

STAFF REPORT

**Modifications to Regulations XI, Rule 11.1:
State Airborne Toxic Control Measures
(Adopt by reference the amendments of ATCM for Stationary CI Engines and
Adopt by reference the ATCM for Diesel Particulate Matter from Portable
Engines At 50 Horsepower or Greater)**

Date of Release: August 27, 2007

Schedule of Meetings

Rule 11.1 Workshop: August 27, 2007

Public Hearing: October 1, 2007

STAFF REPORT

*Modifications to Regulation XI, Rule 11.1: State Airborne Toxic Control Measures
(Adopt by reference the Amendments to the ATCM for Stationary CI engines and adopt by
reference the ATCM for Diesel Particulate Matter from Portable Engine at 50 Horsepower or
Greater)*

Date of Release: August 17, 2007

Scheduled Date of FRAQMD Adoption: October 1, 2007

Feather River AQMD, 938 14th Street,
Marysville, California 95901

Contents

Page

Executive Summary	1
1. Purpose.....	2
2. Background	2
3. ATCMs	3
4. Socioeconomic Impact.....	6
5. Cost-effectiveness	7
6. Environmental Review and Compliance	8
7. Written Analysis of Existing Federal and District Regulations.....	8
8. Required Findings.....	8

STAFF REPORT

Executive Summary

Toxic pollutants, including Toxic Air Contaminants (TAC) and Hazardous Air Pollutants (HAP), are regulated for their potential health impacts to localized areas. In particular, diesel exhaust particulate matter or diesel soot from diesel engines was identified by the California Air Resources Board (CARB) in 1998 as a TAC. Research has shown a corresponding link between areas of high exposure to diesel particulate matter and cancer cases in the population. California Health and Safety Code (CH&SC), Section 39650 requires that CARB develop Airborne Toxic Control Measures (ATCMs) to reduce public exposure to TACs. The Districts are then required to implement and enforce ATCMs developed by CARB under CH&SC section 39666(d).

On February 14, 2004 and then on February 26, 2004, the State respectively adopted the Airborne Toxic Control Measure for Stationary Compression Ignition Engines (Stationary ATCM) and then the Airborne Toxic Control Measure for Diesel Particulate Matter from Portable Engines Rated at 50 Horsepower and Greater (Portable ATCM). The primary purpose of the Stationary ATCM and the Portable ATCM is to reduce diesel particulate emissions from non-mobile diesel engines and thereby reduce associated health impacts. The Stationary ATCM requires that all new prime engines meet very stringent particulates emission levels, that all existing prime engines be retrofitted with control equipment to reduce particulates, and that all emergency stationary engines limit operations for emergency stationary engines. The Portable ATCM requires that all qualifying portable engines meet off-road certification standards by January 1, 2010, and that portable fleets meet particulate emission averages thereafter. The Final Regulation Orders were approved by the Office of Administrative Law on November 8, 2004 for the Stationary ATCM and February 9, 2005 for the Portable ATCM.

At a public hearing on November 16, 2006, the CARB approved additional amendments to the Stationary ATCM. These amendments included an alternative compliance demonstration for stationary diesel-fueled engines required to meet the PM emission rate of 0.01 g/bhp-hr and emission limits and registration requirements for stationary diesel-fueled compression ignition (CI) agricultural engines greater than 50 bhp.

Additionally, at a public hearing on December 7, 2006, the CARB approved emergency amendments to the Portable ATCM. At the same meeting, CARB approved amendments to the Statewide Portable Equipment Registration Program (PERP). These amendments aligned the PERP regulation with the Portable ATCM and provided provisions for non-certified portable engines to be permitted under District rules. On March 22, 2007, the CARB again adopted the amendments to make the emergency amendments permanent.

As required by law, the District is proposing to adopt by reference the Portable ATCM and the amendments to the Stationary ATCM. In order to implement the ATCMs, the District proposes to amend an existing rule and adopt two new rules. The proposals are to amend to Rule 11.1, which is the subject of this Staff Report and adopt a registration program (Rule 4.16) and a fee rules (Rule 7.14).

1.0 Purpose:

The purpose of this modification to District Rule 11.1 is to incorporate by reference the most current versions of both the Stationary ATCM and the Portable ATCM.

2.0 Background:

ATCM for Stationary CI Engines

The CARB adopted amendments to the Stationary ATCM on November 16, 2006, including to an alternative compliance demonstration provisions for compression ignition (CI) engine required to meet the PM emission rate of 0.01 g/bhp-hr and emission standards for in-use CI engines used in agricultural operations.

