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ECOLOGY
State of Washington

Guidance on Washington State's Prevention of Significant Deterioration Permitting Program

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Guidance on Washington State's Prevention of Significant Deterioration Permitting Program

by
Air Quality Program

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Abstract/Executive Summary

This document is to assist applicants and permit writers in addressing the Prevention of Significant Deterioration (PSD) permitting requirements for air sources within the air quality jurisdiction of the Washington State Department of Ecology (Ecology). This document describes, in general terms and through examples, the requirements of the PSD regulations as implemented by Ecology. Ecology discusses relevant United States Environmental Protection Agency (EPA) guidance on the PSD review process.

Ecology believes this guidance will help industrial facilities avoid errors and oversights when preparing PSD applicability or non-applicability determinations under WAC 173-400-700 through 750 and 40 CFR Part 52.21.

This document is solely intended as guidance. It is not a complete description of the PSD program. The information presented in this document does not substitute any applicable law, regulation, or official EPA guidance relating to PSD applicability. Where this document contradicts applicable law, regulation, or official EPA guidance, such law, regulation, or guidance shall prevail.

PSD permitting requires a case-by-case review. In PSD permitting, site-specific factors and changes in regulations and guidance may affect the scope of that review, and the determinations in that review, which are not addressed in this document or may be in conflict with this document.

The recommendations contained in this guidance are not binding or enforceable against any person and no part of the guidance or the guidance as a whole constitutes final Ecology action, or the consummation of Ecology decision-making. This document is not a rule or regulation, and the guidance it contains may not apply to a particular situation based upon the individual facts and circumstances. This guidance does not change or substitute for any law, regulation, or other legally binding requirement, and is not legally enforceable.

The information presented in this document is based on the PSD regulations found at 40 CFR §52.21 and WAC 173-400-700 through 750; the 1990 Draft New Source Review (NSR) Workshop Manual; the State Implementation Plan (SIP)-approved PSD program; and miscellaneous official guidance from EPA.[1] Ecology recommends these resources be consulted for more information.

[1] Collection of past EPA guidance on the PSD review process include:

- EPA websites listing some existing guidance documents for NSR (including PSD) <https://www.epa.gov/caa-permitting/caa-permitting-tools-related-resources>.
- Environmental Appeals Board (EAB) decisions on PSD permitting <http://yosemite.epa.gov/oa/EAB_Web_Docket.nsf/PSD+Permit+Appeals+ (CAA)?OpenView> and title V permitting <http://yosemite.epa.gov/oa/EAB_Web_Docket.nsf/Title+V+Permit+Appeals?OpenView>.
- EPA has many resources, which can be found at <https://www.epa.gov/caa-permitting/caa-permitting-tools-related-resources>.

INTRODUCTION

The PSD program was established on August 7, 1977, after the U.S. Congress substantially amended the federal Clean Air Act (CAA) and outlined a detailed PSD program. The federal PSD program is set forth in Part C of the federal CAA (Sections 160 through 169B). The PSD program was developed to prevent significant environmental impacts on "attainment areas" from large industrial sources of air pollution. Attainment areas are regions of the U.S. where air quality meets standards established by EPA (also called National Ambient Air Quality Standards or NAAQS). Before the PSD program was developed, construction projects in large industrial facilities were being permitted with the primary goal of not worsening air pollution in problematic areas, and improving it if possible. Congress realized that this needed to be extended to ensure that those areas with clean, healthy air would stay that way, and that industrial activity would not significantly impact protected (e.g., wilderness) areas.

Washington State is a SIP-approved PSD program state. This SIP-approved program became effective May 29, 2015. Ecology has been approved the responsibility for all PSD permitting in the state of Washington with the exception of sources on tribal land, and sources under the jurisdiction of the Energy Facility Site Evaluation Council (EFSEC).

The PSD program goals are:

- Economic growth in harmony with preserving clean air resources.
- To protect public health from adverse effects of air pollution.
- To preserve, protect, and enhance air quality in national parks and wilderness areas.

The PSD program does not completely stop sources from increasing emissions. In fact, for a project to become subject to PSD review, there must be a significant increase in emissions after the use of control equipment. Instead, the PSD program is designed to:[2]

- Prevent significant deterioration of ambient air quality.
- Ensure compliance with all NAAQS.
- Protect public health and welfare from any adverse effect which might occur even at air pollution levels lower than the NAAQS.
- Preserve, protect, and enhance the air quality in classified Class I areas (which include national parks, national wilderness areas, national monuments, national seashores, and other areas of special national or regional natural, recreational, scenic, or historic value).
- Ensure that economic growth will occur in a manner consistent with the preservation of existing clean air resources and to prevent the development of any new nonattainment problems.
- Assure that any decision to permit increased air pollution in any area to which PSD permitting requirements apply is made only after careful evaluation of all the consequences

Most of the EPA documents cited in this document can be found in one of these locations. To the extent this guidance relies on a document that is not located in one of the above collections, we have attempted to provide a website link or other relevant information to help locate the document.

[2] <https://www.epa.gov/sites/production/files/2015-07/documents/1990wman.pdf>, 1990 NSR Workshop Manual, p. 3.

of such a decision, and after adequate procedural opportunities for informed public participation in the decision making process.

The PSD program preserves local air quality and protecting areas of special value by reviewing PSD applications to ensure the requirement to apply Best Available Control Technology (BACT), and they comply with the NAAQS, the applicable PSD increment concentrations, as well as evaluating visibility impacts, energy and environmental impacts, soils and vegetation impacts, and growth impacts. The program includes an opportunity for public participation in the decision-making process.

The PSD regulations apply to new "major stationary sources" and "major modifications." A "major stationary source" is any source type belonging to a list of 28 source categories which emits or has the potential to emit 100 tons per year (tpy) or more of any pollutant subject to regulation under the federal CAA, or any other source which emits (or has the potential to emit) such pollutants in amounts equal to or greater than 250 tpy. See 40 CFR §52.21(b)(1)(i). A stationary source includes all pollutant-emitting activities which belong to the same industrial grouping, are located on contiguous or adjacent properties, and are under common control.

A "major modification" means a physical change or a change in the method of operation of a major stationary source which would result in a contemporaneous significant net increase in the emissions of any regulated pollutant. See 40 CFR §52.21(b)(2). In determining if a proposed increase would cause a significant net increase to occur, several detailed calculations must be performed.

PSD review is only triggered if the prospective or existing location of the major source or modification has been formally designated by EPA as "attainment" or "unclassifiable" for any pollutant for which a NAAQS exists. Conversely, nonattainment new source review (NNSR) applies to new major sources or major modifications at existing sources for pollutants where the source is located in an area not in attainment with the NAAQS. NNSR requirements are customized for the nonattainment area. All nonattainment NSR programs have to require:

- The installation of the lowest achievable emission rate (LAER).
- Emission offsets.
- Opportunity for public involvement.

The entire preconstruction permitting program, including both the PSD and NNSR permitting programs, is referred to as the New Source Review (NSR) program. PSD review and NNSR are conducted on a pollutant-by-pollutant basis. For example, a facility may emit many air pollutants; however, depending on the magnitude of the emissions of each pollutant, only one or a few may be subject to the PSD permit requirements. This guidance document only addresses PSD review and permitting.

Since EPA has not established a NAAQS for greenhouse gases (GHGs), the NNSR program does not apply to GHGs. PSD for GHG requires that facility supply a BACT review of the GHG and install the required control.

According to Ecology's SEPA guidance, a project is presumed to have non-significant GHG emissions and climate change impacts if the project:

> "Is subject to a legal requirement to reduce or mitigate GHG emissions (e.g., Best Available Control Technology (BACT) requirements associated with Prevention of Significant Deterioration (PSD) permitting; Washington's emission performance standard for baseload power generation facilities; offset requirements for new fossil-fueled thermal electric generating facilities);
>
> https://www.epa.gov/sites/production/files/201512/documents/ghgpermittingguidance.pdf
>
> ***PSD Applicability for GHGs - New Sources***
> **1.** ***Tailoring Rule Step 1 - PSD Applicability Test for GHGs in PSD Permits Issued from January 2, 2011, to June 30, 2011***
>
> PSD applies to the GHG emissions from a proposed new source if ***both*** of the following are true:[33]
> - Not considering its emissions of GHGs, the new source is considered a major source for PSD applicability and is required to obtain a PSD permit (called an "anyway source"),
>
> ***and***
> - The potential emissions of GHGs from the new source would be equal to or greater than 75,000 TPY on a CO2e basis.
>
> [Statutory Authority: Chapter 70.94 RCW. WSR 11-06-060 (Order 09-01), § 173-400-700, filed 3/1/11, effective 4/1/11. Statutory Authority: RCW 70.94.152. WSR 05-03-033 (Order 03-07), § 173-400-700, filed 1/10/05, effective 2/10/05.]"

On June 23, 2014, the Supreme Court ruled, in Utility Air Regulatory Group v. EPA, that EPA could not establish regulatory thresholds different from those required under statute, as it had done in the Tailoring Rule. As a result, new sources or modifications with potential criteria pollutant emission rate increases that are less than the PSD threshold are not subject to the requirements of the PSD program, regardless of the GHG emission rate increase associated with the project. However, in the same decision, the Supreme Court ruled that a new project or modification that triggers PSD review as a result of a criteria pollutant emission increase could be required to implement BACT for GHGs. As indicated in Section 3 of the application, the proposed Project is subject to PSD review as a result of NOX, CO, SO2, PM, PM10, PM2.5, VOC, and H2SO4 emission increases, and, therefore, must implement BACT for GHG emission increases.

1. Overview of PSD Permitting Requirements

1.1. Who Needs a PSD Permit?

As stated above, there are 28 specific industries or industrial processes that must meet the requirements of the PSD program if they emit, or have the potential to emit, at least 100 tons per year (tpy) of any pollutant regulated by the federal CAA. These industries and processes are listed in Table 1. For all other industries and industrial processes, the PSD program applies if they emit, or have the potential to emit, at least 250 tpy of any regulated pollutant. Regulated pollutants that most commonly lead to source-wide PSD applicability include particulate matter (PM), carbon monoxide (CO), sulfur dioxide (SO2), volatile organic compounds (VOC), nitrogen oxides (NOX), and greenhouse gases (GHGs). Other relatively common regulated pollutants include fluorides, sulfuric acid mist (H2SO4), hydrogen sulfide (H2S), and total reduced sulfur (TRS).

Table 1. List of 28 Source Categories with a 100 TPY Major Source Threshold	
1.	Fossil fuel-fired steam electric plants of more than 250 million British thermal units per hour heat input
2.	Coal cleaning plants (w/thermal dryers)
3.	Kraft pulp mills
4.	Portland cement plants
5.	Primary zinc smelters
6.	Iron and steel mill plants
7.	Primary aluminum ore reduction plants (w/thermal dryers)
8.	Primary copper smelters
9.	Municipal incinerators capable of charging more than 250 tons of refuse per day
10.	Hydrofluoric acid plants
11.	Sulfuric acid plants
12.	Nitric acid plants
13.	Petroleum refineries
14.	Lime plants
15.	Phosphate rock processing plants
16.	Coke oven batteries
17.	Sulfur recovery plants
18.	Carbon black plants (furnace process)
19.	Primary lead smelters
20.	Fuel conversion plants
21.	Sintering plants
22.	Secondary metal production plants
23.	Chemical process plants (which does not include ethanol production facilities that produce ethanol by natural fermentation included in NAICS codes 325193 or 312140)
24.	Fossil-fuel boilers (or combinations thereof) totaling more than 250 million British thermal units per hour heat input
25.	Petroleum storage and transfer units w/a total storage capacity exceeding 300,000 barrels

Table 1. List of 28 Source Categories with a 100 TPY Major Source Threshold	
26.	Taconite ore processing plants
27.	Glass fiber processing plants
28.	Charcoal production plants

In the case of a modification to an existing major stationary source, PSD review is triggered if a physical change or change in the method of operation at the major stationary source results in both a significant emissions increase and a significant net emissions increase at the source (40 CFR §52.21(b)(2)(i)). The PSD program establishes specific applicability criteria for determining if the modification causes both a significant emissions increase and a significant net emissions increase at the source. The PSD applicability criteria are discussed in detail in Section 2.

Special case when a facility is less than the above levels before the project but the project itself is over 100 or 250 tpy level. Example 1: An 80 tpy SO2 facility does a 50 tpy SO2 expansion would not be required to get a PSD permit at this point. Example 2: The same facility does a 120 tpy expansion would need to get a PSD permit.

Note: Secondary emissions per WAC 173-400-030 (79) do not need to be included in the applicability determination. If it is determined that PSD applies than the emissions will need to be modeled.

A limited number of exclusions as to what can be considered a "physical change or change in the method of operation" exist in the PSD regulations. These exclusions include routine maintenance, repair and replacement (RMRR); use of alternative fuels under certain conditions; increase in hours of operation or in the production rate, unless such change would be prohibited under any federally enforceable permit condition; and change in ownership (40 CFR §52.21(b)(2)(iii)).

1.2. How Does a Source Get a PSD Permit?

In the state of Washington, projects involving construction or modification of a source of air pollutants must apply for a Notice of Construction (NOC) approval from the local clean air agency, Ecology regional office,[3] or Ecology Industrial Section that has jurisdiction over the county in which the project is to be located. Projects subject to The State of Washington Energy Facility Site Evaluation Council (EFSEC or Council) or on Tribal lands should be contacted these two groups regarding air permitting. Ecology will review the PSD applicability analysis submitted by the applicant. A PSD applicability determination may be submitted to Ecology as a stand-alone document. It is not mandatory for the applicant to request Ecology to complete a PSD applicability determination, but without a formal Ecology PSD applicability determination, the risk remains with the applicant that the project truly does require a PSD permit. If the project is subject to PSD review, the applicant must file a separate PSD application with Ecology's Air

[3] A list of local air quality agencies and their jurisdiction is found at <https://fortress.wa.gov/ecy/publications/documents/1402010.pdf>.

Quality Program in Lacey, Washington. For the pollutants that trigger PSD, a separate NOC application may be required to be filed with the appropriate local clean air agencies, or with one of Ecology's regional offices or Industrial Section.

The application will involve a detailed analysis of pollutant control technologies and estimations of pollutant emission impacts (direct and indirect) on the local and regional environment. Applicants usually hire a PSD-experienced consultant to prepare the application. Ecology advises that the applicant request a pre-application meeting with Ecology staff to discuss the proposed project. This pre-application meeting will clarify Ecology requirements and expectations in the application and permitting process, and lead to an earlier determination of PSD application completeness by Ecology.

The source should contact their air regulatory authority (local clean air agency or Ecology office) for specific information about applying for an NOC approval for the pollutants that are not major that require a minor air permit.

1.3. How Long Does it Take to Get a PSD Permit?

A perfect application and a completely non-controversial permit could take 150 days from receipt of the application to issuance of the final permit (30 days completeness review/writing, 60 days FLM, 30 day PCP, 30 days review/writing.) Most of this time is required by legal requirements to allow interested parties an opportunity for review. It is extremely rare for a PSD permit to be issued within this timeframe. It is more typical for the PSD process to take eight to 10 months from the date of receipt of a complete application. In extreme cases, usually involving controversial projects, it can take two or more years.

Ecology's goal is a smooth PSD permitting for every project. Unfortunately, it is a process of working through contrary perspectives of the applicant, the public, environmental interest groups, and agencies. These "stakeholders" involvement is strongly protected in law and regulation. Ecology is responsible for the successful navigation of the process.

1.4. What Does the PSD Program Require of the Applicant?

To obtain a PSD permit, an applicant must:[4]

1. Fully identify the scope of the project and what equipment is new, modified, or increased utilization of upstream and downstream equipment.

2. *Apply BACT for new or modified equipment*. A BACT considers energy, environmental, and economic impacts in determining the maximum degree of reduction achievable for the

[4] See Draft 1990 NSR Workshop Manual, pp. 4-5.

proposed source or modification. The BACT determination cannot result in an emission limitation which would not meet any applicable standard of performance under 40 CFR Parts 60, 61, and 63. Equipment with increased utilization is not subject to BACT review. PSD BACT only applies to the pollutant that have triggered PSD. The other pollutants may be evaluated by the minor permitting agency.

3. *Conduct an ambient air quality analysis*. Each PSD new source or modification of an existing source must perform an air quality analysis to demonstrate that its new pollutant emissions would not violate either the applicable NAAQS, or the applicable PSD increment. The equipment that has increase in yearly utilization impacts will be part of the long-term air quality analysis.

