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	**3.24E-3**	**1.42E-2**			**Fuel Analysis**
	proposed actual	**3.24E-3**	**6.74E-4**	**2.70**		**Fuel Analysis**
	maximum allowable			**10**		**RCSA 22a-174-29**
Manganese	uncontrolled potential	**3.70E-2**	**1.62E-1**			**Fuel Analysis**
	proposed actual	**3.70E-2**	**7.70E-3**	**30.83**		**Fuel Analysis**
	maximum allowable			**69**		**RCSA 22a-174-29**
Mercury	uncontrolled potential	**2.77E-4**	**1.21E-3**			**Fuel Analysis**
	proposed actual	**2.77E-4**	**5.78E-5**	**0.23**		**Fuel Analysis**
	maximum allowable			**3**		**RCSA 22a-174-29**
Nickel	uncontrolled potential	**1.06E-3**	**4.64E-3**			**Fuel Analysis**
	proposed actual	**1.06E-3**	**2.21E-4**	**0.89**		**Fuel Analysis**
	maximum allowable			**17**		**RCSA 22a-174-29**
Selenium	uncontrolled potential	**5.78E-3**	**2.53E-2**			**Fuel Analysis**
	proposed actual	**5.78E-3**	**1.70E-3**	**4.82**		**Fuel Analysis**
	maximum allowable			**14**		**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)
Sulfuric Acid	uncontrolled potential	**3.97E-2**	**1.74E-1**			**Fuel Analysis**
	proposed actual	**3.97E-2**	**1.43E-2**	**33.99**		**Fuel Analysis**
	maximum allowable			**69**		**RCSA 22a-174-29**
	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

For gaseous fuel firing at 25 ppmvd at 15% O_2, GE provided TM2500 operating data for three full-load operating scenarios: operation at 0, 50, and 100°F ambient temperatures (see Attachment E-1 for the GE data sheets). For liquid fuel firing at 42 ppmvd at 15% O_2, GE provided TM2500 operating data for six full-load operating scenarios: operation at 0, 50, 100 (three cases provided: over-fire; expected; and guaranteed), and 90°F ambient temperature (see Attachments E-2 and E-3 for the GE data sheets).

The NO_x, CO, and HC emissions are based on emission factors provided by AP-42 for natural gas and the turbine vendor for oil firing.

The NO_x, CO, and HC (and thus VOC) emissions are calculated as follows

$$\textit{Mass Emission Rate (lb/hr)} = \frac{ppmdv@15\%\,O_2}{10^6} \times \frac{lb/hr\ Exhaust}{ExhaustMW} \times vol.\%\ Water \times Pollutant\ MW \times \frac{20.9 - \%O_2}{20.9 - 15}$$

Using the following molecular weights:

$$\begin{aligned} NO_x &= 46 \\ CO &= 28 \\ VOC &= 16 \end{aligned}$$

The SO_2 emission factor is derived by mass balance using a conservative assumption of 0.8 gr/100 ft^3 of sulfur in the gaseous fuel and 0.0015% (or 15 ppmw) sulfur of the liquid fuel. It is conservatively assumed that all the sulfur in the fuel is converted to SO_2. The SO_2 emissions are calculated as follows:

For natural gas: $lb/hr\ SO_2 = \frac{gr\ S}{100\ scf\ gas} \times \frac{1\ lb}{7000\ gr} \times \frac{1\ scf\ gas}{1020\ Btu} \times \frac{Btu}{hr}(Heat\ Input)$

For oil firing: $lb/hr\ SO_2 = \frac{\%\ S}{100} \times \frac{lb\ fuel}{hr} \times \frac{2\ mol\ SO_2}{1\ mol\ S}$

Finally, an AP-42 emission factor of 1.2×10^{-2} lb/MMBtu for liquid fuel firing and 6.6×10^{-3} lb/MMBtu for gaseous fuel firing are used to derive the PM emissions. It is conservatively assumed that all PM is PM10.

A detailed spreadsheet with the calculations for both criteria and non-criteria pollutants is presented in Attachment E-4.

Non-Criteria Pollutant Emission Calculations

AP-42, Section 3.1 emissions factors were used for the following HAPs: 1,3 butadiene, acetaldehyde, benzene, ethylbenzene, naphthalene, PAH (total), propylene oxide, toluene, xylenes, chromium, mercury, nickel, and selenium. The benzene soluble PAH emission factor was calculated as the total PAH emission factor for a combustion turbine using the speciation of PAH (from AP-42, Table 1.3.9 for liquid fuel and Table 1.4.3 for gaseous fuel by the fraction of PAH that is benzene soluble (see Attachment E-5 for gaseous fuel operation and Attachment E-6 for liquid fuel operation). Similarly, the coal tar pitch volatile ("CTPV") emission factor was calculated as the total PAH emission factor for a combustion turbine using the speciation of PAH by the fraction of PAH that are CTPVs (see Attachment E-5 for gaseous fuel operation and Attachment E-6 for liquid fuel operation).

The formaldehyde emission factor was derived from the background document for AP-42, Section 3.1, which includes the emissions from a LM2500 unit with water injection. The emission factor used was for natural gas firing and it was conservatively assumed that the same factor is for oil.

A fuel analysis of ultra-low sulfur distillate fuel that was used for the recently permitted South Norwalk Electric Works GE TM2500 gas turbine (Permit No. 0140 issued in June, 2003) was used to derive the emission factors for arsenic, beryllium, cadmium, lead, and manganese (see Attachment E-7).

The sulfuric acid (H_2SO_4) emission factor was developed from a CT DEP memo dated November 27, 1987.

For liquid fuel, sulfuric acid is calculated as:

$$H_2SO_4 \text{ (lb/1000 gals fuel fired)} = 2 \times \% \text{ sulfur} \times 1.225 \text{ (lb/1000 gal)}$$

where the % sulfur is 0.0015.

For gaseous fuel, sulfuric acid is calculated as:

$$H_2SO_4 \text{ (lb/MMBtu)} = 0.8 \text{ gr/100 cu. ft.} \times 1 \text{ cu. ft/1,020 Btu} \times 1 \text{ lb/7000 gr. S} \times 1 \times 10^6 \text{ Btu/MMBtu} \times 0.05 \text{ lbs S/ 1 lb S} \times 98 \text{ lb-Mol } H_2SO_4\text{/32 lb-mol S}$$

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 [(540,905,000 scf/251,000 scf/hr) for gaseous fuel; (2,249,100 gals/1,800 gals/hr) for liquid fuel] (hrs/yr)/2,000 (lbs/ton)

The uncontrolled potential and proposed actual are the maximum emission rates for gaseous and liquid fuel firing over all scenarios analyzed.

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 Attachments E-8 through E-10 for units 1 through 3 firing gaseous fuel and E-11 through E-13 firing liquid fuel. For each HAP, the predicted stack concentration is less than the MASC.

ATTACHMENT E-1:
General Electric LM2500 Emissions Data for Gaseous Fuel Firing

GE AERO ENERGY PRODUCTS/GE LM2500-Standard Estimated Average Engine Performance NOT FOR GUARANTEE NAT GAS
GENERATOR: 170R, 60 Hz, 13.8 kV, 0.9 PF EFF: 7514 CAP: 7343 md 2/9/01 1:58:17 PM GE166A PE.pip 1.0-1
TM2500 Gas 25ppm

% LOAD	100%	100%	100%
CASE #	100	110	120
AMBIENT			
DB, °F	0.0	50.0	100.0
WB, °F	-1.2	43.6	86.9
RH, %	60.0	60.0	60.0
ALT, FT	200	200	200
ENGINE INLET			
TEMP, °F	0.0	50.0	100.0
RH, %	60.0	60.0	60.0
CONDITIONING	NONE	NONE	NONE
TONS or kBTU	0	0	0
KW, GEN TERM	23548	23393	19720
Btu/KW-hr, LHV	9752	9888	10122
FUEL			
MMBtu/hr, LHV	229.6	231.3	199.6
lb/hr	11,081	11,162	9,632
NOZZLE WATER			
lb/hr	11772	12644	8910
°F	100	100	100
NOZZLE STEAM			
lb/hr	0	0	0
°F	0	0	0
CDP STEAM			
lb/hr			
°F	0	0	0
INLET LOSS,inH2O	4.0	4.0	4.0
EXHAUST LOSS,inH2O	16	16	16
HP COMP, rpm	3600	3600	3600
LP COMP, rpm	9329	9613	9409
COMP DISCH, psia	280	272.5	241.1
COMP DISCH, °F	768	860	877
T48, °R	1822	1925	1925
EXHAUST PARAMETERS			
°F	868	958	990
lb/sec	164.8	156.2	139
lb/hr	593280	562320	500400
Cp Btu/lb-R	0.275	0.2806	0.2851
EMISSIONS (NOT FOR USE IN ENVIRONMENTAL PERMITS; Ref @ 15% O2)			
NOx, ppmvd	25	25	25
NOx, lb/hr	23	23	20
CO, ppmvd	99	53	20
CO, lb/hr	56	30	10
HC, ppmvd	31	12	3
HC, lb/hr	10	4	1
EXH WGHT % WET (NOT FOR USE IN ENVIRONMENTAL PERMITS)			
AR	1.2377	1.2279	1.2098
N2	72.6082	72.0333	70.9710
O2	15.0679	14.4551	14.3653
CO2	5.0395	5.3631	5.2086
H2O	6.0130	6.9118	8.2505
SO2	0.0000	0.0000	0.0000
CO	0.0094	0.0053	0.0019
HC	0.0017	0.0007	0.0002
NOx	0.0027	0.0028	0.0028
EXH MOLE % DRY (NOT FOR USE IN ENVIRONMENTAL PERMITS)			
AR	0.9654	0.9678	0.9673
N2	80.7582	80.9612	80.9178
O2	14.6921	14.2238	14.3294
CO2	3.5680	3.8370	3.7802
H2O	0.0000	0.0000	0.0000
SO2	0.0000	0.0000	0.0000
CO	0.0104	0.0060	0.0022
HC	0.0032	0.0014	0.0004
NOx	0.0026	0.0028	0.0028
EXH MOLE % WET (NOT FOR USE IN ENVIRONMENTAL PERMITS)			
AR	0.8744	0.8635	0.8438
N2	73.1506	72.2351	70.5916
O2	13.3080	12.6906	12.5006
CO2	3.2319	3.4234	3.2978
H2O	9.4203	10.7782	12.7613
SO2	0.0000	0.0000	0.0000
CO	0.0095	0.0053	0.0019
EXHAUST MW	28.2200	28.0900	27.8600
HC	0.0029	0.0012	0.0003
NOx	0.0024	0.0025	0.0024

GE Aero Energy Products FUEL# 10-12

ATTACHMENT E-2:
General Electric LM2500 Emissions Data for Liquid Fuel Firing

GE AERO ENERGY PRODUCTS/GE LM2500-Standard Estimated Average Engine Performance NOT FOR GUARANTEE LIQ FBN:0.015 Sulfur:0.1
GENERATOR: 170R, 60 Hz, 13.8 kV, 0.9 PF EFF: 7514 CAP: 7343 JG 2/12/01 2:56:54 PM GE166A PE.pip 1.0-1
TM2500 Distillate Fuel Oil 42ppm

% LOAD	100%	100%	100%
CASE #	100	110	120
AMBIENT			
DB, °F	0.0	50.0	100.0
WB, °F	-1.2	43.6	86.9
RH, %	60.0	60.0	60.0
ALT, FT	200	200	200
ENGINE INLET			
TEMP, °F	0.0	50.0	100.0
RH, %	60.0	60.0	60.0
CONDITIONING	NONE	NONE	NONE
TONS or kBTU	0	0	0
KW, GEN TERM	23499	23131	19001
Btu/KW-hr, LHV	9842	9991	10300
FUEL			
MMBtu/hr, LHV	231.3	231.1	195.7
lb/hr	12,569	12,560	10,636
NOZZLE WATER			
lb/hr	13226	14129	9527
°F	100	100	100
NOZZLE STEAM			
lb/hr	0	0	0
°F	0	0	0
CDP STEAM			
lb/hr			
°F	0	0	0
INLET LOSS,inH2O	4.0	4.0	4.0
EXHAUST LOSS,inH2(	16	16	16
HP COMP, rpm	3600	3600	3600
LP COMP, rpm	9289	9525	9353
COMP DISCH, psia	280	271.1	236
COMP DISCH, °F	765	852	868
T48, °R	1829	1925	1925
EXHAUST PARAMETERS			
°F	875	960	996
lb/sec	165.5	156.5	137.1
lb/hr	595800	563400	493560
Cp Btu/lb-R	0.273	0.2782	0.2826
EMISSIONS (NOT FOR USE IN ENVIRONMENTAL PERMITS, Ref @ 15% O2)			
NOx, ppmvd	42	42	42
NOx, lb/hr	40	40	34
CO, ppmvd	91	44	21
CO, lb/hr	53	25	10
HC, ppmvd	8	4	2
HC; lb/hr	2	1	1
EXH WGHT % WET (NOT FOR USE IN ENVIRONMENTAL PERMITS)			
AR	1.2315	1.2214	1.2050
N2	72.2093	71.6142	70.6521
O2	15.0556	14.4684	14.4207
CO2	6.7398	7.1277	6.8953
H2O	4.7456	5.5543	6.8157
SO2	0.0042	0.0045	0.0043
CO	0.0089	0.0045	0.0021
HC	0.0004	0.0002	0.0001
NOx	0.0046	0.0049	0.0047
EXH MOLE % DRY (NOT FOR USE IN ENVIRONMENTAL PERMITS)			
AR	0.9537	0.9550	0.9546
N2	79.7372	79.8502	79.8151
O2	14.5552	14.1237	14.2626
CO2	4.7375	5.0589	4.9584
H2O	0.0000	0.0000	0.0000
SO2	0.0019	0.0020	0.0019
CO	0.0098	0.0050	0.0024
HC	0.0009	0.0005	0.0002
NOx	0.0045	0.0048	0.0047
EXH MOLE % WET (NOT FOR USE IN ENVIRONMENTAL PERMITS)			
AR	0.8818	0.8711	0.8525
N2	73.7291	72.8358	71.2805
O2	13.4585	12.8830	12.7375
CO2	4.3805	4.6145	4.4282
H2O	7.5350	8.7845	10.6929
SO2	0.0019	0.0020	0.0019
CO	0.0091	0.0046	0.0021
EXHAUST MW	28.6000	28.4900	28.2600
HC	0.0008	0.0004	0.0002
NOx	0.0042	0.0044	0.0042

