



DEPARTMENT OF ENVIRONMENT
and NATURAL RESOURCES
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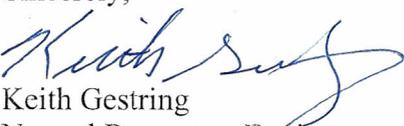
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PO Box 812
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The Department has finished its review of Powertech's air quality application submitted on November 5, 2012 for its proposed operations in Edgemont, South Dakota

Based on the information contained in the application, Powertech is not required to obtain an operating permit because Powertech does not have the potential to generate more than 25 tons per year of any criteria pollutant, 10 tons per year of a single hazardous air pollutant or 25 tons per year of any combination of hazardous air pollutants. A copy of our statement of basis, which discusses our review, is enclosed for your records. If changes are made at the facility that causes the criteria pollutants or hazardous air pollutants to increase at some date in the future, the Department must be notified to evaluate if a permit is required at that time.

Even though a permit is not required, Powertech must meet the requirements of two federal standards for the emergency generators and the fire pump engines. The Department has provided compliance information in the appendices of the statement of basis. Please review this information.

If you have any questions regarding this determination, please contact me at (605) 677-6165.

Sincerely,

Keith Gestring
Natural Resources Engineer
Air Quality Program

Enclosures

STATEMENT OF BASIS

Title V Air Quality Operating Permit

Powertech (USA) Inc.

South Dakota Department of Environment and Natural Resources

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1.0 Background

On November 5, 2013, Powertech (USA) Inc. (Powertech) submitted an air quality operating permit application to the Department of Environment and Natural Resources (DENR).

Powertech proposes to construct an in-situ uranium recovery project in Fall River and Custer Counties. The primary SIC code is 1094. Powertech would operate two emergency generators and two fire pumps - the emergency generators combust propane and the fire engines combust distillate fuel.

Table 1-1 provides a description of the proposed equipment.

Table 1-1 – Proposed Equipment

Identification	Description	Maximum Operating Rate	Control Device
Unit #1	2013 emergency generator fired with propane	125 horsepower	Not Applicable
Unit #2	2013 emergency generator fired with propane	125 horsepower	Not Applicable
Unit #3	2013 fire pump fired with distillate oil	100 horsepower	Not Applicable
Unit #4	2013 fire pump fired with distillate oil	100 horsepower	Not Applicable

2.0 New Source Performance Standards (NSPS)

DENR reviewed the federal new source performance standards (NSPS) in 40 CFR Part 60 and determined that the following may be applicable.

2.1 ARSD 74:36:07:88 – 40 CFR Part 60, Subpart IIII

DENR's review of the NSPS determined 40 CFR Part 60, Subpart IIII may be applicable. Subpart IIII is applicable to owners and operators of stationary compression ignition (CI) internal combustion engines (ICE) that:

1. Commence construction after July 11, 2005 where the stationary CI ICE are manufactured after April 1, 2006 and are not fire pump engines; or
2. Manufactured as a certified National Fire Protection Association (NFPA) fire pump engine after July 1, 2006.

Units #1 and #2 are classified as spark ignition (SI) engines – this subpart is not applicable. Units #3 and #4 are classified as stationary compression ignition engines and are fire pump engines. Therefore, this subpart is applicable to Units #3 and #4 and the units must meet the emission requirements and operational standards of this Subpart.

2.2 ARSD 74:36:07 – 40 CFR Part 60, Subpart JJJJ

DENR's review of the NSPS determined 40 CFR Part 60, Subpart JJJJ may be applicable. For the purposes of this subpart, the date construction commences is the date the engine is ordered by the owner or operator. Subpart JJJJ is applicable to owners and operators of stationary spark ignition (SI) internal combustion engines (ICE) that commence construction after June 12, 2006, where the stationary SI ICE are manufactured:

1. On or after July 1, 2007, for engines with a maximum engine power greater than or equal to 500 horsepower (except lean burn engines with a maximum engine power greater than or equal to 500 horsepower and less than 1,350 horsepower);
2. On or after January 1, 2008, for lean burn engines with a maximum engine power greater than or equal to 500 horsepower and less than 1,350 horsepower;
3. On or after July 1, 2008, for engines with a maximum engine power less than 500 horsepower;
4. On or after January 1, 2009, for emergency engines with a maximum engine power greater than 19 kilowatts (25 horsepower); or
5. Owners and operators of stationary SI ICE that commence modification or reconstruction after June 12, 2006.

