

Prepared for:
Kinetic Site Ventures LLC

Submitted to:
**Missouri Department of Natural Resources
Air Pollution Control Program**

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Project Number
1940117850-001

Date
July 2026

APPLICATION FOR FEDERALLY ENFORCEABLE SECTION (5) CONSTRUCTION PERMIT KINETIC SITE VENTURES LLC NEW DATA CENTER FACILITY IN NEW FLORENCE, MISSOURI

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1. PERMIT APPLICATION SUMMARY

Kinetic Site Ventures LLC is proposing to build a data center facility near New Florence, Montgomery County, Missouri ("Kinetic Site Ventures LLC Data Centers" or "the facility"). This site is a greenfield facility, referred to as Project Spade. The project will include eleven (11) 3-megawatt (MW) diesel-fired generators, four (4) 500-kW diesel-fired generators, and two (2) 597 bhp diesel-fired firewater pumps. The diesel-fired or renewable diesel-fired emergency generators have the potential to emit air contaminants regulated under the Missouri Department of Natural Resources (MDNR) Air Pollution Control Program. The facility will commence construction once authorized under a Section (5) construction permit.

As described in this application, Kinetic Site Ventures LLC is requesting a site-wide NO_x limitation of 39.9 tons per year in order to remain below the *de minimis* permit threshold of 40 tons per year. As such, Kinetic Site Ventures LLC is applying for a Section (5) *de minimis* construction permit in accordance with procedures specified in Missouri Code of State Regulations (CSR), 10 CSR 10-6.060. This application includes all information for an administratively complete Section (5) construction permit application.

2. PROCESS DESCRIPTION

The proposed facility is located on the southern side of Interstate Highway 70, near the intersection of Interstate Highway 70 and Highway 19 in unincorporated Montgomery County, Missouri on the eastern border of the City of New Florence. Operations at the facility include data processing, hosting and related services and are thus classified under NAICS Category 518210 for Computing Infrastructure Providers, Data Processing, Web Hosting and Related Services and SIC Code 7374 for Computer Processing and Data Preparation and Processing Services.

2.1 Diesel-Fired Emergency Generators and Firewater Pumps

With this application, Kinetic Site Ventures LLC is applying for authorization to construct the identified diesel-fired or renewable diesel-fired emergency generators and firewater pumps. Table 1 summarizes the technical specifications of the proposed emergency generators and firewater pumps. Manufacturer technical specifications for the generators are provided in Appendix C.

Kinetic Site Ventures LLC is requesting approval for the use of both ULSD and renewable diesel conforming to EN15940 and ASTM D975 specifications for petroleum, including renewable diesel like hydrotreated vegetable oil (HVO), in the generators already permitted to burn diesel fuel. 40 CFR 63 Subpart ZZZZ indicates diesel fuel includes non-distillate fuel with comparable physical and chemical properties (e.g. biodiesel). Engine manufacturer guidance indicates all engines are compatible with renewable diesel and result in the reduction of carbon emissions. As such, the facility emissions will not increase as a result of burning renewable diesel.

2.2 Miscellaneous Activities

Other sources of emissions at the facility will include diesel belly storage tanks for each emergency generator with the potential to emit VOCs. Fugitive emissions caused by diesel deliveries on the paved haul roads are considered insignificant. Cooling equipment at the site consists of closed-loop, non-contact chillers and are not expected to generate air emissions via drift loss.

Table 1 – Technical Specifications			
Parameters	Group 1: 3 MW Generators	Group 2: 500 kW Generators	Firewater Pump
Number	11	4	2
Fuel Type	Diesel, Renewable Diesel	Diesel, Renewable Diesel	Diesel
Engine Manufacturer	Cummins	Cummins	TBD
Generator Model	QSK78-G37	QSK15-G9	TBD
Engine Manufacture Year	TBD	TBD	TBD
Genset Power Rating (kW)	3,000	500	445
Maximum Engine Power Output (bhp)	4,441	732	597
Engine Speed (rpm)	1,800	1,800	TBD
EPA Certification	EPA Tier 2	EPA Tier 2	EPA Tier 2

3. POTENTIAL EMISSION CALCULATIONS

This section describes the methodology used to estimate the potential emissions from the proposed Kinetic Site Ventures LLC Data Center. Detailed emission calculations are provided in Appendix B.

3.1 Overview of Emission Factors

To facilitate calculating emissions from the emission units at the facility, Kinetic Site Ventures LLC determined the appropriate emission factors and process or fuel usage potential throughputs. Emission factors were obtained using various methodologies and sources. The sources include:

- Manufacturer's technical specifications and emission guarantees;
- U.S. EPA's AP-42 Compilation of Air Emission Factors (5th Edition, Revised); and
- U.S. EPA's Mandatory Greenhouse Gas Reporting Rule

The sources and calculation methodologies are discussed in greater detail in the following sections.

3.1.1 Requested Permit Limitations

Kinetic Site Ventures LLC is requesting a permit limitation that restricts facility-wide NO_x emissions, the highest-emitted pollutant, to 39.9 tons per year to meet *de minimis* permitting requirements. The PTE was calculated assuming both engine groups will have only uncontrolled runtime. Annual NO_x emissions are calculated using the following equation:

$$39.9 \text{ tpy of NO}_x = \sum_{i=1}^n \left(\frac{EF_{NO_x,i} Q_i}{2000 \frac{\text{lb}}{\text{ton}}} \right)$$

Where:

$EF_{NO_x,i}$ = the pollutant-specific emission factor for the engine type, in lb/hr, for each emission unit, i , based on the manufacturer's technical specifications. The NO_x emission factors for each genset and the number of generators in each genset group are shown in Table 2.

Table 2 – Maximum NO _x Emission Factor by Genset		
Genset Group	Maximum NO _x Emission Factor (lb/hr)	Number of Generators
Group 1 Genset (3 MW)	72	11
Group 2 Genset (500 kW)	9.0	4
Firewater Pump	18	2

Q_i = the number of operating hours during the rolling 12-month period

Equation Summary:

$$39.9 \text{ tpy of } NO_x = 11 \left(\frac{72 \frac{\text{lb}}{\text{hr}} \cdot Q_i}{2000 \frac{\text{lb}}{\text{ton}}} \right) + 4 \left(\frac{9.0 \frac{\text{lb}}{\text{hr}} \cdot Q_i}{2000 \frac{\text{lb}}{\text{ton}}} \right) + 2 \left(\frac{18 \frac{\text{lb}}{\text{hr}} \cdot Q_i}{2000 \frac{\text{lb}}{\text{ton}}} \right)$$

3.1.2 Manufacturer's Technical Specifications

The engine-specific emission factors provided by the manufacturer for VOC (Total Hydrocarbons), NO_x, CO, PM₁₀, PM_{2.5}, SO₂ (Group 1 only) were used to estimate the emissions of those pollutants for each engine model. The potential emissions were conservatively calculated based on the manufacturer's exhaust emissions data at 100% load plus an additional 20% increase to both the Group 1 and Group 2 genset emissions. It was conservatively assumed that the PM₁₀ and PM_{2.5} emission factor is equal to the PM emission factor listed on the manufacturer's specifications sheet.

3.1.3 U.S. EPA AP-42 Emission Factors

Emission factors in the US EPA's AP-42, Section 3.3 were used for SO₂ (Group 2) and HAPs (both Groups). The emission factor for SO₂ was calculated based on the maximum allowable diesel fuel sulfur content of 0.0015% by weight, per 40 CFR 60 Subpart IIII. All emission factors for the firewater pump were taken from AP-42, Section 3.3.

3.1.4 Diesel Belly Tanks

Emissions of VOC from the diesel belly tanks will result from breathing and working losses.¹ These emissions were estimated using emission factors from EPA TANKS, Version 5.2. Breathing losses were estimated via the total belly tank capacity of each group of generators. Working losses were estimated via the maximum annual diesel throughput for each generator group.

3.2 U.S. EPA's Mandatory Greenhouse Gas Reporting Rule

Emission factors from U.S. EPA's Mandatory Greenhouse Gas Reporting Rule (40 CFR 98) were used to estimate greenhouse gas (GHG) emissions from the diesel-fired emergency generators and firewater pumps.

3.2.1 Facility-Wide Potential Emissions

A summary of facility-wide potential emissions at the greenfield facility are shown in Table 4.

Table 4 – Facility-wide Potential Emissions		
Pollutant	Total Emissions (tpy)	De Minimis Threshold (tpy)
VOC	1.5	40
NO _x	39.1	40
CO	3.7	100
PM ₁₀	0.51	15
PM _{2.5}	0.51	10
SO ₂	0.15	40
CO ₂ e	2737	--
Total HAP	2.59E-02	25

¹ Any potential HAP emissions from the operation of the diesel belly tanks are expected to be insignificant.

4. REGULATORY REVIEW

This section of the application summarizes the applicability and non-applicability of state and federal regulations to the Kinetic Site Ventures LLC Data Center.

