



**STATEMENT OF BASIS**

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BAQ Engineering Services Division  
2600 Bull Street, Columbia, SC 29201  
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<b>Company Name:</b>	Beaufort-Jasper Water & Sewer Authority – Cherry Point WWTF	<b>Permit Writer:</b>	Jerry E. Freck
<b>Permit Number:</b>	1360-0043-CA	<b>Date:</b>	26 October 2009

**APPLICATION RECEIVED:** April 9, 2009

**FACILITY DESCRIPTION:** This existing wastewater treatment facility is located in Ridgeland. The facility provides wastewater treatment services to residential, commercial, and industrial customers.

**PROJECT DESCRIPTION:** This facility operates two diesel-fired generators, designated as “CPDG1” and “CPDG2”. CPGD2 is presently used for emergency purposes only, while CPGD1 is already being used for peak shaving. The facility is requesting permission to use both generators for peak-shaving purposes.

CPDG1 was installed in 2003, is rated 1596 bHP, consumes 71.13 fuel gallon/hour, and drives a generator rated at 1000 kWe. The CPGD1 1000kWe generator was previously indicated on Conditional Major permit number 0360-0050 (Chelsea) as a peak shaving generator in 2007. The CPGD1 was never physically located at the Chelsea water plant. When an operating permit request is processed for Cherry Point, the CPGD1 unit will be voided from the Chelsea permit and indicated on the Conditional Major permit for Cherry Point. CPGD2 was installed in 2008, is rated 2919 bHP, consumes 137.9 fuel gallon/hour, and drives a generator rated at 2000 kWe. The site also comprises two exempt sources – a 6000 gallon (~22.7 m<sup>3</sup>) fuel oil storage tank and an 8000 gallon (~30.3 m<sup>3</sup>) fuel storage tank.

The CPGD1 unit alone does not have emission potentials that exceed major thresholds. The CPGD2 unit is of newer design and its NO<sub>x</sub> emission rate is almost half that of similar units installed only 5 years ago. However, the CPGD2 unit has potential emissions above the 100 NO<sub>x</sub> TPY “major” threshold for Title V. Operation of the CPGD1, CPGD2 units at a single location results in NO<sub>x</sub> potential emissions that exceed the 250 NO<sub>x</sub> TPY threshold for PSD. Therefore, this change will cause the facility to become subject to a Synthetic Minor limit of less than 250 NO<sub>x</sub> TPY for PSD avoidance, and a less than 100 TPY limit for Title V avoidance. Compliance with these limits will be demonstrated by complying with an operating hour limit (12-month rolling sum). Each respective generator has a different NO<sub>x</sub> emission rate. Compliance with the less than 100 NO<sub>x</sub> TPY limit will involve the concept of a combination operating hour. A combination operating hour is achieved whenever both generator units operate for one hour each, either alone or simultaneously. See the [Conditional Major Limit](#) section of this document for more information.

**SPECIAL CONDITIONS, MONITORING, LIMITS:** This permit specifies a [procedure](#) for demonstrating compliance with the less than 100 NO<sub>x</sub> TPY limit by using combination operating hours as a surrogate. The facility must monitor and record actual operating hours and compute the monthly and 12-month rolling sum of actual combination operating hours on a monthly basis. Monthly and 12-month rolling sum actual operating hour data is to be reported annually. The owner/operator must also maintain fuel oil certification records demonstrating compliance with the fuel oil sulfur content limit for each batch of fuel oil received.

**PUBLIC NOTICE:** In accordance with SC Reg. 61-62.1 Section II E and G.2.a., and 4.a., this facility has requested a federally-enforceable emissions limitation so the source's potential to emit qualify it as both a synthetic minor and a conditional major source. In order to be federally-enforceable, this permit will undergo provisions of SC Reg. 61-62.1 Section II N. *Public Participation Procedures*.

**EMISSIONS:** Estimated emissions were based on lb/bHP and lb/MMBtu methods and the most conservative result was used. For more detail on emissions calculations, see the [Emissions calculations table](#) at the end of this document.

