BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

IN THE MATTER OF:	)	
	)	
PROPOSED NEW 35 ILL. ADM. CODE 204	)	R19-1
PREVENTION OF SIGNIFICANT	)	(Rulemaking – Air)
DETERIORATION, AMENDMENTS TO 35	)	
ILL. ADM. CODE PARTS 101, 105, 203, 211	)	
AND 215	)	

NOTICE

TO: Don Brown
Clerk
Illinois Pollution Control Board
James R. Thompson Center
100 West Randolph St., Suite 11-500
Chicago, IL 60601-3218

SEE ATTACHED SERVICE LIST

PLEASE TAKE NOTICE that I have today electronically filed with the Office of the Clerk of the Illinois Pollution Control Board the TESTIMONY OF JASON SCHNEPP and the TESTIMONY OF CHRISTOPHER ROMAINE, a copy of which is herewith served upon you.

ILLINOIS ENVIRONMENTAL
PROTECTION AGENCY

By: /s/ Sally Carter
Sally Carter
Assistant Counsel
Division of Legal Counsel

DATED: November 8, 2018

1021 North Grand Avenue East
P.O. Box 19276
Springfield, IL 62794-9276
217/782-5544

BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

IN THE MATTER OF:	)	
	)	
PROPOSED NEW 35 ILL. ADM. CODE 204	)	R19-1
PREVENTION OF SIGNIFICANT	)	(Rulemaking – Air)
DETERIORATION, AMENDMENTS TO 35	)	
ILL. ADM. CODE PARTS 101, 105, 203, 211	)	
AND 215	)	

TESTIMONY OF JASON SCHNEPP

My name is Jason Schnepp. I am an Environmental Protection Specialist IV in the Illinois Environmental Protection Agency's (Illinois EPA or Agency) Bureau of Air, Permit Section, Major Source Construction Unit. I have been employed by the Illinois EPA in the Bureau of Air for twenty-four years. I have a Bachelor of Science in Chemical Engineering from the University of Missouri – Rolla. In my current position with the Illinois EPA, my duties include, among others, the processing of applications for construction permits for new major stationary sources and major modifications at existing major stationary sources subject to Prevention of Significant Deterioration (PSD), 40 CFR 52.21, and Major Stationary Sources Construction and Modification, 35 Illinois Administrative Code (Ill. Adm. Code) Part 203. I serve as a lead worker for permitting associated with these regulatory programs, assisting other analysts in their review of permit applications and reviewing their work.

I will be providing testimony regarding the proposed regulations at 35 Ill. Adm. Code Part 204 that would establish a state PSD permit program for Illinois.

Introduction

The focus of my testimony will be explaining applicability under the proposed PSD permit program at 35 Ill. Adm. Code Part 204. Following my testimony, Christopher Romaine will provide testimony with a focus on the substantive requirements for projects that trigger the proposed PSD rule.

The New Source Review (NSR) provisions of the Clean Air Act (CAA) and of the United States Environmental Protection Agency's (USEPA) implementing regulations require persons proposing new major stationary sources or major modifications of major stationary sources, among other things, to obtain air pollution control permits before commencement of construction. This preconstruction permitting program for major projects is divided into two programs, the PSD permit program and the nonattainment NSR permit program. Collectively, these two programs are referred to as the NSR permit program.

The PSD permit program generally addresses emissions of "regulated NSR pollutants." Regulated NSR pollutants include the majority of the pollutants for which there are National Ambient Air Quality Standards (NAAQS), i.e., carbon monoxide, particulate matter$_{10}$, particulate matter$_{2.5}$, sulfur dioxide and lead). Regulated NSR pollutants also include particulate matter, volatile organic material and nitrogen oxides, certain additional pollutants regulated under the federal New Source Performance Standards (40 CFR Part 60) such as fluorides and hydrogen sulfide, and certain other pollutants such as greenhouse gases and ozone depleting substances, for which USEPA has adopted regulations under the CAA that restrict emissions of that pollutant. Emissions of hazardous air pollutants are not regulated NSR pollutants.

In areas that do not meet the NAAQS, for the pollutants that are nonattainment and the precursors to those pollutants, the requirements of part D of title I of the CAA must be addressed

for proposed projects. The program addressing these requirements is referred to as the "nonattainment" NSR permit program or NaNSR permit program. The NaNSR permit program addresses permitting of proposed projects as they would emit pollutants and/or precursors of such pollutants as they would potentially affect air quality for the pollutant for which the area is designated nonattainment. The NaNSR permit program for Illinois is contained in existing 35 Ill. Adm. Code Part 203, Major Stationary Sources Construction and Modification. In other respects, proposed projects are addressed by the PSD program. In particular, in areas that meet the NAAQS, referred to as "attainment" areas, or for which there is insufficient information to determine whether they meet the NAAQS ("unclassifiable" areas), the PSD requirements under part C of title I of the CAA apply. This program is referred to as the PSD permit program. Proposed projects that would occur in nonattainment areas can be subject to both the PSD permit program and the NaNSR permit program, depending on the pollutants that would be emitted from the new major stationary sources or major modifications of major stationary sources.

Proposed Part 204 Prevention of Significant Deterioration

The Illinois EPA has proposed regulations that would be the first step in establishing a USEPA-approved state PSD permit program for Illinois. The provisions of the proposed rule generally mirror the provisions of the existing federal PSD rule at 40 CFR 52.21. In certain provisions, the proposed rule does not follow the language in 40 CFR 52.21 as necessary so that Part 204 would accurately reflect the actual federal PSD program as modified by relevant judicial decisions and USEPA's responses to those decisions.

