

**ENGINEERING ANALYSIS
DIGIPOWER X
COLUMBIANA, SHELBY COUNTY, ALABAMA
FACILITY NO. 411-0078
SYNTHETIC MINOR OPERATING PERMIT NOS. X001-X006**

On May 8, 2026, the Air Division received an initial application from DigiPower X (DPX) for the proposed construction and operation of a new data center that would include a group of forty-two (42) emergency compression ignition internal combustion engines (CI ICE) with associated fuel tanks, to be located in Columbiana, Shelby County. DPX submitted an addendum to the initial application on August 13, 2026, for which the application was deemed complete. Based on the information provided in the application, the facility would be a synthetic minor source under Title V and PSD regulations. DPX would be issued Synthetic Minor Operating Permit (SMOP) Nos. 411-0078-X001-X006 for the proposed equipment.

Project Description

DPX is proposing to build a new data center for the purpose of housing computer systems and associated components such as telecommunication and computer data storage systems. The Columbiana Data Center would include forty-two (42) emergency compression ignition internal combustion engines (CI ICE) with associated day fuel tanks, consisting of:

- Proposed SMOP No. X001 - Two (2) 1,490 bhp Cummins (Model No. QST30-G5-NR2) Emergency 4-stroke Rich-Burn (4SRB) Diesel-Fired, Compression Ignition Reciprocating Internal Combustion Engines (CI ICE) with 528 Gallon Fuel Tank
- Proposed SMOP No. X002 - Two (2) 2,923 bhp Mitsubishi (Model No. S16R-Y2PTAW2-1) Emergency 4-stroke Rich-Burn (4SRB) Diesel-Fired, Compression Ignition Reciprocating Internal Combustion Engines (CI ICE) with 4,150 Gallon Fuel Tank
- Proposed SMOP No. X003 - Twelve (12) 3,299 bhp Baudouin (Model No. 20M33G6D2/6) Emergency 4-stroke Rich-Burn (4SRB) Diesel-Fired, Compression Ignition Reciprocating Internal Combustion Engines (CI ICE) with 3,800 Gallon Fuel Tank
- Proposed SMOP No. X004 - Two (2) 3,640 bhp Cummins (Model No. QSK60-G19 NR2) Emergency 4-stroke Rich-Burn (4SRB) Diesel-Fired, Compression Ignition Reciprocating Internal Combustion Engines (CI ICE) with 3,949 Gallon Fuel Tank
- Proposed SMOP No. X005 - Ten (10) 3,621 bhp Rehlko (Model No. KD62V12A) Emergency 4-stroke Rich-Burn (4SRB) Diesel-Fired, Compression Ignition Reciprocating Internal Combustion Engines (CI ICE) (Model No. KD62V12A) with 4,750 Gallon Fuel Tank
- Proposed SMOP No. X006 - Fourteen (14) 3,618 bhp Baudouin (Model No. 12M55G5D2/6) Emergency 4-stroke Rich-Burn (4SRB) Diesel-Fired, Compression Ignition Reciprocating Internal Combustion Engines (CI ICE) with 4,500 Gallon Fuel Tank

The forty-two proposed emergency CI ICE would each be utilized for emergency use only. There are no other air emission sources located at the facility. However, the facility will utilize chillers to cool the servers. The chillers would be considered a fugitive emission source.

Emissions

The pollutants of concern that would be emitted from the proposed emergency CI ICE and associated fuel tanks would be nitrogen oxides (NO_x), carbon monoxide (CO), volatile organic compounds (VOC), sulfur dioxide (SO₂), particulates represented as particulate matter (PM), particulate matter ≤ 10 microns (PM₁₀), particulate matter ≤ 2.5 microns (PM_{2.5}), particulate matter condensable (PM_{CON}), and formaldehyde (CH₂O). Other criteria and hazardous air pollutants (HAP) were reviewed but determined to be insignificant. Facility-wide emissions calculations are included as Appendix A and unit specific emissions calculations are included in Appendix B.

