



## **Economic Impact Analysis Virginia Department of Planning and Budget**

---

### **9 VAC 5-20 – Hampton Roads VOC Emissions Control Area**

#### **Department of Environmental Quality**

May 23, 2003

---

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**

The General Assembly mandates in §10.1-1308 of the Code of Virginia that the State Air Pollution Control Board promulgate regulations abating, controlling, and prohibiting air pollution throughout or in any part of the Commonwealth.

The proposed regulation removes the exemption given to four jurisdictions within the Hampton Roads volatile organic compounds (VOC) emissions control area from meeting the VOC emission standards for existing sources contained in Chapter 40 of the regulations for control and abatement of air pollution. The four jurisdictions currently exempt from these requirements are the counties of James City and York and the cities of Poquoson and Williamsburg. Once the exemption is removed, sources in these four localities will be required to meet VOC emissions standards met by other jurisdictions in the Hampton Roads VOC emissions control area.

## Estimated Economic Impact

### *Rationale:*

The federal Clean Air Act requires the Environmental Protection Agency (EPA) to prescribe primary and secondary air quality standards (developed for the protection of public health and public welfare, respectively) for each air pollutant for which air quality criteria were issued before the enactment of the Clean Air Act in 1970. These standards are known as the national ambient air quality standards (NAAQS) and they establish the maximum limits of pollutants that are permitted in the outside ambient air.

Each state is required by federal law to adopt and submit to EPA a plan (the state implementation plan or SIP) that provides for the implementation, maintenance, and enforcement of NAAQS within each air quality control region in the state. The Clean Air Act requires that EPA propose geographic boundaries and pollution classification levels for all non-attainment areas in each state based on air quality data from that state. Non-attainment areas are classified as marginal, moderate, serious, severe, and extreme and subject to more stringent measures as the classification moves from marginal non-attainment to extreme non-attainment. Following the establishment of non-attainment areas, each state is then required to submit an SIP demonstrating how it intends to achieve NAAQS in each non-attainment area. Once the pollution levels are at or below NAAQS levels, the SIP is also required to demonstrate how the state intends to maintain air pollution concentrations at the reduced levels.

A state may petition the EPA to re-designate a non-attainment area as attainment and EPA may or may not approve the re-designation subject to certain criteria being met. One of these criteria is that EPA fully approve a maintenance plan that provides for maintenance of NAAQS for at least ten years after re-designation. Moreover, eight years after re-designation, the state is required to submit another maintenance plan for the next ten years. Each maintenance plan must include contingency measures that are to be implemented in case the area fails to maintain NAAQS.

The process of EPA determining geographic boundaries and pollution classification levels resulted in Hampton Roads being classified as a marginal non-attainment area. Hampton Roads was first designated a non-attainment area in 1991. However, it was able to achieve the 1-hour ozone standard and was re-designated a maintenance area on June 26, 1997. The

maintenance plan submitted and approved at the time of re-designation included specific strategies aimed at maintaining air quality and contingency measures in the event the area measures ozone concentrations above allowable levels. Following the approval of the maintenance plan at the time of re-designation, EPA required Virginia to strengthen the contingency measures specified in the plan by including removal of the exemption provided to sources in the four localities in the Hampton Roads area from meeting existing VOC standards. Since the initial promulgation of the VOC emissions control areas in 1979, these four localities have been exempt from meeting the VOC emission standards. At the time, they were deemed to be too rural to make a significant contribution to air pollution in the area. However, more than two decades later, these localities can no longer be considered rural.

More than three exceedances in a three-year period constitute a violation of the 1-hour ozone standard. Between 1999 and 2001, Hampton Roads recorded four exceedances. Thus, Virginia is now required to implement the contingency measures specified in the maintenance plan established for Hampton Roads. As mentioned above, one of these measures is the removal of the exemption provided to four localities in the area from existing requirements for limiting VOC emissions. Removing the exemption will allow Virginia to implement contingency measures required by the maintenance plan. Failure to do so could result in sanctions such as the loss of federal funds for highways and other projects and/or EPA promulgating and implementing an air quality plan for Virginia.