The Illinois EPA proposal to the Pollution Control Board (Board) includes a Technical Support Document and a Statement of Reasons. The Technical Support Document explains the

federal PSD program as it has been implemented by the USEPA. The Statement of Reasons explains how the provisions of the proposed regulations reflect the provisions of the federal PSD program.

One of the more intricate aspects of the proposed PSD permit program, like the federal PSD program, is applicability. This is addressed in Sections I, II and III of the Technical Support Document. A proposed project must be evaluated independently for its emissions of each regulated NSR pollutant. Projects whose emissions meet or exceed certain emissions thresholds would be considered a major project. There are two basic types of major projects: (i) construction of a new major stationary source, and (ii) major modification of an existing major stationary source. Under the PSD program, a stationary source consists of all the stationary pollutant-emitting activities that are under common control by one entity or person or person under common control, are located on contiguous or adjacent properties, and belong to the same industrial grouping. The PSD permit program does not directly apply to mobile sources such as cars, trucks or locomotives or to nonroad engines. For this testimony, a major stationary source is also referred to as a "major source."

New Major Source

The determination of whether a proposed new source is a new major source subject to the PSD permit program would be relatively straightforward consistent with the federal PSD program. Illinois' proposed PSD rule would set applicability thresholds for major sources at potential emissions of 100 or 250 tons/year, depending on the source type. A new source with a potential to emit at or above the applicable threshold amount "triggers," or would be subject to, PSD. The proposed rule would identify 28 categories of sources subject to the 100 tons/year

threshold. For example, petroleum refineries and chemical processing plants would be subject to the lower 100 tons/year threshold. All other categories of sources would be subject to the 250 tons/year threshold. The exception to this is greenhouse gases, which would not be considered when determining whether a source is major.

A project at an existing "minor" source, with potential emissions less than the major source threshold (100 or 250 tons/year), could also trigger PSD. For example, this could occur when an existing minor source proposes to install new equipment with potential emissions equal to or greater than the major source threshold (100 or 250 tons/year).

When calculating the potential emissions of the source to determine if the threshold for a new major source is triggered, emissions from mobile sources would not be included, as discussed above. Also, fugitive emissions, emissions that could not reasonably pass through a stack, chimney, vent or other functionally equivalent opening (e.g., roadways), would not be included except for certain categories of sources. In particular, fugitive emissions would be included for sources in the categories for which the threshold for a major source is 100 tons/year and for any other stationary source category, which, as of August 7, 1980, is being regulated under Section 111 or 112 of the CAA. For example, emissions of volatile organic material attributable to leaks at piping equipment at a petroleum refinery, e.g., valves and flanges, are fugitive emissions that would be included in the determination of potential emissions of a source.

Once the major source threshold is triggered by a proposed new source for one pollutant, the source's potential emissions of other pollutants would be compared against lower threshold "significant" emissions rates. These significant emission rates vary by pollutant. For example, the significant emission rate for particulate matter would be 25 tons per year. If a proposed new major source had potential emissions of 300 tons per year of carbon monoxide and 30 tons per

year of particulate, PSD would be triggered for both carbon monoxide and particulate matter emissions.

Major Modifications of an Existing Major Source

For a proposed project at an existing source, the determination of applicability for a proposed change to a source would begin with an examination of the status of the source at which the change would occur to determine if the source is major or minor. This is important because minor sources would not be subject to the provisions for major modifications. As already discussed, a source would generally be major if its potential emissions of one or more regulated NSR pollutants are 100 or 250 tons/year, depending on the source type. Again, the exception to this is greenhouse gases, which are not considered when determining whether a source is major.

Certain activities that take place at major sources are not considered modifications. If a project would only involve existing units, a determination must be made whether the changes proposed for the existing units would be considered physical changes or changes in the method of operation. For example, a project involving only changes to existing units that only involve routine maintenance, repair or replacement of parts are not considered physical changes or changes in the method of operation. A project that only involves such routine activities would not be a modification. Such routine activities may also occur while other construction activity is occurring. For example, petroleum refineries perform routine maintenance of equipment during turnaround of process units. During these turnarounds, a project may also be planned that involves construction and or modifications of emission units.

Proposed projects that are modifications can vary in complexity. A project could be as

simple as construction of a single new emissions unit. Alternatively, a project could involve construction of new emissions units, changes to existing emissions units, or replacement of emissions units, all of which may impact other emissions units at the source. Regardless of the complexity of the project, major modification applicability would involve summing the emissions changes of all emission units affected by the project.

For new emission units, the "changes" in emissions would simply be the potential, or permitted, emissions of the new units. Sources often propose restrictions on new units consistent with the greatest expected operation of the unit. These restrictions would be used to establish permit terms to ensure that the units operate as proposed.

To determine the emissions change at an existing emissions unit, the unit's historical actual emissions (referred to as the "baseline actual emissions" in the PSD program) would be compared with its future actual emissions (referred to as the "projected actual emissions" in the PSD program). Baseline actual emissions represent the average rate, in tons per year, that the unit actually emitted the pollutant during a consecutive 24-month period, excluding noncompliant emissions. Projected actual emissions represent the annual rate, in tons per year, at which an existing unit is projected to emit a regulated NSR pollutant, excluding the portion of emissions that the unit could have accommodated and that are unrelated to the project. It should be noted that even if a particular unit would not undergo a physical change or change in the method of operations, the existing unit may be affected by a proposed project and be considered when determining emissions. To determine the project emissions, the emissions increases for the new emissions units would be combined with the changes in emissions for the existing emissions units affected by the project. The total increases of different pollutants from the proposed project would be compared against the applicable significant emission rates under the PSD rules. If the

total equals or exceeds the applicable rate, a significant increase in emissions would occur. For example, emissions increases of 100 and 25 tons per year would be considered significant for carbon monoxide and particulate matter, respectively. An emission increase of 40 tons per year would be considered significant for volatile organic material, nitrogen oxides and sulfur dioxide. For greenhouse gases, a threshold of 75,000 tons/year would apply, provided a project is subject to PSD based on significant emissions for another regulated NSR pollutant. If the change in emissions for the project is not significant for a pollutant, PSD would not be triggered for that pollutant.

