEL)	2.0	0.203990
	Annual (AAL)	0.8	0.005265
Naphthalene	24-Hour (TEL)	14.25	0.009739
	Annual (AAL)	14.25	0.000067
Propylene Oxide	24-Hour (TEL)	6	0.334015
	Annual (AAL)	0.3	0.002126
Sulfuric Acid	24-Hour (TEL)	2.72	0.084823
	Annual (AAL)	2.72	0.005963
Toluene	24-Hour (TEL)	80	0.083392
	Annual (AAL)	20	0.001857
Xylenes	24-Hour (TEL)	11.80	0.047138
	Annual (AAL)	11.80	0.000942
Arsenic	24-Hour (TEL)	0.003	0.000012
	Annual (AAL)	0.0003	0.000001
Beryllium	24-Hour (TEL)	0.001	0.000000
	Annual (AAL)	0.0004	0.0000001
Cadmium	24-Hour (TEL)	0.003	0.000044
	Annual (AAL)	0.001	0.000006
Chromium (total)	24-Hour (TEL)	1.36	0.001137
	Annual (AAL)	0.68	0.000013

Table 3			
Pollutant	**Averaging Period**	**AAL/TEL (ug/m^3)**	**Maximum Predicted Facility Impact (ug/m^3)**
Chromium (hexavalent)	24-Hour (TEL) Annual (AAL)	0.003 0.0001	0.000205 0.000002
Copper	24-Hour (TEL) Annual (AAL)	0.54 0.54	0.00003 0.00000
Lead (1)	24-Hour (TEL) Annual (AAL)	0.14 0.07	0.00009 0.000003
Mercury (elemental)	24-Hour (TEL) Annual (AAL)	0.14 0.07	0.00001 0.000001
Nickel	24-Hour (TEL) Annual (AAL)	0.27 0.18	0.00021 0.00001
Selenium	24-Hour (TEL) Annual (AAL)	0.54 0.54	0.00002 0.0000002
Vanadium	24-Hour (TEL) Annual (AAL)	0.27 0.27	0.00009 0.00001

<u>Table 3 Notes:</u>

1. Most air toxics do not have a NAAQS, with the exception of lead.

<u>Table 3 Key:</u>

AAL = Allowable Ambient Limit
TEL = Threshold Effects Exposure Limit
ug/m^3 = micrograms per cubic meter

<u>Preconstruction Monitoring Analysis</u>

As described in the “Cumulative Dispersion Modeling” section above, ambient background monitoring data from MassDEP’s Lynn monitoring site for the three (3) year period of 2010 through 2012 were used to characterize criteria pollutant ambient air impacts. PSD regulations allow proposed sources to use existing monitoring data in lieu of PSD preconstruction monitoring requirements for a pollutant if the source can demonstrate that its ambient air impact is less than a de minimis amount (also called a significant monitoring concentration or SMC) as specified in those regulations. As shown in Table 4 below, dispersion modeling conducted by the Permittee predicted maximum Facility impact concentrations well below corresponding SMC levels for all pollutants for which SMCs exist.

Table 4			
Pollutant	**Averaging Period**	**SMC (ug/m^3)**	**Maximum Predicted Facility Impact (ug/m^3)**
NO_2	Annual	14	0.4
SO_2	24-Hour	13	0.7
PM_{10}	24-Hour	10	4.3

Table 4			
Pollutant	**Averaging Period**	**SMC (ug/m^3)**	**Maximum Predicted Facility Impact (ug/m^3)**
CO	8-Hour	575	112.4

Table 4 Key:

SMC = Significant Monitoring Concentration
ug/m^3 = micrograms per cubic meter

EPA had also established an SMC for $PM_{2.5}$ but this SMC was remanded by the United States Court of Appeals for the DC Circuit on January 22, 2013 (No. 10-1413, Sierra Club v. EPA). On March 4, 2013, the EPA Office of Air Quality Planning and Standards issued guidance to applicants and regulators with regard to the ramifications of the January 22, 2013 Appeals Court decision. The pertinent excerpt of this recent EPA guidance is as follows:

> "As a result of the Court's decision, Federal PSD Permits issued henceforth by either the EPA or a delegated state permitting authority pursuant to 40 CFR 52.21 should not rely on the $PM_{2.5}$ SMC to allow applicants to avoid compiling air quality monitoring data for $PM_{2.5}$. Accordingly, all applicants requesting a federal PSD Permit, including those having already applied for but have not yet received the permit, should submit ambient $PM_{2.5}$ monitoring data in accordance with the Clean Air Act requirements whenever either direct $PM_{2.5}$ or any $PM_{2.5}$ precursor is emitted in a significant amount. In lieu of applicants setting out $PM_{2.5}$ monitors to collect ambient data, applicants may submit $PM_{2.5}$ ambient data collected from existing monitoring networks when the permitting Authority deems such data to be representative of the air quality in the area of concern for the year preceding receipt of the application. We believe that applicants will generally be able to rely on existing representative monitoring data to satisfy the monitoring data requirement."

The Lynn monitoring site, located approximately 5.9 miles to the southwest of the Facility, is representative of the Facility site due to its proximity. Use of the data from this monitoring site is conservative for the following reasons:

a) Lynn is a more industrialized and densely populated area than the Facility site, particularly without the influence of the existing Salem Harbor Station after its shutdown prior to when the Facility commences operation. The Facility site is located adjacent to Salem Harbor, a significantly large water body where potential emission sources are more limited. The Lynn monitoring site is located closer to the metropolitan Boston area than the Facility site. Any potentially elevated ambient background pollutant concentrations from mobile and stationary emission sources located in and around the Boston metropolitan area that may be transported to the Facility site via predominant winds from the south or southwest, typically pass the Lynn monitoring location and are therefore represented in the measurement data collected at the Lynn monitoring site.

b) The General Electric Lynn and Wheelabrator Saugus facilities, which have been identified by MassDEP as the only two major industrial emission sources to be modeled cumulatively with the Facility emissions for 24-Hour $PM_{2.5}$, are located slightly less than 2 miles from the Lynn monitoring site but are located about 7 miles from the Facility site. Therefore, the cumulative modeling compliance demonstration, which includes both the background ambient concentrations and impacts from the interactive existing major sources likely double counts the contribution of these sources and therefore, provides additional conservatism to the required modeling results by potentially overestimating cumulative impact concentrations. This is particularly significant given that these two major sources are located to the south-southwest of the monitoring site, which means that they could potentially influence the monitoring site concentrations during winds coming from the south or southwest, the predominant wind directions in this area.

For the reasons set forth above, in accordance with the PSD regulations and recent EPA guidance, MassDEP has determined that preconstruction monitoring is not required.

Justification for Using Significant Impact Levels (SILs) for $PM_{2.5}$

Despite the fact that the PSD regulations addressing SILs for $PM_{2.5}$ were partially vacated and remanded (at EPA's request) in the January 22, 2013 Appeals Court decision, the use of the $PM_{2.5}$ SILs is still valid in certain circumstances in which ambient background concentrations are relatively low. EPA did not concede that it lacked authority to promulgate SILs and the Court found that it was not necessary to address the question of whether EPA had such authority. In fact, the SILs were vacated and remanded in only PSD sections 40 CFR 51.166(k)(2) and 52.21(k)(2) but were not vacated in 40 CFR 51.165(b)(2). This is most likely because the text of this latter regulation does not exempt a source from ambient air quality analysis but states that if a source located in an attainment area exceeds a SIL in a nonattainment area (or predicted nonattainment situation), it is deemed to have contributed to or caused a violation of a NAAQS.

Key examples in the Appeals Court decision supporting the vacature and remand involved cases in which the ambient air quality background is very close to the NAAQS. This is not the case in the Salem region where the $PM_{2.5}$ background is only slightly over half of the NAAQS, 18.9 ug/m^3 vs. 35 ug/m^3. Therefore, use of the prior $PM_{2.5}$ SILs is appropriate in the case of the ambient air quality impact analysis for the Facility because the background concentrations plus the SILs still leave a significant margin before the NAAQS would come close to being jeopardized.

Use of the prior $PM_{2.5}$ SILs is also consistent with the recent EPA guidance on this matter which states [1]:

- The EPA does not interpret the Court's decision to preclude the use of SILs for $PM_{2.5}$ entirely but additional care should be taken by permitting authorities in how they apply those SILs so that the permitting record supports a conclusion that the source will not cause or contribute to a violation of the $PM_{2.5}$ NAAQS.

- PSD permitting authorities have the discretion to select $PM_{2.5}$ SIL values if the permitting record provides sufficient justification for the SIL values that are used and the manner in which they are used to support a permitting decision.

- The $PM_{2.5}$ SIL values in the EPA's regulations may continue to be used in some circumstances if permitting authorities take care to consider background concentrations prior to using these SIL values in particular ways.

- Because of the Court's decision vacating the $PM_{2.5}$ SMC, all applicants for a federal PSD Permit should include ambient $PM_{2.5}$ monitoring data as part of the air quality impacts analysis. If the preconstruction monitoring data shows that the difference between the $PM_{2.5}$ NAAQS and the monitored $PM_{2.5}$ background concentrations in the area is greater than the EPA's $PM_{2.5}$ SIL value, then the EPA believes it would be sufficient in most cases for permitting authorities to conclude that a proposed source with a $PM_{2.5}$ impact below the $PM_{2.5}$ SIL value will not cause or contribute to a violation of the $PM_{2.5}$ NAAQS and to, therefore, forego a more comprehensive cumulative modeling analysis for $PM_{2.5}$.

- As part of a cumulative analysis, the applicant may continue to show that the proposed source does not contribute to an existing violation of the $PM_{2.5}$ NAAQS by demonstrating that the proposed source's $PM_{2.5}$ impact does not significantly contribute to an existing violation of the $PM_{2.5}$ NAAQS. However, permitting authorities should consult with the EPA before using any of the SIL values in the EPA's regulations for this purpose (including the $PM_{2.5}$ SIL value in section 51.165(b)(2), which was not vacated by the Court).

Notes:

1. EPA, Office of Air Quality Planning and Standards, "Circuit Court Decision on $PM_{2.5}$ Significant Impact Levels and Significant Monitoring Concentration – Questions and Answers", March 4, 2013. http://www.epa.gov/nsr/documents/20130304qa.pdf

4. ACCIDENTAL RELEASE MODELING OF AQUEOUS AMMONIA (NH3)

Aqueous NH_3 will be used as the reducing agent in the Facility's SCR system to control NO_x emissions. A solution of aqueous NH_3 (19% solution) will be stored onsite in an above-ground 34,000-gallon single-walled steel tank located north of the building structures. The tank, as well as NH_3 transfer pumps, valves, and piping will be contained within a concrete dike designed to contain 110 percent of the total volume of the tank.

In order to minimize the exposed surface area of any aqueous NH_3 that enters the containment area, passive evaporative controls (polyethylene balls or equivalent) will be utilized to reduce the surface area by 90 percent. In order to further mitigate the potential impacts of an accidental NH_3 release, the entire tank and containment area will be located within an enclosure with walls that will be fully sealed and ventilation provided by roof vents.

The aqueous NH_3 storage tank will be constructed in accordance with the Massachusetts Department of Public Safety requirements for storage tanks greater than 10,000 gallons containing material other than water. The dike wall and enclosure surrounding the tank will decrease the risk of damage to the tank caused by accidental vehicle contact.

Transfer from NH_3 delivery trucks to the storage tank will take place within a contained concrete storage unloading pad with drainage design such that any spills during NH_3 delivery will drain into the containment area. Delivery trucks will be required to have fast-acting shutoff valves in the unlikely event that a leak or other problem should arise. A hose from the top of the tank connected back to the truck will return displaced vapor to the truck, or an equivalent method for control of transfer losses will be used.

The storage tank shall be equipped with level monitoring instrumentation that will be continuously monitored in the Facility's control room. In the event that the tank level approaches an overfill condition during filling, a high level alarm will sound, initiating an immediate response to the situation. In addition, NH_3 sensors in the enclosure will alert plant staff and prevent the accumulation of significant amounts of NH_3 in the containment area.

Ammonia in aqueous solution is volatile, and the accidental release of this material would result in some release of NH_3 to the ambient air. Therefore, a worst case accidental release scenario was performed to evaluate the potential health impacts of such a release. This scenario assumed a release of the entire contents of the tank into the containment area, and conservatively evaluated the air quality impacts of such a release at the nearest projected controlled access perimeter (PCAP), approximately 230 feet from the NH_3 storage area. The NH_3 emissions resulting from this hypothetical worst case release scenario were calculated using the Area Locations of Hazardous Atmospheres (ALOHA) model. This model was developed by EPA and the National Oceanic and Atmospheric Administration, and is included as a prescribed technique under the EPA Risk Management Program (RMP) guidance.