The AQIA starts with preliminary modeling for each pollutant to determine whether an applicant can forego detailed analysis and preconstruction monitoring. If the projected ambient concentration increase for a given pollutant is below the PSD Significant Impact Levels (SILs) and Significant Monitoring Concentration (SMCs) for each averaging period, no further analysis of the ambient impact is required for that pollutant. For those pollutants with averaging periods that have impacts greater than the SIL, a full impact analysis (taking into account other increment consuming sources) is used to demonstrate compliance with NAAQS and PSD increments.

The baseline years for modeling should be the last two years' emissions. The NPS's FLAG 2010 guidance allows for minimal review if the Q/D is 10 or less.

The FLMs' guidance on evaluating impacts of major projects on Class I areas is the *Federal Land Managers' Air Quality Related Values Work Group (FLAG) Phase I Report – revised* (2010) (National Park Service, 2010).

1. *Analyze impacts to soils, vegetation, and visibility*. An applicant is required to analyze whether its proposed emissions increases would impair visibility, or impact soils or vegetation. Not only must the applicant look at the direct effect of source emissions on these resources, but it also must consider the impacts from general commercial, residential, industrial, and other growth associated with the proposed source or modification.

2. *Not adversely impact a Class I area*. If Ecology receives a PSD permit application that could impact a Class I area, Ecology will notify the Federal Land Manager (FLM) and federal official charged with direct responsibility for managing these lands. These officials are responsible for protecting the air quality-related values in Class I areas, and for consulting with Ecology to determine whether any proposed project will adversely affect a Class I area. If the FLM demonstrates that emissions from a proposed source or modification would impair air quality-related values, even though the emissions levels would not cause a violation of the NAAQS or allowable air quality increment, the FLM may recommend that the reviewing authority deny the permit. Ecology can still issue the permit if we determine all the requirements have been meet.

3. *Undergo adequate public participation*. Specific public notice requirements including State Environmental Policy Act (SEPA) and a public comment period are required before Ecology takes final action on a PSD application.

2. PSD Applicability

2.1. Introduction

A PSD applicability analysis is used to determine whether emissions from a proposed new source or modification will be large enough to trigger PSD permitting. If they are, the analysis determines the pollutants, the emission units, and the quantity of emissions to be evaluated in the PSD air quality and BACT analyses.

A complete applicability analysis must follow PSD rules found in 40 CFR §52.21, WAC 173-400-700 through 750, and all EPA-issued guidance. The EPA Region 7 guidance database provides a collection of relevant PSD guidance. Other locations for guidance include EPA's Title V petitions database,[5] and EPA's collection of the Environmental Appeals Board (EAB) decisions on PSD permitting.[6] Ecology strongly recommends that each PSD applicant consults with these databases while preparing their applicability analysis.

The applicability analysis may be submitted for review by Ecology, but there is no requirement for the source to submit the analysis to Ecology. If the analysis is submitted for review by Ecology, the applicant must pay all applicable review fees before Ecology can process the request. A summary of applicable review fees is found at <http://www.ecy.wa.gov/biblio/1102028.html>. Independent of whether a source submits a request for a PSD applicability determination to Ecology, the source must comply with the recordkeeping and reporting requirements of WAC 173-400-720(4)(b)(iii)(C).

2.2. PSD Applicability Steps

Ecology requires the following steps be completed for determining whether a new source or modification is required to obtain a PSD permit from Ecology. The steps below are based on Ecology's interpretation of the current PSD regulations. In the case that EPA's formal interpretation of any portion of the PSD regulations differs from Ecology's interpretation as discussed below, EPA's interpretation shall prevail.

2.2.1. New ("greenfield") sources

New stationary sources (also called greenfield sources) are stationary sources that either have not previously existed, or have previously existed as minor sources.

[5] <http://yosemite.epa.gov/oa/EAB_Web_Docket.nsf/Title+V+Permit+Appeals?OpenView>
[6] <http://yosemite.epa.gov/oa/EAB_Web_Docket.nsf/PSD+Permit+Appeals+(CAA)?OpenView>

2.2.1.1. Is the new source a separate source?

The first step in the PSD applicability analysis is to determine whether the proposed source is separate from other sources that are owned and/or operated by the same person. EPA regulations define a "stationary source" as "any building, structure, facility or installation which emits or may emit a regulated NSR pollutant" (40 CFR §52.21(b)(5)). The regulation at 40 CFR §52.21(b)(6) then provides that a building, structure, facility, or installation means all of the pollutant-emitting activities which:

- Belong to the same industrial grouping,
- Are located on one or more contiguous or adjacent properties, and
- Are under the control of the same person (or persons under common control).

Activities of any vessel[7] are exempt from this definition. "Pollutant-emitting activities shall be considered as part of the same industrial grouping if they belong to the same "Major Group" (i.e., which have the same first two digit code) as described in the Standard Industrial Classification Manual, 1972, as amended by the 1977 Supplement (U.S. Government Printing Office stock numbers 4101–0066 and 003–005–00176–0, respectively)" (See 40 CFR §52.21(b)(6).)

The PSD regulations do not define what is meant by "common control." However, EPA has previously stated that a person who has a 50 percent or more voting interest in an entity should be considered to control the entity. In reality, a person can have a controlling interest in an entity even when they have less than a 50 percent voting interest. Therefore, absent other major relationships, Ecology's interpretation of existing EPA guidance is that any person with a controlling (i.e., majority) voting interest or ownership in an entity shall be deemed to have control over that entity. If a person can indirectly exercise a majority voting interest or ownership through controlling the voting interest in a third party company, that person is considered to have control over the third party company and the company the third party company controls.[8]

EPA has issued a number of determinations on each of the above criteria. If more than one facility meets the above criteria, a "source aggregation" may be required. The applicant must document how the two facilities will interact with each other. In making separate source determinations, Ecology will generally need answers to such questions as:[9]

- Do the facilities share common workforces, plant managers, security forces, corporate executive officers, or board of executives?

- Do the facilities share equipment, other property, or pollution control equipment? What does the contract specify with regard to pollution control responsibilities? Can the managing entity of one facility make decisions that affect pollution control at the other facility?

[7] Vessel is defined in the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), Section 101(28) as any watercraft or other artificial contrivance used, or capable of being used, as a means of transportation on water.
[8] Also see Jewell A. Harper, EPA, Memorandum to Ron Methier, July 20, 1995.
[9] Also see William A. Spratlin, EPA, Memorandum to Peter R. Hamlin, September 18, 1995.

- Do the facilities share common payroll activities, employee benefits, health plans, retirement funds, insurance coverage, or other administrative functions?

- Do the facilities share intermediates, products, byproducts, or other manufacturing equipment? Can the new source purchase raw materials from and sell products or byproducts to other customers? What are the contractual arrangements for providing goods and services?

- Who accepts the responsibility for compliance with air quality control requirements? What about for violations of the requirements?

- What is the dependency of one facility on the other? If one shuts down, what are the limitations on the other to pursue outside business interests?

- Does one operation support the operation of the other? What are the financial arrangements between the two entities?

Note: Secondary emissions per WAC 173-400-030 (79) do not need to be included in the applicability determination for PSD. If it is determined that PSD applies than the emissions will need to be modeled. The definition that apply to minor new source review are different and secondary sources may be subject to minor new source review per WAC 173-400.

2.2.1.2. Quantify the new source's potential to emit (PTE)

PTE means "the maximum capacity of a stationary source to emit a pollutant under its physical and operational design. Any physical or operational limitation on the capacity of the source to emit a pollutant, including air pollution control equipment and restrictions on hours of operation or on the type or amount of material combusted, stored, or processed, shall be treated as part of its design if the limitation or the effect it would have on emissions is federally enforceable.[10] Secondary emissions do not count in determining the potential to emit of a stationary source." (See 40 CFR §52.21(b)(4).) Emissions from ships or trains are considered secondary emissions and do not account for PSD applicability, but if PSD applies then the impacts should be modeled per WAC 173-400-030(79).

EPA has provided guidance on what can and cannot be considered limits on PTE when determining whether a project is subject to PSD permitting. For example, EPA's June 13, 1989,

[10] Note that as a result of D.C. Circuit Court of Appeals decisions in 1995 vacating the requirement that limits be federally enforceable (National Mining Association v. U.S. Environmental Protection Agency, 59 F.3d 1351, 1362–65 (D.C. Cir. 1995); Chem. Mfrs. Association v. Environmental Prot. Agency, 70 F.3d 637 (D.C. Cir. 1995)), EPA now acknowledges that the term "federally enforceable" should be read to mean "federally enforceable or legally and practicably enforceable by a state or local air pollution control agency." EPA amended the PSD rules in 2002 and removed references to "federally enforceable" from the provisions that were amended. 67 Fed. Reg. 80,186, 80,191 (Dec. 31 2002). In that rulemaking, EPA acknowledged that sections of the PSD rule that were not amended still reference "federally enforceable" requirements, but noted that the federal enforceability requirement is no longer in effect because it was vacated by the court decision in Chem. Mfrs. Association 67 Fed. Reg. at 80,191.

"Guidance on Limiting Potential to Emit in New Source Permitting"[11] explains that it is acceptable to use a permit's emission limits as the potential-to-emit a pollutant if:

- The emission limit is short term (e.g., pounds per hour), and

- The permit includes requirements to install, maintain, and operate a continuous emissions monitoring system (CEMS) and to retain CEMS data, and specifies that CEMS data may be used to determine compliance with the emission limit.

- Source test using EPA test methods or other method approved by the agency.

Note that although the PTE can be based on emissions after control equipment, the control equipment or the effect it would have on emissions must be legally and practically enforceable.

2.2.1.2.1. Emission factors

When calculating potential emissions from the source, available representative source-specific information or actual test data from similar equipment should be used instead of generic emission factors (such as AP-42 emission factors). EPA guidance recommends that emission factors should be drawn from a number of sources including continuous emissions monitors, source tests, mass balances, state/industry factors, EPA's compilation of emission factors (AP-42), and engineering judgment. Data measured from a CEMS should always be given the highest priority. Also, in some cases, "A"-rated AP-42 emission factors may be more appropriate than other generic emission factors.

The source should consult with Ecology or their local clean air agency to determine the acceptability of their proposed emission factors. Ecology recommends the following hierarchy for determining the best emission factor for quantifying emissions:[12]

1. When available, CEMS data should be used to calculate emissions.

2. When CEMS data are not available, source test results conducted at the frequency required by the regulatory agency and throughput data should be used to calculate emissions.

3. When CEMS or source test data are not available, standard emission factors published by industry trade groups, such as the National Council for Air and Stream Improvement, Inc. (NCASI), the Engine Manufacturer's Association (EMA), the American Boiler Manufacturers Association (ABMA), etc. should be used.

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[11] Memorandum from Terrell E. Hunt, Associate Enforcement Counsel, Air Enforcement Division, Office of Enforcement and Compliance Monitoring, and John S. Seitz, Director, Stationary Source Compliance Division, Office of Air Quality Panning and Standards, to EPA Regional Air Directors, EPA Regional Counsels, other EPA headquarters offices, and the Chief of the Environmental Enforcement Section at the Department of Justice.

[12] For example, see: "Introduction to Stationary Point Source Emission Inventory Development," STAPPA-ALAPCO-EPA Emission Inventory Improvement Program, Volume II: Chapter 1, May 2001,
<https://www.epa.gov/air-emissions-inventories>
<https://www.epa.gov/air-emissions-inventories/air-emissions-inventory-tools>

4. Other standard emission factors, such as AP-42, may be used if the above emission factor sources are not available. When using AP-42 emission factors, "A"-rated emission factors should be given the highest priority. If the AP-42 emission factors for the specific source category are rated "B" or higher and more recent than the industry- specific generic emission factors, it may be appropriate to consider using the AP-42 emission factors in lieu of industry-specific generic emission factors.

5. With prior approval by the regulatory agency, it is appropriate to use material balances and/or source category emissions models to estimate emissions instead of using "C" or lower rated generic AP-42 emission factors.

6. If the above methods are not available for calculating emissions from the specific source, engineering judgment may be employed upon approval by the regulatory agency.

2.2.1.3. Determine whether the proposed source is on the list of 28 source categories

This step is used to establish whether the new source is subject to the 100 tpy or 250 tpy major source thresholds. EPA has codified the source category list in 40 CFR §52.21(b)(1)(i)(a). The source category list is in Table 1 of this document found on page 1.

2.2.1.4. Compare potential emissions of the new source to major source thresholds

Compare potential emissions of the new source as follows:

1. If the source is one of the 28 source categories (See Table 1) with potential emissions (as calculated from Step 1) of any regulated PSD pollutant greater than or equal to 100 tpy, the new source is a major stationary source that is subject to PSD review for each regulated pollutant that exceeds the significant emission rate (SER). SERs is provided in Table 2 below.

2. If the source is not on the list of 28 source categories and potential emissions (as calculated from Step 1) of any regulated PSD pollutant are greater than or equal to 250 tpy, the new source is subject to PSD review for each regulated pollutant that exceeds the SER.

Table 2. Significant Emission Rates

NSR Regulated Pollutant	PSD SER (tpy)
PM	25
PM_{10}	15
$PM_{2.5}$	10
SO_2	40
Ozone (VOC/NO_X)*	40
CO	100
Lead (Pb)	0.6
Fluorides†	3
Sulfuric acid mist	7

Table 2. Significant Emission Rates	
NSR Regulated Pollutant	**PSD SER (tpy)**
Total reduced sulfur (TRS), including hydrogen sulfide (H_2S)	10
Reduced sulfur compounds (RSC), including H_2S	10
Stratospheric ozone depleting substances (ODS)‡	Any increase§
Municipal waste combustor (MWC) Acid gases (measured as sulfur dioxide and hydrogen chloride)	40
MWC metals (measured as PM)	15
MWC organics (measured as total tetra-through octa-chlorinated dibenzo-p-dioxins and dibenzofurans)¶	$3.5x10^{-6}$
Municipal solid waste landfill (MSWL) emissions (measured as non-methane organic compounds)	50
GHGs (as CO_2e) for anyway sources only	0/75,000/100,000√
Any regulated PSD pollutant not listed above	Any increase±

∗ VOC and NO_X emissions are ozone precursors in all attainment/unclassifiable areas.

† Includes fluoride compounds other than hydrogen fluoride (HF), which was removed from NSR regulation via National Emission Standards for Hazardous Air Pollutants (NESHAP) by the 1990 CAA amendments.

‡ These are the 80+ compounds designated as Stratospheric Ozone Depleting Substances (ODS) in 40 CFR Part 82. Most are chlorofluorocarbons (CFCs) and halons.

§ EPA policy is to not object to non-PSD permitting for ODS increases below 100 tpy.

¶ Organics in this case are defined by the test method and consist of dioxins and furans.

✓ See Section 2.2.3 for a discussion on GHGs. If only GHG then no PSD permit is required.

± Also, per 40 CFR §52.21(b)(23)(iii), **any emissions rate or any net emissions increase** associated with a major stationary source or major modification is significant if the source would construct within 10 kilometers of a Class I area, and have an impact on such area equal to or greater than 1 $\mu g/m^3$ (24-hour average).

2.2.2. Modifications

PSD rules define a "major modification" as any physical change or change in the method of operation of a major stationary source that results in two types of emissions increases: (1) a significant emissions increase of a regulated NSR pollutant; and (2) a significant net emissions increase of that pollutant from the major stationary source (40 CFR §52.21(b)(2)(i)). PSD rules exempt certain physical and operational changes at major stationary sources from the definition of "major modification." However, such exemptions have been interpreted very narrowly by EPA and the Courts.

Determining the PSD applicability for a modification uses the following procedure:

1. First determine if the proposed change is categorically exempt from PSD permitting requirements.

2. If the change is not exempt from PSD requirements, will the change result in a significant emissions increase of any regulated PSD pollutant?

3. If emissions increases will result, will the change result in a significant net emissions increase of any regulated PSD pollutant whose project emissions will be significant? This step considers all (facility-wide) increases and decreases occurring over a 5-year contemporaneous period.

The applicability procedure steps are further discussed below.

2.2.2.1. Step 1: Is the project exempt from PSD permitting?

There are some projects that are exempt from PSD permitting. 40 CFR §52.21(b)(2)(iii) excludes the following activities from the definition of a physical change or change in the method of operation:

- Routine maintenance, repair, and replacement (RMRR).

- Use of an alternative fuel or raw material by reason of an order under Sections 2 (a) and (b) of the Energy Supply and Environmental Coordination Act of 1974 (or any superseding legislation), or by reason of a natural gas curtailment pursuant to the Federal Power Act.