Finally, if the change in emissions for the project is significant, the "net" change in emissions may be evaluated by a source. This evaluation is commonly referred to as a "netting analysis" or "netting exercise." The netting exercise refers to the process of considering certain previous and prospective emissions changes at the source to determine the net emissions increase of a particular pollutant. If the net emissions increase is significant, e.g., 100 tons/year of carbon monoxide, the substantive requirements of PSD would be triggered for each pollutant for which the net increase would be significant. If the net emissions increase for the project is not significant, PSD would not be triggered.

Plantwide Applicability Limitations

The PSD program, as is addressed in the proposed PSD rule, includes provisions for establishing Plantwide Applicability Limitations (PALs) for existing major stationary sources. PALs would not be made available for minor sources. A PAL would restrict all emissions of a particular regulated NSR pollutant from a subject source. For a source with a PAL for a pollutant, PSD applicability for that pollutant would not be determined by its emissions increases

due to a proposed project as explained above. Instead, if the source's actual emissions of the pollutant from a proposed project would remain below the applicable PAL, the project would not be a major modification for that pollutant even if the emissions increases due to the project would be significant. A PAL for a particular pollutant would be established by the Illinois EPA based on the baseline actual emissions of all existing emissions units at the source and the potential emissions of all new emissions units at the source plus the significant emissions rate of the particular pollutant.

Recordkeeping and Reporting for Certain Projects That Are Not Major Modifications

In addition to the applicability criteria for PSD review, the PSD program, as reflected in proposed Part 204, includes requirements for recordkeeping and reporting for certain projects that occur at an existing major stationary source and that are determined not to be major modifications. These requirements would apply for projects for which the project increase(s) in emissions are 50 percent or more of the applicable significant emission rate.

Conclusion

In conclusion, with respect to the applicability of the PSD permit program, the Illinois EPA has developed proposed Part 204 to mirror the relevant provisions of the federal PSD program.

BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

IN THE MATTER OF:	)	
	)	
PROPOSED NEW 35 ILL. ADM. CODE 204	)	R19 - 001
PREVENTION OF SIGNIFICANT	)	(Rulemaking – Air)
DETERIORATION, AMENDMENTS TO 35	)	
ILL. ADM. CODE PARTS 101, 105, 203, 211	)	
AND 215	)	

TESTIMONY OF CHRISTOPHER ROMAINE

My name is Christopher Romaine. I am here today for the Illinois Environmental Protection Agency (Agency) to provide testimony supporting the regulatory proposal that is the subject of this proceeding.

I have a Bachelor of Science in Engineering from Brown University and have completed coursework toward a Master's Degree in Environmental Engineering from Southern Illinois University. I am a Registered Professional Engineer in the State of Illinois.

I started my career with the Agency in June 1976, at a junior level in the Permit Section in the Division of Air Pollution Control. I am currently the Manager of the Construction Unit in the Bureau of Air, Permit Section. The Construction Unit processes applications for construction permits involving stationary sources of emissions that are or would be subject to Illinois' Clean Air Act Permit Program for stationary sources of emissions. I previously served as Manager of the New Source Review Unit, Manager of the Utility Unit and Manager of the Joint Utility/Construction Unit, all in the Air Permit Section. In all of these roles, I have been involved with the permitting of projects that were subject to the Prevention of Significant Deterioration (PSD) permit program.

In addition to my duties related to permitting, in my tenure with the Agency, I have assisted with a number of regulatory proposals for stationary sources. These proposals included rules for Nonattainment New Source Review for proposed construction projects in nonattainment areas, rules establishing Reasonable Available Control Technology (RACT) for volatile organic

material emissions for certain categories of emissions units, rules for Illinois Clean Air Act Permit Program (CAAPP), rules for the Emission Reduction Market System (ERMS) and the original rules for control of emissions from coal-fired utility boilers.

INTRODUCTION

My testimony involves the regulations proposed by the Agency for new Part 204 of Title 35 of the Illinois Administrative Code (35 Ill. Adm. Code Part 204), which would establish a state PSD permitting program for Illinois. As a general matter, as explained in the Statement of Reasons that accompanied the Agency's regulatory proposal, proposed Part 204 has been developed to conform with the federal PSD program. The Technical Support Document that accompanied the Agency's proposal provided a description of this federal PSD permit program as it is currently applied and implemented by the United States Environmental Protection Agency or USEPA. My testimony further describes this federal PSD permit program that would be reflected in the provisions of the Agency's proposal for 35 Ill Adm. Code Part 204.

The specific focus of my testimony is the substantive requirements of the PSD permit program that, for one or more pollutants, are relevant for a proposed new major stationary source of emissions or a proposed major modification of a stationary source. In this regard, the general purpose of the PSD program is to prevent significant deterioration of air quality. As the PSD program applies directly to a proposed new major stationary source or a proposed major modification at a stationary source, the PSD program acts to prevent significant deterioration of air quality by imposing certain substantive requirements for such projects, as will be discussed in this testimony.