Units #1 and #2 are fired with propane and are considered spark ignition engines and would be manufactured after the 2009 NSPS deadline. Therefore, Subpart JJJJ is applicable.

3.0 New Source Review (NSR)

ARSD 74:36:10:01 states that New Source Review (NSR) regulations apply to areas of the state which are designated as nonattainment pursuant to the Clean Air Act for any pollutant regulated under the Clean Air Act. Powertech is located in Edgemont South Dakota, which is in attainment for all the pollutants regulated under the Clean Air Act. Therefore, Powertech is not subject to NSR review.

4.0 Prevention of Significant Deterioration (PSD)

A prevention of significant deterioration (PSD) review applies to new major stationary sources and major modifications to existing major stationary sources in areas designated as attainment under Section 107 of the Clean Air Act for any regulated air pollutant. The following is a list of regulated air pollutants under the PSD program:

1. Total suspended particulate (PM);
2. Particulate with a diameter less than or equal to 10 microns (PM10);

3. Particulate with a diameter less than or equal to 2.5 microns (PM_{2.5});
4. Sulfur dioxide (SO₂);
5. Nitrogen oxides (NO_x);
6. Carbon monoxide (CO);
7. Ozone – measured as volatile organic compounds (VOCs);
8. Lead;
9. Fluorides
10. Sulfuric acid mist;
11. Hydrogen sulfide;
12. Reduced sulfur compounds;
13. Total reduced sulfur; and
14. Greenhouse gases (carbon dioxide, methane, nitrous oxide, etc.).

If the source is considered one of the 28 named PSD source categories listed in Section 169 of the federal Clean Air Act, the major source threshold is 100 tons per year of any regulated air pollutant, except for greenhouse gases. The major source threshold for all other sources is 250 tons per year of any regulated air pollutant, except for greenhouse gases.

Powertech is not one of the 28 listed source categories for PSD regulations; therefore, the major source threshold is 250 tons per year, except for greenhouse gases.

According to the Clean Air Act, once a pollutant is regulated under any part of the Act, (as was the case with greenhouse gas emissions after the motor vehicle regulations were finalized in March 2010) major new sources or major modifications are subject to the PSD program and Title V air quality operating permit program. Under the Clean Air Act, PSD and Title V air quality operating permits are required for all sources that emit a regulated air pollutant above 100 or 250 tons per year, depending on the source. This threshold, if applied to greenhouse gases, would greatly increase the number of facilities requiring a PSD review or Title V air quality operating permit. Based on administrative necessity, EPA increased these thresholds through the “Tailoring Rule.”

On May 13, 2010, EPA issued the final version of the “Tailoring Rule” for greenhouse gas emissions. The major source threshold for greenhouse gases is listed below:

1. New PSD source because of a criteria air pollutant, the major source threshold for greenhouse gases is 75,000 tons per year of carbon dioxide equivalent or more;
2. New PSD source if greenhouse gas emissions are 100,000 tons per year of carbon dioxide equivalent or more;
3. For an existing PSD source because of a criteria air pollutant, a major modification for greenhouse gases is an increase of 75,000 tons per year of carbon dioxide equivalent or more;
4. For an existing non-PSD source that has the potential to emit 100,000 tons per year of carbon dioxide equivalent emissions or more, a major modification for greenhouse gases is an increase of 75,000 tons per year of carbon dioxide equivalent or more; and

5. In addition to subsection (2) and (4), a specific greenhouse gas, without calculating the carbon dioxide equivalent, also needs to emit greater than 100 or 250 tons per year, whichever is applicable, to be regulated.

4.1 Potential to Emit Criteria Pollutants

Powertech is not one of the 28 named PSD source categories. Powertech's potential emissions of any regulated air pollutant are less than 250 tons per year.

The department uses stack test results to determine air emissions whenever stack test data is available from the source or a similar source. When stack test results are not available, the department relies on manufacturing data, material balance, EPA's Compilation of Air Pollutant Emission Factors (AP-42, Fifth Edition, Volume 1), information submitted in the application, or other methods to determine potential air emissions. Potential emissions for each applicable pollutant are calculated by assuming the unit operates every day of the year at the maximum design capacity.

