New Source Review Permit Application for Black Start Engine at Waterside Power; Stamford, CT

December, 2007

Prepared For:

Waterside Power, LLC
105 Chestnut Street; Suite 37
Needham, MA 02492

Prepared By:

Blue Sky Environmental LLC
105 Chestnut Street; Suite 37
Needham, MA 02492

STATE OF CONNECTICUT
DEPARTMENT OF ENVIRONMENTAL PROTECTION
Central Permit Processing Unit
79 Elm Street
Hartford, CT 06106-5127

DEP USE ONLY

Permit Application Transmittal Form

Please complete this transmittal form in accordance with the instructions in order to ensure the proper handling of your application(s) and the associated fee(s). Print legibly or type.

Part I: Applicant Information

Applicant: **Waterside Power, LLC**

Mailing Address: **105 Chestnut Street; Suite 37**

City/Town: **Needham** State: **MA** Zip Code: **02492**

Business Phone: **781-453-1145** ext.: Fax: **781-453-1142**

Contact Person: **Thomas E. Atkins** Phone: **617-699-3756** ext.

Applicant (check one): ☐ individual X company ☐ federal gov't ☐ state agency ☐ municipality

If a Company, list company type (e.g., corporation, limited partnership, etc.):
Limited Liability Company

☐ Check if any co-applicants. If so, attach additional sheet(s) with the required information as supplied above.

Please provide the following information to be used for *billing purposes only*, if different:

Company/Individual Name:

Mailing Address:

City/Town: State: Zip Code:

Contact Person: Phone: ext.

Part II: Project Information

Brief Description of Project: *(Example: Development of a 50 slip marina on Long Island Sound)*
Permitting of 1,000 kW black start generator

Location (City/Town): **Stamford**

Other Project Related Permits (*not* included with this form):

Permit Description	Issuing Authority	Submittal Date	Issuance Date	Denial Date	Permit #
NSR	DEP	9/03	7/04		172-26-0228
NSR	DEP	9/03	7/04		172-26-0229
NSR	DEP	9/03	7/04		172-26-0230

Part III: Individual Permit Application and Fee Information

New, Mod. or Renew	Individual Permit Applications	Initial Fees	No. of Permits Applied For	Total Initial Fees	Original + Required Copies
	AIR EMISSIONS				
New	New Source Review	$750.00	1	750.00	1 + 0
	Title V Operating Permits	none			1 + 0
	WATER DISCHARGES				
	To Groundwater	$1050.00			1 + 1
	To Sanitary Sewer (POTW)	$1050.00			1 + 1
	To Surface Water (NPDES)	$1050.00			1 + 2
	INLAND WATER RESOURCES-multiple permits 1 + 6 total copies				
	Dam Construction	none			1 + 2
	Flood Management Certification	none			1 + 1
	Inland 401 Water Quality Certification	none			1 + 5
	Inland Wetlands and Watercourses	none			
	Stream Channel Encroachment Lines	★			
	Water Diversion	★			1 + 5
	OFFICE OF LONG ISLAND SOUND PROGRAMS				
	Certificate of Permission	$400.00			1 + 3
	Coastal 401 Water Quality Certification	none			1 + 3
	Structures and Dredging/Tidal Wetlands	$525.00			1 + 3
	WASTE MANAGEMENT				
	Aerial Pesticide Application	★			1 + 2
	Aquatic Pesticide Application	$100.00			1 + 0
	CGS Section 22a-454 Waste Facilities	★			1 + 1
	Hazardous Waste Treatment, Storage and Disposal Facilities	★			1 + 1
	Marine Terminal License	$125.00			1 + 0
	RCRA Closure Plan	$3750.00			1 + 0
	RCRA Post Closure	$3750.00			1 + 0
	Solid Waste Facilities	★			1 + 2
	Waste Transportation	★			1 + 0
		Subtotal ➡		$750	
	GENERAL PERMITS and AUTHORIZATIONS Enter subtotals from Part IV, pages 3 & 4 of this form	Subtotals Page 3 ➡ Subtotals Page 4 ➡			
		TOTAL ➡	1	$750	
☐	Indicate whether municipal discount or state waiver applies.	Less Applicable Discount ➡			
		AMOUNT REMITTED ➡		$750	

Check # ➡ 2833

Check or money order should be made payable to: "Department of Environmental Protection"

★ See fee schedule on individual application.

Part IV: General Permit Registrations and Requests for Other Authorizations Application and Fee Information

✓	General Permits and Other Authorizations	Initial Fees	No. of Permits Applied For	Total Initial Fees	Original + Required Copies
	AIR EMISSIONS				
☐	Limit Potential to Emit from Major Stationary Sources of Air Pollution	$5000.00			1 + 0
☐	Ionizing Radiation Registration	$200.00			1 + 0
☐	Emergency/Temporary Authorization	★★			★★
☐	Other, (please specify):				
	WATER DISCHARGES				
☐	Domestic Sewage	$500.00			1 + 0
☐	Food Processing Wastewater	$500.00			1 + 0
☐	Groundwater Remediation Wastewater to a Sanitary Sewer	$500.00			1 + 0
	Groundwater Remediation Wastewater to a Surface Water				1 + 0
☐	Registration Only	$500.00			
☐	Approval of Registration by DEP	$1000.00			
☐	Minor Non-Contact Cooling and Heat Pump Water	$500.00			1 + 1
☐	Minor Photographic Processing	$100.00			1 + 0
☐	Minor Printing & Publishing Wastewater	$500.00			1 + 0
☐	Minor Tumbling or Cleaning of Parts Wastewater	$1000.00			1 + 1
	Miscellaneous Discharges of Sewer Compatible Wastewater				1 + 1
☐	Flow < 5,000 gpd and fire sprinkler system testwater	$500.00			
☐	Flow > 5,000 gpd	$1000.00			
☐	Stormwater Associated with Commercial Activities	$500.00			1 + 0
☐	Stormwater Associated with Industrial Activities	$500.00			1 + 0
	Stormwater & Dewatering Wastewaters-Construction Activities				1 + 0
☐	5 – 10 acres	$500.00			
☐	> 10 acres	$1000.00			
☐	Stormwater from Small Municipal Separate Storm Sewer Systems (MS4)	$250.00			1 + 0
☐	Swimming Pool Wastewater - Public Pools and Contractors	$500.00			1 + 0
	Vehicle Maintenance Wastewater				1 + 0
☐	Registration Only	$500.00			
☐	Approval of Registration by DEP	$1000.00			
☐	Water Treatment Wastewater	$500.00			1 + 0
☐	Emergency/Temporary Authorization - Discharge to POTW	$1500.00			1 + 0
☐	Emergency/Temporary Authorization - Discharge to Surface Water	$1500.00			1 + 0
☐	Emergency/Temporary Authorization - Discharge to Groundwater	$1500.00			1 + 0
☐	Other, (please specify):				
	AQUIFER PROTECTION PROGRAM				
☐	Registration for Regulated Activities	$500.00			1 + 0
☐	Permit Application to Add a Regulated Activity	$1000.00			1 + 0
☐	Exemption Application from Registration	$1000.00			1 + 0
	Note: Carry subtotals over to Part III, page 2 of this form.	Subtotal ➡			

★★ Contact the specific permit program for this information (Contact numbers are provided in the instructions).

Part IV: General Permit Registrations and Requests for Other Authorizations (continued)

✓	General Permits and Other Authorizations	Initial Fees	No. of Permits Applied For	Total Initial Fee	Original + Required Copies
	INLAND WATER RESOURCES				
☐	Dam Safety Repair and Alteration	$1000.00			1 + 2
☐	Diversion of Water for Consumptive Use: Reauthorization Categories	$1000.00			1 + 2
☐	Diversion of Water for Consumptive Use: Authorization Required	$2500.00			1 + 5
☐	Diversion of Water for Consumptive Use: Filing Only	$1500.00			1 + 4
☐	Habitat Conservation	$1000.00			1 + 2
☐	Lake, Pond and Basin Dredging	$1000.00			1 + 2
☐	Minor Grading	$1000.00			1 + 2
☐	Minor Structures	$1000.00			1 + 2
☐	Utilities and Drainage	$1000.00			1 + 2
☐	Emergency/Temporary Authorization	★★			★★
☐	Other, (please specify):				
	OFFICE OF LONG ISLAND SOUND PROGRAMS				
☐	4/40 Docks	$700.00			1 + 1
☐	Non-harbor Moorings	$100.00			1 + 0
☐	Osprey Platforms and Perch Poles	none			1 + 0
☐	Pump-out Facilities (no fee for Clean Vessel Act grant recipients)	$100.00			1 + 0
☐	Remedial Activities Required by Order	$700.00			1 + 0
☐	Residential Flood Hazard Mitigation	$100.00			1 + 0
☐	Swim Floats	$100.00			1 + 0
☐	Emergency/Temporary Authorization	★★			★★
☐	Other, (please specify):				
	WASTE MANAGEMENT				
☐	Addition of Grass Clippings at Registered Leaf Composting Facilities	$500.00			1 + 0
☐	Asbestos Disposal Authorization	$240.00			1 + 0
☐ ☐	Contaminated Soil and/or Staging Management (Staging/Transfer) Registration Only Approval of Registration by DEP	 $250.00 $1500.00			 1 + 0 1 + 0
☐	Disassembling Used Electronics	$1000.00			1 + 0
☐	Drop-site Recycling Facility	$200.00			1 + 0
☐	Leaf Composting Facility	none			1 + 1
☐	Limited Processing Recycling Facility	$500.00			1 + 0
☐	One Day Collection of Household Hazardous Waste and Hazardous Waste from Certain Generators	$500.00			1 + 0
☐	Recyclables Transfer Facility	$500.00			1 + 0
☐	Single Item Recycling Facility	$500.00			1 + 0
☐	Special Waste Authorization	$525.00			1 + 0
☐	Storage and Distribution of Two (2) Inch Nominal Tire Chip Aggregate	$500.00			1 + 0
☐	Storage and Processing of Asphalt Roofing Shingle Waste and/or Storage and Distribution of Ground Asphalt Aggregate	★			1 + 0
☐	Storage and Processing of Scrap Tires for Beneficial Use	$1000.00			1 + 0
☐	Emergency/Temporary Authorization	★★			★★
☐	Other, (please specify):				
	Note: Carry subtotals over to Part III, page 2 of this form. Subtotal ➡				

★ See fee schedule on application. ★★ Contact the specific permit program for this information.

Permit Application for New Source Review Stationary Sources of Air Pollution

Please complete this form in accordance with CGS Section 22a-174, RCSA Sections 22a-174-1 and 3, and the instructions (DEP-AIR-INST-200). Print or type unless otherwise noted.

Part I: Application and Source Type

Please read the instructions (DEP-AIR-INST-200) in order to properly complete the table below. Please reproduce this page if additional space is necessary. You may apply for more than one permit on one application if the sources originate from the same premise. *Each* unit or process line requires a separate permit.

Unit No.	Source Type	App. Type (N, R, M)	If renewal or modification, indicate existing permit/reg. no.	DEP Use Only		
				Application No.	Permit No.	EPE No.
U4	Fuel Burni	N				

Part II: Fee Information

Please note: effective August 21, 2003 an initial fee of $750.00 is to be submitted for *each* permit that you are applying for. *Each* unit or process line requires a separate permit. For municipalities, the 50% discount applies. The application will not be processed without the initial fee. If a permit is required, an invoice will be sent for the permit fee. See RCSA Section 22a-174-26 for information regarding the amount of the permit fee.

Part III: Applicant Information

1. Fill in the name of the applicant(s) as indicated on the *Permit Application Transmittal Form* (DEP-APP-001).

   Applicant: **Waterside Power, LLC**

   Applicant's interest in property at which the proposed activity is to be located:

   ☒ site owner ☐ option holder ☐ lessee
   ☐ easement holder ☐ operator ☐ other (specify)

   ☐ Enter a check mark if there are co-applicants. If so, label and attach additional sheet(s) with the required information as supplied above.

2. List primary contact for departmental correspondence and inquiries, during processing of application, if different than the applicant.

   Name: **Blue Sky Environmental LLC**

   Mailing Address: **105 Chestnut Street; Suite 37**

   City/Town: **Needham** State: **MA** Zip Code: **02492-**

   Business Phone: **617-834-8408** ext. Fax: **781-453-1142**

   Contact Person: **Don DiCristofaro** Title: **President**

3. List primary contact for departmental correspondence and inquiries, after permit is issued, if different than the applicant.

   Name: **Same as Applicant**

   Mailing Address:

   City/Town: State: Zip Code: -

   Business Phone: - - ext. Fax: - -

   Contact Person: Title:

4. List attorney or other representative, if applicable.

   Firm Name: **Ruben & Rudman, LLP**

   Mailing Address: **50 Rowes Wharf**

   City/Town: **Boston** State: **MA** Zip Code: **02110-3319**

   Business Phone: **617-330-7000** ext. Fax: **617-552-5005**

   Attorney Name: **John A. DeTore** Title: **Esquire**

Part III: Applicant Information (continued)

5. List equipment operator, if different than the applicant.

   Name: **Atlantic Detroit Diesel-Allison or equivalent**

   Mailing Address: **19C Chapin Road**

   City/Town: **Pine Brook** State: **NJ** Zip Code: **07058-**

   Business Phone: **973-575-0309** ext. Fax: **973-287-1086**

   Contact Person: **Michael Wynne** Title:

6. List equipment owner, if different than the applicant.

   Name: **Applicant is planning to purchase equipment**

   Mailing Address:

   City/Town: State: Zip Code: -

   Business Phone: - - ext. Fax: - -

   Contact Person: Title:

7. List any engineer(s) or other consultant(s) employed or retained to assist in preparing the application or in designing or constructing the activity. Please enter a check mark if additional sheets are necessary, and label and attach them to this sheet. ☐

   Name: **Blue Sky Environmental LLC**

   Mailing Address: **105 Chestnut Street; Suite 37**

   City/Town: **Needham** State: **MA** Zip Code: **02492-**

   Business Phone: **617-834-8408** ext. Fax: **781-453-1142**

   Contact Person: **Don DiCristofaro** Title: **President**

   Service Provided: **Application Preparation**

Part IV: Premise Information

1. Name of facility, if applicable: **Waterside Power, LLC**

   Street Address or Description of Location: **17 Amelia Place**

   City/Town: **Stamford** State: **CT** Zip Code: **06904-**

   Latitude and Longitude of the approximate "center of the site" in *degrees, minutes, and seconds*:

   Latitude: **41N 2' 11"** Longitude: **73W 33' 25"**

   Method of determination (check one): ☐ GPS ☒ USGS MAP ☐ other

   If a USGS Map was used, provide the quadrangle name: **Stamford**

2. Is or will the premise be located on federally recognized Indian lands? ☐ Yes ☒ No

Part IV: Premise Information (continued)

3. Identify the air quality attainment status of the area in which the premise is or will be located. (Check all that apply. See instructions for the air quality attainment status of Connecticut municipalities).