In order to conservatively evaluate offsite consequences of an NH_3 release, the AERMOD dispersion model used for evaluation of air quality impacts from the exhaust stacks was used to determine maximum NH_3 concentrations at receptors at or near the PCAP, evaluated in terms of the American Industrial Hygiene Association (AIHA) Emergency Response Planning Guideline Level 1 (ERPG-1) of 25 parts per million (ppm) by volume, and the ERPG-2 of 150 ppm by volume. ERPG-1 is defined as the maximum airborne concentration below which nearly all individuals could be exposed to for up to one hour without experiencing either mild transient health effects and/or a clearly defined objectionable odor. ERPG-2 is defined as the maximum airborne concentration which it is believed that nearly all individuals could be exposed to for up to one hour without experiencing or developing irreversible or other serious health effects or symptoms that could impair the ability to take self directed protective action.

The results of the AERMOD model indicate that in the event of a hypothetical worst case release, the NH_3 concentrations would be less than the ERPG-1 level of 25 ppm by volume at all locations outside of the PCAP. Thus, the NH_3 concentrations at all locations outside of the PCAP would be well below the ERPG-2 level of 150 ppm by volume. Table 5 presents the results of the predicted 1 hour maximum concentrations of NH_3:

Table 5				
Location	**Distance from NH_3 Storage Enclosure (Feet)**	**ERPG-1 (ppm)**	**ERPG-2 (ppm)**	**NH_3 Concentration (Maximum Hourly Value, ppm)**
Power Plant North PCAP	230	25	150	20.2
Power Plant West PCAP	340	25	150	13.1
Power Plant East PCAP	450	25	150	4.4
Nearest Residence (Fort Avenue)	570	25	150	6.7
Salem Essex Sewerage District (SESD)	750	25	150	6.8

Table 5 Key:

PCAP = Projected Controlled Access Perimeter
ERPG-1 = Emergency Response Planning Guideline Level 1
ERPG-2 = Emergency Response Planning Guideline Level 2
NH_3 = Ammonia
ppm = parts per million by volume

In addition, Section 112(r) of the Clean Air Act and associated EPA regulations at 40 CFR Part 68 apply to owners or operators of stationary sources producing, processing, handling or storing toxic or flammable substances. The substances regulated under Section 112(r) and their threshold quantities are listed at Section 68.130 of 40 CFR Part 68. Although the Facility will not store regulated substances above the threshold quantities, the general duty clause in Section 112(r)(1) applies:

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

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

5. EMISSION UNIT (EU) IDENTIFICATION

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

Table 6			
EU#	**Description**	**Design Capacity**	**Pollution Control Device (PCD)**
EU1	General Electric Model No. 107F Series 5 Combustion Turbine/Heat Recovery Steam Generator Including Duct Burner	2,449 MMBtu/hr, HHV (energy input) 346 MW (electric power output)	Dry Low NO_x Combustors (PCD1) Selective Catalytic Reduction (PCD2) Oxidation Catalyst (PCD3)
EU2	General Electric Model No. 107F Series 5 Combustion Turbine/Heat Recovery Steam Generator Including Duct Burner	2,449 MMBtu/hr, HHV (energy input) 346 MW (electric power output)	Dry Low NO_x Combustors (PCD4) Selective Catalytic Reduction (PCD5) Oxidation Catalyst (PCD6)
EU3	Cleaver Brooks Model No. CBND-80E-300D-65 or equivalent Auxiliary Boiler	80 MMBtu/hr, HHV (energy input)	Ultra Low NO_x Burners (PCD7) Oxidation Catalyst (PCD8)
EU4	Cummins Model No. DQFAA or equivalent Emergency Engine/Generator	7.4 MMBtu/hr, HHV (energy input) 1102 bhp (engine mechanical power output) 750 KW (generator electric power output)	None
EU5	Cummins Model No. CFP9E-F50 or equivalent Fire Pump Engine	2.7 MMBtu/hr, HHV (energy input) 371 bhp (engine mechanical power output)	None

Table 6 Key:

EU# = Emission Unit Number

No. = Number
MMBtu/hr = fuel heat input, million British thermal units per hour
HHV = higher heating value basis
bhp = mechanical engine rating, brake horsepower
MW = generator net electrical output, Megawatts
KW = generator net electrical output, Kilowatts
NO_x = Oxides of Nitrogen
CO = Carbon Monoxide

6. APPLICABLE REQUIREMENTS

A. OPERATIONAL, PRODUCTION and EMISSION LIMITS

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

Table 7

EU#	Operational / Production Limit	Air Contaminant	Emission Limit
EU1, EU2	Operation at ≥ MECL, [17] **excluding start-ups and shutdowns** Fuel Heat Input Rate of each EU: ≤ 2,449 MMBtu per hour, HHV Natural Gas shall be the only fuel of use. Fuel Heat Input of each EU: ≤ 18,888,480 MMBtu, HHV per 12-month rolling period [9]	NO_x (no duct firing)	≤ 17.0 lb/hr [1, 2] ≤ 0.0074 lb/MMBtu [1] ≤ 2.0 ppmvd @ 15% O_2 [1] ≤ 0.051 lb/MW-hr [1, 2, 10, 14] ≤ 15.0 ppmvd @ 15% O_2 or ≤ 0.43 lb/MW-hr [13]
		NO_x (duct firing)	≤ 18.1 lb/hr [1, 2] ≤ 0.0074 lb/MMBtu [1] ≤ 2.0 ppmvd @ 15% O_2 [1] ≤ 0.055 lb/MW-hr [1, 2, 15] ≤ 15.0 ppmvd @ 15% O_2 or ≤ 0.43 lb/MW-hr [13]
		CO (no duct firing)	≤ 8.0 lb/hr [1, 2] ≤ 0.0045 lb/MMBtu [1] ≤ 2.0 ppmvd @ 15% O_2 [1] ≤ 0.027 lb/MW-hr [1, 2, 10, 14]
		CO (duct firing)	≤ 8.0 lb/hr [1, 2] ≤ 0.0045 lb/MMBtu [1] ≤ 2.0 ppmvd @ 15% O_2 [1] ≤ 0.025 lb/MW-hr [1, 2, 15]

Table 7			
EU#	**Operational / Production Limit**	**Air Contaminant**	**Emission Limit**
EU1, EU2	Operation at $\geq$ MECL, [17] **excluding start-ups and shutdowns** Fuel Heat Input Rate of each EU: $\leq$ 2,449 MMBtu per hour, HHV Natural Gas shall be the only fuel of use. Fuel Heat Input of each EU: $\leq$ 18,888,480 MMBtu, HHV per 12-month rolling period [9]	VOC (no duct firing), as Methane (CH_4)	$\leq$ 3.0 lb/hr [1, 2] $\leq$ 0.0013 lb/MMBtu [1] $\leq$ 1.0 ppmvd @ 15% O_2 [1] $\leq$ 0.009 lb/MW-hr [1, 2, 10, 14]
		VOC (duct firing), as Methane (CH_4)	$\leq$ 5.4 lb/hr [1, 2] $\leq$ 0.0022 lb/MMBtu [1] $\leq$ 1.7 ppmvd @ 15% O_2 [1] $\leq$ 0.016 lb/MW-hr [1, 2, 15]
		S in Fuel	$\leq$ 0.5 grains/100 scf
		SO_2 (no duct firing)	$\leq$ 3.5 lb/hr [1, 2] $\leq$ 0.0015 lb/MMBtu [1] $\leq$ 0.3 ppmvd @ 15% O_2 [1] $\leq$ 0.010 lb/MW-hr [1, 2, 10, 14]
		SO_2 (duct firing)	$\leq$ 3.7 lb/hr [1, 2] $\leq$ 0.0015 lb/MMBtu [1] $\leq$ 0.3 ppmvd @ 15% O_2 [1] $\leq$ 0.011 lb/MW-hr [1, 2, 15]
		H_2SO_4 (no duct firing)	$\leq$ 2.2 lb/hr [1, 2] $\leq$ 0.0010 lb/MMBtu [1] $\leq$ 0.1 ppmvd @ 15% O_2 [1] $\leq$ 0. 007 lb/MW-hr [1, 2, 10, 14]
		H_2SO_4 (duct firing)	$\leq$ 2.3 lb/hr [1, 2] $\leq$ 0.0010 lb/MMBtu [1] $\leq$ 0.1 ppmvd @ 15% O_2 [1] $\leq$ 0.008 lb/MW-hr [1, 2, 15]
		$PM/PM_{10}/PM_{2.5}$ (no duct firing)	$\leq$ 8.8 lb/hr [1, 8] $\leq$ 0.0071 lb/MMBtu [1, 8] $\leq$ 0.029 lb/MW-hr [1, 8, 10, 14]
		$PM/PM_{10}/PM_{2.5}$ (duct firing)	$\leq$ 13.0 lb/hr [1, 8] $\leq$ 0.0062 lb/MMBtu [1, 8] $\leq$ 0.041 lb/MW-hr [1, 8, 15]
		NH_3 (no duct firing)	$\leq$ 6.2 lb/hr [1, 2] $\leq$ 0.0027 lb/MMBtu [1] $\leq$ 2.0 ppmvd @ 15% O_2 [1] $\leq$ 0.019 lb/MW-hr [1, 2, 10, 14]
		NH_3 (duct firing)	$\leq$ 6.6 lb/hr [1, 2] $\leq$ 0.0027 lb/MMBtu [1] $\leq$ 2.0 ppmvd @ 15% O_2 [1] $\leq$ 0.020 lb/MW-hr [1, 2, 15]
		Greenhouse Gases, CO_{2e}	$\leq$ 825 lb/MW-hr [11] $\leq$ 895 lb/MW-hr [16]

Table 7			
EU#	**Operational / Production Limit**	**Air Contaminant**	**Emission Limit**
EU1, EU2	Operation at ≥ MECL, [17] **excluding start-ups and shutdowns** Fuel Heat Input Rate of each EU: ≤ 2,449 MMBtu per hour, HHV Natural Gas shall be the only fuel of use. Fuel Heat Input of each EU: ≤ 18,888,480 MMBtu, HHV per 12-month rolling period [9]	Opacity	< 5%, except 5% to < 10% for ≤ 2 minutes during any one hour [5]
	Operation at < MECL **during start-ups** [3, 12] Start-up duration: ≤ 45 minutes [3, 12] Natural Gas shall be the only fuel of use.	NO_x	≤ 89 lb per event [4, 12]
		CO	≤ 285 lb per event [4, 12]
		VOC, as Methane (CH_4)	≤ 23 lb per event [4, 12]
		S in Fuel	≤ 0.5 grains/100 scf
		SO_2	≤ 2.0 lb per event [4, 12]
		H_2SO_4	≤ 1.3 lb per event [4, 12]
		$PM/PM_{10}/PM_{2.5}$	≤ 6.6 lb per event [4, 8, 12]
		NH_3	NA
		Opacity	< 10% [5, 12]
	Operation at < MECL **during shutdowns** [3, 12] Shutdown duration: ≤ 27 minutes [3, 12] Natural Gas shall be the only fuel of use.	NO_x	≤ 10 lb per event [12]
		CO	≤ 151 lb per event [12]
		VOC, as Methane (CH_4)	≤ 29 lb per event [12]
		S in Fuel	≤ 0.5 grains/100 scf
		SO_2	≤ 0.3 lb per event [12]
		H_2SO_4	≤ 0.2 lb per event [12]
		$PM/PM_{10}/PM_{2.5}$	≤ 3.96 lb per event [8, 12]
		NH_3	NA
		Opacity	< 10% [5, 12]

Table 7			
EU#	**Operational / Production Limit**	**Air Contaminant**	**Emission Limit**
EU3	Operation at $\geq$ MECL [18] Fuel Heat Input Rate: $\leq$ 80 MMBtu per hour, HHV Natural Gas shall be the only fuel of use. Total Fuel Heat Input: $\leq$ 525,600 MMBtu, HHV per 12-month rolling period [9]	NO_x	$\leq$ 0.88 lb/hr [1] $\leq$ 0.011 lb/MMBtu [1] $\leq$ 9.0 ppmvd @ 3% O_2 [1]
		CO	$\leq$ 0.28 lb/hr [1] $\leq$ 0.0035 lb/MMBtu [1] $\leq$ 4.7 ppmvd @ 3% O_2 [1]
		VOC, as Methane (CH_4)	$\leq$ 0.4 lb/hr [1] $\leq$ 0.005 lb/MMBtu [1] $\leq$ 11.8 ppmvd @ 3% O_2 [1]
		S in Fuel	$\leq$ 0.5 grains/100 scf
		SO_2	$\leq$ 0.12 lb/hr [1] $\leq$ 0.0015 lb/MMBtu [1] $\leq$ 0.9 ppmvd @ 3% O_2 [1]
		H_2SO_4	$\leq$ 0.072 lb/hr [1] $\leq$ 0.0009 lb/MMBtu [1] $\leq$ 0.35 ppmvd @ 3% O_2 [1]
		$PM/PM_{10}/PM_{2.5}$	$\leq$ 0.4 lb/hr [1, 8] $\leq$ 0.005 lb/MMBtu [1, 8]
		Greenhouse Gases, CO_{2e}	$\leq$ 119.0 lb/MMBtu
		Opacity	< 5%, except 5% to < 10% for $\leq$ 2 minutes during any one hour [5]
EU4	$\leq$ 300 hours of operation per 12-month rolling period Ultra Low Sulfur Diesel Fuel Oil shall be the only fuel of use.	NO_x and VOC (NMHC as $CH_{1.8}$), Combined Total	$\leq$ 11.60 lb/hr [6] $\leq$ 4.8 gm/bhp-hr [6] $\leq$ 6.4 gm/KW-hr [6]
		CO	$\leq$ 6.34 lb/hr [6] $\leq$ 2.6 gm/bhp-hr [6] $\leq$ 3.5 gm/KW-hr [6]
		S in Fuel	$\leq$ 0.0015% by weight
		SO_2	$\leq$ 0.011 lb/hr [6]
		H_2SO_4	$\leq$ 0.0009 lb/hr [6]
		$PM/PM_{10}/PM_{2.5}$	$\leq$ 0.36 lb/hr [6] $\leq$ 0.15 gm/bhp-hr [6] $\leq$ 0.2 gm/KW-hr [6]
		Greenhouse Gases, CO_{2e}	$\leq$ 162.85 lb/MMBtu
		Opacity	< 5%, except 5% to < 10% for $\leq$ 2 minutes during any one hour