4.1 Federal Regulatory Requirements

Federal air quality regulations reviewed include New Source Performance Standards (NSPS) (40 CFR Part 60), pollutant- and category-specific National Emission Standards for Hazardous Air Pollutants (NESHAPs) (40 CFR Parts 61 and 63), stratospheric ozone protection (40 CFR Part 82), and GHG Reporting (40 CFR Part 98).

4.1.1 New Source Review

The current Section 107 attainment status designations for areas within the State of Missouri are summarized in 40 CFR Section 81.326. The facility is located in Montgomery County, Missouri, which is classified as “attainment” or “unclassifiable/attainment” for all criteria pollutants. Therefore, the federal construction permitting program potentially applicable to the Kinetic Site Ventures LLC Data Center is the Prevention of Significant Deterioration (PSD) program.

Under the PSD permitting program, the major source emission threshold is 250 tpy of a regulated pollutant unless the source belongs to one of 28 specifically defined industrial source categories, in which case the major source threshold is 100 tpy. Data processing facilities are not one of the listed source categories and thus, the applicable major source threshold to the Kinetic Site Ventures LLC Data Center is 250 tpy. As shown in Table 4, the facility is a minor source with respect to the PSD program, as emissions of criteria pollutants are less than the major source thresholds of 250 tpy. Any future “modifications” at the facility will be examined regarding PSD permitting applicability.

4.1.2 Title V Operating Permits

The Title V operating permit program, promulgated in 40 CFR 70, requires a facility to obtain a Title V operating permit if it has potential emissions of a regulated criteria pollutant exceeding 100 tpy, of any single HAP exceeding 10 tpy, or of the aggregate of all HAPs exceeding 25 tpy. As shown in **Table 4**, the facility’s estimated emissions for NO_x will not exceed the Title V thresholds for NO_x. As such, the proposed facility will be classified as a minor source with respect to the Title V operating permit program.

4.1.3 New Source Performance Standards (NSPS)

NSPS require new, modified, or reconstructed sources to control emissions to the level achievable by the best-demonstrated technology as specified in the applicable provisions. Any source subject to an NSPS is also subject to the general provisions of NSPS Subpart A, unless specifically excluded.

4.1.3.1 NSPS Subpart A – General Provisions

Subpart A requires initial notification and performance testing, recordkeeping, and monitoring and provides reference methods and mandates general control device requirements for all other subparts as applicable.

4.1.3.2 NSPS Subpart IIII – Stationary Compression Ignition Internal Combustion Engines

NSPS IIII, Standards of Performance for Stationary Compression Ignition Internal Combustion Engines, applies to owners or operators of stationary compression ignition (CI) internal combustion engines (ICE) manufactured after April 1, 2006, and installed after July 11, 2005.

Emergency stationary internal combustion engines are defined in 40 CFR 60.4219 as:

...any stationary reciprocating internal combustion engine that meets all of the criteria in paragraphs (1) through (3) of this definition. All emergency stationary ICE must comply with the requirements specified in § 60.4211(f) in order to be considered emergency stationary ICE. If the engine does not comply with the requirements specified in § 60.4211(f), then it is not considered to be an emergency stationary ICE under this subpart.

(1) The stationary ICE is operated to provide electrical power or mechanical work during an emergency situation. Examples include stationary ICE used to produce power for critical networks or equipment (including power supplied to portions of a facility) when electric power from the local utility (or the normal power source, if the facility runs on its own power production) is interrupted, or stationary ICE used to pump water in the case of fire or flood, etc.

(2) The stationary ICE is operated under limited circumstances for situations not included in paragraph (1) of this definition, as specified in § 60.4211(f).

(3) The stationary ICE operates as part of a financial arrangement with another entity in situations not included in paragraph (1) of this definition only as allowed in § 60.4211(f)(2)(ii) or (iii) and §60.4211(f)(3)(i)

The engines that Kinetic Site Ventures LLC is proposing to install through this permit application meet all of the above criteria, as follows:

- The engines will be used to provide electrical power during emergency situations, and
- The engines will be used under limited circumstances for non-emergency situations, namely maintenance and testing activities

Because the diesel engines qualify as emergency stationary ICE, Kinetic Site Ventures LLC will comply with the applicable emergency engine standards specified under 40 CFR 60.4205.

4.1.3.3 Non-Applicability of Other NSPS

NSPS standards are developed for particular industrial source categories. Applicable and potentially applicable NSPS subparts have been identified in the sections above. All other NSPS are categorically not applicable to the operations at the Kinetic Site Ventures LLC Data Center.

4.1.4 National Emission Standards for Hazardous Air Pollutants (NESHAP)

NESHAP, federal regulations found in Title 40 Parts 61 and 63 of the CFR, are emission standards for hazardous air pollutants (HAP) that apply to major sources of HAP (facilities that exceed the major source thresholds of 10 tpy of a single HAP or 25 tpy of any combination of HAP) or specifically designated area sources (minor sources of HAP emissions) under Part 63. The Part 63 NESHAPs apply to sources in specifically regulated industrial source classifications (Clean Air Act Section 112(d)) or on

a case-by-case basis (Clean Air Act Sections 112(g) and 112(j)) where U.S. EPA has failed to promulgate a 112(d) standard by the applicable deadline. The greenfield facility is an area source of HAPs because potential emissions of a single HAP are less than 10 tpy and total combined HAP potential emissions are less than 25 tpy. There are no specific NESHAP applicable to data processing facilities. However, NESHAP that apply to specific processes, rather than specific industries, have been reviewed for applicability for area sources.

4.1.4.1 40 CFR Subpart 63 Subpart A – General Provisions

All affected sources subject to a source-specific subpart under 40 CFR Part 63 are subject to the general provisions of Subpart A as specified in the source-specific NESHAP. Subpart A requires initial notification and performance testing, recordkeeping, monitoring, provides reference methods, and mandates general control device requirements for all other subparts as applicable. Because 40 CFR Part 63 Subpart ZZZZ is applicable to the facility, the provisions of Subpart A also apply.

4.1.4.2 40 CFR Part 63 Subpart ZZZZ – Stationary Reciprocating Internal Combustion Engines

40 CFR Part 63 Subpart ZZZZ regulates HAP emissions from RICE located at major and area sources of HAP. The definition provided for emergency stationary ICE in 40 CFR 63.6675 is functionally equivalent to the definition provided for stationary internal combustion engines in NSPS IIII. Furthermore, in accordance with 40 CFR 63.6590(c)(1), new or reconstructed RICE that are located at an area source of HAP must meet the 40 CFR 63 Subpart ZZZZ requirements by meeting the requirements prescribed by 40 CFR 60 Subpart IIII. As described in Section 5.2.1, ADS will comply with the emergency engine requirements applicable to each engine under 40 CFR 60, Subpart IIII.

4.1.4.3 Non-Applicability of other NESHAP

As with the NSPS standards, NESHAP are primarily developed for particular industrial source categories. Therefore, the applicability of a particular NESHAP to a facility can be readily ascertained based on the industrial source category covered. All NESHAP regulations, both in 40 CFR Part 61 and 40 CFR Part 63, besides those specifically discussed above are not applicable to sources at data centers.

4.2 Missouri Regulatory Requirements

In addition to federal regulations, the MDNR rules establish regulations applicable at the emission unit level and at the facility level. The regulations also include general requirements for facilities, such as the requirement to obtain permits.

4.2.1 10 CSR 10-6.060(1) – Construction Permitting Applicability

Construction permitting is required in Missouri for any new installation with a potential to emit any pollutant in an amount equal to or greater than the *de minimis* emission levels outlined in 10 CSR 10-6.020(3)(A) Table 1. As shown in **Table 4**, no pollutants exceed the *de minimis* emission levels. As discussed in Section 4.1.2, the facility is taking an enforceable NO_x limit to stay below *de minimis* levels. Because the facility is taking this voluntary limit, a Section (5) general permit is required.

4.2.2 10 CSR 10-6.060(5)(D) – Ambient Air Quality Impact Analysis (AAQIA)

As presented in the regulation and based on discussions with MDNR, an ambient air quality assessment is required for any pollutant that exceeds the *De Minimis* Emission Levels outlined in 10

CSR 10-6.020(3)(A) Table 1. As shown in **Table 4**, no pollutants exceed the *de minimis* emission levels. As such, no air dispersion modeling will be completed.

4.2.3 10 CSR 10-6.070 – New Source Performance Regulations

This rule applies to sources subject to 40 CFR 60 subparts incorporated by reference in subsection 10 CSR 10-6.070(3)(A). The facility's CI ICE are subject to 40 CFR 60 Subpart IIII and will comply with all requirements of the federal regulations as outlined in Section 4.1.3.2.

4.2.4 10 CSR 10-6.075 – Maximum Achievable Control Technology Regulations

This rule applies to sources subject to 40 CFR 63 subparts incorporated by reference in subsection 10 CSR 10-6.075(3)(A). The facility's CI ICE are subject to 40 CFR 63 Subpart ZZZZ and will comply with all requirements of the federal regulations as outlined in Section 4.1.4.2.

4.2.5 10 CSR 10-6.220 – Restriction of Emission of Visible Air Contaminants

Per 10 CSR 10-6.220(1)(A), internal combustion engines are exempt from this rule; therefore, this rule does not apply to this facility.