Non-Attainment for Ozone Standard: ☒ Severe ☐ Serious

Carbon Monoxide:

☐ Moderate Non-Attainment ☐ Unclassified Non-Attainment ☒ Unclassified Attainment

Non-Attainment for PM_{10}: ☐

4. SIC Codes:

Primary	Secondary	Other	Other
4911			

Part V: Supporting Documents

Be sure to read the instructions (DEP-AIR-INST-200) to determine whether the attachments listed are applicable to your specific activity. Please enter a check mark by the attachments as verification that **all applicable** attachments have been submitted with this Permit Application Form. When submitting any supporting documents, please label the documents as indicated in this Part (e.g., Attachment A, etc.) and be sure to include the applicant's name as indicated on the *Permit Application Transmittal Form.*

☒ Attachment A: *Executive Summary* (DEP-AIR-APP-222)

☒ Attachment B: *Applicant Background Information* (DEP-APP-008)

☒ Attachment C: Site Plan

☒ Attachment D: An 8□" X 11" copy of the relevant portion, or a full size original, of a USGS Quadrangle Map indicating the exact location of the facility or site and, if applicable, *Latitude and Longitude* (DEP-APP-003)

☒ Attachment E: Supplemental Application Forms
In the space provided by each supplemental application form, indicate the quantity of each form attached as part of this application. For each supplemental application form submitted, please provide a process flow diagram indicating all units, air pollution control equipment and stacks, as applicable. See sample diagram in instructions (DEP-AIR-INST-200).

- ☐ *Manufacturing or Processing Operations* (DEP-AIR-APP-201): Attach a process flow diagram indicating all units, air pollution control equipment, and stacks, as applicable.
- ☒ *Fuel Burning Equipment* (DEP-AIR-APP-202): Attach a process flow diagram indicating all units, air pollution control equipment, and stacks, as applicable.
  - ☒ *Stationary Reciprocating Internal Combustion Engine - Compliance Assurance Form* (DEP-AIR-COMP-001), if applicable.
- ☐ *Incinerators* (DEP-AIR-APP-203): Attach a process flow diagram indicating all units, air pollution control equipment, and stacks, as applicable. Also, attach documentation of waste heat contents and waste analysis.

Part V: Supporting Documents (continued)

Attachment E: Supplemental Application Forms (continued)

- ☐ *Volatile Liquid Storage* (DEP-AIR-APP-204): Attach a process flow diagram indicating all units, air pollution control equipment, and stacks, as applicable. Also, attach a MSDS for each product stored.
- ☐ *Surface Coating or Printing Operations* (DEP-AIR-APP-205): Attach a process flow diagram indicating all applicator identifications, air pollution control equipment, and stacks, as applicable. Also, attach a MSDS for each coating, ink, thinner, catalyst, cleanup solvent, or other compound to be used in this type of operation. Also, attach documentation to support transfer efficiency of spray applicators, if applicable.
- ☐ *Metal Plating and Surface Treatment Operations* (DEP-AIR-APP-206): Attach a process flow diagram indicating all units, air pollution control equipment, and stacks, as applicable. Also, attach a MSDS for each product stored in a tank.
- ☐ *Metal Cleaning Degreasers* (DEP-AIR-APP-207): Attach a process flow diagram indicating all units, air pollution control equipment, and stacks, as applicable. Also, attach a MSDS for each solvent used.
- ☐ *Concrete, Asphalt, Aggregate, Coal, Feed, Flour, & Grain* (DEP-AIR-APP-208): Attach a process flow diagram indicating all units, air pollution control equipment, and stacks, as applicable.
- ☐ *Site Remediation Equipment* (DEP-AIR-APP-209): Attach a process flow diagram indicating all units, air pollution control equipment, and stacks, as applicable. Also, submit documentation, such as pilot test data, which characterizes the site's degree of contamination.
- ☐ *Air Pollution Control Equipment* (DEP-AIR-APP-210), if applicable
- ☒ *Stack Parameters* (DEP-AIR-APP-211)
- ☒ *Unit Emissions* (DEP-AIR-APP-212): Attach all calculations by which emissions were determined.

☐ Attachment F: *Major Premise Pollutant Summary* (DEP-AIR-APP-213), if applicable

☒ Attachment G *BACT Determination Form* (DEP-AIR-APP-214), if applicable

☐ Attachment H: *Emergency Episode Standby Plan*, if applicable

☒ Attachment I: *Operation and Maintenance Plan*, if applicable

☐ Attachment J: *Ambient Air Quality Analysis*, if applicable

☒ Attachment K: *Applicant Compliance Information* (DEP-APP-002)

☒ Attachment L: *Conformance Certification Form* (DEP-AIR-APP-215)

Part VI: Application Certification

The applicant **and** the individual(s) responsible for actually preparing the application must sign this part. An application will be considered incomplete unless all required signatures are provided.

"I have personally examined and am familiar with the information submitted in this document and all attachments thereto, and I certify that based on reasonable investigation, including my inquiry of the individuals responsible for obtaining the information, the submitted information is true, accurate and complete to the best of my knowledge and belief.

I understand that a false statement in the submitted information may be punishable as a criminal offense, in accordance with Section 22a-6 of the General Statutes, pursuant to Section 53a-157b of the General Statutes, and in accordance with any other applicable statute.

I certify that this application is on complete and accurate forms as prescribed by the commissioner without alteration of the text.

I certify that I will comply with all notice requirements as listed in Section 22a-6g of the General Statutes.

Thomas E. Atkins — 12/10/07

Signature of Applicant — Date

Thomas E. Atkins
Name of Applicant (print or type)

Director
Title (if applicable)

Don DiCristofaro — 12/11/07

Signature of Preparer — Date

Don DiCristofaro
Name of Preparer (print or type)

President
Title (if applicable)

☐ Please enter a check mark if additional signatures are necessary. If so, please reproduce this sheet and attach signed copies to this sheet.

Attachment A: Executive Summary

Applicant Name as indicated on the *Permit Application Transmittal Form* (DEP-APP-001):

Waterside Power, LLC

Location of Facility or Activity: 17 Amelia Place; Stamford, CT 06904

Contact Person: Thomas E. Atkins Phone: 617-699-3756

For Renewals, Modifications, and Revisions provide the following:

Existing Permit or Registration #: Expiration Date: / /

Provide a Table of Contents of the application which includes the *Permit Application Transmittal Form* (DEP-APP-001), the Permit Application Form (DEP-AIR-APP-100 or 200), and a list of all supplemental application forms, plans, drawings, reports, studies, or other supporting documentation which are attached as part of the application, along with the corresponding attachment label and the number of pages (e.g., Executive Summary - Attachment A - 4 pgs.).

Permit Application Transmittal Form (DEP-APP-001) with copy of check for application fee - 5 pages
Permit Application for New Source Review - Stationary Sources of Air Pollution (DEP-AIR-APP-200) - 7 pages
Attachment A: Executive Summary (DEP-AIR-APP-222) - 2 pages
Executive Summary Attachment to Attachment A - 15 pages
Attachment B: Applicant Background Information (DEP-APP-008) - 5 pages
Attachment C: Site Plan - 1 page
Attachment D: Latitude and Longitude Form (DEP-AIR-APP-003) with USGS Topographical Quadrangle Map - 2 pages
Attachment E: Supplemental Application Forms - Fuel Burning Equipment (DEP-AIR-APP-202) - Stack Parameters (DEP-AIR-APP-2), Process Flow Diagram, and Unit Emissions (DEP-AIR-APP-212) - 21 pages
Attachment F: Major Premise Pollutant Summary - Not Applicable
Attachment G: BACT Determination - 5 pages
Attachment H: Emergency Episode Standby Plan - Not Applicable
Attachment I: Operation and Maintenance Plan - 1 page
Attachment J: Ambient Air Quality Analysis - Not Applicable
Attachment K: Applicant Compliance Information (DEP-APP-002) - 2 pages
Attachment L: Conformance Certification Form (DEP-AIR-APP-215) - 1 page

(OVER)

Attachment A: Executive Summary (continued)

Provide a brief project description which includes: a description of the proposed regulated activities; a synopsis of the environmental and engineering analyses; summaries of data analysis; a conclusion of any environmental impacts and the proposed timeline for construction. For renewals, modifications, and revisions, provide a list of changes in circumstances or information on which the previous permit was based.

See Attachment

☒ If additional sheets are necessary, please label and attach them to this sheet and enter a check mark.

ATTACHMENT A

EXECUTIVE SUMMARY

EXECUTIVE SUMMARY ATTACHMENT

TO ATTACHMENT A

Project Overview

The Waterside Power project ("Waterside Project" or "Waterside") was developed in response to a concern that existing generation and transmission within southwest Connecticut ("SWCT") may not be capable of supplying electric load without overloading lines or causing severe low voltage conditions. Numerous reports and studies have been conducted by ISO-New England, the Department of Public Utility Control ("DPUC") and other entities regarding reliability concerns in Connecticut and all agree that (1) SWCT and particularly, the Norwalk/Stamford area, is facing serious reliability problems; and (2) quick start generation such as the Waterside Project is an important component in the State's short-term response to these reliability problems.

Waterside currently operates three TM2500 turbines under New Source Review Permits (Permit Nos. 172-26-0228, 172-26-0229, and 172-26-0230)[1]. In addition, a 1,250 kW black start generator is currently operating under R.C.S.A. §22a-174-3b as an emergency only generator. Waterside intends to replace the existing black start generator with an Atlantic Detroit Diesel-Allison ("ADDA") 1,000 kW 1000*XC4DT2 diesel genset (Model 16V-2000 G84) (R1638A36) or equivalent. The engine is EPA Tier II certified.

As per RCSA 22a-174-33 and pursuant to the Code of Federal Regulations ("CFR"), Title 40, Part 70, Waterside operates under a Title V Operating Permit (Permit No. 172-0236-TV) issued on June 9, 2006.

In June 2005, the Connecticut Legislature passed Public Act 05-01, an Act concerning Energy Independence ("EIA"), which has been codified in the General Statutes of Connecticut (Conn. Gen. Stat) § 16-243m. Among the requirements of the EIA was that the Department of Public Utility Control ("DPUC") launch a procurement process to acquire new capacity. The objective of the procurement process was to decrease total costs of electricity for Connecticut electricity ratepayers over the next 15 years and to improve the reliability of the electricity system in Connecticut (Conn. Gen. Stat. § 16-243m).

Pursuant to General Statutes of Connecticut § 16-243m, the DPUC has approved capacity contracts with four entities including Waterside Power. The DPUC found that this portfolio of capacity contracts will increase reliability and will minimize federally mandated congestion charges to the state over the life of the contracts at the lowest

[1] The NSR permits were issued on July 7, 2004 and expire on July 9, 2009. Permit renewal applications were submitted to the DEP on November 15, 2007.

reasonable cost for the products and services procured under the contracts. As a quick-start generating project, Waterside Power can prevent many hundreds of tons of pollutants per year from being emitted. In addition, the DEP commented last summer to the Siting Board regarding the importance of Waterside Power (see attached letter).

The Master Agreement which Waterside has executed with the Connecticut Light and Power Company ("CL&P") pursuant to the DPUC's RFP includes several project milestones which Waterside must meet. One milestone in the Master Agreement is that Waterside obtain all major permits needed for permanent operation, including an air permit from DEP, no later than December 31, 2008. Another milestone is that Waterside achieve financial closing by that same December 31, 2008 date.

The black start generator will not be connected to the grid, so no power can be exported. The power is all used internally by the facility as station service power. For instance, it runs the facility's fuel forwarding pumps, NO_x water forwarding pumps, control trailer air conditioning, and TM 2500 starting motors. When it runs, it will replace all of the power supplied now from the street. If the black start generator is not operating when the TM2500 units are and street power is lost, the entire facility will be shut down causing severe disruption to the grid. The black start generator would then need to be restarted, and each TM2500 would then be able to be brought back online. In order to avoid this scenario, it is being requested that the black start generator operate at the same time as the TM2500 units. The Waterside arrangement is unusual in that station service comes from a local distribution circuit (e.g., street power) and not the higher reliability (and higher voltage) transmission system. This is not an issue for most power plants.

Although Waterside does not have detailed data as to how often street power is lost, it has occurred in the past, most recently two weeks ago. The fact that the Stamford area has local distribution issues has been well documented in the local press.

Project Description

The Waterside Project is a 69.2 MW peaking project that is located at 17 Amelia Place in Stamford, Connecticut. The Project utilizes three General Electric ("GE") TM2500 turbine generator units each rated at 23.2 MW and a black start generator. The proposed black start generator will be fueled by ultra low sulfur liquid fuel (less than 0.0015% sulfur by weight).

Site Description

The Project site is approximately 5.8 acres and is directly bounded on the west by the Stamford Executive Park, to the south/southeast and east by Metro North/AMTRAK rail lines, to the northeast by CL&P's Waterside Substation, and to the north by a small residential enclave. A copy of the site location map is provided in Attachment A-1 and the United States Geological Survey ("USGS") map with the Project location shown is presented in Attachment D-1. The site and surrounding areas to the northwest, west, south, east, and northeast are all zoned M-G (General Industrial District). The residential

area to the north of the site is zoned R-6 (residential). The site is located in the Waterside section of southwest Stamford and is isolated from the remainder of the City to the north by the interstate Highway 95 (I-95) transportation corridor and to the east by the West Branch of the Stamford Harbor. The entire Waterside neighborhood is included in the Stamford Enterprise Zone, which was formed in late 1993 in part to promote industrial and business recruitment and retention.

Emissions

Emissions from the proposed black start engine are EPA Tier II certified. The potential emissions of all pollutants from the Project, including Connecticut hazardous air pollutants ("HAPs") and maximum allowable stack concentration ("MASC") compliance, are summarized below. In order to limit the NO_x emissions from the black start generator to less than 5 tons per year ("tpy"), the maximum fuel consumption over any consecutive twelve month period will be limited as listed in Table A-1. In addition, a daily fuel use limit is also proposed for all non-emergency/testing operation and the entire site has a NO_x limit of 24.9 tpy per rolling 12-month average.

TABLE A-1. FUEL USE LIMITS (gals) FOR BLACK START GENERATOR

Rolling 12-Month Limit	Daily[2]
47,942.2	653.2

Criteria Pollutant Emission Rates

A summary of the total controlled per turbine Project emissions of carbon monoxide ("CO"), NO_x, sulfur dioxide ("SO_2"), particulate matter ("PM"), particulate matter less than 10 microns ("PM10"), VOC, sulfuric acid ("H_2SO_4") mist, lead ("Pb"), and mercury ("Hg") is presented in Table A-2. Note that Hg is not a criteria pollutant but is listed in R.S.C.A. §22a-174-3a(k)(7). See Attachment E for a discussion of the unit emission calculation methodology including Attachment E-1 which includes the detailed emissions calculations.

Table A-3 compares the total annual project emissions from all three turbines with the DEP significant emission rate thresholds as listed in §22a-174-3a(k)(7). All air pollutant maximum emissions are less than the DEP significant emission rate thresholds; thus the facility is a minor source of emissions.

[2] For non-emergency and non-testing/maintenance operation only.

TABLE A-2. BLACK START EMISSION RATES[1]

Air Pollutant	(lb/hr)
CO	1.64
NO_x	14.78
SO_2	0.02
PM	0.07
PM10	0.07
PM2.5	0.07
VOC	0.88
H_2SO_4 Mist	0.00026
Pb	0.00005
Hg	0.000005

[1] Based on 100% load.

TABLE A-3. TOTAL BLACK START AND FACILITY EMISSIONS[1]

Air Pollutant	Black Start (tpy)	TM2500 Turbines (tpy)[2]	Facility (tpy)	Significant Emission Rate Threshold (tpy)[3]
CO	0.55	32.33	32.88	100
NO_x (as an O_3 precursor)	4.99	24.99[4]	24.99	25
NO_x (NAAQS[5])	4.99	24.99[4]	24.99	40
SO_2	0.01	0.58	0.59	25
PM	0.03	1.73	1.76	25
PM10	0.03	1.73	1.76	15
VOC	0.30	3.12	3.42	25
H_2SO_4 Mist	8.81×10^{-5}	0.04	0.04	7
Pb	1.78×10^{-5}	0.002	0.00	0.6
Hg	$1{,}78 \times 10^{-6}$	1.73×10^{-4}	0.00	0.1

[1] Based on 100% load.
[2] Maximum allowable emissions based on worst-case for each pollutant using either gaseous fuel for a maximum of 540,905,000 scf per running 12-month period or 2,249,100 gals of liquid fuel per running 12-month period or a combination thereof.
[3] R.S.C.A. §22a-174-3a(k)(7)
[4] Facility wide. The NO_x emissions from all sources on site must not exceed 24.99 tons per rolling 12 month average.
[5] National Ambient Air Quality Standards

Non-Criteria Pollutant Emission Rates and MASC Compliance

A summary of the engine controlled emissions for all regulated non-criteria pollutants for the Project is presented in Table A-4. Regulated non-criteria pollutants consist of EPA HAPs as well as Connecticut HAPs, as defined in §22a-174-29. See Attachment E for a discussion of the unit emission calculation methodology including Attachment E-1 which includes the detailed emissions calculations.