The amendment to include an alternative compliance demonstration provision allowed owner/operators of an engine required to meet PM emission rate of 0.01 g/bhp-hr have alternative options to comply with requirements of the Stationary ATCM.

The amendments for in-use engines used in agricultural operations established diesel PM emission standards for stationary agricultural engines rated greater than 50 horsepower in order to reduce diesel PM emissions, exposure, and health risk. These emission standards and engine compliance dates were based on CARB/United State Environmental Protection Agency (U.S. EPA) off-road engine certification standards pursuant to 40 CFR Part 89 or California Code of Regulations in order to determine which engines need to be replaced or upgraded, by when, and what emission limit must be met. The off-road engine certification standards are phased in as Tiers 1 through 4. The standards become more stringent as each tiered standard takes effect in four to five year increment. Pre-1996 engines are generally referred to as non-certified (Tier 0) engines because they were manufactured before the CARB/ U.S. EPA off-road certification standards were effective. These amendments to the Stationary ATCM require non-certified engines to be replaced with cleaner engines that meet the Tier 3 or Tier 4 off-road engine certification standards. Engines that already meet Tier 1 or Tier 2 off-road certification standards must be replace by Tier 4-certified engine starting as early as January 1, 2015.

In addition to the emissions standards, the amendments also included guidelines to create a registration program in order to implement and enforce the ATCM for engines used specifically in agricultural operations. California Health and Safety Code section 39666(d) stipulates that local air pollution control districts must implement and enforce airborne ATCMs that have been adopted by the CARB.

ATCM for Diesel PM from Portable Engines

The CARB adopted emergency amendments to the Portable ATCM and the PERP regulation to resolve conflicting requirements between the two and to provide additional clarity and facilitate the implementation of the PERP regulation and the Portable ATCM. The State estimated that the amendment will affect about 40,000 pieces of portable equipment statewide.

Originally adopted in February 2004, the Portable ATCM required all portable diesel-fueled engines greater than 50 hp be certified to meet a federal or California standard for newly

manufactured non-road engines pursuant to 40 CFR Part 89 or Title 13 of the California Code of Regulations by January 1, 2010. Additionally, companies and agencies with portable engine fleets were required to meet fleet emission standards in order to reduce particulate emissions over time.

Moreover, engines that were not previously permitted or registered through PERP by January 1, 2006 were required to meet the most current certification standard. Engines that could not meet this requirement were not able to operate.

Many companies struggled to comply with the regulation because a significant amount of engines had not been previously registered through the state or permitted by a District. On December 7, 2006, CARB adopted emergency amendments to both the Portable ATCM and the PERP to address these concerns. The Portable ATCM was modified to allow all certified engines that meet certain residency requirements to obtain a PERP registration or District permit, and that Tier 0 engines could only operate through approval of the District they operate in. The PERP regulation was modified facilitate the implementation of the Portable ATCM, and to require back registration and inspection fees for engines that do not meet the most current certification standard. On March 22, 2007 the CARB considered amendments to make the December 7, 2006 emergency amendments permanent.

3.0 ATCMs:

ATCM for Stationary CI Engines: Alternative Compliance Demonstrations

The amendments included Alternative Compliance Demonstration provisions. These provisions allowed owners/operators of a new or in-use CI engine to demonstrate compliance with the 0.01 g/bhp-hr PM emission standard by alternative compliance options. Specifically, the engine will be in compliance with the 0.01 g/bhp-hr emission standard if a Level 3 Verified Diesel Emission Control Strategy is installed on a certified engine that meets the 0.15 g/bhp-hr PM emission standard or a CI engine certified to meet Tier 4 Non-road Diesel Engine Emission Standards.

ATCM for Stationary CI Engines: Agricultural Engines

The Stationary ATCM requires the registration of all existing agricultural engines by March 1, 2008. New engines are required to meet current existing standards for the class of engine installed as summarized in Table 1 and are required to register no more than 90 days after installations. Agricultural emergency standby generators and remotely located engines must be registered; although these engines are exempted from the ATCM emissions standards.

