



Additional General Permit Guidance for Natural Gas Compressor Stations

The purpose of this guidance is to help determine if a proposed natural gas compressor station qualifies for permitting through the General Permit (GP) program, and, if so, if computer modeling needs to be submitted.

Introduction

The Ohio EPA, Division of Air Pollution Control (DAPC) has developed multiple general permits for equipment that is typically installed at natural gas compressor stations. In order to qualify to obtain each of these general permits, the applicant must certify that they meet the corresponding qualifying criteria for each of the general permits.

One of the qualifying criteria questions is designed to ensure that the project to be installed does not trip federal-based New Source Review (NSR) requirements (either Nonattainment NSR or Prevention of Significant Deterioration (PSD)). This is not too difficult to figure out if you are installing a small project with only a couple of emissions units. However, it is more difficult to figure this out if you are installing a project with a lot of emissions units.

In addition, for natural gas compressor stations, air pollution computer modeling may need to be submitted with the general permit application.

This guidance has been written in order to assist applicants in figuring out if major NSR applies and if computer modeling must be submitted for natural gas compressor stations. If major NSR applies, then the project would not qualify for obtaining permits through the GP program. If the project does qualify for the general permits, then this guidance can help applicants determine if modeling needs to be submitted with the application.

Caveat

Because major NSR qualifying criteria are complex, this guidance does not attempt to give the ultimate answer as to whether or not major NSR applies. Instead, it is designed to identify projects that clearly do not trip major NSR. If the project clearly does not trip major NSR, then it can qualify for the GP program. If it is not clear, or more analysis is required to determine if major NSR applies, then this guidance suggests applicants discuss the issue with their facility's permit writer from the District Office or Local Air Agency before deciding if they qualify for the GP program.

Determining Potential Emissions for the Existing Facility and Proposed Project

In order to determine if major NSR applies, you must calculate both the existing facility potential-to-emit¹ (if there is an existing facility) and the proposed project potential-to-emit (PTE). You must do this calculation for each criteria pollutant (PM, PM₁₀, PM_{2.5}, NO_x, CO, VOC, SO₂, and Lead). This type of calculation is easiest done with a table or a spreadsheet. An example of one is below:

¹ Potential-to-emit, or PTE, is a defined term found in OAC rule 3745-31-01.

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Major NSR Table for Existing Facility/Proposed Project									
Facility's Source Description/Identification	Potential to Emit (ton/yr)								
	GP#	PM	PM10	PM2.5	NOx	CO	VOC	Lead	SO2
100 HP Portable diesel engine #2	9.5	3.38	3.38	3.38	33.77	56.29	11.26	0.0	0.073
100 mmBtu Gas Boiler #1	N/A	8.76	8.76	8.76	21.9	36.07	4.72	0.0	0.26
Total for de minimis sources		0.01	0.01	0.01	5.0	10.0	4.0	0.0	0.0
	Sum	12.15	12.15	12.15	60.67	102.4	19.98	0.0	0.33
Modification/Modeling Threshold		25	15	10	40	100	40	0.6	40

In the above table, you list each source that is located at the existing facility, the GP number (if it is a GP), and the potential-to-emit for each pollutant. In the example given, the first source is a portable diesel engine that is covered by a GP, and the second source is gas-fired boiler that is not covered by a GP. In both cases, the PTE for each pollutant was obtained from either the text of the permits or based on a calculation. Note that for many permits, a straight ton/yr limit may not be listed. Instead, the limit may be expressed in other units. In those cases, you will need to calculate the PTE based on the limits in the permit and assuming the source operates 8760 hours per year. Also note that since the GPs cover a range of sizes of equipment, you can use the PTE of the actual equipment you plan to install instead of the upper range for the GP. For instance, if you are obtaining a GP for a diesel engine and the GP has a range of ≥ 100 HP to < 175 HP engines and you install a 150 HP engine, then you can calculate the PTE based on the 150 HP size rather than the 175 HP upper range. In addition, the applicant totaled up the PTEs for any de minimis sources that are not covered by a permit and entered the data in the de minimis row. Once that was complete, the applicant totaled the emission in each PTE column to get the facility's sum for each pollutant. Strike out "Proposed Project" in the table heading so it does not get mixed up with the next table.