TABLE A-4. ENGINE NON-CRITERIA POLLUTANT EMISSION RATES[1]

HAP	Hourly (lb/hr)	Controlled Annual (tpy)
Arsenic	5.26×10^{-6}	1.78×10^{-6}
Beryllium	5.26×10^{-6}	1.78×10^{-6}
Cadmium	5.26×10^{-6}	1.78×10^{-6}
Chromium	1.58×10^{-5}	5.33×10^{-6}
Copper	1.58×10^{-5}	5.33×10^{-6}
Lead	5.26×10^{-5}	1.78×10^{-5}
Mercury	5.26×10^{-6}	1.78×10^{-6}
Nickel	5.26×10^{-5}	1.78×10^{-5}
Benzene	7.55×10^{-3}	2.55×10^{-3}
Toluene	2.73×10^{-3}	9.22×10^{-4}
Xylenes	1.88×10^{-3}	6.35×10^{-4}
Propylene	2.71×10^{-2}	9.15×10^{-3}
Formaldehyde	7.67×10^{-4}	2.59×10^{-4}
Acetaldehyde	2.45×10^{-4}	8.27×10^{-5}
Acrolein	7.66×10^{-5}	2.59×10^{-5}
Napthalene	1.26×10^{-3}	4.25×10^{-4}
PAH (Benzene Soluble)	4.37×10^{-5}	1.48×10^{-5}
Sulfuric Acid	2.61×10^{-4}	8.81×10^{-5}

[1] Based on 100% load.
[2] Maximum allowable emissions based on 47,942.2 gallons fuel usage per rolling 12 months.

The emissions of air toxics from the Project must comply with §22a-174-29. The regulation requires that the emission of any HAP listed in §22a-174-29 from any stationary source must be at a concentration that is less than or equal to the MASC. The regulation contains the procedures for calculating the MASC based on the stack and exhaust parameters, distance of the stack to the property line, and the Hazard Limit Values ("HLV") for the compounds listed in the regulation.

The emission calculations and supporting documentation are included in Attachment E. The results of the MASC calculations are provided in Table E-2. For each HAP, the predicted stack concentration is less than the MASC.

Regulatory Review

The Waterside Project complies with all applicable Connecticut and Federal air quality requirements. Currently, the TM2500 turbines operate in accordance with conditions in the DEP individual NSR permits that were issued on July 7, 2004, modified on December 2, 2005, and expire on July 7, 2009. Renewal applications for these permits were submitted to the DEP on November 15, 2007. The existing black start generator operates under the DEP's "permit by rule" under R.C.S.A. §22a-174-3b. This application requests an individual NSR permit for the black start so that the engine can operate at the same time the TM2500 turbines operate.

Non-Attainment Review

The Clean Air Act Amendments ("CAAA") of 1990 establish a review process for new sources proposed in geographic areas that are in non-attainment for the National Ambient Air Quality Standards ("NAAQS") for ozone ("O_3"). For any such new source, there are special requirements that must be met relative to VOC and NO_x emissions – the two precursors to O_3 regulated by the Clean Air Act (Clean Air Act 182(f), 42 U.S.C. 7511(f)). These requirements, named Non-Attainment New Source Review ("NSR"), relative to O_3, are mandated for new major sources of VOC and/or NO_x. The Project is located in an area designated as "severe" non-attainment for O_3. The non-attainment thresholds for VOC and NO_x emissions in severe O_3 non-attainment areas are as follows:

VOC	25 tpy
NO_x	25 tpy

If the emission rate of any non-attainment pollutant exceeds the non-attainment major source threshold on a facility-wide basis, the facility would be deemed a major source in a non-attainment area. As presented in Table A-3, the Project's maximum emissions will operate under the severe non-attainment area thresholds for VOC and NO_x. Thus, the Project will be a minor source and is not subject to Federal Non-Attainment NSR review. Also, there is no requirement for emission offsets for this Project as it will be below the Non-Attainment NSR major source thresholds.

As per the EPA, the entire state of Connecticut is designated as attainment for CO. Although EPA has not yet made designations of nonattainment for the 2006 24-hour PM2.5 NAAQS, Fairfield and New Haven Counties are designated as nonattainment for the 1997 annual PM2.5 NAAQS. According to the DEP, Fairfield and New Haven Counties are likely to be designated as nonattainment for the 24-hour PM2.5 NAAQS. The remainder of Connecticut is currently designated as attainment for PM2.5.

The EPA has not yet fully provided implementation rules or guidance for the PM2.5 revised NAAQS. On August 21, 2007, the DEP issued an interim PM2.5 NSR modeling policy and procedures guidance. The modeling applicability thresholds apply to any new stationary source or modification subject to the provisions of R.C.S.A. § 22a-174-2a and 22a-174-3a, including:

- New major PM2.5 sources (100 tpy or more);
- Proposed modifications to existing major PM2.5 sources (100 tpy or more) with a PM2.5 net emissions increase of equal to or more than 15 tpy; and
- New minor sources of modifications with a proposed PM2.5 net emissions increase greater than 15 tpy but less than 100 tpy.

Any new source or modification that is required to receive a NSR permit, with a net PM2.5 emission increase of $\geq$ 3 tpy but < 15 tpy, should follow existing screening modeling procedures for PM. PM10 emissions can be used as a surrogate for PM2.5.

The maximum black start PM emissions are 0.03 tpy; well below any of the PM2.5 thresholds listed above. Thus, a PM2.5 air quality modeling analysis is not required.

New Source Performance Standards

The U.S. Environmental Protection Agency ("EPA") has promulgated New Source Performance Standards ("NSPS") for stationary compression ignition ("CI") internal combustion engines ("ICE") under 40 CFR 60, 85 et al. (Federal Register Notice, July 11, 2006). Each stationary CI internal combustion engine whose construction, modification or reconstruction commenced after July 11, 2005 is an affected source for the CI ICE NSPS. The date of construction is the date the engine is ordered by the owner or operator. Stationary CI ICE manufactured prior to April 1, 2006, that are not fire pump engines are not subject to the final rule, unless the engines are modified or reconstructed after July 11, 2005. Manufacturers of 2007 and later model year stationary CI ICE that are not fire pumps are subject to the final rule. Owners and operators of new stationary CI ICE who are subject to the final rule must meet the requirements of 40 CFR 60.4205 of the final rule, which restricts the installation of engines subject to outdated emission standards. This restriction applies only to the installation of new engines subject to the final rule, and does not apply to the installation of previously used engines.

It is assumed that the new black start engine will be manufactured in either 2007 or 2008. The total displacement of the 1000*XC4DT2 is 31.8 liters. Since the engine is 16 cylinders, the per cylinder displacement is 2.0 liters. According to the final rule in 40 CFR 60.4205(a), "Owners and operators of pre-2007 model year emergency stationary CI ICE with a displacement of less than 10 liters per cylinder that are not fire pump engines must comply with the emission standards in table 1 to this subpart." According to the final rule in 40 CFR 60.4205(b), "Owners and operators of 2007 model year and later emergency stationary CI ICE with a displacement of less than 30 liters per cylinder that are not fire pump engines must comply with the emission standards for new nonroad CI engines in §60.4202, for all pollutants, for the same model year and maximum engine

power for their 2007 model year and later emergency stationary CI ICE." Both the pre-2007 model year and 2007 model year or later CI ICE in this category must meet the same emission standards which are summarized below for engines with a displacement of < 10 liters per cylinder for greater than 560 kW (750 hp) engines is as follows:

Pollutant	Emission Standard in g/(kW-hr) (g/(hp-hr)
HC	1.3 (1.0)
NO_x	9.2 (6.9)
CO	11.4 (8.5)
PM	0.54 (0.40)

(i) Manufacturers must certify their stationary CI ICE with a displacement of less than 10 liters per cylinder to the emission standards specified in 40 CFR 60.4201(a) through (c) and 40 CFR 60.4202(a), (b) and (d) using the certification procedures required in 40 CFR 80, subpart B or 40 CFR 1039, subpart C, as applicable, and must test their engines as specified in those parts. Engines must be labeled appropriately based on 40 CFR 60.4210.

The Detroit Diesel 1000*XC4DT2 diesel genset uses a 16V 2000 G84 3D TB engine. The engine is certified to meet the Tier 2 emission limits (listed above). Thus, the engine meets the EPA emission standards as per 40 CFR 60.4205(a) and (b).

The stationary CI ICE must be operated and maintained according to the manufacturer's written instructions or procedures developed by the owner or operator that are approved by the engine manufacturer. Owners and operators may only change those settings that are permitted by the manufacturer. In addition the requirements of 40 CFR 89, 94 and/or 1068 must be followed, as applicable. As per 40 CFR 60.4211(b), pre-2007 model year stationary CI ICEs must demonstrate compliance according to one of the methods specified in b(1) through (5):

(1) Purchasing an engine certified according to 40 CFR part 89 or 40 CFR part 94, as applicable for the same model year and maximum engine power. The engine must be installed and configured according to the manufacturer's specifications.
(2) Keeping records of performance test results for each pollutant for a test conducted on a similar engine. The test must have been conducted using the same methods specified in this subpart and these methods must have been followed correctly.
(3) Keeping records of engine manufacturer data indicating compliance with the standards.
(4) Keeping records of control devices vendor data indicating compliance with the standards.
(5) Conducting an initial performance test to demonstrate compliance with the emission standards according to the requirements in §60.4212, as applicable.

As per 40 CFR 60.4211(c), 2007 model year and later stationary CI ICE must comply with the emission standards in §60.4204(b) or §60.4205(b), must comply by purchasing an engine certified to the emission standards in §60.4204(b) or (c), as applicable, for the same model year and maximum engine power. The engine must be installed and configured according to the manufacturer's specifications.

All emergency stationary CI ICE must have a non-resettable hour meter to track the number of hours operated during any type of operation.

All owners and operators must keep records of all information necessary to demonstrate compliance with the emission standards such as records of all notifications submitted, any maintenance conducted on the engine, any performance tests conducted on the engine (or performance tests conducted on a similar engine that is used to demonstrate compliance), engine manufacturer or control device vendor information, etc. Owners and operators of certified engines must keep records of documentation from the manufacturer that the engine is certified to meet the emission standards (see attachment). Owners and operators of emergency engines are not required to submit initial notifications, but are required to keep records of their hours of operation along with the reason the engine was in operation during that time.

Emergency stationary ICE may be operated for the purpose of maintenance checks and readiness testing, provided that the tests are recommended by Federal, State, or local government, the manufacturer, the vendor, or the insurance company associated with the engine. Maintenance checks and readiness testing of such units is limited to 100 hours per year. There is no time limit on the use of emergency stationary ICE in emergency situations. Anyone may petition the EPA for approval of additional hours to be used for maintenance checks and readiness testing, but a petition is not required if the owner or operator maintains records indicating that Federal, State or local standards require maintenance and testing of emergency ICE beyond 100 hours per year. Any operation other than emergency operation and maintenance and testing is prohibited.

The fuel requirements of the final rule are less stringent than the proposed use of motor vehicle diesel (0.0015% sulfur).

PSD

Prevention of Significant Deterioration ("PSD") review is a federally mandated program review of new major sources of criteria pollutants or major modifications to existing sources. To be classified as a major PSD source, the emissions from the source must: (1) be in one of the 28 named source categories listed in Section 169 of the Clean Air Act and have controlled emissions exceeding 100 tpy of any pollutant regulated by the EPA under the Clean Air Act, or; (2) not be in one of the 28 listed source categories and have controlled emissions exceeding 250 tpy of any EPA-regulated pollutant. As a peaking unit, the facility is not classified as a fossil fuel-fired steam electric plant; the facility is not one of the 28 PSD named sources. Thus, the facility is not considered a major new source under PSD regulations because its controlled emissions are less than 250 tpy of any regulated pollutant.

BACT

A Best Available Control Technology ("BACT") analysis is included in Attachment G. The Analysis shows based on continuous operation of 8,760 hours per year and a capacity factor of 6.8%, the cost per ton of NO_x removed would be $34,000 based on a 10-year project life; $51,000 for a 5-year project life; and $133,000 with no amortization; thus, SCR is economically infeasible.

In addition, the facility's permitted and actual NO_x emissions are compared below.

Unit	Permitted		Actual	
	lbs/hr	lbs/MWh	lbs/hr	lbs/MWh
1 – TM2500	40.0	1.7	37.2	1.6
2 – TM2500	40.0	1.7	28.7	1.2
3 – TM2500	40.0	1.7	34.3	1.5
4 – Black Start	14.8	14.8	6.3[1]	12.6[1]
Facility	134.8	1.9	106.5	1.5

[1] Actual emissions for the black start are based on operation of the engine at 500 kW. The current load on the black start generator at Waterside is approximately 315 kW.

The three TM2500 units are permitted at 1.7 lbs/MWh of NO_x. With the black start generator, the permitted emissions increase 12% to 1.9 lbs/MWh. The actual emissions are much lower. The TM2500 units emit between 1.2 and 1.6 lbs/MWh. The black start generator will only run at less than 50% load since the current load is approximately 315 kW. Thus, the facility-wide NO_x emissions will be approximately 1.5 lbs/MWh with the black start generator.

MACT

The Project will not be subject to Subpart YYYY of 40 CFR 63 – National Emission Standards for Hazardous Air Pollutants ("NESHAPS") for Stationary Combustion Turbines because the Project is not a major source of HAPs (total HAPs are less than 25 tpy and emissions of any single HAP are less than 10 tpy). The black start engine is also not subject to any NESHAPS.

Acid Rain Program

Pursuant to 40 CFR 72.6, the Project is not subject to the EPA Title IV acid rain program.

State Regulations

Particulate Matter and Opacity

DEP regulations at R.C.S.A. §22a-174-18 limit PM emissions from new fuel burning equipment to a rate of 0.10 lb/MMBtu and opacity to less than 20 percent. The black start's PM emissions are only 0.007 lb/MMBtu. Opacity emissions will be well below 20 percent. The DEP regulations §22a-174-19 limits fuel sulfur content to less than 1 percent for new fuel burning equipment. The black start will fire ultra-low sulfur liquid fuel with 0.0015 percent sulfur.

Hazardous Air Pollutants

The DEP regulates emissions of HAPs, as defined in R.C.S.A § 22a-174-29. The Project emits several pollutants identified as HAPs. The DEP requires that new sources of air pollution discharge all Connecticut-listed HAPs at concentrations less than the MASC. Procedures for calculating MASC, based on the stack height, distance to the property line, and the Hazard Limit Value for the compound in question, are contained in § 22a-174-29. The requirements are based on short-term (8-hour) emissions. With the above-described pollution controls, the Project is in compliance with the MASC for all regulated compounds. The results of the MASC calculations are included in Table E-2.

