



**Division of Environment
Bureau of Air**

REGULATORY IMPACT STATEMENT CONSISTING OF:

I. ENVIRONMENTAL BENEFIT STATEMENT

AND

II. ECONOMIC IMPACT STATEMENT

Pursuant to K.S.A. 77-416

PROPOSED AMENDMENT OF PERMANENT AIR QUALITY REGULATIONS:

K.A.R. 28-19-750

**Adoption by Reference of 40 C.F.R. Part 63, Subpart ZZZZ
National Emission Standards for Hazardous Air Pollutants for
Reciprocating Internal Combustion Engines**

July 2014

This page intentionally left blank.

List of Acronyms

2SLB	Two-stroke lean burn
4SLB	Four-stroke lean burn
4SRB	Four-stroke rich burn
C.F.R.	Code of Federal Regulations
CAA	Clean Air Act
CAAA	Clean Air Act Amendments
CI	Compression ignition
CO	Carbon monoxide
CPMS	Continuous parametric monitoring system
DOC	Diesel oxidation catalyst
EPA	U.S. Environmental Protection Agency
FR	Federal Register
HAP	Hazardous air pollutant
HP	Brake horsepower
K.A.R.	Kansas Administrative Regulations
KDHE	Kansas Department of Health and Environment
MACT	Maximum Achievable Control Technology
NESHAP	National Emission Standards for Hazardous Air Pollutants
NO _x	Nitrogen oxides
NSCR	Non-selective catalytic reduction
O ₂	Oxygen
OCV	Open crankcase ventilation
PM	Particulate matter
ppm	Parts per million
ppmvd	Parts per million by volume, dry basis
RICE	Reciprocating internal combustion engine
SBEAP	Small Business Environmental Assistance Program
SI	Spark ignition
SO _x	Sulfur oxides
THC	Total hydrocarbons
ULSD	Ultra low sulfur diesel
VOC	Volatile organic compound

Background of Proposed Amendments

The Bureau of Air, within the Kansas Department of Health and Environment (KDHE), is proposing to amend Kansas Administrative Regulation (K.A.R.) 28-19-750, “Hazardous Air Pollutants; Maximum Achievable Control Technology” (MACT) – adoption by reference of 40 C.F.R. Part 63. Specifically, an amendment is proposed for adoption by reference of 40 C.F.R. Part 63 Subpart ZZZZ (4Z), Reciprocating Internal Combustion Engines (RICE).

Under delegated authority from the Environmental Protection Agency (EPA), the state of Kansas is the primary authority to implement and enforce federal standards that are adopted into the state regulations. Currently, this state authority exists for the Part 63 Subpart 4Z federal rule promulgated through July 1, 2009, the date of the last adoption of this federal regulation by Kansas. Kansas facilities, however, are subject to the provisions of the federal rule adopted after this date, which the EPA has full authority to implement and enforce. The state must adopt the current federal regulation to gain the primary enforcement authority to administer the provisions of the standards. The purpose of the proposed amendment is to incorporate the federal changes to the standards since the last update of K.A.R. 28-19-750. Once the state adopts the proposed changes, consisting of six federal rule amendments, Kansas will be granted the authority to administer the federal provisions of the Part 63 Subpart 4Z standards as effective and published in the Code of Federal Regulations on July 1, 2012 and as amended by the January 30, 2013, *National Emission Standards for Hazardous Air Pollutants for Reciprocating Internal Combustion Engines; New Source Performance Standards for Stationary Internal Combustion Engines; Final Rule* ([78 FR 6674 at 6700-6724](#)) and by the March 6, 2013, *National Emission Standards for Hazardous Air Pollutants for Reciprocating Internal Combustion Engines; New Source Performance Standards for Stationary Internal Combustion Engines – Correction* ([78 FR 14457](#)).

K.A.R. 28-19-750: Hazardous Air Pollutants; Maximum Achievable Control Technology (MACT)

Prior to the 1990 Clean Air Act Amendments (CAAA), the authorizing statute, section 112 (42 U.S.C. § 7412), directed the EPA Administrator to identify HAPs for regulation. Under this, a limited number of regulations were developed to address specific compounds originating in certain industries. In the 1990 CAAA, Congress established a list of 189 HAPs for which the Administrator was to develop controls. (This list since has been modified to 187 HAPs.) These

are now administered under 40 C.F.R. Part 63, which the state implements in K.A.R. 28-19-750, Hazardous Air Pollutants; Maximum Achievable Control Technology. RICE HAP emissions are regulated under 40 C.F.R. Part 63 Subpart ZZZZ, which is adopted by reference in K.A.R. 28-19-750.

Federal Provisions Amended or Promulgated

The proposed amended regulation consists of six revisions to 40 C.F.R. Part 63 Subpart ZZZZ (4Z). Amendments to 40 C.F.R. Part 63 Subpart 4Z for Reciprocating Internal Combustion Engines (RICE) were published in the *Federal Register* and are listed below.

The table below provides the following information in chronological order: the part or subpart of the rule being regulated, the *Federal Register* citation and publication date, and whether applicable to major sources or area sources.