Btu/lb, LHV

ATTACHMENT E-3:
General Electric LM2500 Emissions Data for Liquid Fuel Firing at 90°F

NOT FOR GUARANTEE

GE AERO ENERGY PRODUCTS/GE LM2500-Standard Estimated Average Engine Performance LIQ FBN:0.015 Sulfur:0.003
GENERATOR: 167ER, 60 Hz, 13.8 kV, 1.0 PF EFF: 10807 CAP: 10805 SS 4/5/2002 11:51:31 AM GE166A PE.pip 2.0-0

	Over-fire	Expected	Guaranteed
CASE #	100	101	102
AMBIENT			
DB, °F	90.0	90.0	90.0
WB, °F	78.2	78.2	78.2
RH, %	60.0	60.0	60.0
ALT, FT	10	10	10
ENGINE INLET			
TEMP, °F	90.0	90.0	90.0
RH, %	60.0	60.0	60.0
CONDITIONING	NONE	NONE	NONE
TONS or kBTU	0	0	0
KW, GEN TERM	23298	22123	21009
Btu/kW-hr, LHV	10656	10653	10690
FUEL			
MMBtu/hr, LHV	233.4	221.5	211.1
lb/hr	12,684	12,040	11,474
NOZZLE WATER			
lb/hr	13567	12331	11356
°F	100	100	100
NOZZLE STEAM			
lb/hr	0	0	0
°F	0	0	0
CDP STEAM			
lb/hr			
°F	0	0	0
INLET LOSS,inH2O	4.0	4.0	4.0
EXHAUST LOSS,inH2(	6	6	6
HP COMP, rpm	3600	3600	3600
LP COMP, rpm	9775	9555	9403
COMP DISCH, psia	266.1	258.6	251.1
COMP DISCH, °F	919	894	875
T48, °R	2010	1970	1938
EXHAUST PARAMETERS			
°F	1030	1004	985
lb/sec	150.3	147.9	145.1
lb/hr	541080	532440	522360

Cp Btu/lb-R	0.2844	0.2827	0.2814
EMISSIONS (NOT FOR USE IN ENVIRONMENTAL PERMITS, Ref @ 15% O2)			
NOx, ppmvd	42	42	42
NOx, lb/hr	40	38	37
CO, ppmvd	16	20	24
CO, lb/hr	9	11	13
HC, ppmvd	2	2	2
HC, lb/hr	1	1	1
EXH WGHT % WET (NOT FOR USE IN ENVIRONMENTAL PERMITS)			
AR	1.2036	1.2070	1.2097
N2	70.5706	70.7732	70.9262
O2	13.7592	14.0977	14.3610
CO2	7.5018	7.2394	7.0340
H2O	6.9578	6.6754	6.4618
SO2	0.0000	0.0000	0.0000
CO	0.0017	0.0021	0.0024
HC	0.0001	0.0001	0.0001
NOx	0.0051	0.0050	0.0048
EXH MOLE % DRY (NOT FOR USE IN ENVIRONMENTAL PERMITS)			
AR	0.9565	0.9556	0.9549
N2	79.9737	79.9003	79.8434
O2	13.6511	13.9341	14.1537
CO2	5.4116	5.2026	5.0404
H2O	0.0000	0.0000	0.0000
SO2	0.0000	0.0000	0.0000
CO	0.0020	0.0024	0.0027
HC	0.0002	0.0002	0.0003
NOx	0.0052	0.0050	0.0048
EXH MOLE % WET (NOT FOR USE IN ENVIRONMENTAL PERMITS)			
AR	0.852	0.8554	0.8579
N2	71.2389	71.5189	71.7296
O2	12.1601	12.4724	12.7154
CO2	4.8205	4.6568	4.5282
H2O	10.9221	10.4899	10.1622
SO2	0.0000	0.0000	0.0000
CO	0.0018	0.0022	0.0024
EXHAUST MW	28.2800	28.3100	28.3300
HC	0.0002	0.0002	0.0002
NOx	0.0046	0.0044	0.0043
	Btu/lb, LHV	18400	

Attachment E-4. Detailed Emissions Calculcations

Input Data - 100% Load
25 ppm Gaseous Fuel / 42 ppm Liquid Fuel NOx

Stack Data:

Stack Dimensions:	*8.21875*	feet x	*8.234375*	feet	
Stack Area:	*67.68*	Sq. Ft.			
Site Elevation:	*10*	feet (above MSL)			29.92 in. Hg (barometric pressure)

Fuel Data:

Natural Gas		
Heat Content:	*19,000*	Btu/lb (LHV)
HHV/LHV Ratio:	*1.1051*	(dimensionless)
Sulfur Content:	*0.80*	gr/100 ft3
Fuel Oil		
Heat Content:	*18,400*	Btu/lb (LHV)
Fuel Density:	*7.1*	lb/gal
HHV/LHV Ratio:	*1.067*	(dimensionless)
Sulfur Content:	*0.0015*	%
Vendor Reference Nitrogen:	*0*	%
Fuel Nitrogen Content:	*0.05*	%

General Title Information:

Project Number:	*61514*
Client or Company Name:	*Waterside Power, LLC*
Date of Report:	*09/04/03 Updated 10/22/07*
Turbine Mfgr:	*GE*
Turbine Model #:	*LM2500*
	40690

	Natural Gas 100%				Oil 100%				Oil 100%		
Fuel											
Load:											
Case:					Over-Fire	Expected	Guaranteed				
Ambient Temperature, F:	0	50	100		90	90	90		0	50	100
Engine Inlet Temperature:	0	50	100		90	90	90		0	50	100
Conditioning:	NONE	NONE	NONE		NONE	NONE	NONE		NONE	NONE	NONE
Output, kW:	23,548	23,393	19,720		23,298	22,123	21,009		23,499	23,131	19,001
Heat Rate (HHV), Btu/kWh:	9,750	9,888	10,122		10,689	10,683	10,721		10,502	10,660	10,990
Fuel Consumption, lb/hr:	11,081	11,162	9,632		12,685	12,038	11,473		12,571	12,560	10,636
Heat Cons. (LHV), MM Btu/hr:	229.6	231.3	199.6		233.4	221.5	211.1		231.3	231.1	195.7
Heat Cons. (HHV), MM Btu/hr:	253.72	255.60	220.57		249.04	236.34	225.24		246.80	246.58	208.81
Nozzle Water Inj. Rate (lb/hr):	11772	12644	8910		13567	27536	27538		13226	14129	9527
Water/fuel injection ratio:	1.06	1.13	0.93		1.07	2.29	2.40		1.05	1.12	0.90
Sprint Cycle Water (lb/hr):	N/A	N/A	N/A		N/A	N/A	N/A		N/A	N/A	N/A
Exhaust Flow, lb/hr:	593,260	562,320	500,400		541,080	532,440	522,360		595,800	563,400	493,560
Exhaust Flow, acfm	339,696	345,274	316,782		346,883	335,031	324,192		338,392	341,683	309,415
Exhaust Temp, F:	868	958	990		1030	1004	985		875	960	996
Stack Exit Temp, F:	868	958	990		1030	1004	985		875	960	996
Stack Exit Flow, acfm:	339,696	345,274	316,782		346,883	335,031	324,192		338,392	341,683	309,415
Exit Velocity, fps:	83.66	85.03	78.01		85.43	82.51	79.84		83.34	84.15	76.20
Exhaust Composition											
Nitrogen: mw= 28	73.15	72.24	70.59		71.2389	71.5189	71.7296		73.7291	72.8358	71.2805
Argon: mw= 40	0.87	0.86	0.84		0.852	0.8554	0.8579		0.8818	0.8711	0.8525
Oxygen: mw= 32	13.31	12.69	12.50		12.1601	12.4724	12.7154		13.4585	12.883	12.7375
Carbon Dioxide: mw= 44	3.23	3.42	3.30		4.8205	4.6568	4.5282		4.3805	4.6145	4.4282
Water: mw= 18	9.42	10.78	12.76		10.9221	10.4899	10.1622		7.535	8.7845	10.6929
	100.0	100.0	100.0		100.0	100.0	100.0		100.0	100.0	100.0
Exhaust Weight, lb/lbmole	28.22	28.1	27.87		28.28	28.31	28.33		28.6	28.49	28.26
Emissions											
Thermal NOx, ppmdv @ 15% O2:	25	25	25	GE	42	42	42	GE	42	42	42
Thermal NOx, lb/hr:	23	23.2	20.1		40.5	38.4	36.6		40	40	33.9
CO, ppmvd(15%O2):	99	53	20	GE	16	20	24	GE	91	44	21
CO, lb/hr:	55.5	30	9.8		9.4	11.1	12.7		52.8	25.5	10.3
HC, ppmvd @ 15%O2	31	12	3		2	2	2		8	4	2
HC, lb/hr	9.90	3.90	0.80		0.7	0.6	0.6		2.7	1.3	0.6
VOC, ppmvd @ 15% O2:	9.0	9.0	9.0	AP-42	2	2	2	GE	8	4	2
VOC, lb/hr:	2.90	2.90	2.50		0.70	0.60	0.60		2.70	1.30	0.60
Sulfur, lb/hr:	0.3	0.3	0.2	Mass Balance	0.2	0.2	0.2	Mass Balance	0.2	0.2	0.2
SO2, lb/hr:	0.5	0.5	0.5		0.38	0.36	0.34		0.38	0.38	0.32
SO2, ppmvd:	0.44	0.47	0.47		0.3	0.3	0.3		0.3	0.3	0.3
TSP, lb/hr:	1.5	1.5	1.3		2.8	2.7	2.5		2.8	2.8	2.3
PM-10, lb/hr:	1.5	1.5	1.3	AP-42	2.8	2.7	2.5	AP-42	2.8	2.8	2.3

STACK PARAMETERS

Load:	100%			100%			100%		
Ambient Temperature, F:	0	50	100	90	90	90	0	50	100
Conditioning:	0	50	100	90	90	90	0	50	100
Velocity, m/sec	25.5	25.92	23.78	26.04	25.15	24.33	25.4	25.65	23.23
Stack Temp, K	737.44	787.44	805.22	827.44	813	802.44	741.33	788.56	808.56
NOx, g/sec	2.900	2.930	2.530	5.110	4.840	4.620	5.04	5.04	4.28
CO, g/sec	7.000	3.780	1.240	1.190	1.400	1.600	6.66	3.22	1.3
PM, g/sec	0.190	0.190	0.170	0.350	0.340	0.320	0.35	0.35	0.3
SO2, g/sec	0.070	0.070	0.060	0.050	0.050	0.040	0.05	0.05	0.04

Annual Emissions

Ambient Temperature, F:		0	50	100	90	90	90	0	50	100
Conditioning:		NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE
Annual hours (Each Turbine)		715	715	715	410	410	410	410	410	410
Updated Analysis Based on Total Permitted Fuel (All 3 Turbines Combined)										
Natural Gas										
Max Fuel Firing Rate (scf/hr)	251,000									
Max Fuel Consumption (scf)	540,905,000									
Liquid Fuel										
Max Fuel Firing Rate (gal/hr)	1,800									
Max Fuel Consumption (gal)	2,249,100									
Annual Hours (Each Turbine)		718	718	718	*417*	*417*	*417*	*417*	*417*	*417*
Emissions are totals for three units										
NOx (tpy)		24.78	25.00	21.66	25.30	23.99	22.87	24.99	24.99	21.18
CO (tpy)		59.80	32.33	10.56	5.87	6.93	7.93	32.99	15.93	6.43
VOC (tpy)		3.12	3.12	2.69	0.44	0.37	0.37	1.69	0.81	0.37
PM (tpy)		1.63	1.64	1.42	1.75	1.66	1.58	1.73	1.73	1.47
SO2 (tpy)		0.58	0.58	0.50	0.24	0.23	0.22	0.24	0.24	0.20