Title V Operating Permit

Although Waterside is not a major source, the facility operates under a Title V Operating Permit in accordance with R.C.S.A § 22a-174-33. The facility cannot register under the DEP's General Permit to Limit the Potential to Emit ("GPLPE") because the facility operates under certain minor sections of 40 CFR 75. The DEP regulations prohibit sources from registering under the GPLPE if they operate under 40 CFR 75[3]. Thus, a Title V Operating Permit was required to limit the facility's NO_x emissions to less than 25 tpy.

NO_x RACT

The current NO_x Reasonably Available Control Technology ("RACT") regulations in §22a-174-22 require reciprocating engines to meet a NO_x limit of 8 g/bhp-hr for other fuel fired engines if the engine's NO_x emissions exceeds 137 lbs/day. The NO_x emissions from the proposed black start engine will be less than 8 g/bhp-hr; however, the DEP has proposed to change these regulations. Under the proposed regulations that were released by the DEP a few months ago, emission units (e.g., the proposed black start engine) that exceed 137 lbs/day in severe ozone nonattainment areas during the ozone season, will be required to meet an emission limit of 2.3 g/bhp-hr on or after May 1, 2009. In order to avoid having to meet a limit of 2.3 g/bhp-hr, this application requests that for non-testing and non-emergency operation, a daily fuel use limit be placed on the

[3] It is understood that the DEP is in the process of amending their regulations, so that facilities such as Waterside will not require a Title V Operating Permit.

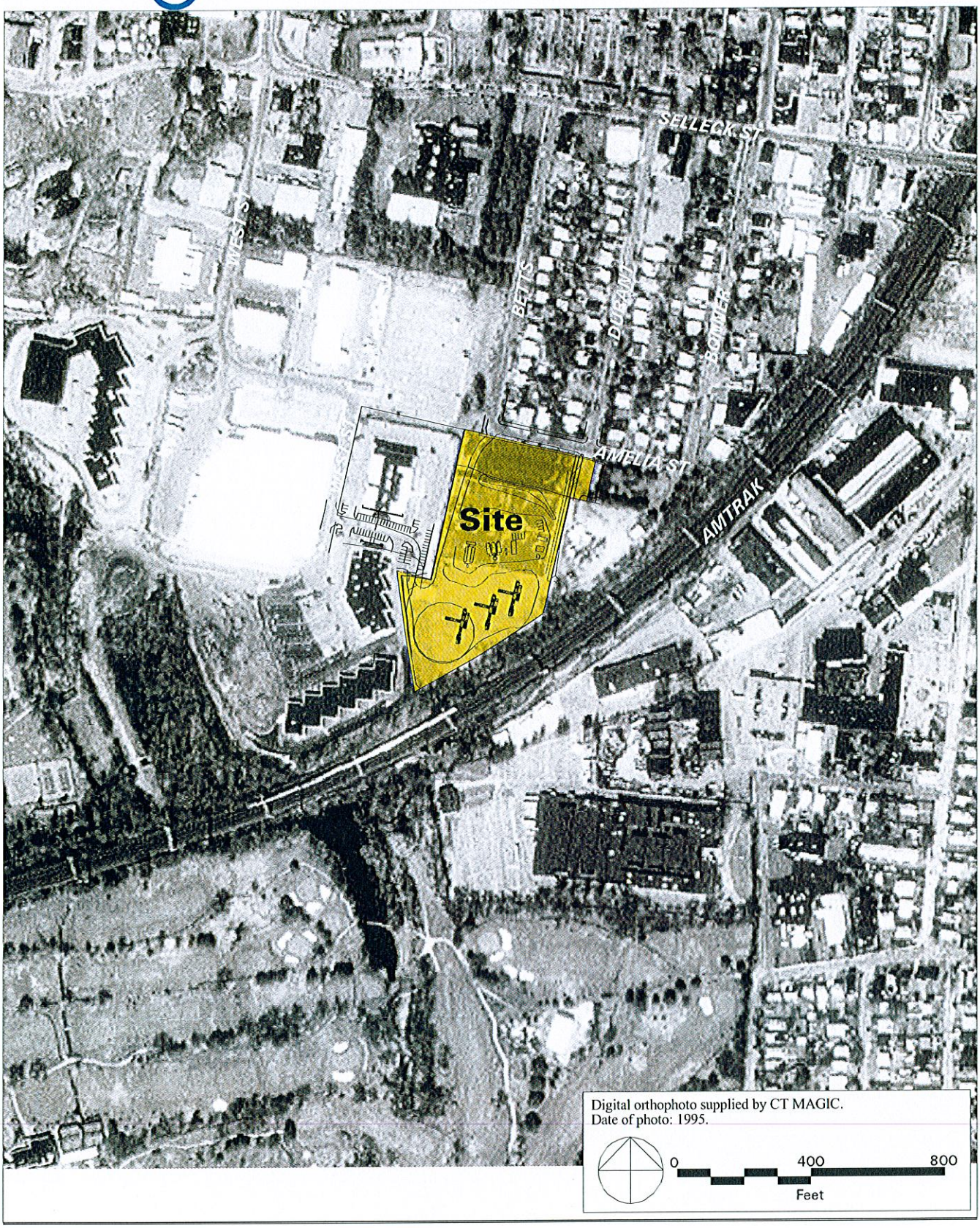
black start engine so that 137 lbs/day will not be exceeded. The daily fuel use limit should be calculated based on operation of the engine at 100% load. The engine fuel consumption at 100% load is 71.0 gph with a maximum NO_x emission rate of 14.78 lbs/hr. Thus, the engine cannot be run for more than 9.3 hours per day for non-emergency and non-testing operation without triggering the 137 lbs/day limit. It is requested that a daily fuel limit of 660.3 gals be placed in the permit for non-emergency and non-testing operation.

NO_x Budget Source

The black start engine will not be a NO_x Budget Source as per §22a-174-22b.

Ambient Air Quality

An air quality modeling analysis is not required for PM10, PM2.5, or SO_2 because the allowable emissions will be less than 3 tpy. Similarly, a modeling analysis is not required for Pb because the emissions will be less than 0.6 tpy. Finally, a modeling analysis for NO_2 and CO is not required because the allowable emissions will be less than 5 tpy.



Date: 26 Feb 03 14:34:55 Wednesday
/usr1/ctdata/waterside/siteortho.map

Attachment A - 1
Aerial with Site Location

STATE OF CONNECTICUT
DEPARTMENT OF ENVIRONMENTAL PROTECTION

June 30, 2006

Colin C. Tait, Chairman
Connecticut Siting Council
10 Franklin Square
New Britain, Connecticut 06051

RE: 69.2 MW Peaking Generation Facility
Waterside Power, LLC
Stamford, Connecticut
Petition No. 772

Dear Chairman Tait:

Staff of this department has reviewed the above-referenced petition for a declaratory ruling that the various improvements to allow for winter operations of the Waterside facility, the removal of seasonal operating restrictions, and allowing operations until 11:00 p.m. will not have a substantial environmental impact and will not require a Certificate of Environmental Compatibility and Public Need. No site visit was undertaken during the department's review of this petition. The following comments are offered to the Council for your use in this proceeding.

This department supports the request of Waterside Power LLC for authorization to operate whenever called upon by ISO-New England without seasonal limitations. In a number of respects, the Waterside Power facility is environmentally preferable to the facilities which would likely be called upon to operate in its absence. It achieves substantially lower emissions rates for NOx than other peaking or stand-by units. It is capable of cold start operations, obviating the need to maintain its availability for generation in a spinning reserve mode. Other facilities which must operate in spinning reserve mode produce emissions even if not called upon to deliver generation to the grid. Waterside Power's use of ultra low sulfur fuel also produces lower SOx emissions rates than those of likely competing facilities. Finally, though Waterside would operate only infrequently, as an air-cooled facility, its operation further avoids the cooling water needs that would occur at many other peaking facilities.

In addition to its environmental advantages, the availability of Waterside in critical situations will have significant economic benefits by providing extra capacity which would displace less efficient, less economic options which would otherwise be called upon to meet demand. This capacity is also conveniently located in the heart of the supply-constrained Norwalk-Stamford region, thus avoiding putting additional strain on the regional transmission system to move power to this area.

The Waterside Power facility is permitted by DEP for operation at any time of year. The permit limit for Waterside is based on the NOx emissions from a maximum annual fuel consumption of 2,214,000 gallons of distillate oil. This limit equates to approximately 1,230 hours for all three generating units combined. Any combination of operating hours of the three Waterside units totaling 1,230 hours at full capacity would be consistent with the operating permit limit. For example, if all three units were operating simultaneously at 100% capacity, the permit limits would be reached in approximately 410 hours. Though Waterside is not currently served by natural gas, it is authorized to burn that fuel also and would have a maximum operating limit of approximately 2,140 hours combined for all three units. Additional stack testing for NOx and CO would be required before the facility could operate on natural gas.

Thank you for the opportunity to review this petition and to submit these comments to the Council. Should you, other Council members or Council staff have any questions, please feel free to call me at (860) 424-4110.

Respectfully yours,

Frederick L. Riese

Frederick L. Riese
Senior Environmental Analyst

cc: Commissioner Gina McCarthy

ATTACHMENT B

APPLICANT BACKGROUND INFORMATION

Applicant Background Information

Please enter a check mark by the entity which best describes the applicant and complete the requested information. **You must choose one of the following.**

☐ **Corporation**

1. Parent Corporation
   Name:
   Mailing Address:
   City/Town: State: Zip Code: -
   Business Phone: - - ext. Fax: - -
   Contact Person: Title:

2. Subsidiary Corporation:
   Name:
   Mailing Address:
   City/Town: State: Zip Code: -
   Business Phone: - - ext. Fax: - -
   Contact Person: Title:

3. Directors:
   Name:
   Mailing Address:
   City/Town: State: Zip Code: -
   Business Phone: - - ext. Fax: - -

   Name:
   Mailing Address:
   City/Town: State: Zip Code: -
   Business Phone: - - ext. Fax: - -

   ☐ Please enter a check mark, if additional sheets are necessary. If so, label and attach additional sheet(s) to this sheet with the required information as supplied above.

4. Officers:
   Name:
   Mailing Address:
   City/Town: State: Zip Code: -
   Business Phone: - - ext. Fax: - -

   ☐ Please enter a check mark, if additional sheets are necessary. If so, label and attach additional sheet(s) to this sheet with the required information as supplied above.

Applicant Background Information (continued)

☒ **Limited Liability Company**

1. List each member.

Name: **EIF Waterside LLC; c/o Project Finance Fund III**

Mailing Address: **3 Charles River Place; 63 Kendrick St.**

City/Town: **Needham** State: **MA** Zip Code: **02494-**

Business Phone: **781-292-7000** ext. Fax: - -

Name: **PDC Waterside LLC; c/o Pinpoint Power-Tom Atkins**

Mailing Address: **105 Chestnut Street; Suite 37**

City/Town: **Needham** State: **MA** Zip Code: **02492-**

Business Phone: **617-699-3756** ext. Fax: **781-453-1142**

Name:

Mailing Address:

City/Town: State: Zip Code: -

Business Phone: - - ext. Fax: - -

☐ Please enter a check mark, if additional sheets are necessary. If so, label and attach additional sheet(s) to this sheet with the required information as supplied above.

2. List any manager(s) who, through the articles of organization, are vested the management of the business, property and affairs of the limited liability company.

Name: **Pinpoint Power, LLC - Tom Atkins**

Mailing Address: **105 Chestnut Street; Suite 37**

City/Town: **Needham** State: **MA** Zip Code: **02492-**

Business Phone: **617-699-3756** ext. Fax: **781-453-1142**

Name:

Mailing Address:

City/Town: State: Zip Code: -

Business Phone: - - ext. Fax: - -

Name:

Mailing Address:

City/Town: State: Zip Code: -

Business Phone: - - ext. Fax: - -

☐ Please enter a check mark, if additional sheets are necessary. If so, label and attach additional sheet(s) to this sheet with the required information as supplied above.

Applicant Background Information (continued)

☐ **Limited Partnership**

1. General Partners:

Name:

Mailing Address:

City/Town: State: Zip Code: -

Business Phone: - - ext. Fax: - -

Name:

Mailing Address:

City/Town: State: Zip Code: -

Business Phone: - - ext. Fax: - -

Name:

Mailing Address:

City/Town: State: Zip Code: -

Business Phone: - - ext. Fax: - -

☐ Please enter a check mark, if additional sheets are necessary. If so, label and attach additional sheet(s) to this sheet with the required information as supplied above.

2. Limited Partners:

Name:

Mailing Address:

City/Town: State: Zip Code: -

Business Phone: - - ext. Fax: - -

Name:

Mailing Address:

City/Town: State: Zip Code: -

Business Phone: - - ext. Fax: - -

Name:

Mailing Address:

City/Town: State: Zip Code: -

Business Phone: - - ext. Fax: - -

☐ Please enter a check mark, if additional sheets are necessary. If so, label and attach additional sheet(s) to this sheet with the required information as supplied above.

Applicant Background Information (continued)

☐ **General Partnership**

1. General Partners:

Name:
Mailing Address:
City/Town: State: Zip Code: -
Business Phone: - - ext. Fax: - -

Name:
Mailing Address:
City/Town: State: Zip Code: -
Business Phone: - - ext. Fax: - -

Name:
Mailing Address:
City/Town: State: Zip Code: -
Business Phone: - - ext. Fax: - -

Name:
Mailing Address:
City/Town: State: Zip Code: -
Business Phone: - - ext. Fax: - -

Name:
Mailing Address:
City/Town: State: Zip Code: -
Business Phone: - - ext. Fax: - -

Name:
Mailing Address:
City/Town: State: Zip Code: -
Business Phone: - - ext. Fax: - -

Name:
Mailing Address:
City/Town: State: Zip Code: -
Business Phone: - - ext. Fax: - -

☐ Please enter a check mark, if additional sheets are necessary. If so, label and attach additional sheet(s) to this sheet with the required information as supplied above.

Applicant Background Information (continued)

☐ **Voluntary Association**

1. List authorized persons of association or list all members of association.

Name:
Mailing Address:
City/Town: State: Zip Code: -
Business Phone: - - ext. Fax: - -

Name:
Mailing Address:
City/Town: State: Zip Code: -
Business Phone: - - ext. Fax: - -

Name:
Mailing Address:
City/Town: State: Zip Code: -
Business Phone: - - ext. Fax: - -

Name:
Mailing Address:
City/Town: State: Zip Code: -
Business Phone: - - ext. Fax: - -

Name:
Mailing Address:
City/Town: State: Zip Code: -
Business Phone: - - ext. Fax: - -

☐ Please enter a check mark, if additional sheets are necessary. If so, label and attach additional sheet(s) to this sheet with the required information as supplied above.

☐ **Individual or Other Business Type**

1. Name:
Mailing Address:
City/Town: State: Zip Code: -
Business Phone: - - ext. Fax: - -

2. State other names by which the applicant is known, including business names.
Name:

☐ Please enter a check mark, if additional sheets are necessary. If so, label and attach additional sheet(s) to this sheet with the required information as supplied above.

ATTACHMENT C

SITE PLAN

GENERAL NOTES

1. EXISTING TOPOGRAPHIC INFORMATION OBTAINED FROM A PLAN ENTITLED "LIMITED TOPOGRAPHIC SURVEY, STAMFORD POWER PLANT, STAMFORD, CT", PREPARED BY LANGAN ENGINEERING, DATED 4/10/07.
2. EXISTING BOUNDARY INFORMATION OBTAINED FROM A PLAN ENTITLED "TOPOGRAPHIC SURVEY, 17 AMELIA PLACE, STAMFORD, CT." PREPARED BY CONKLIN & SOROKA, DATED 4/15/02.
3. ACCORDING TO A WETLANDS REPORT PREPARED BY ENVIRONMENTAL PLANNING SERVICES, THERE ARE NO WETLANDS ON-SITE. NO ACTIVITIES ARE PROPOSED WITHIN THE REGULATED AREA.