- Use of an alternative fuel by reason of an order, or rule under Section 125 of the CAA.

- Use of an alternative fuel at a steam generating unit to the extent that the fuel is generated from municipal solid waste.

- Use of an alternative fuel or raw material by a stationary source which:

    - The source was capable of accommodating before January 6, 1975, unless such change would be prohibited under any federally enforceable permit condition which

was established after January 6, 1975, pursuant to 40 CFR §52.21 or under regulations approved pursuant to 40 CFR Part 51, Subpart I, or 40 CFR § 51.166; or

- The source is approved to use under any permit issued under 40 CFR §52.21 or under regulations approved pursuant to 40 CFR §51.166.

- An increase in the hours of operation or in the production rate, unless such change would be prohibited under any federally enforceable permit condition which was established after January 6, 1975, pursuant to 40 CFR §52.21 or under regulations approved pursuant to 40 CFR part 51, Subpart I, or 40 CFR §51.166.

- Any change in ownership at a stationary source.

- The installation, operation, cessation, or removal of a temporary clean coal technology demonstration project, provided that the project complies with:

  - The SIP for the state in which the project is located, and

  - Other requirements necessary to attain and maintain the NAAQS during the project and after it is terminated.

- The installation or operation of a permanent clean coal technology demonstration project that constitutes repowering, provided that the project does not result in an increase in the potential to emit of any regulated pollutant emitted by the unit. This exemption shall apply on a pollutant-by-pollutant basis.

- The reactivation of a very clean coal-fired electric utility steam generating unit.

EPA has issued numerous guidance documents to clarify activities that are covered under the above exemptions. Generally, new equipment, replaced equipment, improving reliability, reducing manufacturing costs, or relaxing permit conditions could be considered a physical or operational change. If the proposed changes are not specifically listed above, chances are that a PSD applicability determination involving emissions calculations will be required.

2.2.2.1.1. RMRR exemption

The RMRR exemption has been a source of frequent litigation since it first appeared in federal PSD regulations. Neither the federal CAA nor the PSD regulations specifically define those activities that are "routine." Therefore, until the PSD rules are clarified through rulemaking, EPA guidance must be used to determine whether or not a project is exempt as RMRR.

EPA and the Courts have explained that the RMRR exclusion is very narrow and must be applied sparingly. For example, the D.C. Circuit decision vacating the Equipment Replacement Provision (ERP), March 3, 2006, stated that "Under [federal Clean Air Act], only physical changes that do not result in emission increases are excused from NSR." Additionally, EPA has

stated that any determination of what is routine should be made by analyzing activities only at a particular unit and not throughout the industry as a whole.[13]

In determining whether a proposed activity constitutes "routine maintenance, repair, and replacement," Ecology relies on what is now widely known as the "four-factor test" or "Wisconsin Electric Power Company (WEPCO) test," as articulated in a 1988 memorandum from Don Clay, EPA Acting Assistant Administrator for Air and Radiation (the Clay memo). According to the Clay memo, EPA makes a case-by-case determination of whether proposed work at a facility is routine by weighing the nature and extent, purpose, frequency, and cost of the planned work, and project-specific relevant factors to arrive at a common-sense finding.

The "four-factor test" or "WEPCO test" is a consequence of the 1990 landmark Seventh Circuit case of Wisconsin Electric Power Co. v. Reilly ("WEPCO"). In this case, EPA classified a proposal by WEPCO to replace steam drums, air heaters, and other equipment at its Port Washington generating facility as non-routine changes subject to NSR requirements. In making this determination, EPA used a multi-factor test, as outlined in the Clay memo, to arrive at a common-sense finding. EPA concluded that the WEPCO project was not routine because:

- The project involved the replacement of "numerous major components."
- The purpose of the project was to extend the life of the facility beyond its originally planned retirement date as an alternative to building new capacity.
- The work was "highly unusual."
- The project was costly, estimated at $87.5 million dollars or 15 percent of the cost of the new facility.

EPA's determination and the use of the multi-factor analysis for determining that the project was not routine was affirmed by the Seventh Circuit on appeal.[14]

EPA uses analogies to help the regulated community distinguish routine activities from non-routine activities. For example, changing the oil in a car may be considered "routine," while replacing the whole engine is probably not routine.

The activity is probably not routine if:

- Nature: Involves replacement of several major components.

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[13] See Graham Zorn, Vermont Law Review, Vol. 33:783-804, <http://lawreview.vermontlaw.edu/wp-content/uploads/2012/02/20-Zorn-Book-4-Vol-33.pdf> citing United States v. East Kentucky Power Coop., Inc., 498 F. Supp. 2d 976, 981–85 (E.D. Ky 2007).

[14] In addition to the WEPCO case, the Environmental Appeals Board (EAB) upheld EPA's use of a multi-factor analysis to determine whether an activity is routine in the Tennessee Valley Authority (TVA) case. The EAB upheld EPA's use of a case-by-case determination weighing: (1) the nature and extent, (2) purpose, (3) frequency, and (4) cost of the work, as well as other relevant factors to arrive at a commonsense finding. The Board held that this approach "reasonably implements the statutory objectives and the regulatory text in question."

- Extent: Significantly enhances the present efficiency and capacity of the plant.
- Purpose: Substantially extends the plant's useful economic life.
- Frequency: Is rarely performed on that unit.
- Cost: Is costly in both relative and absolute terms.

2.2.2.1.2. Replacement units

Under PSD rules, a "replacement unit" means an emissions unit for which all the criteria listed in 40 CFR § 52.21(b)(33)(i) through (iv) are met. Those criteria include:

The emissions unit is a reconstructed unit within the meaning of 40 CFR §60.15(b)(1), **(1)** The fixed capital cost of the new components exceeds 50 percent of the fixed capital cost that would be required to construct a comparable entirely new facility, and **(2)** It is technologically and economically feasible to meet the applicable standards set forth in this part.)

- Or the emissions unit completely takes the place of an existing emissions unit.

- The emissions unit is identical to or functionally equivalent to the replaced emissions unit.

- The replacement does not alter the basic design parameters of the process unit.

- The replaced emissions unit is permanently removed from the major stationary source. This means permanently disabled or permanently barred from operation by a permit that is enforceable as a practical matter. If the replaced emissions unit is brought back into operation, it will be considered a new emissions unit.

A replacement unit is treated as an existing emissions unit under PSD regulations. 40 CFR §52.21(b)(7)(ii). Existing emissions units are subjected to the actual-to-projected actual test when determining PSD applicability, as described below.

2.2.2.1.3. Restarting emission units

When an emissions unit is restarted after being shut down, PSD permitting may be triggered in one of several ways.

1. Reactivation Policy

   EPA's policy on whether a shutdown plant if restarted is subject to PSD review as a new source is outlined a number of EPA memoranda.[15] Reactivating a "permanently" shut down source makes the source a new source under current PSD guidance. A source shutting down for more than two years is a new source if restarted, unless Ecology continued to carry the source in the emission inventory. This presumption can be rebutted by providing evidence that the shutdown was not intended to be permanent. Owners or operators of facilities that have been shut down must continuously demonstrate concrete plans to restart the facility

[15] See, for example, a September 6, 1978, memorandum from Edward E. Reich, Director, Division of Stationary Source Enforcement, to Stephen A. Dvorkin, Chief, General Enforcement Branch, Region II.

sometime in the reasonably foreseeable future. The source would not be a new source if the shutdown was not permanent, and the owners kept records of the type and amount of maintenance performed on the temporary shutdown source.

Permanence is determined by the intention of the owner or operator at the time of the shutdown as determined from all the facts and circumstances, including the cause of the shutdown, duration of the shutdown, and the handling of the shutdown by Washington State. A shutdown lasting for two years or more, or resulting in removal of the source from the emissions inventory of the State, should be presumed permanent. The owner or operator proposing to reopen the source would have the burden of showing that the shutdown was not permanent, and of overcoming any presumption that is was.

To determine the intent of the owner or operator, the following factors have typically been examined:

i. The amount of time the facility was out of operation.

ii. The reason for the shutdown.

iii. Statements by the owner or operator regarding intent.

iv. The cost and time required to reactivate the facility.

v. Status of the facility's permits.

vi. The record of ongoing maintenance and inspections that were conducted during the shutdown.

vii. Whether the shutdown was considered as a decrease in a "netting" calculation (see below for a discussion on netting).

viii. Whether the allowable emissions level after restarting the facility are higher than as of the date of shutdown.

2. Physical Change

Restarting a shutdown facility can also trigger PSD review as a "major modification," not just as a new source. The major modification may be a non-routine physical change, or a change in the method of operation of the facility. Unless the physical changes necessary to make the unit operational qualifies as "routine maintenance," an emissions calculation (as discussed below) will be required to determine whether a major modification will result.

3. Change in the Method of Operation

Even if the two methods above are not applicable, the increase in emissions may be enough to support a "change in the method of operation" finding.[16] The most relevant exception for analyzing whether restart of a shutdown facility might be treated as a change in the method of operation is the exemption from PSD review of "[a]n increase in the hours of operation or in the production rate, unless such change would be prohibited under any federally enforceable permit condition."

The purpose of the exemption is to avoid undue disruption by allowing routine increases in production during the normal course of business in order to respond to market conditions. Ecology generally views reactivation after long periods of shutdown as not a response to the same type of market fluctuations, and does not merit the same permitting flexibility envisioned by the regulations. Also, restart of a long-dormant facility may not be entitled to coverage under the "increase in hours" exemption if it would disturb a prior assessment of the environmental impact of the source.

2.2.2.2. Step 2. Are the project's emissions significant?

When conducting a PSD applicability analysis for a physical or operational change, all emissions increases from emission units associated with, or affected by a project (increase utilization) must be included in the emissions calculations. Pursuant to PSD regulations and EPA's established interpretations, the applicability review for a modification is conducted using the following steps:

2.2.2.2.1. Define the scope of the project

In defining the scope of the project, the source reviews:

- The proposed changes.
- Any changes that have previously occurred at the facility but were not large enough to trigger PSD review (five year prior to startup of the new equipment).
- Any changes that are planned after the current project is completed.

All emission units that will be affected by the proposed changes, including any emission units whose utilization will increase as a direct result of the proposed project.

a. Project aggregation

In 1993, EPA issued guidance to provide criteria to permitting and enforcement authorities for determining whether a source is circumventing major NSR through the minor modification

[16] See: In re Monroe Electric Generating Co. (Petition No. 6-99-2), EPA Order Partially Granting and Partially Denying Petition for Objection to Permit (June 11, 1999).

process.[17] This memorandum (also called the 3M-Maplewood memorandum), as well as other memoranda listed in 75 FR 19570-71, collectively established EPA's policy on project aggregation.

When undergoing a physical or operational change, a source determines major NSR applicability through a two-step analysis. The first step considers whether the increased emissions from a particular proposed change alone are significant. The second step is a calculation of the change's net emissions increase considering all contemporaneous increases and decreases at the source (i.e., a source-wide netting calculation) to determine if a major modification has occurred. The term "aggregation" comes into play in the first step (Step 1), and it describes the process of grouping together multiple, nominally-separate but related physical changes or changes in the method of operation (nominally-separate changes) into one physical or operational change, or "project." A "project aggregation" analysis is used to determine whether any past or future projects at the same source must be considered together as one "project." The emission increases of the nominally-separate but related changes must be combined for purposes of determining whether a significant emissions increase has occurred from the project.[18] Therefore, when undertaking multiple nominally-separate changes, the source must consider whether PSD applicability should be determined collectively (i.e., "aggregated"), or whether the emissions from each of these changes should separately undergo a Step 1 analysis.

Neither the federal CAA nor current EPA rules specifically address the basis upon which to aggregate nominally-separate changes for the purpose of making NSR applicability determinations. Instead, EPA's aggregation policy developed over time through statutory and regulatory interpretation and applicability determinations in response to a need to deter sources from attempting to expedite construction by permitting several changes separately as minor modifications. When related changes are evaluated separately, the source may circumvent the purpose of the NSR program by showing a less than significant emission increase for Step 1 of the applicability analysis that could result in avoiding major NSR permitting requirements. This, in turn, could result in increases of emissions of air pollutants from the facility that would be higher than if the changes been subject to NSR control requirements. The associated emissions increases could endanger the air quality health standard, and adversely affect public health. The intent of EPA's aggregation policy is to deter sources from attempting to expedite construction by permitting several changes separately as minor modifications. In the case of a new project that is already undergoing PSD permitting, the aggregation analysis is used to determine all of the pollutants and emissions units that are subject to PSD review (including an evaluation of projects that have previously been permitted as minor modifications). To identify those emissions units and activities that should be reviewed as part of any proposed modification, Ecology directs applicants to carefully review past, current, and planned projects to determine whether any should be considered and aggregated with the proposed project. Ecology typically requires an evaluation of the following factors:[19]

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[17] Memorandum from John B. Rasnic, Director, Stationary Source Compliance Division, to George T. Czerniak, Chief, Air Enforcement Branch, Region V, Applicability of New Source Review Circumvention Guidance to 3M, Maplewood, Minnesota, Page 3. Also see collection of memoranda in 75 FR 19570-71 (April 15, 2010).

[18] Most of the text contained in this section is adapted from 75 FR 19567 (April 15, 2010).

[19] See the 3M-Maplewood memorandum and 75 FR 19570-71 (April 15, 2010) for a complete list factors to evaluate in the aggregation analysis.

i. Any minor source applications filed since the last PSD-approved project was completed at the facility.

ii. Any funding information indicating one project is needed for the proposed project to go forward.

iii. Company statements or official reports that treat the separate projects as one project.

iv. The relationship of the changes to the current project and the overall basic purpose of the plant.

b. Debottlenecking and increased utilization

Once the scope of the project has been identified, including aggregation of related activities or projects, the source must then determine whether the project, as a whole, will result in a significant emissions increase from the modified and any affected emissions units. Affected units are those units upstream or downstream from the unit(s) undergoing a physical change or change in the method of operation that will experience an emission increase as a result of the project. Affected units include "debottlenecked units" and units that experience an "increase in utilization" as a result of the project.[20]

The current EPA rules permit emissions increases from debottlenecked units (and any other unit that increases its utilization as a result of the project) to be calculated using an actual-to-projected-actual or actual-to-PTE applicability tests (described below).[21]

2.2.2.2.2. Calculate baseline actual emissions

For a *new emissions unit,*[22] the baseline actual emissions for purposes of determining the emissions increase that will result from the initial construction and operation of such unit shall equal zero (40 CFR §52.21(b)(48)(iii)).

For an *existing emissions unit*[23] (other than an electric utility steam generating unit), baseline actual emissions are the average rate, in tpy, at which the emissions unit actually emitted the pollutant during any consecutive 24-month period selected by the owner or operator within the *10-year period* immediately preceding either the date the owner or operator begins actual construction of the project, or the date a complete NOC or PSD application is received by Ecology or the permitting authority, whichever is earlier.[24]

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[20] 71 FR 54238, September 14, 2006.

[21] EPA does not require that sources use projected actual emissions to calculate their emissions increases. If a source prefers, it can calculate its emissions increases by comparing its past actual emissions to its future potential to emit. See 71 FR 54238 and footnote 7, September 14, 2006.

[22] A new emissions unit is any emissions unit that is (or will be) newly constructed and that has existed for less than two years from the date such emissions unit first operated. 40 CFR §52.21(b)(7)(i).

[23] An existing emissions unit is any unit that is not new. A "replacement unit," as defined in 40 CFR §52.21(b)(33), is an existing emissions unit (40 CFR §52.21(b)(7)(ii)).

[24] Except that the 10-year period shall not include any period earlier than November 15, 1990. (See 40 CFR §52.21(b)(48)(ii)).

Replacement units under PSD rules, a "replacement unit" means an emissions unit for which all the criteria listed in 40 CFR § 52.21(b)(33)(i) through (iv) are met. A replacement unit uses existing emissions unit method to estimate emissions.