4.1.1 Emission Factors for Generators

The emission rates for criteria air pollutants when burning propane, is based on AP-42, Table 1-5-1, 7/08 and is listed below. The Department used a propane heat input rating of 91.5 million Btus per 1,000 gallons to convert the emission factor to pounds per million Btus. The Department also assumed the sulfur content of propane is similar to natural gas which is 0.2 grains/100 cubic foot.

1. PM/PM10/PM2.5 = 0.7 pounds per 1,000 gallons (0.008 pounds per million Btus);
2. SO₂ = 0.02 pounds per 1,000 gallons (0.0002 pounds per million Btus);
3. NO_x = 13 pounds per 1,000 gallons (0.15 pounds per million Btus);
4. CO = 7.5 pounds per 1,000 gallons (0.08 pounds per million Btus);
5. VOC – 1.0 pounds per 1,000 gallons (0.01 pounds per million Btus)

The potential to emit (PTE) for the emergency generator was determined using the emission factors, an annual operating rate of 500 hours per year, the heat input calculated from Equation 4-1 and a conversion factor of 2,000 pounds per ton. Powertech proposes to install two generators each rated at 125 horsepower.

The heat input for the generators is calculated using Equation 4-1

Equation 4-1 – Determination of Heat Input from Emergency Generators

$$\text{Heat Input} = 125 \text{ horsepower} \times \frac{2540 \text{ Btus}}{\text{horsepower}} \times \frac{1}{35\%} \times \frac{1 \text{ MMBtus}}{10^6 \text{ Btus}}$$

$$\text{Heat Input} = 0.9 \text{ MMBtus per hour}$$

The potential emissions from the emergency generators are calculated using the emission factors, the heat input from Equation 4-1 and Equation 4-2.

Equation 4-2 – Potential Emissions from Emergency Generators

$$\text{Potential Emissions} = \text{Emission Factor} \frac{\text{lbs}}{\text{MMBtu}} \times \text{Heat Input} \frac{\text{MMBtu}}{\text{hr}} \times 500 \frac{\text{hrs}}{\text{yr}} \div 2,000 \frac{\text{lbs}}{\text{ton}}$$

4.1.2 Emission Factors for Fire Engine Pumps

Units #3 and #4, the two 100 horsepower fire engine pumps, are fired with distillate fuel. The Department used emission factors from AP-42 3.3-1, October 1996.

1. PM/PM10/PM2.5 = 0.31 pounds per million Btus;
2. SO2 = 0.29 pounds per million Btus;
3. NOx = 4.41 pounds per million Btus;
4. CO = 0.95 pounds per million Btus;
5. VOC – 0.35 pounds per million Btus

The heat input for the fire pumps is calculated using Equation 4-3

Equation 4-3 – Determination of Heat Input from Fire Pumps

$$\text{Heat Input} = 100 \text{ horsepower} \times \frac{2540 \text{ Btus}}{\text{horsepower}} \times \frac{1}{30\%} \times \frac{1 \text{ MMBtus}}{10^6}$$

$$\text{Heat Input} = 0.8 \text{ MMBtu/hr}$$

The potential emissions from the fire pumps are calculated using the emission factors, the heat input and Equation 4-4.

Equation 4-4 – Potential Emissions from Fire Pumps

$$\text{Potential Emissions} = \text{Emission Factor} \frac{\text{lbs}}{\text{MMBtu}} \times \text{Heat Input} \frac{\text{MMBtu}}{\text{hr}} \times 500 \frac{\text{hrs}}{\text{yr}} \div 2,000 \frac{\text{lbs}}{\text{ton}}$$

The potential emissions from the proposed generators and fire pumps are shown in Table 4-1.

Table 4-1 - Potential Emissions Summary (tons per year)

Description	TSP	PM10/PM2.5	SO ₂	NO _x	VOC	CO
Unit #1	0.002	0.002	0.0	0.03	0.002	0.02
Unit #2	0.002	0.002	0.0	0.03	0.002	0.02
Unit #3	0.05	0.05	0.05	0.8	0.06	0.2
Unit #4	0.05	0.05	0.05	0.8	0.06	0.2
Total	0.1	0.1	0.1	1.7	0.1	0.4

As shown in Table 4-1, Powertech is a minor source under the PSD program for criteria pollutants and is not subject to PSD requirements.