Date	Description	No.
10/26/07	ZBA SUBMISSION	15.

Revisions

JOHN D. PLANTE, CT PE#19399

LANGAN
ENGINEERING & ENVIRONMENTAL SERVICES

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- New York, NY
- Philadelphia, PA
- Trenton, NJ

Project
WATERSIDE POWER PROJECT
17 AMELIA PLACE
STAMFORD CONNECTICUT

Drawing Title
SITE IMPROVEMENT PLAN
GENERAL ARRANGEMENT PLAN

			Drawing No.
Job No.	7610900		20.01
Date	4/25/02		
Scale	1"=30'		
Drn. By	TSO	BJC	
Chkd. By	RAF		

Filename: R:\Data9\7610900\Cadd Data - 7610900\Dwg\76109002001 Color Rendering.dwg Date: 11/6/2007 Time: 16:16 User: tonderko Style Table: Langan Color.stb Layout: 20.01

ATTACHMENT D

LATITUDE AND LONGITUDE FORM WITH USGS LOCATION MAP

Latitude and Longitude

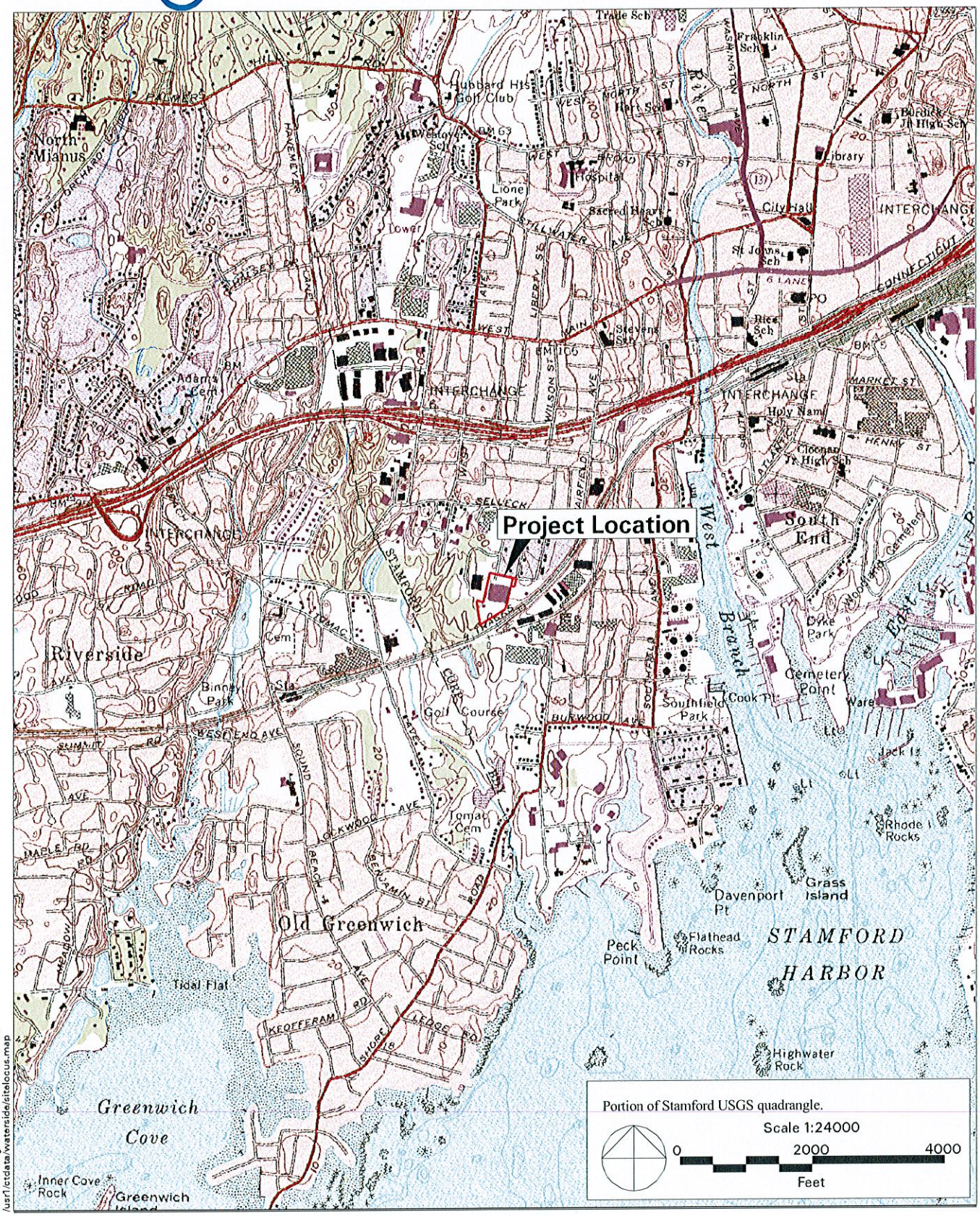
Applicant Name: **Waterside Power, LLC**
(as indicated on the *Permit Application Transmittal Form*)

Method of latitude and longitude determination (check one):

☐ Global Positioning System (GPS) ☒ USGS Map ☐ Other (please specify)

In the table below, label each point for which latitude and longitude were measured, being consistent with identification numbers assigned throughout the application (e.g., 100, 101, etc.). For renewals or modifications of existing permits, please provide the existing permit number. Also provide: a brief description of the point (e.g., monitoring well, pipe outlet, air stack, etc.); latitude and longitude in degrees, minutes and seconds (e.g., 41E 16' 29"); and the name of the USGS quadrangle map(s) the points described are located on.

ID Number	Permit Number	Description	Latitude	Longitude	Quad Map Name	For DEP Use Only: GIS ID
U4		Black Start Generator	41 deg 2' 11"	73 deg 33' 25"	Stamford	



Attachment D - 1
Site Locus Map

ATTACHMENT E

SUPPLEMENTAL APPLICATION FORMS
(FUEL BURNING EQUIPMENT AND UNIT EMISSIONS)

Supplemental Application Form
Fuel Burning Equipment

Applicant Name: **Waterside Power, LLC**
(As indicated on the *Permit Application Transmittal Form)*

DEP USE ONLY	
App. No.:	
EPE No.:	

Please complete a separate form for *each* fuel burning unit.
(You may reproduce this form as necessary.)
Unit #: **U4**

Is this unit subject to Title 40 CFR Part 60, NSPS? ☒ Yes or ☐ No

If yes, indicate the subpart(s): **IIII**

Is this unit subject to Title 40 CFR Part 63, MACT? ☐ Yes or ☒ No

If yes, indicate the subpart(s):

Section I: General

1. Type of Unit (make, model, serial no.): **Detroit Diesel 1000RXC6DT2 or equiv**
2. Burner (make, model, serial no.): **Not Applicable**
3. Construction Date: **05/01/2008**
4. Unit Rated Capacity - Input (BTU/hr): **9,727,000**
5. Burner Rated Capacity - Input (if different) (BTU/hr): **Not Applicable**
6. Engine Brake Horsepower (for internal combustion engines): **1,495**
7. Equipment is: ☐ Emergency ☒ Non-emergency
8. Maximum Operating Schedule for this Unit: **24** hours/day **675** hours/year
9. Percentage of Use in Each Category:
   Space Heat: **0** % Process Heat: **0** % Power: **100** %

Section II: Fuel

1. Type of Primary Fuel *(check one)*:
   ☐ Fuel Oil Grade *(check one)* ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6
   ☐ Coal ☐ Natural Gas ☐ Propane ☐ Butane ☐ Wood ☐ Landfill Gas
   ☒ Other *(specify)*: **ULSD**
   a. Maximum Fuel Firing Rate (specify units): **71.0 gal/hr**
2. List Secondary Fuel(s): **N/A**
   a. Maximum Fuel Firing Rate for each secondary fuel listed (specify units):

Section II: Fuel (continued)

3. Fuel Characteristics

Type	Percent Ash (a)	Percent Sulfur (b)	Percent Nitrogen (c)	Heating Value (d)	Annual Usage (e)
Primary	**0.001**	**0.0015**	**0.001**	**137000Bt**	**47,942**
Secondary					
Secondary					
Secondary					

4. Percent of Annual Fuel Use by Quarter:

1st: **25** % 2nd: **25** % 3rd: **25** % 4th: **25** %

Section III: Equipment

1. Oil-Fired/Gas-Fired Unit
   - ☐ Tangentially Fired ☐ Horizontally Opposed (normal) Fired
   - ☒ Other (specify): **RICE**
2. Coal Fired Units
   - ☐ *Pulverized Coal Fired:*
     - ☐ Dry Bottom ☐ Wet Bottom ☐ Wall Fired ☐ Tangentially Fired
   - ☐ *Stoker:*
     - ☐ Overfeed ☐ Underfeed ☐ Spreader ☐ Hand Fed
     - ☐ Other (specify):
   - ☐ *Fluidized Bed Combuster:*
     - ☐ Circulating Bed ☐ Bubbling Bed ☐ Cyclone Furnace
3. Wood-Fired Unit
   - ☐ Dutch Oven/Fuel Cell Oven ☐ Stoker
   - ☐ Suspension Firing ☐ Fluidized Bed Combustion (FBC)

Section IV: Combustion Controls

1. ☐ Fly Ash Reinjection 2. ☐ Flue Gas Recirculation 3. ☐ Low NOx Burners
4. ☐ Advanced Combustion Controls:
   - ☐ Selective Catalytic Reduction ☐ Coal Reburn ☐ Gas Reburn ☐ Other
   - If other, please specify:

☐ Check here if a *Stationary Reciprocating Internal Combustion Engine – Compliance Assurance Form* (DEP-AIR-COMP-001) is attached.

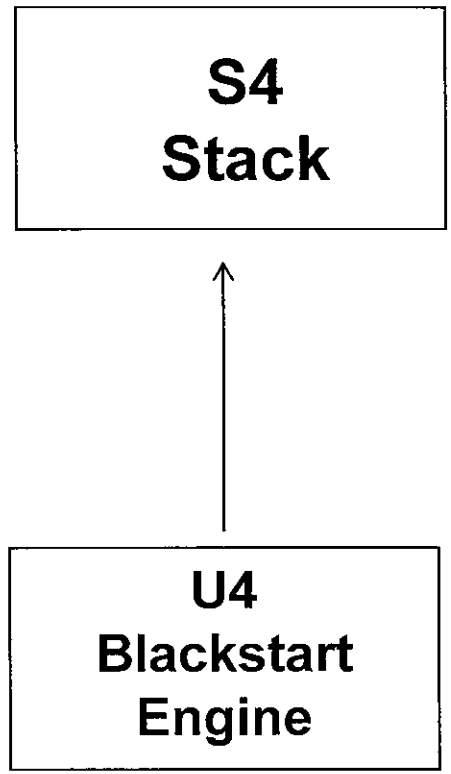
Supplemental Application Form
Stack Parameters

Applicant Name: **Waterside Power, LLC**
(As indicated on *Permit Application Transmittal Form)*

DEP USE ONLY
App. No.: _____
EPE No.: _____

Section I. Stack Parameters (Make additional copies, if necessary)

Stack No. (1)	Unit No.(s) (2)	Control Equipment No.(s) (3)	Height ft. (4)	Diameter ft. (5)	Temp °F (6)	Flow ACFM (7)	Exit Dir. H or V (8)	Rain Hat Y or N (9)	Stack Lining (10)	Distance to Property Line ft. (11)
S4	U4	N/A	12.5	1.0	1085	7416	H	Y	Metal	154



Process Flow Diagram

Supplemental Application Form
Unit Emissions

Applicant Name: **Waterside Power, LLC**
(As indicated on the *Permit Application Transmittal Form)*

DEP USE ONLY
App. No.: _____
EPE No.: _____

Section I: General Information

Please complete a separate form for each unit. You may reproduce this form as necessary.

1. Unit Number: **U4**
2. Stack Number: **S4**
3. Control Equipment Number(s): **N/A**

Section II: Stack Emission Information for Listed Pollutants (Exclude Fugitive Emission Information)

Pollutant		(1) Stack Emission Rate (@ *Rated Capacity)*			
		Pounds Per Hour (lb/hr) (a)	Tons Per Year (TPY) (b)	Other (Units) (c)	Basis (d)
Carbon Monoxide (CO)	Uncontrolled potential	1.64	7.18		Vendor
	proposed actual	1.64	0.55		Vendor
Volatile Organic Compounds (VOC)	uncontrolled potential	0.88	3.85		AP 42
	proposed actual	0.88	0.30		AP 42
Exempted Volatile Organic Compounds	uncontrolled potential	0.88	3.85		AP 42
	proposed actual	0.88	0.30		AP 42
Hydrocarbons	uncontrolled potential	0.16	0.70		Vendor
	proposed actual	0.16	0.05		Vendor
Nitrogen Oxides (NOx)	uncontrolled potential	14.78	64.74		Vendor
	proposed actual	14.78	4.99		Vendor
Sulfur Oxides (SOx)	uncontrolled potential	0.02	0.09		DEP
	proposed actual	0.02	0.01		DEP
Particulate Matter (TSP)	uncontrolled potential	0.07	0.31		AP-42
	proposed actual	0.07	0.03		AP-42
Particulate Matter <- 10 Micrometers (PM_{10})	uncontrolled potential	0.07	0.31		AP-42
	proposed actual	0.07	0.03		AP-42
Lead (Pb)	uncontrolled potential	5.26E-5	2.30E-4		AP-42
	proposed actual	5.26E-5	1.78E-6		AP-42

Section III: Stack Emission Information for Hazardous Air Pollutants
(Exclude Fugitive Emission Information)

Hazardous Air Pollutants *(List Separately)* (1)		Stack Emission Rate (@ *Rated Capacity)* (2)				
		Pounds Per Hour (lb/hr) (a)	Tons per year (TPY) (b)	Concentration Micrograms Per Cubic Meter ($\mu g/m^3$) (c)	Other (Units) (d)	Basis (e)
Formaldehyde	uncontrolled potential	**7.67E-4**	**3.36E-3**			**AP-42**
	proposed actual	**7.67E-4**	**2.59E-4**	**27.63**		**AP-42**
	maximum allowable			**1,329**		**RCSA 22a-174-29**
Sulfuric Acid	uncontrolled potential	**2.61E-4**	**1.14E-3**			**DEP**
	proposed actual	**2.61E-4**	**8.81E-5**	**9.39**		**DEP**
	maximum allowable			**2,215**		**RCSA 22a-174-29**
Acetaldehyde	uncontrolled potential	**2.45E-4**	**1.07E-3**			**AP-42**
	proposed actual	**2.45E-4**	**8.27E-5**	**8.82**		**AP-42**
	maximum allowable			**398,719**		**RCSA 22a-174-29**
Benzene	uncontrolled potential	**7.55E-5**	**3.31E-4**			**AP-42**
	proposed actual	**7.55E-3**	**2.55E-3**	**271.73**		**AP-42**
	maximum allowable			**16,613**		**RCSA 22a-174-29**
Toluene	uncontrolled potential	**2.73E-3**	**1.20E-2**			**AP-42**
	proposed actual	**2.73E-3**	**9.22E-4**	**98.40**		**AP-42**
	maximum allowable			**830,665**		**RCSA 22a-174-29**