For an *existing electric utility steam generating unit*,[25] baseline actual emissions are the average rate, in tpy, at which the unit actually emitted the pollutant during any consecutive 24-month period selected by the owner or operator within the 5-year period immediately preceding when the owner or operator begins actual construction of the project. Ecology may allow the use of a different time period upon a determination that it is more representative of normal source operation.[26]

a. Setting the baseline period(s)

The first step in calculating baseline actual emissions for an existing emissions unit is to set an appropriate baseline period. The following key criteria must be met:

i. The baseline period is 24 consecutive months, not two calendar years. The 24-month period is selected by the applicant and must fall within the last 5 or 10 years, for electric utility steam generating units (EUSGUs) and non-EUSGUs, respectively.

ii. The 5- or 10-year period is counted from the date the permitting agency receives a complete NOC or PSD application (40 CFR §52.21(b)(48)(ii)).

iii. The selected baseline period must not be based on any consecutive 24-month period for which there is inadequate information for determining annual emissions (in tpy), and for adjusting this amount if required by 40 CFR §52.21(b)(48)(ii)(b) and (c).

iv. For each PSD pollutant, use only one consecutive 24-month period to determine the baseline actual emissions for all the emissions units being changed. However, the applicant can use a different consecutive 24-month period for each regulated PSD pollutant.

b. Calculating baseline actual emissions

The calculation of baseline actual emissions for each existing emissions unit that will undergo an emissions increase (including each physically or operationally modified unit, and each debottlenecked/affected unit) must:

i. Include emissions associated with start-ups, shutdowns, and malfunctions.

[25] 40 CFR §52.21(b)(31) defines "electric utility steam generating unit" as "any steam electric generating unit that is constructed for the purpose of supplying more than one-third of its potential electric output capacity and more than 25 MW electrical output to any utility power distribution system for sale. Any steam supplied to a steam distribution system for the purpose of providing steam to a steam-electric generator that would produce electrical energy for sale is also considered in determining the electrical energy output capacity of the affected facility.
[26] See 40 CFR §52.21(b)(48)(ii).

ii. Include fugitive emissions (to the extent quantifiable).

iii. Adjust downward to exclude any non-compliant emissions that occurred while the source was operating above an emission limitation that was legally enforceable during the selected baseline period.

Adjust downward to exclude any emissions that would have exceeded an emission limitation with which the major stationary source must currently comply, had such major stationary source been required to comply with such limitations during the selected baseline period.[27]

2.2.2.2.3. Calculate projected actual emissions

For a *new emissions unit*, the projected actual emissions for purposes of determining the emissions increase that will result from the initial construction and operation of such unit shall equal the unit's PTE.[28]

For *existing emission units* (including physically or operationally modified units, and debottlenecked/affected units), projected actual emissions are the maximum annual rate (in tpy), at which the existing emissions unit is projected to emit a regulated NSR pollutant:

- In any one of the five years (12-month period) following the date the unit resumes regular operation after the project, or

- In any one of the 10 years following that date, if the project involves increasing the emissions unit's design capacity or its PTE that regulated NSR pollutant and full utilization of the unit would result in a significant emissions increase or a significant net emissions increase at the major stationary source (40 CFR §52.21(b)(41)(i)).

a. Procedure for projecting emissions

When estimating projected actual emissions, the applicant shall:[29]

i. Base the calculation of projected emissions on the highest annual projected production rate over the 5- or 10-year period.

ii. Consider all relevant information regarding the intended operation of the facility after the proposed project, including but not limited to:

- historical operational data,

[27] Adjustment applies even if limit was not in effect during the baseline period selected. Includes voluntary limits, if enforceable; permit terms; New Source Performance Standards (NSPS); BACT, LAER, and RACT limits. In Washington State, this adjustment does not currently apply to MACT limits per 40 CFR §52.21(b)(48)(ii)(c) because Washington has not taken credit for such emissions reductions in an attainment demonstration or maintenance plan consistent with the requirements of 40 CFR §51.165(a)(3)(ii)(G).
[28] See, for example, 40 CFR §52.21(a)(2)(iv)(d) and 40 CFR §52.21(b)(48)(iii).
[29] See 40 CFR §52.21(b)(41)(ii).

- the company's own representations,
- the company's expected business activity, and
- the company's highest projections of business activity, the company's filings with the state or federal regulatory authorities, and compliance plans under the approved SIP.

iii. Include emissions associated with start-ups, shutdowns, and malfunctions.

iv. Include quantifiable fugitive emissions.

Ecology recommends review of any information the company publishes for business-related purposes; such as a stockholder prospectus, or applications for business loans; to ensure consistency in the projected business activity.

b. Option to use PTE

If a source prefers, it may elect to use the emissions unit's PTE, in tpy, in lieu of projecting actual emissions as described above (40 CFR §52.21(b)(41)(ii)(d)).

2.2.2.2.4. Calculate the project emissions increase

The change in emissions resulting from the project alone (project emissions increase or Step 1 increase) is calculated by subtracting the baseline actual emissions from the projected actual emissions. This calculation includes emissions increases from:

- New emission units.
- Existing emission units that will be physically or operationally modified.
- Existing emissions units that will not be physically or operationally modified but will have an associated increase in emissions as a result of the project.
- Existing emissions units from any past or future projects that must be aggregated with the current project.

a. Emissions increase calculation

i. If the project affects only new emissions units, use the "actual-to-potential applicability test," as follows:[30]

- Calculate the emissions increase from new units by subtracting zero from the PTE of the unit following completion of the project (as defined in 40 CFR §52.21(b) (4)). Note that any units less than two years old are new emissions units.

[30] 40 CFR §52.21(a)(2)(iv)(d).

ii. If the project affects only existing emissions units, use the "actual-to-projected-actual applicability test" as follows:[31]

- Calculate emissions changes from existing units by subtracting baseline actual emissions from projected actual emissions (or PTE, if the source chooses).

iii. If the project affects both new and existing units, use the "hybrid test" as follows:[32]

- Calculate emissions changes from existing units by subtracting baseline actual emissions from projected actual emissions (or PTE, if the source chooses); and

- Calculate the emissions increase from new units by subtracting zero from the PTE of the unit following completion of the project (as defined in 40 CFR §52.21(b)(4)).

b. Is the project emissions increase significant?

The project emissions increase is "significant" if the emissions increase for any regulated NSR pollutant is equal to, or exceeds that pollutant's SER, shown in Table 2 on page 9. If the project does not cause a significant emissions increase, the project is not subject to PSD review. Conversely, if the project causes a significant emissions increase, a source-wide "netting analysis" can be conducted to determine if the project will also cause a significant net emissions increase at the source (see below) for only the pollutant where the SER has been triggered.

c. "Project netting" is not allowed

"Project netting" refers to the process of summing both emissions increases and decreases when calculating the project emissions increase in the Step 1 analysis. Ecology's policy prohibits project netting. Therefore, only emissions increases must be counted in the Step 1 analysis.

If an emission unit will experience a decrease in emissions, such as can occur in the following situations:

- A unit will be shut down or idled after the project.
- Improved controls will be installed at the unit.
- The unit will be underutilized after the project.
- Any other action that will result in a projected decrease in actual emissions from that unit.

The emissions decrease from that unit shall be considered zero in this step of the analysis. A negative increase shall not be reported at this stage in the analysis. However, if the expected emissions reductions are creditable, the reductions may be used in the netting analysis as discussed below. When any emissions decrease is claimed (including those associated with the proposed modification), all source-wide creditable and contemporaneous emissions increases and

[31] 40 CFR §52.21(a)(2)(iv)(c).
[32] 40 CFR §52.21(a)(2)(iv)(f).

decreases of the pollutant subject to netting must be included in the PSD applicability determination.[33]

d. Demand growth exclusion

In calculating any increase in emissions that result from a particular project, the applicant shall exclude that portion of the unit's emissions following the project that an existing unit could have accommodated during the selected baseline period, and that are also unrelated to the particular project, including any increased utilization due to product demand growth (40 CFR §52.21(b)(41)(ii)(c)).

Excluded emissions must meet the following criteria:

1. You can only subtract that portion of the projected actual emissions that the unit(s) could have already physically and legally emitted during the baseline period.

2. You cannot use the permitted production levels unless you can show that the units could have actually operated at those rates.

3. You must be able to demonstrate that excluded emissions are completely unrelated to the project.

When excluding emissions in accordance with 40 CFR §52.21(b)(41)(ii)(c), it is important to keep sufficient supporting data. The applicant must complete the following steps:[34]

Step 1. Calculate baseline actual emissions, as described above.

Step 2. Calculate projected actual emissions, as described above.

Step 3. Examine the portion of post-change emissions and determine if any of such emissions above the baseline are not related to the project. If any of the emissions are not related, and the emissions unit(s) could have emitted at this level before the change if operated as projected, then those emissions may be excluded from the projected actual emissions calculation. This determination must consider such things as:

- The currently permitted operational limits.
- Emission rate limits.
- Maximum firing rates.
- Allowable amount of each fuel that could be fired.
- The expected mode of operations.

[33] Draft NSR Workshop Manual, 1990, p. A.36.
[34] Diane McNally, EPA Region III Memorandum to Mark Wejkszner, Pennsylvania Department of Environmental Protection, April 20, 2010.

A source may only subtract emissions from the maximum annual emission rate determined in Step 2 if those emissions could have been legally and physically accommodated during the baseline period and are unrelated to the change (40 CFR §52.21(b)(41)(ii)(c)). Normally facilities will use actual emission for a two-month period in the last 24 months.

Step 4. Subtract the baseline actual emissions from the emissions derived in Step 3.

Step 5. Compare the emissions increase from Step 4 to the significance level for each pollutant.

2.2.2.2.5. Calculate the net emissions increase

For any regulated NSR pollutant with a significant emission increase, the next step is to determine whether there is a significant net emission increase of those pollutants. This analysis step is typically called a "netting analysis". The netting analysis involves an accounting of all "creditable" emission increases and decreases that occurred at the major stationary source during a specified "contemporaneous period."

a. Set the contemporaneous period

An increase or decrease in actual emissions is contemporaneous with the increase from the project only if it occurs between:

i. The date five years (or 10 years for EUSGUs) before construction on the project commences (not the date of submitting a permit application); and

ii. The date that the increase from the project occurs.[35]

The project aggregation analysis will determine the 5-year (or 10-year, for EUSGUs) look-back period. The source should then count all creditable emission increases and decreases within this contemporaneous period.

The source must estimate the date construction is scheduled to commence, taking into account Ecology PSD permit processing timelines. Ecology can reject the netting analysis if an unreasonable permit processing timeline is assumed. If the local permitting agency requires a minor source permit for the project, the source must project future actual emissions and determine modification status prior to submittal of the minor source permit application. If the local permitting agency does not require a minor source permit for the project, the source must project future actual emissions and determine modification status prior to beginning actual construction.

b. Are the emission increases or decreases "creditable"?

[35] 40 CFR §52.21(b)(3)(ii).

An increase or decrease in actual emissions[36] is creditable only if it meets the following criteria:[37]

i. EPA or Ecology has not relied on it in issuing a PSD permit for the source, which permit is in effect when the increase in actual emissions from the project occurs.

ii. As it pertains to an increase or decrease in fugitive emissions (to the extent quantifiable), it occurs at an emissions unit that is part of one of the source categories listed in 40 CFR §52.21(b)(1)(iii) or it occurs at an emissions unit that is located at a major stationary source that belongs to one of the listed source categories.

iii. An increase or decrease in actual emissions of sulfur dioxide, particulate matter, or nitrogen oxides that occurs before the applicable minor source baseline date is creditable only if it is required to be considered in calculating the amount of maximum allowable increases remaining available.

iv. A decrease in actual emissions is creditable only to the extent that:

- The new level of actual emissions exceeds the old level.
- It is enforceable as a practical matter at and after the time that actual construction on the particular change begins.
- It has approximately the same qualitative significance for public health and welfare as that attributed to the increase from the particular change.

Creditable increases are generally associated with permitted or registration actions resulting from a physical or operational change. Increasing production rates or operating hours (unless a permit revision is required) is generally not considered a creditable increase.

Creditable increases (and decreases) can be "wiped out" by relying on them in the issuance of a major NSR permit. Emissions are relied upon when they are included in assessing air quality impacts. Creditable decreases can be preserved by not relying on them. That is, the source models as if it is still emitting at pre-decrease levels when conducting impact analyses. This preserves the decrease for a future netting analysis.

c. Calculate contemporaneous emissions changes

For each contemporaneous emissions increase or decrease, the emissions change should be calculated by subtracting actual emissions before each project from the PTE of the affected unit after the project. If the unit is also being shut down within the contemporaneous period, the

[36] "Actual emissions" are defined at 40 CFR §52.21(b)(21), except that 40 CFR §52.21(b)(21)(ii) does not apply for determining creditable increases and decreases.

[37] See 40 CFR §52.21(b)(3) for a detailed list of creditability criteria. 40 CFR §52.21(b)(3)(iii)(b) also states that the increase or decrease should not have occurred at a Clean Unit. However, that requirement does not apply because EPA removed the Clean Unit provisions from 40 CFR 52.21 through rulemaking at 72 FR 32526, June 13, 2007.

emissions decrease should be calculated by subtracting zero from the actual emissions prior to the shutdown. Actual emissions shall be calculated using the procedure for calculating baseline actual emissions (as described above) except that each contemporaneous change gets to have a 10-year look-back period for selecting the baseline period for that change.[38]

For an emission unit that underwent (or will undergo) multiple changes during the contemporaneous period, this methodology assigns an emissions increase or decrease to each change occurring at that unit during the contemporaneous period. The overall contemporaneous emissions increase or decrease at such unit is calculated by subtracting the actual emissions prior to the first project that occurred at that unit during the contemporaneous period from the PTE of the unit after the last project. This calculation methodology combines the effects of multiple changes during the contemporaneous period into a single calculation and reflects the actual emissions reduction or increase that takes place at those units during the contemporaneous period.

d. Calculate the net emissions increase

Calculate the net emissions increase as follows:

1. Sum all of the creditable increases and decreases during the contemporaneous period at the same source for the same pollutant.

2. Add the sum of the creditable increases and decreases to the project emissions increase.

3. PTE should be used for any past project with less than two years of operations.

If the sum of all project and contemporaneous emissions increases and decreases is significant, the project triggers PSD review. If the project triggers PSD review, contact Ecology's Air Quality Program PSD permit lead to set up a pre-application meeting to discuss the contents of the PSD application (see below).

If any pollutant is more than 50 percent of the SER then contact Ecology regarding the recordkeeping and reporting requirements contained in section 2.2.4 below.

If not significant, then the project may proceed as a minor NSR project. The source should contact their NSR permitting agency to determine if a minor source permit application (NOC application) is required.

2.2.3. GHGs

On June 3, 2010, EPA promulgated an approach for "tailoring" the federal CAA permitting programs to address greenhouse gas (GHG) emissions (also called the GHG Tailoring Rule).

[38] See Memorandum from Chery L. Newton, Director, Air & Radiation Division, EPA Region 5, to Keith Baugues, Assistant Commissioner, Office of Air Quality, Indiana Department of Environmental Management, April 4, 2011.

The GHG Tailoring Rule provides a two-step approach to regulate GHG emissions under the PSD permitting program. The applicable implementation phase for PSD permitting under the GHG Tailoring Rule depends on the date that the final permit is issued. The actual-to-projected actual or actual-to-potential applicability tests (described above) are followed when calculating the project emissions increase and the net emissions increase for GHGs.

Starting January 2, 2011, but before July 1, 2011 (Step 1), a project triggers PSD permitting for GHGs under Step 1 of the GHG Tailoring Rule if the following criteria are met:[39]

1. The stationary source is a new major stationary source for a regulated non-GHG pollutant, and also will emit or will have the potential to emit a minimum of 75,000 tons per year of GHGs. The GHGs are calculated as the sum of six well-mixed GHGs (carbon dioxide, nitrous oxide, methane, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride) on a carbon dioxide equivalent (CO_2e) basis; or[40]

2. A PSD significant net emissions increase occurs at an existing major source for at least one regulated non-GHG pollutant (i.e., a non-GHG pollutant triggers PSD permitting); and

3. The project results in a GHG emissions increase (or net emissions increase) of *0 tpy or more*;[41] and

4. The project results in a net GHG emissions increase of 75,000 tpy CO_2e or more.

Starting July 1, 2011, (Step 2) an existing major PSD source for non-GHG pollutants triggers PSD permitting for GHGs if:

1. The project results in a GHG emission increase (or net emissions increase) of 0 tpy or more, based on the sum of six well-mixed GHGs on a mass basis; and

2. The project results in a net GHG emissions increase of 75,000 tpy CO_2e or more, calculated as the sum of six well-mixed GHGs on a CO_2e basis (i.e., GWPs are applied to each GHG constituent to determine CO_2e emissions).

However, a U.S. Supreme Court ruling issued on June 29, 2015, established that for a source that triggers PSD review for only CO_2e was no longer required to go through PSD review. This ruling resulted in a new classification of sources. An "anyway source" is a stationary source that is major for a non-GHG pollutant (e.g., it is major for one or more criteria pollutants). A "GHG-only source" is a stationary source whose CO_2e emissions are greater than 100,000 tpy and GHG mass emissions are greater than 100/250 tpy on a mass basis. This situation applies also to a modification of an existing source in regards to PSD review.