4.2.6 10 CSR 10-6.261 – Control of Sulfur Dioxide Emissions

This rule applies to any source that emits SO₂. The CI ICE are sources of SO₂ emissions; however, these units will be fueled by ultra-low sulfur distillate fuel oil and/or paraffinic fuels conforming to EN15940 including HVO with a maximum sulfur content of 15 ppm. As such, the CI ICE are not subject to the requirements of 10 CSR 10-6.261.

4.2.7 10 CSR 10-6.390 – Control of NO_x Emissions from Large Stationary Internal Combustion Engines

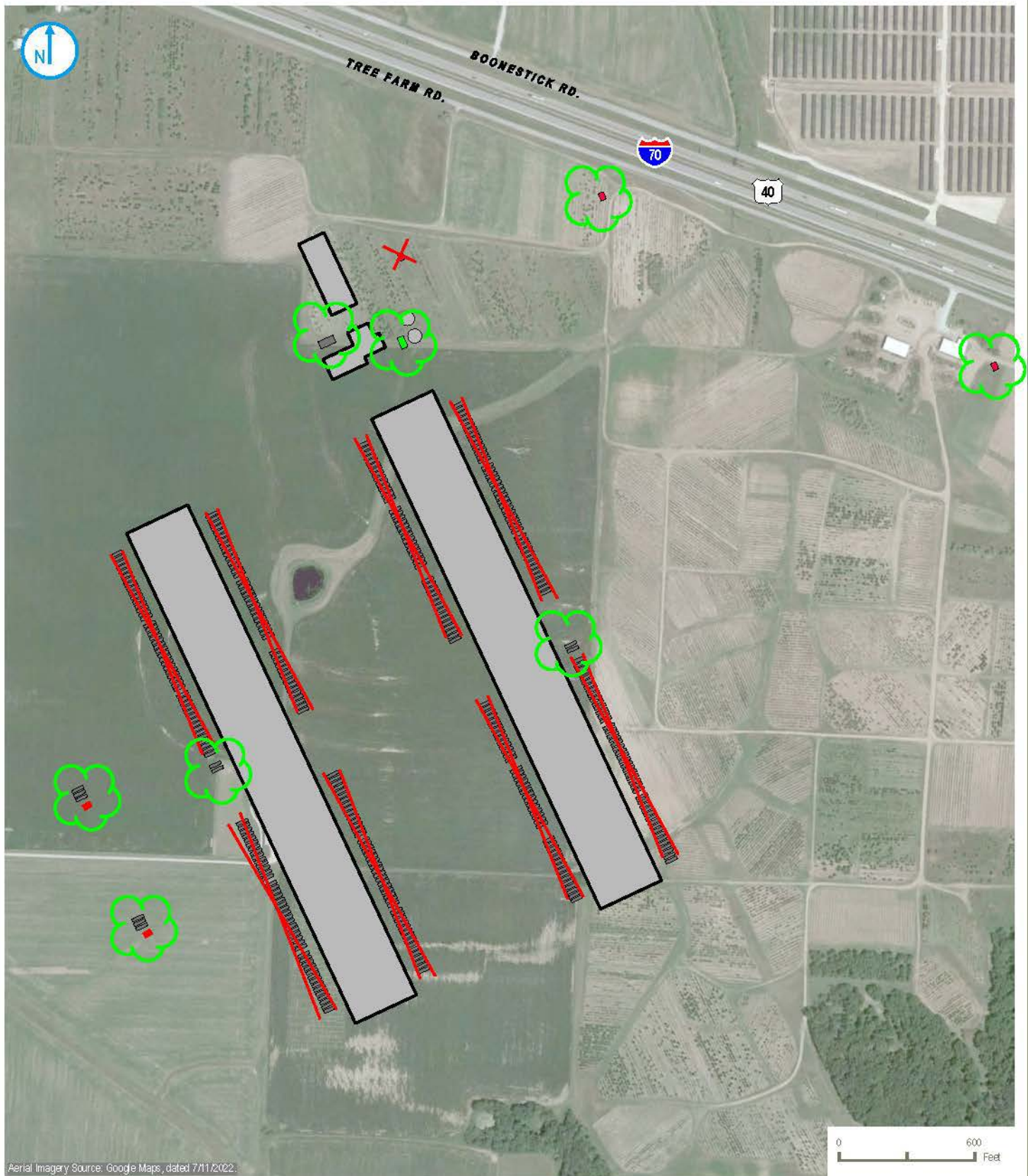
10 CSR 10-6.390 limits NO_x emissions from stationary RICE located in certain counties. Engines located in Montgomery County are subject to this rule, however, 10 CSR 10-6.390 (1)(C) states that any stationary internal combustion engine that meets the definition of an emergency standby engine is exempt. Thus, by qualifying as an emergency standby engine, the engines at this facility are not subject to the requirements of 10 CSR 10-6.390.

4.2.8 10 CSR 10-6.405 – Restriction of Particulate Matter Emissions from Fuel Burning Equipment Used for Indirect Heating

This rule applies to installations in which fuel is burned for the primary purpose of producing steam, hot water, or hot air or other indirect heating of liquids, gases, or solids and, in the course of doing so, the products of combustion do not come into direct contact with process materials. The CI ICE will not be used for indirect heating. As such, the CI ICE are not subject to the requirements of 10 CSR 10-6.405.

APPENDIX A

AREA MAP



PROPOSED BUILDING

100kW GENERATOR

DIESEL FIRE PUMPS (2X)

3MW GENERATOR

SITE LAYOUT

FIGURE 01

MULTI-BUILDING CAMPUS
NEW FLORENCE, MISSOURI

RAMBOLL AMERICAS
ENGINEERING SOLUTIONS, INC.
A RAMBOLL COMPANY

RAMBOLL

APPENDIX B

POTENTIAL EMISSION CALCULATIONS

Kinetic Site Ventures LLC - New Florence, MO
Facility Wide Emissions Summary

Facility Emissions (Generator and Firewater Pump)

Pollutant	Annual 3 MW Generator Emission Rate (tons/year)	Annual 500 kW Generator Emission Rate (tons/year)	Annual Fire Pump Emission Rate (tons/year)	Annual Belly Tank Emissions (tons/year)	Facility Emission Rate (tons/year) Uncontrolled	PSD Threshold (tons/year)	Major Source Threshold (tons/year)	Uncontrolled - Above PSD Threshold?	Uncontrolled - Above Major Source Threshold?
<i>Criteria Pollutant</i>									
VOC	1.3	8.37E-02	0.1463	1.06E-02	1.5	250	100	NO	NO
NOx	36	1.62	1.84	--	39.1	250	100	NO	NO
CO	3.1	0.199	0.40	--	3.7	250	100	NO	NO
PM ₁₀	0.35	0.031	0.130	--	0.51	250	100	NO	NO
PM _{2.5}	0.35	0.031	0.130	--	0.51	250	100	NO	NO
SO ₂	0.029	0.002	0.121	--	0.15	250	100	NO	NO
<i>Hazardous Air Pollutants</i>									
Benzene	1.19E-02	7.16E-04	3.90E-04	--	1.30E-02	--	--	--	--
Toluene	4.32E-03	2.59E-04	1.71E-04	--	4.75E-03	--	--	--	--
Xylenes	2.97E-03	1.70E-04	1.19E-04	--	3.27E-03	--	--	--	--
Propylene	4.29E-02	2.57E-03	1.08E-03	--	4.66E-02	--	--	--	--
1,3-Butadiene	--	--	1.63E-05	--	1.63E-05	--	--	--	--
Formaldehyde	1.21E-03	7.28E-05	4.93E-04	--	1.78E-03	--	--	--	--
Acetaldehyde	3.88E-04	2.32E-05	3.21E-04	--	7.32E-04	--	--	--	--
Acrolein	1.21E-04	7.27E-06	3.87E-05	--	1.67E-04	--	--	--	--
Naphthalene	2.00E-03	1.20E-04	3.54E-05	--	2.16E-03	--	--	--	--
Acenaphthylene	1.42E-04	8.51E-06	2.11E-06	--	1.53E-04	--	--	--	--
Acenaphthene	7.20E-05	4.32E-06	5.93E-07	--	7.69E-05	--	--	--	--
Fluorene	1.97E-04	1.18E-05	1.22E-05	--	2.21E-04	--	--	--	--
Phenanthrene	6.20E-04	3.76E-05	1.23E-05	--	6.78E-04	--	--	--	--
Anthracene	1.89E-05	1.13E-06	7.81E-07	--	2.08E-05	--	--	--	--
Fluoranthene	6.20E-05	3.72E-06	3.18E-06	--	6.89E-05	--	--	--	--
Pyrene	5.71E-05	3.42E-06	2.00E-06	--	6.25E-05	--	--	--	--
Benz(a)anthracene	9.57E-06	5.74E-07	7.02E-07	--	1.08E-05	--	--	--	--
Chrysene	2.39E-05	1.41E-06	1.48E-07	--	2.51E-05	--	--	--	--
Benzo(b)fluoranthene	1.71E-05	1.02E-06	4.14E-08	--	1.81E-05	--	--	--	--
Benzo(k)fluoranthene	3.35E-06	2.01E-07	6.48E-08	--	3.62E-06	--	--	--	--
Benzo(a)pyrene	3.95E-06	2.37E-07	7.86E-08	--	4.27E-06	--	--	--	--
Indeno(1,2,3-cd)pyrene	6.37E-06	3.82E-07	1.57E-07	--	6.91E-06	--	--	--	--
Dibenz(a,h)anthracene	5.32E-06	3.19E-07	2.44E-07	--	5.89E-06	--	--	--	--
Benzo(g,h,i)perylene	8.56E-06	5.13E-07	2.04E-07	--	9.27E-06	--	--	--	--
Maximum Individual HAP	1.19E-02	7.16E-04	4.93E-04	--	1.31E-02	10	10	NO	NO
Total HAP	2.30E-02	1.38E-03	1.58E-03	--	2.59E-02	25	25	NO	NO
<i>Greenhouse Gases</i>									
CO ₂	2,509	150	68	--	2,728	--	--	--	--
CH ₄	0.10	6.10E-03	2.76E-03	--	0.11	--	--	--	--
N ₂ O	0.020	1.22E-03	5.53E-04	--	0.022	--	--	--	--
CO _{2e}	2,517	151	68	--	2,737	100,000	75,000	NO	NO