Part/Subpart	Federal Register Citation/Date	M = Major A = Area
63.6590, 63.6595, 63.6600-63.6605, 63.6612, 63.6620, 63.6625, 63.6640, 63.6645, 63.6650, 63.6655, 63.6660, 63.6665, 63.6675 & Tables 1a, 2a, 2b, 2c, 2d, 3-8 Subpart ZZZZ	75 FR 9648 March 3, 2010	M, A
63.6590 Subpart ZZZZ	75 FR 37732 June 30, 2010	M, A
63.6590, 63.6595, 63.6601-63.6604, 63.6611-63.6612, 63.6625, 63.6640, 63.6645, 63.6655, 63.6675, Tables 1a, 1b, 2b, 2c, 2d, 3-7 Subpart ZZZZ & Appendix A to Part 63	75 FR 51570 August 20, 2010	M, A
63.6603, 63.6625, 63.6635, 63.6675, & Tables 1b, 2b, & 6 Subpart ZZZZ	76 FR 12863 March 9, 2011	M, A
63.14 Subpart A; 63.6585, 63.6590, 63.6595, 63.6602-63.6605, 63.6620, 63.6625, 63.6630, 63.6640, 63.6645, 63.6650, 63.6655, 63.6675, & Tables 1b, 2b, 2c, 2d, 3-8, & Appendix A Subpart ZZZZ	78 FR 6674 January 30, 2013	M, A
63.6655 & Table 2c Subpart ZZZZ	78 FR 14457 March 6, 2013	M, A

I. Environmental Benefit Statement

1) Need for proposed amendments and environmental benefit likely to accrue.

a) Need

These amendments are needed to maintain the state's authority under existing delegation agreements to administer the federal regulations and to ensure that the Kansas Air Quality Regulations are current and consistent with the federal requirements. The state is delegated primary authority for the MACT standards adopted under the particular Kansas Air Quality Regulation proposed herein for amendment. However, with respect to federal changes (additions, revocations, or amendments) made to these standards since the last date of state adoption, and in accordance with the state-EPA delegation agreement, the state must adopt these new provisions and notify EPA of the updated state authority to implement and enforce such standards. Currently, the EPA is the implementing authority in the state for the RICE MACT standards promulgated after July 1, 2009. There exists a split in the authority to enforce these rules, with Kansas primacy for rules in effect on July 1, 2009 and EPA for those after. This split or dual regulatory authority for implementation and enforcement of the standards subject to this rule-making could result in loss of consistency of application and possible confusion for the regulated community regarding the relative roles of the state and federal agencies. This adoption of changes, followed by the notice to EPA of the updated delegation and authority, will resolve these potential problems.

b) Environmental benefit

The proposed revisions are not expected to result in specific environmental benefits beyond those already achieved by the federal promulgation. The affected facilities are already subject to the standards. One of the major benefits of state promulgation is that facilities will be able to work with the state, rather than the EPA, to achieve compliance. Providing implementation at the state level will enhance consistency in the application of the regulations.

2) When applicable, a summary of the research indicating the level of risk to the public health or the environment being removed or controlled by the proposed rules and regulations or amendment.

For the MACT standards, which address HAPs, Section 112 of the Clean Air Act (CAA) directs the EPA Administrator to “promulgate regulations establishing emission standards for each category or subcategory of major sources and area sources of HAP” (42 U.S.C. § 7412(d)(1)). Under Section 112(b) of the CAA, Congress established the list of HAPs that were shown to provide a threat of adverse human health effects. The EPA has conducted or utilized research on the health effects of the various HAPs, which has guided their promulgation of the standards being adopted. Emission standards are necessary to reduce emissions released into the atmosphere to attain the air quality standards that are specified in the CAA. Each standard has been subjected to peer review and often to litigation.

General air toxics information can be found at EPA’s Air Toxics website, <http://www.epa.gov/ttn/atw>. EPA also provides a website for learning about studies used in EPA’s science assessments, which is available at <http://hero.epa.gov/index.cfm>. Supporting and related materials for the RICE MACT are available in the docket at <http://www.regulations.gov> under [EPA-HQ-OAR-2008-0708](#). EPA provides a Summary of Environmental, Energy and Economic impacts in the preambles to the March 3, 2010, and August 20, 2010, RICE MACT amendments in the *Federal Register* at 75 FR 9669-9671 and 75 FR 51582-51584, respectively.^{1,2} There is also a web page of RICE MACT rulemaking and supporting documents at www.epa.gov/ttn/atw/icengines.

- 3) If specific contaminants are to be controlled by the amendment, a description indicating the level at which the contaminants are considered harmful is provided according to current available research.**

As noted above, these determinations have been made at the federal level through extensive research; the state rules are no more stringent than the federal rules.

¹ [“National Emission Standards for Hazardous Air Pollutants for Reciprocating Internal Combustion Engines.” *Federal Register* Volume 75, pages 9648-9690, March 3, 2010.](#)

² [“National Emission Standards for Hazardous Air Pollutants for Reciprocating Internal Combustion Engines.” *Federal Register* Volume 75, pages 51570-51608, August 20, 2010.](#)

II. Economic Impact Statement

1) Are the amendments mandated by federal law as a requirement for participating in or implementing a federally subsidized or assisted program?

Yes, under the federal CAA and the EPA-Kansas delegation agreements, the state of Kansas is required to adopt the most recent federal rules as state-enforceable rules in order to gain the authority to administer and enforce the new standards statewide. Additionally, the continued approval of the overall state air quality program is based in part upon the state periodically updating its regulations to coincide with federal regulations promulgated by the EPA.

2) Do the proposed amendments exceed the requirements of applicable federal law?