UNCONTROLLED POTENTIAL EMISSIONS (PROJECT ONLY)					
ID	Pollutant	lb/hr	TPY@8760 Hr/Yr	TPY@4000 Hr/Yr	Method for Estimating Emissions
-CA (CPDG1) 1596 HP 1000 kWe	CO	0.527	0.231	0.231	Engine Manufacturer’s Data and AP-42, 5 <sup>th</sup> Edition, Table 3.4-1 (10/96) Diesel fuel (SCC: 2-02-004-01) Using lb/MMBtu fuel input @ maximum fuel consumption of 71.13 gallons/hr and fuel heat content of 137,000 Btu/gallon (LHV)
	HAP <sub>TOT</sub>	0.015	0.06	0.06	
	NO <sub>x</sub>	16.959	74.28	74.28	
	PM <sub>2.5</sub>	0.068	0.30	0.30	
	PM <sub>10</sub>	0.074	0.32	0.32	
	PM	0.074	0.32	0.32	
	SO <sub>2</sub>	0.492	2.16	2.16	
-CA (CPDG2) 2919 HP 2000 kWe	VOC	0.140	0.62	0.62	Engine Manufacturer’s Data and AP-42, 5 <sup>th</sup> Edition, Table 3.4-1 (10/96) Diesel fuel (SCC: 2-02-004-01) Using lb/MMBtu fuel input @ maximum fuel consumption of 71.13 gallons/hr and
	CO	1.351	5.92	4.09	
	HAP <sub>TOT</sub>	0.028	0.12	0.09	
	NO <sub>x</sub>	32.884	144.03	99.64	
	PM <sub>2.5</sub>	0.257	1.13	0.78	
PM <sub>10</sub>	0.257	1.13	0.78		



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<b>Permit Number:</b>	1360-0043-CA	<b>Date:</b>	26 October 2009

**UNCONTROLLED POTENTIAL EMISSIONS (PROJECT ONLY)**

ID	Pollutant	lb/hr	TPY@8760 Hr/Yr	TPY@4000 Hr/Yr	Method for Estimating Emissions
	PM	0.257	1.13	0.78	fuel heat content of 137,000 Btu/gallon (LHV)
	SO <sub>2</sub>	0.919	4.03	2.79	
	VOC	1.480	6.48	4.48	

**FACILITY WIDE EMISSIONS**

Pollutant	Uncontrolled Emissions	Controlled Emissions
	TPY	TPY
CO	6.151	4.09
HAP <sub>TOT</sub>	0.18	0.09
NO <sub>X</sub>	218.31	99.64
PM <sub>2.5</sub>	1.43	0.78
PM <sub>10</sub>	1.45	0.78
PM	1.45	0.78
SO <sub>2</sub>	6.18	2.79
VOC	7.10	4.48

**PROJECT REGULATORY APPLICABILITY REVIEW**

Regulation	Applicable		Comments
	Yes	No	
<b>South Carolina Regulation 61-62.1 through 62.99: Air Pollution Regulations (PROJECT ONLY)</b>			
<b>Section II(E): Synthetic Minor</b>	X		The "CPDG1, CPDG2" RICE have combined NO <sub>X</sub> PTE that would qualify this facility as a PSD major source, but the facility is requesting a federally-enforceable synthetic minor limit of less than 250 NO <sub>X</sub> ton per year.
<b>Section II(G): Conditional Major</b>	X		The "CPDG1, CPDG2" RICE have NO <sub>X</sub> PTE that would qualify this facility as a major source of NO <sub>X</sub> under Part 70 (Title V). However, the facility is requesting a federally-enforceable limit of less than 100 NO <sub>X</sub> ton per year to avoid Title V permitting requirements.
<b>Standard 1: Fuel Burning Operations</b>		X	The only fuel combusting source at this facility is direct-fired.
<b>Standard 2: Ambient Air Quality Standards</b>	X		The facility has demonstrated compliance with STD 2 via modeling dated September 1, 2009.
<b>Standard 3: Waste Combustion/Reduction (state only)</b>		X	No waste combustion occurs at this facility.
<b>Standard 3.1: HMI Waste Incinerators</b>		X	No medical waste incineration occurs at this facility.
<b>Standard 4: Emissions from Process Industries</b>	X		Per Section IX B., an opacity limit of 20% applies to stationary RICE constructed after 31 DEC 1985.
<b>Standard 5: Volatile Organic Compounds</b>		X	This facility has no existing processes covered by the regulation.
<b>Standard 5.1: BACT/LAER For VOC (state only)</b>		X	The facility-wide net VOC emissions increase less than 100 tons per year
<b>Standard 5.2: Control of Oxides of Nitrogen</b>	X		The facility's application states the CPDG1 stationary RICE-driven generator was constructed prior to the 25 June 2004 applicability date for new sources. The CPDG2 stationary RICE was installed in 2008 and is subject to the standard.
<b>Standard 7: Prevention of Significant Deterioration</b>		X	The "CPDG1, CPDG2" RICE have NO <sub>X</sub> PTE that would qualify this facility as a PSD major source, but the facility is requesting a federally-enforceable limit of less than 250 NO <sub>X</sub> ton per year to avoid PSD permitting requirements.