[illegible]

Seçenek	Araç özellikleri	Sevkiyat maliyetleri				
		Yakıt	Yol	İşçilik	Malzeme	Diğer
500 kW Cerrahi QS15-GB NF-Z	Power	2.37	2.37	2.37	2.37	2.37
	Fuel Usage	30.7	30.8	30.8	30.7	30.7
	VOC	0.360	0.359	0.359	0.360	0.360
	NOx	5.336	5.350	5.350	5.336	5.336
	Breakev Emission Factor (g/gH ₂ O)	0.4002	0.401	0.401	0.4002	0.4002
	CO	0.4002	0.401	0.401	0.4002	0.4002
	HC	0.002	0.002	0.002	0.002	0.002
	PM	0.002	0.002	0.002	0.002	0.002
	SO _x	0.002	0.002	0.002	0.002	0.002
	Other	0.002	0.002	0.002	0.002	0.002

[illegible]

*The CO₂e emission factor is calculated as the sum of each GHG pollution multiplied by its global warming potential per GWP 95, Supplement A, Table A-1:

Pollutant	GWP
CO ₂	1
CH ₄	25
N ₂ O	295

Releasant	Emission Factor (g/h (PM10))	Emission factor (g/h (g/h))	Uncorrected Hourly Emissions (g/h (g/h))	Uncorrected Annual Emissions (g/a (g/a))	Total Uncorrected Hourly Emissions (g/h (g/h))	Total Uncorrected Annual Emissions (g/a (g/a))	Missed (g/a (g/a))
Crabtree Road							
CO	---	0.74	0.98	7,984.00	1.96	1,576.00	NO
NO _x	---	9.1	11.3	9,088.00	2.02	1,616.00	NO
CO	---	0.68	1.03	8,256.00	1.94	1,552.00	NO
PM ₁₀	---	0.11	0.19	1,536.00	0.30	2,024.00	NO
PM _{2.5}	---	0.11	0.19	1,536.00	0.30	2,024.00	NO
SO ₂	---	0.01	0.01	80.00	0.02	1,600.00	NO
Heathcote Rd, Brixworth							
Benzo(a)pyrene	7,768.00	---	1,368.00	1,104.00	1,104.00	1,104.00	YES
Benzo(a)anthracene	1,816.00	---	3,024.00	2,419.20	2,419.20	2,419.20	YES
Benzo(b)fluoranthene	1,936.00	---	3,024.00	2,419.20	2,419.20	2,419.20	YES
Benzo(k)fluoranthene	7,768.00	---	1,368.00	1,104.00	1,104.00	1,104.00	YES
Benzo(e)pyrene	7,768.00	---	1,368.00	1,104.00	1,104.00	1,104.00	YES
Benzo(g,h,i)perylene	7,768.00	---	1,368.00	1,104.00	1,104.00	1,104.00	YES
Benzo(a)fluoranthene	7,768.00	---	1,368.00	1,104.00	1,104.00	1,104.00	YES
Benzo(a)anthracene	7,768.00	---	1,368.00	1,104.00	1,104.00	1,104.00	YES
Benzo(b)fluoranthene	7,768.00	---	1,368.00	1,104.00	1,104.00	1,104.00	YES
Benzo(k)fluoranthene	7,768.00	---	1,368.00	1,104.00	1,104.00	1,104.00	YES
Benzo(e)pyrene	7,768.00	---	1,368.00	1,104.00	1,104.00	1,104.00	YES
Benzo(g,h,i)perylene	7,768.00	---	1,368.00	1,104.00	1,104.00	1,104.00	YES
Benzo(a)pyrene	7,768.00	---	1,368.00	1,104.00	1,104.00	1,104.00	YES
Benzo(a)anthracene	7,768.00	---	1,368.00	1,104.00	1,104.00	1,104.00	YES
Benzo(b)fluoranthene	7,768.00	---	1,368.00	1,104.00	1,104.00	1,104.00	YES
Benzo(k)fluoranthene	7,768.00	---	1,368.00	1,104.00	1,104.00	1,104.00	YES
Benzo(e)pyrene	7,768.00	---	1,368.00	1,104.00	1,104.00	1,104.00	YES
Benzo(g,h,i)perylene	7,768.00	---	1,368.00	1,104.00	1,104.00	1,104.00	YES
Benzo(a)pyrene	7,768.00	---	1,368.00	1,104.00	1,104.00	1,104.00	YES
Benzo(a)anthracene	7,768.00	---	1,368.00	1,104.00	1,104.00	1,104.00	YES
Benzo(b)fluoranthene	7,768.00	---	1,368.00	1,104.00	1,104.00	1,104.00	YES
Benzo(k)fluoranthene	7,768.00	---	1,368.00	1,104.00	1,104.00	1,104.00	YES
Benzo(e)pyrene	7,768.00	---	1,368.00	1,104.00	1,104.00	1,104.00	YES
Benzo(g,h,i)perylene	7,768.00	---	1,368.00	1,104.00	1,104.00	1,104.00	YES
Benzo(a)pyrene	7,768.00	---	1,368.00	1,104.00	1,104.00	1,104.00	YES
Benzo(a)anthracene	7,768.00	---	1,368.00	1,104.00	1,104.00	1,104.00	YES
Benzo(b)fluoranthene	7,768.00	---	1,368.00	1,104.00	1,104.00	1,104.00	YES
Benzo(k)fluoranthene	7,768.00	---	1,368.00	1,104.00	1,104.00	1,104.00	YES
Benzo(e)pyrene	7,768.00	---	1,368.00	1,104.00	1,104.00	1,104.00	YES
Benzo(g,h,i)perylene	7,768.00	---	1,368.00	1,104.00	1,104.00	1,104.00	YES
Benzo(a)pyrene	7,768.00	---	1,368.00	1,104.00	1,104.00	1,104.00	YES
Benzo(a)anthracene	7,768.00	---	1,368.00	1,104.00	1,104.00	1,104.00	YES
Benzo(b)fluoranthene	7,768.00	---	1,368.00	1,104.00	1,104.00	1,104.00	YES
Benzo(k)fluoranthene	7,768.00	---	1,368.00	1,104.00	1,104.00	1,104.00	YES
Benzo(e)pyrene	7,768.00	---	1,368.00	1,104.00	1,104.00	1,104.00	YES

[illegible]

Kinetic Site Ventures LLC - New Florence, MO
Firewater Pump Emission Calculations - Cummins

Engine Information

Firewater Pump	Parameter	Value	Unit
Firewater Pump	Power	597	bhp
	Average Diesel BSCF ¹	7000	Btu/hp-hr

Conversion Values	
Value	Units
453.592	g/lb
1000	g/kg
2000	lb/ton
1,000,000	Btu/MMBtu