Hazardous Air Pollutants *(List Separately)* (1)		Stack Emission Rate (@ *Rated Capacity)* (2)				
		Pounds Per Hour (lb/hr) (a)	Tons per year (TPY) (b)	Concentration Micrograms Per Cubic Meter ($\mu g/m^3$) (c)	Other (Units) (d)	Basis (e)
Napthalene	uncontrolled potential	**1.26E-3**	**5.52E-3**			**AP-42**
	proposed actual	**1.26E-3**	**4.25E-4**	**45.52**		**AP-42**
	maximum allowable			**110,755**		**RCSA 22a-174-29**
PAH (soluble Benzene)	uncontrolled potential	**4.37E-5**	**1.91E-4**			**AP-42**
	proposed actual	**4.37E-5**	**1.48E-5**	**1.57**		**AP-42**
	maximum allowable			**11**		**RCSA 22a-174-29**
Acrolein	uncontrolled potential	**7.66E-5**	**3.36E-4**			**AP-42**
	proposed actual	**7.66E-5**	**2.59E-5**	**2.76**		**AP-42**
	maximum allowable			**554**		**RCSA 22a-174-29**
Xylenes	uncontrolled potential	**1.88E-3**	**8.23E-3**			**AP-42**
	proposed actual	**1.88E-3**	**6.35E-4**	**67.58**		**AP-42**
	maximum allowable			**961,357**		**RCSA 22a-174-29**
Nickel	uncontrolled potential	**5.26E-5**	**2.30E-4**			**Fuel Analysis**
	proposed actual	**5.26E-5**	**1.78E-6**	**1.89**		**Fuel Analysis**
	maximum allowable			**554**		**RCSA 22a-174-29**

Hazardous Air Pollutants *(List Separately)* (1)		Stack Emission Rate (@ *Rated Capacity)* (2)				
		Pounds Per Hour (lb/hr) (a)	Tons per year (TPY) (b)	Concentration Micrograms Per Cubic Meter ($\mu g/m^3$) (c)	Other (Units) (d)	Basis (e)
Mercury	uncontrolled potential	5.26E-6	2.30E-5			Fuel Analysis
	proposed actual	5.26E-6	1.78E-6	0.19		Fuel Analysis
	maximum allowable			111		RCSA 22a-174-29
Arsenic	uncontrolled potential	5.26E-6	2.30E-5			Fuel Analysis
	proposed actual	5.26E-6	1.78E-6	0.19		Fuel Analysis
	maximum allowable			6		RCSA 22a-174-29
Beryllium	uncontrolled potential	5.26E-6	2.30E-5			Fuel Analysis
	proposed actual	5.26E-6	1.78E-6	0.20		Fuel Analysis
	maximum allowable			1		RCSA 22a-174-29
Cadmium Oxide	uncontrolled potential	5.26E-6	2.30E-5			Fuel Analysis
	proposed actual	5.26E-6	1.78E-6	0.2		Fuel Analysis
	maximum allowable			111		RCSA 22a-174-29
Chromium	uncontrolled potential	1.58E-5	6.92E-5			Fuel Analysis
	proposed actual	1.58E-5	5.33E-6	0.6		Fuel Analysis
	maximum allowable			55		RCSA 22a-174-29

Hazardous Air Pollutants *(List Separately)* (1)		Stack Emission Rate (@ *Rated Capacity)* (2)				
		Pounds Per Hour (lb/hr) (a)	Tons per year (TPY) (b)	Concentration Micrograms Per Cubic Meter ($\mu g/m^3$) (c)	Other (Units) (d)	Basis (e)
Lead	uncontrolled potential	**5.26E-5**	**2.30E-4**			**Fuel Analysis**
	proposed actual	**5.26E-5**	**1.78E-6**	**1.89**		**Fuel Analysis**
	maximum allowable			**332**		**RCSA 22a-174-29**
Copper Fume	uncontrolled potential	**1.58E-5**	**6.92E-5**			**Fuel Analysis**
	proposed actual	**1.58E-5**	**5.33E-6**	**0.57**		**Fuel Analysis**
	maximum allowable			**221**		**RCSA 22a-174-29**
	uncontrolled potential					
	proposed actual					
	maximum allowable					
	uncontrolled potential					
	proposed actual					
	maximum allowable					
	uncontrolled potential					
	proposed actual					
	maximum allowable					

Hazardous Air Pollutants *(List Separately)* (1)		Stack Emission Rate (@ *Rated Capacity*) (2)				
		Pounds Per Hour (lb/hr) (a)	Tons per year (TPY) (b)	Concentration Micrograms Per Cubic Meter ($\mu g/m^3$) (c)	Other (Units) (d)	Basis (e)
	uncontrolled potential					
	proposed actual					
	maximum allowable					
	uncontrolled potential					
	proposed actual					
	maximum allowable					
	uncontrolled potential					
	proposed actual					
	maximum allowable					
	uncontrolled potential					
	proposed actual					
	maximum allowable					
	uncontrolled potential					
	proposed actual					
	maximum allowable					

Section IV: Fugitive Emission Information for Listed Pollutants

Pollutant		Emission Rate (@ *Rated Capacity*) (1)			
		Pounds Per Hour (lb/hr) (a)	Tons Per Year (TPY) (b)	Other (Units) (c)	Basis (d)
Carbon Monoxide (CO)	uncontrolled potential				
	proposed actual				
Volatile Organic Compounds (VOC)	uncontrolled potential				
	proposed actual				
Exempted Volatile Organic Compounds	uncontrolled potential				
	proposed actual				
Hydrocarbons	uncontrolled potential				
	proposed actual				
Nitrogen Oxides (NOx)	uncontrolled potential				
	proposed actual				
Sulfur Oxides (SO_X)	uncontrolled potential				
	proposed actual				
Particulate Matter (TSP)	uncontrolled potential				
	proposed actual				
Particulate Matter <- 10 Micrometers (PM_{10})	uncontrolled potential				
	proposed actual				
Lead (Pb)	uncontrolled potential				
	proposed actual				
1e. Assumptions:					

Section V: Fugitive Emission Information for Hazardous Air Pollutants

Hazardous Air Pollutants *(List Separately)* (1)		Emission Rate (@ *Rated Capacity)* (2)				
		Pounds Per Hour (lb/hr) (a)	Tons per year (TPY) (b)	Concentration Micrograms Per Cubic Meter ($\mu g/m^3$) (c)	Other (Units) (d)	Basis (e)
	uncontrolled potential					
	proposed actual					
	maximum allowable					
	uncontrolled potential					
	proposed actual					
	maximum allowable					
	uncontrolled potential					
	proposed actual					
	maximum allowable					
	uncontrolled potential					
	proposed actual					
	maximum allowable					
	uncontrolled potential					
	proposed actual					
	maximum allowable					

ATTACHMENT E

UNIT EMISSIONS CALCULATIONS

Criteria Pollutant Emission Calculations

The manufacturer emission rates for NO_x, CO, HC, and PM are used (see the data at the end of Attachment E). SO2 emissions are calculated from the DEP memo dated May 23, 1991 as follows

$$SO_x = 141\ S^*\ lb/mgal$$

where S = 0.0015%. VOC emissions are calculated from EPA's AP-42 Emission Factors, Fifth Edition, October, 1996 for diesel engines > 600 hp. H_2SO_4 emissions are calculated from the DEP's memo dated November 27, 1987 as follows

$$H_2SO_4 = 2 * S * 1.225\ lb/1000\ gal$$

A detailed spreadsheet with the calculations for both criteria and non-criteria pollutants is presented in Attachment E-1.

Non-Criteria Pollutant Emission Calculations

Trace organic emission factors from EPA's AP-42 (October, 1996) Table 3.4.3 and PAH emission factors from AP-42 (October, 1996) Table 3.4-4 were used.

A fuel analysis of ultra-low sulfur distillate fuel was used to derive the emission factors for arsenic, beryllium, cadmium, chromium, copper, lead, mercury, and nickel.

Uncontrolled Potential and Proposed Actual

The maximum uncontrolled potential emissions are the rate of emissions from the unit in lbs/hr (see Table A-2 for criteria pollutants and Table A-4 for non-criteria pollutants) operating at a maximum rated capacity of 8,760 hours per year. The uncontrolled potential and proposed actual hourly emissions in lbs/hour are identical. The annual uncontrolled potential emissions are calculated as the uncontrolled hourly potential times 8,760 hours per year. The maximum proposed actual emissions take into account the fuel use restrictions. Thus, the per unit emissions are calculated as follows:

Annual Uncontrolled Potential (tpy) =

Uncontrolled Potential (lb/hr) x 8,760 (hrs/yr) /2,000 (lbs/ton)

Proposed Actual (tpy) =

Proposed Actual (lb/hr) x [47,492.24gals/71.0 gals/hr)] (hrs/yr)/2,000 (lbs/ton)

MASC Analysis

The maximum allowable stack concentration ("MASC") has been calculated for each HAP that will be emitted and that is listed in Tables 29-1, 29-2, or 29-3 of §22a-174-29. The methodology described in §22a-174-29 was used to calculate the MASC in lb/hr. To compute the concentration in $\mu g/m^3$, the following formula was used:

Concentration ($\mu g/m^3$) = emission rate (lb/hr) x (1/minimum actual flow rate in ft^3/min) x (453.59×10^6 $\mu g/lb$) x (1 hr/60 min) x (35.314 ft^3/m^3)

The predicted stack concentrations are compared with the 8-hr HLV (ground level) limits as per § 22a-174-29 in Attachment E-2. For each HAP, the predicted stack concentration is less than the MASC.

Attachment E-1

Black Start Emissions Summary
Engine: Detroit Diesel 1000RXC6DT2
EPA Tier II Certified

Fuel Consumption (gph)		Heat Input (mmBtu/hr)
100% Load	71.0	9.727
50% Load	36.7	
S content (%)	0.0015	
Output (kW)	1000	
Fuel Usage to stay below 5 tpy NOx (gals)		47942.24
Hours to stay below 5 tpy NOx		675.24

Emissions	g/kWh	lb/hr	tpy
NOx	6.704	14.78	4.990
CO	0.742	1.64	0.552
HC	0.073	0.16	0.054
PM	0.033	0.07	0.025
SO2		0.02	0.005
VOC		0.88	0.296
H2SO4 Mist		2.61E-04	8.812E-05
Pb		5.26E-05	1.776E-05
Hg		5.26E-06	1.776E-06
Toxics			
Arsenic		5.26E-06	1.776E-06
Beryllium		5.26E-06	1.776E-06
Cadmium oxide		5.26E-06	1.776E-06
Chromium		1.58E-05	5.334E-06
Copper fume		1.58E-05	5.334E-06
Lead, inorg, fumes& dust (as Pb)		5.26E-05	1.776E-05
Mercury (all formes except alkyl) (as Hg)		5.26E-06	1.776E-06
Nickel (metal)		5.26E-05	1.776E-05
Benzene		7.55E-03	2.549E-03
Toluene		2.73E-03	9.217E-04
Xylenes		1.88E-03	6.347E-04
Propylene		2.71E-02	9.150E-03
Formaldehyde		7.67E-04	2.590E-04
Acetaldehyde		2.45E-04	8.272E-05
Acrolein		7.66E-05	2.586E-05
Napthalene		1.26E-03	4.254E-04
PAH (benzene soluble)		4.37E-05	1.475E-05

Attachment E-2 Hazardous Air Pollutant Calculations and Analysis

Waterside Power - Black Start Generator

EMERGENCY/DISTRIBUTED GENERATION DIESEL GENERATOR

Stack Height	<20	meters	MASC = 0.885*HLV*(X + 1.08*(V**0.64))**1.56/V
X	154	feet (distance to property line)	
	46.9	meters (distance to property line) = MAX (10 m, distance to property line)	
Airflow	7,416	ACFM per unit	
	210	m^3/min	
V	3.50	m^3/s	
	12600	m^3/hr	
1 lb =	4.54E+08	ug	
dilution factor:	111	(MASC/HLV)	

Calculate allowable metals concentration from MASC allowable emissions.

9.7	MMBtu/hr/unit, HHV (approx)	
18,500	Btu/lb distillate oil, typical	
526	lb/hr distillate oil flow, estimated	

Sulfuric Acid Emissions:

9.73	MMBtu/hr, HHV (approx.)
137,000	Btu/gal distillate oil, typical
71.0	gal/hr distillate oil flow (5)
0.0015	% S in oil
0.003675	lb H2SO4 emitted/thousand gallons fuel fired
	(based on 11/27/87 memo H2SO4 = 2*(S)*1.225 lb/1000 g
0.0003	lb/hr H2SO4 emitted based on 11/27/87 memo

Metals emissions based on mass balance around oil sample concentrations (1)

	8-HR HLV (2) (ground level) ug/m^3	MASC (stack) ug/m^3	Fuel Sample Results ppmw	Predicted emissions (stack) lb/hr	Predicted Conc. (stack) ug/m^3	
Arsenic & compounds (as As)	0.05	5.5	<0.01	5.26E-06	0.19	good
Beryllium	0.01	1.1	<0.01	5.26E-06	0.19	good
Cadmium oxide production	1	110.8	<0.01	5.26E-06	0.19	good
Chromium	0.5	55.4	<0.03	1.58E-05	0.57	good
Copper fume	2	221.5	0.03	1.58E-05	0.57	good
Lead, inorg., fumes & dusts (as Pb)	3	332.3	0.1	5.26E-05	1.89	good
Mercury, (all forms except alkyl) (as Hg)	1	110.8	<0.01	5.26E-06	0.19	good
Nickel (metal)	5	553.8	0.1	5.26E-05	1.89	good

Trace Organic Emission Factors from AP-42 Table 3.4.3, 10/96; PAH Emission Factors from AP-42 Table 3.4-4, 10/96

	8-HR HLV (2) (ground level) ug/m^3	MASC (stack) ug/m^3	AP-42 Emission Factor lb/MMBtu	Predicted emissions (stack) lb/hr	Predicted Conc. (stack) ug/m^3	
Benzene	150	16,613	7.76E-04	7.55E-03	271.73	good
Toluene	7500	830,665	2.81E-04	2.73E-03	98.40	good
Xylenes	8680	961,357	1.93E-04	1.88E-03	67.58	good
Propylene	no HLV determined		2.79E-03	2.71E-02	976.99	good (no HLV determined)
Formaldehyde	12	1,329	7.89E-05	7.67E-04	27.63	good
Acetaldehyde	3600	398,719	2.52E-05	2.45E-04	8.82	good
Acrolein	5	554	7.88E-06	7.66E-05	2.76	good
Napthalene	1000	110,755	1.30E-04	1.26E-03	45.52	good
PAH (benzene soluble) (3)	0.1	11	4.50E-06	4.37E-05	1.57	good
Sulfuric Acid (4)	20	2,215	—	2.61E-04	9.39	good

Notes:

(1) For fuel sample results below detection limits (As, Be, Cd, Cr, Hg), the test detection limit is used in the calculation.
See Attachment H-1 for CT diesel oil grab sample results (Sample results used for the General Permit Registrations for Emergency Engines (GPEE) at the Milford Power Project and for the General Permit for Distributed Generation (GPDG) registrations in 2002 for various emergency engines).

(2) HLV values from Tables 29-1, 29-2, or 29-3 of RCSA Section 22a-174-29.

(3) The sum of benzo(a)anthracene, chrysene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(a)pyrene, indeno(1,2,3-cd)pyrene,and dibenz(a,h)anthracene.

(4) Sulfuric Acid Emission Factor from 11/27/97 CTDEP memo

(5) For conservativeness, the unit maximum design fuel firing rate was used.

