

MAJOR SOURCE CONSTRUCTION PERMITS ADVICE

This document will advise applicants of what is needed in a major source construction permit application as well as help an applicant get past some common points of confusion and avoid some common mistakes. Since most facilities wish to receive construction permits as fast as possible, it is our intent to minimize the work in preparing and evaluating the application; however, the reader will need a moderate level of knowledge in air pollution regulation procedures before they commence writing a major source construction permit application.

One common source of confusion is that the necessary forms for a major source construction permit are located primarily in the “Major Source Operating Permit Application Guide,” with other helpful information located in the “Minor Source Application Guide.” Both of these Guides are available from the DEQ web page: www.deq.state.ok.us, on the “Air Quality” page under “Forms.” (The “MS Word” versions are recommended as they allow entry of necessary information on your computer.) Since the “Major Source Operating Permit Application Guide” was initially intended for Title V operating permits, some discussion of the situations where construction permits are needed may prove beneficial.

These are the four most common situations for which a major source construction permit will be required (level of complexity increases from A to D):

- A. A modification changes a minor source to a major source but added emissions do not exceed 100 TPY of any criteria pollutant (facility emissions are less than 100 TPY before modification, less than 100 TPY are added, but post-modification emissions are above 100 TPY of any one pollutant; or emissions of federally-defined Hazardous Air Pollutants are less than 10 tons per year of any one HAP and less than 25 tons per year of all HAPs before the project, but following, one or the other level will be exceeded). For these cases, a construction permit is required but a Best Available Control Technology evaluation or federal Maximum Achievable Control Technology assessment would not be.
- B. A modification would add emissions of Hazardous Air Pollutants in excess of major source thresholds (10 tons per year of any one federally-defined Hazardous Air Pollutant or a total of 25 tons per year of all Hazardous Air Pollutants).
- C. Emissions from a new source or modification exceeds 100 TPY of a regulated pollutant but do not exceed PSD levels of significance.
- D. A new source or modification is subject to PSD requirements.

GENERAL ITEMS

Having all necessary information upon initial submittal will expedite review of the construction permit application, whereas shortages of information or excesses of information (a “needle in a haystack” situation) can delay issuance of the construction permit.

Applicants may contact our agency for recently-issued permits for similar types of facilities as their own if such are available. The issued permit can show what information belongs with the application. Additionally, the permit application is a public record and available for copying.

Starting Points

For all applications, the starting points are; (1) two administrative forms, (2) a process description, and (3) potential emissions calculations.

The two administrative forms are Form 100-884 (General Information) and Form 100-810 (DEQ Landowner Notification Affidavit). Please be sure to fill these out completely and *sign* them. The process description and emissions estimates will generally not use prepared forms.

The process description may be attached to the required forms. The description should be brief and concise; enough to track material flow and discharges and to allow subsequent determination of applicable standards, but it will be somewhat less detailed than a description which would be provided to design engineers. Material flow diagrams are often helpful.

Please be sure to list stack and other discharge points (e.g., building ventilation fans). It will be helpful to tabulate the discharge points, height, dimensions (diameter or length/width), flow (ACFM), and expected discharge temperature. For most processes, it is easy to match the discharge point with the process. However, for those circumstances where multiple processes share multiple discharge points, it is to the advantage of the applicant to allocate emissions between those points rather than leave AQD to do that for them.

In a construction permit, it is accepted that many design parameters are preliminary estimates. There are a number of items for which extreme precision is not needed. However, if some of these preliminary estimates may become the basis for permit limits, it may be to your benefit to apply a reasonable safety factor before proceeding; an excessive safety factor will lessen the credibility of the estimates and possibly make the facility subject to additional control, monitoring, and/or recordkeeping requirements. It should also be noted that the operating permit for your facility has limited ability to change limitations established in a construction permit. Most of the time, a modified construction permit is needed if significant items were underestimated.

If a unit is being relocated rather than constructed, please be sure to state the manufacture date both on the Part 3 forms (Form 100-001 Part 3) and in the process description.

On the Part 3 forms, each emission unit will receive an ID number, and each discharge point will be given an ID number. Most people prefer to use a simple series such as "stack 1," "stack 2," etc. It is important that a stack ID be designated and that this ID

number be consistently used throughout the application, such as in the “Discharge Points” table.

Most construction permits for major sources are classified as “Tier II” applications, for which a public notice of filing the application is required. This notification should be conducted at the time of filing the application, and is in addition to public notice of the draft permit. The “Major Source Operating Permit Application Guide” includes instructions for this published notice.

Emission Calculations and Potential-to-Emit

Potential emissions calculations are based on the capacity of each unit unless there is either a plant “bottleneck” or an enforceable limit proposed in the application. For older units whose ratings are not available or shop-built units, it is advisable to use a process limit.