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**PROJECT REGULATORY APPLICABILITY REVIEW**

Regulation	Applicable		Comments
	Yes	No	
<b>Standard 7(c):</b> Ambient Air Increments	X		MSBD's have been set for Jasper County for NO <sub>x</sub> , PM <sub>10</sub> and SO <sub>2</sub> . The facility has demonstrated compliance with STD 7(c) via modeling.
<b>Standard 7.1:</b> Standards for Non Attainment Areas		X	Jasper County is in attainment for NO <sub>x</sub> , PM <sub>10</sub> and SO <sub>2</sub> .
<b>Standard 8:</b> Toxic Air Pollutants (state only)		X	Virgin fuel combustion is exempt from STD 8.
<b>Regulation 61-62.6:</b> Control of Fugitive Particulate Matter		X	This project does not comprise sources of fugitive PM
<b>Regulation 61-62.60:</b> SC Designated Facility Plan and NSPS		X	This unit was manufactured and installed before the 11 July 2005 applicability date under NSPS Subpart III at 40CFR60.4200(a)(3), and this site is not one of the designated facilities.
<b>Regulation 61-62.61:</b> NESHAP		X	This project involves none of the stationary sources for which a standard is prescribed under this part.
<b>Regulation 61-62.63:</b> NESHAP For Source Categories	X		The potential HAP emissions are less than "major" thresholds, so the facility is an area source of HAP. See the MACT section of this document for more discussion.
<b>Regulation 61-62.68:</b> Chemical Accident Prevention		X	This process does not store or use chemicals subject to 112(r) above the threshold quantities.
<b>Regulation 61-62.70:</b> Title V		X	The "CPDG1, CPDG2" RICE have NO <sub>x</sub> PTE that would qualify this facility as a major source of NO <sub>x</sub> under Part 70 (Title V). However, the facility is requesting a federally-enforceable limit of less than 100 NO <sub>x</sub> ton per year to avoid Title V permitting requirements.
<b>Regulation 61-62.72:</b> Acid Rain		X	"CPDG1, CPDG2" generator output capacities are less than 25 MWe
<b>Regulation 61-62.96:</b> Nitrogen Oxides (NO <sub>x</sub> ) Budget Trading Program		X	"CPDG1, CPDG2" generator output capacities are less than 25 MWe and heat input capacity is less than 250 MMBtu/Hr. Therefore, neither is a CAIR unit.
<b>Regulation 61-62.99:</b> Nitrogen Oxides (NO <sub>x</sub> ) Budget Program Requirements for Stationary Sources Not In the Trading Program		X	This project involves no kilns.
<b>Federal Regulations (PROJECT ONLY)</b>			
NSPS (Part 60) Subpart(s)		X	The applicant states the unit was manufactured and installed before the 11 July 2005 applicability date under 40CFR60.4200(a)(3). Capacity of the fuel storage tank is below the 75 m <sup>3</sup> applicability threshold under NSPS Subpart Kb at 40CFR60.110b(a)
NESHAP (Part 61) Subpart(s)		X	This project involves none of the stationary sources for which a standard is prescribed under this part.
MACT (Part 63) Subpart(s)		X	This project incorporates no a major sources of HAP.
Area Source Standards (Part 63) Subpart(s)	X		This facility is an area source of HAP. "CPDG1" is subject to Subpart ZZZZ per 40CFR63.6585(d), but will have no substantive requirements (see MACT section below).
Compliance Assurance Monitoring (CAM) (Part 64)		X	The "CPDG1 and CPDG2" RICE are avoiding "major" status for NO <sub>x</sub> because the facility is accepting a federally-enforceable limit of less than 100 NO <sub>x</sub> TPY to avoid being classed as such.
Other (Parts 89, 1039, 1048, and 1068)		X	See discussion below.

