Introduction

Federal Regulatory Background

On December 31, 2002, the U.S. Environmental Protection Agency (EPA) revised its regulations governing the New Source Review (NSR) programs required by parts C and D of Title 1 of the Clean Air Act. (67 Fed. Reg. 80,185). The rulemaking, the first of series changes to the NSR program identified by EPA (NSR-1) addressed the following NSR features:

- **10-year Look-back for Establishing Emissions Baseline**: The rule changes how the base emissions from which the increases associated the proposed modification are calculated. The rule allows the facility to use any 24-month period in the previous 10 years as along as all current control requirements are taken into account. Prior rules limited the look back to the prior 24 months, unless the permitting authority agrees with the facility that the prior 24 months are not representative.

- **Calculating Emissions Increases:** The rule changes how increases in emissions resulting from facility modifications at non-electric utility steam generating units (non-EGU's) are calculated from an "actual to potential" test (which calculates the potential emissions after controls, taking in to account all enforceable restrictions) to an actual to projected actual test, as has been the case for EGU's since the 1992 "WEPCO" decision.

- **Plantwide Applicability Limits (PALs):** The prior rules were modified to allow facilities to make changes to their operations without triggering NSR, so long as a facility agrees to operate within a strict facility wide emissions cap, called a Plantwide Applicability Limit or PAL.

The EPA rule also provided for the following features:

- **Pollution Control and Prevention Projects**: The rules create a process for facilities that undertake environmentally beneficial projects to not control ancillary emissions increases resulting from the installation of certain pollution control and prevention projects.

- **Clean Unit Provision:** The rules give facilities that install "clean units" operational flexibility if they continue to operate within permitted limits. Clean units must have an NSR permit or other regulatory limit that requires the use of the best air pollution control technologies.

These last two features were subsequently vacated by the U.S. Court of Appeals for the District of Columbia in *State of New York, et al., v. U.S. Environmental Protection Agency, et al.*, 413 F.3d 3 (D.C. Cir 2005), and are no longer part of the federally revised New Source Review program, even though EPA considered these provisions as part of its comprehensive NSR reform, upon which EPA based its technical analyses of the "environmental benefits" of the NSR reform.

The December 2002 rulemaking did not revise the rules for determining if a newly constructed, "Greenfield" source (new major stationary source) is subject to the NSR program. Also the rulemaking did not substantively revise the requirements for approval of a permit application for a major stationary source major modification.

In the preamble to the December 2002 rulemaking, EPA wrote, "…if a State decides it does not want to implement any part of the new applicability provisions, the State will need to show that this existing program is at least as stringent of our revised base program…." 67 Fed. Reg. 80241c.2. The States were given until January 2, 2006 to make the changes to their NSR program or make a so-called "equivalency demonstration". 67 Fed. Reg. 80240c.3.

It should be noted that in concluding that the 2002 revisions to NSR are more stringent than the pre-2002 "base" NSR program, EPA relied primarily on its "Supplemental Analysis of the Environmental Impact of the Final NSR Improvement Rule (November 21, 2002) (hereinafter "Supplemental Analysis"), which analyzed the "base" NSR program. See Appendix 1. This study relied on largely on anecdotal evidence and concluded that final revisions were "environmentally beneficial" based on an analysis that all five of the NSR revisions would be implemented together. 67 Fed. Reg. 80185, 80241, see also Supplemental Analysis p.2. However, since two of the five measures, Clean Units and Pollution Control Project exemption, were vacated by the Court of Appeals, EPA's conclusion that there is a net environmental benefit is seriously flawed. A Government Accounting Office study found that [the Supplemental Analysis] did not adequately represent the revised rules effect on energy efficiency projects industry wide, or their impact on *overall emissions*. See *EPA Should Use Available Data to Monitor the Effects of Its Revisions the New Source Review Program*, GAO-03-947, August 2003. pp. 23-24. Appendix 2 (emphasis added). See also *Reform or Rollback?: How EPA's Changes to New Source Review Affect Air Pollution in 12 States*, Environmental Integrity Project and the Council State Governments/Eastern Regional Conference, July 28, 2003. Appendix 3.

The December 2002 EPA rulemaking (NSR-1) did not represent EPA's overall NSR program revisions and redesign. EPA subsequently proposed and finalized the Routine Maintenance, Repair and Replacement rule (proposed rule 67 Fed. Reg. 80290 (December 31, 2002); final rule 68 Fed. Reg. 61248 (October 27, 2003); final action on reconsideration 70 Fed. Reg. 33838 (June 10, 2005)) to clarify the definition of "routine" repairs (NSR-2). This rule was challenged by many states including Massachusetts and has been stayed by the Court of Appeals for the District of Columbia. See *State of New*

York et al., v. Environmental Protection Agency et al., (Docket No. 02-1387(Complex) and consolidated cases, (Order Granting Stay) (D.C. Cir, December 24, 2003))

EPA has also proposed Alternatives for New Source Applicability for Major Modifications (NSR-3), which would change the test for modification from an increase in annual emissions to an increase in the hourly emissions rate for electric utility steam generating units. See 70 Fed. Reg. 61081 (October 20, 2005).