No, the standards are identical to the federal standards, as the federal standards are adopted *verbatim* by reference. Under section 112 of the CAA (42 U.S.C. § 7412(l)(1)), the NESHAP and MACT standards adopted by the state must be no less stringent than the federal requirements. Additionally, pursuant to K.S.A. 2010 Supp. 65-3005, the standards are no more stringent, restrictive, or expansive than those required under the federal clean air act.

3) Description of costs to agencies, to the general public and to persons who are affected by, or are subject to, the regulations:

a) Capital and annual costs of compliance with the proposed amendments and the persons who will bear those costs.

It is a condition of the EPA's approval of the state's Title V operating permit program that the state periodically update these state standards to incorporate new federal regulations. Failure to adopt these proposed state regulation amendments will not result in the federal standards being rendered inapplicable to sources, but, as previously discussed, would instead result in a dual regulatory structure. If the amendments are not implemented and the EPA were to withdraw approval of the state plan, then the CAA provisions, including the Title V operating permit program, would be administered solely by the EPA.

It is important that the state continue to maintain the regulations in a current status, as the state's air program achieves a level of economic efficiency in the administration of the Title V permit program. This results in direct financial savings to the regulated facilities within Kansas.

Approval of Kansas' Title V permit program also authorizes Kansas to be the sole collector of application fees and costs. Although minor, these costs provide a source of revenue to the state.

The cost of compliance for facilities will not be increased, *per se*, by the proposed state rulemaking, because these rules are already in force at the federal level. Regardless of whether the state adopts the amendments, facilities are already subject to the costs associated with the federal standards. Because the state adopts these *verbatim*, and adds no additional requirements, no additional costs to the regulated community are imposed by the proposed state action. Although these facilities will already be subject to regulation, cost estimates for affected facilities are provided when the proposed regulation produces an economic impact.

In certain cases, the rules incorporated into the state standards by the proposed amendments have the effect of reducing or delaying the economic impacts on sources, or have no economic impact. Although some of the rules require stricter emission standards or add-on controls, often there is ultimately no economic change because the existing MACT standards already require the technology needed to implement the new rules. Two of the rules listed are merely technical corrections, with no actual change in requirements, therefore leading to no economic impact (*e.g.*, 75 *Federal Register* 37732, 6/30/2010, correction to replace inadvertently removed paragraphs in regulatory text; 78 *Federal Register* 14457, 3/6/2013, correction to regulatory text, table headings).

The table above provided a list of all the RICE MACT (40 C.F.R. Part 63 Subpart 4Z) provisions that have been amended or promulgated since July 2, 2009 and up to January 30, 2013. A detailed summary of each action is provided below. Where EPA collected data regarding national economic and cost impacts of a regulation, the analysis has been provided in the summary. To create an impact analysis, the EPA uses models to estimate economic, social, and air impacts. Kansas impact estimates are provided based on best available information through research and outreach to the Kansas regulated community, including information exchanges with the Kansas Power Pool, Kansas Municipal Utilities, and oil and gas industry representatives.

The following are the six amendments to 40 C.F.R. Part 63 Subpart ZZZZ being proposed for adoption:

Reciprocating Internal Combustion Engines

1. [March 3, 2010 Volume 75: 9648-9690](#)
- **63.6590, 63.6595, 63.6600-63.6605, 63.6612, 63.6620, 63.6625, 63.6640, 63.6645, 63.6650, 63.6655, 63.6660, 63.6665, 63.6675 & Tables 1a, 2a, 2b, 2c, 2d, 3-8 Subpart ZZZZ**

This action promulgates national emission standards for hazardous air pollutants (NESHAP) for existing stationary compression ignition reciprocating internal combustion engines (CI RICE) with a site rating of less than or equal to 500 brake horsepower (HP) located at major sources, existing non-emergency CI engines with a site rating greater than 500 HP at major sources, and existing stationary CI RICE of any power rating located at area sources. EPA promulgated NESHAP for existing, new, and reconstructed stationary RICE greater than 500 HP located at major sources on June 15, 2004. EPA promulgated NESHAP for new and reconstructed stationary RICE that are located at area sources of HAP emissions and for new and reconstructed stationary RICE that have a site rating of less than or equal to 500 HP that are located at major sources of HAP emissions on January 18, 2008.

This final rule will limit emissions of HAPs through emissions standards for carbon monoxide (CO) for existing stationary CI RICE. In addition to reducing HAPs and CO, this rule will result in the reduction of PM emissions from existing stationary diesel engines. Aftertreatment technologies expected to be used to reduce HAPs and CO emissions also reduce PM emissions from diesel engines. The final rule also requires the use of ultra low sulfur diesel (ULSD) for diesel-fueled stationary non-emergency CI engines greater than 300 HP with a displacement of less than 30 liters per cylinder, which is expected to result in lower emissions of sulfur oxides (SOx) and sulfate particulate from these engines.

Existing Stationary RICE at Major Sources: Numerical emission standards finalized in this action for stationary non-emergency CI RICE located at major sources are shown in the table below. Numerical emission standards are in units of parts per million by volume, dry basis (ppmvd) or percent reduction.

Numerical Emission Standards for Existing Stationary CI RICE Located at Major Sources

Subcategory	Except during periods of startup
Non-Emergency CI 100≤HP≤300	230 ppmvd CO at 15% O ₂ .
Non-Emergency CI 300<HP≤500	49 ppmvd CO at 15% O ₂ or 70% CO reduction.
Non-Emergency CI >500 HP	23 ppmvd CO at 15% O ₂ or 70% CO reduction.

