



Economic Impact Analysis Virginia Department of Planning and Budget

8 & 9 VAC 5-80 –Regulations for the Control and Abatement of Air Pollution State Air Pollution Control Board June 20, 2005

The Department of Planning and Budget (DPB) has analyzed the economic impact of this proposed regulation in accordance with Section 2.2-4007.G of the Administrative Process Act and Executive Order Number 21 (02). Section 2.2-4007.G requires that such economic impact analyses include, but need not be limited to, the projected number of businesses or other entities to whom the regulation would apply, the identity of any localities and types of businesses or other entities particularly affected, the projected number of persons and employment positions to be affected, the projected costs to affected businesses or entities to implement or comply with the regulation, and the impact on the use and value of private property. The analysis presented below represents DPB's best estimate of these economic impacts.

Summary of the Proposed Regulation

Based on the EPA's new major New Source Review reform rules, the proposed regulations incorporate five main elements: (i) changes to the method for determining baseline actual emissions; (ii) changes to the method for determining emissions increases due to operational change; (iii) provisions to allow for compliance with plantwide applicability limits (PALs); (iv) provisions to exclude pollution control projects (PCPs) from New Source Review; and (v) provisions for determining applicability of New Source Review requirements for units designated as Clean Units.

The remaining changes are clarifications of the current requirements and are not expected to have any significant economic impact. These changes relate to state-only enforceable requirements; removal of redundant provisions covered elsewhere regarding circumvention, and reactivation and permanent shutdown; provisions regarding changes to permits, administrative permit amendments, minor permit amendments, significant amendment procedures, and

reopening for cause; and revising general requirements for new and modified stationary sources to be consistent with the control technology provisions of New Source Review regulations.

Estimated Economic Impact

These regulations contain rules for the emissions sources locating in prevention of significant deterioration (PSD) areas as well as for sources locating in nonattainment areas. More specially, Article 8 establishes a new source review (NSR) permit program whereby owners of sources locating in PSD areas are required to obtain a permit prior to construction of a new facility or modification (physical change or change in the method of operation) of an existing one. Article 9 establishes a NSR permit program whereby owners of sources locating in nonattainment areas are required to obtain a permit prior to construction of a new facility or modification of an existing one.

Articles 8 and 9 apply to the construction or reconstruction of new major stationary sources or major modifications to existing ones. The owner must obtain a permit from the State Air Pollution Control Board (the board) prior to the construction or modification of the source. The owner of the proposed new or modified source must provide information as may be needed to enable the board to conduct a preconstruction review in order to determine compliance with applicable control technology. These regulations also provide the basis for the board's final action (approval or disapproval) on the permit depending on the results of the preconstruction review.

Article 8 requires a facility to control emissions from the proposed facility so that the air quality standards or increments are not violated. Article 9 requires a facility to obtain emission reductions from existing sources to offset the proposed project's emissions increases.

On December 31, 2002, EPA promulgated its final rule revising the federal New Source Review (NSR) permitting program for PSD (attainment) and nonattainment areas, by publishing the rule in the Federal Register (67 FR 80185). The new rule, signed by the Administrator on November 22, 2002, affects 40 CFR 51.165 and 40 CFR 51.166. EPA also published an analysis of the environmental effects of the proposed rules.¹

¹ New Source Review (NSR) Improvements, Supplemental Analysis of the Environmental Impact of the 2002 Final NSR Improvement Rules, U.S. EPA, November 21, 2002.

The new rule incorporates five main elements: i) changes to the method for determining baseline actual emissions; ii) changes to the method for determining emissions increases due to an operational change; iii) provisions to allow for compliance with plant-wide applicability limits; iv) provisions to exclude pollution control projects from NSR; and v) provisions for determining applicability of NSR requirements for units designated as clean units.

EPA states in the Federal Register that the final rule revisions become effective on March 3, 2003 and will apply beginning on that date in any area for which EPA is the permit reviewing authority, and in any area for which EPA has delegated the authority to issue permits under the federal program to the state or local agency. In areas where the state or local agency is administering the NSR program under an approved SIP, the state or local agency must adopt and submit revisions to the SIP to reflect the rule revisions no later than January 2, 2006. The revised SIP must be the same as or equivalent to the revised federal program.