PERMIT LIMITS

Maximum Gross Heat Input (mmBtu/hr)	255.6	246.6
NOx (lb/mmBtu)	0.091	0.162
CO (lb/mmBtu)	0.117	0.103
VOC (lb/mmBtu)	0.011	0.005
PM (lb/mmBtu)	0.006	0.011
SO2 (lb/mmBtu)	0.002	0.002

HAPS

			Natural Gas			Oil			Oil		
Fuel			100%			100%			100%		
Load:											
Ambient Temperature, F:			0	50	100	90	90	90	0	50	100
Engine Inlet Temperature:			0	50	100	90	90	90	0	50	100
Conditioning:			NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE
HAP's (lb/MMBtu)	**Source**										
Formaldehyde	1		9.13E-05	9.13E-05	9.13E-05	9.13E-05	9.13E-05	9.13E-05	*9.13E-05*	9.13E-05	9.13E-05
1,3 Butadiene	2		4.30E-07	4.30E-07	4.30E-07	1.60E-05	1.60E-05	1.60E-05	1.60E-05	1.60E-05	1.60E-05
Acetaldehyde	2		4.00E-05	4.00E-05	4.00E-05	NA	NA	NA	NA	NA	NA
Benzene	2		1.20E-05	1.20E-05	1.20E-05	5.50E-05	5.50E-05	5.50E-05	5.50E-05	5.50E-05	5.50E-05
Ethylbenzene	2		3.20E-05	3.20E-05	3.20E-05	NA	NA	NA	NA	NA	NA
Naphthalene	2		1.30E-06	1.30E-06	1.30E-06	3.50E-05	3.50E-05	3.50E-05	3.50E-05	3.50E-05	3.50E-05
PAH (Total)	2		2.20E-06	2.20E-06	2.20E-06	4.00E-05	4.00E-05	4.00E-05	4.00E-05	4.00E-05	4.00E-05
PAH (BS)	4		4.84E-08	4.84E-08	4.84E-08	5.20E-07	5.20E-07	5.20E-07	5.20E-07	5.20E-07	5.20E-07
CTPV	4		8.58E-08	8.58E-08	8.58E-08	5.20E-07	5.20E-07	5.20E-07	5.20E-07	5.20E-07	5.20E-07
Propylene Oxide	2		2.90E-05	2.90E-05	2.90E-05	NA	NA	NA	NA	NA	NA
Toluene	2		1.30E-04	1.30E-04	1.30E-04	NA	NA	NA	NA	NA	NA
Xylenes	2		6.40E-05	6.40E-05	6.40E-05	NA	NA	NA	NA	NA	NA
Arsenic	3		NA	NA	NA	4.00E-07	4.00E-07	4.00E-07	4.00E-07	4.00E-07	4.00E-07
Beryllium	3		NA	NA	NA	8.00E-08	8.00E-08	8.00E-08	8.00E-08	8.00E-08	8.00E-08
cadmium	3		NA	NA	NA	3.20E-06	3.20E-06	3.20E-06	3.20E-06	3.20E-06	3.20E-06
Chromium	2		NA	NA	NA	1.10E-05	1.10E-05	1.10E-05	1.10E-05	1.10E-05	1.10E-05
Lead	3		NA	NA	NA	1.40E-05	1.40E-05	1.40E-05	1.40E-05	1.40E-05	1.40E-05
Manganese	3		NA	NA	NA	1.60E-04	1.60E-04	1.60E-04	1.60E-04	1.60E-04	1.60E-04
Mercury	2		NA	NA	NA	1.20E-06	1.20E-06	1.20E-06	1.20E-06	1.20E-06	1.20E-06
Nickel	2		NA	NA	NA	4.60E-06	4.60E-06	4.60E-06	4.60E-06	4.60E-06	4.60E-06
Selenium	2		NA	NA	NA	2.50E-05	2.50E-05	2.50E-05	2.50E-05	2.50E-05	2.50E-05
Sulfuric Acid	5		1.72E-04	1.72E-04	1.72E-04	2.72E-05	2.72E-05	2.72E-05	2.72E-05	2.72E-05	2.72E-05

Fuel	Natural Gas			Oil			Oil		
Load:	100%			100%			100%		
Ambient Temperature, F:	0	50	100	90	90	90	0	50	100
Engine Inlet Temperature:	0	50	100	90	90	90	0	50	100
Conditioning:	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE

HAP's (lb/hr)(per turbine)

Formaldehyde	2.10E-02	2.11E-02	1.82E-02	2.13E-02	2.02E-02	1.93E-02	2.11E-02	2.11E-02	1.79E-02
1,3 Butadiene	9.87E-05	9.95E-05	8.58E-05	3.73E-03	3.54E-03	3.38E-03	3.70E-03	3.70E-03	3.13E-03
Acetaldehyde	9.18E-03	9.25E-03	7.98E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Benzene	2.76E-03	2.78E-03	2.40E-03	1.28E-02	1.22E-02	1.16E-02	1.27E-02	1.27E-02	1.08E-02
Ethylbenzene	7.35E-03	7.40E-03	6.39E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Naphthalene	2.98E-04	3.01E-04	2.59E-04	8.17E-03	7.75E-03	7.39E-03	8.10E-03	8.09E-03	6.85E-03
PAH (Total)	5.05E-04	5.09E-04	4.39E-04	9.34E-03	8.86E-03	8.44E-03	9.25E-03	9.24E-03	7.83E-03
PAH (BS)	1.11E-05	1.12E-05	9.66E-06	1.21E-04	1.15E-04	1.10E-04	1.20E-04	1.20E-04	1.02E-04
CTPV	1.97E-05	1.98E-05	1.71E-05	1.21E-04	1.15E-04	1.10E-04	1.20E-04	1.20E-04	1.02E-04
Propylene Oxide	6.66E-03	6.71E-03	5.79E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Toluene	2.98E-02	3.01E-02	2.59E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Xylenes	1.47E-02	1.48E-02	1.28E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Arsenic	0.00E+00	0.00E+00	0.00E+00	9.34E-05	8.86E-05	8.44E-05	9.25E-05	9.24E-05	7.83E-05
Beryllium	0.00E+00	0.00E+00	0.00E+00	1.87E-05	1.77E-05	1.69E-05	1.85E-05	1.85E-05	1.57E-05
cadmium	0.00E+00	0.00E+00	0.00E+00	7.47E-04	7.09E-04	6.76E-04	7.40E-04	7.40E-04	6.26E-04
Chromium	0.00E+00	0.00E+00	0.00E+00	2.57E-03	2.44E-03	2.32E-03	2.54E-03	2.54E-03	2.15E-03
Lead	0.00E+00	0.00E+00	0.00E+00	3.27E-03	3.10E-03	2.96E-03	3.24E-03	3.24E-03	2.74E-03
Manganese	0.00E+00	0.00E+00	0.00E+00	3.73E-02	3.54E-02	3.38E-02	3.70E-02	3.70E-02	3.13E-02
Mercury	0.00E+00	0.00E+00	0.00E+00	2.80E-04	2.66E-04	2.53E-04	2.78E-04	2.77E-04	2.35E-04
Nickel	0.00E+00	0.00E+00	0.00E+00	1.07E-03	1.02E-03	9.71E-04	1.06E-03	1.06E-03	9.00E-04
Selenium	0.00E+00	0.00E+00	0.00E+00	5.84E-03	5.54E-03	5.28E-03	5.78E-03	5.78E-03	4.89E-03
Sulfuric Acid	3.94E-02	3.97E-02	3.42E-02	6.35E-03	6.03E-03	5.75E-03	6.30E-03	6.29E-03	5.33E-03

Fuel	Natural Gas			Oil			Oil		
Load:	100%			100%			100%		
Ambient Temperature, F:	0	50	100	90	90	90	0	50	100
Engine Inlet Temperature:	0	50	100	90	90	90	0	50	100
Conditioning:	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE

HAP's (g/s)(per turbine)

Formaldehyde			2.64E-03	2.66E-03	2.30E-03	2.68E-03	2.55E-03	2.43E-03	2.66E-03	2.66E-03	2.25E-03
1,3 Butadiene			1.24E-05	1.25E-05	1.08E-05	4.71E-04	4.47E-04	4.26E-04	4.66E-04	4.66E-04	3.95E-04
Acetaldehyde			1.16E-03	1.17E-03	1.01E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Benzene			3.47E-04	3.50E-04	3.02E-04	1.62E-03	1.53E-03	1.46E-03	1.60E-03	1.60E-03	1.36E-03
Ethylbenzene			9.26E-04	9.33E-04	8.05E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Naphthalene			3.76E-05	3.79E-05	3.27E-05	1.03E-03	9.77E-04	9.31E-04	1.02E-03	1.02E-03	8.63E-04
PAH (Total)			6.36E-05	6.41E-05	5.53E-05	1.18E-03	1.12E-03	1.06E-03	1.17E-03	1.16E-03	9.86E-04
PAH (BS)			1.40E-06	1.41E-06	1.22E-06	1.53E-05	1.45E-05	1.38E-05	1.52E-05	1.51E-05	1.28E-05
CTPV			2.48E-06	2.50E-06	2.16E-06	1.53E-05	1.45E-05	1.38E-05	1.52E-05	1.51E-05	1.28E-05
Propylene Oxide			8.39E-04	8.45E-04	7.29E-04	NA	NA	NA	NA	NA	NA
Toluene			3.76E-03	3.79E-03	3.27E-03	NA	NA	NA	NA	NA	NA
Xylenes			1.85E-03	1.87E-03	1.61E-03	NA	NA	NA	NA	NA	NA
Arsenic			NA	NA	NA	1.18E-05	1.12E-05	1.06E-05	1.17E-05	1.16E-05	9.86E-06
Beryllium			NA	NA	NA	2.35E-06	2.23E-06	2.13E-06	2.33E-06	2.33E-06	1.97E-06
cadmium			NA	NA	NA	9.41E-05	8.93E-05	8.51E-05	9.33E-05	9.32E-05	7.89E-05
Chromium			NA	NA	NA	3.23E-04	3.07E-04	2.93E-04	3.21E-04	3.20E-04	2.71E-04
Lead			NA	NA	NA	4.12E-04	3.91E-04	3.72E-04	4.08E-04	4.08E-04	3.45E-04
Manganese			NA	NA	NA	4.71E-03	4.47E-03	4.26E-03	4.66E-03	4.66E-03	3.95E-03
Mercury			NA	NA	NA	3.53E-05	3.35E-05	3.19E-05	3.50E-05	3.49E-05	2.96E-05
Nickel			NA	NA	NA	1.35E-04	1.28E-04	1.22E-04	1.34E-04	1.34E-04	1.13E-04
Selenium			NA	NA	NA	7.35E-04	6.98E-04	6.65E-04	7.29E-04	7.28E-04	6.16E-04
Sulfuric Acid			4.96E-03	5.00E-03	4.31E-03	8.01E-04	7.60E-04	7.24E-04	7.93E-04	7.93E-04	6.71E-04

UPDATED TO REFLECT MODIFIED OPERATION HOURS

HAP's (tpy)(per turbine)