One of these requirements of the PSD permit program, Best Available Control Technology (BACT), directly addresses the emissions of a proposed project. As it applies to the emissions units that are part of a proposed project, BACT requires the maximum degree of reduction in the emissions of the pollutants for which the proposed project is subject to PSD. As such, the BACT requirement of PSD commonly requires more stringent control of emissions than would be required to comply with the various emission limits and control requirements that would apply to subject emissions units under the applicable federal and state emission standards.

The other substantive requirements of the PSD program generally involve various assessments of the impacts or potential effects of the emissions of a proposed project, including the impacts of the project's emissions on ambient air quality. These assessments only lead to more stringent emission limits or other changes to the plans for a proposed project as necessary to avoid unacceptable impacts from the project. For example, these assessments may necessitate changes to the design of a project to ensure that it would not result in violations of a National Ambient Air Quality Standard or NAAQS.

These substantive requirements of the PSD program are generally set forth in Part C of Title I of the federal Clean Air Act, Prevention of Significant Deterioration of Air Quality. These requirements have been further developed in regulations adopted by USEPA, notably 40 CFR 51.166 and 52.21. As discussed in the Statement of Reasons prepared by the Agency for this proposed rulemaking, proposed 35 IAC Part 204 has generally been developed to reflect the provisions of the federal PSD program. This approach has been taken in Part 204 as it would address the substantive requirements of PSD for a proposed new major source or major modification, as well as for the provisions in Part 204 that would address applicability of PSD.

Incidentally, in addition to the direct consequences of the PSD program for proposed new major sources and major modifications, it is also noteworthy that the potential applicability of the substantive requirements of PSD also act to indirectly lower emissions of certain proposed new sources and modifications so that they are not major. The PSD program generally creates an incentive for proposed new sources and modifications to be designed and constructed so that emissions are such that they are not subject to the substantive requirements of the PSD program. This may result in the selection or design of emission units with lower emissions, the use of more efficient emission control equipment or, for a proposed modification, actions elsewhere at the source to create accompanying decreases in emissions. Even if a proposed source or modification is major and subject to PSD for certain pollutant(s), an incentive exists to reduce the emissions of other pollutants and the number of pollutants for which PSD is applicable.

When considering the substantive requirements of PSD, it is important to remember that applicability of PSD must be considered separately for individual regulated NSR pollutants. Accordingly, this testimony addresses the substantive requirements of the PSD program only as a

proposed new major source or major modification would be subject to PSD for a particular pollutant or pollutants. Considering its potential emissions of different regulated NSR pollutants, a proposed new major source is subject to PSD only for the pollutants for which emissions are either major or significant and not for other pollutants for which emissions are below the significant emission rates. Likewise, a proposed major modification is subject to PSD only for its emissions of pollutants for which the increases or net increases in emissions are significant.

In addition, the applicability of the PSD program for a proposed project may also be affected if the project would take place in an area that is designated nonattainment. For a proposed new source or modification in a nonattainment area, the substantive requirements of the PSD program do not apply for a regulated NSR pollutant to the extent that the provisions of the PSD program are supplanted by the provisions of the Nonattainment New Source Review or NA NSR program. For example, in an area that is designated nonattainment for ozone, the applicable provisions of NA NSR apply for emissions of volatile organic material rather than the provisions of PSD. This is because volatile organic material is only regulated under NSR as it is a precursor to the formation of ozone in the atmosphere. The NA NSR program addresses the emissions of "nonattainment pollutants" from proposed sources and modifications in nonattainment areas. As related to pollutants for which there are ambient air quality standards, the PSD program addresses proposed sources and modifications in areas that are designated attainment or unclassified for those pollutants.

For simplicity, the remainder of my testimony routinely refers to proposed new major sources and proposed major modifications that would be subject to PSD for one or more pollutants as "major projects." These major projects are also described as being "proposed" projects. This is because the substantive requirements of the PSD program are expected to be addressed during the planning and design of a major project with an appropriate permit issued before commencement of construction on a major project.

BEST AVAILABLE CONTROL TECHNOLOGY (BACT)

Best Available Control Technology (BACT) is a limit or other restrictions on the emissions of a pollutant from an emissions unit that is established by the permitting authority by the issuance of a PSD permit that addresses such unit. When describing the substantive requirements of the PSD

program, the BACT requirement is commonly addressed first because, as it applies to a proposed major project, it directly addresses the emissions of the project and the emission control technology that must be utilized for the project. BACT reflects the permitting authority's determination of the maximum degree of reduction in emissions of a pollutant from an emissions unit that is achievable through application of production processes or available methods, systems, and techniques. BACT is commonly described as a technology that is used to control or reduce emissions of a pollutant. However, as defined by Section 169(3) of the Clean Air Act and the PSD program, the term BACT actually refers to the emission limit(s) or requirement(s) that are set for subject emissions units, not the control technologies underlying those requirements.

The BACT requirement of the PSD program is separate from the requirement that an applicant for a PSD permit demonstrate that a proposed major project will not have unacceptable impacts. For some projects, in addition to establishing BACT for the project, the PSD permit must also impose additional requirements for the emissions of the project or other aspects of the plans for the project to ensure that the impacts of the project will not be unacceptable.

Under the PSD program, the applicability of the BACT requirement of the PSD program is different for proposed new major sources and for major modifications. For a proposed new major source, BACT is required for each pollutant for which PSD applies, with BACT determined for each of the stationary emission units and pollutant-emitting activities at the proposed new source that would emit that pollutant.