Changes to the Method for Determining Baseline Actual Emissions: The board proposes to revise the requirements for determining whether physical changes made to existing emissions units trigger major NSR requirements. The proposed rules change the look back period to determine baseline emissions from the immediate past two years prior to the change to any consecutive two year period within the five years prior to the change. This change will allow sources to pick the consecutive two years within a five-year period when the emissions were the highest rather than having to use the emissions from the last two years as a baseline regardless of the amount of emissions. For example, if the average emissions in the last two years are 30 tons per year and the average emissions from the previous 3rd and 4th years are 90 tons per year, the source will have the option of choosing the 3rd and 4th year emissions as a baseline. Thus, the proposed change in the look back period will provide added flexibility to sources in choosing the two years which works best for them when establishing the emissions baseline.

While the board proposes a five-year look back period, EPA final rule allows sources to use any consecutive two years in the last ten years. In other words, EPA final rule provides even more flexibility to the sources than does the board's proposal.

The economic impact of the more flexible look back period on emissions sources is expected to be almost certainly positive. Given the choice, the sources will choose the consecutive two years that are best for them. Thus, we can reliably conclude that the extension of

the look back period from the last two years to any two consecutive years within five will provide net benefits to the affected emissions sources. However, the complexity of the behavioral responses to this proposed change and the lack of comprehensive data make it impossible to determine the potential size of the expected net benefits.

The impact of the more flexible look back period on the amount of pollutants emitted into the air is less certain. On one hand, the current look back period provides incentives to sources to emit more than they otherwise would. Knowing that the emissions from this year will be used as a baseline next year, it is rational for sources to increase their current emissions so that they do not impede their ability to produce in the following years. Thus, the removal of this incentive to emit more should reduce the amount of emissions from affected sources. On the other hand, allowing sources to pick emissions from any consecutive two years within the previous five as a baseline will lead to sources picking the years when the emissions were the highest. However, being authorized to emit as high as the highest emissions in the last five years, does not necessarily mean that they will actually emit the maximum allowed as they will continue to have the option of choosing the years that work best for them. The net impact of this change on emissions will depend on the reduction in emissions that will result from the elimination of adverse incentives to emit more under the current rules and the potential increase in emissions that may result from the higher emissions limits that will be allowed under the proposed rules.

A significant difference between the EPA final rule and the board's proposal is whether to allow the sources to use emissions from different years for different pollutants or mandating the use of the same two consecutive years for all pollutants. For example, under the EPA final rule, the sources could use emissions from 1995 and 1996 for particulate matter and use emissions from 1997 and 1998 for volatile organic compounds. Under the board's proposal, the sources will have to use emissions from 1995 and 1996 or from 1997 and 1998 for both pollutants. Therefore, the board's proposal is more stringent than the EPA's final rule.

The only available assessment of this change on emissions is provided by EPA. EPA's analysis which is based on the more flexible ten year look back period and less stringent pollutant specific time frame selection finds that the net impact on emissions could be an increase or decrease, but is likely to be insignificant.

Changes to the Method for Determining Emissions Increases: The board proposes to replace the current “actual-to-potential” test with “actual-to-projected-actual” test when determining emissions increases of units due to a physical or operational change. The actual-to-potential test looks at the difference between actual emissions and the emissions at full capacity even though the source may never operate at full capacity. If the difference is greater than the threshold, a project triggers new source review under the current applicability test.

The actual-to-potential test can trigger review even for a very small project if the source is operating significantly below its capacity. For example, if the actual emissions are 300 tons per year and the potential emissions are 400 tons per year, a project increasing emissions by one ton per year would trigger review because the difference between the actual and potential emissions is 100 tons per year which is greater than the threshold that triggers review. Thus, the sources have incentives not to make any changes to their plants unless it is necessary. Because some of these projects may be environmentally beneficial, the current test discourages implementation of environmentally beneficial projects.

In addition, to avoid triggering new source review, the sources have incentives to keep potential emissions low and to keep actual emissions high. These adverse incentives have negative effect on the amount of pollutants emitted by the sources. For example, installation of a heat exchanger may increase the energy efficiency of the source lowering emissions. However, if the heat exchanger increases the potential emissions significantly triggering review, the source is likely to forgo this environmentally beneficial project in order to avoid the review. Thus, the use of the potential emissions in the current test produces disincentives for the sources to implement environmentally beneficial projects.

The other adverse impact stems from the desire to minimize the difference between the actual and potential emissions to avoid review. The smaller the difference between the actual and potential emissions is, the less likely a project will trigger review. Thus, a source has incentives to increase their current actual emissions in order to avoid a review next year.