In addition, owners and operators of existing stationary non-emergency CI engines greater than 300 HP with a displacement of less than 30 liters per cylinder located at major sources that use diesel fuel must use only diesel fuel having a maximum sulfur content of 15 ppm and either a minimum cetane index of 40 or a maximum aromatic content of 35 volume percent. Work practice standards are finalized by this rule for existing stationary emergency CI RICE less than or equal to 500 HP located at major sources and existing stationary non-emergency CI RICE less

than 100 HP located at major sources and include standards for oil and filter changes, inspections, oil viscosity, and water content. EPA also includes additional capture and collection requirements to reduce metallic HAP emissions. For existing stationary non-emergency CI engines greater than 300 HP at major sources, owners and operators must do one of the following if the engine is not already equipped with a closed crankcase ventilation system: (1) install a closed crankcase ventilation system that prevents crankcase emissions from being emitted to the atmosphere, or (2) install an open crankcase filtration emission control system that reduces emissions from the crankcase by filtering the exhaust stream to remove oil mist, particulates, and metals.

Existing Stationary RICE at Area Sources: Numerical emission standards finalized in this action for stationary CI RICE located at area sources are shown in the table below. Existing stationary emergency engines at area sources located at residential, commercial, or institutional facilities are not part of the source category and are not subject to any requirements under this rule.

Numerical Emission Standards for Existing Stationary RICE Located at Area Sources

Subcategory	Except during periods of startup
Non-Emergency CI 300<HP≤500	49 ppmvd CO at 15% O ₂ or 70% CO reduction.
Non-Emergency CI >500 HP	23 ppmvd CO at 15% O ₂ or 70% CO reduction.

In addition, owners and operators of existing stationary non-emergency CI engines greater than 300 HP with a displacement of less than 30 liters per cylinder located at major sources that use diesel fuel must use only diesel fuel having a maximum sulfur content of 15 ppm and either a minimum cetane index of 40 or a maximum aromatic content of 35 volume percent. Work practice standards are finalized by this rule for existing stationary emergency CI RICE located at area sources and existing stationary non-emergency CI RICE less than or equal to 300 HP located at area sources and include standards for oil and filter changes and inspections. In order to reduce metallic HAP emissions, existing stationary non-emergency CI engines greater than 300 HP at area sources must do one of the following if the engine is not already equipped with a closed crankcase ventilation system: (1) install a closed crankcase ventilation system that prevents crankcase emissions from being emitted to the atmosphere, or (2) install an open crankcase filtration emission control system that reduces emissions from the crankcase by filtering the exhaust stream to remove oil mist, particulates, and metals.

Startup Requirements: Owners and operators must minimize the engine’s time spent at idle and minimize the engine’s startup to a period needed for appropriate and safe loading of the engine, not to exceed 30 minutes, after which time the engine must meet the otherwise applicable emission standards. These requirements will limit the HAP emissions during periods of engine startup. Owners and operators may petition for approval of an alternative work practice.

Operating Limitations: Owners and operators of CI RICE greater than 500 HP that are equipped with oxidation catalyst must maintain the catalyst so that the pressure drop across the catalyst does not change by more than 2 inches of water from the pressure drop across the catalyst that was measured during the initial performance test. Owners and operators must also maintain the temperature of the exhaust so that the catalyst inlet temperature is between 450 and 1350 degrees Fahrenheit (°F). Owners and operators may petition to operate below the

temperature range specified by the rule but must demonstrate why it is operationally necessary and appropriate. Owners and operators of existing stationary non-emergency CI RICE greater than 300 HP meeting the requirement to use open or closed crankcases must follow the manufacturer's specified maintenance requirements or may request approval of different maintenance requirements that are as protective.

Compliance: Owners and operators of CI RICE that are subject to management practices must develop a maintenance plan that specifies how the management practices will be met. Initial performance tests are required for engines that are subject to numerical emission standards. For engines using an oxidation catalyst, sources must continuously monitor and record the catalyst inlet temperature and measure the pressure drop across the catalyst monthly. For engines not using an oxidation catalyst, owners and operators must continuously monitor and record the approved operating parameters (if any). Reporting and recordkeeping requirements include initial notification, notification of performance test, notification of compliance, manufacturer's recommended maintenance procedures for crankcase systems, operating hours, oil and filter change records, and inspection and repair documentation.

Cost/Economic Impact:

The EPA estimates that there are over 900,000 stationary CI engines nationwide that will be subject to this rule. The table below identifies industries in which CI RICE are found and includes a count of Kansas facilities:

Industry Category	Kansas Facilities (2007 Economic Census)
Electric Power Generation, Transmission, and Distribution (NAICS 2211)	142
Oil and Gas Extraction (NAICS 211111)	302
Pipeline Transportation of Natural Gas (NAICS 211112)	7
Natural Gas Transmission (NAICS 48621)	74
Welding Equipment (NAICS 335312 & 333992)	5
General Medical and Surgical Hospitals (NAICS 622110)	134
Kansas Number of Irrigation Points of Diversion Supplied by Diesel-Fueled Energy	
Irrigation Sets	4611**

**KDA provided data from the 2008 water use reports.

Most of the engines in these industry categories, other than irrigation pump engines, are already regulated under existing maximum achievable control technology (MACT) requirements. Irrigation service providers have indicated that most irrigation engines are less than 250 HP and therefore would be subject only to management practices, such as inspection and maintenance, and not to emissions testing. Most new diesel irrigation engines sold in Kansas are between 100 and 200 HP and cost between \$10,000 and \$15,000.