4.2 Potential to Emit for Greenhouse Gases

Powertech is considered an existing non-PSD source due to air emission and operational limits in their existing Title V air quality operating permit. The next step is to determine if Powertech has the potential to emit 100,000 tons per year of carbon dioxide equivalent emissions or more. There are six regulated greenhouse gases which are listed below:

1. Carbon dioxide;
2. Nitrous oxide;
3. Methane;
4. Hydrofluorocarbons;
5. Perfluorocarbons; and
6. Sulfur hexafluoride.

The emission factors for greenhouse gases while firing propane are from AP-42, Tables 1.5-1 July 1998 and are listed below:

1. CO₂ = 12,500 pounds per 1,000 gallons (141 pounds per million Btus);
2. Nitrous oxide = 0.9 pounds per 1,000 gallons (0.01 pounds per million Btus) and;
3. Methane = 0.2 pounds per 1,000 gallons (0.002 pounds per million Btus)

In the case of the greenhouse gases, the emission factors for carbon dioxide, nitrous oxide and methane need to be multiplied by 1, 310, and 21, respectively, to convert the results to carbon dioxide equivalent emissions. The emission factors for greenhouse gases based on carbon dioxide equivalent are listed below:

1. Carbon Dioxide (CO₂) = 141 pounds per million British thermal units;
2. Nitrous oxide = 3.1 pounds per million British thermal units;
3. Methane = 0.4 pounds per million British thermal units.

The potential emissions for the greenhouse gases from the emergency generators are summarized in Table 3-4.

Units #3 and #4, the two 100 horsepower fire engine pumps, are fired with distillate fuel. The Department used emission factors from AP-42 3.3-1, October 1996.

1. CO₂ = 164 pounds per million Btus

In the case of the greenhouse gases, the result of Equation 4-4 needs to be multiplied by 1, 310, and 21 for carbon dioxide, nitrous oxide, and methane, respectively, to convert the results to carbon dioxide equivalent. The potential emissions for the greenhouse gases based on the worse case fuel are summarized in Table 4-2.

Equation 4-4 – Potential Greenhouse Gas Emissions

$$\text{Potential Emissions} = \text{Emission Factor} \frac{\text{lbs}}{\text{MMBtu}} \times \text{Heat Input} \frac{\text{MMBtu}}{\text{hr}} \times 500 \frac{\text{hrs}}{\text{yr}} \div 2,000 \frac{\text{lbs}}{\text{ton}}$$

Table 4-2 –Greenhouse Gas Potential Emissions (tons per year)

Description	Capacity (MMBtu/hr)	Carbon Dioxide	Nitrous Oxide	Methane	Carbon Dioxide Equivalent
Unit #1	0.9	31.7	0.7	0.0	32.4
Unit #2	0.9	31.7	0.7	0.0	32.4
Unit #3	0.8	28.2			28.7
Unit #4	0.8	28.2			28.7
Total		120	1.4	0	122

Powertech is considered a non-PSD source with the potential to emit greater than 100,000 tons per year of carbon dioxide equivalent emissions.

5.0 National Emission Standards for Hazardous Air Pollutants (Part 61)

DENR reviewed the National Emission Standards for Hazardous Air Pollutants (NESHAP) in 40 CFR Part 61 and determined that there are no NESHAP standards applicable to Powertech’s operations.

6.0 Maximum Achievable Control Technology (Part 63)

6.1 Potential hazardous air pollutant emissions

As shown in Table 6-1, Powertech is a minor source of hazardous air pollutants. A minor source of hazardous air pollutants is a facility with the potential to emit less than 10 tons of a single hazardous air pollutant and less than 25 tons per year of all hazardous air pollutants combined. A minor source of hazardous air pollutant is considered an area source.

Emission factors for hazardous air pollutants from the propane fired generators (0.078 pounds per million Btus) and the distillate fuel fired fire engines (0.00379 pounds per million Btus) were derived from AP-42, Table 3.2.1 July, 2000 and AP-42 3.3-1, October, 1996 respectively. Using Equation 4-1, and 4-4, the potential hazardous air pollutant emissions were determined. As shown in Table 6-1.

Table 6-1 – Potential Emissions Summary (ton per year)

Description	Hazardous air pollutants
Unit #1	0.0
Unit #2	0.0
Unit #3	0.005
Unit #4	0.005
TOTAL	0.0

Based on the hazardous air pollutant emission estimates in Table 6-1, Powertech is considered an area source of hazardous air pollutants.