Fuel	Natural Gas			Oil			Oil		
Load:	100%			100%			100%		
Ambient Temperature, F:	0	50	100	90	90	90	0	50	100
Engine Inlet Temperature:	0	50	100	90	90	90	0	50	100
Conditioning:	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE
Formaldehyde	7.53E-03	7.58E-03	6.55E-03	4.44E-03	4.21E-03	4.01E-03	4.40E-03	4.39E-03	3.72E-03
1,3 Butadiene	3.55E-05	3.57E-05	3.08E-05	7.78E-04	7.38E-04	7.03E-04	7.71E-04	7.70E-04	6.52E-04
Acetaldehyde	3.30E-03	3.32E-03	2.87E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Benzene	9.90E-04	9.97E-04	8.60E-04	2.67E-03	2.54E-03	2.42E-03	2.65E-03	2.65E-03	2.24E-03
Ethylbenzene	2.64E-03	2.66E-03	2.29E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Naphthalene	1.07E-04	1.08E-04	9.32E-05	1.70E-03	1.61E-03	1.54E-03	1.69E-03	1.68E-03	1.43E-03
PAH (Total)	1.81E-04	1.83E-04	1.58E-04	1.94E-03	1.85E-03	1.76E-03	1.93E-03	1.93E-03	1.63E-03
PAH (BS)	3.99E-06	4.02E-06	3.47E-06	2.53E-05	2.40E-05	2.29E-05	2.50E-05	2.50E-05	2.12E-05
CTPV	7.08E-06	7.13E-06	6.15E-06	2.53E-05	2.40E-05	2.29E-05	2.50E-05	2.50E-05	2.12E-05
Propylene Oxide	2.39E-03	2.41E-03	2.08E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Toluene	1.07E-02	1.08E-02	9.32E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Xylenes	5.28E-03	5.32E-03	4.59E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Arsenic	0.00E+00	0.00E+00	0.00E+00	1.94E-05	1.85E-05	1.76E-05	1.93E-05	1.93E-05	1.63E-05
Beryllium	0.00E+00	0.00E+00	0.00E+00	3.89E-06	3.69E-06	3.52E-06	3.85E-06	3.85E-06	3.26E-06
cadmium	0.00E+00	0.00E+00	0.00E+00	1.56E-04	1.48E-04	1.41E-04	1.54E-04	1.54E-04	1.30E-04
Chromium	0.00E+00	0.00E+00	0.00E+00	5.35E-04	5.07E-04	4.84E-04	5.30E-04	5.29E-04	4.48E-04
Lead	0.00E+00	0.00E+00	0.00E+00	6.80E-04	6.46E-04	6.15E-04	6.74E-04	6.74E-04	5.71E-04
Manganese	0.00E+00	0.00E+00	0.00E+00	7.78E-03	7.38E-03	7.03E-03	7.71E-03	7.70E-03	6.52E-03
Mercury	0.00E+00	0.00E+00	0.00E+00	5.83E-05	5.54E-05	5.28E-05	5.78E-05	5.78E-05	4.89E-05
Nickel	0.00E+00	0.00E+00	0.00E+00	2.24E-04	2.12E-04	2.02E-04	2.22E-04	2.21E-04	1.87E-04
Selenium	0.00E+00	0.00E+00	0.00E+00	1.22E-03	1.15E-03	1.10E-03	1.20E-03	1.20E-03	1.02E-03
Sulfuric Acid	1.41E-02	1.43E-02	1.23E-02	1.32E-03	1.26E-03	1.20E-03	1.31E-03	1.31E-03	1.11E-03
Total HAPS	0.047329179	0.047679613	0.04114505	0.0235757	0.0223737	0.021323	0.0233636	0.0233434	0.0197677

Source Notes:

1. Background document for AP-42 Section 3.1
2. AP-42 Sections 3.1
3. Fuel Analysis
4. Calculated using CT DEP memo regarding Interim PAH Policy
5. Calculated using CT DEP Nash Memo

ATTACHMENT E-5. CALCULATION OF % PAH BENZENE SOLUBLE AND CTPV FOR SPECIATED COMPOUNDS FROM NATURAL GAS COMBUSTION[1]

CAS No.	Compound	PAH?	Benzene Soluble PAH?[2]	CTPV?[2]	Emission Factor ($lb/10^6$ scf)	Emission Factor Rating
91-57-6	2-Methylnapthalene[3,4]	Yes	No	No	2.4E-05	D
56-49-5	3-Methylchloranthrene[3,4]	Yes	No	No	1.8E-06	E
	7,12-Dimethylbenz(a)anthracene[3,4]	Yes	No	No	1.6E-05	E
83-32-9	Acenaphthene[3,4]	Yes	No	No	1.8E-06	E
203-96-8	Acenaphthylene[3,4]	Yes	No	No	1.8E-06	E
120-12-7	Anthracene[3,4]	Yes	No	Yes	2.4E-06	E
56-55-3	Benz(a)anthracene[3,4]	Yes	Yes	No	1.8E-06	E
71-43-2	Benzene[3]	No	No	No	2.1E-03	B
50-32-8	Benzo(a)pyrene[3,4]	Yes	Yes	Yes	1.2E-06	E
205-99-2	Benzo(b)fluoranthene[3,4]	Yes	Yes	No	1.8E-06	E
191-24-2	Benzo(g,h,i)perylene[3,4]	Yes	Yes	No	1.2E-06	E
205-82-3	Benzo(k)fluoranthene[3,4]	Yes	Yes	No	1.8E-06	E
106-97-8	Butane	No	No	No	2.1	E
218-01-9	Chrysene[3,4]	Yes	Yes	Yes	1.8E-06	E
53-70-3	Dibenzo(a,h)anthracene[3,4]	Yes	Yes	No	1.2E-06	E
25321-22-6	Dichlorobenzene[3]	No	No	No	1.2E-03	E
74-84-0	Ethane	No	No	No	3.1	E
206-44-0	Fluoranthene[3,4]	Yes	Yes	No	3.0E-06	E
86-73-7	Fluorene[3,4]	Yes	No	No	2.8E-06	E
50-00-0	Formaldehyde[3]	No	No	No	7.5E-02	B
110-54-3	Hexane[3]	No	No	No	1.8	E
193-39-5	Ideno(1,2,3-cd)pyrene[3,4]	Yes	Yes	No	1.8E-06	E
91-20-3	Napthalene[3]	Yes	No	No	6.1E-04	E
109-66-0	Pentane	No	No	No	2.6	E
85-01-8	Phenanathrene[3,4]	Yes	No	Yes	1.7E-05	D
74-98-6	Propane	No	No	No	1.6	E
129-00-0	Pyrene[3,4]	Yes	No	Yes	5.0E-06	E
108-88-3	Toluene[3]	No	No	No	3.4E-03	C

TOTAL PAH = 6.98E-04 $lb/10^6$ scf
BENZENE SOLUBLE PAH = 1.56E-05 $lb/10^6$ scf (2.2% of PAH)
CTPV PAH = 2.74E-05 $lb/10^6$ scf (3.9% of PAH)

[1] From AP-42 (July, 1998), Table 1.4-3
[2] "Interim PAH Policy," DEP Memo from John Gove to Leonard Bruckman dated March 30, 1990
[3] Hazardous Air Pollutant (HAP) as defined by Section 112(b) of te Clean Air Act
[4] HAP because it is polycyclic organic matter (POM). POM is a HAP as defined by Section 112(b) of the Clean Air Act

ATTACHMENT E-6 CALCULATION OF % PAH BENZENE SOLUBLE AND CTPV FOR SPECIATED COMPOUNDS FROM LIQUID FUEL COMBUSTION[1]

CAS No.	Compound	PAH?	Benzene Soluble PAH?[2]	CTPV?[2]	Emission Factor ($lb/10^3$ gal)	Emission Factor Rating
71-43-2	Benzene	No	No	No	2.14E-04	C
100-41-4	Ethylbenzene	No	No	No	6.36E-05	E
50-00-0	Formaldehyde[3]	No	No	No	3.30E-02	C
91-20-3	Napthalene[3]	Yes	No	No	1.13E-03	C
71-55-6	1,1,1-Trichloroethane	Yes	No	No	2.36E-04	E
108-88-3	Toluene	No	No	No	6.20E-03	D
95-47-6	0-Xylene	No	No	No	1.09E-04	E
83-32-9	Acenaphthene	Yes	No	No	2.11E-05	C
203-96-8	Acenaphthylene	Yes	No	No	2.53E-07	D
120-12-7	Anthracene	Yes	No	Yes	1.22E-06	C
56-55-3	Benz(a)anthracene	Yes	Yes	No	4.01E-06	C
205-99-2	Benzo(b,k)fluoranthene	Yes	Yes	No	1.48E-06	C
191-24-2	Benzo(g,h,i)perylene	Yes	Yes	No	2.26E-06	C
218-01-9	Chrysene	Yes	Yes	Yes	2.38E-06	C
53-70-3	Dibenzo(a,h)anthracene	Yes	Yes	No	1.67E-06	D
206-44-0	Fluoranthene	Yes	Yes	No	4.84E-06	C
86-73-7	Fluorene	Yes	No	No	4.47E-06	C
193-39-5	Indeno(1,2,3-cd)pyrene	Yes	Yes	No	2.14E-06	C
85-01-8	Phenanthrene	Yes	No	Yes	1.05E-05	C
129-00-0	Pyrene	Yes	No	Yes	4.25E-06	C
109-66-0	OCDD	No	No	No	3.10E-09	E

TOTAL PAH = 1.43E-03 $lb/10^3$ gal
BENZENE SOLUBLE PAH = 1.88E-05 $lb/10^3$ gal (1.3% of PAH)
CTPV PAH = 1.84E-05 $lb/10^3$ gal (1.3% of PAH)

[1] From AP-42 (September, 1998), Table 1.3-9
[2] "Interim PAH Policy," DEP Memo from John Gove to Leonard Bruckman dated March 30, 1990

ATTACHMENT E-7:
Ultra-Low Sulfur Liquid Fuel Analysis

Intertek Testing Services
Caleb Brett

Report of Analysis

Submission: 2003-001096-NYHB
Customer: Connecticut Municipal Elec. Energy Cooperative
Terminal: SUN NEWARK, NJ
Vessel: SHORE TANK # 24
Purchase Order: 6480
Date Received: March 28, 2003
Date Reported: April 14, 2003

Lab Reference : 2003-001096-NYHB-004
Sample Designated As : TK 24 RUNNING DIESEL FUEL: LOW SULFUR

Method	Test	Results	Units
D4052	API Gravity @ 60 Deg F	42.6	deg API
D93 method A	Corrected Flash Point	131	deg F
D4294	Sulfur	0.00250	Wt %
D240	Gross Heat of Combustion	19,814	BTU / lb
D240	Gross Heat of Combustion	134,081	BTU / gal
D482 @ 775 deg C	Ash @ 775 deg C	<0.001	Wt %
D4377	Water Content	358	ppm
D3605	Lead	<0.1	ppm (mg/L)
D3605	Sodium	<0.1	ppm (mg/L)
D3605	Vanadium	<0.1	ppm (mg/L)
D130	Copper Corrosion @ 50 °C for 3 hrs	1a	
D1796	Sediment and Water	0.05	Vol %
D5762	Nitrogen	<10	ppm
D5452/2276	Particulate Matter	3.90	mg / l
D1018 Mod	Hydrogen	13.75	Wt %
GFAA	Beryllium	< 0.2	ppb (ug/kg)
GFAA	Cadmium	< 0.36	ppb (ug/kg)
D5708	Potassium	< 0.3	ppm (mg/kg)
E885	Manganese	< 0.1	ppm (mg/kg)
E885	Arsenic	< 10	ppb (ug/L)
D1401	Temperature	54	deg C
D1401	Sample	40	mls
D1401	Water	40	mls
D1401	Emulsion	0	mls
D1401	Time	5	min
D524	Ramsbottom Residue on 10% Dist. Res.	0.06	Wt %

4/14/03

ITS / Caleb Brett
Howard W. Apel II, Laboratory Manager

April 14, 2003

ATTACHMENT E-8. MASC STACK CONCENTRATION CALCULATIONS - UNIT #1 - GASEOUS FUEL

Waterside Power, LLC
Unit #1 - Gaseous Fuel
100% Load, 50F ambient

Stack Height	<20 meters	MASC = 0.885*HLV*(X + 1.08*(V**0.64))**1.56/V
X	131 feet (distance to property line)	
	39.9 meters (distance to property line)	
Airflow	345,274 ACFM per unit	
	9777 m^3/min	
V	162.95 m^3/s	
	586627 m^3/hr	
1 lb =	4.54E+08 ug	
dilution factor:	4 (MASC/HLV)	

Calculate allowable metals concentration from MASC allowable emissions.
255.60 MMBtu/hr/unit, HHV (approx)

	8-HR HLV (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	
Formaldehyde	12	47	9.10E-05	2.33E-02	17.99	good
1,3 Butadiene	22000	86,415	4.30E-07	1.10E-04	0.08	good
Acetaldehyde	3600	14,141	4.00E-05	1.02E-02	7.91	good
Benzene	150	589	1.20E-05	3.07E-03	2.37	good
Ethylbenzene	8700	34,173	3.20E-05	8.18E-03	6.32	good
Napthalene	1000	3,928	1.30E-06	3.32E-04	0.26	good
PAH (Benzene Soluble)	0.1	0.4	4.84E-08	1.24E-05	0.01	good
Coal Tar Pitch Volatiles	1	4	8.60E-08	2.20E-05	0.02	good
Propylene Oxide	1000	3,928	2.90E-05	7.41E-03	5.73	good
Toluene	7500	29,460	1.30E-04	3.32E-02	25.69	good
Xylenes	8680	34,095	6.40E-05	1.64E-02	12.65	good
Sulfuric Acid	20	79	1.72E-04	4.40E-02	33.99	good

Note: Sulfuric Acid based on 11/27/87 CT DEP Nash memo and assuming 0.8 grains of S per 100 cu. Ft., 5% conversion rate of S to SO3, and 1020 Btu per cu. Ft.: H2SO4 emission factor = 0.8 gr S/100 cu. Ft. X 1 cu. ft/1020 Btu X 1 lb/7000 gr. S X 1x10^6 Btu/MMBtu X 0.05 lbs S/1 lb S X 98 lb-Mol H2SO4/32 lb-mol S = 4.2892 E-05 lb

HLV values from Tables 29-1, 29-2, or 29-3 of RCSA Section 22a-174-29.
Trace organic emission factors from AP-42, Section 3.1