Table 1: Summary of the Emission Standards for New Stationary Diesel-Fueled CI Engine > 50 hp Used in Agricultural Operations		
Horsepower Range (hp)	Diesel PM	Other Pollutants
	Diesel PM Standards (g/bhp-hr)	HC, NOx, NMHC+NOx, and CO Standards (g/bhp-hr)
All Applications Greater than 50 but	Less than or equal to 0.30 OR	Off-road CI Engine Certification Standard for an off-road engine of

Table 1: Summary of the Emission Standards for New Stationary Diesel-Fueled CI Engine > 50 hp Used in Agricultural Operations		
less than 100, other than Generator Sets	Off-road CI Engine Certification Standard for an Off-road engine of the same maximum rated power, whichever is more stringent	the model year and maximum rated power of the engine installed to meet the applicable PM standard, Tier 1 Standards
All Applications Greater than or equal to 100 but less than 175, other than Generator Sets	Less than or equal to 0.22 OR Off-road CI Engine Certification Standard for an Off-road engine of the same maximum rated power, whichever is more stringent	
All Applications Greater than or equal to 175, other than Generator Sets	Less than or equal to 0.15 OR Off-road CI Engine Certification Standard for an Off-road engine of the same maximum rated power, whichever is more stringent	Off-road CI Engine Certification Standard for an off-road engine of the model year and maximum rated power of the engine installed to meet the applicable PM standard, Tier 1 Standards
Generator Set Engines Greater than 50	Less than or equal to 0.15 OR Off-road CI Engine Certification Standard for an Off-road engine of the same maximum rated power, whichever is more stringent	

The standards require Tier 0 or uncertified engines to be replaced with cleaner engines that meet the Tier 3 or Tier 4 Federal Off-Road Compression Ignition Engine Certification Standards. The earliest engine compliance date is on December 31, 2010. As summarized in Table 2, all Tier 0 engine used in agricultural operations except for generator sets are required to be replaced by a Tier 3 or Tier 4 certified engine by no later than either December 31, 2010, December 31, 2011, or December 31, 2014. All Tier 0 engine used in agricultural operations for generator sets are required to be replaced by a Tier 3 or Tier 4 certified engine by no later than either December 31, 2010, December 31, 2014, or December 31, 2015. The date to replace a Tier 0 engine depends on the rated horsepower of the engine.

Table 2: Emission Standards Non-certified (Tier 0) Greater than 50 hp In-use Stationary Diesel-Fueled Engines used in Agricultural Operations				
Horsepower Range (hp)	Application	Compliance	Diesel PM	HC, NOx, NMHC+NOx, and CO

		On or after December 31	Not to exceed (g/bhp-hr)	Not to exceed (g/bhp-hr)
Greater than 50 but less than 75	Generator Sets	2015	0.02	Off-road CI Engine Certification Standards for an off-road engine of the model year and maximum rated power of the engine installed to meet the applicable PM Standard.
	All other applications	2011	0.3	
Greater than or equal to 75 but less than 100	Generator Sets	2015	0.01	
	All other applications	2011	0.3	
Greater than or equal to 100 but less than 175	Generator Sets	2015	0.01	
	All other applications	2010	0.22	
Greater than or equal to 175 but less than or equal to 750	All applications	2010	0.15	
Greater than 750	All applications	2014	0.075	

Engines that already meet the Tier 1 or Tier 2 certification standards must be replaced by Tier 4 certified engines by as early as December 31, 2014. Generally, all Tier 1 or Tier 2 certified engines are required to be replaced by December 31, 2014, December 31, 2015, or 12 years after the date of initial installation, whichever is later. The date to replace a Tier 1 or Tier 2 engine depends on the rated horsepower of the engine and date of initial installation. Specific emission requirements of each rated category of engines are summarized in Table 3.

Horsepower Range	Compliance On or after December 31	Diesel PM Not to Exceed (g/bhp-hr)	HC, NO _x , NMHC+NO _x , and CO Not to Exceed (g/bhp-hr)
Greater than 50 but less than 75	2015 or 12 years after the date of initial installation, whichever is later	0.02	Off-Road CI Engine Certification Standards for an off-road engine of the model year and maximum rated power of the engine installed to meet the applicable PM Standard.
Greater than or equal to 75 but less than 175	2015 or 12 years after the date of initial installation, whichever is later	0.01	
Greater than or equal to 175 but less than or equal to 750	2014 or 12 years after the date of initial installation, whichever is later	0.01	
Greater than 750	2014 or 12 years after the date of initial installation, whichever is later	0.075	

ATCM for Diesel PM from Portable Engines

The Portable ATCM will apply to all diesel-fueled portable engines that are greater than or equal to 50 horsepower. Exempted from the requirements are diesel engines that qualify as tactical support equipment, engines that use alternative fuels, engines used to propel mobile-equipment, and, specific dual-fuel pilot engines.

The Portable ATCM requires all portable engines to be certified to meet a federal or California standard for newly manufactured non-road engines pursuant to 40 CFR Part 89 or Title 13 of the California Code of Regulations by January 1, 2010. After 2010, all fleets of portable engines are required to meet diesel PM emission averages that become more stringent in 2013, 2017, and 2020. Table 4 illustrates the requirements for each compliance date.