State Regulations

ADEM Admin. Code r. 335-3-4-.01, “Control of Particulate Emissions: Visible Emissions”

The forty-two proposed emergency CI ICE and associated fuel tanks would be subject the State visible emission standards of ADEM Admin. Code r. 335-3-4-.01(1), which states that no air emission source may emit particulate of an opacity greater than 20% (as measured by a six-minute average) more than once during any 60 minute period and at no time shall emit particulate of an opacity greater than 40% (as measured by a six-minute average).

ADEM Admin. Code r. 335-3-4-.03, “Control of Particulate Emissions: Fuel Burning Equipment”

Per Appendix A in ADEM Admin. Code Div. 335-3, Shelby County is designated as a Class I County for PM emissions. Although the forty-two proposed emergency CI ICE would be fuel combustion sources, they would not be subject to any particulate matter (as TSP) emission limitation of ADEM Admin. Code r. 335-3-4-.03, because they would not meet the definition of fuel burning equipment nor would this facility be considered one of the process industries, general or specific.

ADEM Admin. Code r. 335-3-5-.01, “Control of Sulfur Compound Emissions: Fuel Combustion”

Per Appendix B in ADEM Admin. Code Div. 335-3, Shelby County is designated as a Category II County for SO₂ emissions. Although the forty-two proposed emergency CI ICE would be considered fuel combustion sources, they would not be subject to any SO₂ emission limitation of ADEM Admin. Code r. 335-3-5-.01, because they would not meet the definition of fuel burning equipment.

ADEM Admin. Code r. 335-3-6-.03, “Loading and Storage of VOC”

The proposed diesel fuel storage tanks associated with the proposed emergency CI ICE would not be subject to ADEM Admin. Code r. 335-3-6-.03 because the vapor pressure of the liquid stored would not exceed 1.5 psi.

Federal Regulations

Title V

After installation of the proposed emergency CI ICE and associated fuel tanks, the facility-wide potential emissions of NO_x and carbon monoxide CO would each exceed the 100 TPY major source threshold under Title V regulations. DPX has requested to limit the hours of operation on the forty-two proposed emergency CI ICE in order to synthetically reduce NO_x and CO emissions

below the Title V major source threshold. The forty-two proposed emergency CI ICE would be limited to 90 hours of operation per unit during any consecutive 12-month period. Based on the proposed hourly operating limit on the forty-two proposed emergency CI ICE, the facility-wide potential emissions would be 93.46 tons per year (TPY) for NO_x and 36.91 TPY for CO. The facility would be a synthetic minor source under Title V regulations, and a minor source of HAP because individual HAP emissions would be less than 10 TPY and total HAP emissions would be less than 25 TPY.

PSD

The facility operations would not be one of the 28 listed major source categories, and the facility would be located in an attainment area for all criteria pollutants. Therefore, the major source threshold of concern is 250 TPY for criteria pollutants. DPX has requested to limit the hours of operation on the forty-two proposed emergency CI ICE in order to synthetically reduce NO_x emissions below the PSD major source threshold. The forty-two proposed emergency CI ICE would be limited to 90 hours of operation per unit during any consecutive 12-month period. Based on the proposed hourly operating limit on the forty-two proposed emergency CI ICE, the facility-wide potential emissions for NO_x would be 93.46 TPY. The facility would be a synthetic minor source under PSD regulations.

NESHAP/MACT

40 CFR Part 63, Subpart ZZZZ, National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines (Subpart ZZZZ)

Any reciprocating internal combustion engine is an affected source under 40 CFR Part 63, Subpart ZZZZ, the National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines (Subpart ZZZZ). The forty-two proposed emergency CI ICE would each be considered a new affected source since they would be constructed after June 12, 2006. According to 40 CFR §63.6590(c), any new stationary CI ICE located at an area source of HAP emissions must meet the requirements of Subpart ZZZZ by meeting the requirements of 40 CFR Part 60, Subpart IIII, Standards of Performance for Stationary Compression Ignition Internal Combustion Engines (Subpart IIII). No further requirements would apply to the forty-two proposed emergency CI ICE under Subpart ZZZZ.