ATTACHMENT E-9. MASC STACK CONCENTRATION CALCULATIONS - UNIT #2 - GASEOUS FUEL

Waterside Power, LLC
Unit #2 - Gaseous Fuel
100% Load, 50F ambient

Stack Height	<20	meters
X	117	feet (distance to property line)
	35.7	meters (distance to property line)
Airflow	345,274	ACFM per unit
	9777	m^3/min
V	162.95	m^3/s
	586627	m^3/hr
1 lb =	4.54E+08	ug
dilution factor:	4	(MASC/HLV)

MASC = 0.885*HLV*(X + 1.08*(V**0.64))**1.56/V

Calculate allowable metals concentration from MASC allowable emissions.
255.60 MMBtu/hr/unit, HHV (approx)

	8-HR HLV (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	
Formaldehyde	12	43	9.10E-05	2.33E-02	17.99	good
1,3 Butadiene	22000	78,112	4.30E-07	1.10E-04	0.08	good
Acetaldehyde	3600	12,782	4.00E-05	1.02E-02	7.91	good
Benzene	150	533	1.20E-05	3.07E-03	2.37	good
Ethylbenzene	8700	30,890	3.20E-05	8.18E-03	6.32	good
Napthalene	1000	3,551	1.30E-06	3.32E-04	0.26	good
PAH (Benzene Soluble)	0.1	0.4	4.84E-08	1.24E-05	0.01	good
Coal Tar Pitch Volatiles	1	4	8.60E-08	2.20E-05	0.02	good
Propylene Oxide	1000	3,551	2.90E-05	7.41E-03	5.73	good
Toluene	7500	26,629	1.30E-04	3.32E-02	25.69	good
Xylenes	8680	30,819	6.40E-05	1.64E-02	12.65	good
Sulfuric Acid	20	71	1.72E-04	4.40E-02	33.99	good

Note: Sulfuric Acid based on 11/27/87 CT DEP Nash memo and assuming 0.8 grains of S per 100 cu. Ft., 5% conversion rate of S to SO3, and 1020 Btu per cu. Ft.: H2SO4 emission factor = 0.8 gr S/100 cu. Ft. X 1 cu. ft/1020 Btu X 1 lb/7000 gr. S X 1x10^6 Btu/MMBtu X 0.05 lbs S/1 lb S X 98 lb-Mol H2SO4/32 lb-mol S = 4.2892 E-05 lb

HLV values from Tables 29-1, 29-2, or 29-3 of RCSA Section 22a-174-29.
Trace organic emission factors from AP-42, Section 3.1

Prepared by D. DiCristofaro 11/13/2007

ATTACHMENT E-10. MASC STACK CONCENTRATION CALCULATIONS - UNIT #3 - GASEOUS FUEL

Waterside Power, LLC
Unit #3 - Gaseous Fuel
100% Load, 50F ambient

Stack Height	<20	meters
X	113	feet (distance to property line)
	34.4	meters (distance to property line)
Airflow	345,274	ACFM per unit
	9777	m^3/min
V	162.95	m^3/s
	586627	m^3/hr
1 lb =	4.54E+08	ug
dilution factor:	3	(MASC/HLV)

MASC = 0.885*HLV*(X + 1.08*(V**0.64))**1.56/V

Calculate allowable metals concentration from MASC allowable emissions.
255.60 MMBtu/hr/unit, HHV (approx)

	8-HR HLV (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	
Formaldehyde	12	41	9.10E-05	2.33E-02	17.99	good
1,3 Butadiene	22000	75,796	4.30E-07	1.10E-04	0.08	good
Acetaldehyde	3600	12,403	4.00E-05	1.02E-02	7.91	good
Benzene	150	517	1.20E-05	3.07E-03	2.37	good
Ethylbenzene	8700	29,974	3.20E-05	8.18E-03	6.32	good
Napthalene	1000	3,445	1.30E-06	3.32E-04	0.26	good
PAH (Benzene Soluble)	0.1	0.3	4.84E-08	1.24E-05	0.01	good
Coal Tar Pitch Volatiles	1	3	8.60E-08	2.20E-05	0.02	good
Propylene Oxide	1000	3,445	2.90E-05	7.41E-03	5.73	good
Toluene	7500	25,839	1.30E-04	3.32E-02	25.69	good
Xylenes	8680	29,905	6.40E-05	1.64E-02	12.65	good
Sulfuric Acid	20	69	1.72E-04	4.40E-02	33.99	good

Note: Sulfuric Acid based on 11/27/87 CT DEP Nash memo and assuming 0.8 grains of S per 100 cu. Ft., 5% conversion rate of S to SO3, and 1020 Btu per cu. Ft.: H2SO4 emission factor = 0.8 gr S/100 cu. Ft. X 1 cu. ft/1020 Btu X 1 lb/7000 gr. S X 1x10^6 Btu/MMBtu X 0.05 lbs S/1 lb S X 98 lb-Mol H2SO4/32 lb-mol S = 4.2892 E-05 lb

HLV values from Tables 29-1, 29-2, or 29-3 of RCSA Section 22a-174-29.
Trace organic emission factors from AP-42, Section 3.1

Prepared by D. DiCristofaro 11/13/2007

ATTACHMENT E-11. MASC STACK CONCENTRATION CALCULATIONS - UNIT #1 - LIQUID FUEL

Waterside Power, LLC
Unit #1 - Liquid Fuel
100% Load, 50F Ambient

Stack Height	<20	meters
X	131	feet (distance to property line)
	39.9	meters (distance to property line)
Airflow	341,683	ACFM per unit
	9675	m^3/min
V	161.26	m^3/s
	580526	m^3/hr
1 lb =	4.54E+08	ug
dilution factor:	4	(MASC/HLV)

MASC = 0.885*HLV*(X + 1.08*(V**0.64))**1.56/V

Sulfuric Acid Emissions:
246.58 MMBtu/hr, HHV (approx.)
135,000 Btu/gal liquid fuel, typical
1844.0 gal/hr liquid fuel flow

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 gal)
0.0068 lb/hr H2SO4 emitted based on 11/27/87 memo

Calculate allowable metals concentration from MASC allowable emissions.
246.58 MMBtu/hr/unit, HHV (approx)
18,500 Btu/lb liquid fuel, typical
13,329 lb/hr liquid fuel flow, estimated

Trace Organic Emission Factors from AP-42 Table 3.3-2, 10/96

	8-HR HLV (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	
Formaldehyde	12	47	9.10E-05	2.24E-02	17.53	good
1,3 Butadiene	22000	86,948	1.60E-05	3.95E-03	3.08	good
Benzene	150	593	5.50E-05	1.36E-02	10.60	good
Napthalene	1000	3,952	3.50E-05	8.63E-03	6.74	good
PAH (Benzene Soluble)	0.1	0.4	5.20E-07	1.28E-04	0.10	good
Coal Tar Pitch Volatiles	1	4	5.20E-07	1.28E-04	0.10	good
Arsenic	0.05	0.2	4.00E-07	9.86E-05	0.08	good
Beryllium	0.01	0.04	8.00E-08	1.97E-05	0.02	good
Cadmium	0.4	2	3.20E-06	7.89E-04	0.62	good
Chromium	2.5	10	1.10E-05	2.71E-03	2.12	good
Lead	3	12	1.40E-05	3.45E-03	2.70	good
Manganese	20	79	1.60E-04	3.95E-02	30.83	good
Mercury	1	4	1.20E-06	2.96E-04	0.23	good
Nickel	5	20	4.60E-06	1.13E-03	0.89	good
Selenium	4	16	2.50E-05	6.16E-03	4.82	good
Sulfuric Acid	20	79	—	6.78E-03	5.30	good

Notes:

See Attachment E-7 For ultra-low sulfur fuel grab sample results (Source: South Norwalk Electric Works NSR Permit Application dated April 2003)
Sulfuric Acid Emission Factor from 11/27/97 CTDEP memo
HLV values from Tables 29-1, 29-2, or 29-3 of RCSA Section 22a-174-29.
Trace organic emission factors from AP-42, Section 3.1

ATTACHMENT E-12. MASC STACK CONCENTRATION CALCULATIONS - UNIT #2 - LIQUID FUEL

Waterside Power, LLC
Unit #2 - Liquid Fuel
100% Load, 50F Ambient

Stack Height	<20	meters
X	117	feet (distance to property line)
	35.7	meters (distance to property line)
Airflow	341,683	ACFM per unit
	9675	m^3/min
V	161.26	m^3/s
	580526	m^3/hr
1 lb =	4.54E+08	ug
dilution factor:	4	(MASC/HLV)

MASC = 0.885*HLV*(X + 1.08*(V**0.64))**1.56/V

Sulfuric Acid Emissions:

246.58	MMBtu/hr, HHV (approx.)
135,000	Btu/gal liquid fuel, typical
1844.0	gal/hr liquid fuel flow
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 gal)
0.0068	lb/hr H2SO4 emitted based on 11/27/87 memo

Calculate allowable metals concentration from MASC allowable emissions.

246.58	MMBtu/hr/unit, HHV (approx)
18,500	Btu/lb liquid fuel, typical
13,329	lb/hr liquid fuel flow, estimated

Trace Organic Emission Factors from AP-42 Table 3.3-2, 10/96

	8-HR HLV (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	
Formaldehyde	12	43	9.10E-05	2.24E-02	17.53	good
1,3 Butadiene	22000	78,571	1.60E-05	3.95E-03	3.08	good
Benzene	150	536	5.50E-05	1.36E-02	10.60	good
Napthalene	1000	3,571	3.50E-05	8.63E-03	6.74	good
PAH (Benzene Soluble)	0.1	0.4	5.20E-07	1.28E-04	0.10	good
Coal Tar Pitch Volatiles	1	4	5.20E-07	1.28E-04	0.10	good
Arsenic	0.05	0.2	4.00E-07	9.86E-05	0.08	good
Beryllium	0.01	0.04	8.00E-08	1.97E-05	0.02	good
Cadmium	0.4	1	3.20E-06	7.89E-04	0.62	good
Chromium	2.5	9	1.10E-05	2.71E-03	2.12	good
Lead	3	11	1.40E-05	3.45E-03	2.70	good
Manganese	20	71	1.60E-04	3.95E-02	30.83	good
Mercury	1	4	1.20E-06	2.96E-04	0.23	good
Nickel	5	18	4.60E-06	1.13E-03	0.89	good
Selenium	4	14	2.50E-05	6.16E-03	4.82	good
Sulfuric Acid	20	71	—	6.78E-03	5.30	good

Notes:

See Attachment E-7 For ultra-low sulfur fuel grab sample results (Source: South Norwalk Electric Works NSR Permit Application dated April 2003)
Sulfuric Acid Emission Factor from 11/27/97 CTDEP memo
HLV values from Tables 29-1, 29-2, or 29-3 of RCSA Section 22a-174-29.
Trace organic emission factors from AP-42, Section 3.1

ATTACHMENT E-13. MASC STACK CONCENTRATION CALCULATIONS - UNIT #3 - LIQUID FUEL

Waterside Power, LLC
Unit #3 - Liquid Fuel
100% Load, 50F Ambient

Stack Height	<20	meters
X	113	feet (distance to property line)
	34.4	meters (distance to property line)
Airflow	341,683	ACFM per unit
	9675	m^3/min
V	161.26	m^3/s
	580526	m^3/hr
1 lb =	4.54E+08	ug
dilution factor:	3	(MASC/HLV)

MASC = 0.885*HLV*(X + 1.08*(V**0.64))**1.56/V

Sulfuric Acid Emissions:

246.58	MMBtu/hr, HHV (approx.)
135,000	Btu/gal liquid fuel, typical
1844.0	gal/hr liquid fuel flow
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 gal)
0.0068	lb/hr H2SO4 emitted based on 11/27/87 memo

Calculate allowable metals concentration from MASC allowable emissions.