Notes

¹Average BSCF of diesel obtained from AP 42, Volume 1, Section 3.3, Table 3.3-1

Hours/year/firewater pump	100
Number of firewater pumps	2

Emission Rates - Firewater Pump

Pollutant	Emission Factor (lb/MMBtu)	Hourly Emissions/Firewater Pump (lbs/hr)	Annual Emissions/Firewater Pump (tons/yr)	Total Uncontrolled Hourly Emissions (lbs/hr)	Total Annual Emissions (tons/yr)	Missouri SMAL?
<i>Criteria Pollutant</i>						
VOC ¹	0.35	1.5	7.31E-02	2.9	0.146	NO
NO _x ¹	4.41	18	0.92	37	1.84	NO
CO ¹	0.95	4.0	1.99E-01	7.9	0.40	NO
PM ₁₀ ²	0.31	1.3	6.48E-02	2.6	0.130	NO
PM _{2.5} ²	0.31	1.3	6.48E-02	2.6	0.130	NO
SO ₂ ³	0.29	1.2	6.06E-02	2.4	0.121	NO
<i>Hazardous Air Pollutants⁴</i>						
Benzene	9.33E-04	3.90E-03	1.95E-04	7.80E-03	3.90E-04	YES
Toluene	4.09E-04	1.71E-03	8.55E-05	3.42E-03	1.71E-04	YES
Xylenes	2.85E-04	1.19E-03	5.96E-05	2.38E-03	1.19E-04	YES
Propylene	2.58E-03	1.08E-02	5.39E-04	2.16E-02	1.08E-03	NO
1,3-Butadiene	3.91E-05	1.63E-04	8.17E-06	3.27E-04	1.63E-05	YES
Formaldehyde	1.18E-03	4.93E-03	2.47E-04	9.86E-03	4.93E-04	YES
Acetaldehyde	7.67E-04	3.21E-03	1.60E-04	6.41E-03	3.21E-04	YES
Acrolein	9.25E-05	3.87E-04	1.93E-05	7.73E-04	3.87E-05	YES
Naphthalene	8.48E-05	3.54E-04	1.77E-05	7.09E-04	3.54E-05	YES
Acenaphthylene	5.06E-06	2.11E-05	1.06E-06	4.23E-05	2.11E-06	NO
Acenaphthene	1.42E-06	5.93E-06	2.97E-07	1.19E-05	5.93E-07	NO
Fluorene	2.92E-05	1.22E-04	6.10E-06	2.44E-04	1.22E-05	NO
Phenanthrene	2.94E-05	1.23E-04	6.14E-06	2.46E-04	1.23E-05	NO
Anthracene	1.87E-06	7.81E-06	3.91E-07	1.56E-05	7.81E-07	YES
Fluoranthene	7.61E-06	3.18E-05	1.59E-06	6.36E-05	3.18E-06	NO
Pyrene	4.78E-06	2.00E-05	9.99E-07	4.00E-05	2.00E-06	NO
Benz(a)anthracene	1.68E-06	7.02E-06	3.51E-07	1.40E-05	7.02E-07	YES
Chrysene	3.53E-07	1.48E-06	7.38E-08	2.95E-06	1.48E-07	YES
Benzo(b)fluoranthene	9.91E-08	4.14E-07	2.07E-08	8.28E-07	4.14E-08	YES
Benzo(k)fluoranthene	1.55E-07	6.48E-07	3.24E-08	1.30E-06	6.48E-08	YES
Benzo(a)pyrene	1.88E-07	7.86E-07	3.93E-08	1.57E-06	7.86E-08	YES
Indeno(1,2,3-cd)pyrene	3.75E-07	1.57E-06	7.84E-08	3.13E-06	1.57E-07	YES
Dibenz(a,h)anthracene	5.83E-07	2.44E-06	1.22E-07	4.87E-06	2.44E-07	YES
Benzo(g,h,i)perylene	4.89E-07	2.04E-06	1.02E-07	4.09E-06	2.04E-07	NO
Maximum Individual HAP	1.18E-03	4.93E-03	2.47E-04	9.86E-03	4.93E-04	NO
Total HAP	3.79E-03	1.58E-02	7.92E-04	3.17E-02	1.58E-03	NO
<i>Greenhouse Gases⁴</i>						
CO ₂	163	681	34	1,363	68	NO
CH ₄	6.61E-03	0.028	1.38E-03	0.055	2.76E-03	NO
N ₂ O	1.32E-03	5.53E-03	2.76E-04	0.011	5.53E-04	NO
CO ₂ e ⁵	164	684	34	1,367	68	NO

Notes

¹VOC derived from TOC - Exhaust value obtained from AP 42, Volume 1, Section 3.3, Table 3.3-1

²PM10 value obtained from AP 42, Volume 1, Section 3.3, Table 3.3-1. PM2.5 assumed to be same value as PM10

³Emission Factors obtained from AP 42, Volume 1, Section 3.3, Table 3.3-1 and Table 3.3-2

⁴Emission factors of greenhouse gases from 40 CFR 98, Subpart C, Tables C-1 and C-2 for No. 2 fuel oil combustion. The emission factors were converted from kg/MMBtu to lb/MMBtu.

Pollutant	Value	Units
CO2	73.96	kg/MMBtu
CH4	3.00E-03	kg/MMBtu
N2O	6.00E-04	kg/MMBtu

⁵The CO2e emission factor is calculated as the sum of each GHG pollutant multiplied by its global warming potential, per 40 CFR 98, Subpart A, Table A-1:

Pollutant	GWP
CO2	1
CH4	28
N2O	265

Potential to Emit Calculations Belly Tank Emissions

Kinetic Site Ventures LLC - New Florence, MO
Belly Tank Emissions

Number of Generator Engines

Group 1 - 3 MW Engines	11
Group 2 - 500 kW Engines	4
Total	15

Maximum Annual Fuel Consumption

Engine Group / Type	Hourly Diesel Fuel Consumption per Engine ¹ (gal/hr/engine)	Potential Hours of Operation per Engine ² (hrs/yr/engine)	Potential Fuel Usage per Engine ³ (gal/yr/engine)
Group 1 - 3 MW Engines	204	90	18,360
Group 2 - 500 kW Engines	34.7	90	3,123

Notes:

- ¹ Per the manufacturer's Equipment Specification Sheets and Performance Data for each engine model.
- ² Potential Hours based on keeping total facility emissions below de minimis levels, as outlined in 10 CSR 10-6.020(3)(A) Table 1
- ³ Potential Fuel Usage per Engine (gal/yr/engine) = Maximum Diesel Fuel Consumption at Any Load (gal/hr/engine) * Potential Hours of Operation per Engine (hrs/yr/engine)

Potential VOC Emissions from the Diesel Belly Tanks

Tank Parameters		Group 1 (3.0 MW) Engines	Group 2 (500 kW) Engines
Belly Tank Dimensions ¹	Length (ft)	14.00	9.00
	Width (ft)	9.00	4.20
	Height (ft)	7.00	3.00
Belly Tank Capacity ¹	(ft ³)	882	113
	(gal)	6,598	848
Equivalent Tank Diameter ²	(ft)	8.96	4.01
Working Volume ³	(gal)	5,279	679
Potential VOC Emissions per Tank ⁴	(lb/yr/engine)	1.80	0.35
Potential VOC Emissions for All Tanks ⁵	(tpy)	9.89E-03	7.08E-04
Total Potential VOC Emissions from Diesel Belly Tanks (tpy)⁶		0.01	

Notes:

- ¹ Tank specifications estimated based on design specifications for tanks.
- ² Equivalent Tank Diameter (ft) = $\sqrt{[\text{Width (ft)} * \text{Height (ft)}] / \pi * 4}$
- ³ The working volume is assumed to be 80% of the storage capacity of the tank.
- ⁴ VOC emissions were estimated per the U.S. EPA's Tanks 5.2 program
- ⁵ Potential VOC Emissions for All Tanks (tpy) = Potential VOC Emissions per Tank (lb/yr/engine) * Number of Engines in Group / (2,000 lb/ton)
- ⁶ Total Potential VOC Emissions from Diesel Belly Tanks (tpy) = Sum of Potential VOC Emissions for All Engine Grouping Tanks (tpy)

Kinetic Site Ventures LLC - New Florence, MO
Air Toxics – Missouri SMAL Screening

Missouri Air Toxics Screening (SMAL-Based)

Chemical	CAS	Facility Total (tons/year)	SMAL (tpy) ¹	Exceeds SMAL?
Benzene	71432	1.30E-02	2	NO
Toluene	108883	4.75E-03	10	NO
Xylenes	1330207	3.27E-03	10	NO
Propylene	115071	4.66E-02	--	NO
1,3-Butadiene	106990	1.63E-05	0.07	NO
Formaldehyde	50000	1.78E-03	2	NO
Acetaldehyde	75070	7.32E-04	9	NO
Acrolein	107028	1.67E-04	0.04	NO
Naphthalene	91203	2.16E-03	10	NO
Acenaphthylene	208968	1.53E-04	--	NO
Acenaphthene	83329	7.69E-05	--	NO
Fluorene	86737	2.21E-04	--	NO
Phenanthrene	85018	6.78E-04	--	NO
Anthracene	120127	2.08E-05	0.01	NO
Fluoranthene	206440	6.89E-05	--	NO
Pyrene	129000	6.25E-05	--	NO
Benz(a)anthracene	56553	1.08E-05	0.01	NO
Chrysene	218019	2.51E-05	0.01	NO
Benzo(b)fluoranthene	205992	1.81E-05	0.01	NO
Benzo(k)fluoranthene	207089	3.62E-06	0.01	NO
Benzo(a)pyrene	50328	4.27E-06	0.01	NO
Indeno(1,2,3-cd)pyrene	193395	6.91E-06	0.01	NO
Dibenz(a,h)anthracene	53703	5.89E-06	0.01	NO
Benzo(g,h,i)perylene	191242	9.27E-06	--	NO

Notes

¹Screening Model Action Level (SMAL) derived from Missouri Natural Resources Table of Hazardous Air Pollutants, Screening Model Action Levels, and Risk Assessment Levels (Revision 19, Issued 9/15/2025)

