

COLORADO DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT
Air Pollution Control Division/Stationary Sources Program

INTER-OFFICE COMMUNICATION

PS Memo #: 11-04

TO: OP and CP Engineers

FROM: Jim King

DATE: (ver) October 1, 2011

RE: Stationary Compression Ignition (CI) internal combustion engine (ICE) AOS

The attached Alternative Operating Scenario (AOS) permit conditions are intended to provide sources with flexibility to make equipment changes in order to deal with an engine breakdown or periodic maintenance and repair of an existing onsite engine. It is the purpose of this AOS to provide flexibility while maintaining practical enforceability of both construction and operating permits and meeting all state and federal regulatory requirements. The AOS will not be applied retroactively and may need to be amended as conditions warrant. Future changes in Federal or State rules may also require revisions to this AOS.

Overview

The AOS allows a source to either temporarily or permanently replace an existing engine so long as the new engine meets the requirements of the AOS. The replacement of an existing engine with a new engine constitutes construction of a new emissions unit, not “routine replacement” of an existing unit. Ordinarily, the source would have to go through the permitting process and obtain a construction permit or an operating permit modification prior to such construction. The AOS serves as an advanced permit for the new engine, and therefore allows the source to replace an existing engine without undertaking a separate permit review. The AOS cannot be used for additional new emission points for any site. In other words, an engine that is being installed as an entirely new emission point and not as part of an AOS-approved installation related to an existing onsite engine has to go through the regular CP/OP permitting process.

NSPS and MACT Implications

- New Source Performance Standard (NSPS) IIII (40 CFR 60.4200-4219) applies to any Stationary Compression Ignition (CI) Diesel Fueled Internal Combustion Engine (ICE) if either 1) the facility ordered the engine after July 11, 2005 and the engine was manufactured after April 1, 2006 **OR** if the engine was modified or reconstructed after July 11, 2005.

- Note that under the provisions of Regulation No. 6, Part B, Section I.B. that relocation of a source from outside the State into Colorado is considered to be a new source, subject to the requirements of Regulation No. 6 (i.e., the date that the source is first relocated to Colorado becomes equivalent to the date of manufacture for purposes of determining the applicability of NSPS III requirements). For additional guidance, see to PS Memo 10-03 “NSPS Subpart III Relocation to Colorado”.
- Maximum Achievable Control Technology (MACT) ZZZZ (40 CFR Part 63) applies to Stationary Compression Ignition (CI) Diesel Fueled Internal Combustion Engine (ICE) located at both major and area sources.
- For any engine located in a designated attainment/maintenance or non-attainment area the Temporary Replacement provisions can be used, but in those cases the definition of temporary for purposes of the AOS is changed from 90 days to 270 days in order to allow the Division the time required to process the request for a permanent replacement engine. This is because as a “new” source it would have to undergo Reasonably Available Control Technology (RACT).

Major Stationary Source Implications

The AOS **cannot be used** for the permanent replacement of an entire engine at any source that is currently a major stationary source for purposes of nonattainment new source review or prevention of significant deterioration (NANSR/PSD) unless the engine has emission limits that are below the significance levels in Regulation No 3, Part D, Section II.A.42. for the applicable pollutant (e.g. a 39 TPY NO_x limit).

For any engine located at a major stationary source that does not have emission limits below the significance levels, only the Temporary Replacement provisions can be used; however, in those cases, the definition of temporary for purposes of the AOS is changed from 90 days to 270 days in order to allow the Division the time required to process the request for a permanent engine replacement.

Summary of the AOS

The AOS allows a facility to *temporarily* (up to 90/270 operating days in any 12 month period) replace an existing Stationary (CI) engine with any other Stationary (CI) engine as long as the replacement engine complies with any limitations and other requirements applicable to the original engine. The 90 (270) day period is the total number of operating days that the temporary replacement engine may operate. If the temporary replacement engine operates only part of a day, that day counts towards the 90 (270) day total.

The AOS allows a facility (except as described above for certain NANSR/PSD sources and sources located in an attainment/maintenance or non-attainment area) to *permanently* (more than 90 total operating days in any 12 month period) replace an existing Stationary (CI) engine with another engine as long as the permanent replacement engine complies with any permit limitations and other requirements applicable to the existing engine as well as any new applicable requirements for the replacement engine.

Compliance of the replacement engine with the applicable emission limitations of the original engine shall be monitored by one of the following methods:

- 1) Manufacturer certified emission factors showing compliance.
- 2) Stack tests of same make and model showing compliance. This would only be considered if the test was done under similar conditions to Colorado (i.e. at altitude).
- 3) Stack tests on the engine.

Miscellaneous

Any situation not covered by this AOS will require the facility to utilize the Regulation No. 3 permitting procedures to obtain a new or modified air permit, as appropriate.