246.58	MMBtu/hr/unit, HHV (approx)
18,500	Btu/lb liquid fuel, typical
13,329	lb/hr liquid fuel flow, estimated

Trace Organic Emission Factors from AP-42 Table 3.3-2, 10/96

	8-HR HLV (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	
Formaldehyde	12	42	9.10E-05	2.24E-02	17.53	good
1,3 Butadiene	22000	76,234	1.60E-05	3.95E-03	3.08	good
Benzene	150	520	5.50E-05	1.36E-02	10.60	good
Napthalene	1000	3,465	3.50E-05	8.63E-03	6.74	good
PAH (Benzene Soluble)	0.1	0.3	5.20E-07	1.28E-04	0.10	good
Coal Tar Pitch Volatiles	1	3	5.20E-07	1.28E-04	0.10	good
Arsenic	0.05	0.2	4.00E-07	9.86E-05	0.08	good
Beryllium	0.01	0.03	8.00E-08	1.97E-05	0.02	good
Cadmium	0.4	1	3.20E-06	7.89E-04	0.62	good
Chromium	2.5	9	1.10E-05	2.71E-03	2.12	good
Lead	3	10	1.40E-05	3.45E-03	2.70	good
Manganese	20	69	1.60E-04	3.95E-02	30.83	good
Mercury	1	3	1.20E-06	2.96E-04	0.23	good
Nickel	5	17	4.60E-06	1.13E-03	0.89	good
Selenium	4	14	2.50E-05	6.16E-03	4.82	good
Sulfuric Acid	20	69	—	6.78E-03	5.30	good

Notes:

See Attachment E-7 For ultra-low sulfur fuel grab sample results (Source: South Norwalk Electric Works NSR Permit Application dated April 2003)
Sulfuric Acid Emission Factor from 11/27/97 CTDEP memo
HLV values from Tables 29-1, 29-2, or 29-3 of RCSA Section 22a-174-29.
Trace organic emission factors from AP-42, Section 3.1

ATTACHMENT G

BACT DETERMINATION

ATTACHMENT G

BACT DETERMINATION

R.C.S.A. §22a-174-3a(j)(1) requires that an owner or operator shall incorporate Best Available Control Technology ("BACT") for: potential emissions of each regulated air pollutant above the significant emission rate thresholds in Table 3a(k)-1 of §22a-174-3a(k) from each major stationary source or from each major modification; or for potential emissions of 15 tpy or more per year of any individual air pollutant from each new emissions unit or modification to each existing emission unit.

BACT for the Waterside Power Facility is a limitation on gaseous and liquid fuel such that the potential emissions of each regulated pollutant are less than the significant emission rate thresholds in Table 3a(k)-1 of §22a-174-3a(k) (see Table A-3) and the emissions from any single unit are less than 15 tpy (see Table A-2).

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 Project's turbines will be operated and maintained in accordance with GE specifications such that the turbine monitoring equipment, combustion efficiency, and pollution controls will be operated so that all applicable regulations and the NSR permit will be maintained.

ATTACHMENT J

AMBIENT AIR QUALITY ANALYSIS

ATTACHMENT J

AMBIENT AIR QUALITY ANALYSIS

The only proposed change to the Waterside Power facility that could affect air quality is the replacement of the five temporary, 20,000 gals liquid fuel tanks with two 126,000 gals tanks. As shown in Attachment C, the tanks will be located in the southwest corner of the site and will each have a diameter of 40 ft and a height of 24 ft. There will be a 30 ft separation distance between the two tanks. The three TM units were remodeled adding the two tanks to the BPIP analysis (see Attachment J-1). The modeling results did not change from the previous air quality modeling analysis that was submitted to the DEP on July 21, 2006 and approved on October 4, 2006 (see Attachment J-2 and J-3).

The only changes to be made to the July, 2006 modeling results is the use of more recent DEP ambient air quality data. In July, 2006, background air quality data were only available for 2002 through 2004. Currently, data from 2005 and 2006 are now available. Thus, using the three most recent years of background data, the results are as follows.

Table J-1 presents the maximum annual average nitrogen dioxide ("NO_2") concentrations from Sherwood Island in Westport. Table J-2 presents the high second-high 1-hour and 8-hour carbon monoxide ("CO") concentrations measured at the Stamford Library.

Table J-1: Annual average NO_2 Concentrations from Sherwood Island, Westport

Year	ppm	μg/m^3
2004	0.0144	27.1
2005	0.0153	**28.8**
2006	0.0143	26.9

Table J-2: High Second-High 1-Hour and 8-Hour CO Concentrations from the Stamford Library

Year	1-Hour		8-Hour	
	ppm	μg/m^3	ppm	μg/m^3
2004	4	**4,600.0**	2.2	2,530.0
2005	3.4	3,910.0	2.5	**2,875.0**
2006	3.6	4,140.0	2.5	**2,875.0**

The highest observed concentrations are noted in bold in the above two tables. For CO, the highest modeled concentrations from the turbines are added to the observed background concentrations and compared to the NAAQS in Table J-3.

Table J-3: Comparison of Worst-Case CO Concentrations from Waterside plus Background with the NAAQS

Averaging Period	Waterside Power	Background	Total	NAAQS
	$\mu g/m^3$			
1-Hour	5,489.4	4,600.0	10,089.4	40,000
8-Hour	3,842.6	2,875.0	6,717.6	10,000

All CO concentrations are below the NAAQS using conservative modeling assumptions; thus, no further modeling analyses for CO are required.

A comparison of the worst-case annual NO_2 concentrations plus background and Pitney with the NAAQS is presented in Table 7.

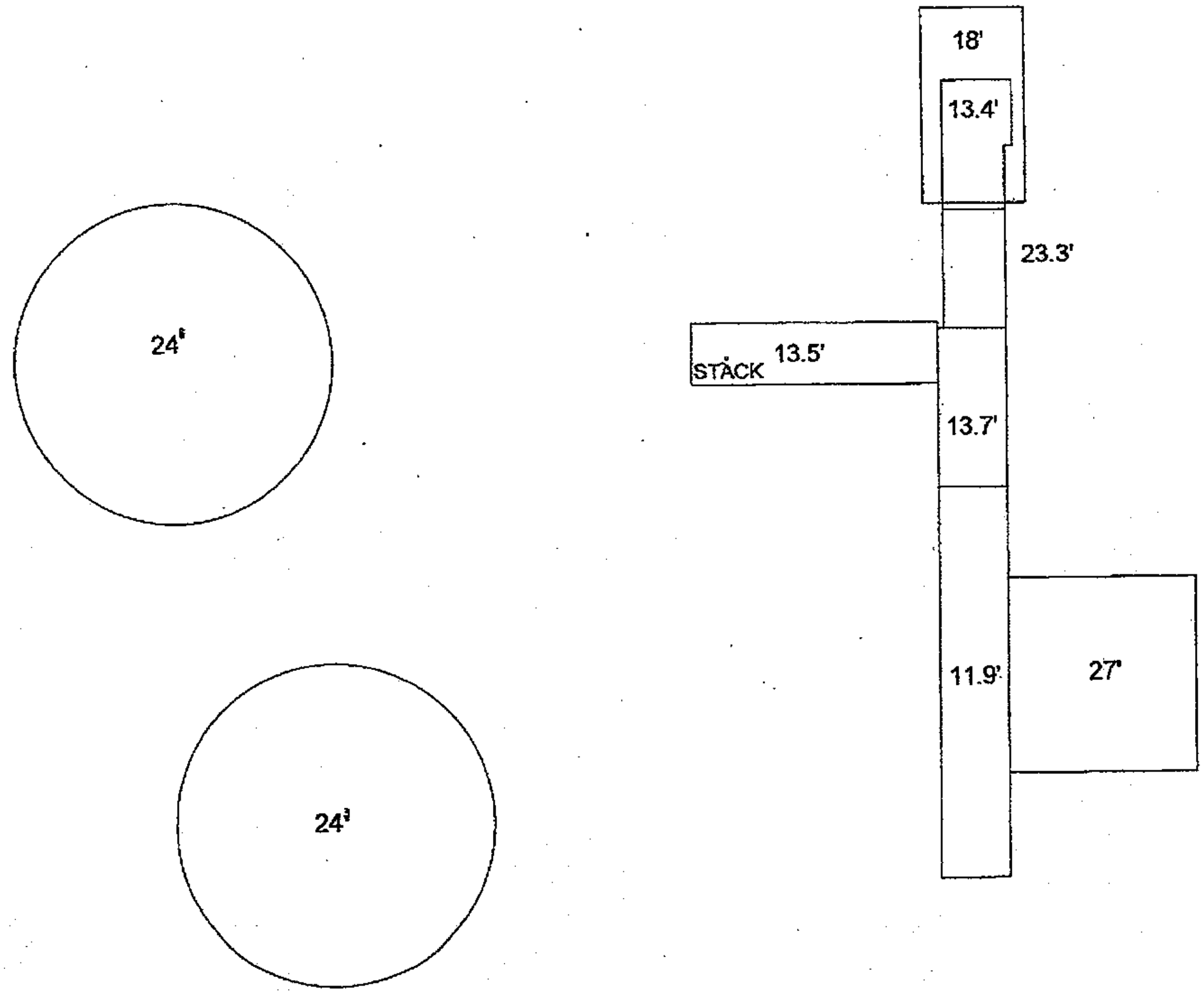
Table J-4: Comparison of Worst-Case NO_2 Concentrations from Waterside plus Pitney plus Background with the NAAQS

Averaging Period	Waterside Power	Background	Pitney	Total	NAAQS
	$\mu g/m^3$				
Annual	15.1[1]	28.8	7.8	51.7	100

Using conservative screening modeling assumptions, the highest annual NO_2 concentration is less than the NAAQS; thus, additional modeling is not required.

[1] The July, 2006 analysis reports 15.3 $\mu g/m^3$. The current value is slightly less to take into account a decreased fuel usage (417 hours at full load versus the previous 423 hours at full load). The difference is due to the assumed heat rate of ULSD.

Schematic Building Diagram for BPIP Analysis - Waterside Power



Title One

Z:\PROJECTS\ct\waterside\bpip.BST

Scale: 1" = 6.8 Meters

MEMORANDUM

TO: James Grillo
APCE II

FROM: Jude Catalano
APCE III

DATE: October 4, 2006

SUBJECT: Review of proposed revisions to existing facility structures Waterside Power, LLC, Stamford, Connecticut.

Waterside Power, LLC has proposed to make a few physical changes to their existing facility that would allow three existing permitted combustion turbines to operate during the winter months. The three turbines were issued permits most recently on December 2, 2005. The permit numbers are: 172-26-0228,0229 and 0230. According to a letter report I received from Blue Sky Environmental, LLC working on behalf of Waterside Power, LLC, the physical changes are to include the following:

1) addition of four mobile water heaters for anti-icing purposes;
2) the construction of turbine unit enclosures to protect the turbines from winter weather conditions;
3) the construction of enclosures to protect existing pumping equipment;
4) the instillation of exhaust silencers, which will have the effect of increasing the existing stacks heights from 21 to 30 feet above grade.

The only changes from the above list that could effect existing ground-level concentrations in an adverse way would be the construction of the enclosures.

Blue Sky Environmental evaluated the downwash effects of the proposed structures with the SCREEN3 model. It was assumed that there will be no increases in the existing short term (lb/hr) or annual (tons/yr) permitted emission limits for the turbines. It was also assumed that stack operating parameters (i.e., flow rates and exit temperatures) will remain essentially the same. Results of the modeling indicate that the structural changes will not cause the source to have an adverse impact on air quality.

Please feel free to contact me if you have any questions or are faced with a different facility modification scenario.

cc: D. Wackter

BLUE SKY ENVIRONMENTAL LLC

July 21, 2006

Mr. Jude Catalano
Department of Environmental Protection
Bureau of Air Management
79 Elm Street, 5th Floor
Hartford, CT 06106-5127

Subject: **Waterside Power, LLC; Stamford**
Modeling Analysis

Dear Mr. Catalano:

As you are aware, Waterside Power, LLC ("Waterside") operates a temporary 69.2 megawatt ("MW") peaking project located in Stamford, Connecticut (the "Project"). Waterside has operated three portable General Electric TM2500 gas turbines since 2002. During the permit review process, air quality modeling analyses were reviewed by the Connecticut Department of Environmental Protection ("DEP"). The DEP has issued three individual permits for the turbines (Permit Nos. 172-26-0228 through 0230 issued most recently on December 2, 2005).

The Project wishes to participate in the ISO-NE Locational Forward Reserve Market ("LFRM") from October 1, 2006 through May 31, 2009. ISO-NE has determined that there is a need for quick-start units which can provide capacity to southwest Connecticut in the form of standby reserves beginning on October 1, 2006. Until now, the Project has only been available to operate during the summer. In order to be available year round, Waterside proposes to include the following additions to its existing equipment and operations:

1) addition of four (4) mobile water heaters for anti-icing protection during cold weather conditions;
2) use of turbine unit enclosures to protect the equipment from freezing during winter weather conditions[1];
3) enclosure of the two pump skids to similarly protect the existing pumping equipment;
4) paving of a portion of the site to allow snow clearing operations for access during the winter season;
5) the installation of additional exhaust silencers to ensure no adverse impacts during extended operations thereby increasing the stack height from 20.7 to 29.8 feet;
6) and the extension of available hours of operation from 8:00 pm to 11:00 pm.

[1] Each turbine will include two fabric enclosures: (1) 25x25x27 ft and (2) 25x13x18 ft. These enclosures affect building downwash.

The only changes listed above that could affect ground-level concentrations of pollutants are the extension of the stack height and the additional enclosures. The potential emissions associated with mobile water heaters are well below the modeling threshold. No changes are required to the individual permits since there are no hour restrictions in the permits and the stack height listed in the permit is a minimum allowable height. As per our discussions, a new screening modeling analysis has been conducted to assess the impacts associated with the proposed changes to the Project.