Table 7

EU#	Operational / Production Limit	Air Contaminant	Emission Limit
EU5	≤ 300 hours of operation per 12-month rolling period Ultra Low Sulfur Diesel Fuel Oil shall be the only fuel of use.	NO_x and VOC (NMHC as $CH_{1.8}$), Combined Total	≤ 2.44 lb/hr (6) ≤ 3.0 gm/bhp-hr (6) ≤ 4.0 gm/KW-hr (6)
		CO	≤ 2.14 lb/hr (6) ≤ 2.6 gm/bhp-hr (6) ≤ 3.5 gm/KW-hr (6)
		S in Fuel	≤ 0.0015% by weight
		SO_2	≤ 0.004 lb/hr (6)
		H_2SO_4	≤ 0.0003 lb/hr (6)
		$PM/PM_{10}/PM_{2.5}$	≤ 0.12 lb/hr (6) ≤ 0.15 gm/bhp-hr (6) ≤ 0.2 gm/KW-hr (6)
		Greenhouse Gases, CO_{2e}	≤ 162.85 lb/MMBtu
		Opacity	< 5%, except 5% to < 10% for ≤ 2 minutes during any one hour
EU1, EU2, EU3, EU4, EU5	NA	Smoke	310 CMR 7.06 (1)(a)
Facility-Wide	NA	NO_x	≤ 144.8 TPY (7)
		CO	≤ 88.0 TPY (7)
		VOC	≤ 28.0 TPY (7)
		SO_2	≤ 28.8 TPY (7)
		$PM/PM_{10}/PM_{2.5}$	≤ 82.0 TPY (7, 8)
		NH_3	≤ 51.0 TPY (7)
		H_2SO_4	≤ 19.0 TPY (7)
		Pb	≤ 0.00013 TPY (7)
		Formaldehyde or Single HAP	≤ 6.6 TPY (7)
		Total HAPs	≤ 13.1 TPY (7)
		CO_2	≤ 2,277,333 TPY (7)
		Greenhouse Gases, CO_{2e}	≤ 2,279,530 TPY (7)

Table 7 Notes:

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

2. Emission rates are based on burning natural gas in any one combustion turbine at a maximum natural gas firing rate of 2,300 MMBtu/hr, HHV (no duct firing), at 0 ºF ambient temperature, and 2,449 MMBtu/hr, HHV (duct firing), at 90 ºF ambient temperature, both at 14.7 psia ambient pressure and 60% ambient relative humidity. These constitute worst case emissions.

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

4. Emission limits represent worst case emissions for cold start-ups. Emissions for warm and hot start-ups are expected to be lower.

5. Opacity emission limits are one minute block averages.

6. Emission limits are one hour block averages and apply throughout the operating range, including during start-up and shutdown. Emissions are based on manufacturer's certifications using gaseous testing procedures in accordance with 40 CFR Part 89. VOC emissions are assumed to be equivalent to NMHC emissions. In accordance with the calculations found at 40 CFR 89.424 for No. 2 diesel fuel oil exhaust, NMHC mass emissions are calculated by assuming that each carbon atom is accompanied (using a weighted average) by 1.8 atoms of hydrogen (i.e. NMHC as $CH_{1.8}$), which corresponds to a gas density of 0.5746 kg/m^3.

7. Facility emissions include the two CTG/HRSG pairs with duct burners (EU1 and EU2), the auxiliary boiler (EU3), the emergency diesel engine/generator set (EU4), the fire pump engine (EU5), and the auxiliary cooling tower. Emissions, except CO emissions, for each of EU1 and EU2 are based on 8,040 hours of natural gas firing per 12 month rolling period at 100% load and 50ºF ambient temperature with no duct burner firing (2,130 MMBtu/hr, HHV) or evaporative cooling, and 720 hours of natural gas firing per 12 month rolling period at peak load (approximately 102% load) and 90ºF ambient temperature with 100% duct burner firing (2,449 MMBtu/hr, HHV) and evaporative cooling, and include start-up and shutdown emissions. Worst case CO emissions for each of EU1 and EU2 are based on a typical annual operating scenario of 3,272 hours at full load and different seasonal emission rates depending on heat input rates, ambient temperatures, and duct burner/evaporative cooling status, and 13, 189, and 4 cold, warm, and hot start-up/shutdown cycles, respectively. Emissions for EU3 are based on 6,570 hours of natural gas firing per 12 month rolling period at 100% load (80 MMBtu/hr, HHV). Emissions for each of EU4 and EU5 are based on restricted operation of 300 hours per unit, including maintenance and periodic readiness testing, while firing ULSD having a sulfur content that does not exceed 0.0015% by weight. Worst case NO_x and VOC emissions for EU4 are assumed to be emitted at the EPA Tier 2 limit of 6.4 gm/KW-hr and the EPA Tier 1 limit of 1.3 gm/KW-hr, respectively. Worst case NO_x and VOC emissions for EU5 are assumed to be emitted at the EPA Tier 3 limit of 4.0 gm/KW-hr and the EPA Tier 1 limit of 1.3 gm/KW-hr, respectively. EPA Tier 1, 2, and 3 emission standards are published in the United States Code of Federal Regulations, Title 40, Part 89 [40 CFR Part 89]. There are no NH_3 emissions from the auxiliary boiler, emergency engine/generator set, fire pump engine, and auxiliary cooling tower. The auxiliary cooling tower contributes to $PM/PM_{10}/PM_{2.5}$ emissions only based on 8,760 hours of operation per 12 month rolling period.

8. Emission limit is for the sum of filterable and condensable particulates, including sulfates.

9. Maximum fuel (natural gas only) heat input for each CTG/HRSG with duct burner is based on 8,040 hours of operation per 12 month rolling period at 100% load and 50ºF ambient temperature with no duct burner firing (2,130 MMBtu/hr, HHV), and 720 hours of operation per 12 month rolling period at peak load (approximately 102% load) and 90ºF ambient temperature with 100% duct burner firing (2,449 MMBtu/hr, HHV). Maximum total fuel heat input for the auxiliary boiler is based on 6,570 hours of operation per 12 month rolling period at 100% load (80 MMBtu/hr, HHV).

10. Emission limit is based on full (base) load (100% load) without duct firing ISO corrected (59 ºF, 14.7 psia, 60% humidity) heat rate of 6,940 Btu, higher heating value, per KW-hr net electrical output to the grid.

11. Emission limit is based on full (base) load (100% load) without duct firing ISO corrected (59 ºF, 14.7 psia, 60% humidity) heat rate of 6,940 Btu, higher heating value, per KW-hr net electrical output to the grid and a CO_{2e} emission factor of 119.0 lb/MMBtu. This emission factor is based on a CO_2 emission factor of 118.9 lb/MMBtu calculated from Equation G-4 of 40 CFR Part 75 Appendix G plus an emission factor of 0.1 lb/MMBtu for other greenhouse gases (methane and nitrous oxide) calculated utilizing the emission factors for these two pollutants from Table C-2 of 40 CFR Part 98 Subpart C and the global warming potentials for these two pollutants from Table A-1 of 40 CFR Part 98 Subpart A.. Compliance shall be determined during the initial emissions compliance test performed within 180 days after initial firing of the EU. If the EU does not meet this limit, then the Permittee shall remedy the EU's failure to meet this limit, and shall not combust fuel in the EU until the Permittee has shown compliance with this limit during a subsequent emissions compliance test.

12. Start-up and shutdown emission limits and duration are subject to revision by MassDEP based on review of compliance testing (stack testing) data and CEMs/COMs data generated from the first year of commercial operation.

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

14. Limit is based on an initial compliance test at full (base) (100% load) with no duct firing. Compliance demonstration shall be made by emissions compliance testing within 180 days after initial firing of each EU.

15. Limit is based on an initial compliance test at peak load (approximately 102% load) with 100% duct firing. Compliance demonstration shall be made by emissions compliance testing within 180 days after initial firing of each EU.

16. Emission limit is effective 365 days after initial firing of the EU and is based on a 365 day rolling average, net electrical output to the grid and a CO_{2e} emission factor of 119.0 lb/MMBtu (see Footnote 11 above). A new 365 day rolling average emission rate shall be calculated each day by calculating the arithmetic average of all hourly emission rates for the preceding 365 days, excluding the hours in which the EU was not operating. Hourly CO_{2e} mass emissions (lb) shall be calculated by obtaining monitored and recorded actual hourly heat input (MMBtu) and multiplying by the CO_{2e} emission factor of 119.0 lb/MMBtu.

17. Minimum Emissions Compliance Load (MECL) for EU1 and EU2 shall be a function of ambient temperature and other system parameters.

18. MECL for EU3 shall be determined during the initial emissions compliance testing to be performed within 180 days after initial firing of EU3.

Table 7 Key:

EU# = Emission Unit Number
No. = Number
NO_x = Nitrogen Oxides
CO = Carbon Monoxide
VOC = Volatile Organic Compounds
NMHC = Non-Methane Hydrocarbons
S = Sulfur
SO_2 = Sulfur Dioxide
PM = Total Particulate Matter
PM_{10} = Particulate Matter less than or equal to 10 microns in diameter
$PM_{2.5}$ = Particulate Matter less than or equal to 2.5 microns in diameter
NH_3 = Ammonia
H_2SO_4 = Sulfuric Acid
Pb = Lead
HAP = Hazardous Air Pollutants
CO_2 = Carbon Dioxide
CO_{2e} = Greenhouse Gases expressed as Carbon Dioxide equivalent and calculated by multiplying each of the six greenhouse gases (Carbon Dioxide, Nitrous Oxide, Methane, Hydrofluorocarbons, Perfluorocarbons, Sulfur Hexafluoride) mass amount of emissions, in tons per year, by the gas's associated global warming potential published at Table A-1 of 40 CFR Part 98, Subpart A and summing the six resultant values.
lb = pounds
lb/hr = pounds per hour
grains/scf = grains per standard cubic foot
MMBtu = million British thermal units, higher heating value (HHV) basis
lb/MMBtu = pounds per million British thermal units
ppmvd @ 15% O_2 = parts per million by volume, dry basis, corrected to 15 percent oxygen

ppmvd @ 3% O_2 = parts per million by volume, dry basis, corrected to 3 percent oxygen
scf = standard cubic feet
kg/m^3 = kilograms per cubic meter
% = percent
gm/KW-hr = grams per Kilowatt-hour
lb/MW-hr = pounds per Megawatt-hour net electrical output to the grid
Btu/KW-hr = British thermal units per Kilowatt-hour net electrical output to the grid
TPY = tons per 12-month rolling period
ºF = degrees Fahrenheit
psia = pounds per square inch, absolute
EPA = Unites States Environmental Protection Agency
CFR = Code of Federal Regulations
ISO = International Organization for Standardization
CTG/HRSG = combustion turbine generator/heat recovery steam generator
ULSD = Ultra Low Sulfur Diesel Fuel Oil containing a maximum of 0.0015 weight percent sulfur
CEMS = Continuous Emission Monitoring Systems
COMS = Continuous Opacity Monitoring Systems
HHV = higher heating value basis
MECL = minimum emissions compliance load
< = less than
> = greater than
≤ = less than or equal to
≥ = greater than or equal to
NA = Not Applicable

B. NEW SOURCE PERFORMANCE STANDARDS (NSPS)

Stationary Combustion Turbines/Heat Recovery Steam Generators/Duct Burners (EU1 and EU2)

The NSPS, 40 CFR Part 60 Subpart KKKK, apply to stationary combustion turbines with a heat input rating greater than or equal to 10 MMBtu/hr, and which commenced construction, reconstruction, or modification after February 18, 2005. The NSPS, 40 CFR Part 60 Subpart KKKK, also apply to emissions from any associated HRSGs or duct burners, and therefore includes both the combustion turbines and the duct burners (EU1 and EU2) at the Facility.

