STATE OF TENNESSEE
DEPARTMENT OF ENVIRONMENT AND CONSERVATION
DIVISION OF AIR POLLUTION CONTROL
William R. Snodgrass Tennessee Tower, 15th Floor
312 Rosa L. Parks Avenue
Nashville, TN 37243
(615) 532-0554 Voice or (615) 532-0614 FAX

March 21, 2024

Mr. Jeff Deaton, Managing Director
AESC US LLC
500 Battery Plant Road
Smyrna, TN 37167

Re: Construction Permit Application
500 Battery Plant Road, Smyrna, TN 37167
Emission Source Reference Nos. 75-0851-14 through 24/Log No. E81881

Dear Mr. Deaton:

Your public/redacted construction permit application dated April 26, 2023, for the construction of new battery manufacturing processes and the addition of one 750 kW diesel-fired emergency engine, was received on May 2, 2023. The confidential version of the construction permit application, dated April 26, 2023, was received on May 9, 2023. Information supporting the construction permit application dated June 29, 2023, was received on July 3, 2023. A public/redacted spreadsheet, containing emission testing data to support the use of emission factors in the construction permit application, was received June 29, 2023. The confidential version of this supporting data, dated June 28, 2023, was received on July 5, 2023. A confidential safety data sheet was received on August 9, 2023. Manufacturer specifications and emissions data for the proposed emergency engine was received on October 10, 2023. The information which you provided has undergone a preliminary review by the permit program.

It has been determined that the emergency engine and battery manufacturing processes described in your application (listed below) would constitute *insignificant activities* or *insignificant emissions units*, as defined in part 1200-03-09-.04(2)(a)3 of the Tennessee Air Pollution Control Regulations (TAPCR).

Process	Emission Source Reference No.	Battery Manufacturing Operation	Description of Insignificant Activities or Insignificant Emissions Units
Electrode Preparation	75-0851-14	Smyrna LFP	Six anode calendaring units prepare rolls of electrode materials for stacking/winding. These units are located in an environmental clean room. Emissions are controlled by HEPA filters and a dust collection system.
	75-0851-15	Stanford	The following units/activities are utilized to prepare rolls of electrode material for stacking/winding: • Two cathode slitting units • Two anode slitting units • Two cathode laser notching units • Two anode laser notching units These units/activities are located in an environmental clean room. Emissions are controlled by HEPA filters and a dust collection system.

Process	Emission Source Reference No.	Battery Manufacturing Operation	Description of Insignificant Activities or Insignificant Emissions Units
Stacking/ Winding	75-0851-16	Smyrna LFP	The following units/activities are part of the stacking/winding process: • 24 electrode stacking/winding units cut and stack/wind the electrode materials for each battery cell. • Transfer of stacked/wound electrode material for x-ray inspection. • Inspection of the stacked/wound electrode material using x-ray testing. These units/activities are located in an environmental clean room. Emissions are controlled by fabric filters and a dust collection system.
	75-0851-17	Stanford	The following units/activities are part of the stacking/winding process: • Six electrode stacking/winding units cut and stack/wind the electrode materials for each battery cell. • Transfer of stacked/wound electrode material for x-ray inspection. • Inspection of the stacked/wound electrode material using x-ray testing. These units/activities are located in an environmental clean room. Emissions are controlled by fabric filters and a dust collection system.
Cell Assembly	75-0851-18	Smyrna LFP	The following units are part of the cell assembly process: • Two machines pre-weld and cut the battery cell tab material in preparation for welding. • Two laser welding machines secure the tabs to the battery cell. • Two machines insert and pre-weld the battery cell top caps. • Two laser welding machines secure the top cap to the battery cell. Each machine is located in an environmental clean room. Emissions are controlled by fabric filters and a dust collection system.
	75-0851-19	Stanford	The following units are part of the cell assembly process: • Two machines pre-weld and cut the battery cell tab material in preparation for welding. • Two laser welding machines secure the tabs to the battery cell. • Two machines insert and pre-weld the battery cell top caps. • Two laser welding machines secure the top cap to the battery cell. Each machine is located in an environmental clean room. Emissions are controlled by fabric filters and a dust collection system.
Module and Pack Assembly	75-0851-20	Smyrna LFP	The following units/activities are part of the module and pack assembly process: • Side plates are welded to the battery cells to strengthen the overall structure of the battery module. • Busbars are welded to the battery modules within each battery pack to establish electrical connections. Fabric filters control welding emissions.
	75-0851-21	Stanford	Busbars are welded to the battery modules within each battery pack to establish electrical connections. Fabric filters control welding emissions.
Dehumidification	75-0851-22	Smyrna LFP, Stanford, and Existing	11 natural gas-fired dehumidification units (DH-1 through DH-11) are used throughout the battery manufacturing operations to reduce the risk of battery cell defects and failures caused by the electrode material's sensitivity to moisture. The combined heat input capacity of the dehumidification units is 14.74 million British thermal units per hour (MMBtu/hr).
Air Handling	75-0851-23	Facility-wide	23 natural gas-fired air handling units (AHUs) used throughout the facility. The combined heat input capacity of the AHUs is 16.33 MMBtu/hr.
Emergency Power Generation	75-0851-24	Facility-wide	One 750 kW diesel-fired emergency generator set capable of providing emergency backup power to the facility. This unit is subject to all applicable requirements of 40 CFR 60, Subpart IIII.