Table 4: Fleet Emission Averages and Compliance Dates			
Fleet Standard Compliance Date	Engines <175 hp (g/bhp-hr)	Engines ≥ 175 hp and ≤ 749 hp (g/bhp-hr)	Engines ≥ 750 hp (g/bhp-hr)
January 1, 2013	0.3	0.15	0.25
January 1, 2017	0.18	0.08	0.08
January 1, 2020	0.04	0.02	0.02

In order to satisfy the requirements fleets will be required to reduce the emission averages of the fleet through the operation of cleaner engines, replacing older dirtier engines, using add-on control devices, switching to alternative diesel fuels or alternative fuels, and/or receiving credit for electrification.

Additionally, engines used exclusively in emergency applications or used less than 80 hours per year can qualify for a low use exemption. Engines that qualify for the low use exemption are exempt from the 2013 and 2017 fleet average requirements. Additionally, low use engines may qualify for exemption from the 2010 certification requirements if the owner commits to replacing the Tier 0 engine with a Tier 4 engine.

The Portable ATCM also outlines recordkeeping requirements for fleet owners to comply with. These recordkeeping requirements provide for enforcement of the regulation. Fleet owners will be required to periodically report to CARB on the status of the portable fleet. Fleet owners will be required to report to CARB on March 1 of 2011, 2013, 2017, and 2020 in order to demonstrate compliance with the Portable ATCM.

4.0 Socioeconomic Impact:

California Health and Safety Code, Section 40728.5, Required Assessment, subsection (d) states “this section does not apply to any district with a population of less than 500,000 persons”. The population in Feather River Air Quality Management District is less than 500,000 persons, and per California Health and Safety Code, a socioeconomic impact analysis is not required.

5.0 Cost-effectiveness:

California Health and Safety Code, Section 40703 states that the District must consider, and make public, “the cost-effectiveness of a control measure”. Proposed rule 11.1 will adopt by reference the Airborne Toxic Control Measure (ATCM) for Compression Ignition Engines and the ATCM

for Diesel Particulate Matter from Portable Engines Rated at 50 HP and Greater. Therefore, the cost-effectiveness of the proposed rule has been conducted in the CARB Staff Reports for each measure.

In the CARB Initial Statement of Reasons (ISOR) for Stationary Diesel In-use Agricultural Engines, the CARB “estimated the cost-effectiveness of the proposed amendments in terms of cost per pound of diesel particulate matter (PM) reduced.” CARB determined that “[diesel] PM reductions from the proposed amendment have been estimated to range from 31 tons per year (tpy) to 124 tpy between 2011-2029 for all areas of the State except for the San Joaquin Valley Unified Air Pollution Control District and the South Coast Air Quality Management District.” And CARB estimated that “[considering] only the benefits of reducing primary diesel PM emissions, the average cost-effectiveness of the proposed amendments is \$11 per pound of diesel PM reduced.”

To compare cost-effectiveness, the Staff Report: Initial Statement of Reasons for Proposed Rulemaking – Airborne Toxic Control Measure for Stationary Compression Ignition Engines (September 2003) estimated “the overall cost effectiveness of the proposed ATCM to be about \$15 per pounds (\$/lb) of diesel PM reduced, considering only the benefits of reducing diesel PM.” Also, in this ISOR, CARB concluded that “most affected businesses will be able to absorb the costs of the proposed regulation with no significant adverse impacts on their profitability.”

In the CARB ISOR for Proposed Rulemaking for the Airborne Toxic Control Measure for Diesel-Fueled Portable Engines (January 2004), CARB staff estimated that the total potential economic impact of the regulation to be “between \$350 and \$420 million discounted back to year 2002 or between \$2 and \$34 million per year, averaging \$15 million per year. The economic impact is distributed over a 30-year period to 2037.” CARB estimated that on a single business, the total cost to comply will range from \$30,000 for a small fleet (five or less engines) to \$238,000 for a large fleet (fifteen engines).

Also in the ISOR, CARB estimated that the overall estimated cost effectiveness of the proposed ATCM, considering only the benefits of reducing diesel PM to be between \$16/lb and \$19/lb. Because the regulation also reduces NO_x and ROG, CARB staff allocated half of the costs of compliance against these benefits, resulting in cost effectiveness values of between \$8/lb and \$10/lb for diesel PM and less than \$2/lb of ROG and NO_x reduced.