The proposed “actual-to-projected-actual” test will help eliminate the disincentives to take on the environmentally beneficial changes and incentives to keep actual emissions high. Furthermore, the proposed test will provide a more accurate estimate of the true impact of the physical or operational change as it looks at the emissions before and after a project is

implemented. EPA analysis concludes that the net impact of this change on emissions is likely to be environmentally beneficial, but only to a small extent because many sources will be unaffected by this change.

The economic impact of this change on the sources may be more significant than its impact on the emissions. Under the proposed test, the sources will not face barriers to implement energy efficient changes which could produce significant costs savings. Their incentives to artificially increase the production probably at significant costs in order to keep actual emissions high will also be lowered. Also, the likely decrease in permit applications is expected to reduce administrative costs. Thus, the potential economic impact of this change on the sources appears to be positive.

Plantwide Applicability Limits: The board proposes to introduce a plantwide applicability (PAL) approach for determining major new source review applicability. A PAL is a voluntary option that allows a source to manage plantwide emissions under a cap without triggering new source review. Under a PAL, a source is allowed to make significant alterations to the facility or transfer emissions among the units included under the PAL without triggering new source review as long as the total emissions does not exceed the cap.

The economic impact of a PAL on the sources that utilize it is expected to be positive. A PAL is a voluntary option and by taking advantage of this option a source reveals that the expected benefits from it exceed the expected costs. The benefits from a PAL come from the operational flexibility it provides to a source. The sources where frequent operational changes are made, where the timing of these changes are critical, and where there are economic opportunities from installation of air pollution control measures will be afforded a chance to realize these benefits under a PAL. Also, PALs are expected to provide significant reductions in emissions because they create incentives to reduce actual emissions as much as possible to create room under the cap for possible operational changes over the life of the PAL. EPA expects significant emissions reductions resulting from making PALs available for the sources that may be interested.

The proposed duration of a PAL is five years while the horizon of PALs under the EPA final rule is ten years. A PAL with shorter horizon could provide somewhat less incentive for a source to participate.

Clean Unit Test: The board proposes to introduce a clean unit test approach to major new source review applicability for modifications. Under the proposed rules, a source can be granted a clean unit status which would exempt the source from review for five years as long as the change does not cause the unit to exceed its permitted emissions. The clean unit status will be automatically granted to the units that went through major new source review and are complying with best available control technology (BACT) or lowest achievable emissions rate (LAER). This designation will also be available to units whose emissions control technology is comparable to or as effective as BACT/LAER.

Under the current rules, all units must go through the review when an operational change occurs even though there is no change in the equipment. The compliance costs associated with the review provide disincentives to sources to implement efficiency enhancing operational changes and also delay the implementation of more efficient operations. The clean unit test will eliminate the disincentives to make environmentally beneficial changes and allow the implementation of the changes sooner. It will also provide direct incentives to install added controls and enhancing existing controls in order to qualify for the exemption. EPA expects some small net environmental benefits from the proposed clean unit test.

The economic impact on emission sources is almost guaranteed to be positive because the test is optional. By applying for this designation, a source reveals that the expected benefits from this designation exceed the expected costs. Thus, we can reliably infer that the proposed clean unit test will provide net benefits to those units who choose to take advantage of this designation.

EPA final rule provides for a ten-year time frame for the duration of the clean unit designation. The board's proposal is for a five-year period. In its analysis, EPA finds no evidence that the ten-year time frame is too long to have significant environmental impact as the units appear to remain as BACT over ten years.

Pollution Control Project Exclusion: The board proposes to streamline the process by which the sources may implement a pollution control project (PCP) and be exempt from the new source review. A PCP is an activity, set of work practices, or project at an existing emissions unit that is environmentally beneficial. Normally an increase in a regulated pollutant would trigger a review. A pollution control project exclusion allows a source to avoid the new source review when the emissions reductions from one or more air pollutants environmentally outweigh the increase in

some other pollutants. In other words, obtaining a PCP exclusion relieves the PCP from major new source review. Current regulations allow the board to issue pollution control project exclusions, but the process to do so is cumbersome.

Currently, a source must go through the public participation process and have the exemption granted through a permit. The proposed changes will provide a list of projects for which an automatic exclusion will be granted without having to go through the public participation process and without having to obtain a permit.