New Source Performance Standards (NSPS)

40 CFR Part 60, Subpart IIII, Standards of Performance for Stationary Compression Ignition Internal Combustion Engines (CI ICE)

Subpart IIII applies to owners/operators of stationary CI ICE that commence construction after July 11, 2005, and are manufactured after April 1, 2006, per 40 CFR §60.4200(a)(2)(i). Since the forty-two proposed emergency CI ICE would each be constructed/manufactured in 2024 and 2026, they would each be subject to this Subpart. According to 40 CFR §60.4205(b), owners and operators of emergency engines with a displacement of less than 30 liters per cylinder must comply with the emission standards for new nonroad CI engines in 40 CFR §60.4202 for all pollutants. 40 CFR §60.4207(b) requires DPX to use nonroad diesel fuel that has a sulfur content (≤15 ppm) and a Cetane index (≥40) or aromatic content (≤35% by volume), on a per gallon basis. The forty-two proposed emergency CI ICE are each required to be equipped with a non-resettable hour meter in

accordance with 40 CFR §60.4209(a). Subpart IIII also limits the operation of each emergency CI ICE to emergency situations and 100 hours per year for maintenance checks, readiness testing, and demand response as specified in 40 CFR §60.4211(f).

Emission Limitations

X001-X002

In accordance with 40 CFR §60.4202(a) to this Subpart, proposed emergency CI ICE Nos. X001-X002, must be certified by the manufacturer to meet the emission standards for new nonroad CI ICE found in 40 CFR 40 CFR Part 1039, Appendix I. The four proposed emergency CI ICE are each subject to a NO_x + NMHC emission standard of 6.4 g/kW-hr, a CO emission standard of 3.5 g/kW-hr, and a PM emission standard of 0.20 g/kW-hr. In addition, each of the four proposed emergency CI ICE must meet the smoke emission standards for new nonroad CI engines found in 40 CFR §1039.105. Exhaust opacity from each of the four proposed emergency CI ICE must not exceed 20% during the acceleration mode, 15% during the lugging mode, and 50% during the peaks in either the acceleration or lugging modes. Each of the proposed emergency CI ICE are certified by the manufacturer to meet all applicable standards under Subpart IIII. To maintain the certification, DPX must operate and maintain each emergency CI ICE in a manner that meets the emission standards over the entire life of the engine, as required by 40 CFR §60.4206.

X003-X006

In accordance with 40 CFR §60.4202(b) to this Subpart, proposed emergency CI ICE Nos. X003-X006, must be certified by the manufacturer to meet the emission standards for new nonroad CI ICE found in 40 CFR 40 CFR Part 1039, Appendix I. The thirty-eight proposed emergency CI ICE are each subject to a NO_x + NMHC emission standard of 6.4 g/kW-hr, a CO emission standard of 3.5 g/kW-hr, and a PM emission standard of 0.20 g/kW-hr. In addition, each of the thirty-eight proposed emergency CI ICE must meet the smoke emission standards for new nonroad CI engines found in 40 CFR §1039.105. Exhaust opacity from each of the thirty-eight proposed emergency CI ICE must not exceed 20% during the acceleration mode, 15% during the lugging mode, and 50% during the peaks in either the acceleration or lugging modes. Each of the proposed emergency CI ICE are certified by the manufacturer to meet all applicable standards under Subpart IIII. To maintain the certification, DPX must operate and maintain each emergency CI ICE in a manner that meets the emission standards over the entire life of the engine, as required by 40 CFR §60.4206.