These NSPS allow the turbine owner or operator the choice of either a concentration based or output based NO_x emission standard. The concentration based limit is expressed in units of ppmvd @ 15% O_2. The output based emission limit is expressed in units of mass emissions per unit of useful recovered energy, nanograms per Joule (ng/J), or lb/MW-hr. The applicable NO_x emission standard for EU1 and EU2 is 15 ppmvd @ 15% O2 or 54 ng/J of useful output (0.43 lb/MW-hr). The Permittee has ensured that the Facility will comply with these limits through the use of dry low-NO_x combustion technology in conjunction with SCR add-on NO_x control technology to control NO_x emissions to 2.0 ppmvd @ 15% O_2 and 0.051 lb/MW-hr during natural gas firing, well below the NSPS limits.

The NSPS for SO_2 emissions are the same for all turbines regardless of size or fuel type. The NSPS for turbines located in the continental area prohibits the discharge into the atmosphere of any gases that contain SO_2 in excess of 110 ng/J (0.90 lb/MW-hr) gross energy output. The owner or operator of the turbine can choose to comply with either the SO_2 limit or the limit on the sulfur content of the fuel burned. For a turbine located in a continental area, the fuel sulfur content limit is

26 ng/J (0.060 lb SO_2/MMBtu) heat input. The Permittee will meet the NSPS for SO2 by burning natural gas with sulfur content not exceeding 0.5 grains sulfur per 100 standard cubic feet of gas fired (0.0015 lb SO_2/MMBtu), well below the NSPS limit.

The Permittee shall comply with all applicable emission standards, monitoring, record keeping, and reporting requirements of 40 CFR Part 60 Subpart KKKK for EU1 and EU2.

Auxiliary Boiler (EU3)

The NSPS, 40 CFR Part 60 Subpart Dc, apply to steam generating units for which construction commenced after June 9, 1989, and that have a heat input rating of between 10 and 100 MMBtu/hr. Based on the design heat input rating of 80 MMBtu/hr, HHV, the NSPS, 40 CFR Part 60 Subpart Dc, apply to the natural gas fired auxiliary boiler (EU3) at the Facility. For natural gas fired boilers, the NSPS does not impose specific emission limits.

The Permittee shall comply with all applicable monitoring, record keeping, and reporting requirements of 40 CFR Part 60 Subpart Dc for EU3.

Emergency Engine/Generator and Fire Pump Engine (EU4 and EU5)

The emergency generator (EU4) and fire pump (EU5) engines serving the Facility will both be subject to the NSPS under 40 CFR Part 60 Subpart IIII. The NSPS requires emergency generator engines to meet the non-road engine emission standards identified in 40 CFR Part 89.112 and 89.113. The fire pump engine will be subject to the emission standards identified in 40 CFR Part 60 Subpart IIII, Table 4. The NSPS require engine manufacturers to produce engines that comply with these standards. The Permittee shall install emergency generator and fire pump engines serving EU4 and EU5 that comply with the 40 CFR Part 60 Subpart IIII requirements.

The Permittee shall comply with all applicable emission standards, operating restrictions, monitoring, record keeping, and reporting requirements of 40 CFR Part 60 Subpart IIII for EU4 and EU5.

C. NATIONAL EMISSION STANDARDS FOR HAZARDOUS AIR POLLUTANTS (NESHAP) for the following Source Categories

Stationary Combustion Turbines/Heat Recovery Steam Generators/Duct Burners (EU1 and EU2)

The NESHAP at 40 CFR Part 63 Subpart YYYY apply to combustion turbines at major sources of hazardous air pollutant (HAP) emissions. A major source of HAP emissions is a source which has the potential to emit ten (10) or more tons per year of any single HAP, or twenty five (25) or more tons per year of all HAPs combined. The Facility is not a major source of HAP emissions. Therefore, the Facility's combustion turbines are not subject to the 40 CFR Part 63 Subpart YYYY requirements.

The Facility's duct burners are considered "steam electric generating units" under the NESHAP. Steam electric generating units are regulated under 40 CFR Part 63 Subpart UUUUU.

However, the NESHAP at 40 CFR Part 63 Subpart UUUUU only apply to coal and oil-fired steam electric generating units, and not to gas fired units such as the Facility duct burners. Therefore, the duct burners are not subject to the 40 CFR Part 63 Subpart UUUUU requirements.

Auxiliary Boiler (EU3)

The NESHAP at 40 CFR Part 63 Subpart DDDDD for industrial, commercial, and institutional boilers apply only to major sources of HAP emissions. However, the Facility is not a major source of HAP emissions. Therefore, EU3 is not subject to the 40 CFR Part 63 Subpart DDDDD requirements.

The NESHAP at 40 CFR Part 63 Subpart JJJJJJ for industrial, commercial, and institutional boilers apply to area (or minor) sources of HAP emissions, but do not include natural gas fired boilers. Since the auxiliary boiler shall fire natural gas only, it is not subject to the 40 CFR Part 63 Subpart JJJJJJ requirements.

Emergency Engine/Generator and Fire Pump Engine (EU4 and EU5)

The NESHAP at 40 CFR Part 63 Subpart ZZZZ, for stationary reciprocating internal combustion engines (RICE) apply to both major and area sources of HAP emissions, and covers both emergency and non-emergency engines. Both EU4 and EU5 have stationary emergency engines that are subject to 40 CFR Part 63 Subpart ZZZZ. However, for new stationary emergency engines at area sources of HAP emissions that began construction or reconstruction after June 12, 2006, the NESHAP requirements are satisfied if the engines comply with the NSPS requirements under 40 CFR Part 60 Subpart IIII. The Permittee shall install emergency generator and fire pump engines serving EU4 and EU5 that comply with the 40 CFR Part 60 Subpart IIII requirements.

D. ALLOWANCES

The Permittee's Facility is subject to various emission allowance programs. Emission allowance programs are market based air quality regulatory programs for which various classes of emission sources are required to obtain, secure, and/or hold a sufficient number of "allowances" to cover actual reported emissions emanating therefrom. Allowances are measured in "tons" of emissions (one allowance equals one ton of emissions). At specified intervals, "true-up" occurs at which time allowances in the Permittee's account are withdrawn to cover actual emissions over a specified time period. The Permittee is required to hold a sufficient number of allowances to cover reported emissions from the Facility for the applicable time period as of the "true-up" date. The true-ups are done on a facility-wide basis, for emissions from all subject emission units at the Facility. True-ups for annual SO_2 and ozone season NO_x (May through September) emissions are done annually. True-up for CO_2 emissions is done every three years. A partial true-up for CO_2 emissions is done annually.

These allowance programs require that actual facility emissions of SO_2, NO_x, and CO_2 (see Table 7, footnote 16) be monitored, recorded, and reported pursuant to documented monitoring plans and the regulatory provisions of 40 CFR Part 75.

Table 8 below contains the Permittee's applicable allowance programs for each pollutant, including the applicable regulation(s) and subject EUs at the Facility covered in this Plan Approval.

Table 8			
Pollutant	**Program**	**Applicable Regulation**	**Subject Facility Emission Units**
SO_2	Acid Rain Program (ARP)	40 CFR Parts 72, 73, and 75	EU1, EU2
NO_x	NO_x Ozone Season Clean Air Interstate Rule (CAIR)	310 CMR 7.32	EU1, EU2
CO_2	Regional Greenhouse Gas Initiative (RGGI) CO_2 Budget Trading Program (State Only Requirement)	310 CMR 7.70	EU1, EU2

<u>Table 8 Key:</u>

EU = Emission Unit
ARP = Acid Rain Program
CAIR = Clean Air Interstate Rule
RGGI = Regional Greenhouse Gas Initiative
CFR = Code of Federal Regulations
CMR = Code of Massachusetts Regulations
SO_2 = Sulfur Dioxide
NO_x = Nitrogen Oxides
CO_2 = Carbon Dioxide

The Permittee shall submit to MassDEP:

1. A Phase II Acid Rain Permit Application at least 24 months prior to commencement of commercial operation of any subject emission unit;

2. A CAIR Permit Application at least 18 months prior to commencement of commercial operation of any subject emission unit; and,

3. A CO_2 Budget Emission Control Plan (ECP) at least 12 months prior to commencement of commercial operation of any subject emission unit.

E. <u>COMPLIANCE DEMONSTRATION</u>

The Facility is subject to, and the Permittee shall ensure that the Facility shall comply with, the monitoring, testing, record keeping, and reporting requirements as contained in Tables 9, 10, and 11 below:

Table 9	
EU#	**Monitoring and Testing Requirements**
EU1, EU2, EU3	1. The Permittee shall ensure that the Facility is constructed to accommodate the emissions (compliance) testing requirements as stipulated in 40 CFR Part 60 Appendix A. The two outlet sampling ports (90 degrees apart from each other) for each emission unit must be located at a minimum of one duct diameter upstream and two duct diameters downstream of any flow disturbance. In addition, the Permittee shall facilitate access to the sampling ports and testing equipment by constructing platforms, ladders, or other necessary equipment.
	2. The Permittee shall ensure that compliance testing of the Facility is completed within 180 days after initial firing of each EU to demonstrate compliance with the emission limits specified in Table 7 of this Plan Approval. All emissions testing shall be conducted in accordance with MassDEP's "Guidelines for Source Emissions Testing" and in accordance with EPA reference test methods as specified in 40 CFR Part 60, Appendix A, 40 CFR Part 60 Subpart KKKK, 40 CFR Parts 72 and 75, or by another method which has been approved in writing by MassDEP. The Permittee shall schedule the compliance testing such that MassDEP personnel can witness it.
	3. The Permittee shall conduct initial compliance tests of the Facility to document actual emissions of EU1, EU2, and EU3 so as to determine their compliance status versus the emission limits (in lb/hr, lb/MMBtu, ppmvd, and lb/MW-hr, as applicable) in Table 7 for the pollutants listed below. Testing for these pollutants for EU1 and EU2 as specified below shall be conducted at four (4) load conditions that cover the entire normal operating range: the minimum emissions compliance load (MECL); 75 percent load; 100 percent (base) load without duct firing; and peak (approximately 102 percent load) with 100 percent duct firing. NO_x, CO, VOC, SO_2, PM, PM_{10}, $PM_{2.5}$, NH_3, CO_2, H_2SO_4, opacity Testing for these pollutants for EU3 as specified below shall be conducted at four (4) load conditions that cover the entire normal operating range: the MECL (to be determined during the compliance test); 50 percent load; 75 percent load; and 100 percent load. NO_x, CO, VOC, SO_2, PM, PM_{10}, $PM_{2.5}$, H_2SO_4, opacity
	4. The above referenced emissions testing shall include testing to develop a correlation between CO and VOC emissions for EU1 and EU2; parametric monitoring testing for PM, PM_{10}, and $PM_{2.5}$ emissions for EU1 and EU2; and NO_x/CO emissions optimization testing for EU3.
EU3	5. The Permittee shall conduct NO_x/CO optimization on, and tune, EU3 according to procedures contained in EPA 340/1-83-023 "Combustion Efficiency Optimization Manual for Operators of Oil and Gas Fired Boilers" with the goal of reducing air pollutant emissions to optimum levels. In addition, the Permittee shall tune EU3 in accordance with said procedures and inspect and maintain EU3 per manufacturer recommendations as well as test EU3 for efficient operation on an annual basis. The Permittee shall allow MassDEP personnel to witness tuning of EU3 if and when requested by MassDEP.