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**Standard 5.2:**

Per Section II – Definitions, “constructed” means the on-site fabrication, erection, or installation of the NOx emitting source. The applicant states the source was installed prior to 25 June 2004. This project involves no new fabrication, erection, or installation, so applicability to 5.2 is not triggered by this project.

**NSPS**

- 40 CFR 60 Subpart IIII - Standards Of Performance For Stationary Compression Ignition Internal Combustion Engines

The “PDG1” diesel generator meets the definition of a stationary compression ignition ICE at §60.4219 and the unit was constructed in 2004, which precedes the applicability dates of Subpart IIII at §60.4200(a).

This project is not considered a modification in the context of NSPS. Per §60.14(a), (e), a modification is defined as “any physical or operational change to an existing facility which results in an increase in the emission rate to the atmosphere of any pollutant to which a standard applies”, and “the following shall not, by themselves, be considered modifications under this part:... an increase in production rate of an existing facility, if that increase can be accomplished without a capital expenditure on that facility...an increase in the hours of operation.” Operational changes being allowed by this project align with aspects that are not to be considered modification under NSPS and change from emergency use to peak shaving does not result in an increase in short term emission rates.

- 40 CFR 60 Subpart JJJJ - Standards Of Performance For Stationary Spark Ignition Internal Combustion Engines

The “PDG1” diesel generator does not fit the definition of a stationary spark ignition ICE at §60.4248 or the applicability requirements of Subpart JJJJ at §60.4230(a).

**MACT**

- 40 CFR 63 Subpart ZZZZ - National Emission Standards For Hazardous Air Pollutants For Stationary Reciprocating Internal Combustion Engines.

Since the “PDG1” diesel generator is an area source of HAP, and it meets the definition of a stationary compression ignition RICE per §63.6675, it is subject to Subpart ZZZZ as per §63.6585(d). However, because the unit is located at an area source of HAP and was constructed before 12 June 2006, it meets the definition of an “existing stationary RICE” at §63.6590(a)(1)(iii).

In accordance with §63.6590(b)(3), the “PDG1” diesel generator will have no requirements under 40 CFR 63 Subpart ZZZZ: A stationary RICE which is ... an existing compression ignition (CI) stationary RICE... does not have to meet the requirements of this subpart and of subpart A of this part. No initial notification is necessary.

**OTHER**

- 40 CFR 89 - Control Of Emissions From New And In-Use Nonroad Compression-Ignition Engines.

The CPDG1, CPDG2 generators are stationary sources because they will remain on location for more than 12 consecutive months. Therefore, each unit does not meet the definition of a “compression-ignition nonroad engine” at 40CFR89.2, or the applicability criteria of 40CFR89.1(a).

- 40 CFR 1039 - Control Of Emissions From New And In-Use Nonroad Compression-Ignition Engines

The CPDG1, CPDG2 diesel generator units are stationary sources that do not meet the definition of “nonroad” engines at 40CFR1039.801, or the applicability criteria of 40CFR1039.1(a).

- 40 CFR 1048 - Control Of Emissions From New, Large Nonroad Spark-Ignition Engines

The CPDG1, CPDG2 diesel generators are stationary engines that do not fit the definition of “nonroad” spark ignition engines at §1048.801, or the applicability requirements at §1048.1(a).



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- 40 CFR 1068 - General Compliance Provisions For Nonroad Programs.

The CPDG1, CPDG2 diesel generators are stationary sources that do not meet the definition of “nonroad” engines at 40CFR1068.30, or the applicability criteria of 40CFR89.1(a).

**Conditional Major Limit:**

The facility will have combined NO<sub>x</sub> potential emissions of ((32.884+16.959)\*4.38) = 218.3 NO<sub>x</sub> TPY. This exceeds the 100 NO<sub>x</sub> TPY threshold for “major” status under 40CFR70 (Title V). The facility is requesting a facility-wide federally-enforceable limit of 100 NO<sub>x</sub> TPY. This will qualify the facility as a Conditional Major source per SC reg. 61-62.1 Section II (G). The facility will not be monitoring NO<sub>x</sub> emissions, but a limit on operating hours is being proposed as a surrogate. The two diesel generators do not have identical NO<sub>x</sub> emission rates. The following discussion describes the basis for the Conditional Major limit compliance demonstration method.