FOR TEMPORARY REPLACEMENTS ONLY: In the case of a grandfathered or permit exempt engine that is not covered by an Operating Permit, the facility would have to voluntarily seek a permit, thus losing their grandfathered or permit exempt status. If the facility is covered by an Operating Permit, the engine will be able to maintain its grandfathered or permit exempt status.

Diesel Engine AOS ver 10/1/11

Permit Engineer User Notes:

- NSPS IIII applies to any stationary Compression Ignition (CI) Diesel Fueled Internal Combustion Engine (ICE) if either 1) the facility ordered the engine after July 11, 2005 and the engine was manufactured after April 1, 2006 OR if the engine was modified or reconstructed after July 11, 2005.
- Note that under the provisions of Regulation No. 6. Part B, Section I.B. that Relocation of a source from outside the State into Colorado is considered to be a new source, subject to the requirements of Regulation No. 6 (i.e., the date that the source is first relocated to Colorado becomes equivalent to the date of manufacture for purposes of determining the applicability of NSPS IIII requirements). For additional guidance, see to PS Memo 10-03 “NSPS Subpart IIII Relocation to Colorado”.
- MACT ZZZZ applies to Stationary Compression Ignition (CI) Diesel Fueled Internal Combustion Engine (ICE) located at both major and area sources.
- For any engine located in a designated attainment/maintenance or non-attainment area the Temporary Replacement provisions can be used, but in those cases the definition of temporary for purposes of the AOS is changed from 90 days to 270 days in order to allow the Division the time required to process the request for a permanent replacement engine. This is because as a “new” source it would have to undergo RACT. For those situations, do a Word search for “90” and then replace it with “270”.

Major Stationary Source Implications

- The AOS cannot be used for the permanent replacement of an entire engine at any source that is currently a major stationary source for purposes of non-attainment area new source review and/or prevention of significant deterioration (NANSR/PSD) unless the engine has emission limits that are below the significance levels in Reg 3, Part D, II.A.42. (e.g. a 39 TPY NO_x limit). Note that a permit would not necessarily need specific limits for all of the pollutants listed in Part D, II.A.42. For example, they would not need a TPY limit for Hydrogen Sulfide or even Sulfur Dioxide since the combination of emission factors and fuel limits could serve as effective limits.
- For any engine located at a major stationary source that does not have emission limits below the significance levels, only the Temporary Replacement provisions can be used, but in those cases the definition of temporary for purposes of the AOS is changed from 90 days to 270 days in order to allow the Division the time required to process the request for a permanent engine replacement. So for major stationary sources, do a Word search for “90” and then replace it with “270”.

Operating Permits vs. Construction Permit Implementation

- There are a few instances where OP and CP language differs. See **bolded language** in 2.1 and 2.1.1.
- Please put the version date at the top of the AOS language in the permit.

Stationary (CI) engine AOS

ver 10/1/11

2. Alternative Operating Scenarios

The following Alternative Operating Scenario (AOS) for the temporary and permanent replacement of Stationary (CI) engines has been reviewed in accordance with the requirements of Regulation No. 3., Part A, Section IV.A, Operational Flexibility-Alternative Operating Scenarios, Regulation No. 3, Part B, Construction Permits, and Regulation No. 3, Part D, Major Stationary Source New Source Review and Prevention of Significant Deterioration, and it has been found to meet all applicable substantive and procedural requirements. This permit incorporates and shall be considered a Construction Permit for any engine replacement performed in accordance with this AOS, and the permittee shall be allowed to perform such engine replacement without applying for a revision to this permit or obtaining a new Construction Permit.

2.1 Engine Replacement

The following AOS is incorporated into this permit in order to deal with an engine breakdown or periodic routine maintenance and repair of an existing onsite engine that requires the use of either a temporary or permanent replacement engine. “Temporary” is defined as in the same service for 90 operating days or less in any 12 month period. “Permanent” is defined as in the same service for more than 90 operating days in any 12 month period. The 90 days is the total number of days that the engine is in operation. If the engine operates only part of a day, that day shall count as a single day towards the 90-day total. The compliance demonstrations and any periodic monitoring required by this AOS are in addition to any compliance demonstrations or periodic monitoring required by this permit.

All replacement engines are subject to all federally applicable and state-only requirements set forth in this permit (including monitoring and record keeping), **and shall be subject to any shield afforded by this permit.** (*use bolded for OP’s only*)

The results of any all tests and the associated calculations required by this AOS shall be submitted to the Division within 60 days. Results of all tests shall be kept on site for five (5) years and made available to the Division upon request.

The permittee shall maintain a log on-site and contemporaneously record the start and stop date of any engine replacement, the manufacturer, date of manufacture, model number, horsepower, and serial number of the engine(s) that are replaced during the term of this permit, and the manufacturer, model number, horsepower, and serial number of the replacement engine.