Table 9	
EU#	**Monitoring and Testing Requirements**
EU1, EU2, EU3	6. The Permittee shall install, calibrate, test, and operate a Data Acquisition and Handling System(s) (DAHS), CEMS, and COMS serving EU1 and EU2 to measure and record the following emissions: a) O_2; b) NO_x; c) CO; e) NH_3; d) opacity. The Permittee shall install, calibrate, test, and operate a DAHS and COMS to measure and record opacity on EU3.
	7. The Permittee shall ensure that all emission monitors and recorders serving EU1, EU2 and EU3 comply with MassDEP approved performance and location specifications, and conform with the EPA monitoring specifications at 40 CFR 60.13 and 40 CFR Part 60 Appendices B and F, and all applicable portions of 40 CFR Parts 72 and 75, 310 CMR 7.32, and 310 CMR 7.70, as applicable.
	8. The Permittee shall ensure that the subject CEMS and COMS are equipped with properly operated and properly maintained audible and visible alarms to activate whenever emissions from the Facility exceed the short term limits established in Table 7 of this Plan Approval.
	9. The Permittee shall operate each CEMS and/or COMS serving EU1, EU2 and EU3 at all times except for periods of CEMS and COMS calibration checks, zero and span adjustments, preventative maintenance, and periods of unavoidable malfunction.
	10. The Permittee shall obtain and record emissions data from each CEMS and/or COMS serving EU1, EU2 and EU3 for at least seventy (75) percent of each emission unit's operating hours per day, for at least seventy five (75) percent of each emission unit's operating hours per month, and for at least ninety five (95) percent of each emission unit's operating hours per quarter, except for periods of CEMS and COMS calibration checks, zero and span adjustments, and preventive maintenance.
	11. All periods of excess emissions occurring at the Facility, even if attributable to an emergency/malfunction, start-up/shutdown or equipment cleaning, shall be quantified and included by the Permittee in the compilation of emissions and determination of compliance with the emission limits as stated in Table 7 of this Plan Approval. ("**Excess Emissions**" are defined as emissions which are in excess of the emission limits as stated in Table 7). An exceedance of emission limits in Table 7 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).
	12. The Permittee shall use and maintain its CEMS and/or COMS serving EU1, EU2 and EU3 as "direct-compliance" monitors to measure NO_x, CO, NH_3, O_2, and/or opacity. "Direct-compliance" monitors generate data that legally documents the compliance status of a source.
	13. The Permittee shall develop a quality assurance/quality control program for the long-term operation of the CEMS and/or COMS serving EU1, EU2 and EU3 so as to conform with 40 CFR Part 60 Appendices B and F, all applicable portions of 40 CFR Parts 72 and 75, 310 CMR 7.32, and 310 CMR 7.70.
	14. The Permittee shall install, operate, and maintain a fuel metering device and recorder for EU1, EU2 and EU3 that records natural gas consumption in standard cubic feet (scf).
	15. The Permittee shall monitor fuel heat input rate (MMBtu/hr, HHV) and total fuel heat input (MMBtu) for EU1, EU2, and EU3.

Table 9	
EU#	**Monitoring and Testing Requirements**
EU1, EU2, EU3	16. The Permittee shall monitor each date and daily hours of operation and total hours of operation for EU1, EU2, and EU3 per month and twelve month rolling period.
EU1, EU2	17. The Permittee shall ensure that initial compliance tests of the Facility are conducted for "hot start", "warm start", "cold start", and shutdown periods as defined in the Permittee's Application for EU1 and EU2. These compliance tests shall represent periods of operation below the MECL for EU1 and EU2. Emission data generated from this testing shall be made available for review by MassDEP prior to determining and approving the maximum allowable emission limits for all pollutants listed in Table 7 (lb per event) and opacity limits, for these periods of time. MassDEP will incorporate these emission limits into a Final Plan Approval for the as-built Facility upon issuance and such limits shall be considered enforceable.
	18. Whenever either combustion turbine is operating below the MECL for start-up and shutdown, the VOC emissions shall be considered as occurring at the rate determined in the most recent compliance test for start-up/shutdown conditions.
	19. If either combustion turbine is operating at the MECL or greater, and if its CO emissions are below the CO emission limit at the given combustion turbine operating conditions, its VOC emissions shall be considered as meeting the emission limits contained in this Plan Approval, subject to correlation as contained in Condition 20 below.
	20. If either combustion turbine is operating at the MECL or greater, and if its CO emissions are above the CO emission limit at the given combustion turbine operating conditions, its 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 compliance testing, after which a VOC/CO correlation curve for each combustion turbine will be developed and used for VOC compliance determination purposes.
	21. The Permittee shall monitor the natural gas consumption of EU1 and EU2 in accordance with 40 CFR Part 60 Subpart KKKK utilizing a continuous monitoring system accurate to $\pm$ 5 percent, and as approved by MassDEP.
	22. The Permittee shall monitor the sulfur content of the natural gas combusted by EU1 and EU2 in accordance with 40 CFR Part 60 Subpart KKKK, or pursuant to any alternative fuel monitoring schedule issued in accordance with 40 CFR Part 60 Subpart KKKK.
	23. The Permittee shall install and operate continuous monitors fitted with alarms to monitor continuously the temperatures at the inlets to the SCR and oxidation catalysts serving EU1 and EU2. In addition, the Permittee shall monitor the combustion turbine inlet and ambient temperatures for EU1 and EU2.
	24. The Permittee shall install and operate high and low level audible alarm monitors on the NH_3 storage tank and shall ensure that they are properly maintained.
	25. The Permittee shall monitor the load, start-up and shutdown duration, and mass emissions (lb/event) during start-up and shutdown periods of EU1 and EU2.
	26. The Permittee shall monitor the operation of EU1 and EU2, in accordance with the surrogate methodology or parametric monitoring developed during the most recent compliance test concerning PM, PM_{10}, and $PM_{2.5}$ emission limits.
	27. The Permittee shall monitor the SO_2 and CO_2 emissions in accordance with 40 CFR Part 75.

Table 9	
EU#	**Monitoring and Testing Requirements**
EU1, EU2	28. The Permittee shall monitor the Greenhouse Gas emission rate utilizing the calculation procedures in 40 CFR Part 98 Subpart A, Table A-1.
	29. The Permittee shall continuously monitor the net electrical output to the grid of the Facility.
EU4, EU5	30. The Permittee shall equip, operate, and maintain non-resettable hour meters on the emergency generator and fire pump engines in order to monitor the hours of operation of each emission unit.
	31. The Permittee shall monitor the quantity and sulfur content of ULSD fuel oil burned in EU4 and EU5.
Facility-Wide	32. The Permittee shall monitor all operations to ensure sufficient information is available to comply with 310 CMR 7.12 Source Registration.
	33. If and when MassDEP requires it, the Permittee shall conduct compliance testing in accordance with EPA Reference Test Methods and 310 CMR 7.13.

Table 9 Key:

EU# = Emission Unit Number
EPA = United States Environmental Protection Agency
CFR = Code of Federal Regulations
CMR = Code of Massachusetts Regulations
DAHS = Data Acquisition and Handling System
CEMS = Continuous Emission Monitoring System
COMS = Continuous Opacity Monitoring System
SCR = Selective Catalytic Reduction
O_2 = Oxygen
NO_x = Nitrogen Oxides
CO = Carbon Monoxide
NH_3 = Ammonia
PM = Particulate Matter
PM_{10} = Particulate Matter less than or equal to 10 microns in size
$PM_{2.5}$ = Particulate Matter less than or equal to 2.5 microns in size
VOC = Volatile Organic Compounds
CO_2 = Carbon Dioxide
SO_2 = Sulfur Dioxide
H_2SO_4 = Sulfuric Acid
lb = pounds
lb/hr = pounds per hour
lb/MMBtu = pounds per million British thermal units
ppmvd = parts per million by volume, dry basis
lb/MW-hr = pounds per megawatt-hr net electrical output to the grid
scf = standard cubic feet
MMBtu/hr = million British thermal units per hour
MMBtu = million British thermal units
HHV = higher heating value basis
MECL = Minimum Emissions Compliance Load
ULSD = Ultra Low Sulfur Diesel Fuel Oil containing a maximum of 0.0015 weight percent sulfur

Table 10	
EU#	**Record Keeping Requirements**
EU1, EU2, EU3	1. The Permittee shall maintain records of each emission unit's hourly fuel heat input rate (MMBtu/hr, HHV), total fuel heat input (MMBtu), and natural gas consumption (scf) per month and twelve month rolling period basis.
	2. The Permittee shall maintain records of each date and daily hours of operation and total hours of operation of each EU per month and twelve month rolling period.
	3. The Permittee shall maintain on-site permanent records of output from all continuous monitors (including CEMS and COMS) for flue gas emissions and natural gas consumption (scf).
	4. The Permittee shall maintain a log to record problems, upsets or failures associated with the subject emission control systems, DAHS, CEMS, and/or COMS serving EU1, EU2, and EU3, and the NH_3 handling system serving EU1 and EU2.
EU1, EU2	5. The Permittee shall continuously estimate and record VOC emissions on the DAHS using the CO/VOC correlation curve developed from the most recent compliance test.
	6. The Permittee shall continuously estimate and record PM, PM_{10}, and $PM_{2.5}$ emissions on the DAHS using the surrogate methodology or parametric monitoring derived from the most recent compliance test.
	7. The Permittee shall maintain records of the load, start-up and shutdown duration, and mass emissions (lb/event) during start-up and shutdown periods of EU1 and EU2.
	8. The Permittee shall maintain records of net electrical output to the grid from the Facility on a daily basis.
	9. The Permittee shall maintain records of the sulfur content of the natural gas combusted by EU1 and EU2 at the frequency required pursuant to 40 CFR Part 60 Subpart KKKK, or pursuant to any alternative fuel monitoring schedule issued in accordance with 40 CFR Part 60 Subpart KKKK.
	10 The Permittee shall record SO_2 and CO_2 emissions from EU1 and EU2 in accordance with 40 CFR Part 75.
	11. The Permittee shall record the Greenhouse Gas emission rate of EU1 and EU2 on a daily basis utilizing the calculation procedures in 40 CFR Part 98 Subpart A, Table A-1.
	12. The Permittee shall maintain continuous records of SCR and oxidation catalyst inlet temperatures, combustion turbine inlet temperatures and ambient temperatures.
	13. The Permittee shall maintain the SOMP for the NH_3 handling system serving EU1 and EU2 in a convenient location and make them readily available to all employees.
EU3	14. The Permittee shall record and post conspicuously on or near EU3 the results of annual inspections, maintenance, and testing and the date(s) upon which it was performed.
EU4, EU5	15. The Permittee shall maintain a record of the quantity of ULSD fuel oil combusted in, and the total hours of operation of, EU4 and EU5 per month and per 12-month rolling period.
	16. The Permittee shall maintain a record of the sulfur content of each ULSD fuel oil delivery made to the Facility.
	17. The Applicant shall maintain records concerning engine certifications as described in 310 CMR 7.26 (42)(e)1. at the Facility.

Table 10	
EU#	**Record Keeping Requirements**
Facility-Wide	18. A record keeping system for the Facility shall be established and maintained up-to-date by the Permittee such that year-to-date information is readily available. Record keeping shall, at a minimum, include: a) Compliance records sufficient to document actual emissions from the Facility in order to determine compliance with what is allowed by this Plan Approval. Such records shall include, but are not limited to, fuel usage rates, emissions test results, monitoring equipment data and reports; b) Maintenance: A record of routine maintenance activities performed on the subject emission units' control equipment and monitoring equipment at the Facility including, at a minimum, the type or a description of the maintenance performed and the date(s) and time(s) the work was commenced and completed; and, c) Malfunctions: A record of all malfunctions on the subject emission units' control and monitoring equipment at the Facility including, at a minimum: the date and time the malfunction occurred; a description of the malfunction and the corrective action taken; the date and time corrective actions were initiated; and the date and time corrective actions were completed.
	19. The Permittee shall maintain all records required by 310 CMR 7.32, 310 CMR 7.70, 310 CMR 7.71 (Reporting of Greenhouse Gas Emissions), and 40 CFR Part 98 (Mandatory Greenhouse Gas Emissions Reporting) at the Facility.
	20. The Permittee shall maintain monthly records to demonstrate the Facility's compliance status regarding the Facility-Wide emission limits (TPY) specified in Table 7. Records shall include actual emissions for the month as well as for the previous 11 months. (The MassDEP approved format can be downloaded at http://www.mass.gov/eea/agencies/massdep/air/approvals/limited-emissions-record-keeping-and-reporting.html#WorkbookforReportingOn-SiteRecordKeeping in Microsoft Excel format.)
	21. The Permittee shall maintain a copy of this Plan Approval, underlying Application, and the most up-to-date Standard SOMP for each emission unit and PCD approved herein on-site.
	22. The Permittee shall maintain a complaint log concerning emissions, odor, and noise from the Facility. The Permittee shall make available to the general public a telephone number which receives and records complaints concerning the Facility 24 hours per day, 7 days per week. The complaint log shall be maintained for the most recent five (5) year period. The complaint log shall be made available to the public or MassDEP upon request. The Permittee shall take all reasonable actions to respond to said complaints in a timely manner.
	23. The Permittee shall maintain records for the annual preparation of a Source Registration/Emission Statement Form in accordance with 310 CMR 7.12.
	24. The Permittee shall maintain records of monitoring and testing as required by Table 9. All records required by this Plan Approval shall be kept on site for five (5) years and made available for inspection by MassDEP or EPA upon request.