[39] See 40 CFR §52.21(b)(49).
[40] Global warming potentials (GWPs) are applied to each GHG constituent to determine CO_2e emissions.
[41] The emission increase calculation must be based on the sum of six well-mixed GHGs on a mass basis (i.e., global warming potentials (GWPs) are not applied to each GHG prior to aggregating individual GHG constituents). https://www.epa.gov/sites/production/files/2015-07/documents/ghgguid.pdf

To summarize, if the source already triggered PSD review due to emitting another PSD air pollutant in an amount that triggers PSD review, then the source was considered an "anyway source" and triggered PSD review for CO_2e if the amount of CO_2e was above the threshold level for CO_2e. Ecology's GHG PSD rules were final prior to July 2011 therefore the 75,000 tpy CO_2e applies. If GHG triggers then SEPA requires BACT for GHG and no offsets. Ecology may offer help to the agency reviewing the SEPA application as it applies to GHG BACT.

2.2.4. Recordkeeping requirements

As required by WAC 173-400-720(4)(b)(iii)(D), a project that is not a part of a major modification that has a "reasonable possibility" of causing a significant emissions increase is subject to the enhanced recordkeeping and reporting requirements outlined under WAC 173-400-720(4)(b)(iii)(D). Current state PSD regulations do not define the term "reasonable possibility."[42] Therefore, Ecology generally requires enhanced recordkeeping and reporting as outlined under WAC 173-400-720(4)(b)(iii)(D) for most projects that meet any of the following criteria:

1. The source elects to use projected actual emissions instead of PTE for calculating the project's emissions increase, and the project will not constitute a major modification.

2. The net emissions increase from the project would equal or exceed 50 percent of the significance level if emissions were not excludable according to 40 CFR §52.21(b)(41)(ii)(c).

3. he net emissions increase from the project would equal or exceed 50 percent of the significance level.

3. PSD Permitting Process

There are several stages in the PSD permitting process. These stages include:

3.1. Pre-application

The PSD permitting process actually begins before a PSD permit application is submitted to Ecology. At this stage in the process, the applicant reviews air polluting activities being considered at a new or modified facility that would require a PSD permit (e.g., construction of new equipment or a new plant, and how these changes will affect upstream and downstream emissions). Ecology recommends that potential applicants contact or meet with Ecology to determine whether a PSD permit is required, and to discuss the contents of the PSD permit application. The time spent in a pre-application meeting will reduce the period of time required to draft the permit because:

[42] The federal PSD regulations at 40 CFR §52.21(r)(6)(vi)(a) and (b) provide a definition for "reasonable possibility"; however, Ecology has not adopted that definition into the state PSD rules.

- Permit needs, including applicable fees, has been discussed.
- Applicant questions regarding pre-application requirements and modeling.
- The contents and the format of a complete PSD permit application were covered with the applicant.

3.1.1. On-site meteorological monitoring

As part of the pre-application phase, an applicant may be required to conduct on-site meteorological monitoring if current meteorological data is not available. Applicants should contact Ecology to determine the amount of on-site meteorological data that will be needed, or to determine if there are alternatives. Because the PSD program requires applicants to perform an air quality impact analysis, Ecology advises applicants to conduct preliminary dispersion modeling and to consult with Ecology to determine the need (if any) for ambient air quality monitoring (i.e., pre-construction or post-construction monitoring).

3.1.2. State Environmental Policy Act

All applicants are required to comply with the State Environmental Policy Act (SEPA). Typically, the SEPA "lead agency" is the local government with land-use jurisdiction where the source is located. Applicants should contact their local jurisdiction (i.e., city or county) to determine whether the proposed project triggers the need for a new SEPA threshold determination. While the SEPA process can take place separate from the PSD permitting process, the SEPA process must be completed prior to Ecology issuing the PSD permit. Ecology may offer help to the agency reviewing the SEPA application as it applies to GHG BACT.

3.2. Application

After developing the information needed for the application from the pre-application meeting with Ecology, the applicant develops their PSD permit application. The PSD permit application must include:

- A description of the facility.
- How the facility will be constructed or modified.
- How the facility will be operated to be protective of public health and the environment.

Details of what is required in an application are described later in this section.

Ecology reviews the PSD application for completeness. This completeness determination is usually completed within 30 days after receiving the application. If the application is incomplete, Ecology will request by letter the necessary information in order to make it complete.

Ecology requires three signed hard copies of the PSD permit application, and an electronic version in Word. In addition, a copy of the application should be sent to EPA Region 10, the appropriate FLMs, and to the appropriate state, local, British Columbia or tribal agencies. Ecology will notify EPA Region 10, the FLMs, and the appropriate state, local, or tribal agencies that the permit development is in progress, and to solicit their comments on the application.

3.2.1. Contents of the PSD application

The following guidance provides the general requirements for administrative completeness of the PSD application. It is likely that Ecology will request clarification of some information, or require additional information in the course of reviewing the PSD application. Nothing in this document relieves the applicant of the requirement to comply with any regulations or CAA requirements.[43]

3.2.1.1. Application fees

Ecology's Air Quality Fee Regulation establishes permit fees for sources of air pollutants (Chapter 173-455 WAC).[44] The Air Quality Fee Regulation sets the fee schedule for pre-construction review of a broad range of industrial and commercial sources in Ecology's jurisdiction.[45]

- You must include the appropriate fee with your administrative application. The administrative application includes the fee chart, and can be found on Ecology's PSD web page.

- An initial fee includes a set number of hours for Ecology staff to review the application. Ecology will charge an additional fee for processing time beyond the number of hours included in the applicable fee category.

- If the actual number of hours Ecology spends writing the permit exceeds the total number of hours of review time covered under the initial fee, Ecology will send the source a bill at the end of the review process.

The work will begin on the permit only after the applicant has paid the initial application fee. If the number of hours required to develop the permit exceeds the amount of time included in the application fee, a final bill be issued to the source. The final permit will not be issued until the source has paid the final bill.

3.2.1.2. Applicant information

List the name, mailing address (street, city, state, zip code), e-mail address, and telephone number of the applicant, the owner and operator(s) (if different from the applicant), consultants

[43] Most of this information is adapted from < https://www.epa.gov/nsr/prevention-significant-deterioration-basic-information>.
[44] Ecology's air quality fee regulation can be found at < http://apps.leg.wa.gov/WAC/default.aspx?cite=173-455-120>
[45] See <http://www.ecy.wa.gov/biblio/1102028.html> for a summary of applicable fees.

that prepared the application, and the designated contact for the project. The application must be signed by a responsible official (e.g., a responsible official for Title 40 CFR Chapter I, Subchapter C–Part 70–State Operating Permit Programs and Part 71–Federal Operating Permit Programs purposes).

3.2.1.3. Project location

Describe the project location by address (street, city, county, and state) and latitude and longitude coordinates. Describe the current use of the project site, if any. Provide a local and regional map showing the location of the project. Discuss the location of the source in relation to any Class I areas (http://www.nature.nps.gov/air/maps/images/ClassIAreas.jpg).

3.2.1.4. Project description

Provide the following:

1. Project's 4-digit Standard Industrial Classification Code.

2. Detailed description of all processes, process equipment, and storage units. For each emission unit, provide the design capacity, anticipated operating capacity (i.e., projected average and maximum), and operating schedule including daily or seasonal variations.

3. Detailed description of fuels and raw materials to be used. Include the sulfur content of the fuel and any alternate fuels.

4. Detailed description of emission control systems.

5. For each emission control system, provide the make and model of the device, the control efficiency of the system, and required operating parameters.

6. List any proposed limitations on source operations or any work practice standards affecting emissions.

7. A schematic drawing of the project which identifies each air pollution emission point.

8. Plot plan of the project including property boundaries, existing and proposed emission units and emission locations, other facility and topographic features, and any property protecting fencing and/or barriers.

9. Projected construction schedule.

10. Description of all emission sampling ports, continuous monitoring systems, and proposed source testing plan.

11. Any other information necessary to completely describe the proposed project and its air pollutant emission points.

3.2.1.5. Emissions from the proposed project

1. Provide a complete PSD applicability analysis.

    a. New equipment.

    b. Modified equipment.

    c. Increase utilization of existing equipment.

    d. Analysis should address if any past or future projects should be aggregated with this project.

    e. Contemptuous projects.

2. Applicants must clearly identify which emissions, if any, are fugitive emissions. Fugitive emissions are those emissions which could not reasonably pass through a stack, chimney, vent or other functionally equivalent opening. An example is leaks from valves and flanges. In addition, clearly identify secondary emissions for the proposed project.

3. Include all calculations and the basis for all assumptions used in the emission estimates. Please note that any assumptions used in these calculations may be incorporated as operating conditions in the final PSD permit.

4. The applicant should use the most valid data available for the emissions calculations. Source test data for the proposed equipment or similar operations, manufacturers guarantees, and mass balances are generally more accurate than AP-42 emissions factors.

5. List the potential maximum emission estimates for each pollutant in tpy, pounds/hour and on a process basis (i.e., ppm, gr/dscf or pounds/million BTU). Submit a table showing all applicable emission units with their associated short-term and annual emission rates.

3.2.1.6. BACT

BACT is an emissions limitation based on the maximum degree of control that can be achieved by a specific source. It is a case-by-case decision that considers energy, environmental, and economic impacts.

BACT only applies to equipment that is new or has been modified. Increase utilization of existing equipment is not subject to BACT.

BACT can be add-on control equipment, or modification of the production processes or methods. This includes fuel cleaning or treatment, and innovative fuel combustion techniques. BACT may be a design, piece of equipment, work practice, or operational standard if imposition of an emissions standard is infeasible. The national RACT/BACT/LAER Clearinghouse (RBLC) database contains information on what has been required as BACT in air permits. The installation of LAER is not well documented. If LAER equipment is installed the reviewing agency will not require that the cost view be completed.

a. "Top-down" BACT analysis is required

The applicant must provide a "top-down" BACT analysis for each emission unit or process line that emits pollutants that are emitted from the project in a "significant" amount, as defined in 40 CFR §52.21. The analysis must be consistent with the BACT guidance contained in the draft 1990 "New Source Review Workshop Manual".

For GHGs, the analysis must be consistent with the GHG BACT guidance contained in EPA's PSD and Title V Permitting Guidance for Greenhouse Gases (http://www.epa.gov/nsr/ghgdocs/ghgpermittingguidance.pdf).

Additional information which may be useful when preparing a BACT analysis can be found at the RACT/BACT/LAER clearinghouse (https://cfpub.epa.gov/RBLC/), and in the EPA Air Pollution Control Cost Manual https://www.epa.gov/economic-and-cost-analysis-air-pollution-regulations/cost-reports-and-guidance-air-pollution#cost manual, https://www3.epa.gov/ttncatc1/rblc/htm/onlinelibrary.html Apply BACT to modified units with net emission increase for pollutants with a significant net emission increase.

Note that subsequent relaxation of a BACT emission limit or other limit imposed on a source may require a full BACT re-evaluation and an ambient impacts analysis as though construction had not yet commenced on the source or modification.[46]

b. Address emissions of TAPs

PSD rules require the source to consider emissions of TAPs during the course of a BACT analysis. One reason for this requirement is to ensure that the source does not employ an emissions control technique that controls the main pollutant of concern, but emits a new TAP in large quantities.

If the project will emit federally listed hazardous air pollutants (HAPs) or state-regulated TAPs,[47] the applicant must comply with the requirements of Chapter 173-460 WAC. The local clean air agency will generally issue an NOC approval that restricts emissions of TAPs.

3.2.1.7. Ambient air quality and meteorological conditions

Describe the existing ambient air quality at the proposed site for those regulated pollutants emitted from the project in "significant" amounts, as defined in 40 CFR §52.21. Include summaries of available ambient air quality measurements that could be used to represent these conditions including supplemental information such as the source of the data, location of monitoring station(s), measure period of record, etc. Normally, twelve (12) months of pre-application air quality monitoring data are required to establish existing ambient background

[46] 40 CFR §52.21(r)(4).
[47] See WAC 173-460-150 < http://apps.leg.wa.gov/WAC/default.aspx?cite=173-460-150 > for the list of state-regulated TAPs.

levels. As an alternative to project specific monitoring, the air quality conditions of the project area may be represented by existing measurements.

Describe the available existing meteorological observations that could be used to represent the conditions at the project location. Include summaries of these data and supplemental information such as period of available record, location of measurements, etc. As with the air quality data, pre-application project specific meteorological measurements may be required to obtain meteorological data that are representative of the transport and dispersion conditions of the proposed plant site. As an alternative to project specific monitoring, existing meteorological data that adequately represents the project location may be used.

Requirements concerning ambient air quality and meteorological data collected in support of PSD applications are presented in EPA Publication <https://www.epa.gov/nsr/ambient-monitoring-guidelines-prevention-significant-deterioration>. A description of any proposed air quality and/or meteorological monitoring program, or the planned use of available data to represent project air quality and meteorological conditions, should be submitted to Ecology for approval prior to commencing the monitoring program.

3.2.1.8. Air Quality Impact Analysis (AQIA)

In accordance with 40 CFR §52.21(k), Ecology must determine compliance with the NAAQS and applicable increments for all criteria pollutants resulting in a significant net emission increase. The purpose of the AQIA is to demonstrate that new emissions emitted from a proposed major stationary source or major modification, in conjunction with other applicable emissions increases and decreases from existing sources, will not cause or contribute to a violation of any applicable NAAQS or PSD increment.

Generally, the analysis will involve:

1. An assessment of existing air quality, which may include ambient monitoring data and air quality dispersion modeling results.

2. Predictions, using dispersion modeling, of ambient concentrations that will result from the applicant's proposed project and future growth associated with the project.

For each attainment pollutant that will have a significant emission increase or a significant net emission increase, an ambient air quality impact analysis will be needed.[48] The AQIA must include analysis of the effect the proposed project emissions will have on the applicable PSD increments and NAAQS. Additional analyses addressing project's area growth impacts, soils, vegetation, and visibility must also be assessed.

The applicant must include a discussion of all the assumptions, procedures, and techniques used to estimate the project's ambient air quality impacts, and the emissions and meteorological parameters associated with each. All estimates of ambient concentrations must be based on the applicable air quality models, databases and other requirements specified in the Guideline on Air

[48] Temporary sources should consult with Ecology regarding this requirement.

Quality Models (40 CFR Part 51, Appendix W; available on EPA's SCRAM Modeling Guidance https://www.epa.gov/scram/air-quality-model-clearinghouse & https://www.epa.gov/scram/air-quality-models Air quality impact modeling information can be found in the NSR Workshop Manual. The modeling results should include tabular summaries, and a plot of concentration isopleths for each emitted pollutant for which modeling is required.

Where an air quality model specified in the Guideline on Air Quality Models is not used or a recommended model is applied outside the recommended limits, the model acceptability for the regulatory application will require written approval from Ecology and/or EPA.

3.2.1.9. Class I area impact analysis

In accordance with 40 CFR §52.21(p), Ecology must determine, with input from the FLM, whether the allowable emissions from the project would cause an adverse impact on the Air Quality Related Values (AQRVs), including visibility, of any federal Class I area.

Class I areas are areas of special national or regional natural, scenic, recreational, or historic value for which the PSD regulations provide special protection.[49] The FLM, including the State or Indian governing body, where applicable, is responsible for defining specific AQRVs for an area and for establishing the criteria to determine an adverse impact on the AQRVs. If an FLM determines that a source will adversely impact AQRVs in a Class I area, the FLM may recommend that the permitting agency deny issuance of the permit, even in cases where no applicable PSD increments would be exceeded. However, the permitting authority makes the final decision to issue or deny the permit.

Projects that may impact a Class I area (generally within 300 km) may have to perform analyses of the project's impacts to AQRVs and PSD increments at these Class I areas. The need to include PSD Class I area air quality impact modeling depends on the magnitude of the project's emissions and distances to the Class I areas. This information should be provided and discussed with Ecology, EPA, and applicable Class I area FLMs to determine the need and content of any Class I area impact assessment. If an AQRV impact analysis is required, the proposed modeling analyses should be included in the project's modeling protocol submitted for regulatory review. This will minimize misunderstandings and help to ensure the application contains acceptable impact assessments.

The FLAG 2020 guidance manual should be used to evaluate impacts to the Class I areas. The first step is to evaluate the project emissions verses the distance from the national parks. If levels are below Q/D levels then no modeling is needed.