DENR reviewed the Maximum Achievable Control Technology (MACT) standards in 40 CFR Part 63 and determined that the following may be applicable.

6.2 ARSD 74:36:08:40 – 40 CFR 63, Subpart ZZZZ

40 CFR Part 63, Subpart ZZZZ establishes national emission limitations and operating limitations for hazardous air pollutants (HAPs) emitted from stationary reciprocating internal combustion engines (RICE) located at major and area sources of HAP emissions. This subpart also establishes requirements to demonstrate initial and continuous compliance with the emission limitations and operating limitations.

Emergency generators are subject if they are located at a major or area source of HAP emissions, except if the stationary RICE is being tested at a stationary RICE test cell/stand. The following are definitions in Subpart ZZZZ:

1. A stationary RICE is any internal combustion engine which uses reciprocating motion to convert heat energy into mechanical work and which is not mobile. Stationary RICE differs from mobile RICE in that a stationary RICE is not a non-road engine as defined at 40 CFR § 1068.30, and is not used to propel a motor vehicle or a vehicle used solely for competition;
2. A major source of HAP emissions is a plant site that emits or has the potential to emit any single HAP at a rate of 10 tons or more per year or any combination of HAP at a rate of 25 tons; and
3. An area source of HAP emissions is a source that is not a major source.

Units #1 - #4 are considered a new affected source. An affected source that is a new or reconstructed stationary RICE located at an area source must meet the requirements of this part by meeting the requirements of 40 CFR Part 60, Subpart IIII, for compression ignition engines or 40 CFR Part 60, Subpart JJJJ, for spark ignition engines. No further requirements apply for such engines under this part. Powertech is considered an area source of HAP emissions. As previously stated, Units #1 and #2 are subject to 40 CFR Part 60, Subpart JJJJ and Units #3 and #4 are subject to Subpart IIII. No other requirements under the MACT program are applicable.

7.0 STATE REQUIREMENTS

7.1 State Permitting Requirements

According to ARSD 74:36:05:03, a facility is required to obtain a Title V air quality operating permit if the source has the potential to emit more than 100 tons of a criteria pollutant (nitrogen oxide, volatile organic compounds, PM10, carbon monoxide, lead and ozone), has the potential to emit more than 10 tons of a single hazardous air pollutant, has the potential to emit more than

25 tons of any combination of a hazardous air pollutants, or is applicable to a New Source Performance Standard or a MACT standard.

Powertech's particulate matter, sulfur dioxide (SO₂), nitrogen oxides (NO_x), carbon monoxide (CO) and volatile organic compound (VOC) emissions are less than 100 tons per year, carbon dioxide equivalent (CO₂) emissions are less than 100,000 tons per year and hazardous air pollutant emissions are less than 10 tons per year for a single hazardous air pollutant and 25 tons per year of a combination of hazardous air pollutant. Based on the emission estimates, Powertech is considered a minor source. Even a minor source may require a Title V permit if it is applicable to a New Source Performance Standard or a National Emission Standard for Hazardous Air Pollutants (MACT). Powertech is applicable to the NSPS standard Subpart IIII and Subpart JJJJ. However, as noted in Administrative Rules of South Dakota (ARSD) 74:36:07:88 and 74:36:07:90, an area source (minor) is not required to obtain a Title V permit if the only reason for the Title V permit is the requirement of Subpart IIII and Subpart JJJJ. Therefore, Powertech does not require a Title V permit because it is applicable to a federal standard.

Any source operating in South Dakota that meets the definition of a minor source under the Administrative Rules of South Dakota (ARSD) 74:36:01:01(38) is required to obtain a minor air quality permit. In accordance with ARSD 74:36:04:02.01, a minor source is exempt from obtaining a minor source operating permit if the source has the potential to emit 25 tons per year or less of any criteria pollutant, except lead, before the application of control equipment. Powertech's emissions of criteria air pollutants are less than 25 tons per year. Therefore a Minor air quality operating permit would not be required

The emergency generators and the fire pump engines are subject to the opacity limit in ARSD 74:36:12. In accordance with ARSD 74:36:12:01, the units may not emit air emissions of a density equal to or greater than that designated as 20% opacity.

8.0 RECOMMENDATION

Based on the above findings, Powertech is not required to obtain an air quality permit. Even though Powertech is not required to obtain a permit, Powertech must meet the requirements of two federal standards.