2.1.1 The permittee may **temporarily** replace an existing engine that is covered by this permit with a different engine without modifying this permit, so long as the temporary replacement engine complies with all permit limitations and other

requirements applicable to the existing engine. Calculation of emissions from the temporary replacement engine shall be made as set forth in section 2.1.3.

(Paragraph in bold below for OP's only)

The permittee may temporarily replace a grandfathered or permit exempt engine or an engine that is not subject to emission limits without modifying this permit. In this circumstance, potential annual emissions from the temporary replacement engine must be less than or equal to the potential annual emissions from the original grandfathered or permit exempt engine or for the engine that is not subject to emission limits, as determined by applying appropriate emission factors (e.g. AP-42 or manufacturer's emission factors).

- 2.1.2 The permittee may permanently replace an existing engine that is covered by this permit with a different engine without modifying this permit so long as the emissions from the permanent replacement engine complies with any permit limitations and other requirements applicable to the existing engine as well as any new applicable requirements for the replacement engine. Calculation of emissions from the temporary replacement engine shall be made as set forth in section 2.1.3. The AOS cannot be used for the permanent replacement of an entire engine at any source that is currently a major stationary source for purposes of Prevention of Significant Deterioration or Non-Attainment Area New Source Review ("PSD/NANSR") unless the existing engine has emission limits that are below the significance levels in Reg 3, Part D, II.A.42. *(this paragraph shall only be included for major stationary sources)*

An Air Pollutant Emissions Notice (APEN) that includes the specific manufacturer, model and serial number and horsepower of the permanent replacement engine shall be filed with the Division for the permanent replacement engine within 14 calendar days of commencing operation of the replacement engine. The APEN shall be accompanied by the appropriate APEN filing fee, a cover letter explaining that the permittee is exercising an alternative operating scenario and is installing a permanent replacement engine and an analysis of any new applicable requirements for the replacement engine as required by Condition 2.2. This submittal shall be accompanied by a certification from the Responsible Official indicating that "based on the information and belief formed after reasonable inquiry, the statements and information included in the submittal are true, accurate and complete".

This AOS cannot be used for permanent engine replacement of a grandfathered or permit exempt engine or an engine that is not subject to emission limits.

The permittee shall agree to pay fees based on the normal permit processing rate for review of information submitted to the Division in regard to any permanent engine replacement.

Nothing in this AOS shall preclude the Division from taking an action, based on any permanent engine replacement(s), for circumvention of any state or federal PSD/NANSR requirement. Additionally, in the event that any permanent engine replacement(s) constitute(s) a circumvention of applicable PSD/NANSR requirements, nothing in this AOS shall excuse the permittee from complying with PSD/NANSR and applicable permitting requirements. ***(this paragraph shall only be included for major stationary sources)***

2.1.3 Compliance of the replacement engine with the applicable emission limitations of the original engine shall be monitored by one of the following methods:

1) Manufacturer certified emission factors showing compliance.

2) Stack tests of same make and model showing compliance. This would only be considered if the test was done under similar conditions to Colorado (i.e. at altitude).

3) Stack tests on the engine.

2.2 Applicable Regulations for Permanent Engine Replacements

2.2.1 NSPS for stationary compression ignition internal combustion engines: 40 CFR Part 60, Subpart III.

A permanent replacement engine that is ordered after July 11, 2005 and manufactured after April 1, 2006 or is modified or reconstructed after July 11, 2005 is subject to the requirements of 40 CFR Part 60, Subpart III. An analysis of applicable monitoring, recordkeeping, and reporting requirements for the permanent engine replacement shall be included in any request for a permanent engine replacement.

Note that under the provisions of Regulation No. 6. Part B, section I.B. that Relocation of a source from outside of the State of Colorado into the State of Colorado is considered to be a new source, subject to the requirements of Regulation No. 6 (i.e., the date that the source is first relocated to Colorado becomes equivalent to the date of manufacture for purposes of determining the applicability of NSPS III requirements).

2.2.2. MACT for Stationary Reciprocating Internal Combustion Engines:40 CFR Part 63, Subpart ZZZZ.

Any permanent replacement engine located at either an area or major source is subject to the requirements of 40 CFR Part 63, Subpart ZZZZ. An analysis of applicable monitoring, recordkeeping, and reporting requirements for the permanent engine replacement shall be included in any request for a permanent engine replacement.

2.3 Additional Sources

The replacement of an existing engine with a new engine is viewed by the Division as the installation of a new emissions unit, not “routine replacement” of an existing unit. The AOS is therefore essentially an advanced construction permit review. The AOS cannot be used for additional new emission points for any site; an engine that is being installed as an entirely new emission point and not as part of an AOS-approved replacement of an existing onsite engine has to go through the appropriate Construction/Operating permitting process prior to installation.