Regarding Class I areas located beyond 50 km of a project site, FLAG provides screening criteria based on the project emission rate (source) [Q] and distance [D] between the project and the Class I area. Per FLAG (pages 18-19):

[49] Class I areas located in Washington are listed at WAC 173-400-118. Some scenic areas that have not been formally designated as Class 1 areas, such as Mt. Baker, are also often afforded the same level of protection as formal Class 1 areas. The source should work with Ecology and the FLMs to determine the level of analysis needed for the particular project.

"…Agencies will consider a source locating less than 50 km from a Class I area to have negligible impacts with respect to Class I AQRVs [Air Quality Related Values] if its total SO2, NOX, PM10 and H2SO4 emissions (in tons per year, based on 24-hour maximum allowable emissions) [Q], divided by the distance (in km) [D] from the Class I area is 10 or less [Q/D ≤ 10]. The Agencies will not request any further Class I AQRV impact analyses from such sources."

Hourly emissions - Project only emissions, add contemptuous increases and decrease.
No emissions change from units with increased utilization – not change in hourly emissions.

https://www.nature.nps.gov/air/pubs/pdf/flag/FLAG_2010.pdf

If no Class I impacts are anticipated, then the application should contain a Class I area assessment that is qualitative in nature, and designed to inform the public of the relative impact of the source on the above-cited values.

The Class 1 SIL analysis will need to be conducted for the pollutants that are major.

3.2.1.10. Additional impact analysis

As required by 40 CFR §52.21(o), each applicant must provide an analysis of the project's impact on soils, vegetation, and visibility; and impacts of any general commercial, residential, industrial and other growth associated with the new or modified source. The analysis regarding vegetation need not concern vegetation having no significant commercial or recreational value.

3.2.1.11. Compliance with other regulations

The applicant must list and describe all other air pollution rules and regulations applicable to the proposed project, such as New Source Performance Standards (NSPS), National Emission Standards for Hazardous Air Pollutants (NESHAPS), SIP requirements, and local air quality rules. In addition, the application must summarize the status of all other air pollution permits required, applied for and/or received for the proposed project.

3.2.1.12. Business confidentiality claims

An applicant may assert a business confidentiality claim covering part or all of the information provided, to the extent allowed by 40 CFR Part 2, subpart B, and Ecology confidential business information (CBI) policies (RCW 70.94.205).

Applicants may be required to substantiate their CBI claims upon request by Ecology. Information qualifying as CBI must be clearly marked as such at the time it is submitted to Ecology. Note that although production information can be considered proprietary, emissions rates are generally not considered confidential.

Confidential business information must be identified by a cover sheet, stamped or typed legend, or other suitable form of notice employing language such as "trade secret," "proprietary," or "business confidential." Allegedly confidential portions of otherwise non-confidential documents should be clearly identified and should be submitted separately to facilitate

identification and handling by Ecology. Information covered by such a claim will be disclosed by Ecology only to the extent and by means of the procedures set forth in 40 CFR Part 2, subpart B.

If no such claim accompanies the information when it is received by Ecology, it may be made available to the public without further notice to the applicant. If a confidentiality claim covering information is received after the information has been provided, Ecology will make such efforts as are administratively practicable to associate the late claim with copies of previously submitted information.

The applicant must submit:

- A redacted (for public disclosure) copy of the complete application.
- A non-redacted (for Ecology review) copy of the complete application.
- A letter signed by the company's responsible official explaining why the submitted information should be held confidential and how it meets EPA and Ecology's CBI certification criteria.

3.2.1.13. Additional information

Include any additional information, which you feel may be relevant. A final PSD can only be issued after a SEPA or EIS determination has been made.

http://www.ecy.wa.gov/programs/sea/sepa/e-review.html

In the past, EPA partial delegation required that USEPA notifies Ecology that the USEPA has satisfied its obligations, if any, under Section 7 of the Endangered Species Act (ESA) 16 USC 1531 et seq., 50 CFR Part 402, subpart D (Consultation Procedures) and Section 305(b) of the Magnuson-Stevens Fishery and Conservation Act 16 USC 1801 et seq., 50 CFR Part 600, subpart K (EFH Coordination, Consultation and Recommendations). Ecology's SIP-approved program became effective May 29, 2015. The above EPA requirement are no longer applicable.

3.2.2. Draft permit preparation

After the application is deemed complete, Ecology prepares a draft permit and a technical support document (TSD). The draft permit contains conditions for controlling air pollution. The TSD includes an air quality impact analysis; an analysis of BACT; an Environmental Justice analysis; and a description of how the draft permit conditions were derived. The process of preparing the draft permit from the time the application is deemed complete generally takes one to three months, but may take from six months to a year for very complex projects.

3.2.3. Public participation

After Ecology makes a preliminary determination, Ecology makes available to the public its proposed decision. Ecology will release the proposed permit and TSD, and start the public comment period. The public comment period is usually 30 days. Ecology may decide to extend the length of the public comment period if there is significant public interest.

The public is typically notified of the draft permit through a printed legal notice in the local newspaper of general circulation in the source's area. The public may also be notified of the draft permit through Ecology's website (www.ecy.wa.gov). Ecology will directly send the legal public notice to anyone who requests to be on the mailing list for the permit. In addition, Ecology will include links that will provide information to aid people as part of our efforts to comply with the American Disability Act (ADA).

Anyone may submit comments on the proposed permit to Ecology during the public comment period, and may also request a public hearing. If Ecology holds a public hearing, a public notice announcing the public hearing will be published at least 30 days prior to the hearing date. The public comment period will extend through the hearing date. If Ecology revises the draft permit based on the comments received, Ecology may restart the public involvement process, this time focusing on the revised portions of the proposed permit.

All permit documents and any comments received from the public during the public comment period become part of the administrative record for the permit. The administrative record is available to the public.

3.2.4. Permit issuance

After the public comment period has ended, Ecology considers all comments and prepares a response to these comments. The SEPA lead agency will need to make a determination regarding the project before the permit can be issued.

Ecology then issues a decision on the final PSD permit and its response to comments. The final PSD permit usually becomes effective the date of issuance unless otherwise noted in the permit. This allows the applicant to start construction with the risk of appeal.

3.2.5. Permit appeals

The final PSD permit, or any conditions contained in it, may be appealed to:

- The Pollution Control Hearings Board (PCHB) as provided in Chapter 43.21B RCW and Chapter 371-08 WAC.

The following flow chart (Figure 1) describes the PSD permit program in the state of Washington. In the first page of the figure, there is a circle with the number 2 inside, and a circle with the number 3 inside. The second and third pages of the figure lays out the details of the PSD permit process that occurs at the respective numbered points in the flow chart.

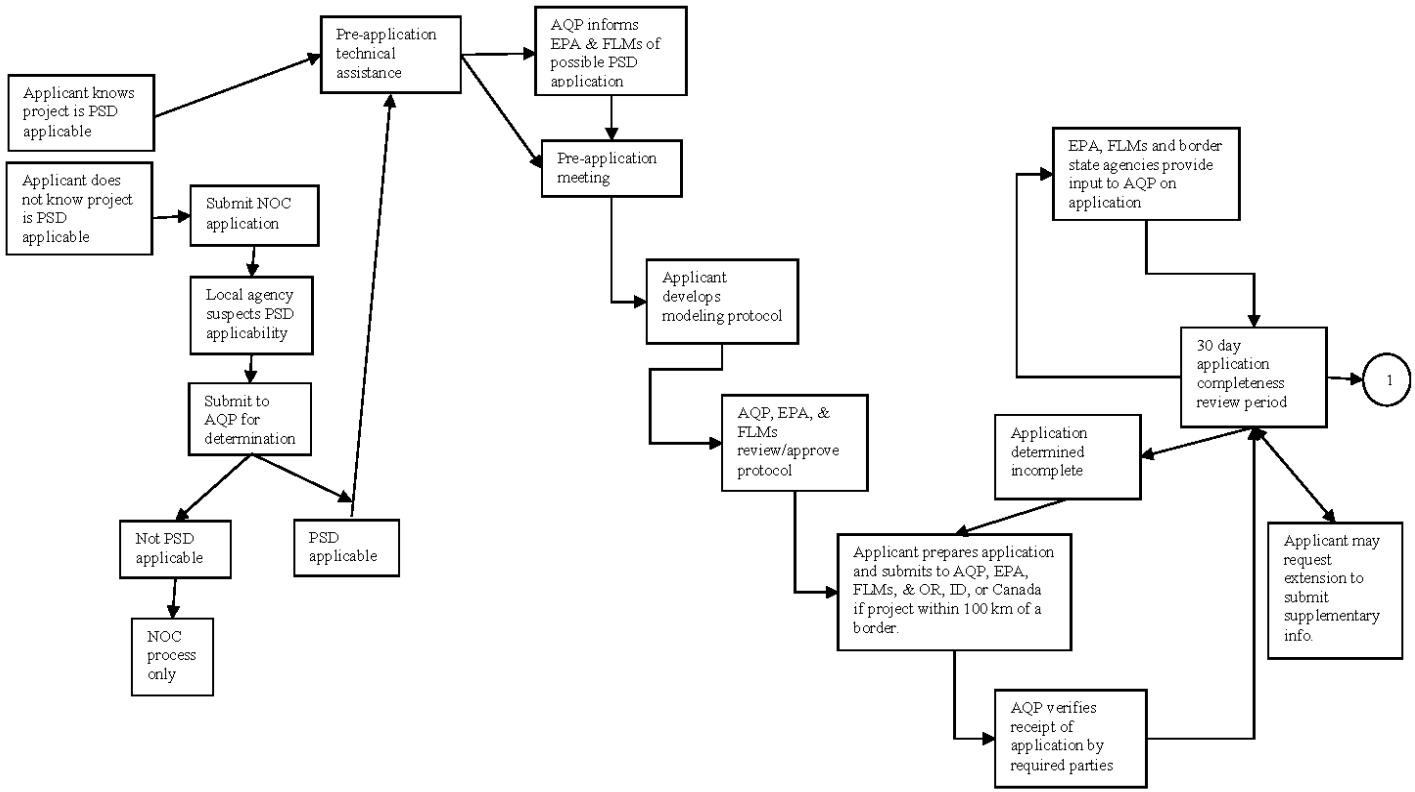


Figure 1. PSD Permit Program Flow Chart

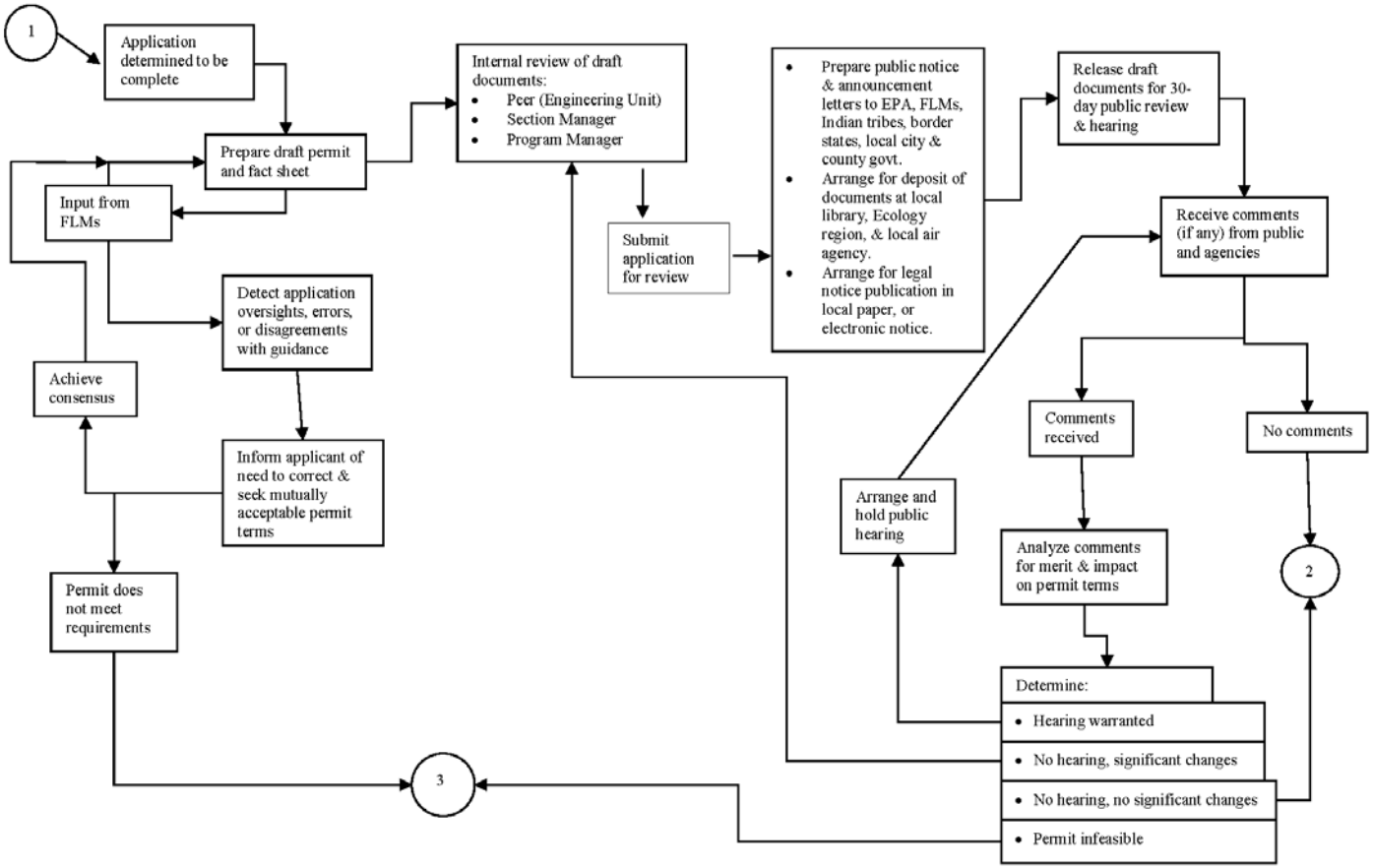


Figure 2. Continued, PSD Permit Program Flow Chart

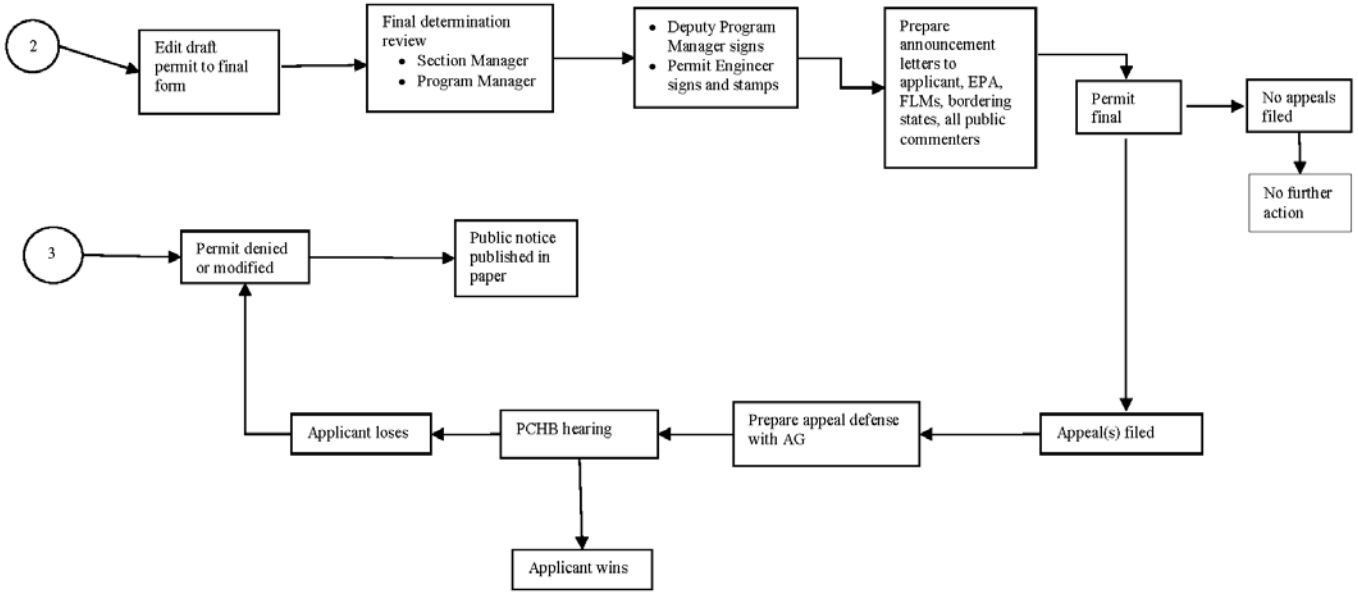


Figure 3. Continued, PSD Permit Program Flow Chart

4. Plant-wide Applicability Limitation (PAL)

The PAL is a voluntary limit based on plant-wide actual emissions, on a pollutant-specific basis (also called an actuals PAL). A PAL is an emission limitation expressed in tpy on a 12-month rolling basis for a pollutant at a major stationary source. The PAL is enforceable as a practical matter and established source-wide in accordance with 40 CFR §52.21(aa)(1) through (15).[50]

A facility that has a PAL in place is allowed to make changes to the facility or individual emission units which result in increases in the source's or individual units' pollutant emissions, as long as its plant-wide actual emissions do not exceed its PAL limit. In return for this flexibility, the facility must monitor emissions from all emissions units under the PAL, and comply with recordkeeping, monitoring, and reporting requirements. The PAL must be included in a permit issued by Ecology. Major NSR applicability provisions continue to apply to air pollutants which have no PAL. The PAL process has been rarely used in the United States of America, and never used in the state of Washington.