Table 10 Key:

EU# = Emission Unit Number
PCD = Pollution Control Device
SOMP = Standard Operating and Maintenance Procedures
EPA = United States Environmental Protection Agency
DAHS = Data Acquisition and Handling System
CEMS = Continuous Emission Monitoring System
COMS = Continuous Opacity Monitoring System
SCR = Selective Catalytic Reduction
CFR = Code of federal Regulations
CMR = Code of Massachusetts Regulations
CO = Carbon Monoxide
NH_3 = Ammonia
PM = Particulate Matter
PM_{10} = Particulate Matter less than or equal to 10 microns in size
$PM_{2.5}$ = Particulate Matter less than or equal to 2.5 microns in size
VOC = Volatile Organic Compounds
SO_2 = Sulfur Dioxide
CO_2 = Carbon Monoxide
ULSD = Ultra Low Sulfur Diesel Fuel Oil containing a maximum of 0.0015weight percent sulfur
lb = pounds
scf = standard cubic feet
MMBtu/hr = million British thermal units per hour
MMBtu = million British thermal units
HHV = higher heating value basis
TPY = tons per 12-month rolling period

Table 11	
EU#	**Reporting Requirements**
EU1, EU2, EU3	1. The Permittee must obtain written MassDEP approval of an emissions test protocol prior to initial compliance emissions testing of EU1, EU2 and EU3 at the Facility. The protocol shall include a detailed description of sampling port locations, sampling equipment, sampling and analytical procedures, and operating conditions for any such emissions testing. In addition, the protocol shall include procedures for: a) the required CO and VOC correlation for EU1 and EU2; b) a parametric monitoring strategy to ensure continuous monitoring of PM, PM_{10}, and $PM_{2.5}$ emission from EU1 and EU2; and c) procedures for the required NO_x and CO optimization for EU3. The protocol must be submitted to MassDEP at least 30 days prior to commencement of testing.
	2. The Permittee shall submit a final emissions test results report to MassDEP within 45 days after completion of the initial compliance emissions testing program.
	3. A QA/QC program plan for the CEMS and/or COMS serving EU1, EU2 and EU3 must be submitted, in writing, at least 30 days prior to commencement of commercial operation of the subject emission units. MassDEP must approve the QA/QC program prior to its implementation. Subsequent changes to the QA/QC program plan shall be submitted to MassDEP for MassDEP approval prior to their implementation.

Table 11	
EU#	**Reporting Requirements**
EU1, EU2, EU3	4. The Permittee shall submit a quarterly Excess Emissions Report to MassDEP by the thirtieth (30th) day of April, July, October, and January covering the previous calendar periods of January through March, April through June, July through September, and October through December, respectively. The report shall contain at least the following information: a) The Facility CEMS and COMS excess emissions data, in a format acceptable to MassDEP. b) For each period of excess emissions or excursions from allowable operating conditions for the emission unit(s), the Permittee shall list the duration, cause, the response taken, and the amount of excess emissions. Periods of excess emissions shall include periods of start-up, shutdown, malfunction, emergency, equipment cleaning, and upsets or failures associated with the emission control system or CEMS or COMS. ("**Malfunction**" means any sudden and unavoidable failure of air pollution control equipment or process equipment or of a process to operate in a normal or usual manner. Failures that are caused entirely or in part by poor maintenance, careless operation, or any other preventable upset condition or preventable equipment breakdown shall not be considered malfunctions. "**Emergency**" means any situation arising from sudden and reasonably unforeseeable events beyond the control of this source, including acts of God, which situation would require immediate corrective action to restore normal operation, and that causes the source to exceed a technology based limitation under the Plan Approval, due to unavoidable increases in emissions attributable to the emergency. An emergency shall not include noncompliance to the extent caused by improperly designed equipment, lack of preventative maintenance, careless or improper operations, operator error or decision to keep operating despite knowledge of these things.) c) A tabulation of periods of operation (including dispatch) of each emission unit and total hours of operation of each emission unit during the calendar quarter.
EU1, EU2	5. After completion of the initial compliance emissions testing program, the Permittee shall submit information for MassDEP review that documents the actual emissions impacts generated by EU1 and EU2 during start-up and shutdown periods versus any applicable NAAQS and SILs or the AALs and TELs for air toxics. This information shall be submitted to MassDEP as part of the final emissions test results report.
	6. The Permittee shall submit to MassDEP, in accordance with the provisions of Regulation 310 CMR 7.02(5)(c), plans and specifications for the main exhaust stack, CTGs, the SCR control system (including the NH_3 handling and storage system), the oxidation catalyst control system, and the CEMS, COMS, and DAHS once the specific information has been determined, but in any case not later than 30 days prior to commencement of construction/installation of each component of each subject emission unit.
EU3	7. The Permittee shall submit to MassDEP, in accordance with the provisions of Regulation 310 CMR 7.02(5)(c), the plans and specifications for the auxiliary boiler, and its Ultra Low NOx burner, exhaust stack, COMS and DAHS once the specific information has been determined, but in any case not later than 30 days prior to commencement of construction/installation of each component of EU3.

Table 11	
EU#	**Reporting Requirements**
EU4, EU5	8. The Permittee shall submit to MassDEP a certification for each engine in accordance with 310 CMR 7.26 (42)(e)1 not later than 30 days prior to commencement of its construction/installation.
	9. The Permittee shall submit to MassDEP, in accordance with the provisions of Regulation 310 CMR 7.02(5)(c), the plans and specifications for the emergency engine/generator set, fire pump engine, and associated exhaust stacks 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 emission unit.
Facility-Wide	10. The Permittee shall submit to MassDEP a plan for monitoring and abating air and noise impacts during the period of construction of the Facility, not later than 30 days prior to commencement of construction.
	11. The Permittee shall submit, in writing, the following notifications to MassDEP within fourteen (14) days after each occurrence: a) date of commencement of construction of each subject emission unit at the Facility; b) date when construction has been completed of each subject emission unit at the Facility; c) date of initial firing of each subject emission unit at the Facility; d) date when each subject emission unit at the Facility is either ready for commercial operation or has commenced commercial operation.
	12. No later than 12 months after commencement of operation of the Facility, the Permittee shall submit an Operating Permit Application to MassDEP in accordance with 310 CMR 7.00: Appendix C.
	13. If the Facility is subject to 40 CFR Part 68, due to the presence of a regulated substance above a threshold quantity in a process, the Permittee must submit a Risk Management Plan no later than the date the regulated substance is first present above a threshold quantity.
	14. The Permittee shall report to EPA in accordance with 40 CFR Part 75.
	15. The Permittee shall comply with all applicable reporting requirements of 310 CMR 7.32, 310 CMR 7.70, 310 CMR 7.71 (Reporting of Greenhouse Gas Emissions), and 40 CFR Part 98 (Mandatory Greenhouse Gas Emissions Reporting).
	16. The Permittee must notify MassDEP by telephone or fax or e-mail [nero.air@massmail.state.ma.us] as soon as possible, but in any case no later than three (3) business days after the occurrence of any upsets or malfunctions to the Facility equipment, air pollution control equipment, or monitoring equipment which result in an excess emission to the air and/or a condition of air pollution.
	17. The Permittee shall notify MassDEP immediately by telephone or fax or e-mail [nero.air@massmail.state.ma.us] and within three (3) working days, in writing, of any upset or malfunction to the NH_3 handling or delivery systems that resulted in a release or threat of release of NH_3 to the ambient air at the Facility. In addition, the Permittee must comply with all notification procedures required under M.G.L. c. 21 E for any release or threat of release of NH_3.

Table 11	
EU#	**Reporting Requirements**
Facility-Wide	18. The Permittee shall submit a semi-annual report to MassDEP by July 30 and January 30 of each year to demonstrate the Facility's compliance status regarding the Facility-Wide emission limits (TPY) specified in Table 7. Reports shall include actual emissions for the previous 12 months. (The MassDEP approved format can be downloaded at http://www.mass.gov/eea/agencies/massdep/air/approvals/limited-emissions-record-keeping-and-reporting.html#WorkbookforReportingOn-SiteRecordKeeping in Microsoft Excel format.)
	19. The Permittee shall submit to MassDEP a SOMP for the subject emission units and associated control and monitoring/recording systems at the Facility no later than 30 days prior to commencement of commercial operation of the unit. Thereafter, the Permittee shall submit updated versions of the SOMP to MassDEP no later than thirty (30) days prior to the occurrence of a significant change. MassDEP must approve of significant changes to the SOMP prior to the SOMP becoming effective. The updated SOMP shall supersede prior versions of the SOMP.
	20. The Permittee shall submit to MassDEP all information required by this Plan Approval over the signature of a "Responsible Official" as defined in 310 CMR 7.00 and shall include the Certification statement as provided in 310 CMR 7.01(2)(c).
	21. All notifications and reporting to MassDEP required by this Plan Approval shall be made to the attention of: Department of Environmental Protection/Bureau of Waste Prevention 205B Lowell Street Wilmington, Massachusetts 01887 Attn: Permit Chief Phone: (978) 694-3200 Fax: (978) 694-3499 E-Mail: nero.air@massmail.state.ma.us
	22. The Permittee shall report annually to MassDEP, in accordance with 310 CMR 7.12, all information as required by the Source Registration/Emission Statement Form. The Permittee shall note therein any minor changes (under 310 CMR 7.02(2)(e), 7.03, 7.26, etc.), which did not require plan approval.
	23. The Permittee shall provide a copy to MassDEP of any record required to be maintained by this Plan Approval within thirty (30) days from MassDEP's request.
	24. If and when MassDEP requires compliance testing, the Permittee shall submit to MassDEP for approval a stack emission pretest protocol, at least thirty (30) days prior to emission testing, for emission testing as defined in Table 9 Monitoring and Testing Requirements.
	25. If and when MassDEP requires compliance testing, the Permittee shall submit to MassDEP a final stack emission test results report, within forty five (45) days after emission testing, for emission testing as defined in Table 9 Monitoring and Testing Requirements.

Table 11 Key:

EU# = Emission Unit Number

EPA = United States Environmental Protection Agency
CEMS = Continuous Emission Monitoring System
COMS = Continuous Opacity Monitoring System
DAHS = Data Acquisition and Handling System
CFR = Code of Federal Regulations
CMR = Code of Massachusetts Regulations
M.G.L. = Massachusetts General Laws
SOMP = Standard Operating and Maintenance Procedures
QA/QC = Quality Assurance/Quality Control
CTG = Combustion Turbine Generator
SCR = Selective Catalytic Reduction
TPY = tons per 12 month rolling period
NO_x = Oxides of Nitrogen
CO = Carbon Monoxide
NH_3 = Ammonia
PM = Particulate Matter
PM_{10} = Particulate Matter less than or equal to 10 microns in size
$PM_{2.5}$ = Particulate Matter less than or equal to 2.5 microns in size
VOC = Volatile Organic Compounds
NAAQS = National Ambient Air Quality Standards
SILs = Significant Impact Levels
AAL = Allowable Ambient Limit
TEL = Threshold Effects Exposure Limit

7. SPECIAL REQUIREMENTS

A. SPECIAL TERMS AND CONDITIONS

The Facility is subject to, and the Permittee shall ensure that the Facility shall comply with, the special terms and conditions as contained in Table 12 below:

Table 12	
EU#	**Special Terms and Conditions**
EU1, EU2	1. The Permittee shall not allow the combustion turbines at the Facility to operate below the MECL, except for start-ups and shutdowns. Emissions during start-ups and shutdowns shall be included in the TPY limits specified in Table 7.
	2. The Permittee shall ensure that the SCR control equipment serving EU1 and EU2 is operational whenever the turbine exhaust temperature at the SCR unit attains the minimum exhaust temperature specified by the SCR vendor and other system parameters are satisfied for SCR operation. The specific load at which this exhaust temperature and other system parameters are achieved will vary based on ambient conditions and whether the start-up is cold, warm, or hot.
	3. The Permittee shall maintain in the Facility control room, properly maintained, operable, portable NH_3 detectors for use during an NH_3 spill, or other emergency situation involving $NH_{3,}$ at the Facility.
EU1, EU2, EU3	4. The Permittee shall develop as part of the Standard Operating Procedures for EU1, EU2, and EU3, an MECL optimization protocol to establish minimum operating load(s) that maintain compliance with all emission limitations at various ambient temperatures and conditions for each respective emission unit.

Table 12	
EU#	**Special Terms and Conditions**
EU1, EU2, EU3	5. The Permittee shall maintain an adequate supply of spare parts on-site to maintain the on-line availability and data capture requirements for the CEMS and COMS equipment serving the Facility.
Facility-Wide	6. The Permittee shall properly train all personnel to operate the Facility and the control and monitoring equipment serving the Facility in accordance with vendor specifications. All persons responsible for the operation of the Facility shall sign a statement affirming that they have read and understand the approved SOMP. Refresher training shall be given by the Permittee to Facility personnel at least once annually.
	7. Prior to commencing construction of any emission unit at the Facility, the roadways serving said Facility shall be paved and maintained free of deposits that could result in excessive dust emissions.
	8. The Permittee shall comply with all provisions of 40 CFR Parts 72 and 75, 40 CFR Part 60, 40 CFR Part 63, 40 CFR Part 64, 40 CFR Part 68, 40 CFR Part 98, and 310 CMR 6.00 through 8.00 that are applicable to this Facility.
	9. All requirements of this Approval which apply to the Permittee shall apply to all subsequent owners and/or operators of the Facility.
	10. The Permittee shall use variable speed drives for all ACC fan motors and the primary boiler feed water pump and condensate pump motors. Piping and valves to reduce pressure losses shall be considered in the detailed plant design. The highest efficiency commercially available transformers compatible for interconnection with the nearby National Grid switchyard shall be installed.
	11. The Permittee shall comply with all applicable portions of Section 112(r) of the Clean Air Act and associated regulations at 40 CFR Part 68.