For units that operate intermittently through the course of a day (welding, spray painting, sandblasting, etc.), the application can specify both a short-term maximum process rate and a maximum annual process rate. For example, a paint gun may spray 3 gallons per hour of paint, but use 5,000 gallons per year total; hourly emissions are based on 3 GPH while annual emissions are based on 5,000 GPY.

Emissions from a given unit are based on:

1. Published factors for the type of unit and/or controls
2. Mass balances
3. Specialized software or factors.

For example, if a unit processes 100 tons per hour of brittle materials, a published factor may be available, e.g., “1.5 lb/ton PM.” Uncontrolled particulate matter emissions would be $100 * 1.5 = 150$ lb/hr. If that unit is equipped with a 99% efficient baghouse, the potential emissions would be $100 * 1.5 * (1-99\%) = 1.50$ lb/hr. It is also possible that the baghouse manufacturer may guarantee emissions of 0.04 gr/DSCF. If the stack flow will be 5,000 SCFM, PM emissions are calculated as $5000 \text{ SCFM} * 60 \text{ min/hr} * 0.04 \text{ gr/SCF} / 7000 \text{ gr/lb} = 1.71$ lb/hr.

Our agency relies heavily on EPA's "Compilation of Air Pollution Emission Factors," better known as "AP-42." However, if you have mass balance or unit manufacturer emission data available, that information will be more credible and should be used. We also normally accept EPA emissions estimation software such as "TANKS4."

AP-42 is periodically updated, so limits based on these factors may become out-of-date. It may be to your advantage to include a safety factor on calculations provided that the resultant emissions do not exceed any level of significance such as a regulatory limit or a major source threshold.

Please be sure to cite any reference used and to label emission factors and calculations with units (e.g., "lb/MMBTU" or "widgets per year").

If a unit is not listed in the application as operating year-round, it will be limited to whatever hours and operating parameters are used in the emissions calculations. It is to your benefit to assume year-round operations to avoid a recordkeeping requirement.

Applications will often improperly designate some emissions as being "fugitive." Fugitive emissions are defined as emissions that "could not reasonably pass through a stack, chimney, vent or other functionally-equivalent opening." What constitutes "reasonably" is often a topic of debate. For example, if a capture system collects 95% of the emissions from a unit and the balance is discharged from building ventilation, that 5% balance is deemed "un-captured" rather than "fugitive." ODEQ is often persuaded by EPA determinations of certain activities as having or not having fugitive emissions.

There are very few situations where a facility's previous years' emissions inventories are needed in a construction permit application. Facility emissions inventories are appropriate for operating permits, but rarely needed for construction permits. The permit will rely on potential emissions rather than actual emissions.

Applicants often ask, "Why have emissions limits at all?" The structure of air pollution rules and regulations was specified by federal law and refined by various court cases. The applicability of various regulations is based on potential emissions. For most facilities, it is only by having an enforceable limit that a proposed project can be treated as not being subject to the most stringent and complicated air pollution control programs. For those lucky few facilities whose potential-to-emit is based completely on equipment capacity, having permit limits will not cramp your ability to operate.

Emission Unit Group and Applicable Standards Forms

You will deal with a number of "Part 5" forms (100-001 Part 5), in which you list applicable requirements and state how you will show compliance with each. Please note that applicable requirements may be **paraphrased**; they do not have to be cited verbatim.

The “Part 1B” form for “insignificant activities” is used for a listing of qualifying emission units. You will need to calculate potential emissions from each unit even if it is eligible for inclusion in facility “insignificant activities.” There is a common misconception that “insignificant activities don’t count”...this is incorrect. However, “trivial activities” do not need to be listed or to have emissions calculated. You should also be aware that often PSD permit applications require a Best Available Control Technology analysis for units which otherwise would be considered “insignificant.”

“Emission units” refer to units that generate air emissions. Emissions controls are not emissions units, nor are any pieces of equipment that convey emissions from the point of generation to the point of discharge.

For the Part 3 forms, Emissions Unit Groups are based on units with identical applicable standards. These will routinely be different from process lines in an industrial facility. For example, if a facility has multiple coating operations and multiple coating drying ovens which are indirectly-fired, the coating operations may be grouped together in an EUG, while the several heaters would be grouped into a different EUG. You would not group each coating booth and its associated drying booth together.

The “Part 5A” forms (Schedule of Compliance) and “Part 5C” forms (Specific Condition Change Request) will not be used for a construction permit application. These are intended for Title V operating permit applications.

Compliance Monitoring

If a proposed control technology has a certain range of operating parameters which demonstrate proper functioning of the equipment, please specify that range along with provisions to monitor those operating parameters. For example, if a thermal oxidizer is proposed, you may specify the minimum operating temperature at 1,500°F. (Please do not specify thermal oxidizer temperatures below 1,300°F since this temperature is below the ignition temperature of carbon monoxide.)