The facility-wide maximum hourly NO<sub>x</sub> emission rate ( $E_{NOx}$ ) is the sum of all unit-specific maximum NO<sub>x</sub> hourly emission rates:

$$E_{NOx} = e_{CPDG1} + e_{CPDG2} + e_{CPDGn} \quad (\text{Equation 1}), \text{ where:}$$

- $e_{CPDG1}$  = The maximum hourly NO<sub>x</sub> emission rate for CPDG1
- $e_{CPDG2}$  = The maximum hourly NO<sub>x</sub> emission rate for CPDG2
- $e_{CPDGn}$  = The maximum hourly NO<sub>x</sub> emission rate for CPDGn

Only two generators exist at the Cherry Point WWTF. The combination facility-wide maximum hourly NO<sub>x</sub> emission rate is:

$$E_{NOx} = (32.884 + 16.959)NO_x \text{ Lb/Hr} = 49.843 \text{ NO}_x \text{ Lb/Hr}$$

and the combination facility-wide uncontrolled NO<sub>x</sub> potential emission is 218.312 NO<sub>x</sub> TPY. A combination operating hour is comprised of independent operation of both units for one hour each, or simultaneous operation of both units for one hour. The Conditional Major limit (100 NO<sub>x</sub> TPY) is the basis for establishing total allowable combination operating hours:

$$\left( \frac{100 \text{ NO}_x \text{ TPY}}{218.312 \text{ NO}_x \text{ TPY}} \right) \times \left( \frac{8,760 \text{ Operating Hours}}{\text{Year}} \right) \cong 4000 \text{ Combination Operating Hours per Year}$$

For purposes of calculating the actual combination operating hours for the CPDG1, CPDG2 generators, the general form of the required equation is:

$$T_{EFF} = (t_{CPDG1} \times f_{NOx-CPDG1}) + (t_{CPDG2} \times f_{NOx-CPDG2}) \quad (\text{Equation 2}), \text{ where:}$$

- $T_{EFF}$  = Actual combination operating hours for the monthly monitoring period
- $t_{CPDG1}$  = Actual present month unit operating hours for generator CPDG1
- $f_{NOx-CPDG1}$  = Unit-specific weighted time factor for generator CPDG1 as a ratio of total NO<sub>x</sub> emissions
- $t_{CPDG2}$  = Actual present month unit operating hours for generator CPDG2
- $f_{NOx-CPDG2}$  = Unit-specific weighted time factor for generator CPDG2 as a ratio of total NO<sub>x</sub> emissions

The unit-specific time factors for the CPDG1, CPDG1 generators as a ratio of total facility-wide NO<sub>x</sub> emissions are:

$$f_{NOx-CPDG1} = \frac{e_{NOx-CPDG1}}{(e_{NOx-CPDG1} + e_{NOx-CPDG2})} = \frac{32.884 \text{ NO}_x \text{ Lb/Hr}}{(32.884 \text{ NO}_x \text{ Lb/Hr} + 16.959 \text{ NO}_x \text{ Lb/Hr})} = 0.66$$



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$$f_{NOX-CPDG2} = \frac{e_{NOX-CPDG2}}{(e_{NOX-CPDG1} + e_{NOX-CPDG2})} = \frac{16.959 NO_x \text{ Lb/Hr}}{(32.884 NO_x \text{ Lb/Hr} + 16.959 NO_x \text{ Lb/Hr})} = 0.34$$

**SUMMARY AND CONCLUSIONS**

The applicant used a fuel heat content of 135,000 Btu/gallon to estimate emissions. USEPA AP-42 supports a fuel heat content value of 137,000 Btu/gallon. Modeled rates were increased slightly to account for this difference. It has been determined that this source, if operated in accordance with the submitted application, will qualify as a Conditional Major source, and can comply with all applicable requirements and emissions standards.

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**EMISSIONS:** Emissions were calculated on basis of engine HP and MMBtu emission rate factors from AP-42 Tables 3.4-1, -3, and -4. Results were compared for the most conservative allowable operating hour limit. The 100 NO<sub>x</sub> TPY limit is equivalent to 4000 combination operating hours per year at maximum potential emission rates.

