

Response to Comments from Ron Dahlin, General Manager, Cardinal Cogen, Inc., regarding the Draft Renewal of the Major Facility Permit for Cardinal Cogen, Inc. Facility A1629, Application 21629

1. Condition #25295, Part 1 on page 55 and Table VII-D on page 67 of the draft Major Facility Review Permit, as well as page 22 of the permit Statement of Basis (“SOB”), indicate that the Turbine Starter Engine is limited to 20 hours per year of operation. However, a revised Permit to Operate for S-9 was issued by the BAAQMD on September 11, 2012, which increases the allowable hours of operation for S-9 to 55 hours per year. Please incorporate this revised 55-hour operating limit into the Title V permit.

District Response: Agree. However, Permit Application 24558 was not approved on September 11, 2012. Permit Condition 25295 from the approved change of conditions will be included in the permit, as follows:

Condition 25295

Note: S9, Engine, is considered to be a low-use prime engine as defined by ATCM Section 93115.3(a)(58).

1. The owner/operator shall not operate S9, Engine, for more than 55 hours in any consecutive 12-month period for any purpose, beginning with the date of issuance of the change in conditions pursuant to Application #24546. [Basis: ATCM 93115.3(j)]
 2. The owner/operator shall comply with the fuel requirements in the CARB Stationary Diesel Engine ATCM Section 93115.5. [Basis: "Stationary Diesel Engine ATCM" section 93115.5]
 3. The owner/operator shall ensure that the engine is located more than 500 feet from a school at all times. [Basis: ATCM 931153(j)].
 4. The owner/operator shall operate each stationary engine only when a non-resettable totalizing meter (with a minimum display capability of 9,999 hours) that measures the hours of operation for the engine is installed, operated and properly maintained. [Basis: 9-8-530]
 5. Records: The owner/operator shall maintain the following monthly records in a District-approved log for at least 60 months from the date of entry. Log entries shall be retained on-site, either at a central location or at the engine's location, and made immediately available to the District staff upon request.
 - a. Hours of operation
 - b. Fuel usage[Basis: Cumulative Increase, 9-8-111, 9-8-502.1, ATCM 93115.3(j)]
2. Table IV-D on page 29 of the draft Major Facility Review Permit, and page 17 of the permit SOB indicate that the Turbine Starter Engine (S-9) is subject to the “Additional Standards” section of the

Stationary Compression Ignition Engine ATCM (see Section 93115.7(b)(2)). However, the analysis in the SOB does not account for the introductory paragraph of 93115.7(b)(2) which reads as follows:

(2) Additional Standards:

*Owners or operators that **choose to meet the diesel PM limits defined in section 93115.7(b)** with emission control strategies that are not verified through the Verification Procedure shall either:*

(a) Meet the applicable HC, NOx, NMHC+NOx, and CO standards . . .

[Emphasis added.]

Engine S-9 is exempted from the diesel PM limits in 93115.7(b) pursuant to 93115.3(j) as follows:

*(j) Request for Exemption for Low-Use Prime Engines Outside of School Boundaries. The district APCO may approve a Request for **Exemption from the provisions of section 93115.7(b)(1)** for any in-use stationary diesel-fueled CI engine located beyond school boundaries, provided . . .*

[Emphasis added.]

Therefore, Cardinal Engine S-9 does not “choose to meet the diesel PM limits in section 93115.7(b)” by any method or control strategy, verified or otherwise. Rather, an exemption from the diesel PM requirements of 93115.7(b) was granted by the District in accordance with 93115.3 (j) in response to Application #24558 (Plant #15128). Consequently, since S-9 is exempted from the PM limits in 93115.7(b) (and therefore does not “meet” these limits), S-9 is not subject to the “Additional Standards” in Section 93115.7(b)(2). Thus, references to 93115.7(b) and 93115.7(b)(2) should be removed from Table IV-D and the SOB.