APPENDIX C ENGINE MANUFACTURERS' TECHNICAL DATA SHEETS



Exhaust Emission Data Sheet

C3000D6EB

60 Hz Diesel Generator Set

Engine Information:

Model:	Cummins Inc. QSK78-G37	Bore:	6.69 in. (170 mm)
Type:	4 Cycle, V, 18 Cylinder Diesel	Stroke:	7.48 in. (190mm)
Aspiration:	Turbocharged and Charge Air Cooled	Displacement:	4737 cu. in. (78 liters)
Compression Ratio:	15.3:1		

	<u>1/4</u>	<u>1/2</u>	<u>3/4</u>	<u>Full</u>
<u>Performance Data</u>	<u>Standby</u>	<u>Standby</u>	<u>Standby</u>	<u>Standby</u>
Engine BHP @ 1800 RPM (60 Hz)	1110	2221	3331	4441
Fuel Consumption (US Gal/Hr)	61	111	160	204
Exhaust Gas Flow (CFM)	8424	14252	18987	22293
Exhaust Gas Temperature (°F)	762	816	807	863

Exhaust Emission Data

HC (Total Unburned Hydrocarbons)	0.22	0.10	0.08	0.07
NOx (Oxides of Nitrogen as NO ₂)	3.81	3.75	4.15	6.12
CO (Carbon Monoxide)	0.54	0.19	0.09	0.06
PM (Particulate Matter)	0.06	0.02	0.01	0.01
SO ₂ (Sulfur Dioxide)	0.005	0.005	0.005	0.005
Smoke (FSN)	0.71	0.30	0.16	0.08

(All values are cited: g/HP-hr)

Test Conditions

Steady-state emissions recorded per ISO8178-1 during operation at rated engine speed (+/-2%) and stated constant load (+/-2%) with engine temperatures, pressures and emission rates stabilized.

Fuel Specification:	ASTM D975 No. 2-D S15 diesel fuel with 0.0015 Wt.% Sulfur content, 42-48 Cetane Number
Air Inlet Temperature	25 °C (77 °F)
Fuel Inlet Temperature:	40 °C (104 °F)
Barometric Pressure:	100 kPa (29.53 in Hg)
Humidity:	NOx measurement corrected to 10.7 g/kg (75 grains H ₂ O/lb) of dry air
Intake Restriction:	Set to 18 in of H ₂ O as measured from compressor inlet
Exhaust Back Pressure:	Set to 1.5 in Hg

Note: mg/m³ values are measured dry, corrected to 5% O₂ and normalized to standard temperature and pressure (0°C, 101.325 kPa)

The NOx, HC, CO and PM emission data tabulated here are representative of test data taken from a single engine under the test conditions shown above. Data for the other components are estimated. These data are subjected to instrumentation and engine-to-engine variability. Field emission test data are not guaranteed to these levels. Actual field test results may vary due to test site conditions, installation, fuel specification, test procedures and instrumentation. Engine operation with excessive air intake or exhaust restriction beyond published maximum limits, or with improper maintenance, may result in elevated emission levels.



Exhaust Emission Data Sheet

500DFEK

60 Hz Diesel Generator Set
EPA NSPS Stationary Emergency

Engine Information:

Model:	Cummins Inc. QSX15-G9 NR 2	Bore:	5.39 in. (137 mm)
Nameplate BHP @ 1800 RPM:	755	Stroke:	6.65 in. (169 mm)
Type:	4 cycle, in-line, 6 cylinder diesel	Displacement:	912 cu. in. (14.9 liters)
Aspiration:	Turbocharged with air-to-air charge air cooling		
Compression Ratio:	17:1		
Emission Control Device:	Turbocharged with charge air-cooled		

	<u>1/4</u>	<u>1/2</u>	<u>3/4</u>	<u>Full</u>	<u>Full</u>
<u>Performance Data</u>	<u>Standby</u>	<u>Standby</u>	<u>Standby</u>	<u>Standby</u>	<u>Prime</u>
Engine HP @ Stated Load (1800 RPM)	202	379	555	732	668
Fuel Consumption (gal/Hr)	11.3	18.7	25.8	34.7	30.6
Exhaust Gas Flow (CFM)	1400	2150	2730	3625	3160
Exhaust Gas Temperature (°F)	745	830	820	900	880

Exhaust Emission Data

HC (Total Unburned Hydrocarbons)	0.24	0.09	0.07	0.14	0.12
NOx (Oxides of Nitrogen as NO ₂)	3.24	3.65	4.64	4.43	4.04
CO (Carbon Monoxide)	0.57	0.34	0.40	0.39	0.36
PM (Particulate Matter)	0.09	0.05	0.05	0.02	0.02
Smoke (Pierburg)	0.52	0.44	0.42	0.21	0.20

All values (except smoke) are cited: g/BHP-hr

Test Methods and Conditions

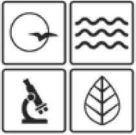
Steady-state emissions recorded per ISO8178-1 during operation at rated engine speed (+/- 2%) and stated constant load (+/- 2%) with engine temperatures, pressures and emission rated stabilized.

Fuel specification:	40-48 Cetane Number, 0.05 Wt.% max. Sulfur; Reference ISO8178-5, 40CFR86.1313-98 Type 2-D and ASTM D975 No. 2-D.
Air Inlet Temperature:	25 °C (77 °F)
Fuel Inlet Temperature:	40 °C (104 °F)
Barometric Pressure:	100 kPa (29.53 in Hg)
Humidity:	10.7 g/kg (75 grains H ₂ O/lb) of dry air (required for NOx correction)
Intake Restriction:	Set to maximum allowable limit for clean filter
Exhaust Back Pressure:	Set to maximum allowable limit

Data was taken from a single engine test according to the test methods, fuel specification and reference conditions stated above and is subjected to instrumentation and engine-to-engine variability. Tests conducted with alternate test methods, instrumentation, fuel or reference conditions can yield different results.

APPENDIX D

MDNR PERMIT APPLICATION FORMS



MISSOURI DEPARTMENT OF NATURAL RESOURCES
AIR POLLUTION CONTROL PROGRAM
APPLICATION FOR AUTHORITY TO CONSTRUCT

APCP USE ONLY

CHECK NO.: CHECK RECEIVED:

CHECK AMOUNT: \$ CHECK DATE:

PROJECT NUMBER:

Submit applications with the filing fee that is appropriate for the project: No filing fee for an amendment; **\$300** for Sections (4), and (5) Permits; **\$250** for Section (10) Permits; **\$6,000** for Sections (7), (8) and (9) Permits; and **\$3,500** for PAL renewal. The department will assess a **\$100-per-hour** processing fee at the end of the review. **PLEASE PRINT OR TYPE**

1. INSTALLATION NAME Project Spade			
2. INSTALLATION STREET ADDRESS 656 Tree Farm Road	CITY New Florence	STATE MO	ZIP CODE 63363
3. INSTALLATION MAILING ADDRESS 656 Tree Farm Road	CITY New Florence	STATE MO	ZIP CODE 63363
4. COUNTY Montgomery	5. SECTION, TOWNSHIP, RANGE OR GPS LOCATION 38°53'34.6"N 91°26'27.4"W		
6. FIPS COUNTY ID NUMBER 139	7. PLANT ID NUMBER TBD		
8. FINAL PRODUCT / PRINCIPAL ACTIVITY Data Center	9. SIC CODE 7374		
10. OWNER/OPERATOR NAME (IF DIFFERENT) Kinetic Site Ventures LLC			
11. OWNER/OPERATOR MAILING ADDRESS 1600 Amphitheatre Parkway	CITY Mountain View	STATE CA	ZIP CODE 94043
12. CONTACT PERSON Steven M. Walter		CONTACT PERSON'S TITLE Manager	
13. CONTACT PERSON'S MAILING ADDRESS 1600 Amphitheatre Parkway	CITY Mountain View	STATE CA	ZIP CODE 94043
14. CONTACT PERSON'S TELEPHONE NUMBER WITH AREA CODE TBD	15. CONTACT PERSON'S EMAIL ADDRESS swalter@google.com		
16. UNIFIED REVIEW Yes ☐ No ☒			
17. THIS APPLICATION IS FOR (CHECK THE APPROPRIATE BOX) ☒ New Installation ☐ Modification or Addition to an Existing Installation ☐ Temporary / Pilot Plant ☐ Amendment to Existing Permit: Permit No. _____			
18. PROJECTED DATE TO COMMENCE CONSTRUCTION TBD		19. PROJECTED DATE OF OPERATION STARTUP TBD	
APPLICANT'S CERTIFICATION STATEMENT			
I certify I have personally examined and am familiar with the information in this application and believe the information submitted is true, accurate and complete. I am aware that making a false statement or misrepresentation in this application is grounds for denying or revoking the construction permit. I may also be guilty of a misdemeanor and upon conviction, may be punished by fine or imprisonment.			
20. SIGNATURE OF RESPONSIBLE OFFICIAL <i>Steven M. Walter</i>			
21. TYPE OR PRINT NAME OF RESPONSIBLE OFFICIAL Steven M. Walter		22. DATE 7/16/2026	
23. OFFICIAL TITLE OF RESPONSIBLE OFFICIAL Manager		24. RESPONSIBLE OFFICIAL'S TELEPHONE NUMBER WITH AREA CODE	

25. OPTIONAL QUESTIONS REGARDING MILITARY SERVICE

Pursuant to Missouri Senate Bill 912 (SB912) section 42.051, RSMo requires all state agencies to provide information to veterans regarding available services and benefits as requested.