After you have done the above table for any existing sources at the facility, you will need to do another similar table for any sources covered under the proposed project. The second table will get you a total PTE for the proposed project. Once you have created this table, strike out "Existing Facility" so you don't get the tables mixed up.

Determining if Major NSR Applies

This procedure is different depending upon if the project is occurring at an existing facility or not. If there is an existing facility, follow the "Existing Facility Procedure" below. If there is not an existing facility, follow the "New Facility Procedure" below.

Existing Facility Procedure

Review the "Existing Facility" table and look at the sum row for each pollutant. If the total emission for any criteria pollutant is greater than or equal to 100 tons/year, then the project may trip Major New Source Review. You may or may not qualify for the general permit. Contact your permit writer to determine if major NSR is tripped and to verify if you can get a general permit. Under this case, this procedure ends.

If the total allowed emission for all criteria pollutants for all existing sources at the facility are less than 100 tons/yr, then move on to the next step.

Review the "Proposed Project" table and look at the sum row for each pollutant. Compare each pollutant's total against 100 tons/yr. If all pollutant totals are each less than 100 tons/year, major NSR does not apply and you can apply for and obtain a general permit.

If any of the pollutants are greater than 100 tons/yr, then you might trip major NSR. Contact your permit writer to determine if major NSR is tripped and to verify if you can get a general permit.

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[New Facility Procedure](#)

Compare each pollutant's total from the Proposed Project table against 100 tons/yr. If all pollutant totals are each less than 100 tons/year, major NSR does not apply and you can apply for and obtain a general permit.

Determining if Modeling Needs to be Submitted

If you qualify to obtain GPs through this procedure for a project, you might also need to submit modeling information with the GP application. There are two types of modeling you might need to submit. The first is for criteria pollutants (PM, PM10, PM2.5, NOx, CO and Lead). The second is for air toxic pollutants.

[Criteria Pollutant Modeling](#)

For criteria pollutants you determine if modeling needs to be submitted by reviewing each pollutant's total from the Proposed Project table against the Modification/Modeling Threshold row. Review each pollutant except for VOC and determine if any pollutant totals are at or above the Modification/Modeling Thresholds. If any of the pollutants are above the thresholds, then you must conduct and submit criteria modeling information along with your application. To understand what modeling needs to be done, please review Engineering Guide #69 found at:

epa.ohio.gov/Portals/27/engineer/eguides/2014-07-17%20FINAL%20Revised%20EG69.pdf.

If none of the non-VOC criteria pollutants are greater than their respective modeling thresholds, then no criteria modeling needs to be submitted.

[Air Toxic Modeling](#)

For air toxic compounds, determine the potential to emit for each compound that is expected to be emitted and that is found on the Toxic Air Contaminant list found in Ohio Administrative Code (OAC) 3745-114-01. If the potential to emit for any of the compounds exceed 1.0 tons/year, then conduct and submit air toxic modeling following the method described in the document called "Option A – REVIEW OF NEW SOURCES OF AIR TOXIC EMISSIONS" found at:

epa.ohio.gov/Portals/27/files/option_a.pdf.

[Formaldehyde Modeling from Engines](#)

DAPC has found that some compression-ignition engines emit significant quantities of formaldehyde. In order to ensure new or modified projects do not cause any potential threats to health and the environment, DAPC is asking permittees to conduct modeling for formaldehyde whenever the project is expected to emit more than 1.0 ton/yr of formaldehyde. This modeling can either be done using the above described "Option A – REVIEW OF NEW SOURCES OF AIR TOXIC EMISSIONS" method, or it can be done using more sophisticated methods that are described in DAPC's Engineering Guide #69 found at: epa.ohio.gov/Portals/27/engineer/eguides/2014-07-17%20FINAL%20Revised%20EG69.pdf. When the more sophisticated methods are used, the ambient modeling concentrations that must be met are 49 µg/m³ maximum 1-hour concentration and 0.8 µg/m³ on an annual basis.

Contact

For more information, contact your permit writer. The permit writer that is responsible for your facility can be determined by calling the District Office or Local Air Agency (DO/LAA) that is responsible for your facility. You can determine the DO/LAA by reviewing the map found at: epa.ohio.gov/dapc/general/dolaa.aspx.