Lastly, the Final Rule to Implement the 8-Hour Ozone National Ambient Air Quality Standard—Phase II (70 Fed. Reg.71612, November 29, 2005) was promulgated.[1] This is important to ozone non-attainment states like Massachusetts inasmuch as it specifies NSR requirements. Note, however, that under federal law, parties can legally challenge final rules within 60 days of promulgation. Thus, it is unclear if any part of this rule, including the NSR provisions, will be subject to litigation or reconsideration.

It is in this ongoing, legally unsettled, and incomplete process by EPA to revise NSR that states are required to either update their rules or provide an analysis showing how their current NSR rules are at least as stringent as the new federal NSR program.

Massachusetts Response to New Source Review Revisions

In response to the December 2002 rulemaking, Massachusetts Department of Environmental Protection (Mass DEP), under the terms of its delegation agreement with EPA returned the federal Prevention of Significant Deterioration (PSD) Program to EPA for implementation under the terms of the revised federal NSR program. See Appendix 4. Mass DEP retained its state minor and major non-attainment NSR program (310 CMR 7.00, et seq.) and provided information language in the regulations clarifying PSD permit requirements. 310 CMR 7.02(5)(d). In response to the requirement that Mass DEP submit an "equivalency analysis" (or adopt the new rules verbatim) by January 2, 2006 and despite the incomplete regulatory framework, MassDEP has prepared this document. The focus of this analysis and documentation is solely on the new 2002 federal NSR requirements dealing with baseline emissions and significant net increases with respect to non-attainment new source review (NNSR).

In absence of any federal guidance beyond a statement on "equivalency" in the December 2002 rulemaking preamble, the following discussion will focus on the Massachusetts existing non-attainment new source review program as a whole, as reflected in our state NSR rules and the those portions of the state program that are part of the federally-approved State Implementation Plan for Ozone. The legal test for "equivalency" is really a test of whether the Massachusetts NNSR program is at least as stringent, if not more *stringent,* than federal requirements. The ability of States to undertake more stringent

[1] Massachusetts and six other states have challenged EPA's elimination of NSR requirements in effect under the one-hour ozone standard in Phase I of the 8-hour ozone Implementation rule. See *Commonwealth of Massachusetts et al., v. U.S. Environmental Protection Agency*, No. 05-1359 (and consolidated cases) (D.C. Cir. 2004).

programs than the federal government is explicitly provided for in Section 116 of the Clean Air Act. It provides in relevant part:

> "[N]othing in this chapter shall preclude or deny the right of any State of political subdivision thereof to adopt or enforce (1) any standard or limitation respecting emissions of air pollutants or (2) any requirement respecting control or abatement of air pollution; except that if an emission standard or limitation is in effect under an applicable implementation plan or under section 7411 or section 7412 of this title, such State or political subdivision may not adopt or enforce any emission which id less stringent than the standard or limitation under such plan or section." 42 U.S.C. 7416.

This provision not only enables States to adopt stricter pollution abatement requirements than EPA, but also requires that EPA approve any such requirements. *Duquesne Light Co. v. EPA*, 166 F.3d 609, 611 (3d Cir. 2000) (holding a utility lack authority to challenge EPA's SIP approval of a more stringent regulation, and holding that "EPA…only has the power to disallow state plans the fail to be stringent enough-that is, plans that fall below the level of stringency provided by federal law.") See also *Union Electric v. EPA,* 427 U.S. 246, 263-264 (1976); *Her Majesty the Queen in right of the Province of Ontario v. City of Detroit*, 874 F. 2d 332, 336 (6th Cir. 1989);); *cf..American Corn Growers v. EPA,* 291 F. 3d 1, 8 (D.C. Cir. 2002)(rejecting EPA's attempt to circumscribe the authority Congress provided to the States).

Analysis

In this analysis we will show not only that our current Part D NNSR program is more stringent than the federal program as amended, but also how our NSR regulations provide flexibility to our facilities to undertake modifications, while achieving maximum emission reductions.

Baseline Emissions

Under the revised NSR regulation, baseline actual emissions (40 CFR 51.165(a)(1)(vi)) are determined from the average annual rate of actual emissions during any consecutive 24 months during the 5-year or 10-year period immediately preceding the change.