1. Have you ever served on active duty in the Armed Forces of the United States and separated from such service under conditions other than dishonorable? Yes ☐ No ☒
2. Would you like to receive information and assistance regarding veterans benefits and services? Yes ☐ No ☒
Missouri Benefits and Resource Portal for Veterans and Military: veteranbenefits.mo.gov, and
MoDNR provided veteran's services page: mostateparks.com/page/83631/missouri-state-parks-honors-veterans
3. May the agency share your contact information with the Missouri Veterans Commission to provide such information?
Yes ☐ No ☒ (If Yes, please complete the portion below.)

MAILING ADDRESS	CITY	STATE	ZIP CODE
CONTACT PERSON	TELEPHONE NUMBER WITH AREA CODE	EMAIL ADDRESS	

26. PROJECT DESCRIPTION AND NARRATIVE

The applicant is proposing to build a data center facility in New Florence, Montgomery County, Missouri. This site is a greenfield facility, referred to as Project Spade. The project will include eleven (11) 3 megawatt (MW) diesel-fired generators, four (4) 500 kW diesel-fired generators, and two (2) 597 bhp diesel-fired firewater pumps. The diesel-fired or renewable diesel-fired emergency generators have the potential to emit air contaminants regulated under the Missouri Department of Natural Resources (MDNR) Air Pollution Control Program.

For further information please see the attached application narrative.

Form 1.1 Emission Information for Air Construction Permit Application**Process Flow Diagram for the Project**

INSTALLATION NAME (A.)

Project Spade

FIPS COUNTY NO. (B.)

29139

PLANT NO. (C.)

TBD

For a new installation, show the entire installation. For an addition to an existing installation, show only the new processes, equipment or emission units and begin the ID numbering where the existing emission unit numbers leave off. If the application is for a modification or an addition to an existing emission point or unit, show the upstream and downstream emit unit(s) and emission point(s) that this modification will affect.

Process Flow Diagram provided in Appendix E

Summary of Emission Units Affected by this Application (duplicate this form as needed).

PLANT NO. (C.)

TBD

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Form 1.3 Emission Information for Air Construction Permit Application		
Plant Layout Diagram		
INSTALLATION NAME (A.)	FIPS COUNTY NO. (B.)	PLANT NO. (C.)
Project Spade	29139	TBD
Use this page or a separate sheet to provide a Plant Layout Diagram. Refer to the Permits Instruction Packet for details.		
Plant Layout Diagram provided in Appendix A		

Form 2.0 Emission Information for Air Construction Permit Application					
Emission Unit Information (duplicate this form as needed).					
INSTALLATION NAME (A.) Project Spade			FIPS COUNTY NO. (B.) 29139	PLANT NO. (C.) TBD	
UNIT IDENTIFICATION					
EMISSION UNIT NO. (D.) EP01 - EP11		EMISSION UNIT DESCRIPTION (E.) 3 MW Cummins QSK78-G37			
SOURCE CLASSIFICATION CODE (SCC) (F.) 20300101			MAKE (G.) Cummins	MODEL (H.) QSK78-G37	YEAR (I.) TBD
RELEASE PARAMETERS					
EMISSION RELEASE CHARACTERISTICS (CHECK THE APPROPRIATE BOX) (J.) ☒ STACK ☐ VENT ☐ FUGITIVE					
STACK OR VENT NO. (K.)		HEIGHT (FT) (L.) TBD		DIAMETER (FT) OR WIDTH X LENGTH (IN) (M.) 1	
TEMPERATURE (F) (N.) 863		VELOCITY (FT/MIN) (O.) TBD		FLOWRATE (STANDARD CUBIC FT/MIN) (P.) 22,293	
OPERATING RATE/SCHEDULE					
EXPECTED ANNUAL THROUGHPUT (Q.) 18,360		UNITS (R.) gal/yr	MAXIMUM HOURLY DESIGN RATE (S.) 204		UNITS/HR (T.) gal/hr
EXPECTED HOURS/DAY (U.) 1.73		EXPECTED DAYS/WEEK 1		EXPECTED WEEKS/YEAR 52	
AIR POLLUTION CAPTURE AND CONTROL DEVICES					
DEVICE NO. (V.)	CAPTURE DEVICE DESCRIPTION (W.)	CAPTURE DEVICE CAPTURE EFFICIENCY % (X.)			
		PM ₁₀	SO _x	NO _x	VOC
DEVICE NO. (Y.)	CONTROL DEVICE DESCRIPTION (Z.)	CONTROL DEVICE DESTRUCTION/REMOVAL EFFICIENCY % (AA.)			
		PM ₁₀	SO _x	NO _x	VOC
CALCULATION SECTION (BB.)					
POLLUTANT	EMISSION FACTOR	EMISSION FACTOR UNITS	OVERALL CONTROL EFFICIENCY	EMISSION RATE (LB/HR)	POTENTIAL EMISSIONS (TONS/YR)
See Appendix B					

Form 2.0 Emission Information for Air Construction Permit Application					
Emission Unit Information (duplicate this form as needed)					
INSTALLATION NAME (A.) Project Spade			FIPS COUNTY NO. (B.) 29139		PLANT NO. (C.) TBD
UNIT IDENTIFICATION					
EMISSION UNIT NO. (D.) EP12 - EP15		EMISSION UNIT DESCRIPTION (E.) 500 kW Cummins QSX15-G9			
SOURCE CLASSIFICATION CODE (SCC) (F.) 20300101			MAKE (G.) Cummins		MODEL (H.) QSB5-G13
					YEAR (I.) TBD
RELEASE PARAMETERS					
EMISSION RELEASE CHARACTERISTICS (CHECK THE APPROPRIATE BOX) (J.)					
☒ STACK ☐ VENT ☐ FUGITIVE					
STACK OR VENT NO. (K.)		HEIGHT (FT) (L.) TBD		DIAMETER (FT) OR WIDTH X LENGTH (IN) (M.) TBD	
TEMPERATURE (F) (N.) 913		VELOCITY (FT/MIN) (O.) TBD		FLOWRATE (STANDARD CUBIC FT/MIN) (P.) 878	
OPERATING RATE/SCHEDULE					
EXPECTED ANNUAL THROUGHPUT (Q.) 3,123		UNITS (R.) gal/yr		MAXIMUM HOURLY DESIGN RATE (S.) 34.7	
				UNITS/HR (T.) gal/hr	
EXPECTED HOURS/DAY (U.) 1.73		EXPECTED DAYS/WEEK 1		EXPECTED WEEKS/YEAR 52	
AIR POLLUTION CAPTURE AND CONTROL DEVICES					
DEVICE NO. (V.)		CAPTURE DEVICE DESCRIPTION (W.)		CAPTURE DEVICE CAPTURE EFFICIENCY % (X.)	
				PM₁₀ SO_x NO_x VOC CO HAPs	
DEVICE NO. (Y.)		CONTROL DEVICE DESCRIPTION (Z.)		CONTROL DEVICE DESTRUCTION/REMOVAL EFFICIENCY % (AA.)	
				PM₁₀ SO_x NO_x VOC CO HAPs	
CALCULATION SECTION (BB.)					
POLLUTANT		EMISSION FACTOR	EMISSION FACTOR UNITS	OVERALL CONTROL EFFICIENCY	EMISSION RATE (LB/HR)
See Appendix B					

Form 2.0 Emission Information for Air Construction Permit Application					
Emission Unit Information (duplicate this form as needed)					
INSTALLATION NAME (A.) Project Spade			FIPS COUNTY NO. (B.) 29139	PLANT NO. (C.) TBD	
UNIT IDENTIFICATION					
EMISSION UNIT NO. (D.) EP16 - EP17		EMISSION UNIT DESCRIPTION (E.) 597 bhp Firewater Pumps			
SOURCE CLASSIFICATION CODE (SCC) (F.) 20300101			MAKE (G.) Cummins	MODEL (H.) TBD	YEAR (I.) TBD
RELEASE PARAMETERS					
EMISSION RELEASE CHARACTERISTICS (CHECK THE APPROPRIATE BOX) (J.)					
☒ STACK ☐ VENT ☐ FUGITIVE					
STACK OR VENT NO. (K.)		HEIGHT (FT) (L.) TBD		DIAMETER (FT) OR WIDTH X LENGTH (IN) (M.) TBD	
TEMPERATURE (F) (N.) TBD		VELOCITY (FT/MIN) (O.) TBD		FLOWRATE (STANDARD CUBIC FT/MIN) (P.) TBD	
OPERATING RATE/SCHEDULE					
EXPECTED ANNUAL THROUGHPUT (Q.) 208.95		UNITS (R.) MMBtu/yr	MAXIMUM HOURLY DESIGN RATE (S.) 597		UNITS/HR (T.) bhp
EXPECTED HOURS/DAY (U.) 0.96		EXPECTED DAYS/WEEK 1		EXPECTED WEEKS/YEAR 52	
AIR POLLUTION CAPTURE AND CONTROL DEVICES					
DEVICE NO. (V.)	CAPTURE DEVICE DESCRIPTION (W.)	CAPTURE DEVICE CAPTURE EFFICIENCY % (X.)			
		PM ₁₀	SO _x	NO _x	VOC CO HAPs
DEVICE NO. (Y.)	CONTROL DEVICE DESCRIPTION (Z.)	CONTROL DEVICE DESTRUCTION/REMOVAL EFFICIENCY % (AA.)			
		PM ₁₀	SO _x	NO _x	VOC CO HAPs
CALCULATION SECTION (BB.)					
POLLUTANT	EMISSION FACTOR	EMISSION FACTOR UNITS	OVERALL CONTROL EFFICIENCY	EMISSION RATE (LB/HR)	POTENTIAL EMISSIONS (TONS/YR)
See Appendix B					

