



Clarification #2025-01

EMERGENCY GENERATOR AIR PERMIT GUIDELINES

JANUARY 17, 2025

I. PURPOSE

The purpose of this document is to provide clarification to DEQ air compliance and permitting staff, and to the general public, regarding the implementation of the definition of “emergency” as it applies to emergency generators in Virginia DEQ’s air permit regulations and associated issues.

II. APPLICABILITY

This document is applicable across all source categories and throughout the Commonwealth of Virginia.

III. EPA VS. STATE DEFINITION OF “EMERGENCY”

- A. Many facilities employ reciprocating internal combustion engine (RICE) driven generators, or gen-sets for short, for backup use in the event of a power outage. These gen-sets are typically classified as emergency under the U.S. EPA definition in NSPS Subpart IIII¹ and the more limited definition of the Virginia Administrative Code. However, there are significant differences in the two definitions.
- B. In part, these differences derive from the different purposes of the regulations. The EPA definition is designed to differentiate units (non-emergency) that must include active air pollution control equipment (which are generally known as Tier IV units) from those units (emergency) that are not required to include such controls (which are generally known as Tier II units) on a nationwide basis. Virginia’s minor new source review permit regulation and all of its definitions (including the one for “emergency”) is designed to protect air quality on a local, facility-by-facility basis. The Virginia definition is therefore (as seen below in Table 1) narrower in many respects, has been incorporated into the State Implementation Plan (making it federally enforceable) and has been in place, in most respects, since 2002.

¹ New Source Performance Standards (NSPS) Subpart IIII - Standards of Performance for Stationary Compression Ignition Internal Combustion Engines

Table 1: Comparison of EPA and Virginia Definition of “Emergency” for Gen-Sets		
Service	EPA	Virginia
Emergency Operation	Unlimited	500 hours total for all purposes
Gen-set* Readiness + Maintenance	100 hours	
Operation for other non-emergency purposes	50 hours (also counts against the 100 hour allowance)	0 hours
Emergency Demand Response Operation	Considered to be non-emergency operation	Considered to be emergency operation
<i>*Excludes switch gear testing, scheduled power outages or other similar activities</i>		

IV. BACK-UP POWER TECHNOLOGIES

- A. While the vast majority of the existing Virginia gen-set fleet is currently diesel-fired, there are cleaner and more efficient technologies available. Table 2 below presents an engine technology hierarchy with respect to Nitrogen Oxides (NO_x) emissions with the lower emitting units appearing in descending order. It should be understood, however, that the full emission benefit from the “cleaner” technologies will not always manifest during some operating events (short-term maintenance/readiness testing).

Table 2: Engine Technology Hierarchy				
Type	Classification		Maximum Operating Service	NO _x Emissions
	State	Federal		
DIESEL ENGINES				
Tier II	Emergency	Emergency	Limit all operation to less than major source levels	18.0 lb/MW
Tier II + SCR*	Non-emergency	Emergency	Limit all operation to less than major source levels	1.8 lb/MW
Tier IV	Non-emergency	Non-emergency	Limit all operation to less than major source levels	1.8 lb/MW
NATURAL GAS ENGINES				
EPA Compliant	Emergency	Emergency	Limit all operation to less than major source levels	6.0 lb/MW
EPA Compliant	Non-emergency	Non-emergency	Limit all operation to less than major source levels	3.0 lb/MW
EPA + Controlled	Non-emergency	Non-emergency	Limit all operation to less than major source levels	0.3-1.5 lb/MW
NATURAL GAS SIMPLE CYCLE COMBUSTION TURBINES				
Low-NO _x	Non-emergency	Non-emergency	Limit all operation to less than major source levels	0.3-0.5 lb/MW
Low-NO _x with SCR	Non-emergency	Non-emergency	Limit all operation to less than major source levels	0.1 lb/MW
*Where SCR = Selective Catalytic Reduction system = an active air pollution control system that reduces NO _x emissions; a Tier II engine equipped with an add-on SCR is sometimes referred to as a “Tier IV equivalent” engine				

- B. The lower NO_x-emitting technologies also typically result in lower emission rates of other pollutants such as carbon monoxide and particulate matter.
- C. While the availability and reliability of the regional natural gas supply has limited the use of this fuel for facilities in the past, local utility power connection constraints, improved access and alternate site locations have the potential to increase its attractiveness in the future.
- D. Based upon these considerations, Tier IV or even Tier IV-equivalent gen-sets provide a great deal of flexibility when permitted as non-emergency units in Virginia: (1) such units can be used for switch gear testing, scheduled power outages and other similar activities; (2) due to their lower emission rates, it is possible to operate such units for far longer periods of time before reaching major source NO_x emission levels: 100 tons per year in the Northern Virginia non-attainment area or 250 tons per year throughout the rest of the Commonwealth.

- E. Typically, it is the NO_x emissions from a proposed facility that determine whether any required new source review permit is classified as minor or major (the 250/100 tons/year thresholds from above). However, there are projects where other air pollutants such as particulate matter and carbon monoxide can drive the permit determination.

V. Petroleum Storage Tanks – Diesel Powered Gen-sets

- A. For emergency generators fueled by petroleum underground storage tanks (USTs), the facility must comply with the UST technical requirements of 9VAC25-580, which includes proper installation, operation, and maintenance of the tank and piping systems to prevent and detect releases. This includes having appropriate release detection systems for both the tank and associated piping systems. DEQ has developed a fact sheet regarding these requirements: Emergency Generator Underground Storage Tanks (USTs) Release Detection. The facility must also register the tank with DEQ and demonstrate financial responsibility pursuant to 9VAC25-590.
- B. For emergency generators fueled by a petroleum aboveground storage tank (AST) with a capacity more than 660 gallons piped to the generator, the facility must comply with the AST technical requirements of 9VAC25-91. The facility must also register the tank with DEQ and demonstrate financial responsibility pursuant to 9VAC25-640. For facilities with an aggregate AST storage capacity of 25,000 gallons or more, an Oil Discharge Contingency Plan (ODCP) must also be submitted to DEQ and approved prior to operation. Additionally, while ASTs that hold 660 gallons or less are not regulated by DEQ, they may be regulated by local governments through local building and fire codes.

VI. More Information/Legal

- A. Air permits are issued from the DEQ regional offices. Please contact the appropriate regional office if you have more questions regarding the air permitting of emergency generators.
- B. DEQ's public website ([link](#)) provides additional information regarding air permit topics, and also can be used to access DEQ's Permit Enhancement and Evaluation Platform (PEEP) and the statewide Virginia Permit Transparency (VPT) system.
- C. This document is neither a regulation subject to notice-and-comment rulemaking requirements nor a final agency action. This document does not amend the definition of "adjacent" in DEQ regulations and does not create or change any legal requirements applicable to DEQ, permit applicants, or the public. Source determinations are made by DEQ on a case-by-case basis after consideration of the relevant administrative record.