Table 12 Key:

EU# = Emission Unit Number
CFR = Code of federal regulations
CMR = Code of Massachusetts Regulations
SOMP = Standard Operating and Maintenance Procedures
CEMS = Continuous Emission Monitoring System
COMS = Continuous Opacity Monitoring System
SCR = Selective Catalytic Reduction
NH_3 = Ammonia
TPY = tons per 12 month rolling period
MECL = Minimum Emissions Compliance Load

B. STACK INFORMATION

The Permittee shall install, maintain, and utilize exhaust stacks with the following parameters, as contained in Table 13 below, for the Emission Units that are regulated by this Plan Approval:

Table 13				
EU#	**Stack Height Above Ground (feet)**	**Stack Inside Exit Dimensions (feet)**	**Stack Gas Exit Velocity Range (feet per second)**	**Stack Gas Exit Temperature Range (^oF)**
EU1, EU2 (1)	230 (Each Flue)	20 (Each Flue)	39.2 to 61.9 (Each Flue)	175 to 215 (Each Flue)
EU3 (1)	230	3	$\leq$ 70.2	$\leq$ 530
EU4	86	1	$\leq$ 113.3	$\leq$ 620
EU5	22	0.667	$\leq$ 80.6	$\leq$ 820

Table 13 Notes:

1. EU1, EU2, and EU3 shall emit through one stack, containing three (3) flues.

Table 13 Key:

EU# = Emission Unit Number
^oF = degrees Fahrenheit
$\leq$ = less than or equal to

C. NOISE

Daytime and nighttime sound measurements to determine ambient (background) sound levels were taken at twelve locations (ST1 through ST12 in Table 14). Two additional monitoring locations (R1 and R2 in Table 14) were added with data in the public record to expand the study area and supplement the measurement data set, as collected by the Permittee. Baseline sound measurements were taken on May 17/18, 2012 and November 20/21, 2012. Salem Harbor Station's existing Boiler Units 3 and 4 were not operating during the measurement time periods. It is expected that the National Grid substation transformers will remain operating at the site even after the existing facility has been demolished; therefore, sound measurements included operation of these transformers. The sound measurements consisted of both A-weighted sound levels and octave band sound levels. A-weighted sound levels emphasize the middle frequency sounds and de-emphasize lower and higher frequency sounds, and are reported in decibels designated as "dBA". The A-weighted sound levels were recorded for each of the five categories most commonly used to describe ambient environments: L_{90}, L_{50}, L_{10}, L_{max}, and L_{eq}. The L_{90} level represents the sound level exceeded 90 percent of the time and is used by MassDEP for determining background (ambient) sound levels.

In general, background (L_{90}) levels (in dBA) at locations ST1 through ST12 averaged from 36 to 49 during nighttime hours (with the exception of location ST9 where no nighttime measurements were taken) and from 39 to 51 during daytime hours. To compensate for nighttime measurements taken before midnight instead of during the typically quietest time of the day (12AM to 4AM), the Permittee conservatively deducted 2 dBA from the measured ambient sound levels at locations ST1, ST2, ST5, ST6, and ST8.

Calculations of operational acoustic impacts from the Facility were calculated using DataKustic GmbH's CadnaA, a computer-aided noise abatement program (version 4.1.137). CadnaA conforms to International Standard ISO-9613.2, "Acoustics – Attenuation of Sound during Propagation Outdoors." The method evaluated A-weighted sound pressure levels under meteorological conditions favorable to propagation from sources of known sound emissions.

The impact sound levels generated from base load (100% load) operation of the Facility modeled by the Permittee are summarized in Table 14 below:

Table 14

Location	Ambient (L_{90},dBA) (1)	Facility (dBA)	Ambient and Facility (dBA)	Increase Over Ambient (dBA) (2)
ST1 – Located to the North/ Residences near 39 Fort Avenue	47	44	49	2
ST2 - Existing Property Line to the West/Block House Square/Residences near Fort Avenue and Derby Street Intersection	42	44	46	4
ST3 – Located to the Northeast/25 Memorial Drive/Bentley Elementary School	39	41	43	4
ST4 – Existing Property Line to the Southwest/Residences near Intersection of Webb Street and Derby Street/23 Derby Street	39	43	44	5
ST5 – Existing Property Line to the Southwest/59 Derby Street	39	44	45	6
ST6 – Located to the East across Salem Harbor/76 Naugus Avenue (Marblehead)	36	34	38	2
ST7 – Located to the East/Winter Island Park (Harbormaster Office)	39	39	42	3
ST8 – Located to the Northeast/Intersection of Fort Avenue and Winter Island Road/Winter Island Road	38	33	39	1

Table 14				
Location	**Ambient (L_{90},dBA) (1)**	**Facility (dBA)**	**Ambient and Facility (dBA)**	**Increase Over Ambient (dBA) (2)**
ST9 – Existing Property Line to the South/Blaney Street Pier on Salem Wharf	39	42	44	5
ST10 – Southwest Corner of the Existing Property/Mackey Building/Art Gallery	36	41	42	6
ST11 – Near House of Seven Gables across from 41 Turner Street	39	37	41	2
ST12 – Pickering Wharf near Victoria's Station approximately 100 feet behind Sail Schooner "Fame" Kiosk	41	32	42	1
R1 – Plummer House	40	33	41	1
R2 – Winter Island Road Residences	34	33	38	4

Table 14 Notes:

1. The background levels observed during equipment operating hours either nighttime or daytime where the sound level is exceeded 90 percent of the time (L_{90}) which is the level regulated by MassDEP Noise Policy 90-001.

2. MassDEP Noise Policy 90-001 limits sound level increases to no more than 10 dBA over the L_{90} ambient levels. Pure tone conditions or tonal sounds, defined as any octave band level which exceeds the levels in adjacent octave bands by 3 dBA or more, are not allowed.

Table 14 Key:

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

In addition to operating the facility such that sound impacts conform to the preceding analysis, the Permittee shall comply with the following conditions:

1. The Facility shall be operated and maintained such that at all times:

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

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

2. Facility personnel shall continue to identify and evaluate all plant equipment that may cause a noise condition. Sound sources with potential to cause noise include, but are not limited to: main exhaust stack containing three flues, ACC, CTG packages, combustion turbine air inlets, STG packages, HRSG packages, CTG step up transformers, STG step up transformers, screw type natural gas compressor, natural gas metering station, auxiliary boiler, and auxiliary cooling tower.

3. The Permittee shall perform the following measures or equivalent alternative measures at the Facility to minimize sound emissions as indicated in (and in addition to) the Application and the Permittee's responses, dated April 12, June 10, and June 18, 2013, to MassDEP's requests for additional information with regard to noise mitigation:

a) Enclose the CTG, low noise HRSG, and STG packages for EU1 and EU2 within acoustically treated buildings consisting of absorptive double layer acoustic walls constructed of steel skin, mineral wool, and perforated metal interior designed for a Sound Transmission Class (STC) rating of 46. All ventilation openings and rooftop fans shall be acoustically silenced and attenuated. Machinery and personnel access into the buildings shall be through high performance acoustic doors.

b) Enclose the natural gas compressor and metering station within an acoustically treated building with airways into the building and exhausts adequately sound attenuated through the use of silencers.

c) Install GE 12 foot Silencers with Acoustic Plenums on combustion turbine inlet air filter houses for EU1 and EU2.

d) Install turbine exhaust silencers in the HRSG discharge flow paths, either in the connecting ducts and/or in the vertical stack flues for EU1, EU2, and EU3 designed to meet a total sound power attenuation of 22 dBA and a 90-degree directional sound power level of 83 dbA or less at stack exits.

e) Install ultra low noise CTG and STG step up transformers providing sound power levels (L_w) of 83 dBA for CTG step-up transformers and 90 dBA for STG step up transformers on EU1 and EU2, and enclose the transformers with firewalls/barriers to provide shielding to the receptors located on Derby Street to the west and the residential area to the south.

f) Install ACC with low noise fans and Acoustic Louvers on the inlet of the ACC, which shall be designed to meet 51 dbA or less at 400 feet from the ACC.

g) Install a retaining wall and berm around the western, southern, and eastern edges of the Facility site.

These measures, which result in a maximum increase of 6 dbA above ambient as shown in Table 14, are identified as Option 2 noise mitigation measures in the Permittee's June 18, 2013 Supplement to the Application amongst the four (4) options evaluated by the Permittee as compared to the reference (or standard) design noise mitigation measures for this type of facility.

4. The Permittee shall complete a sound survey in accordance with MassDEP procedures/guidelines within one hundred eighty (180) days after the Facility commences commercial operation, while the Facility is in operation, to verify that sound emissions from the Facility do not exceed the levels associated with Option 2 Noise Mitigation. These sound emissions were assumed in the modeling analysis, based on observed impacts at affected receptors and subtracting the influence of non-project-influenced background sound levels. Prior to conducting the sound survey, the Permittee shall submit in writing to MassDEP for review a sound survey protocol at least thirty (30) days prior to commencing the sound survey. The Permittee shall submit to MassDEP a written report, describing the results of the required sound survey, within 45 days after its completion.

5. The Permittee shall develop and implement an operational noise monitoring protocol in consultation with the City of Salem and MassDEP that will include an ongoing periodic noise monitoring program and reporting procedures.

D. <u>CONSTRUCTION REQUIREMENTS</u>

Construction of the Facility will result in temporary increases in sound levels near the site. The construction process will require the use of equipment that will be audible from off site locations during certain time periods. Facility construction consists of site clearing, excavation, foundation work, steel erection, mechanical work, and finishing work. Work on these phases will overlap. Pile driving, generally considered the loudest construction activity, may also be required during the excavation phase to provide proper structural support for the combustion turbine building foundation. No blasting shall be performed on site. Construction of the Facility is expected to begin in June 2014 and continue for a period of approximately 23 months.

In order to minimize construction noise impacts, the Permittee shall, at minimum, install and maintain a non-retractable temporary sound wall, 12 feet in height, constructed of ¾ inch Medium Density Overlay (MD) plywood, or other material of equivalent utility and appearance, having a surface weight of 2 pounds per square foot or greater. These specifications are based upon a Sound Transmission Class of STC 30, or greater, per American Society for Testing and Materials (ASTM) Test Method E90, having glass fiber, mineral wool, or other similar type sound absorptive surface material at least 2 inches thick on the side facing the site with a Noise Reduction Coefficient rating of NRC-0.85, or greater, per ASTM Test Method C423. When the barrier units are joined together, the mating surfaces of the barrier sides shall be flush with each other and gaps between barrier units and the bottom edges of the barrier panels and the ground shall be closed with material of sufficient density to attenuate sound. The Permittee shall install and maintain in good repair said temporary noise barrier, or equivalent, throughout the duration of the construction of the Facility.

In addition, the Permittee shall comply with the following conditions during the construction phases of the Facility:

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

a) Personnel shall exercise care in operating any noise generating equipment (including mobile power equipment, power tools, etc.) at all times to minimize noise. Noisy construction activities shall be confined to weekdays (7:00 a.m. to 5:00 p.m.) only with the exception of work that necessarily has a larger required continuous duration than normal construction hours allow, such as a concrete pour.

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

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

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

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

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

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

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

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

For informational purposes only, the City of Salem Code of Ordinances, Chapter 22, Section 22-1 governs construction noise, setting forth requirements on construction hours, allowable activities, and procedures for obtaining a special variance during times when certain construction activities are not allowed. Construction is allowed without a variance between the hours of 8:00 AM and 5:00 PM, Mondays through Saturdays, and at other times if it does not “create a noise disturbance across a residential property boundary”. The same restrictions are imposed on the operation of drilling and/or blasting equipment, rock crushing machinery, pile driving or jack hammers used in construction. Special variances can be granted by the building inspector for construction work on Sundays or holidays with prior approval of the City Council.

8. GENERAL CONDITIONS

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

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

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

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

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

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

F. Should there be any differences between the Application and this Plan Approval, the Plan Approval shall govern.

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

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

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

J. The Permittee shall conduct emission testing, if requested by MassDEP, in accordance with EPA Reference Test Methods and regulation 310 CMR 7.13. If required, a pretest protocol report shall be submitted to MassDEP at least 30 days prior to emission testing and the final test results report shall be submitted within 45 days after emission testing.

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

9. MASSACHUSETTS ENVIRONMENTAL POLICY ACT

The Facility was also subject to the requirements of the Massachusetts Environmental Policy Act (MEPA) Massachusetts General Laws (M.G.L.) Chapter 30, Sections 61-62I and Section 11.08 of the MEPA regulations at 301 CMR 11.00. On May 17, 2013, the Secretary of the Executive Office of Energy and Environmental Affairs issued a certificate that the Final Environmental Impact Report (FEIR) (EEA #14937) adequately and properly complied with the MEPA and its implementing regulations.