For engines that will need to add control technology to meet the numerical emission standards, the EPA analysis uses the following equations to estimate capital and annual control costs:

Technology	Capital Cost (2008 \$)	Annual Cost (2008 \$)
Diesel Oxidation Catalyst (DOC)	\$27.4 x HP - \$939	\$4.99 x HP + \$480
Open Crankcase Ventilation (OCV)	\$0.26 x HP + \$997	\$0.065 x HP + \$254

(Uses cost data obtained from a California Resources Board (CARB) study).

Non-emergency engines greater than 500 HP that have add-on controls are required to use a continuous parametric monitoring system (CPMS) to monitor catalyst inlet temperature and pressure drop across the catalyst. The estimated capital cost for a CPMS for a large engine facility is \$531. Initial performance testing required for nonemergency engines greater than 100 HP at major sources and greater than 300 HP at area sources is estimated at \$1,165 per day of testing or \$583 per engine using a portable analyzer (assuming two engines could be tested per day). Costs for performing management practices for nonemergency CI engines less than 100 HP at major sources and less than or equal to 300 HP at area sources is assumed to be negligible as these practices are based on engine maintenance procedures that owners and operators already perform regardless of the regulation. Annualized compliance costs are estimated to be no more than 0.07 percent of total revenue.³

For a Kansas perspective of compliance costs for the electric power generation and distribution sector, Kansas municipal utilities have evaluated the cost of retrofitting their existing RICE units and have shared with KDHE estimates ranging between \$43,000 and \$175,000 per unit.

2. [June 30, 2010 Volume 75: 37732-37733](#)

➤ **63.6590 Subpart ZZZZ**

A March 3, 2010, document amending the emission standards for compression ignition reciprocating internal combustion engines inadvertently removed paragraphs from the regulation. This action corrects this error.

Cost/Economic Impact:

There is no cost or economic impact from this action.

3. [August 20, 2010 Volume 75: 51570-51608](#)

➤ **63.6590, 63.6595, 63.6601-63.6604, 63.6611-63.6612, 63.6625, 63.6640, 63.6645, 63.6655, 63.6675, & Tables 1a, 1b, 2b, 2c, 2d, 3-7 Subpart ZZZZ**

This action promulgates national emission standards for hazardous air pollutants (NESHAP) for existing stationary spark ignition reciprocating internal combustion engines (SI RICE) with a site rating of less than or equal to 500 HP located at major sources and existing stationary SI RICE of any site rating located at area sources. In addition to reducing HAPs, the emission control technologies that will be installed on stationary SI RICE to reduce HAPs will also reduce

³ [“Regulatory Impact Analysis \(RIA\) for Existing Stationary Compression Ignition Engines.” U.S. EPA, February 2010.](#)

carbon monoxide (CO) and volatile organic compounds (VOC), and for rich burn engines will also reduce nitrogen oxides (NO_x). This action also promulgates Method 323 and allows it as an option for measuring formaldehyde in 40 C.F.R. Part 63 Subpart ZZZZ.

Existing Stationary SI RICE Less Than or Equal to 500 HP at Major Sources: Numerical emission standards finalized in this action for existing stationary non-emergency SI RICE less than or equal to 500 HP located at major sources of HAPs are shown in the table below. Numerical emission standards are in units of parts per million by volume, dry basis (ppmvd).

Numerical Emission Standards for Existing Stationary SI RICE ≤ 500 HP at Major Sources of HAPs

Subcategory	Except during periods of startup
2SLB Non-Emergency 100≤HP≤500	225 ppmvd CO at 15% O ₂
4SLB Non-Emergency 100≤HP≤500	47 ppmvd CO at 15% O ₂
4SRB Non-Emergency 100≤HP≤500	10.3 ppmvd formaldehyde at 15% O ₂
Landfill/Digester Gas Non-Emergency 100≤HP≤500	177 ppmvd CO at 15% O ₂

Work practice standards are finalized by this rule for existing emergency stationary SI RICE less than or equal to 500 HP located at major sources of HAPs and existing non-emergency stationary SI RICE less than 100 HP located at major sources of HAPs and include standards for oil and filter changes, inspections, and the option of an oil analysis program.

Existing Stationary SI RICE at Area Sources of HAPs: Numerical emission standards finalized in this action for non-emergency 4SLB stationary SI RICE and non-emergency 4SRB stationary SI RICE located at area sources of HAPs are shown in the table below.