District Response: Agree. Even though the 93115.3(j) exemption only specifically refers to 93115(b)(1), it is likely that the intent is that Additional Standards would also be exempted. Exempting the limits on airborne toxic Diesel particulate matter and imposing limits on criteria pollutants is not considered a reasonable exemption. The permit was revised as follows:

**Table IV-D
S-9 TURBINE STARTER DIESEL ENGINE**

Applicable Requirement	Regulation Title or Description of Requirement	Federally Enforceable (Y/N)	Future Effective Date
93115.7(b)	In-Use Stationary Prime Diesel-Fueled CI Engine (>50 bhp) Emission Standards	N	
93115.7(b)(2)	Additional Standards:	N	

Table IV-D
S-9 TURBINE STARTER DIESEL ENGINE

Applicable Requirement	Regulation Title or Description of Requirement	Federally Enforceable (Y/N)	Future Effective Date
93115.7(b)(2) (A)	Meet the applicable HC, NO _x , NMHC+NO _x , and CO standards for off-road engines of the same model year and maximum rated power as specified in the Off Road Compression Ignition Engine Standards (title 13, CCR, section 2423).	N	
93115.7(b)(2) (B)	Not increase CO emission rates by more than 10% above baseline; and Not increase HC or NO _x emission rates by more than 10% above baseline, or Not increase the sum of NMHC and NO _x emission rates above baseline	N	

The Statement of Basis applicability determination for S-9, ATCM, is corrected as follows:

A. ATCM.

Since the issuance of the initial Title V permit, the California Air Resource Board (CARB) adopted and amended an Airborne Toxic Control Measure (ATCM) for Stationary Compression Ignition Engines (<http://www.arb.ca.gov/diesel/documents/FinalReg2011.pdf>). The non-federally enforceable requirements of the ATCM apply to all engines greater than 50 bhp and have been included in this Title V renewal permit. The emission standards applicable to the engines at this facility depend on whether the engine is a prime or emergency standby engine, whether the engine drives fire pump (a pump that provides emergency firewater), and whether the source is a new or in-use engine.

Pursuant to § 93115.4(30), S-9 Turbine Starter does not qualify as an Emergency Use engine and per § 93115.4(58) is therefore a Prime engine. S-10 and S-11 are Emergency Standby engines. None of the engines at this facility are fire pumps. Therefore, the applicable standards for S-9 are contained in § 93115.7 ATCM for Stationary CI Engines – Stationary Prime Diesel-Fueled CI Engine (>50 bhp) Emission Standards and the applicable standards for S-10 and S-11 are contained in § 93115.6 ATCM for Stationary CI Engines – Emergency Standby Diesel-Fueled CI Engine (>50 bhp) Operating Requirements and Emission Standards.

A new engine is defined in § 93115.4(50) as one that was installed after January 1, 2005. Therefore, all engines at this facility are in-use engines. The applicable standards for the in-use engines are contained in § 93115.7(b) for S-9 and in § 93115.6(b) for S-10 and S-11. S-9 may qualify for the exemption ~~from § 93115.7(b)(1)~~ allowed by § 93115.3(j), Request for Exemption for Low-Use Prime Engines Outside of School Boundaries. Cardinal Cogen has submitted Application 24546 to obtain the written approval for this exemption and this application was approved July 24, 2012.

The S-9 requirements for prime engines are included in § 93115.7(b). For Diesel PM emissions, S-9 is exempt ~~from § 93115.7(b)(1)~~ pursuant to in § 93115.3(j) once the written approval was granted 7/24/2012. Until that time, here are three options for engines that are not certified.

(A) Option 1: Reduce the diesel PM emission rate by at least 85 percent, by weight, from the baseline level, in accordance with the appropriate compliance schedule specified in sections 93115.11 and 93115.12;

(B) Option 2: Emit diesel PM at a rate less than or equal to 0.01 g/bhp-hr in accordance with the appropriate compliance schedule as specified in sections 93115.11 and 93115.12;

(C) Option 3: Reduce the diesel PM emission rate by at least 30% from the baseline level, by no later than January 1, 2006, and emit diesel PM at a rate of 0.01 g/bhp-hr or less by no later than July 1, 2011.

For other pollutants, the standards are contained in § 93115.7(b)(2):

(A) Meet the applicable HC, NO_x, NMHC+NO_x, and CO standards for off-road engines of the same model year and maximum rated power as specified in the Off-Road Compression Ignition Engine Standards (title 13, CCR, section 2423). If no standards have been established for an off-road engine of the same model year and maximum rated power as the in-use stationary prime diesel-fueled CI engine, then the in-use stationary prime diesel-fueled CI engine shall meet the Tier 1 standards in title 13, CCR, section 2423 for an off-road engine of the same maximum rated power, irrespective of the new stationary emergency standby diesel-fueled CI engine's model year; or

(B) Not increase CO emission rates by more than 10% above baseline; and
Not increase HC or NO_x emission rates by more than 10% above baseline, or
Not increase the sum of NMHC and NO_x emission rates above baseline.