Form 2.1 Emission Information for Air Construction Permit Application																								
Fuel Combustion Information (duplicate this form as needed).																								
INSTALLATION NAME (A.)		FIPS COUNTY NO. (B.)	PLANT NO. (C.)																					
Project Spade		29139	TBD																					
COMBUSTION EQUIPMENT INFORMATION																								
EMISSION UNIT NO. (D.)		SCC (E.)																						
EP-01 - EP-11		20300101																						
(F.) EQUIPMENT DESCRIPTION (MAKE/MODEL)		(G.) YEAR PUT IN SERVICE	(H.) MAXIMUM DESIGN RATE (MILLION BTU/HR)																					
3 MW Cummins QSK78-G37		TBD	31.087																					
FUEL INFORMATION																								
(I.) FUEL TYPE																								
<table border="0"> <tr> <td>Oil</td> <td>Gas</td> <td>Coal</td> <td colspan="2">Other</td> </tr> <tr> <td>☒ Distillate (Fuel Oil 1-4)</td> <td>☐ Natural Gas</td> <td>☐ Anthracite</td> <td colspan="2">☐ Refuse</td> </tr> <tr> <td>☐ Residual Fuel Oil (5-6)</td> <td>☐ LPG/Propane</td> <td>☐ Bituminous</td> <td colspan="2">☐ Trade Wastes Waste Oil</td> </tr> <tr> <td></td> <td></td> <td>☐ Lignite</td> <td colspan="2">☐ Other (specify)</td> </tr> </table>					Oil	Gas	Coal	Other		☒ Distillate (Fuel Oil 1-4)	☐ Natural Gas	☐ Anthracite	☐ Refuse		☐ Residual Fuel Oil (5-6)	☐ LPG/Propane	☐ Bituminous	☐ Trade Wastes Waste Oil				☐ Lignite	☐ Other (specify)	
Oil	Gas	Coal	Other																					
☒ Distillate (Fuel Oil 1-4)	☐ Natural Gas	☐ Anthracite	☐ Refuse																					
☐ Residual Fuel Oil (5-6)	☐ LPG/Propane	☐ Bituminous	☐ Trade Wastes Waste Oil																					
		☐ Lignite	☐ Other (specify)																					
FUEL (J.)	EXPECTED ANNUAL THROUGHPUT (K.)	UNITS (L.)	% SULFUR BY WEIGHT (M.)	% ASH BY WEIGHT (N.)																				
Ultra low sulfur diesel/ renewable diesel	18,360	gal/yr	<0.0015	NA																				
FUEL TOTALS AND WEIGHTED AVERAGES																								
Comments:																								

Form 2.1 Emission Information for Air Construction Permit Application																								
Fuel Combustion Information (duplicate this form as needed)																								
INSTALLATION NAME (A.) Project Spade		FIPS COUNTY NO. (B.) 29139	PLANT NO. (C.) TBD																					
COMBUSTION EQUIPMENT INFORMATION																								
EMISSION UNIT NO. (D.) EP-12 - EP-15		SCC (E.) 20300101																						
(F.) EQUIPMENT DESCRIPTION (MAKE/MODEL) 500 kW Cummins QSX15-G9		(G.) YEAR PUT IN SERVICE TBD	(H.) MAXIMUM DESIGN RATE (MILLION BTU/HR) 1.232																					
FUEL INFORMATION																								
(I.) FUEL TYPE																								
<table><tr><td>Oil</td><td>Gas</td><td>Coal</td><td colspan="2">Other</td></tr><tr><td>☒ Distillate (Fuel Oil 1-4)</td><td>☐ Natural Gas</td><td>☐ Anthracite</td><td colspan="2">☐ Refuse</td></tr><tr><td>☐ Residual Fuel Oil (5-6)</td><td>☐ LPG/Propane</td><td>☐ Bituminous</td><td colspan="2">☐ Trade Wastes Waste Oil</td></tr><tr><td></td><td></td><td>☐ Lignite</td><td colspan="2">☐ Other (specify)</td></tr></table>					Oil	Gas	Coal	Other		☒ Distillate (Fuel Oil 1-4)	☐ Natural Gas	☐ Anthracite	☐ Refuse		☐ Residual Fuel Oil (5-6)	☐ LPG/Propane	☐ Bituminous	☐ Trade Wastes Waste Oil				☐ Lignite	☐ Other (specify)	
Oil	Gas	Coal	Other																					
☒ Distillate (Fuel Oil 1-4)	☐ Natural Gas	☐ Anthracite	☐ Refuse																					
☐ Residual Fuel Oil (5-6)	☐ LPG/Propane	☐ Bituminous	☐ Trade Wastes Waste Oil																					
		☐ Lignite	☐ Other (specify)																					
FUEL (J.)	EXPECTED ANNUAL THROUGHPUT (K.)	UNITS (L.)	% SULFUR BY WEIGHT (M.)	% ASH BY WEIGHT (N.)																				
Ultra low sulfur diesel/renewable diesel	3,123	gal/year	<0.0015	NA																				
FUEL TOTALS AND WEIGHTED AVERAGES																								
Comments:																								

Form 2.1 Emission Information for Air Construction Permit Application									
Fuel Combustion Information (duplicate this form as needed)									
INSTALLATION NAME (A.) Project Spade		FIPS COUNTY NO. (B.) 29139	PLANT NO. (C.) TBD						
COMBUSTION EQUIPMENT INFORMATION									
EMISSION UNIT NO. (D.) EP-16 - EP-17		SCC (E.) 20300101							
(F.) EQUIPMENT DESCRIPTION (MAKE/MODEL) 597 bhp Firewater Pumps		(G.) YEAR PUT IN SERVICE TBD	(H.) MAXIMUM DESIGN RATE (MILLION BTU/HR) 4.179						
FUEL INFORMATION									
(I.) FUEL TYPE									
<table style="width:100%; border: none;"> <tr> <td style="vertical-align: top;"> Oil ☒ Distillate (Fuel Oil 1-4) ☐ Residual Fuel Oil (5-6) </td> <td style="vertical-align: top;"> Gas ☐ Natural Gas ☐ LPG/Propane </td> <td style="vertical-align: top;"> Coal ☐ Anthracite ☐ Bituminous ☐ Lignite </td> <td colspan="2" style="vertical-align: top;"> Other ☐ Refuse ☐ Trade Wastes Waste Oil ☐ Other (specify) </td> </tr> </table>					Oil ☒ Distillate (Fuel Oil 1-4) ☐ Residual Fuel Oil (5-6)	Gas ☐ Natural Gas ☐ LPG/Propane	Coal ☐ Anthracite ☐ Bituminous ☐ Lignite	Other ☐ Refuse ☐ Trade Wastes Waste Oil ☐ Other (specify)	
Oil ☒ Distillate (Fuel Oil 1-4) ☐ Residual Fuel Oil (5-6)	Gas ☐ Natural Gas ☐ LPG/Propane	Coal ☐ Anthracite ☐ Bituminous ☐ Lignite	Other ☐ Refuse ☐ Trade Wastes Waste Oil ☐ Other (specify)						
FUEL (J.)	EXPECTED ANNUAL THROUGHPUT (K.)	UNITS (L.)	% SULFUR BY WEIGHT (M.)	% ASH BY WEIGHT (N.)					
Ultra low sulfur diesel/renewable diesel	208.95	MMBtu/yr	<0.0015	NA					
FUEL TOTALS AND WEIGHTED AVERAGES									
Comments:									

Hazardous Air Pollutant Information (duplicate this form as needed)

PLANT NO. (C.)

TBD

SCC (E.)

20300101

CAS NUMBER (G.)

See Appendix B

UNIT S/HR (I.)

UNIT S/HR (L)

[illegible]

Comments:

All HAP emissions below 1 tpy. Detailed HAP calculations can be found in Appendix B.

APPENDIX E

PROCESS FLOW DIAGRAM

Figure 2. Process Flow Diagram for Emergency Generator

