

Air Quality Permitting: FAQ

How does the Clean Air Act ensure air quality meets health-based standards?

The U.S. Clean Air Act defines six principal pollutants as the Criteria Air Pollutants:

- **Particle pollution**, aka particulate matter or PM. This includes fine particulate matter (PM_{2.5}) and coarse particulate matter (PM₁₀).
- **Carbon monoxide**, or CO.
- **Lead**, or Pb.
- **Nitrogen dioxide**, or NO₂.
- **Sulfur dioxide**, or SO₂.
- **Ozone**, or O₃. Ozone is not emitted directly, but forms when two other types of air pollution combine: nitrogen oxides, or NO_x, and volatile organic compounds, or VOCs.

The [National Ambient Air Quality Standards](#) (NAAQS) are set by the U.S. Environmental Protection Agency (EPA) to protect public health and the environment. These standards set allowable levels of each criteria air pollutant in ambient (outdoor) air. The EPA periodically reviews the NAAQS and may revise them as provided in law.

There are both primary and secondary NAAQS. Primary NAAQS are established to protect public health, including the health of sensitive populations including children, older adults, and people with existing health conditions. Secondary NAAQS provide public welfare protection, including protection against decreased visibility and damage to animals, crops, vegetation, and buildings.

All of North Carolina has continued to comply with every primary and secondary NAAQS since 2015, meaning that our air quality meets these federal benchmarks.

Air quality permits contain the conditions and requirements necessary to ensure that the NAAQS will continue to be met at a facility's property line. Those conditions might include emissions controls, operation or emissions limits, monitoring and recordkeeping, or other requirements to reduce and track emissions, as set out in state and federal rules.

What does an air quality permit allow?

Regulated sources of air pollution, unless otherwise exempt, must first apply for and obtain an air quality permit from the N.C. Department of Environmental Quality's (DEQ) Division of Air Quality (DAQ) prior to constructing or operating a facility that is a source of regulated air pollution. ([15A NCAC 02Q .0101](#))

Air quality permit applications submitted by companies are reviewed by DAQ permitting engineers, who then write a defensible and enforceable air quality permit specific to that facility. An air quality permit contains state and federally enforceable conditions and requirements a facility must follow during construction and operation, such as equipment controls, operation restrictions and emission limits.



Permits also include requirements such as proper monitoring, recordkeeping and reporting to state agencies to ensure compliance with applicable air quality regulations.

A facility must apply for and receive a modified air quality permit before it can make changes to any of the air quality pollution sources on its site. For non-Title V facilities, modifications can include administrative amendments, state-only modifications, and changes that don't require permit revisions (15A NCAC 02Q .0318). For Title V facilities, modifications can include administrative amendments, 502(b)(10), minor modifications, significant modifications, and sometimes state-only modifications.

The permit must also be periodically renewed.

What construction activities are allowed before receiving an air quality permit?

Before receiving an air quality permit, a facility can only begin certain pre-construction activities at the site, such as land clearing and grading; building access roads, driveways, and parking lots; building and installing underground pipe work, including water, sewer, electric, and telecommunications utilities; or building ancillary structures, including fences and office buildings that are not a necessary component of an air contaminant source, equipment, or associated air cleaning device.

What are the different types of air quality permits?

The class of air quality permit a facility is required to hold generally depends on how much air pollution a facility could emit. This "potential to emit" is a conservative calculation that assumes a facility's most-polluting operating scenarios run non-stop for an entire year.

- A **Title V air quality permit** is required for facilities with the potential to emit above any of these major-source thresholds:
 - 100 tons per year of any criteria air pollutant.
 - 10 tons per year of any hazardous air pollutant.
 - 25 tons per year of total aggregate hazardous air pollutants.

While Title V permits are federal permits, in North Carolina, they are written and issued by DAQ.

- A **synthetic minor air quality permit** can be issued to a facility that has the potential to emit air pollutants above major-source levels, but whose actual emissions will be less than those levels by the addition of control devices and/or operational or production limits. These limits are federally enforceable to ensure emissions remain below major-source levels.
- A **small** (i.e., non-Title V) **air quality permit** is required for facilities with the potential to emit below major-source thresholds.

Certain facilities with the smallest emission profiles may not require permitting if they qualify for facility registration or permit exemption instead. (15A NCAC 02Q .0102). If a facility is unsure if it requires an air permit, they can request DAQ conduct a permit applicability determination.



What is a state Construction and Operation permit?

North Carolina issues state Construction and Operation air quality permits under [15A NCAC 02Q .0300](#) to facilities classified as small or synthetic minor.