Compliance Requirements

To demonstrate compliance with the applicable emission limitations, DPX purchased CI ICE certified to the applicable emission standards. DPX must maintain records of the date, time, duration, and purpose of operation each time an emergency CI ICE is operated, as required by 40 CFR §60.4214(b). To demonstrate compliance with the applicable fuel limitations in accordance with 40 CFR §60.4207(b), DPX is required to maintain records of the sulfur content and either the Cetane index or aromatic content of the diesel fuel that is burned in each emergency CI ICE. All records must be maintained in a form suitable for inspection and retained for a period of two years from the date of generation, as required by 40 CFR §60.7(f).

Testing Requirements

There would be no testing requirements for the forty-two proposed emergency CI ICE because they would each be certified by the manufacturer, as required by 40 CFR §60.4211(c).

40 CFR Part 60, Subpart Kc, Standards of Performance for Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) for Which Construction, Reconstruction, or Modification Commenced After October 4, 2023 (Subpart Kc)

Subpart Kc applies to each storage vessel with a capacity greater than or equal to 75.7 cubic meters (m³) (approximately 20,000 gallons) that is used to store volatile organic liquids, for which construction, reconstruction, or modification commenced after October 4, 2023. Each storage vessel would have a capacity of less than 20,000 gallons; therefore, they would not be subject to this Subpart.

Recordkeeping & Reporting

DPX would be required to maintain records of the date, time, duration, and purpose of operation each time an emergency CI ICE is operated, as required by 40 CFR §60.4214(b). To demonstrate compliance with the fuel limitations as required by 40 CFR §60.4207(b), DPX is required to maintain records of the sulfur content and either the Cetane index or aromatic content of the diesel fuel that is burned in each emergency CI ICE. All records must be maintained in a form suitable for inspection and retained for a period of two years from the date of generation, as required by 40 CFR §60.7(f).

In addition, because each of the forty-two proposed emergency CI ICE would be limited to 90 hours of operation during any consecutive 12-month period to remain below the Title V major source threshold for NO_x and CO, and to remain below the PSD major source threshold for NO_x, DPX would be required to maintain the hours of operation for each emergency CI ICE on a monthly basis. Within 10 days of the end of the month, DPX would be required to calculate the hours of operation for each unit for the previous calendar month and consecutive 12-month period. DPX would be required to maintain records of the hours of operation on a monthly and 12-month rolling total basis.

Air Quality Analysis

This facility would be located in Shelby County, an attainment area for all criteria pollutants. It would not be located within 100 km from any PSD Class I Area. Therefore, the proposed facility would not be expected to have a significant impact on these areas.

Public Comment

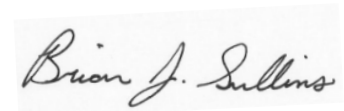
This facility would be considered a Greenfield site. In accordance with ADEM Admin. Code r. 335-3-14-.01, the Air Division will initiate a 15-day public comment period in order to solicit public input regarding the Department's preliminary determination to issue DPX SMOP Nos. 411-0078-X001-X006 for the forty-two proposed emergency CI ICE.

A greenfield site inspection was conducted on October 13, 2026. The proposed facility would not be located within close proximity to any residence. In addition, based on the nature of the proposed facility operations, there would be no adverse impacts expected from the proposed facility's emissions.

In accordance with ADEM Admin. Code r. 335-3-15-.05, the Air Division will initiate a 15-day public comment period, to run concurrently with the aforementioned 15-day greenfield public comment period, to solicit public input regarding the Department's preliminary determination to issue SMOP Nos. 411-0078-X001-X006 to DPX for the forty-two proposed emergency CI ICE.

Recommendations

Upon receipt of the payment of fees and the resolution of any comments received during the 15-day public comment period, I recommend that SMOP Nos. 411-0078-X001-X006 be issued to DPX for the installation of the proposed forty-two emergency diesel-fired CI ICE with associated diesel fuel storage tanks.



Brian J. Sullins

October 27, 2026

Date

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