10. SECTION 61 FINDINGS

MassDEP has carefully considered the Permittee’s Final Environmental Impact Report (FEIR) prior to taking action on their Plan Approval Application. MassDEP, in issuing this **Plan Approval**, requires the Permittee 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 of this **Plan 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).

In the issuance of this **Plan Approval**, MassDEP has considered the reasonably foreseeable climate change impacts, including greenhouse gas (GHG) emissions and effects as addressed in the FEIR through the MEPA Greenhouse Gas Emissions Policy and Protocol and the GHG emission mitigation/adaptation measures adopted by the Permittee in the FEIR as referenced in the Secretary's Certificate of finding on the FEIR, dated May 17, 2013 (EOEA #14937). This finding incorporates by reference said mitigation/adaptation measures.

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 FEIR, MassDEP's Section 61 Findings on the Facility determining that all feasible measures have been taken to avoid or minimize impacts to the environment are presented here as follows.

Project Description

As described in the FEIR, the project consists of demolition of an existing coal-fired power plant, remediation of the site, and construction of a new 630 megawatt (MW) nominal electrical generating facility and associated infrastructure and equipment (the Facility) on a 65-acre site in Salem. The Facility will be fired by natural gas and include "quick-start" capability (ability to generate 300 MW within 30 minutes of start-up and 630 MW within 60 minutes). Use of duct-firing under summer conditions, will increase capacity by 62 MW for a total of 692 MW. The project will have the capacity to generate 5.1 million megawatt hours (MWh) annually. The Facility will be constructed on approximately 20 acres of the northwestern portion of site. The Facility main stacks will be contained in a common collar with a height of 230 feet.

The Permittee will operate the existing power plant until its scheduled shut down on June 1, 2014. Construction of the Facility is to begin in June 2014 and will extend for approximately 23 months. Demolition will include removal of all above-ground features of the existing facility, including power plant buildings and equipment, stacks and precipitators, coal handling equipment, storage tanks and associated appurtenances such as spill prevention berms; and intake screen and pumphouse structures. The Facility will include two quick-start natural gas fired Combustion Turbine Generators (CTG); two Steam Turbine Generators (STGs); two Heat Recovery Steam Generators (HRSG), including pollution control equipment; an auxiliary steam boiler; administrative/warehouse/shops space; a service bay; an auxiliary bay; a water treatment facility; step-up transformers; an ammonia storage tank; two water tanks; and, air cooled condensers (ACC). The Facility is not dual-fueled and, therefore, does not have the potential to use significant amounts of diesel fuel. It will include a diesel-fueled back-up generator and a diesel-fueled fire pump engine.

Environmental Impact

Construction of the Facility has the potential to generate noise and dust. Operation of the Facility will result in the emission of air pollutants including nitrogen oxides (NO_x), volatile organic compounds (VOC), and greenhouse gases (GHG).

Mitigation Measures

The project includes the following measures to avoid, minimize and mitigate impacts:

Air Pollution -

- use of a high-efficiency advanced turbine combined cycle technology, emission controls and CEMS and DAHS reporting equipment to minimize all pollutants;
- use of natural gas will limit emissions of PM, SO_2 and HAPs compared to other fossil fuels;
- use of Dry Low NO_x turbine combustors in combination with SCR will reduce NO_x emissions;
- 183 tons per year of NO_x Emission Reduction Credits (ERC) will be obtained to meet NSR offset requirements;
- advanced combustor design, combustor practices, and use of a catalytic oxidation system in the HRSG will reduce emissions of CO and VOCs; and,
- quick start capability to minimize all pollutants associated with start-up.

GHG Emissions -

- use of combined cycle natural gas turbines;
- acquisition of one RGGI allowance for each ton of CO2 emitted;
- solar PV array with potential to offset 175 tons per year GHG emissions;
- administrative building designed to meet the United States Green Building Council's Leadership in Energy and Environmental Design (LEED) Certification at the Platinum level and includes a green roof, geothermal heat pumps for heating and cooling, variable volume ventilation fans, increased insulation to minimize heat loss, lighting motion sensors, climate control and building energy management systems, a 10% reduction for lighting power density (LPD) (and identifies the potential for larger reductions), and water conserving fixtures that exceed building code requirements;
- operations building that includes a high albedo roof, geothermal heat pumps for heating and cooling; increased insulation to minimize heat loss, daylighting, lighting motion sensors; climate control, building energy management systems, a 10% reduction for LPD (and identifies the potential for larger reductions), and water conserving fixtures;
- Certification to the MEPA Office indicating that all of the measures proposed to mitigate GHG emissions, or measures that will achieve equivalent reductions (e.g., 56.5 tons per year reductions, or 29%, from Administrative Building and Operations Building), are included in the project;
- Commitment to provide a GHG analysis, prepared consistent with the MEPA GHG Policy and Protocol, for the subsequent redevelopment of the site (regardless of whether the proposed redevelopment exceeds EIR thresholds) as part of the Notice of Project Change (NPC);
- Establishment of purchasing specifications for low GHG Potential refrigerant;
- Mitigation of the greenhouse gas impacts of mobile sources by encouraging ride sharing and or use of public transportation for commuting through financial incentives, supplying indoor bicycle racks for bicycle commuters, purchasing plant supplies from local suppliers where possible to reduce transport distances, and by ordering supplies in bulk and /or concentrated form to reduce the number of deliveries needed;

- Contribution of at least $300,000 to the City of Salem dedicated to the development of an off-site emission reduction program targeted to GHG and PM 2.5 among other air pollutants and prepare a report detailing the activities to be funded by the off-site emissions reduction program including the costs, timeframes and anticipated environmental benefits of the identified program to be submitted to the EFSB within one year of operation of the Facility; and,
- Implementation of a SF_6 mitigation approach that is at least as stringent as measures currently used by National Grid by consulting with National Grid and developing a joint comprehensive SF6 reduction plan in connection with the anticipated National Grid upgrades to the Salem Harbor Substation.

Noise -

- siting of Facility equipment to maximize distance between receptors and noise-producing equipment;
- acoustical treatment of combustion and steam turbine buildings;
- locating equipment within enclosures or buildings that provide noise attenuation through layers of insulation and siding;
- use of equipment silencers including a gas turbine inlet silencing package; a stack silencing package to reduce sound pressure levels in each flue of the stack structure, silencers on steam system vents and, as permitted by relevant codes, on safety and relief valves that release high pressure steam;
- gas turbines and steam turbines will be fully enclosed;
- steam turbine insulation will be designed to provide thermal and acoustical insulation;
- large pumps in the HRSG enclosure (boiler feed pumps) will be enclosed in additional acoustical structures as necessary;
- location of piping, valving and control systems within enclosures or underground to limit fluid transfer noise;
- larger fans that operate at slower speeds and shielding of fans by cowlings or other acoustical treatments on the ACC;
- intake filter houses, transformers, fuel gas compressors and boiler feed water pumps will be wrapped in acoustic barriers;
- acoustically designed barrier walls around transformers to shield sensitive receptors from transformer noise;
- gas compressors and gas metering enclosure will be designed with acoustic silencing;
- construction of a retaining wall and planted berm will be constructed around the western, southern and eastern edges of the Facility to deflect sound; and,
- development of an operational noise monitoring protocol in consultation with the City of Salem and MassDEP that will include an ongoing periodic noise monitoring program and reporting procedures.

Construction Period -

- dust suppression methods during demolition will include pre-cleaning of larger surfaces and structural members prior to demolition, water suppression sprays and misting to prevent airborne particulates, and enclosure of areas to prevent the migration of dust;
- dust suppression during earth moving will include use of water trucks to wet ground surface, stabilization of soils, and creation of wind breaks;

- noise mitigation including construction hour limits, establishment and enforcement of construction site and access road speed limits, mufflers on noise-producing construction equipment and vehicles, siting of noisiest equipment as far as possible from sensitive receptors, and maintenance of engine housing panels in the closed position;
- stabilized construction and exit points;
- use of ultra-low sulfur diesel (ULSD) fuel (15 parts per million sulfur) in off-road vehicles;
- anti-idling measures including turning off diesel combustion engines on construction equipment not in active use and limiting idling of dump trucks to five minutes or less;
- vehicles greater than 50 brake horsepower will have engines that meet EPA PM emission standards or emission control technology certified by manufacturers to meet or exceed emissions standards and emission control devices, such as diesel oxidation catalysts (DOCs) or diesel particulate filters (DPFs), will be installed on the exhaust system side of engine equipment;
- all diesel-powered non-road construction equipment with engine horsepower ratings of 50 and above to be used for 30 or more days over the course of project construction will have EPA-verified (or equivalent) emission control devices, such as oxidation catalysts or other comparable technologies (to the extent that they are commercially available) installed on the exhaust system side of the diesel combustion engine;
- delivery of large pieces of equipment or material will be by barge to minimize impacts on local roadways;
- limitation on noisy construction activities to weekdays (7:00 a.m. to 5:00 p.m.) only with the exception of work that necessarily has a larger required continuous duration than normal construction hours allow, such as a concrete pour; and,
- installation of a temporary sound wall at the western boundary of the site along Derby Street prior to commencement of construction and demolition.

Funding Responsibility

The Permittee has committed to funding all of the mitigation measures discussed in these Section 61 findings.

Summary of Section 61 Findings

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

11. MASSACHUSETTS ENERGY FACILITIES SITING BOARD

On October 10, 2013, the Energy Facilities Siting Board (EFSB) issued a Final Decision under M.G.L. Chapter 164, § 69J¼ of the Permittee’s Petition for approval to construct the

Facility. Accordingly, MassDEP is issuing this **Plan Approval** (and, concurrently, the PSD Permit). The Permittee is required to construct the Facility in accordance with the Final Decision of the EFSB.

12. PUBLIC PARTICIPATION

On September 9, 2013, MassDEP issued a Proposed Plan Approval and Draft PSD Permit for this Application. MassDEP offered a public comment period and held a public hearing on the proposed actions. Notice of the proposed actions was published in the Boston Globe and the Salem News on September 10, 2013, and in the Environmental Monitor on September 11, 2013. The public comment period extended to November 1, 2013. MassDEP held a public hearing on the **Proposed Plan Approval** and Draft PSD Permit on October 10, 2013. Oral and written testimony received at the public hearing and written comments received during the public comment period have been considered, and are addressed as appropriate, in this Plan Approval (and in the PSD Permit). [See Response to Comments Document attached to PSD Permit and Fact Sheet] The notice of public comment and public hearing was published in Spanish and Portuguese in the Boston Globe and Salem News. A translator was present at the public hearing and available.

13. APPEAL PROCESS

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

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

The hearing request along with a valid check payable to the Commonwealth of Massachusetts in the amount of one hundred dollars ($100.00) must be mailed to:

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

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

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

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

Sincerely,

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

____
Cosmo Buttaro
Environmental Engineer

Issued: January 30, 2014

____
Edward J. Braczyk
Environmental Engineer

____
James E. Belsky
Regional Permit Chief
Bureau of Waste Prevention

Enclosures

cc: George Lipka, Tetra Tech, 160 Federal Street, 3rd Floor, Boston, MA 02110
Lauren A. Liss, Rubin & Rudman LLP, 50 Rowes Wharf, Boston, MA 02110
Board of Health, 120 Washington Street, 4th Floor, Salem, MA 01970
Fire Headquarters, 48 Lafayette Street, Salem, MA 01970
City Hall, 93 Washington Street, Salem, MA 01970
Board of Health, 7 Widger Road, Marblehead, MA 01945
Fire Headquarters, One Ocean Avenue, Marblehead, MA 01945
Town Hall, 188 Washington Street, Marblehead, MA 01945
Metropolitan Area Planning Council, 60 Temple Place, Boston, MA 02111
Deirdre Buckley, MEPA, Executive Office of Energy and Environmental Affairs, 100 Cambridge Street, Suite 900, Boston, MA 02114
John Ballam, Department of Energy Resources, 100 Cambridge Street, Suite 1020, Boston, MA 02114
Department of Public Utilities, One South Station, Boston, MA 02110
Robert J. Shea and Kathryn Sedor, Energy Facilities Siting Board, One South Station, Boston, MA 02110
United States Environmental Protection Agency (EPA) – New England Regional Office, 5 Post Office Square, Suite 100, Mail Code OEP05-2, Boston, Massachusetts 02109-3912 Attn: Air Permits Program Manager
EPA: Donald Dahl (e-copy)
MassDEP/Boston: Karen Regas (e-copy), Yi Tian (e-copy)
MassDEP/WERO: Marc Simpson (e-copy)
MassDEP/CERO: Roseanna Stanley (e-copy)
MassDEP/SERO: Thomas Cushing (e-copy)
MassDEP/NERO: Marc Altobelli (e-copy), Jim Belsky (e-copy), Ed Braczyk (e-copy), Mary Persky (hard copy), Cosmo Buttaro (hard copy), Susan Ruch (e-copy)