Additionally, in the CARB ISOR for Proposed Amendments to the Statewide Portable Equipment Registration Program and the Airborne Toxic Control Measure for Diesel Particulate Matter from Portable Engines (February 2, 2007), the CARB estimates that the total economic impact to businesses will be about \$6.6 million. The total economic impact is attributable to the collection of back registration and inspection fees for approximately 10,000 older engines that will be entering PERP over the next 3 years. Under the previous rule, these fleet owners would have been required to replace these engines at a total cost of \$250 million. Therefore, the CARB estimates that the amendments will reduce the cost of the original ATCM by about \$243.4 million.

6.0 Environmental Review and Compliance:

The amendments to rule 11.1 are categorically exempt from the California Environmental Quality Act (CEQA) under Sections 15307 and 15308 of the State CEQA Guidelines and no exceptions to these exemptions apply. This exemption is allowed when the rule will help reduce toxic

emissions and improve air quality in Yuba and Sutter County. California Public Resources Code (Section 21159) requires an environmental analysis of the reasonably foreseeable methods of compliance. The District has concluded that no reasonably foreseeable adverse environmental impacts will be caused by adoption of the proposed rule.

7.0 Written Analysis of Existing Federal and District Regulations

California Health and Safety Code, Section 40727.2(a) requires the District to provide a written analysis of existing regulations prior to adopting, amending or repealing a regulation. Section 40727.2(a) states:

In complying with Section 40727, the district shall prepare a written analysis as required by this section. In the analysis, the district shall identify all existing federal air pollution control requirements, including, but not limited to, emission control standards constituting best available control technology for new or modified equipment, that apply to the same equipment or source type as the rule or regulation proposed for adoption or modification by the district. The analysis shall also identify any of that district's existing or proposed rules and regulations that apply to the same equipment or source type and of which the district has been informed pursuant to subdivision (b). The analysis shall be in a format that minimizes paperwork and, at the option of the district, may be in matrix form.

However, in Section 40727.2(g) of the California Health and Safety Code, it states that if the proposed new or amended rule or regulation is a verbatim adoption or incorporation by reference of an airborne toxic control measure established by the state board, a district may elect to comply with Section 40727.2(a) by finding that the proposed new or amended rule or regulation falls within the categories stated in this section.

Therefore, the requirements of Health and Safety Code, Section 40727.2(a) are satisfied pursuant to Health and Safety Code, Section 40727.2(g) since the District proposes to modify District Rule 11.1 to adopt by reference the Airborne Toxic Control Measure for Diesel Particulate Matter from Portable Engines 50 Horsepower and Greater and the amendments to the Airborne Toxic Control Measure for Stationary CI Engines.

8.0 Required Findings:

Findings required by Division 26 of the California Health and Safety Code requires local districts to comply with a rule adoption protocol as set forth in Section 40727 of the Code. This section has been mandated to contain six findings that the governing boards must make when developing, amending, or repealing a rule or regulation. These findings and their definitions are included in Table 2.

Table 5: Required Findings

FINDING	DEFINITION	REFERENCE
----------------	-------------------	------------------

Table 5: Required Findings

FINDING	DEFINITION	REFERENCE
Authority	A district shall adopt rules and regulations and do such acts as may be necessary or proper to execute the powers and duties granted to, and imposed upon, the district by this division and other statutory provisions	California Health and Safety Code, Sections 39666, 40000, 40001, and 40702 are provisions of law that provide air districts with the authority to adopt the proposed regulation.
Necessity	The District has demonstrated that a need for the rule, or for rule amendment or repeal.	Compliance with state law requires the District to adopt, implement and enforce the ATCMs. District proposes to adopt the ATCMs by reference.
Clarity	The rule is written or displayed so that its meaning can easily be understood by the persons directly affected by it	The California Air Resources Board has determined that the proposed regulations are written such that its meaning can be easily understood by the persons directly affected by it.
Consistency	This rule is in harmony with, and not in conflict with or contradictory to, existing statutes, court decisions, or State or federal regulations.	This regulation provides for implementation and enforcement of state law by adopting by reference ATCM's, and thus is consistent with applicable state and federal statutory requirements.
Non-Duplication	The rule does not impose the same requirements as an existing State or federal regulation, unless the District finds that the requirements are necessary and proper to execute the powers and duties granted to, and imposed upon, the district	The proposed regulation complies with and implements state law. It does not impose requirements that duplicate existing laws or regulations.
Reference	Any statute, court decision, or other provision of law that the district implements, interprets, or makes specific by adopting, amending, or repealing a regulation.	The proposed regulation implements the requirements of Section 93115 & 93116, Title 17, of California Code of Regulations.