Facilities required to hold a federal Title V air quality permit may also request that their application for an air quality permit be processed in two steps:

- In the first step, the application is reviewed and the facility receives a state Construction and Operation permit that allows them to construct and operate their emission sources at Title V levels.
- In the second step, the facility is required to submit an application to DAQ for its federal Title V air quality permit within 12 months of beginning operation under the state permit. This application is then reviewed as per the Division's normal procedures.

What is Prevention of Significant Deterioration, or PSD?

Certain facilities with the potential to emit any Criteria Air Pollutant above certain thresholds must additionally demonstrate compliance with the Prevention of Significant Deterioration (PSD) permitting program. Facilities subject to PSD go through a longer and more substantial review period during permitting and are subject to more stringent requirements.

PSD facilities must employ the best available control technology. They must also conduct an air quality impact analysis using air dispersion modeling that must show that the facility's potential emissions will not cause a NAAQS violation beyond the facility's property line. This analysis must be reviewed and approved by DAQ meteorologists.

For many new sources, the PSD threshold is 250 tons per year of any one criteria air pollutant. However, for [certain categories of facilities](#), the threshold is 100 tons per year of any one criteria air pollutant.

Additionally, an existing facility may have to undergo a new PSD review when applying to modify its air quality permit if the change in its emissions is above a certain threshold. These thresholds are lower for modification.

What are hazardous air pollutants and toxic air pollutants, and how are they different?

Hazardous air pollutants, or HAPs, are a class of federally regulated pollutants known to cause cancer or other serious health harm at certain levels of exposure. Facilities that have an uncontrolled potential to emit more than 10 tons per year of any single HAP or more than 25 tons per year of all HAPs combined are a major source, require a Title V permit, and are subject to federal emission standards under 40 CFR Part 63 and stronger control requirements designed to reduce HAP emissions.

Toxic air pollutants, or TAPs, are a class of pollutants regulated under the North Carolina Air Toxics program (15A NCAC 02D .1100 and 02Q .0700). Like HAPs, they are known to be associated with cancer or other serious health effects. Many TAPs are HAPs and vice versa, but some pollutants are unique to either list. North Carolina's program is designed to reduce the concentration of TAPs beyond a facility's property line.



How does state law protect public health from a facility's air emissions?

In North Carolina, facilities must demonstrate compliance with state air toxics rules when applying for an air quality permit. These rules impose health-based limits on the concentration of off-site air toxics (called the "Acceptable Ambient Levels," or AALs).

These AALs are recommended by the North Carolina Secretaries' Science Advisory Board (NCSSAB) following a comprehensive review of animal and human toxicological data for specific chemicals. The N.C. Environmental Management Commission adopts AALs into air quality rules following the NCSSAB's recommendations. Current AALs are periodically reviewed to determine if new and relevant information has been published in peer-reviewed journals which may influence the AAL determination.

A facility subject to these rules that emits toxic air pollutants above certain screening rates (the Toxic Pollutant Emission Rates, or TPER) is required to obtain an air quality permit and demonstrate through air dispersion modeling that its emissions will not cause an AAL to be exceeded beyond the facility's property line.

How are air dispersion models conducted and reviewed?

Modeling undergoes multiple checks and reviews to ensure accuracy to the highest standards. DAQ permit engineers and supervisors work with the Division's Air Quality Analysis Branch (AQAB) staff to review and verify all engineering data, such as stack parameters and emission rates, that are used in the models. Permit applicants submit either a modeling checklist or a modeling protocol detailing the input data and procedures to be used in the modeling analysis. Final model setup and input data such as meteorological data and terrain data are reviewed by AQAB meteorologists and supervisor.

How are air emissions controlled at permitted facilities?

Control of air emissions can be achieved in various ways.

In some cases, installation of air control devices — such as fabric filters, cyclones, scrubbers or thermal oxidizers — may be necessary to reduce specific pollutants below applicable emissions limits. Individual control devices can also be used in parallel or in series to create a control system. In other cases, operational or production limitations can be applied to keep a facility's emissions below applicable emissions limits.

Regardless of the method of emissions control, DEQ will review for appropriateness and expected compliance. An air quality permit will also include conditions for monitoring, recordkeeping, and reporting to ensure practical enforceability.

In addition to the state standards, EPA requires facilities to comply with the control requirements of any applicable New Source Performance Standards (NSPS) (40 CFR Part 60) and/or National Emission Standards for Hazardous Air Pollutants (NESHAP) (40 CFR Parts 61 and 63) when they begin operating. These standards are also incorporated as specific conditions in the air quality permit.



How is off-site dust regulated?

[15A NCAC 02D .0540](#) regulates fugitive dust emission sources. The rule requires a facility to prevent fugitive dust from extending beyond its property boundaries and causing or contributing to substantive complaints or excess fugitive dust emissions.