In the Mass DEP's regulation, the baseline emissions (310 CMR 7.00:Appendix A (2) definition of "Actual Emissions") are determined from the average annual rate of actual emissions during the two-year period preceding the particular date. The source has the option of using another time period to establish the baseline emissions, if it demonstrates, to the satisfaction of the Mass DEP, that a different time period was more representative of normal source operation. However, since this is used in calculating whether or not there is a significant net emissions increase, the practical effect is to limit the look back period to 5 years.

Logically, a source would choose the 24-month period with the highest rate of actual emissions to minimize its "emissions increase". Therefore, the longer look-back period in the federal rule will increase baseline actual emissions over that in Mass DEP's regulations.

Significant Net Emissions Increase

Under both EPA's regulation and Mass DEP's regulation, emission increases and decreases that are contemporaneous and credible are summed to determine if there is a significant net emissions increase.

Under EPA's regulation, the netting calculation starts with Baseline Actual Emissions (see discussion under Baseline Emissions above) and adds the emissions increases resulting from the project and other contemporaneous and credible emissions increases and decreases. The stationary source uses projected actual emissions, rather than potential emissions for a proposed modification as part of this calculation.

Under Mass DEP's regulations, to determine if there is a significant net emissions increase, the Mass DEP starts with actual emissions (see discussion of Baseline Emissions). However, for non-electric utility steam generating units, Mass DEP generally uses the potential emissions of the change after the proposed project, rather than projected emissions, in the calculation. Since potential emissions represent the maximum emissions after the modification, the Department's determination of whether or not a significant net emissions increase occurs is as, or more stringent than EPA's.

Modifications Resulting in Lower Emissions

When either constructing a new stationary source or modifying an existing stationary source, sources generally prefer to avoid submitting a major NSR permit application when possible. One of the primary reasons for this is the time required to obtain a major NSR approval.

It has been Mass DEP's experience that applicants will sometimes either put on better controls than might otherwise be required, or will put additional controls on existing emission units to accomplish this, i.e., netting. Given that Mass DEP's methodology results in more stringent BACT/LAER determinations that are as, or more stringent than EPA's new rules, the Department's requirements are more likely to result in more facilities over-controlling existing or new emissions.

Two examples of this are:

1. In 1988 Mass DEP received an application for a new 156 MW combined cycle electric generating source. At that time the Department generally issued BACT approvals at 25 ppm @ 15% O_2 of NOx for gas-fired combined cycle combustion turbines. However, the applicant proposed to install selective catalytic reduction

for NOx control (a technology we were unfamiliar with) and applied for a NOx emission limit of 9 ppm @ 15% O_2 while burning gas in order to stay beneath the PSD threshold. See Appendix 5 (Conditional Plan Approval letter for General Electric-Pittsfield, August 17, 1988; now know as Pittsfield Generating).

2. A golf ball manufacturer in Southeastern Massachusetts has continued to expand its operations, to avoid being subject to NNSR, and to become a minor source so that it no longer requires an Operating Permit in order to increase its operational flexibility. See Appendix 6 (Conditional Approval letter for Acushnet Co, November 13, 2003).

Stringency of Massachusetts Non-Attainment New Source Review Requirements (310 CMR 7.00: Appendix A)

Current Mass DEP requirements for non-attainment new source review are predicated upon the serious non-attainment designation given to Massachusetts in 1991 under the one-hour National Ambient Air Quality Standard (NAAQS) for ozone. The emissions thresholds for applicability (50 tons per year (tpy) for the ozone precursors of nitrogen oxides (NOx) and volatile organic compounds (VOC)), the levels of significant net increase in emissions for major modifications (25 tpy for both NOx and for VOC), the offset ratio (1.2 to 1 for both NOx and VOC), and the LAER control technology requirements were specified in the Clean Air Amendments of 1990 and are reflected in 310 CMR 7.00: Appendix A. These values accounted for both the degree of non-compliant ambient air in the state and the requirements associated with Massachusetts's "membership" in the Ozone Transport Commission.

On April 15, 2004, Massachusetts was designated statewide non-attainment for the 8-hour NAAQS for ozone, which replaced the previous, less health-protective one-hour NAAQS, and the entire state was classified as moderate under Subpart II of the Clean Air Act Amendments of 1990. As a moderate non-attainment area, Massachusetts can relax the stringency of the non-attainment new source review requirements for NOx, by increasing the threshold (to 100 tpy) and level of significant increase (to 40 tpy), and by reducing the offset ratio (to 1.15 to 1). Mass DEP has chosen not to do so in order to continue to subject *more* sources to *more stringent emission reduction and offset requirements*. This will provide additional reductions in NOx emissions, needed for ozone attainment. Major source NSR requirements for sources of VOC under the 8-hour ozone standard are the same as were those required under the 1-hour, per section 184 of the Clean Air Act Amendments.