*Description of the Regulation and Estimated Economic Impact:*

The proposed regulation removes the exemption provided to four localities in the Hampton Roads VOC emissions control area from meeting existing VOC emission standards. The four localities are the counties of James City and York and the cities of Poquoson and Williamsburg. Existing sources of VOC emissions in these localities will now be required to meet emissions standards set forth in Chapter 40 of the regulations for control and abatement of air pollution. The standards include emission standards for synthesized pharmaceutical products manufacturing operations, rubber tire manufacturing operations, solvent metal cleaning operations using non-halogenated solvents, VOC storage and transfer operations, large appliance coating application systems, magnet wire coating application systems, automobile and light duty truck coating application systems, can coating application systems, metal coil coating application

systems, paper and fabric coating application systems, vinyl coating application systems, metal furniture coating application systems, miscellaneous metal parts and products coating application systems, flat wood paneling coating application systems, flexographic, packaging rotogravure and publication rotogravure printing lines, petroleum liquid storage and transfer operations, and asphalt paving operations. These standards are currently being enforced in other counties in the Hampton Roads VOC emissions area. According to DEQ, the rules for solvent metal cleaning operations, VOC storage and transfer operations, automobile and light duty truck coating application systems, can coating application systems, miscellaneous metal parts and products coating application systems, and asphalt paving operations are likely to achieve the most VOC reductions.

According to the Department of Environmental Quality (DEQ), there are 34 existing sources of VOC emissions in the area. Excluding sources not likely to be significantly affected by the proposed regulatory action (five dry cleaners, three sewage treatment plants, and three factories producing pottery, glass, and cigarettes), the remaining 24 sources likely to be affected to varying degrees by the proposed action. Of the 24, 12 are located in Williamsburg, 7 are located in York county, and 4 are located in James City county. In addition, an unknown number of service stations might be affected by the emission standards for solvent metal cleaning operations using non-halogenated solvents. The estimated economic impact of the proposed changes is the sum of the economic impacts of each of the 17 rules on the four affected localities.

The costs associated with implementing each article vary widely depending on the source-type, size, location, and controls. According to study produced by the Ozone Transport Commission (OTC), the estimated cost of implementing the solvent cleaning rule is approximately \$1,400 per ton of VOC reduced<sup>1</sup>. According to DEQ, the VOC storage and transfer operations rule could result in the replacement of some tanks (a majority of which are to be found at the four defense-related facilities located in the area), and could cost between \$4,300 and \$120,000 per tank. The miscellaneous metal parts and products coating application systems rule is estimated to cost between \$2,635 and \$114,540 depending on the source type, size, location, and existing controls. Based on an EPA report, the asphalt-paving rule is likely to cost

---

<sup>1</sup> The OTC was formed by Congress in 1990 to help coordinate plans for reducing ground-level ozone in the Northeast and mid-Atlantic states. Twelve states including Virginia are represented in the OTC.

between \$81 and \$121 per ton of VOC emissions reduced<sup>2</sup>. DEQ estimates that the flexographic, packaging rotogravure and publication rotogravure printing lines rule is likely to cost between \$120 and \$2,000 per ton of VOC emissions reduced.

While DEQ estimates that the proposed regulatory action will reduce VOC emissions by up to 0.5 tons per day, data on VOC emissions reduction by rule is not currently available. Without information on the emissions reduction by rule, it is not possible at this time to arrive at a precise estimate of the costs associated with implementing the proposed regulatory action. However, based information contained in a letter from the Ozone Transport Assessment Group (OTAG) to EPA, an average cost of \$2,400 per ton of VOC reduced can be assumed for low-end local VOC removal and an average cost of \$10,000 per ton of VOC reduced can be assumed for high-end local VOC removal<sup>3</sup>. According to DEQ, the cost per ton of VOC emissions reduced as a result of the proposed regulatory action is likely to be closer to the low-end value than the high-end value. DEQ believes full reductions are likely to be achieved no later than one year after the effective date of the regulation. Daily VOC emissions reductions of 0.5 tons would mean annual VOC emissions reductions of 182.5 tons. At \$2,400 per ton of VOC reduced, the proposed change would cost an estimated \$438,000 on an annualized basis.