The § 93115.7(b)(~~1~~) requirements above will not apply to S-9 effective 7/24/2012 when the permit application for the § 93115.3(j) exemption was approved.

3. Table VII-C on page 65 of the draft Major Facility Review Permit incorrectly indicates that the S-8 Duct Burner is subject to the NO_x ppm limits in SIP Rule 9-9-301.2 via SIP Rule 1-107, Combination of Emissions. As correctly noted on page 14 of the SOB, Cardinal monitors turbine NO_x emissions upstream of the S-8 Duct Burners, and, therefore, is not subject to the requirements of SIP Rule 1-107 for this equipment. Thus, the reference to SIP Rule 9-9-301.2 should be deleted from Table VII-C.

District Response: Agree. The following row will be removed from Table VII-C, consistent with the requirements in Table IV-C.

**Table VII-C
S-8, Duct Burner**

Type of limit	Citation of Limit	FE Y/N	Future Effective Date	Limit	Monitoring Requirement Citation	Monitoring Frequency (P/C/N)	Monitoring Type
NOx	SIP 9-9-301.2 via SIP 1-107	Y		15 ppm @ 15% O2	SIP 9-9-501	C	CEM

4. Table VII-C on page 65 incorrectly references the monitoring requirements of PSD Permit part IX.G.4 on the last line of the table. The referenced 520 MMcf fuel use limit for the Duct Burner and Boilers combined (operating in mode 1b) is not part of the PSD permit (the PSD permit only limits the Duct Burners to 520 MMcf per year). Instead, this combined fuel use monitoring requirement citation should only reference District Condition 2878, part 16.

District Response: Agree. The PSD Permit Part IX.G.4 is correctly shown in the PSD Permit Part IX.G.3 fuel usage limit that follows the Condition 2878, Part 7 limit. The following correction will be made to Table VII-C.

**Table VII-C
S-8, Duct Burner**

Type of limit	Citation of Limit	FE Y/N	Future Effective Date	Limit	Monitoring Requirement Citation	Monitoring Frequency (P/C/N)	Monitoring Type
Fuel usage	Condition 2878 part 7	Y		520 MM cf combined fuel usage for duct burners and boilers (when operating per condition #2878, part 1b) per year	Condition 2878 part 16 PSD permit part IX, G, 4	C	Fuel meter, records
Fuel usage	PSD permit part IX, G, 3	Y		520 MM cf natural gas in any calendar year	PSD permit part IX, G, 4	C	Fuel meter, records

5. The Table IV-E entry on page 34 for 93115(b)(1) should be revised to more accurately describe the applicable requirement as “CARB Diesel Fuel Requirements” rather than “Must use CARB Diesel Fuel.”

District Response: Agree. This is consistent with other District Title V Permits. The following changes will be made to Table IV-E.

Table IV-E
S-10 AND S-11 STANDBY GENERATOR DIESEL ENGINES

Applicable Requirement	Regulation Title or Description of Requirement	Federally Enforceable (Y/N)	Future Effective Date
93115.5(b)(1)	Must use CARB Diesel Fuel CARB Diesel Fuel Requirements	N	

6. The Table IV-E entry on the first row of page 35 for Applicable Requirement 93115.6(b)(3)(B)(1) should indicate that this “Additional Standards” section only applies to S-11 because this engine is allowed to operate up to 30 hours per year (see 30 hr/yr limitation referenced on page 34, last line of Table IV-E). This is because engines operating 20 hours per year or less are not subject to “the diesel PM standards defined in section 93115.6(b)(3)(A)” and thus are not subject to section 93115.6(b)(3)(B) per the specific language of that section. This interpretation is confirmed by ATCM Table 3, which specifically indicates that engines operating 20 hours per year or less are “Not limited by ATCM” for emissions of “Other Pollutants.”