Numerical Emission Standards for Existing Stationary SI RICE >500 HP at Area Sources of HAPs

Subcategory	Except during periods of startup
4SLB Non-Emergency >500 HP that operate more than 24 hours per calendar year	47 ppmvd CO at 15% O ₂ or 93% CO reduction
4SRB Non-Emergency >500 HP that operate more than 24 hours per calendar year	2.7 ppmvd formaldehyde at 15% O ₂ or 76% formaldehyde reduction

Management practices are finalized by this rule for existing non-emergency 4SLB stationary SI RICE less than or equal to 500 HP located at area sources of HAPs, existing non-emergency 4SLB stationary SI RICE greater than 500 HP located at area sources of HAPs that operate 24 hours or less per calendar year, existing non-emergency 4SRB stationary SI RICE less than or equal to 500 HP located at area sources of HAPs, existing non-emergency 4SRB stationary SI RICE greater than 500 HP located at area sources of HAPs that operate 24 hours or less per calendar year, existing 2SLB non-emergency stationary SI RICE located at area sources of HAPs, existing non-emergency landfill and digester gas stationary RICE located at area sources of HAPs, and existing emergency stationary SI RICE located at area sources of HAPs. Management practices include oil and filter changes, inspections, and the option of an oil analysis program.

Startup Requirements: Owners and operators must minimize the engine’s time spent at idle and minimize the engine’s startup to a period needed for appropriate and safe loading of the engine, not to exceed 30 minutes, after which time the engine must meet the otherwise applicable

emission standards. Owners and operators may petition for approval of an alternative management practice.

Operating Limitations: Owners and operators of engines that are equipped with oxidation catalyst or non-selective catalytic reduction (NSCR) must maintain the catalyst so that the pressure drop across the catalyst does not change by more than 2 inches of water from the pressure drop across the catalyst that was measured during the initial performance test. If the engine is equipped with oxidation catalyst, owners and operators must also maintain the temperature of the stationary RICE exhaust so that the catalyst inlet temperature is between 450 and 1350 degrees Fahrenheit (°F). If the engine is equipped with NSCR, owners and operators must maintain the temperature of the stationary RICE exhaust so that the NSCR inlet temperature is between 750 and 1250 °F. Owners and operators may petition for a different temperature range. Owners and operators of engines that are not using oxidation catalyst or NSCR must comply with any operating limitations approved by the Administrator.

Compliance for Existing Stationary SI RICE ≤500 HP at Major Sources of HAPs: Owners and operators of existing stationary non-emergency SI RICE located at major sources that are less than 100 HP and existing stationary emergency SI RICE located at major sources must operate and maintain their stationary RICE and aftertreatment control device (if any) according to the manufacturer's emission-related written instructions or develop their own maintenance plan. Owners and operators of existing stationary non-emergency SI RICE located at major sources that are less than 100 HP and existing stationary emergency SI RICE located at major sources do not have to conduct any performance testing.

Owners and operators of existing stationary non-emergency SI RICE located at major sources that are greater than or equal to 100 HP and less than or equal to 500 HP must conduct an initial performance test to demonstrate that they are achieving the required emission standards.

Compliance for Existing Stationary SI RICE at Area Sources of HAPs: Owners and operators of existing stationary RICE located at area sources of HAPs that are subject to management practices do not have to conduct any performance testing. However, they must develop a maintenance plan that specifies how the management practices will be met and provides to the extent practicable for the maintenance and operation of the engine in a manner consistent with good air pollution control practices for minimizing emissions.

Owners and operators of existing 4SLB and 4SRB non-emergency stationary SI RICE that are greater than 500 HP, located at an area source of HAPs, and operated more than 24 hours per calendar year must conduct an initial performance test and must conduct subsequent performance testing every 8760 hours of operation or 3 years, whichever comes first. They must continuously monitor and record the inlet temperature of the oxidation catalyst or NSCR and also take monthly measurements of the pressure drop across the oxidation catalyst or NSCR. If an oxidation catalyst or NSCR is not being used, the owner or operator must continuously monitor and record the approved operating parameters (if any). This action finalizes performance specification requirements for the continuous parametric monitoring systems used for continuous catalyst inlet temperature monitoring.

Reporting Requirements: Reporting requirements include initial notification, notification of performance test, and notification of compliance for each stationary RICE that must comply with specified emission limitations. Owners and operators of existing stationary non-emergency SI RICE greater than or equal to 100 HP and less than or equal to 500 HP located at major sources of HAPs and existing stationary 4SLB and 4SRB non-emergency SI RICE greater than 500 HP

located at area sources of HAPs that operate more than 24 hours per calendar year must submit semiannual compliance reports.

Cost/Economic Impact:

In preparing this rulemaking, the EPA estimated that approximately 330,000 stationary SI engines would be subject to this final rule. The table below identifies industries in which SI RICE are found and includes a count of Kansas facilities:

Industry Category	Kansas Facilities (2007 Economic Census)
Electric Power Generation, Transmission, and Distribution (NAICS 2211)	142
Oil and Gas Extraction (NAICS 211111)	302
Pipeline Transportation of Natural Gas (NAICS 211112)	7
Natural Gas Transmission (NAICS 48621)	74
Welding Equipment (NAICS 335312 & 333992)	5
General Medical and Surgical Hospitals (NAICS 622110)	134
Kansas Number of Irrigation Points of Diversion Supplied by Gasoline, Propane, & Natural Gas Energy	
Irrigation Sets	10,794**

**KDA provided data from the 2008 water use reports.

Most SI RICE located at area sources, including most irrigation engines, are less than 500 HP and are subject to management practice requirements. These engines do not require notifications or performance testing. For existing SI RICE that will need to add control technology to meet numerical emission standards, the EPA analysis uses the following equations to estimate capital and annual control costs:⁴

Technology	Capital Cost (2009 \$)	Annual Cost (2009 \$)
2SLB Oxidation Catalyst	\$47.1 x HP + \$41,603	\$11.4 x HP + \$13,928
4SLB Oxidation Catalyst	\$12.8 x HP + \$3,069	\$1.81 x HP + \$3,442
NSCR	\$24.9 x HP + \$13,118	\$4.77 x HP + \$5,679