For a proposed major modification subject to PSD, the BACT requirement applies to each proposed new emissions unit that would emit that pollutant. It also applies to each existing emissions unit at which a net increase in emissions of that pollutant would occur as a result of a physical change or change in the method of operation in the unit. In determining whether a physical change or change in the method of operation would occur at an emissions unit, certain exclusions in the definition of major modification are relevant. For example, an increase in the operating rate and emissions of an emissions unit is not considered a change in method of operation if the emissions unit is physically capable of accommodating the increased operation and the new level of operation would not exceed any enforceable limit that was previously established under the PSD program.

BACT determinations are made on a case-by-case basis for specific projects. As appropriate, they consider energy, environmental, and economic impacts and other costs of the technology that could potentially be required to be used to control emissions. BACT limits are established in PSD permits and must be at least as stringent as the standard(s) applicable to subject emissions unit(s) under any applicable federal New Source Performance Standard (NSPS) or National Emission Standard for Hazardous Air Pollutants (NESHAP). Proposed determinations of BACT are a matter that is commonly subject to comment by the public during the comment period before final action is taken to issue a PSD permit for a proposed project.

BACT is commonly set as numerical limits for emissions of the subject emissions units, with limits typically set in the same form as the emissions standards that apply to the emissions unit under applicable regulations, e.g., pounds/million Btu or pounds/ton of product. However, if technological or economic limitations on the application of measurement technology would make the imposition of a numerical limit infeasible for an emissions unit, the permitting authority may instead set non-numerical BACT requirement(s), such as design, work practice or operational requirement(s).

Permitting authorities generally make BACT determinations using the "top-down process." This systematic approach to the determination of BACT has been recommended by USEPA in its guidance for over 25 years, most notably in its *New Source Review Workshop Manual: Prevention of Significant Deterioration and Nonattainment Area Permitting*, released in 1990. A top-down BACT analysis for a particular emissions unit or group of units entails five steps, as listed below.

- Step 1: Identify available control technologies.
- Step 2: Evaluate the technical feasibility of identified control technologies and eliminate technologies that are not technically feasible.
- Step 3: Rank the "feasible control technologies" by effectiveness in reducing emissions.
- Step 4: Evaluate energy, environmental and economic or cost impacts associated with control technologies as necessary to select the BACT technology.
- Step 5: Establish the BACT limits and requirements for use of the control technology selected as BACT.

By way of further explanation, in Step 1 of a Top-Down BACT analysis, available or "candidate" emission control technologies that have a potential for reducing emissions of the target pollutant from the proposed new or modified emissions unit(s) are identified. For this purpose, available control technologies include add-on control devices (e.g., fabric filter baghouses or afterburners). Available control technologies that must also be identified include alternative fuels (e.g., lower-sulfur fuels), use of alternative raw materials (e.g., use of lower vapor pressure solvents for cleanup operations) and alternative methods or processes that would reduce the formation or level of emissions (e.g., use of low-solvent coating technology). The requirement to consider alternative fuels, raw materials, methods and processes when determining BACT does not extend to consideration of alternatives that would redefine the basic business purpose or fundamental scope or design of the project that is proposed by an applicant.

Available control technologies can be identified based on their use on emissions units in the same source category or based on their use on other units in other source categories with similar emission characteristics and exhaust gas streams. Available emission control technologies are commonly identified from information in the USEPA's online RACT/BACT/LAER Clearinghouse (RBLC), permits for existing sources, relevant USEPA air pollution control rules and rulemakings, technical journals and published research papers.

In Step 2 of a top-down BACT analysis, the available emission control technologies that have been identified for the subject emissions units are reviewed for their technical feasibility. Control technologies that are not technically feasible need not be considered further. A control technology is considered to be technically feasible for purposes of BACT if it would function effectively to reduce emissions of the subject unit(s).

In Step 3 of a top-down BACT analysis, the technically feasible options for control of emissions of the subject unit(s) are ranked in order of control effectiveness, with the most effective control option at the top of the ranking. The control options that are ranked in this step include each of the control technologies that have been determined to be feasible in Step 2 of the analysis. For feasible control technologies that can be implemented with a wide range of control effectiveness, different values of effectiveness may be ranked separately as distinct control options. As two or more of the technically feasible control technologies may be used in combination, these

combinations of control technologies would also be addressed as separate control options in the ranking of control options. The effectiveness of the control options may be expressed as a control efficiency for the pollutant or the emission rate that would be achieved, or both. The effectiveness of the control options is accompanied by data for the annual emissions of the subject unit(s) that would accompany use of the various control options.

In Step 4 of a top-down BACT analysis, the control options in Step 3 may be further investigated if the top ranked control option is not selected as the technological basis of the limit(s) or requirement(s) that will constitute BACT. Control option(s) may be rejected for use as BACT due to the accompanying adverse energy impacts, environmental impacts, and economic impacts and other costs of the option(s). The top ranked option that is not rejected becomes the technological basis for the emission limit(s) or requirements that will be set as BACT. If the top-ranked option is proposed as the technological basis of BACT, Step 4 may be skipped provided that this option does not present energy impacts, environmental impacts or economic/cost impacts that are worthy of being mentioned.

If the control option proposed by an applicant is not the top-ranked control option, then the BACT demonstration must include an analysis of energy impacts, environmental impacts, and economic impacts and other cost of the selected control option and the higher ranked options to support the rejection of the higher ranked options.