## Beaufort-Jasper Water & Sewer Authority - Cherry Point WWTF (1360-0043-CA)

J.E. Freck - ESD/BAQ/EQC/SCDHEC - 06 August 2009

71.13	< Fuel Consumption (Gal /Hr)	"CPDG1"	1596 HP, 1000 kWe; Caterpillar SR4B, Set 3500, S/N 2DN01661								
137,000	<BTU/Gal										
<b>9.74481</b>	<MMBtu/Hr										
Hr/Yr >	8760	% Sul fur: 0.05	Lb/Hr >	0.074	0.074	0.068	0.492	16.959	0.527	0.140	0.015
		PTE @ 8,760 Hr/Yr (TPY) >	0.32	0.32	0.30	2.16	<b>74.28</b>	2.31	0.62	0.06	

<b>1596</b>	< Maximum Rating (HP)	Lb/HP-Hr >	4.62E-05	4.62E-05	4.25E-05	0.00030834	0.010626	0.00033	0.000088	9.12E-06	
Hr/Yr >	8760	% Sul fur: 0.05	Lb/Hr >	0.074	0.074	0.068	0.492	16.959	0.527	0.140	0.015
		PTE @ 8,760 Hr/Yr (TPY) >	0.32	0.32	0.30	2.16	<b>74.28</b>	2.31	0.62	0.06	

HAP	Lb/MMBtu	Lb/Hr	TPY @8760 Hr/Yr
Acetaldehyde	2.520E-05	2.456E-04	0.00
Acrolein	7.880E-06	7.679E-05	0.00
Benzene	7.760E-04	7.562E-03	0.03
Formaldehyde	7.890E-05	7.689E-04	0.00
Naphthalene	1.300E-04	1.267E-03	0.01
Toluene	2.820E-04	2.748E-03	0.01
Xylenes	1.930E-04	1.881E-03	0.01
<b>Total HAP &gt;</b>		<b>1.455E-02</b>	<b>0.06</b>

Source: AP-42 5th Edition  
 Tables 3.4-1, 3, & 4, 10/96 Update  
 Engine Manufacturer's Data



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J.E. Freck - ESD/BAQ/EQC/SCDHEC - 06 August 2009

137.9	< Fuel Consumption (Gal /Hr)	"CPDG2" 2919 HP, 2000 kW; Cummins 2000DQKAB							
137,000	<BTU/Gal	PM	PM <sub>10</sub>	PM <sub>2.5</sub>	SO <sub>2</sub>	NO <sub>x</sub>	CO	VOC	HAP
<b>18.8923</b>	<MMBtu/Hr	Lb/MMBtu > 0.013625	0.013625	0.013625	0.04866068	1.740593	0.071531	0.0783437	0.001
Hr/Yr > 8760	% Sul fur: 0.05	Lb/Hr > 0.257	0.257	0.257	0.919	32.884	1.351	1.480	0.028
	PTE @ 8,760 Hr/Yr (TPY) >	1.13	1.13	1.13	4.03	<b>144.03</b>	5.92	6.48	0.12
	PTE @ <b>6,060</b> Hr/Yr (TPY) >	0.78	0.78	0.78	2.79	<b>99.64</b>	4.09	4.48	0.09

<b>2919</b>	< Maximum Rating (HP)	g/HP-Hr >	PM	PM <sub>10</sub>	PM <sub>2.5</sub>	SO <sub>2</sub>	NO <sub>x</sub>	CO	VOC	HAP
Hr/Yr > 8760	% Sul fur: 0.05	Lb/Hr > 0.257	0.040	0.040	0.040	0.143	5.110	0.210	0.230	9.66E-06
	PTE @ 8,760 Hr/Yr (TPY) >	1.13	1.13	1.13	4.03	<b>144.03</b>	5.92	6.48	0.12	
	PTE @ <b>6,060</b> Hr/Yr (TPY) >	0.78	0.78	0.78	2.79	<b>99.64</b>	4.09	4.48	0.09	

HAP	Lb/MMBtu	Lb/Hr	TPY @8760 Hr/Yr	TPY @6060 Hr/Yr
Acetaldehyde	2.520E-05	4.761E-04	0.00	0.00
Acrolein	7.880E-06	1.489E-04	0.00	0.00
Benzene	7.760E-04	1.466E-02	0.06	0.04
Formaldehyde	7.890E-05	1.491E-03	0.01	0.00
Naphthalene	1.300E-04	2.456E-03	0.01	0.01
Toluene	2.820E-04	5.328E-03	0.02	0.02
Xylenes	1.930E-04	3.646E-03	0.02	0.01
<b>Total HAP &gt;</b>		2.821E-02	0.12	0.09

Source: AP-42 5th Edition  
 Tables 3.4-1, 3, & 4, 10/96 Update  
 Engine Manufacturer's Data