Modeling Methodology

Dispersion modeling was performed using the most recent version of the EPA SCREEN3 dispersion model. The SCREEN3 model was used to evaluate elevated terrain (simple, intermediate, and complex terrain). SCREEN3 was also used to determine cavity concentrations for various building structures surrounding the stack that have the potential to capture the plume in the recirculation zone.

The Good Engineering Practice (GEP) Guidelines (*Guidelines for Determination of Good Engineering Practice Stack Height, EPA-450/4-80-023R, June 1985*) provide a method for determining the GEP height for a stack based on the dimensions of the nearby structures. A structure is considered nearby if it is within "five times the lesser of the height or projected width of the structure." A "controlling" structure is that which produces the highest GEP calculated height.

The turbine stacks will be 29.8 feet above grade. The turbine generator and exhaust trains are trailer mounted in a "T" orientation. There are no existing buildings surrounding the project site which have the potential to influence the turbine stacks. The EPA BPIP program was used to evaluate the various tiers of the turbine generator housing and to calculate GEP height. A tall (27.0 feet) section of the housing is the controlling building tier for purposes of GEP. The calculated GEP height for the stacks is 67.5 feet. Since the proposed turbine stacks are less than GEP height, building downwash effects for the controlling tier were taken into consideration in the air quality modeling analysis conducted with SCREEN3. In addition to the controlling high tier section, the lower tiers of the turbine housing were also analyzed to ensure that a different building configuration did not result in a cavity entrainment scenario that leads to higher concentrations. A schematic building diagram for one unit is provided in Attachment 1.

Table 1 summarizes stack characteristics for the turbines. Table 2 provides pollutant emission rates and exhaust flow parameters for the fuel and load conditions. These operating conditions were evaluated in the modeling analysis. Based on permitted fuel usage limitations, liquid fuel-fired operation is limited to

423 hours per year (for each turbine)[2]. Gaseous fuel-fired operation is limited to 729 hours per year (for each turbine)[3]. Worst-case annual impact concentrations are weighted by the maximum allowable operating hours for liquid fuel (423/8760) and gaseous fuel (729/8760) potential operating hours. The load condition for which maximum concentrations are predicted was used for comparison to the National Ambient Air Quality Standards ("NAAQS").

Table 1: Stack Characteristics for the Proposed Project

Base Elevation, msl (feet/meters)	54.5 / 16.6
Stack Height (feet/meters)	29.8 / 9.083
Equivalent Inside Stack Diameter (feet/meters)	9.28 / 2.83
Number of Stacks	3
Predominate Land Use Type	Urban
Stack 1 Location:	
UTM-E (m)	621,315.1
UTM-N (m)	4,543,660.6
Stack 2 Location:	
UTM-E (m)	621,293.9
UTM-N (m)	4,543,647.9
Stack 3 Location:	
UTM-E (m)	621,268.0
UTM-N (m)	4,543,634.7

[2] The NSR permits limit the total fuel usage from the TM2500 units to 2,285,322 gallons per consecutive 12 months. Based on a maximum fuel firing rate of 1,800 gal/hr, this equates to 1269.6 hours total or 423 hours per turbine.

[3] The NSR permits limit the total fuel usage from the TM2500 units to 549,257,047 scf per consecutive 12 months. Based on a maximum fuel firing rate of 251,000 scf/hr, the maximum permitted, this equates to 2,188.3 hours total or 729.4 hours per turbine.

Table 2: Stack Parameters for the Waterside Power Turbines (per Turbine)

Fuel		Liquid Fuel			Liquid Fuel			Gaseous Fuel		
Load		100%	100%	100%	100%	100%	100%	100%	100%	100%
Ambient Temperature	°F	90	90	90	0	50	100	0	50	100
Exit Temperature	°K	827.44	813.00	802.44	741.33	788.56	808.56	737.44	787.44	805.22
Exit Velocity	m/s	26.04	25.15	24.33	25.40	25.65	23.23	25.50	25.92	23.78
NO_x	g/s	5.11	4.84	4.62	5.04	5.04	4.28	2.90	2.93	2.53
CO	g/s	1.19	1.40	1.60	6.66	3.22	1.30	7.00	3.78	1.24

The SCREEN3 model was used to predict maximum 1-hour ground level pollutant concentrations. Maximum 1-hour impacts for simple terrain were converted to other averaging periods using the recommended scaling factors shown below

8-hour avg. = 0.7 x 1-hour avg.
Annual-hour avg. = 0.08 x 1-hour avg.

For complex terrain, the following recommended scaling factors were used:

8-hour avg. = 2.8 x 24-hour avg.
Annual-hour avg. = 0.32 x 24-hour avg.

Receptors for the screening analysis were located at 34 meters (just outside the property fenceline), and then at 25-meter intervals from 50 to 100 meters, at 50-meter intervals from 100 to 200 meters, at 100-meter intervals from 200 to 2,000 meters, at 200-meter intervals from 2,000 to 4,000 meters, at 500-meter intervals from 4,000 to 5,000 meters, and at 1,000-meter intervals from 5,000 to 10,000 meters. Discrete elevated receptors up to the VALLEY (stable) plume height were also input to the model for evaluation of complex terrain. Receptor elevations were selected based on the highest elevation found within a sector defined by the midpoint distances between adjacent receptors. The receptor elevations were selected based on the highest elevation at given distances from the proposed source location, regardless of direction.

One-hour worst-case concentrations for simple terrain, 24-hour worst-case concentrations for complex terrain, and 1-hour worst-case cavity concentrations, were determined for unit emissions (1.0 g/s). These concentrations were then scaled by the NO_X and CO emission rates and appropriate time averaging factors.

Cavity Analysis

Since emissions from the turbines will be released from a stack that is less than GEP height, the potential for emissions being entrained into the recirculation zone (cavity) was considered. The cavity analysis was conducted using the SCREEN3 model that provides the length of the cavity and recirculation zone concentrations for non-GEP stacks. Separate building tiers were evaluated. SCREEN3 results indicate that the turbine plumes will either (1) NOT be entrained in building cavities, or (2) have a cavity length that will NOT go beyond the facility property fenceline. Therefore, cavity concentrations will not impact ambient air quality.

SCREEN3 Model Results and Impact Analysis

The worst-case impacts for the combustion turbines were found to occur just outside the property line (a simple terrain receptor) at an ambient temperature of 0°F. Maximum predicted impact concentrations are provided in Table 3.

Table 3: Maximum Predicted SCREEN3 Concentrations

Pollutant	Averaging Period	Maximum Concentrations ($\mu g/m^3$)	Maximum Impact Case
NO_2	Annual	15.3	Liquid Fuel, 100% Load, 0°F
CO	1-Hour	5,489.4	Gaseous Fuel, 100% Load, 0°F
CO	8-Hour	3,842.6	Gaseous Fuel, 100% Load, 0°F

The closest representative DEP background monitor for NO_2 is on Sherwood Island in Westport and the closest CO monitor is at the Stamford Library at 96 Broad Street.

Table 4: Annual average NO_2 Concentrations from Sherwood Island, Westport

Year	ppm	$\mu g/m^3$
2004	0.0144	27.1
2003	0.0164	30.8
2002	0.0187	35.2

Table 5: High Second-High 1-Hour and 8-Hour CO Concentrations from the Stamford Library

Year	1-Hour		8-Hour	
	ppm	$\mu g/m^3$	ppm	$\mu g/m^3$
2004	4	4,600.0	2.2	2,530.0
2003	3.8	4,370.0	2.6	2,990.0
2002	4.4	**5,060.0**	3.2	**3,680.0**

The highest observed concentrations for both NO_2 and CO were observed in 2002. For CO, the highest modeled concentrations from the turbines are added to the observed background concentrations and compared to the NAAQS in Table 6.

Table 6: Comparison of Worst-Case CO Concentrations from Waterside plus Background with the NAAQS

Averaging Period	Waterside Power	Background	Total	NAAQS
	$\mu g/m^3$			
1-Hour	5,489.4	5,060.0	10,549.4	40,000
8-Hour	3,842.6	3,680.0	7,522.6	10,000

All CO concentrations are below the NAAQS using conservative modeling assumptions; thus, no further modeling analyses for CO are required.

For NO_2, as per your recommendation, all sources within the significant impact level ("SIL") were modeled. The annual averaged SIL for NO_2 is 1 $\mu g/m^3$. The screening modeling shows that the SIL for NO_2 is modeled between 200 and 300 m from the Waterside stacks using worst-case modeling results. Thus, for conservativeness, all sources within 300 m (or 984 ft) were modeled. Figure 1 shows a 300 m radius around Waterside Power (highlighted in yellow) with various land use categories identified. The types of facilities (industry, office, golf courses, residences, etc.) found within these land uses are summarized in Attachment 2. A detailed review of the DEP record files along with a field site review indicated that there is only one source within 300 m of Waterside Power that is permitted by the DEP as an air emission source. The DEP's Point Source Emissions Inventory for Stamford (see Attachment 3) indicates that Pitney Bowes ("Pitney") located at 23 Barry Place in Stamford (Premise Number 172) operates one permitted source, a 250 hp boiler (Permit No. 172-002). This boiler was installed in 1972. The inventory also indicates that there is a grandfathered 400 hp boiler at the site installed in 1967 and an emergency generator installed in 1972. Correspondence with Pitney indicates that the emergency generator has been removed from the site.

The 250-hp boiler was originally modeled by you in 1979 (see Attachment 4). The stack parameters used in that modeling analysis were used to model Pitney with SCREEN3 for this analysis at the same receptors that were modeled for Waterside. The modeling conservatively used the lower of the ACFM for Pitney. The approximate distance from Pitney to Waterside is 200 m. The maximum NO_2 impact from Waterside is found at 34 m. The distance from Pitney to the distance of the maximum NO_2

concentration modeled for Waterside is 166 m (or 200 m – 34 m). Conservatively, the higher concentration modeled for Pitney for receptors at 150 and 200 m were used to approximate the concentration at 166 m. The highest 1-hour concentration of 97.69 $\mu g/m^3$ for Pitney was found at 150 m. Converting this to an annual impact by scaling by 0.08 results in annual concentration of 7.8 $\mu g/m^3$. A comparison of the worst-case annual NO_2 concentrations plus background and Pitney with the NAAQS is presented in Table 7.

Table 7: Comparison of Worst-Case NO_2 Concentrations from Waterside plus Pitney plus Background with the NAAQS

Averaging Period	Waterside Power	Background	Pitney	Total	NAAQS
	$\mu g/m^3$				
Annual	15.3	35.2	7.8	58.3	100

Using conservative screening modeling assumptions, the highest annual NO_2 concentration is less than the NAAQS; thus, additional modeling is not required.

This analysis is based on the current winterization design of the facility. If the final design changes the air modeling results, an update will be submitted to you. If you require additional information or have any questions, please do not hesitate to call me at 617-834-8408.