Specifically, the operation of each process unit or activity would result in potential emissions of less than five tons per year of each air contaminant and each regulated air pollutant that is not a hazardous air pollutant, and less than 1,000 pounds per year of each hazardous air pollutant.

Subparagraph 1200-03-09-.04(4)(a) of TAPCR requires that the request for designation of a new source as an insignificant emission unit be made at least 30 days prior to the estimated starting date of construction. Existing sources may receive designation as an insignificant emissions unit at any time. Your application is accepted as the required notification. All applicable air pollution regulations must still be met by your facility. For your convenience, please refer to the enclosed guidance sheet to help ensure continued compliance with the federal regulations applicable to your stationary emergency engine(s).

If you have any questions concerning this correspondence, please contact Mr. Joshua Rhoads at (615) 532-0547 or Joshua.Rhoads@tn.gov. Your Facility ID is **75-0851**, please reference this number in any further correspondence with the Division.

Sincerely,

James P. Johnston, P.E.
Deputy Director
Permitting & Regulatory Development

Enclosure

Compliance Guidance for Stationary Emergency Engines

This guidance has been developed to assist businesses that are utilizing the Permit-by-Rule option, or that have obtained an insignificant activitiy determination, as a means of maintaining their stationary emergency internal combustion engine(s) in compliance with the National Emission Standard for Hazardous Air Pollutants (NESHAP) for Reciprocating Internal Combustion Engines (RICE), and the Standards of Performance for New Stationary (NSPS) Spark Ignition (SI) and Compression Ignition (CI) Internal Combustion Engines.

The stationary emergency engines discussed in this guidance are operated to supply electrical power or mechanical work during emergency situations. They usually provide power to critical networks or equipment when power from a local utility or other normal source of power is interrupted, but may also be used for pumping water during a fire or flood. They may also be used in limited circumstances to supply power as part of a financial arrangement with another location if the local balancing authority or local transmission and distribution system operator calls on the emergency engine in order to prevent an interruption of power.

This guidance applies only to:

1. Stationary Emergency IC Engines
    a. Does not apply to mobile, Rankine cycle, or non-road engines.
    b. Does not apply to engines manufactured prior to June 12, 2006, and are located at a commercial, institutional, or residential location that operate only for emergency situations or for recommended maintenance and readiness checks. See the NAICS list for further clarification based on business group.
        i. Commercial emergency engines refer to those used at banks, hotels, offices, restaurants, sporting arenas, and telecommunications (cell towers) as examples.
        ii. Institutional emergency engines refer to those used at churches, fire stations, hospitals, nursing homes, police stations, and schools as examples.
        iii. Residential emergency engines refer to those used at apartment complexes or houses.

What limits are there on operating a stationary emergency engine?