4.1. General Requirements for a PAL

The general requirements for establishing PALs are found in 40 CFR §52.21(aa)(4). To obtain a PAL, the source must submit an application containing (see 40 CFR §52.21(aa)(3)):[51]

- A list of all emissions units that includes their size and PTE.
- Federal and state requirements, emission limitations, and work practice requirements to which each emissions unit is subject.
- Baseline actual emissions (including any quantifiable fugitive emissions) for the emissions units.

Based on this application, Ecology will establish a PAL in a federally enforceable permit. For each PAL proposed, the public participation requirements of 40 CFR §52.21(aa)(5) must be followed.

When adding new emissions units under a PAL, the source must comply with minor NSR permit requirements for public comment. However, when adding new emissions units that will require an increase in a PAL, the source must comply with the public participation requirements in 40 CFR §52.21(aa)(5).

[50] 40 CFR §52.21(aa)(2)(v).
[51] Note that after EPA adopts WAC 173-400-850 into the SIP. PALs shall be issued in accordance with that section.

4.2. How the PAL Level is Determined[52]

The source must identify all existing and new emissions units for which a PAL is sought. Generally, the PAL level for a specific pollutant is calculated by summing the baseline actual emissions of the PAL pollutant for each emissions unit, then adding an amount equal to the applicable significant level (SER), provided the resulting emissions level does not cause a violation of a NAAQS or increment.

When establishing the actuals PAL level, the source must calculate the baseline actual emissions from existing emissions units that existed during the 24-month baseline period selected. The baseline actual emissions will equal the average rate, in tpy, at which the emissions units emitted the PAL pollutant during a consecutive 24-month period, within the 10-year period immediately preceding the PAL application.

4.3. Duration, Expiration, and Termination

The term of a PAL is 10 years. At least six months prior to (but not earlier than 18 months) the expiration date of a PAL, the source must request either renewal or expiration of the PAL. If this deadline is met, the existing PAL will continue as an enforceable requirement until Ecology renews the PAL.

If a source requests expiration of the PAL, it must submit a proposed approach for allocating the PAL among its existing emissions units. Ecology decides whether and how the allowable emission limitations will be allocated. As under the PAL, emissions units must comply with their allowable emission limitations on a 12-month rolling basis. However, Ecology may accept a variety of monitoring systems to demonstrate compliance. Until the revised permit with allowable emission limitations covering each emissions unit is issued, the source must comply with a source-wide multi-unit emissions cap equivalent to the PAL level. After a PAL expires, physical or operational changes will no longer be evaluated under the PAL applicability provisions.

Notwithstanding PAL expiration, the source must continue to comply with state and federal requirements for a specific emissions unit. When the PAL expires, none of the federal NSR limits, which the PAL originally eliminated, would return.

There are no specific provisions related to terminating a PAL. Such decisions are handled on a case-by-case basis between the source and Ecology.

[52] The discussion in this section is adapted from a comprehensive summary provided by the Virginia Department of Environmental Quality, <http://www.deq.state.va.us/air/pdf/air/regs/pal.pdf>, last accessed on November 30, 2011.

4.4. PAL Renewal

As discussed above, a source must submit an application to renew a PAL. As part of the renewal application, the source must recalculate and propose its maximum PAL level, taking into account newly applicable requirements, and the factors described below.

Ecology will review the application and issue a proposed permit for public comment. As part of this process, Ecology will provide a rationale for the proposed PAL level. If the source's PTE has declined below the PAL level, the PAL will be adjusted downward so that it does not exceed the source's PTE.

Ecology may renew the PAL at the same level without consideration of other factors, if the sum of the baseline actual emissions for all emissions units at the source plus an amount equal to the significant level is equal to or greater than 80 percent of the PAL level. However, if the baseline actual emissions plus an amount equal to the significant level is less than 80 percent of the PAL level, Ecology may set the PAL at a level that it finds to be more representative of the source's baseline actual emissions, or that it finds appropriate considering air quality needs, advances in control technology, anticipated economic growth, or other factors.

In some cases, Ecology may exercise its discretion in deciding that an adjustment is not warranted. If a source would ordinarily be subject to a downward adjustment, but Ecology believes such an adjustment is not appropriate, the source may propose another level. Ecology may approve the level that the source proposes if it determines that the level is reasonably representative of the source's baseline actual emissions. Similarly, Ecology may determine that a lower level best represents the baseline actual emissions from the source.

As with the initial PAL, renewed PALs are effective for 10 years.

4.5. PAL Adjustments during the Effective Period

Ecology may allow an increase in a PAL during the effective period if the source is adding new emissions units, or changing existing emissions units in a way that would cause an exceedance of its PAL. However, Ecology only allows such an increase if the source would not be able to maintain emissions below the PAL level, even if it assumed application of BACT-equivalent controls on all existing major and significant units. Such units must be adjusted for current BACT levels of control unless they are currently subject to a BACT or LAER requirement that has been determined within the preceding 10 years, in which case the assumed control level must be equal to the emissions unit's existing BACT or LAER control level.

The PAL permit must require that the increased PAL level will be effective on the day any emissions unit that is part of the PAL major modification becomes operational and begins to emit the PAL pollutant.

Proposed new emissions units and existing emissions units undergoing a change must go through major NSR permitting, regardless of the magnitude of the proposed emissions increase. This is because the significant level for the pollutant is incorporated into the PAL. These emissions units must comply with any emissions requirements resulting from the major NSR process, even though they have also become subject to the PAL program or remain subject to the PAL.

To request a PAL increase, the source must submit a complete major NSR permit application. As part of this application, the source must demonstrate that the sum of the following exceeds the PAL:

- Baseline actual emissions of its small emissions units.
- Baseline actual emissions from its significant and major emissions units.
- Allowable emissions of the new or modified existing emissions unit(s).

After Ecology has completed the major NSR process and determined the allowable emissions for the new or modified emissions units, Ecology will calculate the new PAL as the sum of the allowable emissions of the new or modified emissions units, plus the sum of the baseline actual emissions of the small emissions units, plus the sum of the baseline actual emissions from significant and major emissions units adjusted for the appropriate BACT level of control. Ecology will modify the PAL permit to reflect the increased PAL level subject to public notice and comment.

4.6. Reopening the PAL Permit

During the term of the PAL, at PAL renewal or at Title V permit renewal, Ecology may reopen a PAL permit and adjust the PAL level, either upward or downward.

Ecology must reopen the PAL permit to:

- Correct typographical or calculation errors or to reflect a more accurate determination of emissions used to establish the PAL.

- Reduce the PAL if the source owner creates creditable emissions reductions for use as offsets.

- Revise a PAL to reflect an increase in the PAL.

Ecology may reopen the permit to:

- Reduce the PAL to reflect newly applicable federal requirements with compliance dates after the PAL effective date.

- Reduce the PAL consistent with any other requirement that is enforceable as a practical matter, and that the state may impose on the major stationary source under the SIP.

- Reduce the PAL if necessary to avoid causing or contributing to a NAAQS or PSD increment violation, or to an adverse impact on an AQRV that has been identified for a federal Class I area.

While Ecology is not required to immediately reopen the PAL permit to reflect newly applicable federal or state regulatory requirements that become effective during the PAL effective period, the PAL must be adjusted at the time of the source's Title V permit renewal or PAL permit renewal. Notwithstanding, Ecology may reopen the PAL permit to reduce the PAL to reflect newly applicable federal or state requirements before EPA otherwise requires.

4.7. Elimination of Existing Emission Limitations

An actuals PAL may eliminate enforceable permit limits a source may have previously taken to avoid major NSR applicability to new or modified emissions units. Ordinarily, under the major NSR regulations, if a source relaxes these limits, the units become subject to major NSR as if construction had not yet commenced.

Should a PAL be requested, the PAL may eliminate annual emissions or operational limits that were previously taken at the stationary source to avoid major NSR for the PAL pollutant. This means that the source may relax or remove these limits without triggering major NSR when the PAL becomes effective. Before removing the limits, Ecology will make sure that the source meets all other regulatory requirements and that the removal of the limits does not adversely affect the NAAQS or PSD increments. Ecology may assess, on a case-by-case basis, whether any streamlining would be appropriate in the Title V permit.

4.8. Monitoring Requirements

Each PAL permit must contain enforceable requirements that accurately determine plant-wide emissions. A PAL monitoring system must consist of one or more of the following approaches allowed by EPA, or an alternative approach if approved by Ecology:

- Mass balance calculations for activities using coatings or solvents
- CEMS
- Parametric monitoring systems
- Emission factors

Use of monitoring systems that do not meet the minimum requirements approved by Ecology renders the PAL invalid. Any monitoring system authorized for use in the PAL permit must be based on sound science and must conform to generally acceptable scientific procedures for data quality and manipulation.

In return for the increased operational flexibility of a PAL, the permit must include sufficient data collection requirements to ensure compliance with the PAL at all times. In addition, the

PAL permit must contain enforceable provisions that ensure that the monitoring data meet the minimum legal requirements for admissibility in a judicial proceeding to enforce the PAL permit.

Appendices

Appendix A. Answers to Frequent Questions

Question 1: **What is PSD?**

Answer: PSD is an acronym for the Prevention of Significant Deterioration rules. These rules need to be addressed when a company is adding a new source or modifying an existing source in an attainment area. The PSD rules need to be addressed for the pollutants for which the area is classified as attainment with the National Ambient Air Quality Standards (NAAQS). PSD rules are designed to keep an area with "good" air in compliance with the NAAQS. The strategy with PSD rules assumes that minor new sources and minor modifications do not significantly affect the air quality. The distinctive requirements of PSD are Best Available Control Technology (BACT), air quality analysis–modeling (allowable increments), and analysis of impacts of the project on visibility, vegetation, and soils. Under PSD, if a source is classified as a major source for any one pollutant, then a significant increase in any pollutant (even one that the source is not major for) triggers PSD review.

Question 2: **What is PSD Increment?**

Answer: PSD increments prevent the air quality in attainment areas from deteriorating to the level set by the NAAQS. A PSD increment is the maximum allowable increase in concentration that is allowed to occur above a baseline concentration for a pollutant. The ambient air quality evaluated is the ambient air quality in effect at the time the minor source baseline dates were established. An increment is defined as the maximum increase in ambient air quality that is allowed above the conditions that exist on the date the baseline dates are set. At the time increments were established, states were permitting new and modified stationary sources to consume 100 percent of the available NAAQS. Congress with the 1977 amendments to the federal CAA and EPA set increments at specific percentages of the NAAQS to define the maximum increment of deterioration from existing air quality. Increments limit the deterioration in the air quality and is more stringent than the NAAQS in limiting emissions increases. Exceeding (i.e., over consuming) an increment does not result in the same requirements as exceeding a NAAQS in that it does not trigger nonattainment. Instead, upon finding an increment has been over consumed, the federal rules in 51.16(a) require the state to develop a plan to rectify the overconsumption of increment. The plan is a SIP amendment. The PSD increments are contained in 40 CFR 51.166(c) and 40 CFR 52.21(c). The federal CAA allows any increment other than an annual increment to be exceeded once per year and not trigger any requirements to address increment over consumption. The baseline concentration is defined for each pollutant, and is the ambient concentration existing at the time that the first complete PSD permit application affecting the area is submitted. Significant deterioration is said to occur when the amount of new pollution would exceed the applicable PSD increment. It is important to note, however, that the air quality cannot deteriorate beyond the concentration allowed by the applicable NAAQS, even if not all of the PSD increment is consumed. Therefore, the NAAQS is the maximum allowable concentration "ceiling."

Question 3: What is a minor source baseline date?

Answer: A minor source baseline date is the date when increment consumption/expansion by non-major sources begins. Minor source baseline dates are set for each air quality control region established by the state under requirements of the federal CAA (Section 107 - Planning areas). To set a minor source baseline date, the PSD application has to include the pollutant (NO_X, SO_2, PM_{10}, or $PM_{2.5}$) as:

- A pollutant which will be emitted at or above the major source threshold triggering the need for PSD permitting, or
- A regulated pollutant which is emitted as a result of the project subject to PSD permitting at or above the significant emission rate; and
- The PSD application is accepted as complete.

The minor source baseline date denotes the date/calendar year that a state needs to track and retain an emission inventory for the air quality control region, where the baseline date has been set. According to the federal CAA, the baseline date denotes the baseline concentration of pollutants in the air as determined by ambient monitoring date acquired by EPA and the states. After the minor source baseline date, any increase in actual emissions from both major and minor sources consumes the PSD increment for that area.

Question 4: **What is the major source baseline date?**

Answer: The major source baseline dates for SO_2 and TSP/PM_{10} were set by congress in the 1977 amendments to the federal CAA. As directed in the law, EPA established the dates for NO_X by rule in 1988 and for $PM_{2.5}$ by rule in 2010. EPA justified that $PM_{2.5}$ was a different pollutant than TSP/PM_{10} in its rulemaking to establish the increment. Between the major source baseline date and the minor source baseline date, only major sources can consume or expand increment. After the minor source baseline date, permitting of major sources must determine how much increment has been consumed/release by the major source and how much increment remains in the area of the source.

Question 5: **Can a minor source consume or expand increment before the minor source baseline date is triggered?**

Answer: No. Minor source changes before the minor source baseline date has been triggered have no effect on the available increment.

Question 6: **Can a major source consume or expand increment before the minor source baseline date?**

Answer: Yes. Starting on the major source baseline date and ending on the minor source baseline date, only changes at major sources can consume or expand increment. Major sources also continue to consume and expand increment after the minor source baseline date.

Question 7: **Can a minor source consume or expand increment after the minor source baseline date is triggered?**

Answer: Yes. A minor source in existence on the date the minor source baseline date has been set can consume or expand increment. Minor sources coming into existence after the minor source baseline date consumes increment until it closes or implements more stringent emission controls.

Question 8: **What is a "netting exercise"?**

Answer: A netting exercise is a demonstration by the applicant which sums up emission changes which have occurred at a source over a contemporaneous time period. The resulting emission changes are then reviewed to determine if the proposed project must undergo PSD. Netting is used when a proposed project is significant by itself, but the applicant wants to avoid PSD rule applicability by taking into account other emission decreases which have occurred over the contemporaneous timeframe. The applicant must also account for other emission increases. Thus, when summing the net emissions decrease from other projects with the emissions increase from the proposed project, the overall net increase in emissions would not be significant.

For PSD, netting is only required if the proposed project by itself has significant emissions. For example, a major source could have three unrelated projects of 20 tons of NO_X each; in an attainment area over a 5-year period whose accumulated emissions would be significant, but netting and hence PSD review is not required because the projects were not related. Note, however, that a deliberate decision to split an otherwise "significant" project into smaller projects to avoid PSD review would be viewed as circumvention. In determining if projects are related, you need to ask two basic questions:

1. Were the projects proposed over a relatively short period of time?
2. Could the changes be considered part of a single project or business decision?

Question 9: **What are contemporaneous emission decreases and when are they needed?**

Answer: The term emission decreases is most often used to refer to a decrease in emissions at a source which is used to counterbalance or compensate for an emissions increase in a netting exercise. For example, if a proposed project will result in an increase of 100 tpy of a pollutant, but three years earlier the source removed 80 tpy unit of the same pollutant, then 80 tpy of

decreases are available such that the contemporaneous increase from the proposed project is only 20 tpy. Use of emission decreases in this manner is not "needed" but is an option available to the applicant under PSD.