DAQ may require a facility to develop and implement a fugitive dust control plan should the Division observe excess fugitive dust leaving a property's boundary or substantiate two dust complaints within a 12-month period. The plan must identify the sources of fugitive dust at the facility and methods to control the dust. DAQ must review and approve the plan before the facility is required to implement it.

How are odors regulated?

[15A NCAC 02D .1806](#) prohibits facilities from operating without implementing management practices or installing and operating odor control equipment sufficient to prevent odorous emissions from the facility from causing or contributing to objectionable odors beyond the facility's boundary.

DAQ may require a facility to develop and implement an odor management plan should the Division determine a facility is causing or contributing to objectionable odors beyond its property boundary. The plan must identify the sources of odorous emissions at the facility and methods to control the odors. DAQ must review and approve the plan before it would be implemented.

How are emissions from trucks and mobile sources regulated?

Mobile source emissions are not subject to air quality permitting. Vehicle emissions are required to comply with federal engine and fuel standards. EPA enforces these regulations.

In certain circumstances, fugitive emissions generated by mobile sources, such as fugitive dust from haul roads, must be accounted for in the facility's emission estimate totals. In these cases, engine emissions from mobile sources are not included.

Truck traffic and operation of the vehicles must comply with all state and local traffic laws, which are enforced by local law enforcement, the N.C. Highway Patrol, and the N.C. Department of Transportation, Division of Motor Vehicles.

How is open burning regulated?

Open burning refers to different types of controlled outdoor fires, such as small residential fires to burn yard waste or commercial land-clearing fires. In North Carolina, state law limits what can be burned outdoors, and when.

[15A NCAC 02D .1900](#) prohibits burning trash and non-vegetative materials. Leaves, branches and other plant growth can be burned under certain conditions.

The rule also limits allowable burning, including when, where and how legal fires can be set. View our website for [more information about open burning](#) and how to file a complaint.



How is the siting of a facility regulated?

DEQ does not control or regulate where a facility is sited. Many local jurisdictions have adopted zoning ordinances to regulate what type of land use is permitted in certain areas.

Most applications for an air quality permit require a facility to submit proof of local zoning and that the facility complies with local zoning regulations before it constructs and operates under its air quality permit. A facility without correct zoning would still be able to receive an air quality permit but could not construct or operate the air pollution sources until correct zoning is obtained.

In areas without zoning regulations, a facility must notify the public of its intent to obtain an air quality permit through posting a sign on the property and publishing a legal notice in a local newspaper.

What type of outreach does DEQ conduct for air quality permitting?

DEQ is required by rule to hold a comment period of at least 30 days prior to taking final action on most Title V air quality permits. Small and synthetic minor air quality permits may go to public notice if there is significant public interest, but most can be issued without a public process.

A public hearing may be held for any type of draft air quality permit if there is significant public interest as determined by the Division director.

The DEQ Public Participation Plan outlines methods the Department will use to engage communities beyond what our rules require. For air quality permitting, three types of permits trigger enhanced public outreach:

- First-time Title V facilities (either new construction or an existing facility that modifies its permit to emit at major source thresholds)
- Major modifications with a significant increase in emissions at a PSD facility
- Other permits at the Division director's discretion.

Permits subject to enhanced outreach will go to public comment even if not required by rule. Additional outreach methods will be considered based on the type of permit and the community where the facility is located. Examples include distributing flyers and fact sheets to businesses, schools, libraries and places of worship; engaging with community leaders, local governments and nearby tribal organizations; publishing a notice in a local newspaper; attending community events; sharing information on local radio; posting information to social media; and translating key documents into other languages.

It is the policy of DEQ that no person shall, on the grounds of race, color, national origin, sex, age, or disability be excluded from participation in, be denied the benefits of or be subjected to discrimination under Title VI of the Civil Rights Act of 1964, the Civil Rights Restoration Act of 1987, the Rehabilitation Act of 1973, and all other pertinent nondiscrimination laws and regulations. DEQ is committed to the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation and enforcement of environmental laws, regulations and policies.



How does DEQ analyze cumulative impacts when evaluating an air quality permit?

Cumulative impacts are the combined environmental burdens, pre-existing health conditions and social factors that may harm human health. At this time, there is no formal, standardized method to assess cumulative impacts. There is no direct legislative authority that either mandates or directs DEQ to perform an expansive cumulative impact analysis that considers all of these factors.

DEQ uses NC DEQ's Community Mapping System and all other available data to inform its permitting actions in an area with multiple air emission sources, including the data from emission inventories, source testing reports, and any other periodic records and reports maintained for compliance with air quality rules and regulations.