Exhaust-emission measurement analysis

US-EPA Nonroad cycle D2

Generating sets with intermittent load
Carbon-balance method

Engine model		16V 2000 G84 3D TB					
Engine serial number		536104761					
Contract number		---					
Test stand		114					
Test data file		216716_069.nc					
Test record number							
Measurement date		2005-11-16					
Gear ratio		1.00					
Pump timing (BTDC) [grdKW]		---					
Injection timing range		---					
Customer		---					
Test-stand operator		Wetzel / Rist					
Analyser		Riesle					
Exhaust analyzer (AMA)		PIERBURG AMA 2000					
Remark		PM measured					
Hydrogen mass fraction	%	13.3					
Sulfur mass fraction	%	0.0005					
Carbon mass fraction	%	85.7					
Mode number		1	2	3	4	5	
Speed / rated speed		1	1	1	1	1	
Torque / full-load torque		1	0.75	0.5	0.25	0.1	
Weighting factor		0.05	0.25	0.3	0.3	0.1	
Test record line number	-	1	2	3	4	5	
Mean effective pressure	bar	23.35	17.51	11.67	5.84	2.33	
Engine speed	1/min	1799.8	1799.8	1799.7	1799.8	1799.8	
Brake power	kW	1115	836	557	279	111	
NOx emission, specific	g/kWh	6.704	4.878	5.714	5.479	8.764	
CO emission, specific	g/kWh	0.742	0.836	1.631	2.003	9.3	
HC1 emission, specific	g/kWh	0.073	0.115	0.202	0.369	2.066	
NOx + HC1 emission spec.	g/kWh	6.777	4.993	5.917	5.848	10.83	
PM emission, spec. (Meas.)	g/kWh	0.033	0.084	0.204	0.175	0.085	

Cycle values		
NOx	**g/kWh**	**5.5**
CO	**g/kWh**	**1.44**
HC	**g/kWh**	**0.22**
PM (appr.)	**g/kWh**	
PM (meas.)	**g/kWh**	**0.131**
SFC	**g/kWh**	**222.4**

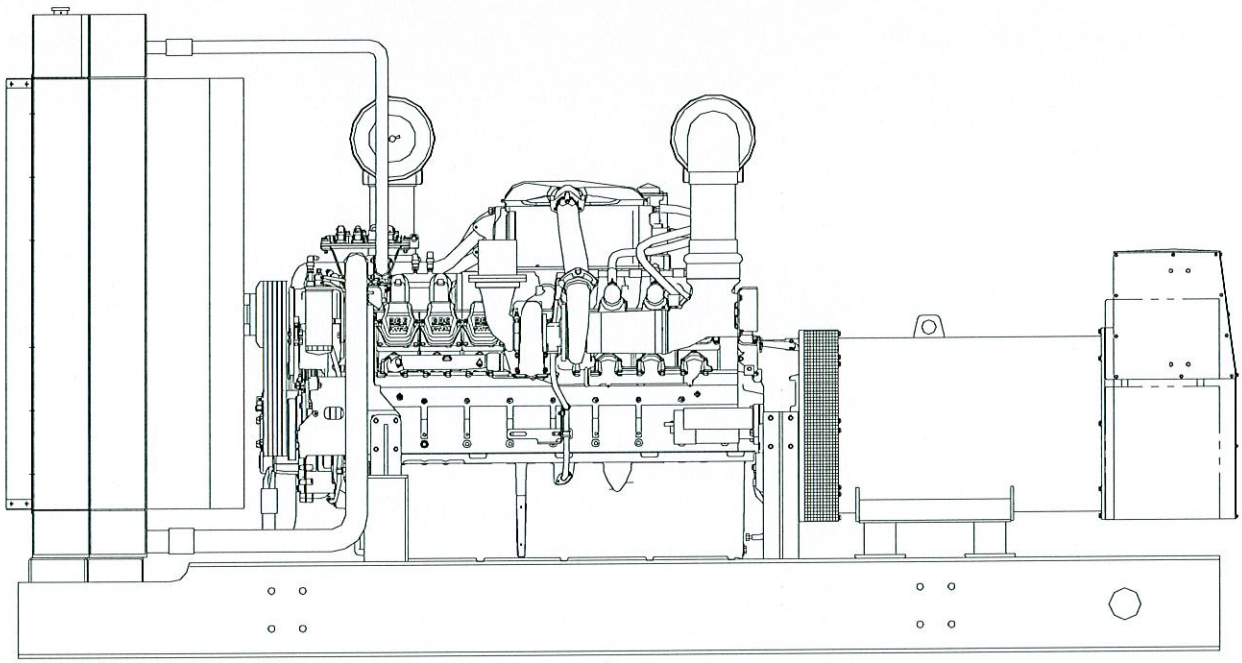
"Emission levels of the engine may vary as a function of ambient temperature, barometric pressure, humidity, fuel type and quality, installation parameters, measuring instrumentation, etc. The data provided are laboratory results from one engine representing this rating. The data was obtained under controlled environmental conditions with calibrated instrumentation traceable to the United States National Bureau of Standards and in compliance with US EPA regulations found at 40 CFR Part 89 (Control of Emissions From New and In-Use Nonroad Compression-Ignition Engines). The weighted cycle value from each engine is guaranteed to be below the US EPA Standards at the US EPA defined conditions."

DETROIT DIESEL

1000 kW @ 60 Hz.
Stand-By Power

1000*XC6DT2

915 kW @ 60 Hz.
Prime Power



- DDC/MTU's commitment to quality is an industry standard
- DDC/MTU specializes in custom designing any application to meet the most difficult specifications
- Each and every unit is factory tested. This can eliminate costly startup and installation delays
- DDC/MTU supplies a broad range of accessories to match any requirement worldwide
- DDC/MTU generator sets come standard with a 2 year, 1500 hour limited warranty
- Optional warranty periods are also available, contact factory for details
- This model accepts 100% of nameplate rating, per NFPA 110
- This engine is EPA Tier II certified

Model #	Volts	Hz	Phase	Power Factor	Standby Ratings		Prime Ratings		Connection
					Amps	kW/kVA	Amps	kW/kVA	
1000RX6CDT2	277/480	60	3	0.8	1504	1000/1250	1376	915/1143.75	12 LEAD HI WYE
1000PX6CDT2	120/208	60	3	0.8	3470	1000/1250	3175	915/1143.75	12 LEAD LOW WYE
1000JX6CDT2	120/240	60	3	0.8	3007	1000/1250	2752	915/1143.75	12 LEAD HI DELTA
1000NXCDT2	347/600	60	3	0.8	1203	1000/1250	1101	915/1143.75	4 LEAD WYE

1000*XC6DT2 DIESEL Gen-Set

STANDARD EQUIPMENT

CONTROL PANEL— DGC 2020

- Metering (digital)
  - AC voltmeter
  - Frequency
  - Power Factor
  - Ammeter
  - kVA
  - kW
- Engine parameters
  - Oil pressure
  - Fuel level
  - Engine RPM
  - Maintenance timer
  - Coolant temperature
  - Battery voltage
  - Engine run time
- Generator protection functions
  - Overvoltage (59) & Undervoltage (27)
  - Underfrequency (80U) & Overfrequency (81O)
- Standard features
  - Engine protection
  - SAE J1939 engine ECU communications
  - BESTCOMSPlus (included at no extra cost)
  - Multilingual capability
  - Remote communications to our KRDP-110 remote annunciator
  - 16 programmable contact inputs
  - 7 contact outputs
  - UL recognized, CSA certified, CE approved
  - Event Recording
  - IP 54 front panel rating with integrated gasket
  - NFPA110 level compatible
- Engine controls
  - Cranking control
  - Timers (8)
  - Engine cooldown
  - Successful start counter
- Engine control functions
  - Alarms: low oil pressure, high coolant temp, low coolant level, overspeed, overcrank, engine sender unit failure, fuel leak/fuel sender failure, emergency stop, battery charger failure
  - Pre-Alarms: low oil pressure, high coolant temp, low coolant temp, battery overvoltage, weak battery, battery charger failure, engine sender unit failure, engine kW overload, maintenance interval timer, low coolant level, high fuel level, low fuel level, fuel leak detect

All alarms and pre-alarms can be enabled or disable via the BESTCOMSPlus PC software or the front panel.

ENGINE

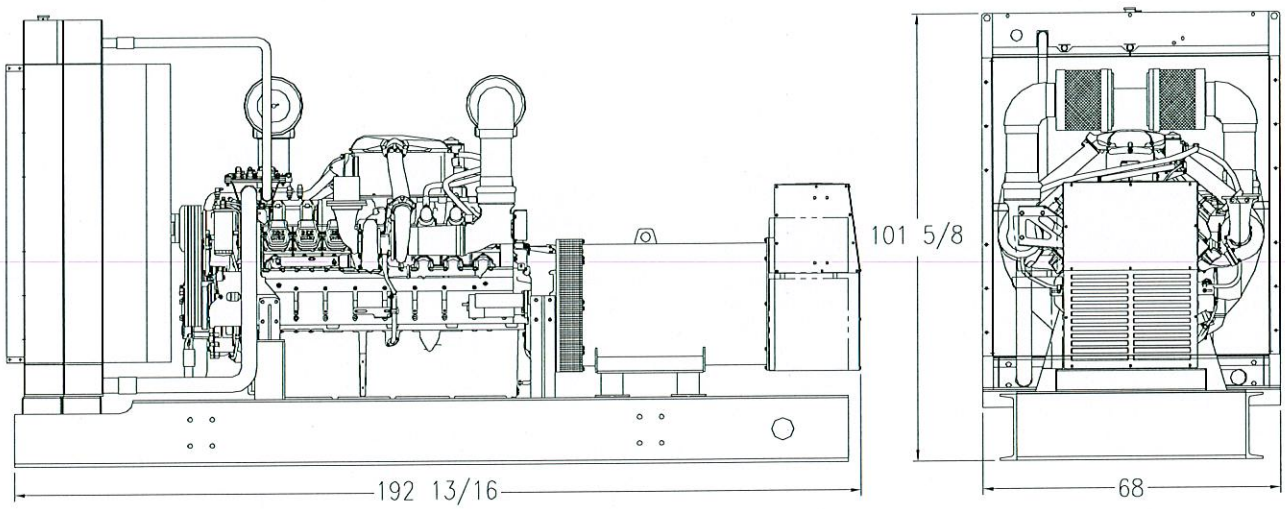
- Air cleaner
- Oil pump
- Full flow oil filter
- Thermostat
- Jacket water pump
- Exhaust manifold–dry
- Blower fan & fan drive
- Radiator-unit mounted
- Vibration isolators-pad type
- Base - Structural steel
- Flywheel & Enclosure
- Battery box & cables
- Charging alternator- 4V
- EPA Certified Engine
- Radiator Duct flange—OPU
- Flexible fuel & exhaust connectors
- Electric starting motor - 24V
- Governor – Electric Isochronous
- Oil Drain Extension

GENERATOR

- A.C. Generator
- Brushless design
- Single bearing
- Direct connection with flex plate
- Class H insulation
- All models manufactured to meet NEMA MG1-22.4 and CSA standards
- Telephone influence factor is well within NEMA standards
- Wave form deviation factor is no more than 5%,well within NEMA standards
- Harmonic content is 3.0% maximum
- Permanently lubricated ball type bearings
- Generator is self-ventilated
- Drip-proof construction
- PMG Excitation & DVR 2000 Regulator

VOLTAGE REGULATOR

- Voltage adjust rheostat
- EMI filter (Internal Electromagnetic Interference)
- Under-speed protection
- Over-excitation protection
- Fully encapsulated
- Regulation - ±0.25%



DETROIT DIESEL

1000*XC4DT2 Diesel Gen-Set

ENGINE TECHNICAL DATA

	60 Hz	
Model:	16V-2000 G84 (R1638A36)	
Type:	4-Cycle	
Aspiration:	Turbocharged Jacket Water Aftercooled	
Cylinder Arrangement: (Number, inline, V, etc.)	16-V	
Displacement - Cu. In. (lit)	1,943 (31.8)	
Bore - in. (cm) x stroke - in. (cm)	5.1 (13.0) x 5.9 (15.0)	
Compression Ratio:	16:1	
Rated RPM	1800	
Rating	**Standby**	**Prime**
BMEP: psi (kPa)	334 (2,300)	306 (2,109)
Maximum Power at Rated RPM - bhp(kW)	1,495 (1,115)	1,354 (1,010)

INSTALLATION DATA *

Exhaust System		
Gas Temp. (Stack): °F (°C)	1,085 (585)	1,058 (570)
Gas Volume at Stack Temp.: CFM (m^3/min)	7,416 (210)	6,992 (198)
Maximum Allowable Back Pressure: in. H_20 (kPa)	34.1 (8.5)	34.1 (8.5)
Cooling System		
Ambient Capacity of Radiator: °F (°C)	104 (40)	104 (40)
Maximum Allowable Static Pressure on Rad. Exhaust: in. H_2O (kPa)	0.5 (0.12)	0.5 (0.12)
Water Pump Capacity: gpm (lit/min)	220 (833)	220 (833)
After Cooler Pump Capacity: gpm (lit/min)	68 (258)	68 (258)
Heat Rejection to Coolant: BTUM (kW)	25,022 (440)	23,316 (410)
Heat Rejection to After Cooler: BTUM (kW)	16,492 (290)	14,786 (260)
Heat Radiated to Ambient: BTUM (kW)	5,289 (93)	4,948 (87)
Air Requirements		
Aspirating: CFM (m^3/min)	2,860 (84)	2,755 (78)
Air Flow Required for Rad. Cooled Unit: CFM (m^3/min)	44,791 (1,268)	44,791 (1,268)
Air Flow Required for Heat Exchanger/Remote Rad. based on 25°F Rise: CFM (m^3/min)	11,753 (333)	10,996 (311)
Fuel Consumption:		
At 100% of Power Rating: gal/hr (lit/hr)	71.0 (269)	65.2 (247)
At 75% of Power Rating: gal/hr (lit/hr)	55.6 (211)	51.3 (194)
At 50% of Power Rating: gal/hr (lit/hr)	36.7 (139)	33.4 (126)

Sound Level Data ■

Sound level at:	**Full Load**	**No Load**	**Full Load**	**No Load**
23 ft (7m) opu w/ critical grade muffler (dBA)	96	93	95	93
23 ft (7m) Sound Attenuated Enclosure (dBA)	91	88	90	88

Dimensions & Weight

Length: in. (cm)	192.8 (490)
Width: in. (cm)	68 (173)
Height: in. (cm)	101.6 (248)
Weight (dry): lb. (kg)	17,636 (8,000)

Liquid Capacity

Total oil system: gal (lit)	26.9 (102)
Engine jacket water capacity: gal (lit)	34.3 (130)
After Cooler water capacity: ga (lit)	5.3 (20)
System coolant capacity: gal (lit)	105.6 (400)

Electrical System

Electric volts DC	24
Cold cranking Amps under 0°F (-17.8°C)	1,900

Fuel System

Fuel Supply Connection Size:	$^3/_4$" NPT
Fuel Return Connection Size:	$^1/_4$" NPT
Maximum Fuel Lift: ft (m)	10 (3)
Recommended Fuel:	Diesel #2
Total Fuel Flow: gal/hr (lit/hr)	127 (480)

Remote Radiator System

Connection sizes:	
Jacket water radiator inlet in. (cm)	3.35 (8.5)
Jacket water radiator outlet in. (cm)	3.35 (8.5)
Aftercooler Radiator inlet: in (cm)	2.0 (5.08)
Aftercooler Radiator outlet: in (cm)	2.0 (5.08)
Static head allowable above engine: ft H_2O (kPa)	50 (149)

*Installation data based on 480 volt, 60 HZ. application and open power unit.

■ For sound level readings with other enclosures, please contact factory.

Sound level data acquired per Test Method SAE J1074. Installation factors and site conditions can affect sound levels.