It is much more common to have permit limits in terms of a surrogate than to require continuous emissions monitoring (CEMS). Generally, the best surrogates are those which directly impact on emissions. For example, if you expect to produce 1,000 widgets per year, each taking 1 gallon of paint, the preferable permit limit would be in terms of gallons of paint per year rather than widgets produced.

40 CFR Part 64, “Compliance Assurance Monitoring,” may affect the new construction. If so, the application should include CAM plans as required in that federal regulation. These plans need to include parameters monitored, ranges indicating proper functioning of air pollution control devices, monitoring frequency, and data recording methods.

Air Dispersion Modeling

The state's guidelines for air dispersion modeling are available from the web page in .pdf format: www.deq.state.ok.us/AQDnew/permitting/aqpermit.htm.

Air dispersion modeling is normally required for regulated air pollutants added in rates above 100 TPY. It is not always necessary to provide full printouts of each modeling run. The outputs may be submitted on CD-ROM or diskette provided that a summary is included listing the stack input data, met data sources and years, receptor grid description (spacing and distances), sources of terrain data, and highest and second-highest impacts for each pollutant and averaging period (these impacts refer to the overall summary and not to averages at each receptor).

Operational Flexibility

A certain degree of operational flexibility may be granted in construction permits. Operational flexibility methods are generally approved on a case-by-case basis, and normally must reflect worst-case conditions that often will exceed reality. For example, if a facility has four coating operations, then the facility may request a plant-wide limit for coating materials rather than having limits for each individual line. Some other flexibility options include "Supercoatings" (in which generic specifications are established for coating materials) or "solvent tracking" (in which limitations are established for each toxic air pollutant rather than limits on specific volumes of specific products, and emissions are calculated periodically). Suggested methods for deriving "Supercoatings" are available from AQD.

It is not always necessary or practical to attempt to separate point and non-point emissions from the same process. Often, a unit "cap" may be established unless not allowed by PSD considerations.

Public & EPA Review

If the project would constitute a new major stationary source or be a "significant modification" under OAC 252:100-8-7.2(b)(1)(A), the permit will have a 30-day public review period and a 45-day EPA review period. These periods can run concurrently with ODEQ approval. For a Tier III application (such as a new facility subject to PSD), there will be a 20-day "Proposed" period that does run concurrently with the 45-day EPA review period.

Confidentiality

If your application will include confidential data, that data should be provided in a separate document which is clearly labeled. If you include confidential and non-confidential data together, our staff is prohibited by law from removing pages from that document.

State statutes limit the amount of information that can be held confidential. Please note that emission rates, BACT analyses, and filing of the application cannot be held confidential.

PERMITTING SCENARIOS

A. Modification Changes a Minor Source To a Major Source But Added Emissions Do Not Exceed 100 TPY

This is the simplest situation. The application will require the General Information form, Landowner Notification form, a process description, emissions calculations, and Part 3 (Emission Unit Group Descriptions) and Part 5 (Emission Unit Group Compliance Demonstrations) forms.

There are a number of emission units for which there are prepared forms for listing unit parameters and emissions; these forms are actually part of the Minor Source Application Guide. However, if you have one of the types of units for which prepared forms are available, it will be helpful to utilize that form even if you don't have a minor source.

B. A Modification Would Add Emissions of Hazardous Air Pollutants In Excess Of Major Source Thresholds

Applications involving Case-by-Case MACTs are becoming less common since numerous MACTs have been published in the past months. It is recommended that EPA's "Air Toxics Website" be checked for any proposed MACT prior to conducting a Case-by-Case MACT. Requirements for Case-by-Case MACTs are listed in 40 CFR Part 63, Subpart B.

C. Emissions From A New Source Or Modification Exceeds 100 TPY But Is Not Subject to PSD

All of the Items in Section A are applicable, but the new/modified emission units are also subject to a Best Available Control Technology requirement for each pollutant added above 100 TPY, and air dispersion modeling will be required for each pollutant emitted above 100 TPY following modification.

Our agency relies heavily on EPA's "RACT/BACT/LAER Clearinghouse" web page to confirm that a proposed control technology fulfills the BACT requirement. The analysis is not as detailed as EPA's "Top-Down" method, but potentially-available controls should be addressed if more stringent controls would be rejected.

Please be sure to add background concentrations of pollutants to modeled impacts.

D. PSD Applications

Given the magnitude of requirements for PSD applications, any discussion of those requirements should be considered only introductory. Since PSD is a federal program, there should be relatively few variations between states.

PSD applications require BACT as determined by the "Top-Down" methods, as well as require analyses of growth, soils, vegetation, visibility and Class I area impacts. The Class I area impacts analysis may be required to utilize the "CALPUFF" program.

Data needed to complete a modeling review can be obtained by contacting the ODEQ modeling group at 405-702-4100.

Large new sources of NOx and VOC may be required to conduct UAM modeling of ozone impacts.