For a Kansas perspective of cost, the following information was provided by a Kansas source with 60 natural gas compressor station engines. The source has six 4SRB engines greater than 500 HP at an area source of HAPs that are subject to catalyst and temperature monitoring requirements. The remaining 54 engines are not subject to the catalyst and temperature requirements because they are: SI RICE over 500 HP and located at major sources of HAPs, 2SLB SI RICE located at area sources of HAPs, other SI RICE less than 500 HP located at area sources of HAPs, or emergency SI RICE. The source determined a project cost of approximately \$233,000 per engine to install catalysts and temperature monitoring on the six 4SRB engines.

⁴ [“Regulatory Impact Analysis \(RIA\) for Stationary Spark Ignition \(SI\) RICE NESHAP.” U.S. EPA, August 2010.](#)

4. [March 9, 2011 Volume 76: 12863-12873](#)

➤ **63.6603, 63.6625, 63.6635, 63.6675, & Tables 1b, 2b, 5, & 6 Subpart ZZZZ**

This action promulgates amendments to the final rule published on August 20, 2010, that provided national emission standards for hazardous air pollutants for existing stationary spark ignition reciprocating internal combustion engines. This direct final action amends certain regulatory text to clarify compliance requirements related to continuous parameter monitoring systems and also corrects minor typographical errors.

Cost/Economic Impact:

There is no cost or economic impact from this action.

5. [January 30, 2013 Volume 78: 6674-6724](#)

➤ **63.14 Subpart A; 63.6585, 63.6590, 63.6595, 63.6602-63.6605, 63.6620, 63.6625, 63.6630, 63.6640, 63.6645, 63.6650, 63.6655, 63.6675, Tables 1b, 2b, 2c, 2d, & 3-8 Subpart ZZZZ**

This action finalizes amendments to address several petitions for reconsideration, legal challenges, and new technical information submitted by stakeholders, including industry and environmental groups, which were brought to attention after the 2010 standards were published. The final amendments generally apply to the following:

- engines typically used in sparsely populated areas for oil and gas production
- engines in remote areas of Alaska (not relevant to KS)
- engines scheduled to be replaced in the next few years due to state or local requirements (not KS), and certain engines installed in 2006
- engine testing requirements for formaldehyde emissions
- engines for offshore vessels operating on the Outer Continental Shelf (not relevant to KS)
- engines used in emergency demand response programs

This action finalizes management practices for owners and operators of existing stationary 4-stroke spark ignition (SI) engines greater than 500 HP that are area sources of HAP emissions and where the engines are remote from human activity. These engines are not subject to numeric emission limits and associated testing and monitoring. Existing stationary 4-stroke SI engines greater than 500 HP that are area sources in populated areas are subject to an equipment standard that requires the installation of HAP-reducing aftertreatment. Sources are required to test their engines to demonstrate initial compliance, perform catalyst activity check-ups and either monitor the catalyst inlet temperature continuously or employ high temperature shutdown devices to protect the catalyst.

The EPA specifies that any existing compression ignition (CI) greater than 300 HP at an area source of HAP emissions that was certified to meet the Tier 3 engine standards and was installed before June 12, 2006, is in compliance with the NESHAP.

This action adds an alternative compliance demonstration option for stationary 4SRB SI engines subject to a 76 percent or more formaldehyde reduction requirements. Owners and operators of 4SRB engines will be permitted to demonstrate compliance with the 76 percent formaldehyde reduction emission standard by testing emissions of total hydrocarbons (THC) and

showing that the engine is achieving at least a 30 percent reduction of THC emissions. This alternative is less expensive and less complex, but it is equally effective for demonstrating compliance.

This action also finalizes limitations on the operation of emergency engines for emergency demand response programs. Operation of stationary emergency engines for emergency demand response programs is limited to within the 100 hours per year already permitted for maintenance and testing of the engines. This rule limits operation of certain emergency engines used to avert potential voltage collapse or line overloads that could lead to interruption of power supply in a local area or region to 50 hours per year as part of the 100 hours of year permitted for maintenance and testing of the engine. Emergency engines greater than 100 HP used for this purpose or used (or contractually obligated to be available) for more than 15 hours of emergency demand response per calendar year are subject to ultra low sulfur diesel (ULSD) fuel requirements and reporting requirements.

Cost/Economic Impact:

These amendments will reduce costs and economic impact to the regulated community. Based on the Kansas example provided above for the August 20, 2010 SI RICE rule, a 4SRB SI RICE greater than 500 HP that is located at an area source of HAPs in a sparsely populated area (i.e., with five or fewer buildings intended for human occupancy within 0.25 mile radius of the engine) would be subject to management practices rather than numeric emission limits with testing and monitoring requirements and would avoid an estimated \$233,000 retrofit project.

6. [March 6, 2013 Volume 78: 14457](#)
➤ **63.6655 & Table 2c Subpart ZZZZ**

This is a minor correction to regulatory text. There is no impact from this correction.