Deration Factor: Altitude: Derate: 1.0% per 328 ft (100 m) above 1,312 ft (400 m). Temperature: Derate: 1.0% per 5°F (2.8°C) above 122°F (50°C)

Control Panel

** NOTE: #2020 series control panel is standard on all units, see page 2 of spec sheet for standard features.

GEN-SET OPTIONS

Cooling System
- o Remote Radiator
- o High Ambient Radiator
- o Heat exchanger Cooling
- o Radiator Duct Flange

Fuel System
- o Fuel Water Separator
- o Day Tank
- o Above Ground Fuel Tank
- o Auxiliary Fuel Pump
- o Sub-Base mounted Fuel Tank
  - o Single Wall
  - o Double Wall
  - o UL Listed

Exhaust System
- o Residential Grade Muffler
- o Critical Grade Muffler
- o Hospital Grade Muffler
- o Rain Cap

Engine Electrical System
- o Battery
  - o Lead-Acid
  - o NiCad
- o Battery Warmer Plate
- o Battery Rack
- o Battery Charger
  - o Automatic
  - o Trickle
  - o Mounted & Wired

Generator
- o Main Line Circuit Breaker
  - o Shunt trip
  - o Auxiliary switch
- o Space Heaters 120/240 volt
- o Special Testing
- o Additional Temperature Rise Generators Available (80°C, 105°C, & 130°C)

Additional Optional Equipment
- o Spring vibration isolators
- o Enclosures
  - o Sound Attenuated
  - o Weather Proof
  - o Aluminum
  - o Interior lights AC or DC
  - o Floor Plate
- o Jacket Water Heater
- o Crankcase Oil Heater
- o Remote Annunciator
- o 12 Light Annunciator
  - o Flush Mounted
  - o Surface Mounted
  - o 4 additional lights, if needed
- o Export Boxing
- o Warranties
  - o 2 Year
  - o 5 Year
- o Operating instructions under plexi-glass
- o Service indicator light

DISTRIBUTED BY:

100 Power Drive, Mankato, MN 56001
Phone: 800-325-5450
www.ddcmtupowergeneration.com

ATTACHMENT G

BACT DETERMINATION

ATTACHMENT G

BACT ANALYSIS

The following cost analysis is based on one Detroit Diesel Model No. 100RXC6DT2 diesel generator. The selective catalytic reduction ("SCR") cost is based on the quote supplied by the Detroit Diesel representative which does not include installation.

Direct and indirect installation costs are based on factors found in EPA's Cost Control Manual (EPA/452/B-02-001). The indirect installation cost factor is based on Section 4 (NO_x Controls-SCR) of this document. The direct installation cost factor is based on Section 3 (VOC Controls-catalytic oxidizer) since it is not provided in the SCR estimation procedure in Section 4.

The annual operating labor costs are based on 0.5 hours per shift and a labor rate of $30/hour with supervisory costs based on 15% of the labor costs. The maintenance labor and material costs are based on the Cost Control Manual for SCR. Urea was assumed to be the source of ammonia for the project based on the vendor quote SCR descriptions. Urea costs were based on an estimate from Borden and Remington supplying a 32.5% urea solution to the Stamford, CT area. The electrical costs due to the ammonia injection system, the SCR fan, and the pressure drop was based on the Cost Control Manual for SCR.

Overhead, property tax, insurance and administration costs were estimated by Cost Control Manual factors. The capital recovery factor for project life of 20 years was based on an interest rate of 7%, (Section 4.2 of Cost Control Manual).

The NO_x reduction was assumed to be 66% (based on a reduction of 6.7 g/bhphr to 2.3 g/bhphr). Based on continuous operation of 8,760 hours per year and a capacity factor of 6.8%, the cost per ton of NO_x removed would be $34,000 based on a 10-year project life; $51,000 for a 5-year project life; and $133,000 with no amortization. The BACT Determination form is attached and the detailed costs are presented in Attachment G-1.

The total capital cost of the SCR control option is two times the cost of the diesel engine and 67% of the total project cost (engine with SCR).

Attachment G: BACT/LAER Determination Form

(Complete for each pollutant for which BACT/LAER must be incorporated. Duplicate this section as necessary.)

Applicant Name: **Waterside Power**
(As indicated on the *Permit Application Transmittal Form)*

Unit Number: **Black Start Diesel**

Unit Description: **Detroit Diesel Engine-1000 kW, 1115 BHP**

Pollutant: **NOx**

DEP USE ONLY
App. No.: _____

Section I: Identify LAER

To ensure a sufficiently broad and comprehensive search of control alternatives, sources other than the RBLC database should be investigated and documented. These sources include: EPA/State air quality permits, control equipment vendors, trade associations, international agencies or companies, technical papers or journals. Attach documentation of investigation to this form. The source of information, e.g., RBLC, South Coast AQMD, state permit, vendor, etc. and sufficient information for verification of the achievable limit, e.g. contact information to include: name, affiliation, address, phone, email of contact; any relevant permit; RBLC ID; etc. should be included for each system.

When using the RLBC database: The RACT/BACT/LAER Clearinghouse (RBLC) database on EPA's Technology Transfer Network (TTN), Clean Air Technology Center (CATC) website may be accessed at: (http://cfpub.epa.gov/rblc/cfm/basicsearch.cfm). Select the "Find Lowest Emissions Rate" search option. Choose the process type and pollutant from the dynamic menu, then "run report now". The results will be sorted by the emission limit from lowest to highest. You may print this list and attach to this form.

A. List all available control systems with a practical potential for application to this type of unit.
   1. **SCR**
   2.
   3.
   4.
   5.

B. List control systems included above that are rejected as technically infeasible for this unit. Include an explanation for each rejection.
   1.
   2.
   3.
   4.
   5.

Section I: Identify LAER (continued)

C. Determine overall control effectiveness of remaining control systems:

	System 1	System 2	System 3	System 4	System 5
Description of Control System	**SCR**				
1. Inlet Concentration	**6.7 g/hphr**				
2. Outlet Concentration	**2.3 g/hphr**				
3. Collection Efficiency	**100**				
4. Removal Efficiency	**66**				
5. Overall Control Efficiency	**66**				
6. Emission Estimates	**5.7 lb/hr**				
7. Source of Emission Estimates	**vendor**				

D. Identification of LAER:
SCR-1.7 tpy

Section II: Top-Down BACT Analysis

A. Rank the control systems in *decreasing order* of overall control effectiveness. The system identified as LAER in Section I should rank number 1.

1. **SCR**
2.
3.
4.
5.

B. Complete the cost analysis for each control system:

	System 1	System 2	System 3	System 4	System 5
1. Type of System	**SCR**				
2. Installed Capital Cost (ICC)	**$433,427**				
3. Annual Labor Cost	**$1,294**				
4. Annual Maintenance Cost	**$6,501**				
5. Annual Energy Cost	**$534**				
6. Replacement Parts and Materials Cost	**$19,050**				
7. Waste Treatment and Disposal Cost	**$0**				
8. Miscellaneous Annual Costs	**$0**				
9. **Total Direct Annual Cost** (add Items 3 to 8)	**$27,379**				
10. Annual Overhead Cost	**$4,576**				
11 Administrative, Tax and Insurance Costs	**$17,337**				
12. Capital Recovery Cost	**$61,547**				

(Continued on next page)

Section II: Top-Down BACT Analysis (continued)

	System 1	System 2	System 3	System 4	System 5
13. Tax Credits	**$0**				
14. **Total Indirect Annual Cost** (add Items 10 to 12 and subtract item 13)	**$83,460**				
15. Total Annual Cost for the Control System (add Items 9 and 14)	**$110,839**				
16. Total Pollutant Collected	**3.25**				
17. Unit Control Cost (item 15 ÷ 16) (dollars per ton)	**$34,138**				

C. Proposed BACT:
Restriction on hours and fuel use (6.7 g/hphr, 600 hr/yr, 42,600 gallons/yr)

D. Reason or Justification for Proposed BACT:
Cost for SCR economically infeasible

Economic Comparison of Using SCR to Control Emissions for One Black Start Diesel					
Methods Analyzed	project life	10	years	5 years	no amortizatior
Control Option Method	NOx Reduction (6.7 to 2.3 g/bhphr)				
Costs	Method		SCR	SCR	SCR
Equipment Cost (EC)					
a. SCR System	Detroil Diesel Estimate		$251,700	$251,700	$251,700
b. Urea Storage and Handling System	included in a			$0	$0
c. Instrumentation (0.1*a) only included cost for PLC	included in a			$0	$0
d. Taxes	(EC*0.05)		$12,585	$12,585	$12,585
Total Equipment Cost (TEC)			$264,285	$264,285	$264,285
*Direct Installation Costs (0..29*TEC)*					
Includes: foundation, erection, piping, electrical, insulation			$76,643	$76,643	$76,643
p. 2-42 of EPA/452/B-02-001, Sect. 3					
*Indirect Installation Costs (0.35*TEC)*					
Includes: Engineering, Construction, Start Up, Performance Test, Contingencies			$92,500	$92,500	$92,500
Table 2-5 of EPA/452/B-02-001, Sect. 4					
Total Capital Cost (TCC)	**(TEC+TDIC+TIIC)**		$433,427	$433,427	$433,427
Engine Cost Without SCR			$211,800	$211,800	$211,800
Total Project Cost (Engine w/SCR)			$645,227	$645,227	$645,227
Control Option Percent of Total Project Cost			67%	67%	67%
Annual Operating Costs					
Direct Operating Costs					
a. Operating Labor (OL)	(1/2 hr/8 hr shift operating)($30/hr)		$1,125	$1,125	$1,125
b. Supervisor	(OL*0.15)		$169	$169	$169
c. Maintenance Labor (ML)	included in Maintenance Materials		$0	$0	$0
d. Maintenance Materials (MM)	1.5% TCC, eq. 2.46 of EPA/452/B-02-001		$6,501	$6,501	$6,501
e. Catalyst (Cost + Sales + tax freight, guaranteed life, 10 yrs, 7% int)	(40% equip cost (catalyst)+ t&f)		$16,084	$27,637	$0
f. Urea Supply (2 tons urea, 32.5% soln/ton NOx @ $0.15/lb)	Borden & Remington estimate		$2,966	$2,966	$2,966
g. SCR Electrical (Ammonia Vaporization, Pressure Drop)	(4.45 kW @ $0.20/kWhr)		$534	$534	$534
(Based on EPA/452/B-02-001, pg 2-56, scaled)					
Total Direct Operating Cost (TDOC)			$27,379	$38,932	$11,296
Indirect Operating Costs					
a. Overhead	((OL+ML+MM)*0.6)		$4,576	$4,576	$4,576
b. Property Tax	(TCC*0.01)		$4,334	$4,334	$4,334
c. Insurance	(TCC*0.01)		$4,334	$4,334	$4,334
d. Administration	(TCC*0.02)		$8,669	$8,669	$8,669
Total Indirect Operating Cost (TIOC)			$21,913	$21,913	$21,913
Capital Recovery Factor (CR) (10 yrs, 7 %, factor = 0.142) * TCC for 10 yr, (5 yrs, 7%, factor = 0.244) * TCC for 5 yr			$61,547	$105,756	$433,427
Total Annual Cost (TAC)	**(CR+TDOC+TIOC)**		$110,839	$166,601	$466,636
Installed Capital Cost			$433,427	$433,427	$433,427
Direct Annual Costs			$27,379	$38,932	$11,296
Indirect Annual Costs			$83,460	$127,669	$455,340
Total Annual Costs			$110,839	$166,601	$466,636
Emissions Controlled - NOx Evaluated					
Uncontrolled NOx Emissions (continuous operations 8760 hours per year)			72	72	72
Reduced NOx Emissions (NOx rate 6.7 g/bhphr, SCR controls to 2.3 g/bhphr, 8760 hr/yr)			47.40	47	47
Uncontrolled NOx Emissions (with permit limit of 600 hours per year)			4.94	4.94	4.94
Reduced NOx Emissions (NOx rate 6.7 g/bhphr, SCR controls to 2.3 g/bhphr, 600 hr/yr)			3.25	3.25	3.25
Cost Effectiveness ($/ton NOx Reduced-600 hr/yr)			**$34,138**	**$51,312**	**$133,493**

ATTACHMENT I

OPERATION AND MAINTENANCE PLAN

ATTACHMENT I

OPERATION AND MAINTENANCE PLAN

Installation and operation of the Waterside Project has been designed and managed to ensure maximum safety for employees and the surrounding community. All installation and operation activities and equipment for the Project have been in accordance with good engineering practice and Federal, state, and local regulations, and complies with the latest editions of the regulations of all applicable governmental agencies and engineering associations. Liquid fuel, water, and any chemicals or other hazardous materials necessary for Project operation have been appropriately contained to prevent release. In particular, liquid fuel will be stored on site in two new 126,000-gallon, double-walled storage tanks.

Safety and emergency systems have been implemented to ensure safe and reliable facility operation. The Project site is enclosed by a security fence. The Project has adopted an Emergency Action Plan. Generally, the Plan includes information on emergency operations and shutdowns, safety warning systems, emergency response personnel and duties, employee protection, training, and drills.

The Project operates in accordance with a joint Spill Prevention Control and Countermeasure/Stormwater Pollution Prevention Plan.

The black start generator will be operated and maintained in accordance with manufacturer specifications such that the equipment and combustion efficiency will be operated so that all applicable regulations and the NSR permit will be maintained.

ATTACHMENT K

APPLICANT COMPLIANCE INFORMATION

Applicant Compliance Information

DEP ONLY
App. No. _____
Co./Ind. No. _____

Applicant Name: **Waterside Power, LLC**
(as indicated on the *Permit Application Transmittal Form*)

If you answer *yes* to any of the questions below, you must complete the Table of Enforcement Actions on the reverse side of this sheet as directed in the instructions for your permit application.

A. During the five years immediately preceding submission of this application, has the applicant been convicted in any jurisdiction of a criminal violation of any environmental law?

☐ Yes ☒ No

B. During the five years immediately preceding submission of this application, has a civil penalty been imposed upon the applicant in any state, including Connecticut, or federal judicial proceeding for any violation of an environmental law?

☐ Yes ☒ No

C. During the five years immediately preceding submission of this application, has a civil penalty exceeding five thousand dollars been imposed on the applicant in any state, including Connecticut, or federal administrative proceeding for any violation of an environmental law?

☐ Yes ☒ No

D. During the five years immediately preceding submission of this application, has any state, including Connecticut, or federal court issued any order or entered any judgement to the applicant concerning a violation of any environmental law?

☐ Yes ☒ No

E. During the five years immediately preceding submission of this application, has any state, including Connecticut, or federal administrative agency issued any order to the applicant concerning a violation of any environmental law?

☐ Yes ☒ No

Table of Enforcement Actions

(1) Type of Action	(2a) Date Commenced	(2b) Date Terminated	(3) Jurisdiction	(4) Case/Docket/ Order No.	(5) Description of Violation

☐ Check the box if additional sheets are attached. Copies of this form may be duplicated for additional space.

ATTACHMENT L

CONFORMANCE CERTIFICATION

Attachment L: Conformance Certification Form

I, **Thomas E. Atkins** , certify

(Name of applicant)

that each source of air pollution on the land where the subject activity is located conforms to the regulations adopted under Section 22a-174 of the Connecticut General Statutes and does not pose a health hazard.

Thomas E. Atkins 10/19/17

Signature of Applicant Date

Thomas E. Atkins
Name of Applicant (print or type)

Director
Title (if applicable)

☐ Please enter a check mark if additional signatures are necessary (i.e., if there are co-applicants). If so, please reproduce this form as necessary and attach the signed copies to this sheet.