The energy impacts commonly identified in BACT analyses involve the amount of fuel or electricity that control technologies consume. The environmental impacts that are commonly identified involve adverse impacts associated with generation of solid waste or wastewater. Beneficial environmental impacts may also be considered as particular control technologies reduce emissions of pollutant(s) other than the pollutant for which BACT is required.

The cost impacts of a control option are the costs that the applicant would incur to install, operate and maintain the control option. To determine the direct costs from use of various add-on control devices, USEPA recommends relying on add-on control technology costing methodologies set forth in its *EPA Air Pollution Control Cost Manual.* Also, relevant are any cost savings from a control option, such as the value of recovered product.

The evaluation of economic impacts in Step 4 generally uses a methodology, which is also outlined in USEPA's guidance, for expressing the costs of a control option on an annualized basis and then calculating the cost effectiveness of the option. Cost-effectiveness is the cost of the reduction in emissions of the target pollutant that would no longer be emitted, in dollars per ton or pound of avoided emissions. Both average cost effectiveness and incremental cost effectiveness are potentially meaningful measures to be considered.

Values for cost effectiveness are useful in BACT determinations because they provide a ready comparison between the control options currently under consideration and control options considered in previous BACT determinations. However, cost effectiveness values do not necessarily form the entire basis for the selection of the control option because they do not reflect consideration of energy impacts, environmental impacts and other economic impacts of various control options. Although information for cost-effectiveness is often useful, there generally are not set values of cost-effectiveness below which a control option will always be selected as BACT and above which a control option will never be selected.

In Step 5 of the top-down BACT analysis, the enforceable numerical emission limit(s) or other requirement(s) that will represent BACT for the subject unit(s) are selected by the permitting authority. These provisions will be based on the level of emissions that is achievable with the control option selected in Step 4. This will necessarily reflect reasoned judgment because BACT must not be so stringent that it is not achievable on an ongoing basis for the operating life of the subject unit(s) provided that the unit(s) and the control technology are properly maintained and operated. At the same time, BACT must represent the maximum reduction in emissions achievable with the selected control technology.

The top-down BACT process has been found to be an effective approach for making BACT determinations. The top-down process assures consideration of the most effective control technologies and the most stringent emission limits or requirements that are achievable. If a less stringent limit or requirement is proposed or set as BACT, the adverse impacts that are the basis for the decision are clearly set forth.

In practice, an applicant for a PSD permit is required to include detailed top-down demonstrations in its application showing that BACT would be used for a proposed project. This

includes reviews of possible emission control technologies and information on the technical feasibility, achievable emission reductions, energy impacts, environmental impacts, and economic impacts and other costs of those possible technologies. Permitting authorities then review this information, conduct their own investigations and evaluations, and make the actual top-down determinations of BACT.

ANALYSES OF IMPACTS ON AMBIENT AIR QUALITY

The analyses for impacts on ambient air quality required by PSD for a major project must show that the emissions of a subject pollutant from the proposed project, as it is described in the application, would not cause or contribute to a violation of any NAAQS. For the purpose of these analyses, actual ambient air quality data representative of the location of the source must be assembled and considered if the proposed project would have meaningful impacts on air quality since it is necessary to quantitatively consider current levels of ambient air quality in an area.

Dispersion modeling techniques are well developed for essentially stable pollutants like particulate matter, SO_2, and CO, and can readily address the impacts of individual sources and projects. The modeling techniques for ozone, which is a reactive pollutant, are more complex and have generally been developed for analysis of ozone air quality over entire urban areas. As such, these modeling techniques are not applied for most projects for ozone. For most projects, the potential impacts on ozone air quality can be reasonably addressed by use of representative factors for the formation of ozone from emissions of ozone precursors VOM and NO_x.

As the analysis for a pollutant entails computer modeling to predict air quality impacts, the air quality impact analysis must generally be performed in a manner consistent with the requirements of the USEPA's Guideline on Air Quality Models, codified at Appendix W of 40 CFR Part 51. This guideline addresses matters such as the dispersion models that should be used, the development of the grid of receptors at which impacts will be evaluated and the handling of the meteorological data that is part of the input to the analysis.

When processing applications for PSD permits, USEPA considers that the requirement to not cause or contribute to air pollution in excess of a NAAQS is satisfied when an applicant demonstrates that the increased emissions from the proposed project will not have a significant

or meaningful impact on current ambient air quality. This includes not having a meaningful impact at a location where the analysis for a proposed project shows that the NAAQS could already be exceeded. Significant impact levels (SIL) are values for air quality impacts that are considered to represent meaningful impacts. USEPA has established SILs for NO_2, SO_2, PM_{10} and CO, 40 CFR 51, Appendix S, Section III. These SILs are fractions of the NAAQS. For example, the SIL for NO_2 on an annual average adopted by USEPA is 1.0 $\mu g/m^3$, compared to the NAAQS of 100 $\mu g/m^3$. For $PM_{2.5}$ and ozone, USEPA currently has recommendations for SILs but recognizes that permitting authorities have the discretion to use other values for SILs that are appropriate to address the circumstances of particular areas.[1]

The SILs are commonly used in two different ways in air quality impact analyses. First, a "screening analysis" is typically performed by the applicant to determine whether the predicted change in ambient concentration of a pollutant resulting from a proposed project will exceed the SIL at any point in time and space. If not, then the applicant has demonstrated that the proposed emissions increases would not cause or contribute to a violation of the NAAQS. Further analysis is typically not required of the applicant. If the predicted change in ambient concentration resulting from a proposed project exceeds the SIL then a more refined "cumulative analysis" is required with respect to that NAAQS and, if applicable, that PSD increment.