Implementing the proposed changes will also result in some economic benefits. Removing the exemption provided to existing sources of VOC emissions in the four affected localities may help prevent further exceedances of the 1-hour ozone standard in the Hampton Roads VOC emissions control area. The emissions reductions achieved by the implementation of these rules would also allow Virginia to avoid federal sanctions that would be imposed for violating the SIP provisions of the Clean Air Act. The sanctions could include the loss of federal funds for highways and other projects and/or more restrictive requirements for new industries. Moreover, the lack of an acceptable plan to get VOC emissions below NAAQS could also result in EPA promulgating and implementing an air quality plan for Virginia.

The emissions reductions could also provide some benefits to public health and welfare in the Hampton Roads area. According to EPA, exposure to ozone at the ground level can cause a number of respiratory problems. It could result in permanent lung damage in children and

---

<sup>2</sup> “Summary of Technical Information for Selected VOC Source Categories”, U.S. EPA, May 1981

<sup>3</sup> “Recommendation: Additional Modeling and Air Quality Analysis”, Attachment B, in a letter to Mary Nichols, EPA from Mary A. Gade et al., OTAG, July 8, 1997

accelerate the decline in lung function with age in adults. Reducing the level of ozone is likely to provide economic benefits in the future in terms of respiratory health problems and fatalities prevented (reflected in lower health care and other costs) because of lower amounts of ground-level ozone.

The net economic impact of the proposed change will depend on whether the costs of implementing VOC emissions standards in the four affected localities are greater than or less than the benefits of doing so. The estimated cost of the proposed regulatory action is approximately \$438,000 on an annual basis. It is not possible at this time to estimate the number and severity of respiratory problems and fatalities that will be prevented as a result of implementing these regulations. The extent of federal funding retained as a result of implementing the proposed regulatory action is also not known. Moreover, there are no studies or data available at this time estimating the economic benefits of having air quality programs run by states rather than by the federal government.

### **Businesses and Entities Affected**

The proposed regulatory action will affect some existing sources of VOC emissions located in the counties of James City and York and the cities of Poquoson and Williamsburg in the Hampton Roads VOC emissions control area. Until the proposed action, sources located in these four localities were exempt from the VOC emission standards for existing sources contained in Chapter 40 of the regulations for control and abatement of air pollution. The proposed action will remove the exemption provided to these sources and require them to meet VOC emissions standards met by other localities in the Hampton Roads VOC emissions control area. According to DEQ, there are 34 existing sources in the affected area and 23 of these sources could be affected by the proposed regulatory action.

### **Localities Particularly Affected**

The proposed regulatory action will only affect the following localities in Virginia: the counties of James City and York and the cities of Poquoson and Williamsburg.

### **Projected Impact on Employment**

The proposed regulatory action is likely to have a negative impact on employment. Some businesses currently exempt from meeting existing VOC emission standards will now be

required to comply with these standards. The cost of compliance could include changes in technology and changes in operational and other procedures. The estimated annualized cost of \$438,000 of implementing the proposed regulatory action includes the increased cost of compliance faced by sources of VOC emissions affected by the proposed action. Increased compliance costs will increase the cost of operation for these businesses and could result in people being laid off at these facilities.

### **Effects on the Use and Value of Private Property**

The proposed regulatory action is likely to have a negative impact on the use and value of private property in the four affected localities. By imposing additional requirements on certain sources of VOC emissions, the proposed regulatory action will impose additional costs and lower the asset value of these businesses. However, the proposed regulatory action may also have a positive impact on residential properties in the Hampton Roads area. Due to a reduction in the amount of ground-level ozone in the area, some residential properties could see an increase in their market value. However, it is not possible at this time to estimate the exact extent of the increase in market value of these properties resulting from a reduction in ground-level ozone.