Emergency engines are designed to be operated primarily in emergency situations. But, they can be operated for limited amounts of time outside of emergency situations. Here are the time limits on emergency engine operation:

1. No time limit during an emergency situation.
2. A maximum of 100 hours of non-emergency operation per calendar year as follows:
    a. Recommended maintenance checks and readiness testing. If more than 100 hours are needed, a petition to the Technical Secretary of the TN Division of Air Pollution Control can be submitted requesting more time. This petition is not needed if records are kept that show more than 100 hours of maintenance or testing is recommended by standards for the

engine.

b. *A maximum of 50 hours for nonemergency situations can be used to supply power as part of a financial arrangement with another entity if all of the following conditions are met:

   A. The engine is dispatched by the local balancing authority or local transmission and distribution system operator.
   B. The dispatch is intended to mitigate local transmission and/or distribution limitations so as to avert potential voltage collapse or line overloads that could lead to the interruption of power supply in a local area or region.
   C. The dispatch follows reliability, emergency operation or similar protocols that follow specific NERC, regional, state, public utility commission or local standards or guidelines.
   D. The power is provided only to the facility itself or to support the local transmission and distribution system.
   E. The owner identifies and records the entity that dispatches the engine and the specific NERC, regional, state, public utility commission or local standards or guidelines that are being followed for dispatching the engine. The local balancing authority or local transmission and distribution system operator may keep these records on behalf of the engine owner or operator.

c. The maximum 50 hours of nonemergency operation count as part of the 100 hours per calendar year allowed.

d. The 50 hours of nonemergency operation cannot be used for peak shaving, nonemergency demand response, or generating income for the facility to an electric grid.

*If the engines is greater than 100 horsepower, and used in nonemergency situations to supply power as part of a financial arrangement with another entity, the owner must keep records of the date, start time, and end time of the engine operated for these purposes, and must submit an annual report using the Compliance and Emissions Data Reporting Interface (CEDRI) that is accessed through EPA's Central Data Exchange (CDX) (www.epa.gov/cdx).

Complying with the rules

All owners and operators of stationary emergency engines must determine the manufacture date of the engine.

For all engines that are manufactured prior to April 1, 2006, the engine owners/operators must:

1. Change the oil and filter every 500 hours of operation or annually, whichever comes first.
    a. An oil analysis program can be used to show that changing the oil is not necessary. The analysis must be performed as frequently as oil changes are required and will analyze Total Base (for CI) or Acid (for SI) number, viscosity, and percent water content. These three parameters must meet certain criteria in order for the oil to continue being used.
2. Inspect the air cleaner for CI engines, and inspect the spark plus for SI engines every 1000 hours of operation or annually, whichever comes first. Replace as necessary.
3. Inspect all the hoses and belts every 500 hours of operation or annually, whichever comes first. Replace as necessary.
4. Install a non-resettable hour meter, if one is not already installed. Keep records of the operation of the engine in emergency and non-emergency service.
5. Operate and maintain the engine and associated after-treatment control devices (if any) according to the manufacturer's recommendations or,
6. Develop a maintenance plan to maintain and operate the engine in a manner consistent with good air pollution control practices for minimizing emissions.

For CI engines that are manufactured after April 1, 2006, SI engines greater than 25 horsepower and manufactured after January 1, 2009, and SI engines less than or equal to 25 horsepower and manufactured after July 1, 2008, the engine owners/operators must:

1. Use Ultra Low Sulfur Diesel, if a CI engine
2. Be certified by the manufacturer as meeting the standards for the same model year and maximum engine power. To maintain certification you must:
    a) Install and configure the engine according to the manufacturer's emission-related specifications;
    b) Operate and maintain the engine and control device (if present) according to the manufacturer's emission-related written instructions;
    c) Change only those emission-related settings that are permitted by the manufacturer.
3. If the engine has a label that states that the engine is for **stationary emergency use only**, a non-resettable hour meter must be installed, and you must:
    a) Keep records of the operation of the engine in emergency and non-emergency service that is recorded through the non-resettable hour meter.
    b) Record the time of operation of the engine and the reason the engine was in operation during that time