District Response: Agree. Even though the summary in Table 2 and the language in 93115.6(b)(3) are not consistent, the District practice is to apply the requirements as summarized in Table 2. The permit will be revised as follows:

Table IV-E
S-10 and S-11 Standby Generator Diesel Engines

Applicable Requirement	Regulation Title or Description of Requirement	Federally Enforceable (Y/N)	Future Effective Date
93115.6(b)(3)(B)(1) S-11 Only	Additional Standards. Meet the applicable HC, NOx, NMHC+NOx, and CO standards for off-road engines of the same model year and maximum rated power as specified in the Off-Road Compression Ignition Engine Standards (title 13, CCR, section 2423).	N	

7. The following table entries incorrectly identify the “Federally Enforceable” designation:
- Table III, page 10, BAAQMD Regulations 4 should be “N”;
 - Table III, page 11, EPA Regulations 40 CFR 82 should be “Y”;
 - Table IV-B, page 21, 40 CFR 60 Appendix F should be “Y”;

- d. Table IV-C, page 24, Regulation 1-522 and 1-522.7 should be “N”;
- e. Table IV-C, page 25, 40 CFR 60, Subpart A should be blank because all applicable sections are specifically designated as separate entries;
- f. Table IV-C, page 26, 60.46b(j), 60.46b(j)(1), 60.46b(j)(2), and 60.46b(j)(3) should be deleted and replaced with 60.46(f)(1) with a “Y” for federal enforceability for the reasons described below in the comments on the “Statement of Basis” section;
- g. Table IV-D, page 28, 6-1-303 and 6-1-303.1 should be “N”;
- h. Table IV-E, page 33, 6-1-303 and 6-1-303.1 should be “N”;
- i. Table VII-D, page 67, BAAQMD Condition 25295 Part 1 should be “N” because this 20 hour/yr operating limit (which should be 55 hour/yr per the comment above) is based on the non-SIP ATCM; and
- j. Table VII-E, page 68, BAAQMD 6-1-310 should be “N”.

District Response: Agree. In addition for item i, the parts of Conditions 22820, 22830 and 25295 that have a basis of non-federally enforceable requirements will be corrected in Tables IV-D and IV-E. The following changes will be made to the permit:

**Table III
Generally Applicable Requirements**

Applicable Requirement	Regulation Title or Description of Requirement	Federally Enforceable (Y/N)
BAAQMD Regulation 4	Air Pollution Episode Plan (3/20/91)	N
EPA Regulation 40 CFR 82	Protection of Stratospheric Ozone (12/15/09)	Y

**Table IV-B
S-6, Gas Turbine**

Applicable Requirement	Regulation Title or Description of Requirement	Federally Enforceable (Y/N)	Future Effective Date
40 CFR 60 Appendix F	Quality Assurance Procedures	Y	

**Table IV-C
S-8, Duct Burners**

Applicable Requirement	Regulation Title or Description of Requirement	Federally Enforceable (Y/N)	Future Effective Date
1-522	Continuous Emission Monitoring and Recordkeeping Procedures	Y	

**Table IV-C
S-8, Duct Burners**

Applicable Requirement	Regulation Title or Description of Requirement	Federally Enforceable (Y/N)	Future Effective Date
1-522.7	Excesses	Y N	
40 CFR 60 Subpart A	Standards of Performance for New Stationary Sources General Provisions (12/22/2008)	Y	
60.46b(f)	Performance testing-for duct burners	Y	
60.46b(f)(1)	Performance testing-for duct burners	Y	
60.46b(j)	Compliance with NOx limit is on a 3 hr average if...	Y	
60.46b(j)(1)	...combust natural gas with nitrogen content < 0.30 wt%	Y	
60.46b(j)(2)	...have combined annual capacity factor of 10% or less, and	Y	
60.46b(j)(3)	... have federally enforceable requirement for (j)(1) and (j)(2)	Y	

**Table IV-D
S-9 TURBINE STARTER DIESEL ENGINE**

Applicable Requirement	Regulation Title or Description of Requirement	Federally Enforceable (Y/N)	Future Effective Date
6-1-303	Ringelmann Number 2 Limitation	Y N	
6-1-303.1	IC Engine less than 1500 cubic inch displacement	Y N	
BAAQMD SIP Regulation 6	Particulate Matter and Visible Emissions (12/19/90)		
BAAQMD Condition #25295			
part 1	Limit on Annual Hours of Operation (Basis: ATCM 93115.3(j))	N Y	
part 2	CARB Diesel Fuel Requirements (Basis: ATCM 93115.5)	N Y	
part 3	Location more than 500 ft from a school (Basis: ATCM 93115.3(j))	N Y	
part 4	Maintenance Requirements (Basis: 40 CFR Part 63.6603(a))	N Y	
part 5	Totalizing Meter (Basis: Basis: 9-8-530)	N	
part 6	Recordkeeping (Basis: Cumulative Increase, 9-8-111, ATCM 93115.3(j))	N	