Air quality permits that undergo a Prevention of Significant Deterioration (PSD) review and associated air dispersion modeling for NAAQS must demonstrate that the cumulative emissions of the new emission sources and existing nearby emissions sources will not cause a violation of federal air quality standards.

Separately, when two nearby facilities both emit high levels of a particular toxic air pollutant, the Division of Air Quality, at its discretion, may require air dispersion modeling.

The Division of Air Quality continues to research and learn new methods for evaluating cumulative impacts from facilities located in a common area. DAQ is open to examples from other states on how this can be done related to the air permitting process.

How can I learn about opportunities to provide public comment on an air quality permit?

Public notices for comment periods and public hearings are posted on [DEQ's Public Notice webpage](#). You can also check [DEQ's Environmental Application Tracker](#) to see what permit applications are under review for facilities in your community and how far along they are in the permit review process.

Public notices are distributed through an email listserv to interested parties. You can [subscribe to receive air quality permitting public notices](#) on our website.

Certain public notices are also required to be noticed in one print edition of a local newspaper.

When an air quality permit is at public notice, you will be able to find documents on our website about the proposed action, including the application submitted by the facility to DAQ, the permit review document drafted by DAQ that details our technical review, and a copy of the proposed draft permit. These will be listed in the public notice.

How can I access public records about a facility?

Many historic permitting and compliance records for permitted facilities in North Carolina can be found on DEQ's website through our [online electronic records management system, Laserfiche](#).



The [DAQ Facility Mapping Tool](#) provides direct links to Laserfiche documents associated with a specific air quality-regulated facility, which may be a preferred method of finding facility documents.

While many public records are available easily online, our staff is available to help locate and share copies of public records. To submit a public records request, or for help accessing records, please use the Department's online [Public Records Request form](#).

How does DEQ monitor air quality?

The DAQ operates a network of regulatory air quality monitors across North Carolina. These monitoring stations are used to determine whether North Carolina is meeting federal health-based air quality standards.

These stations are sited, maintained and operated according to EPA requirements, and undergo rigorous quality assurance and quality control procedures to ensure air quality data is sufficient to compare with federal air quality standards.

It is not appropriate to use monitoring data to infer whether a specific facility is in compliance with its air quality permit. The Division relies on its compliance and enforcement procedures to determine facility compliance.

How does DEQ ensure compliance of permitted facilities?

One of DEQ's core objectives is to ensure compliance with air quality rules and regulations through regular inspections, technical assistance, education, engagement and outreach. DEQ's involvement with a permitted facility does not end when a permit is issued; rather, the permitting action is the initial step in DEQ's commitment to compliance. The permit is a compliance tool, and our compliance activities continue once the permit is issued.

Trained DAQ regional office staff perform unannounced inspections of each permitted facility. Title V and synthetic minor facilities are inspected at least once every two years, and often more frequently. Small facilities must be inspected at least once every 5 years. At these inspections, DAQ requires full compliance with every term and condition of a permit. Staff perform a full compliance evaluation by visually inspecting permitted equipment and control devices and reviewing every record and report required by the permit. On average, nine out of 10 (90%) of these inspections find a facility is complying with all requirements in its permit.

In addition to inspections, DAQ relies on data from periodic monitoring, recordkeeping, reporting, and testing to demonstrate compliance. DAQ rapidly responds to any public complaints that may indicate noncompliance with a permit condition.

When violations are noted, the Division uses its enforcement tools to address noncompliance and requires the facility to resolve any issues. DAQ uses a tiered enforcement process to assess violations and may assess civil penalties for egregious cases. To address chronic noncompliance, DAQ may enter a consent order with a facility or modify a permit with new conditions written to protect air quality.



I have a concern or complaint about air quality. Who should I contact?

Calling our [regional office](#) staff when an issue is observed is the best way to ensure we can respond in a timely and effective manner. There are seven regional offices in North Carolina:

- **Asheville Regional Office:** (828) 296-4500
- **Fayetteville Regional Office:** (910) 433-3300
- **Mooreville Regional Office:** (704) 235-2100
- **Raleigh Regional Office:** (919) 791-4200
- **Washington Regional Office:** (252) 946-6481
- **Wilmington Regional Office:** (910) 796-7215
- **Winston-Salem Regional Office:** (336) 776-9800

Additional ways to submit concerns:

- Contact a [public information officer](#).
- Call the main telephone line 1-877-623-6748.
- Submit via our [anonymous comment tool](#).

What are local air programs?

Three North Carolina counties — Buncombe, Forsyth and Mecklenburg — have local air programs that enforce federal, state and local regulations for protecting air quality. These counties are responsible for air quality permitting, monitoring, compliance and enforcement and air quality complaints within their jurisdiction.

Learn more and find contact information about [local air programs](#) on our website.