The requirements for the cumulative NAAQS dispersion analysis, which are generally set forth in the USEPA's Guideline on Air Quality Models, provide the methodology for determining the predicted changes in ambient concentration of a pollutant due to the emissions increases from the proposed major stationary source or a major modification, and from nearby stationary sources, and adding these changes to a measured background concentration. If the total predicted concentration will exceed the NAAQS at a particular receptor and time, then a violation is predicted. The requested PSD permit can be issued only if the applicant demonstrates that the contribution of the proposed project to the predicted violation will not exceed the SIL.

As part of the air quality analysis for the NAAQS, a PSD permit application must include ambient air quality monitoring data representative of the area that would be impacted by the

[1] Peter Tsirigotis, USEPA, *Guidance on Significant Impacts Levels for Ozone and Fine Particles in the Prevention of Significant Deterioration Permitting Program*, April 17, 2018.

emissions from the proposed major project. The Agency, like other state air pollution control agencies, operates an ambient air quality monitoring network for pollutants for which there are NAAQS. Data from this network may be used to satisfy the preconstruction air quality monitoring requirements if it is determined that the location of an existing monitoring station can be considered representative of the air quality in the area in which the proposed major project would take place. For a pollutant that is not a NAAQS pollutant, the application must include such ambient air quality monitoring data as the permitting authority determines is necessary to assess ambient air quality for that pollutant in the area that the proposed project would affect.

ANALYSIS FOR CONSUMPTION OF "PSD INCREMENT"

An applicant for a PSD permit must conduct modeling analyses as necessary to demonstrate that the proposed project would not cause or contribute to a violation of the applicable PSD increments. The PSD increments or "maximum allowable increases" are a form of ambient air quality standard under the PSD program that directly address deterioration of air quality for criteria pollutants in attainment areas. In this regard, the PSD program is designed to prevent significant deterioration of air quality while still allowing for some increases in emissions and increases in the concentrations of pollutants in the ambient air in attainment areas provided that concentrations would not rise to the level that NAAQS would be violated. The PSD increments under the PSD program are permissible increases in the concentrations of criteria pollutants, other than ozone, in the ambient air, as evaluated from baseline concentrations of the pollutant. The original PSD increments, which only addressed air quality for particulate matter and SO_2, were set by Section 163(b)(1), (2) and (3) of the Clean Air Act. USEPA has set increments for additional pollutants over time.

Under the PSD program, attainment areas are classified as Class I, Class II or Class III areas. The PSD increments for each class of area set the acceptable levels of deterioration of air quality in such areas. The PSD increments for Class I areas are the most restrictive and provide for the smallest increases in pollutant concentrations. The Clean Air Act designates over 150 areas in the country that are deserving of the protections provided by status as Class I areas. These "mandatory" Class I areas include international parks, large national wilderness areas, and large national parks. The PSD program also provides for other areas to be designated Class I when it

is determined that the Class I increments are appropriate for the areas. There are not any areas in Illinois that are designated as Class I areas. However, there are Class I areas in neighboring states that could potentially be impacted by the emissions of a proposed large proposed major project in Illinois depending upon its location. For example, for proposed projects in southwestern Illinois, the wilderness area at the U.S. Fish and Wildlife Service's Mingo Refuge in southeastern Missouri must be considered. For proposed projects in southeastern Illinois, Mammoth Cave National Park in central Kentucky must be considered.

For Class II areas, the PSD increments allow for moderate increases in the concentrations of pollutants. For example, for PM_{10} on a 24-hour average, the maximum allowable increase in the concentration of PM_{10} in the ambient air from the baseline level is 30 $\mu g/m^3$. Areas in Illinois, like most areas of the country, are classified as Class II areas. For Class III areas, the PSD increments were developed to allow substantial increases in concentrations of pollutants. However, there are currently not any such areas in the country.

PSD increment analyses typically evaluate the amount of PSD increment that would be consumed by the proposed major project and any previous consumption and expansion of increment to show that the increment would not be exceeded. If the impacts of a proposed project are significant, this involves preparing an inventory of new emission units within the area that were constructed after the baseline date that did or will increase actual emissions, as well as any activities that decreased actual emissions. Increment-affecting increases in actual emissions are described as consuming increment because they reduce the amount of the allowable change in concentration that remains available for subsequent projects. Increment-affecting decreases in actual emissions are described as expanding increment because they increase the amount of the available increment that remains available for subsequent projects.

The procedures for dispersion modeling for purposes of demonstrating compliance with PSD increments are structurally similar to the procedures for the cumulative NAAQS analysis described above. There are two main differences between increment analyses and NAAQS analyses. First, the inventory of emissions units and emissions is smaller because it includes only increment-affecting emissions changes. Second, the predicted changes in ambient concentrations of pollutants are not added to ambient background concentrations. This is

because the PSD increments restrict changes in pollutant concentrations in an area, not the maximum concentration of pollutants like the NAAQS.

ADDITIONAL IMPACTS ANALYSIS

As part of a PSD permit application, the applicant must provide an analysis of the impairment to visibility, soils and vegetation that would potentially occur as a result of the emissions from the proposed major project. While the PSD program provides that the analysis of impacts to vegetation only needs to consider impairment to vegetation with significant commercial or recreational value, other statutes require that impacts to endangered or threatened species of vegetation also be addressed during permitting. The material commonly used by applicants to assess the potential impacts of air pollutants include studies and documents prepared by the USEPA and other federal agencies and, in Illinois, information from the Illinois Department of Natural Resources.