Sincerely,
Blue Sky Environmental LLC

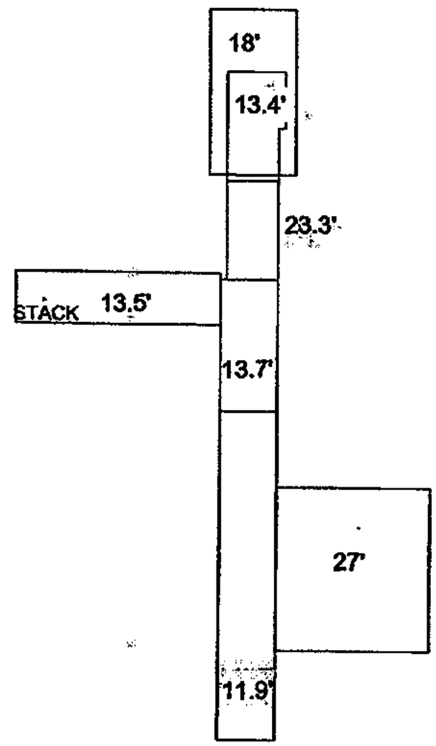
Donald C. DiCristofaro, CCM
President

Attachments

Cc: J. Grillo, DEP
T. Atkins, Waterside Power

Attachment 1. Schematic Building Diagram for one TM2500 Unit

Schematic Building Diagram for BPIP Analysis-Waterside Power



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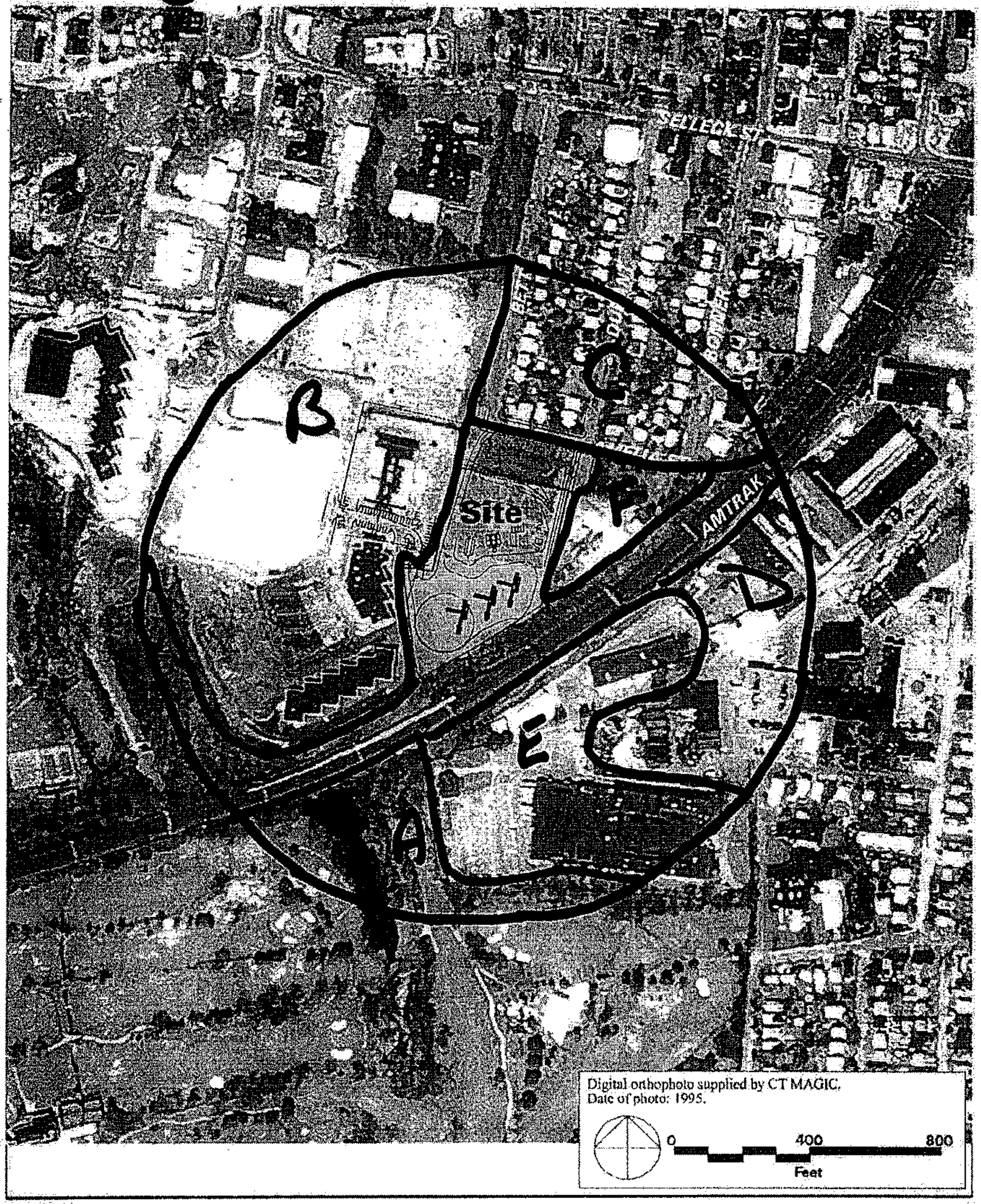
Waterside Power, Stamford, CT

Scale: 1" = 7.9 Meters

E A R T H T E C H



Date: 26 Feb 03 14:34:55 Wednesday
/usr/ofdata/waterside/siteortho.map

Figure 1. Land use within 300 m surrounding Waterside Power.

ATTACHMENT 2

Facilities Around Waterside Power

A

Innis Arden Golf Club

B

US Postal Service

404 and 420 West Avenue
  Goodway

470 West Avenue
  Corporate Branching LLC
  Kirby Lester LLC
  Jofemer USA
  Columbus IT Partners
  Fugazy Travel
  Corebrand
  Staples
  Morrow and Co.
  First Presbyterian Church of Greenwich

550 West Avenue
  Davidoff of Geneva
  Performance Imaging
  Tepnel Litecodes

600 West Avenue
  FedEx

650 West Avenue
  Davidoff of Geneva

Fuji Film

The Iron Shop – Spiral Stair Kits
Broad Reach Partners, Business Development Specialists

C

Residential

60 Bonner
Arcadia

D

375 Fairfield Avenue
Creative Cabinetry
Stamford Wrecking Co.
Connaught – Gum Busters
Landmark Document Services
Connecticut Floor Supply
Flower Beauty Products
Ionian Food Imports
Jack Rabbit Energy Systems
The Packaging Store
All Marine Spares International
Ideal Stonework
Jonathan Podmore Cabinetry
NY-CT Development Corp.
Jacobson Woodworking

35 Melrose Place
Mosaic True Blue

One Barry Place
USPS Barry Place Annex
English Country Garden
John Deere Landscape
E.T. Warehouse
Connecticut Floor Store
Contemporary Lighting
Scotts Lawn Services

E

23 Barry Place
Pitney Bowes

F

CL&P Substation

Attachment 3. DEP Point Source Emissions Inventory for Stamford

Stamford
Twn = 172 - 175

SAS
CONN BUREAU OF AIR MANAGEMENT
2004 POINT SOURCE EMISSIONS INVENTORY BY TWN PREM STACK REG

15:49 Wednesday, July 27, 2005 100

CLI	TWN	PREM	STK	F	REG	Date Shutdown	C	Date Startup	Equipment Description	Proc SCC	SCC #1	Company Name	SIC	Data Year
5643	171	1	16	R	36	.	P	01/01/1968	CURE OVEN & IMPREGNATOR	40201301	39001089	CUNO INC	3569	1997
5643	171	1	17	R	37	.	P	01/01/1954	GRINDER #1S	39999999	00000000	CUNO INC	3569	1997
5643	171	1	18	R	38	.	P	01/01/1968	GRINDER #2N	39999999	00000000	CUNO INC	3569	1997
5643	171	1	802	U	2	.	P	01/01/1989	PAPER COATING	40201301	00000000	CUNO INC	3569	1997
1984	171	2	2	R	65	.	B	11/01/1963	BLR O&S 100	00000000	10200501	COOLEY CO, B P	2231	1990
6383	171	5	1	R	4	.	B	01/01/1963	BLR ERIE CITY WT	00000000	10200504	FIORE-WITTENZELLNER-PIS	6512	1990
1991	171	9	1	P	20	.	B	07/01/1982	BLR CB 800-150	00000000	10200504	TYCO PRINTED CIRCUIT GR	3679	1996
1991	171	9	1	P	26	.	B	08/28/1989	BLR BURNHAM 3P-150-4	00000000	10200504	TYCO PRINTED CIRCUIT GR	3679	1996
1991	171	9	801	U	1	.	P	.	THINNING SOLVENTS: MEK	40200918	00000000	TYCO PRINTED CIRCUIT GR	3679	1996
6046	171	10	5	E	1	.	P	10/01/1991	ALEA DRYER	00000000	10500110	WARREN CORP	2231	1996
6046	171	10	4	P	15	.	B	07/12/1976	BLR CB 655-500 #1	00000000	10200501	WARREN CORP	2231	1996
6046	171	10	4	P	23	.	B	.	BLR CB 655-500 #4	00000000	10200501	WARREN CORP	2231	1996
6046	171	10	1	R	13	.	B	08/26/1964	BLR CB 655-350 #1	00000000	10200401	WARREN CORP	2231	1996
6046	171	10	2	R	14	.	B	08/26/1964	BLR CB 655-350 #2	00000000	10200401	WARREN CORP	2231	1996
6046	171	10	3	R	15	.	B	09/29/1970	BLR CB 666-350 #3	00000000	10200401	WARREN CORP	2231	1996
1993	171	12	1	R	51	.	P	.	SAND & GRAVEL HOPPER	30501108	00000000	MOTTES CO, J J	3273	1979
5821	171	15	1	P	42	.	P	.	CLEAR POLISHING CO, VFW	30999999	00000000	WILLINGTON NAMEPLATE IN	3479	5555
5821	171	15	801	U	1	.	P	.	MISC METAL PARTS: COATI	40202501	00000000	WILLINGTON NAMEPLATE IN	3479	1994
5590	171	28	801	U	1	.	P	.	WOOD FURNITURE COATING	40201901	00000000	BUTCH'S ANTIQUE SHOP	7641	1989
1996	171	35	2	P	14	.	B	01/01/1975	BLRS CB 600-300 (2)	00000000	10300501	JOHNSON MEMORIAL HOSPIT	8062	1996
1996	171	35	3	P	22	.	C	10/01/1975	ELECT MACH 7250IT DIESE	00000000	20300101	JOHNSON MEMORIAL HOSPIT	8062	1996
1999	171	43	1	R	71	.	B	01/01/1967	BLR KEWANEE #1	00000000	10300501	STAFFORD HIGH SCHOOL	8211	1990
1999	171	43	1	R	72	.	B	01/01/1967	BLR KEWANEE #2	00000000	10300501	STAFFORD HIGH SCHOOL	8211	1990
1999	171	44	1	R	73	.	B	01/01/1937	BLR HB SMITH 44-17 #1	00000000	10300501	WITT MIDDLE SCHOOL, E	8211	1990
1999	171	44	1	R	74	.	B	01/01/1937	BLR HB SMITH 44-17 #2	00000000	10300501	WITT MIDDLE SCHOOL, E	8211	1990
7811	171	50	1	P	29	.	C	.	KOHLER 35RZ DIESEL	00000000	20301001	CELLCO PARTNERSHIP	4813	5555
2002	172	3	1	R	4	.	P	01/01/1967	60" EGAN PAPER COATER	40201301	39000689	GAISSER INC, E J	2796	1991
2002	172	3	6	R	447	.	P	01/01/1970	22" EXPT WEB COATER	40201301	39000689	GAISSER INC, E J	2796	1991
2004	172	5	1	R	7	.	B	01/01/1948	BLR I.B.W. CR355	00000000	10200501	TODD COMBUSTION INC	3599	1990
2004	172	5	801	U	1	.	P	.	OPEN-TOP VAPOR DEGREASI	40100205	00000000	TODD COMBUSTION INC	3599	1976
2004	172	5	802	U	2	.	P	.	SPRAY BOOTH	40299996	00000000	TODD COMBUSTION INC	3599	1976
2076	172	6	1	R	8	.	B	01/01/1961	BLR 100HP ???	00000000	10200504	FIRST STAMFORD CORP	6512	1983
2006	172	7	1	R	9	.	B	01/01/1960	BLR PETRO PAC 301W125	00000000	10300501	KING LOW HEYWOOD THOMAS	8299	1990
2084	172	8	1	R	10	.	B	07/09/1941	BLR BIGELOW FT	00000000	10200504	THERMATOOL CORP	3548	1987
1138	172	10	1	R	13	.	B	10/01/1954	BLR FITZGIBBONS #1	00000000	10300504	UNIV OF CT / STAMFORD	8221	1990
1138	172	10	1	R	14	.	B	10/01/1954	BLR FITZGIBBONS #2	00000000	10300504	UNIV OF CT / STAMFORD	8221	1990
2011	172	12	1	R	16	.	B	09/28/1967	BLR I-F 301-L-600 #1	00000000	10300504	HEYMAN ASSOC #1	6512	1997
2011	172	12	1	R	17	.	B	09/28/1967	BLR I-F 301-L-600 #2	00000000	10300504	HEYMAN ASSOC #1	6512	1997
2011	172	12	1	R	18	.	B	09/28/1967	BLR I-F 301-L-600 #3	00000000	10300504	HEYMAN ASSOC #1	6512	1997
6565	172	17	6	P	48	.	P	.	REACTOR PIPERACILLIN PR	30106099	00000000	CYTEC INDUSTRIES INC	8731	5555
6565	172	17	7	P	66	.	P	11/01/1995	COMPACT LAB SPRAY DRYER	49099999	00000000	CYTEC INDUSTRIES INC	8731	1996
6565	172	17	3	R	43	.	B	01/01/1950	BLR BIGELOW B 25K#/H #4	00000000	10200401	CYTEC INDUSTRIES INC	8731	1996
6565	172	17	3	R	44	.	B	01/01/1958	BLR BIGELOW HT88 50K#/H	00000000	10200401	CYTEC INDUSTRIES INC	8731	1996
6565	172	17	5	R	486	.	P	01/01/1970	MIXING KETTLE (4 UNITS)	30199999	00000000	CYTEC INDUSTRIES INC	8731	1996
6565	172	17	5	R	487	.	P	01/01/1970	REACTORS (12 UNITS)	30199999	00000000	CYTEC INDUSTRIES INC	8731	1996
7738	172	23	1	P	56	.	B	.	BLR FEDERAL FST200	00000000	10300504	CSC 65 PROSPECT STREET	6513	1994
7738	172	23	1	P	179	.	B	.	FEDERAL 8.4 MMBTU BOILE	00000000	10300501	CSC 65 PROSPECT STREET	6513	5555
7060	172	24	1	P	164	.	B	.	2 FEDERAL BOILERS	00000000	10300501	COHN BIRNBAUM PC	6512	5555
8048	172	26	.	E	1	09/23/2004	C	06/25/2004	1250KW BLACK START GENE	00000000	00000000	WATERSIDE POWER LLC	4911	2004