The removal of difficulties in implementing projects that has proven to be environmentally beneficial will provide administrative cost savings and environmental benefits. The sources will be able to avoid compliance costs and delay associated with the public hearings and the issuance of a permit. Thus, an increase in the number of pollution control projects is expected. The environmental benefits are likely to result from the implementation of more environmentally beneficial projects and from the implementation of such projects sooner than otherwise would be. EPA is confident that both the environment and the emissions sources will realize net benefits from this change.

Summary: The existing regulatory design and lack of voluntary features in the current regulations introduce incentives to the emissions sources to artificially increase actual emissions and introduce disincentives to implement environmentally beneficial projects. Adverse incentives such as these are known to cause firms operate below or above the optimal production level and produce deadweight efficiency losses. Deadweight losses are net welfare losses extracted from the society as a whole including producers, consumers, and the government. Because the proposed changes will recover a portion of the deadweight losses, they will provide net benefits to the sources in the form of reduced compliance costs, to the public in the form of improved air quality, and to the Commonwealth in the form of reduced administrative expenses.

EPA's analysis of the proposed rules is based on the best available data and direct experience and suggests that the proposed reform provisions discussed in this report are more than likely to reduce compliance costs, improve air quality, and reduce state expenditures. However, the analysis is based on the evaluation of more flexible version of the rules the board is proposing. The critical provisions that are more stringent than the EPA's proposed rule include 1) five-year look back period as opposed to ten-year look back period, 2) five-year time frame

for PALs as opposed to ten years, 3) five-year time period for clean unit designation as opposed to ten years.

The board's decision to propose more stringent time periods is intended to provide sources with the benefits of NSR reforms while providing additional security that implementation of these reforms will not have an adverse impact to public health and welfare. In fact, the board is seeking comments on these issues from the public. These more stringent provisions could possibly reduce some potential net benefits to the sources and the environment when compared to the case where the sources were allowed to operate under more flexible time periods as recommended by EPA. Thus, the net benefits from this regulatory action could be maximized if more flexible time frames are incorporated before the final regulations are published. On the other hand, the shorter time frames will allow sources and the department the ability to monitor the progress of the reforms as they are implemented with the goal of ensuring protection of the Commonwealth's air quality.

Businesses and Entities Affected

The voluntary nature of the proposed provisions makes it impossible to accurately estimate the number of sources that may be affected. Based on the available data and programmatic experience, it is anticipated that roughly 350 emissions sources may be eligible to utilize some or all of the elements of the proposed changes.

Localities Particularly Affected

Currently, the nonattainment areas listed below are subject to Article 9 for the pollutants indicated. Also, the Shenandoah National Park Ozone Nonattainment Area, which includes the portions of Madison County and Page County located in Shenandoah National Park currently, has no major stationary sources, and none are anticipated to be developed. The remainder of the Commonwealth is subject to Article 8.

Northern Virginia Ozone Nonattainment Area: Arlington County, Alexandria City, Fairfax County, Fairfax City, Loudoun County, Falls Church City, Prince William County, Manassas City, and Manassas Park City.

Northern Virginia PM_{2.5} Nonattainment Area: Arlington County, Alexandria City, Fairfax County, Fairfax City, Loudoun County, Falls Church City, Prince William County, Manassas City, and Manassas Park City.

Fredericksburg Ozone Nonattainment Area: Spotsylvania County, Stafford County, and Fredericksburg City.

Hampton Roads Ozone Nonattainment Area: Gloucester County, Isle of Wight County, James City County, York County, Chesapeake City, Hampton City, Newport News City, Poquoson City, Portsmouth City, Norfolk City, Suffolk City, Virginia Beach City, and Williamsburg City.

Richmond Ozone Nonattainment Area: Charles City County, Chesterfield County, Hanover County, Henrico County, Prince George County, Colonial Heights City, Hopewell City, Petersburg City, and Richmond City.

Projected Impact on Employment

The proposed regulations are expected to reduce deadweight efficiency losses and provide net economic benefits to the Commonwealth. Recovery of some of the otherwise unnecessary compliance costs borne by the sources, the state, and the public should add to the economic activity and have a positive impact on employment.

Effects on the Use and Value of Private Property

The proposed regulations are also likely to improve air quality which could positively affect property values. In addition, to the extent the sources realize savings in compliance costs and improve their profitability, a positive impact on their asset values may result.