Question 10: **Does one ever need to go beyond the contemporaneous time period to consider past emissions increases?**

Answer: Yes. One cannot relax restrictions placed on a project to avoid status as a major project without considering whether the project would then have been major when originally permitted. If the project would become major with a requested relaxation in limits, appropriate PSD must be imposed as part of the issuance of a revised permit.

Question 11: **What is a "Sham" permit?**

Answer: Sham is defined as counterfeit, untrue, or fake. A Sham permit is when a source pursues a permit limit on the potential to emit (PTE) for a proposed project in order to limit the source to minor source levels as a means of circumventing the requirements of PSD. Most often this term applies to construction situations when a company wants to expedite commencement of construction so they are willing to take what they consider temporary limits on PTE such that the proposed project is not required to undergo PSD. Therefore, the company can get their permit without any of the PSD associated delays. The company's intent in such cases would be to remove the limiting permit conditions prior to normal operation, or shortly thereafter (e.g., request a revision to the permit or appeal the permit). Another circumstance which may occur is when a major project is broken up into several smaller minor projects in order to avoid PSD requirements.

Question 12: **What is "debottlenecking"?**

Answer: When the output of a multi-step process is limited by the capacity of one unit or activity, that unit or activity is a bottleneck. Debottlenecking this step in a process can increase the capacity of the other steps both upstream and downstream. Debottlenecked emissions increase must be counted as part of a project's emissions increase. For example, if a paper cutter at the end of the printing line is replaced and the new paper cutter can handle a larger volume of paper quicker such that more printing will be performed, and emissions will increase. The cutter itself has no emissions. However, by replacing the cutter, the entire process line has been debottlenecked, and the process line's emissions were increased.

Question 13: **What does "relied on" mean in regards to creditable emissions increases and decreases in a netting exercise and what are its implications?**

Answer: In PSD rules (40 CFR 52.21) it is stated that emissions increases and decreases are creditable to the extent that they were not previously relied on (40 CFR Part 52.21(b)(3)(iii)). "Relied on" means that a permit was issued where the proposed project was actually required to

meet PSD requirements and such decreases and increases were accounted for in any modeling or analysis of the use of available PSD increments. Per EPA guidance MEMO date December 29, 1989, there are situations, such as when a source nets out of review, when the permitting authority does not rely on creditable emissions increases or decreases in issuing a PSD permit. For example, when a source nets out of review, no PSD permit is issued. As such, the reviewing authority has not relied on any creditable emissions increases or decreases in issuing a permit, so the emissions increases and decreases are still available for future applications.

Question 14: **What do the terms "synthetic minor" and "natural minor" generally mean?**

Answer: A person may mean the following when using these terms, although they are not specifically defined in any known PSD rules or literature. The term "synthetic minor" is generally used to describe a source that has permit conditions which limit its PTE to less than major source levels, but whose PTE in the absence of any permit conditions would be above major source levels. The term "natural minor" is generally used to describe a source whose PTE is less than major source levels in the absence of any permit conditions.

Question 15: **What criteria do you use to determine if two facilities which are close by and related should be treated as the same source or separate sources for purposes of PSD?**

Answer: The PSD rules provide that facilities should be considered a single stationary source if they meet all of the following three criteria:

1. Belong to the same SIC major (2-digit) group. If the facilities could have separate SICs but a support relationship exists, (e.g., 50 percent of the product of one is utilized by the other), then one facility is considered a support facility and this criterion shall be considered met.

2. Are located on one or more contiguous or adjacent properties (in the same general area).

3. Are under common ownership or control. If the applicant challenges the existence of common control, it may be necessary to look at the contractual agreement between the facilities to determine if they are under common control.

In reviewing applications, one must check these factors carefully if the circumstances at the source are not straightforward. In particular, is a company trying to improperly separate a single source into multiple plants in order to avoid PSD applicability? Is a company trying to improperly claim contemporaneous decreases from another source to avoid PSD applicability?

Question 16: **An engine manufacturing plant sprays VOC contaminated wastewater into the air to dispose of VOC. Is the activity, if new, subject to PSD?**

Answer: If the source has non-fugitive emissions greater than 250 tpy, the new emissions which are fugitive would count in determining PSD applicability. The only place fugitives are given special treatment is in determining if the source is subject to PSD review.

Reference: 40 CFR §52.21(i)(4)(vii)
Memorandum from Thomas W. Devine, Director, Air & Hazardous Materials Division, EPA Region 4 to State/Local Directors, Policy Determinations Regarding PSD Questions, March 11, 1981

Note: Minor NSR including a review of WAC 173-460 air toxic regulations may be required.

Question 17: A major source makes a physical change which increases emissions by a "significant" amount. The project also has offsetting reductions elsewhere at the same time. In the past five years, however, there have been other increases such that the net emission increase result over five years is greater than the significant emission rate for at least one pollutant. Is the new physical change subject to PSD review?

Answer: Yes. PSD review is triggered if:

1. The proposed change, by itself, without counting any offsetting reductions, will result in a significant emissions increase; AND

2. When facility-wide increases and decreases over the past five years are considered, a significant net emissions increase results.

Emissions decreases are not counted in "Step 1" of the PSD applicability analysis.

Reference: 40 CFR §52.21

Question 18: A major source wishes to take two actions: (1) Increase production at a previously PSD-permitted emission unit, and (2) Build a new emission unit whose emissions will be less than the SER. Emissions of fluorides from the two actions, when added together, are greater than the SER and occur within the contemporaneous time frame. Does the physical change (new unit) trigger PSD review because of the change in actual emissions at the previously permitted units being greater than the SER?

Answer: No. Unless the production rate of the previously permitted unit was limited in the PSD permit. An increase in production is exempt from PSD review, unless the production rate is limited in the permit. Also, the PTE of the new unit by itself must be greater than the SER to trigger review. Unless the increase in emissions from the previously permitted emission unit was a result of the new emissions unit (i.e., debottlenecking).

Reference: 40 CFR §52.21

Question 19: Is an iron foundry one of the 28 PSD categories?

Answer: Yes. It is a secondary metal production plant if it uses scrap metal to produce iron, even if the metal is poured into molds.

Reference: 40 CFR §52.21(b)(1)(i)(a)

Question 20: Is a whiskey distillery one of the 28 categories (chemical process plants) listed in 40 CFR §52.21(b)(1)(i)(a)?

Answer: No. A chemical process plant is any establishment in Major Group 28 of the SIC Code. Beverage distilleries are in Major Group 20.

Reference: 40 CFR §52.21(b)(1)(i)(a)

Question 21: A major stationary source wishes to make a physical change resulting in a 15 tpy increase in particulate matter emissions. Less than five years ago, the source had a production increase (not subject to PSD permitting) resulting in a 50 tpy increase in SO_2. There were no increases in particulate matter emissions at the source over the past five years. Is the proposed increase subject to PSD permitting?

Answer: No. The triggering increase must be of the same pollutant as the one for which a significant increase results. Also, the proposed physical change must be greater than the SER by itself. If the PM10 emissions is 15 TPY or PM2.5 emissions is 10 tpy or more, then PSD applies.

Reference: 40 CFR §52.21

Question 22: A boiler at a major stationary source has been shut down for 11 years. At the time of the shutdown, extensive efforts were made to keep the boiler from deteriorating. During the shutdown period, this maintenance has continued. A recent inspection by the manufacturer shows that very little effort would be required to return the boiler to service. The air operating permit has been allowed to expire. The owner maintains that the boiler was always intended to be used at some time in the future. Is the returning to service of the boiler subject to PSD review?

Answer: No. Normally, a shutdown of greater than two years is considered permanent. If, however, the owner demonstrates that the shutdown was not intended to be permanent, the shutdown may be considered temporary. If the shutdown is considered temporary, a start-up would not be subject to PSD review. The "acid test" is whether the shutdown is permanent. In any case, the increase would be considered an increase in actual emissions for any future net increase calculation and for increment consumption purposes.

Reference: Memorandum from Edward Reich, "Summary of PSD Determinations," PSD 117; Memorandum from Thomas W. Devine, Director, Air & Hazardous Materials Division, EPA Region 4 to State/Local Directors, Policy Determinations Regarding PSD Questions, July 31, 1981

Question 23: A minor source which adds emissions of a pollutant in a major amount (100 tpy if one of the 28 listed source categories or 250 tpy if not listed) is subject to PSD review as a new major source, rather than as a modification. The netting concept is used only in the definition of major modification, and not in the definition of major stationary source. This seems to indicate that a minor source adding a major emission unit could not escape PSD review by considering previous decreases which cause the net increase to be less than the major source threshold. Is this the case?

Answer: Yes. For example, suppose a minor source emitting 200 tpy had a decrease in actual emissions in 2010 of 50 tpy, leaving 150 tpy. In 2012, 260 tpy is proposed to be added. If the 50 tpy reduction could be used to offset the 260 tpy increase, the increase would be only 210 tpy and the source would escape review. The 50 tpy decrease cannot be used, however, so the 260 tpy increase is subject to review as a new major stationary source.

Reference: 40 CFR §52.21(b)(1)

Question 24: An existing source is major only because its SO_2 emissions are 120 tpy. The source proposes to add 60 tpy of particulate emissions. At the same time, the source is willing to accept a new, federally enforceable limitation which lowers its SO_2 emissions to 90 tpy. Is the proposed addition of 60 tpy of particulate subject to PSD review?

Answer: No. Since the source will not be major after the change, the action is not subject to PSD review.

Reference: 40 CFR §52.21(b)(2)(i)

Question 25: The PSD baseline air quality is based on actual emissions from existing sources. Actual emissions are defined as the average emissions rate in tpy. How does Ecology interpret this in establishing short-term (24-hour, 3-hour) baseline air quality levels when air quality modeling is used?

Answer: Baselines for 3- and 24-hour averages should be set using the maximum 3-hour average or 24-hour average emission rate of the existing source, respectively, which occurred during the period over which the annual emission rate was determined. For example, if a source's annual emission rate is determined to be 430 tpy by averaging 400 tpy in 1978 and 460 tpy in 1979, the 3-hour baseline emission rate would be the maximum 3-hour average emission rate which occurred during the period of 1978 and 1979.

For short-term PSD modeling only the new and contemptuous equipment is modeled. Equipment with increase in utilization is not part of the short-term modeling.

Question 26: An ambient monitor was operated for one year (or shorter time, if representative of highest values) and then shut down. A proposed source wishes to use the data for its PSD application. Except for the time lapse, the data is representative of current air quality at the proposed site, is of good quality, and was gathered entirely in a time period less than three years before the source submits its application. Can the data be used, even though the monitor has been shut down?

Answer: As long as all the data needed in the application are collected sequentially, and all the data are collected sometime in the previous three years, the timing requirement is satisfied. For example, suppose an agency operated an ozone monitor throughout a particular ozone season, which the agency determines to be April through September of 2010. The monitor is then shut down. This data could be used in a PSD application submitted any time before April 1, 2013, provided the data are still representative of current conditions, and all other requirements are met, such as quality assurance and monitor location.

Reference: 40 CFR §52.21(m); 45 FR 52724
Memorandum from Thomas W. Devine, Director, Air & Hazardous Materials Division, EPA Region 4 to State/Local Directors, Policy Determinations Regarding PSD Questions, July 31, 1981

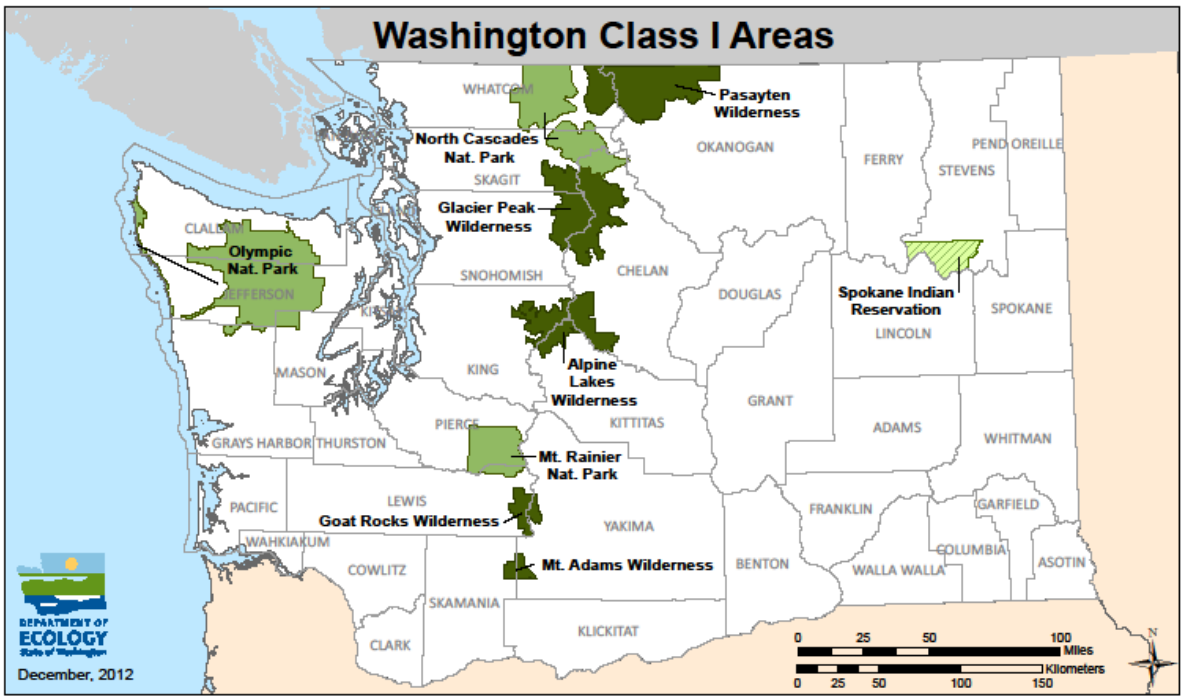
Question 27: A minor source locates in a PSD area where the baseline has been triggered. In another nearby PSD area, the baseline is still not triggered after the minor source begins operation. The source's emissions impact this neighboring area. Do these emissions consume increment?

Answer: No. The baseline air quality is that which actually exists in the baseline area on the baseline date, minus contributions from new major sources. Therefore, at some future baseline date for the neighboring area, the baseline air quality must include the actual contribution from the minor source. Since the emissions are in the baseline for the area, they do not consume increment. If the situation is reversed (minor source locates in an area that has not been triggered, impacts a triggered area), emissions would consume increment in the neighboring area, but not in the area where the source locates.

Reference: 40 CFR §52.21(b)(13)
Memorandum from Thomas W. Devine, Director, Air & Hazardous Materials Division, EPA Region 4 to State/Local Directors, Policy Determinations Regarding PSD Questions, July 31, 1981

Question 28: Where are the Washington Class I areas?

Answer: See map below.
Reference: WAC 173-400-118 Designation of Class I, II, and III areas.



Washington Class I Areas

- Native American Class I Areas
- National Park Service Class I Areas
- U.S. Forest Service Class I Areas

Class I areas are granted special air quality protection under the federal Clean Air Act's Prevention of Significant Deterioration Program and state rules. National parks and certain wilderness areas are designated as mandatory Class I federal areas under the federal Clean Air Act. EPA may designate other areas as Class I areas upon request. The Spokane Indian Reservation was designated a Class I Area in 1991 based on a request from the Spokane Tribal Council. The operator of any new major stationary source or major modification that may affect air quality in a Class I area should contact the Ecology Air Quality Program for further information.

Appendix B. Important Links

Operating Permit Regulation
http://apps.leg.wa.gov/wac/default.aspx?cite=173-401

New Source Review

New source review for sources and portable sources
http://apps.leg.wa.gov/wac/default.aspx?cite=173-400-110

Processing notice of construction applications for sources, stationary sources, and portable sources
http://apps.leg.wa.gov/wac/default.aspx?cite=173-400-111

Public notice and opportunity for public comment
http://apps.leg.wa.gov/wac/default.aspx?cite=173-400-171

Controls for New Sources of Toxic Air Pollutants
http://apps.leg.wa.gov/wac/default.aspx?cite=173-460

Prevention of Significant Deterioration (PSD)

Review of major stationary sources of air pollution
http://apps.leg.wa.gov/wac/default.aspx?cite=173-400-700

Definitions
http://apps.leg.wa.gov/wac/default.aspx?cite=173-400-710

PSD
http://apps.leg.wa.gov/wac/default.aspx?cite=173-400-720

PSD application processing procedures
http://apps.leg.wa.gov/wac/default.aspx?cite=173-400-730

PSD permitting public involvement requirements
http://apps.leg.wa.gov/wac/default.aspx?cite=173-400-740

Revisions to PSD permits
http://apps.leg.wa.gov/wac/default.aspx?cite=173-400-750