The two propane fired emergency generators (Units #1 and #2) must meet the general requirements of 40 CFR Part 60 Subpart JJJJ, which are generalized in Appendix A. The distillate fired fire engines must meet the requirements of 40 CFR Part 60 Subpart IIII, which are generalized in Appendix B.

Any questions on this review should be directed to Keith Gestring, Engineer II, with the Department of Environment and Natural Resources.

Appendix A

The following compliance information is summarized for an owner or operator that purchases a new, certified, 125 horsepower, rich burn, engine designed to burn propane. If a different engine is purchased, different requirements may apply.

A.0 NEW SOURCE PERFORMANCE STANDARD SUBPART JJJJ

A.1 Emission limits

In accordance with ARSD 74:36:07:90, as referenced to 40 CFR §§ 60.4233(c), the owner or operator shall not allow emissions from the emergency generator to exceed the emission limits in Table A-1 and must comply with applicable requirements of 40 CFR 90.103 over the entire life of the emergency generator.

Table A-1 – Emission limits for the emergency generator

Fuel Type	Grams per Kilowatt-Hour	
	Hydrocarbon + Nitrogen Oxide	CO
Propane LPG)	13.4	519

A.2 Compliance requirements

In accordance with ARSD 74:36:07:90, as referenced to 40 CFR § 60.4243(a), the owner or operator shall comply with the following:

1. Purchase an emergency generator certified to meet the emission in Table A-1 and maintain a copy of the certification. The emergency generator must be installed and configured according to the manufacturer's specifications; and
2. Demonstrate compliance with 40 CFR part 1068, subparts A through D, as applicable;
3. Operate and maintain the emergency generator according to or consistent with the manufacturer's emission-related written instructions; and
4. Maintain a maintenance plan and records of conducted maintenance.

The owner or operator of a non-certified engine shall conduct a performance test within one year of the engine start-up.

If the engine is not operated in accordance with the manufacturer's emission related instructions, the engine will be considered a non-certified engine and the owner or operator shall conduct a performance test within year of engine start-up.

A.3 Emergency generator operation

In accordance with ARSD 74:36:07:90, as referenced to 40 CFR § 60.4243(d), the owner or operator may operate the emergency generator for the following reasons:

1. Emergency engines may be operated during emergency operations and maintenance checks/readiness testing as recommended by Federal, State, or local government, the manufacturer, the vendor, or the insurance company. The maintenance checks/readiness testing is limited to 100 hours per year;
2. The owner or operator may exceed the maintenance checks/readiness testing limit of 100 hours if the owner or operator maintains records indicating that Federal, State, or local standards require maintenance and testing of emergency generators beyond 100 hours per year;
3. There is no time limit on the use of emergency generators in emergency situations;
4. Emergency generators may operate up to 50 hours per year in non-emergency situations, but those 50 hours are counted towards the 100 hours per year provided for maintenance and testing. The 50 hours per year for non-emergency situations cannot be used for peak shaving or to generate income for a facility to supply power to an electric grid or otherwise supply power as part of a financial arrangement with another entity; and
5. Any operation other than emergency operation, maintenance and testing, and operation in non-emergency situations for 50 hours per year is prohibited.

A.4 Recordkeeping requirements

In accordance with ARSD 74:36:07:90, as referenced to 40 CFR § 60.4245(a), the owner or operator shall maintain the following records:

1. All notifications submitted to comply with this chapter and all documentation supporting any notification;
2. Maintenance conducted on the emergency generator; and
3. The owner operator shall maintain documentation that the emergency generator is meeting the emission standards in Table A-1.

A.5 Installation of a non re-settable clock

In accordance with ARSD 74:36:07:90, as referenced to 40 CFR § 60.4237(c), the owner or operator shall install a non re-settable clock on the emergency generator and continuously record the hours of operation.

Appendix B

The following compliance information is summarized for an owner or operator that purchases a new, certified, 100 horsepower, fire pump engine with a displacement less than 30 liters per cylinder and designed to burn diesel fuel. If a different engine is purchased, different requirements may apply.