The applicant for a PSD permit must also provide an assessment for the emissions that could result from general commercial, residential, industrial, and other growth that could occur from the proposed major project. This assessment involves consideration of the emissions impacts of activities that are not a part of a proposed major project but can reasonably be expected to occur as a result of the project.

IMPACTS ON AIR QUALITY RELATED VALUES IN CLASS I AREA(S)

For a proposed major project that may affect a Class I area, the PSD program requires that an analysis of the anticipated impacts on visibility in the Class I area be provided to the appropriate Federal Land Manager. In this regard, the U.S. Department of Agriculture is responsible for management of national wilderness areas; the U.S. Department of the Interior is responsible for management of national parks. To determine whether a proposed major project may affect a nearby Class I area, relevant guidance currently provides that an initial screening approach may be used for projects that are more than 50 kilometers from any Class I area. This approach is based on ratio between the combined increase in emissions of SO_2, NO_x and PM_{10} from the project and the distance to the nearest Class I area. When a project is closer to a Class I area than 50 kilometers or the initial screening approach shows that a proposed project may affect a Class I

area, more refined screening and analysis techniques must be used. Other than initial screening, permitting authorities commonly require applicants for PSD permits to conduct the analyses to assess any impacts on visibility and other air-quality related values in the Class I area.

Under the PSD rules, the responsible Federal Land Manager has an affirmative responsibility to protect the air quality related values, including visibility, in the Class I area. The PSD permitting authority will consider any analysis performed by the FLM that shows that the proposed major project would have an adverse impact on visibility in a Class I area. If the permitting authority agrees with the Federal Land Manager's finding with respect to impacts on visibility or other air quality related values at the Class I area, a PSD permit must be denied unless the proposed project is appropriately revised. If the permitting authority disagrees with that finding, assuming all other requirements of the PSD permit program are satisfied, a PSD permit may be issued.

PUBLIC COMMENT PERIOD

Before a PSD permit may be issued for proposed major project, the permitting authority must hold a public comment period on the proposed issuance of the permit. The obligation to hold a public comment period rests on the permitting authority. Applicants for PSD permits are affected by this requirement because it affects the amount of time that is needed to obtain a PSD permit for a proposed major project.

The essential purpose of the public comment period is to provide the public with an opportunity to review a draft of the planned permit and to submit comments on the proposed action and the draft permit. As appropriate, the public comment period will include a public hearing to enable members of the public to submit oral comments, as well written comments, on the planned PSD permitting action. After the public comment period, the permitting authority will review and consider relevant comments before taking its final action on the application.

CONCLUSION

In conclusion, with respect to the substantive requirements of the PSD permit program, the Agency has developed proposed 35 Ill. Adm. Code Part 204 to mirror the relevant provisions of the federal PSD program.

STATE OF ILLINOIS)
) **SS**
COUNTY OF SANGAMON)
)

CERTIFICATE OF SERVICE

I, the undersigned, an attorney, state the following:

I have electronically served the attached TESTIMONY OF JASON SCHNEPP and the TESTIMONY OF CHRISTOPHER ROMAINE upon the persons on the attached Service List.

My e-mail address is sally.carter@illinois.gov.

The number of pages in the e-mail transmission is 27.

The e-mail transmission took place before 5:00 p.m. on November 8, 2018.

ILLINOIS ENVIRONMENTAL
PROTECTION AGENCY,

/s/ Sally Carter
Sally Carter
Assistant Counsel
Division of Legal Counsel

Dated: November 8, 2018

1021 North Grand Avenue East
Springfield, IL 62794-9276
217/782-5544

SERVICE LIST

Jennifer T. Nijman
Susan M. Franzetti
Kristen Laughridge Gale
Nijman Franzetti LLP
10 S. LaSalle St, Suite 3600
Chicago, IL 60603
jn@nijmanfranzetti.com
sf@nijmanfranzetti.com
kg@nijmanfranzetti.com

Greg Wannier
Sierra Club Environmental Law Program
2101 Webster St, Suite 1300
Oakland, CA 94612
greg.wannier@sierraclub.org

Alec M. Davis – Executive Director
Illinois Environmental Regulatory Group
215 E. Adams St
Springfield, IL 62701
adavis@ierg.org

Don Brown – Clerk
Illinois Pollution Control Board
100 W. Randolph St, Suite 11-500
Chicago, IL 60601
don.brown@illinois.gov

Kathryn A. Pamenter
Office of the Attorney General
69 W. Washington St, Suite 1800
Chicago, IL 60602
KPamenter@atg.state.il.us

Virginia Yang – Deputy Legal Counsel
Renee Snow – General Counsel
Illinois Department of Natural Resources
One Natural Resources Way
Springfield, IL 62702-1271
virginia.yang@illinois.gov
renee.snow@illinois.gov

Katherine D. Hodge
N. LaDonna Driver
Daniel L. Siegfried
4340 Acer Grove Dr.
Springfield, IL 62711
Katherine.Hodge@heplerbroom.com
LaDonna.Driver@heplerbroom.com
Daniel.Siegfried@heplerbroom.com

Deborah J. Williams
Regulatory Affairs Director
City of Springfield
800 E. Monroe
Office of Public Utilities
Springfield, IL 62757
deborah.williams@cwlp.com

Tetyana Rabczak
Hearing Officer
Illinois Pollution Control Board
100 W. Randolph, Suite 11-500
Chicago, IL 60601
tetyana.rabczak@illinois.gov