**Table IV-E
S-10 and S-11 Standby Generator Diesel Engines**

Applicable Requirement	Regulation Title or Description of Requirement	Federally Enforceable (Y/N)	Future Effective Date
6-1-303	Ringelmann Number 2 Limitation	Y N	
6-1-303.1	IC Engine less than 1500 cubic inch displacement	Y N	
BAAQMD SIP Regulation 6	Particulate Matter and Visible Emissions (12/19/90)		
BAAQMD Condition 22820	Applies to S-10		
Part 1	Hours of operation limit for reliability-related activities [Basis: Regulation 2-5]	N Y	
Part 2	Emergency use [Basis: Title 17, California Code of Regulations, section 93115, ATCM for Stationary CI Engines]	N Y	
Part 3	Totalizing Meter [Basis: Title 17, California Code of Regulations, section 93115, ATCM for Stationary CI Engines]	N Y	
Part 4	Recordkeeping [Basis: Title 17, California Code of Regulations, section 93115, ATCM for Stationary CI Engines]	N Y	
Part 5	At School or Near School Operation [Basis: Title 17, California Code of Regulations, section 93115, ATCM for Stationary CI Engines]	N Y	
BAAQMD Condition 22830	Applies to S-11		
Part 1	Hours of operation limit for reliability-related activities [basis: Regulation 2-5]	N Y	
Part 2	Emergency use [Basis: Title 17, California Code of Regulations, section 93115, ATCM for Stationary CI Engines]	N Y	
Part 3	Totalizing Meter [Basis: Title 17, California Code of Regulations, section 93115, ATCM for Stationary CI Engines]	N Y	
Part 4	Recordkeeping [Basis: Title 17, California Code of Regulations, section 93115, ATCM for Stationary CI Engines]	N Y	
Part 5	At School or Near School Operation [Basis: Title 17, California Code of Regulations, section 93115, ATCM for Stationary CI Engines]	N Y	

Table VII - E
Applicable Limits and Compliance Monitoring Requirements
S-10 AND S-11 STANDBY GENERATOR DIESEL ENGINES

Type of Limit	Citation of Limit	FE Y/N	Future Effective Date	Limit	Monitoring Requirement Citation	Monitoring Frequency (P/C/N)	Monitoring Type
FP	BAAQMD 6-1-310	Y		0.15 grain/dscf	None	N	None

Comments on the Draft Statement of Basis

1. The last sentence of the first paragraph on page 15 of the SOB refers to a 3-hour average basis for performance tests at the S-8 Duct Burners pursuant to 40 CFR 60.44b(j). However, 60.44b(j) does not apply to the S-8 Duct Burners because 60.44b(j)(2) states that this section only applies to units with a 10% or less annual capacity factor. The Cardinal Duct Burners do not have a 10% capacity factor limitation.

The correct Part 60 reference is 60.46b(f); this section states that compliance is demonstrated with a source test that uses a three-run average of nominal 1-hour runs per 60.46b(f)(1)(iv). Thus, the reference to 60.44b(j) on page 15 of the SOB should be replaced with 60.46b(f)(1).

District Response: Agree. The Statement of Basis Applicability Determination for S-8 Duct Burner, Part B. NSPS will be revised as follows:

B. NSPS

S-8 is subject to 40 CFR 60, Subpart Db, Standards of Performance for Industrial-Commercial-Institutional Steam Generating Units, because it was constructed after June 19, 1984 and S-8 has a heat input capacity above 100MMBtu/hr. S-8 is not subject to 40 CFR 60 Subpart GG, Standards of Performance for Stationary Gas Turbines. S-8 is not subject to 40 CFR 60, Subpart KKKK, Standards of Performance for Stationary Combustion Turbines, because it was not constructed, modified, or reconstructed after to February 18, 2005.

The Subpart Db sulfur standard S-8 is contained in 60.42b. However, the only standard for natural gas firing is 60.42b(k)(1) but this standard does not apply to S-8 because construction, reconstruction or modification did not occur after February 28, 2005. The

Subpart Db particulate matter standard is contained in 60.43b. However, there is no particulate matter standard in 60.43b for natural gas fuel. The Subpart Db NOx standard is contained in 60.44b. 60.44b(a)(4) specifies the NOx limit for duct burners at 0.20 lb NOx per MMBtu expressed as NO2. 60.44b(h) and (i) states that this NOx standard applies at all times, including periods of startup, shutdown and malfunction, based on a 30-day rolling average. 60.44b(f)(1) allows a 3-hr average basis for performance tests for natural gas fuel.