B.0 NEW SOURCE PERFORMANCE STANDARD SUBPART IIII

B.0 Fire Pump Requirements

B.1 Fire pump engine emission limits

In accordance with ARSD 74:36:07:88, as referenced to 40 CFR §§ 60.4205(c) and 60.4206, the owner or operator shall operate and maintain the fire pump engine that achieves the emission limits in Table I-1 over the entire life of the fire pump engine.

Table I-1 – Emission Limits for Fire Pumps

Maximum engine power	Model year(s)	NMHC + NO _x	CO	PM
75≤KW<130 (100≤HP<175)	2009 and earlier	10.5 (7.8)	5.0 (3.7)	0.80 (0.60)
	2010+ ¹	4.0 (3.0)		0.30 (0.22)

¹-For model years 2010–2012, manufacturers, owners and operators of fire pump stationary CI ICE in this engine power category with a rated speed of greater than 2,650 rpm may comply with the emission limitations for 2009 model year engines.

² - NMHC + NO_x means non methane hydrocarbon plus nitrogen oxide.

B.2 Fuel requirements for fire pump engine

In accordance with ARSD 74:36:07:88, as referenced to 40 CFR § 60.4207(b), the owner or operator shall only combust diesel fuel in the fire pump engine that meets the following per gallon standards:

1. Maximum sulfur content of 15 parts per million; and
2. Minimum cetane index of 40; or
3. Maximum aromatic content of 35 volume percent.

B.3 Operating requirements for fire pump engine

In accordance with ARSD 74:36:07:88, as referenced to 40 CFR §§ 60.4211(a), the owner or operator shall comply with the following, except as specified in permit condition I.4:

1. Operate and maintain the fire pump engine according to the manufacturer's emission-related written instructions;
2. Change only those emission-related settings that are permitted by the manufacturer; and
3. Meet the applicable requirements in 40 CFR Part 89, 94, and/or 1068.

B.4 Exemption from operating requirements for fire pump engine

In accordance with ARSD 74:36:07:88, as referenced to 40 CFR §§ 60.4211(g)(3), if the owner or operator does not install, configure, operate, and maintain the fire pump engine according to the manufacturer's emission-related written instructions or changes the emission-related settings in a way that is not permitted by the manufacturer, the owner or operator must demonstrate compliance as follows:

1. Maintain a maintenance plan and records of conducted maintenance;
2. To the extent practicable, maintain and operate the fire pump engine in a manner consistent with good air pollution control practice for minimizing emissions; and
3. Conduct an initial performance test to demonstrate compliance with the emission limits in permit condition I.1 within 1 year of startup, within 1 year after the fire pump engine is no longer installed, configured, operated, and maintained in accordance with the manufacturer's emission-related written instructions, or within 1 year after the owner or operator changes emission-related settings in a way that is not permitted by the manufacturer.

B.5 Operational restrictions for fire pump engine

In accordance with ARSD 74:36:07:88, as referenced to 40 CFR § 60.4211(f), the owner or operator may operate the fire pump engine for the purpose of maintenance checks and readiness testing, provided the tests are recommended by federal, state or local government, the manufacturer, the vendor, or the insurance company associated with the fire pump engine. Maintenance checks and readiness testing of fire pump engine is limited to 100 hours per year. There is no time limit on the use of fire pump engine in emergency situations. The owner or operator may operate the fire pump engine up to 50 hours per year in non-emergency situations, but those 50 hours are counted towards the 100 hours per year provided for maintenance and testing.

B.6 Performance test requirements for fire pump engine

In accordance with ARSD 74:36:07:88, as referenced to 40 CFR §§ 60.4212(a) and (d), if the owner or operator conducts a performance test to demonstrate compliance with permit condition I.1, the following procedures shall be followed:

1. The performance test must be conducted according to the in-use testing procedures in 40 CFR Part 1039, Subpart F; and
2. Exhaust emissions from the nonemergency generator must not exceed the "NTE" numerical requirements, rounded to the same number of decimal places as the applicable emission limit in permit condition I.1 and determined by Equation I-1.

Equation I-1 – NTE formula

Where: $NTE = 1.25 \times STD$

- NTE = Numerical requirement for each pollutant identified in Table I-1; and
- STD = Emission limit for each pollutant identified in Table I-1

B.7 Non-resettable clock requirements

In accordance with ARSD 74:36:07:88, as referenced to 40 CFR §§ 60.4209(a), the owner or operator shall install and maintain a non-resettable hour meter on the fire pump engine prior to startup of the fire pump engine.