- b) Initial and annual costs of implementing and enforcing the proposed amendments, including the estimated amount of paperwork, and the state agencies, other governmental agencies or other persons or entities who will bear the costs.**

The NESHAP and MACT standards that are being proposed will transfer regulating authority from the EPA to the KDHE. The implementation of regulations for certain area source MACTs, with a large number of sources and relatively small amount of emissions, deserves fair consideration and forethought as there has been no increase in resources from the EPA. However, the Bureau of Air maintains that Kansas sources are best regulated by Kansas rather than by the EPA. Adoption of these regulations will necessitate a different regulatory approach, such as more vigorous public outreach and education efforts. Kansas State University's Small Business Environmental Assistance Program (SBEAP) has been successful in outreach and

education of small business, including municipal utilities, and it is expected that their role will continue to be vital and to grow with respect to area sources.

- c) Costs which would likely accrue if the proposed regulations are not adopted, the persons who will bear the costs and those who will be affected by the failure to adopt the regulations.**

KDHE needs to adopt current regulations and amendments to stay current with the national standards. If the proposed amendments are not adopted, the state will not have the authority necessary to implement and enforce the new standards listed in this impact statement, *i.e.*, the EPA would remain as the primary authority for those 40 C.F.R. Part 63 Subpart 4Z standards that have been promulgated by the EPA since July 2, 2009. As previously discussed, this would result in a dual regulatory structure for the RICE MACT standards. This situation could potentially result in the loss of consistency in applying standards and would burden regulated facilities because they will have to work with both the state and the EPA. This results in confusion for the regulated community regarding the applicable requirements that must be met, as well as the added burden of working with two agencies instead of one. In addition, KDHE can implement these regulations in an appropriate, consistent, and cost-effective manner for both the agency and the affected Kansas facilities.

- d) A detailed statement of the data and methodology used in estimating the costs used in the statement.**

The economic impact information contained herein has been obtained through EPA analysis documents, where available, for the respective rulemaking actions, and has been supplemented where possible with information found in the proposed or final rule notices in the *Federal Register* and in the regulatory dockets (www.regulations.gov). EPA analysis typically provides cost and economic estimates that would affect an entire industry. Some information has been obtained from affected Kansas sources in response to outreach efforts and used to further demonstrate cost impacts.

- e) Description of any less costly or less intrusive methods that were considered by the agency and why such methods were rejected in favor of the proposed regulations.**

There are no alternative methods of implementing the federal requirements that would be less intrusive; however, implementation and administering of these regulations in Kansas by KDHE rather than by EPA will be less costly.

The EPA does not finalize a regulation until it has been subjected to public comment and assessment. In addition, the RICE regulations have been subject to petitions for reconsideration, legal challenges, and public submissions of technical data and analyses leading up to the final amendments proposed here for adoption by reference. Therefore, the proposed regulations have all been reviewed and critiqued before adoption.

f) Consultation with League of Kansas Municipalities, Kansas Association of Counties, and Kansas Association of School Boards.

Some of the federal rules being adopted in this rulemaking may affect the constituencies of these organizations; however, the state rulemaking action does not change the requirements for those so affected. Copies of the regulation, the regulatory impact statement, and the notice of hearing will be provided electronically to these organizations at the start of the public comment period.

28-19-750. Hazardous air pollutants; maximum achievable control technology. (a)

40 C.F.R. part 63 and its appendices, as in effect on July 1, 2010, are adopted by reference, except for the following:

- (1) The following sections in subpart A:
 - (A) 63.6(f)(1), (g), (h)(1), and (h)(9);
 - (B) 63.7(e)(2)(ii) and (f);
 - (C) 63.8(f);
 - (D) 63.10(f);
 - (E) 63.12;
 - (F) 63.13;
 - (G) in 63.14(b)(27), the phrase “and table 5 to subpart DDDDD of this part”;
 - (H) 63.14(b)(35), (39) through (53), and (55) through (62);
 - (I) in 63.14(i)(1), the phrase “table 5 to subpart DDDDD of this part”; and
 - (J) 63.15;
- (2) subpart B;
- (3) subpart C;
- (4) subpart D;
- (5) subpart E;
- (6) subpart ZZZZ;
- (7) subpart DDDDD;
- (8) subpart JJJJ; and
- (9) subpart KKKKK.

ATTORNEY GENERAL

DEC 11 2013

APPROVED BY SF

DEPT. OF ADMINISTRATION

NOV 21 2013

APPROVED

(b) 40 C.F.R. part 63, subpart ZZZZ, as in effect on July 1, ~~2009~~ 2012 and as amended by 78 fed. reg. 6700-6724 (2013) and 78 fed. reg. 14457 (2013), is adopted by reference.

(c) Unless the context clearly indicates otherwise, the following meanings shall be given to these terms as they appear in the portions of 40 C.F.R. part 63 adopted by reference in this regulation:

(1) The term “administrator” shall mean the secretary or the secretary’s authorized representative.

(2) The term “United States environmental protection agency” and any term referring to the United States environmental protection agency shall mean the department.

(3) The term “state” shall mean the state of Kansas. (Authorized by K.S.A. ~~2011~~ 2013 Supp. 65-3005; implementing K.S.A. 65-3008 and 65-3010; effective Jan. 23, 1995; amended June 6, 1997; amended June 11, 1999; amended Dec. 3, 2004; amended June 15, 2007; amended Nov. 5, 2010; amended Dec. 28, 2012; amended P-_____.)

ATTORNEY GENERAL

DEC 11 2013

APPROVED BY 

DEPT. OF ADMINISTRATION

NOV 21 2013

APPROVED