Having very stringent non-attainment review requirements has had an unintended but environmentally beneficial consequence. Since continuous VOC emission reduction credits are scarce and accordingly very costly, VOC-emitting facilities in Massachusetts that pursue modifications try to maintain the level of emissions increase below the significance level, while maximizing production output. This has resulted in the application of advanced technology and pollution prevention techniques that far exceed BACT and/or LAER requirements; it has meant lower pollution per unit of output.

However, even with these strict regulations, it is still possible for a facility to expand its operations. For example, a paper coater in Central Massachusetts expanded its operations by adding several new coating lines and equipping the lines with controls that met Lowest Achievable Emission Rate, and adding air pollution control equipment at another facility it owned in order to create offsets for the new coating lines. See Appendix 7 (Approval letters, May 17, 1990 and September 10, 1990).

Flexibility in MA NSR Program

A significant rationale for revisions to the federal NSR program is to provide facilities with flexibility in managing their business operations while meeting air quality obligations. Mass DEP has long recognized this need and has adopted regulations and/or interpreted existing regulations to achieve this end. Specific examples follow:

Performance Standards by Rule (310 CMR 7.03)

Under provisions of this rule certain industrial activities and emission processes are exempt from minor source plan approval, even at major facilities, so long as the facility installing these emission units ensures that the units meet the performance standards and reporting and record keeping requirements specified at 310 CMR 7.03. Mass DEP has determined that these performance standards represent BACT. They are periodically reviewed; updated, if necessary; and performance standards for new and additional activities are added to this section of the Massachusetts air pollution control regulations, as the need arises and/or when Mass DEP determines a category for which a BACT emission limit or performance standard can be set, based on the status of pollution controls for that category. Under this regulation, the burden is placed on the facilities to include these emissions from these units in calculating significant net emissions increases and in determining applicability of non-attainment NSR (310 CMR 7.00: Appendix A), PSD (40 CFR 52.21).

Emissions units and processes covered by this rule, particularly pertinent to Massachusetts' major industrial sources, are: degreasers, wave soldering, lead melt pots, and dry material storage silos. Performance standards for emergency or standby engines under this section of the Massachusetts air pollution control regulations were for the period on or after June 1, 1990 but prior to March 23, 2006; more current standards and requirements are found at 310 CMR 7.26, discussed in the following section. Performance standards are also provided for paint spray booths (covering a wide range of coating operations) and non-heatset offset lithographic printing, but are limited to minor source facilities (VOC emissions are capped at 30 tpy.).

Industry Performance Standards (310 CMR 7.26)

The concept of providing performance standards under 310 CMR 7.03 was expanded to a number of industries under Mass DEP's Environmental Results Program (ERP). ERP sets discharge limits (performance standards) for all contaminant and waste streams

associated with the ERP industry or industrial process and requires the industry to provide notification and/or periodic certification to MassDEP of compliance with all requirements.

The air quality requirements, i.e., emission standards, engineering and testing requirements, record keeping, notifications, and certifications, of these industries are codified in 310 CMR 7.26 of the Massachusetts air pollution control regulations. These standards apply to dry cleaners; printers including non-heatset offset lithographic printers, graphic arts printers (gravure, letterpress and flexographic), screen printers; any new boiler with a heat input rating equal to or greater than 10mmBtu per hour but less than 40mmBtu per hour; emergency engines and turbines (constructed, substantially reconstructed, or altered after March 23, 2006); and engines (with a rated power output equal to or greater than50kW) and turbines (with a rated power output less than or equal to 10 MW) .

Plantwide Applicability Limit (PALs under 310 CMR 7.00)

Based on EPA's July 23, 1996 Notice of Proposed Rulemaking on amendments to the then enforceable federal New Source Review regulations (40 CFR 51.165, 51.166 and 52.21), MassDEP provided Massachusetts industry with an interpretation of 310 CMR 7.00 Appendix A that allows Massachusetts facilities to secure and operate under a Plantwide Applicability Limit. Under this interpretation, MassDEP continues to entertain industry applications for PALs. Two have been issued to-date, although one of the companies operating under its PAL has closed its Massachusetts facility; the PAL is incorporated into facility's the operating permit. See Appendix 8 (Approval letters for Intelicoat [formally Rexam Graphics], December 28, 1998 and October 31, 2002). See also Appendix 9 (Approval letter for Lucent Technologies, February 29, 1996).

These PALs provide operational flexibility for industrial sources subject to non-attainment review, while preserving emissions reductions and the Commonwealth's commitment to stringent technology requirements; the latter is facilitated through the predetermination of BACT at the time of PAL issuance. The original BACT determination is reviewed at the time the facility's operating permit is renewed. The current Massachusetts Draft PAL policy is attached as Appendix 10.[2]

DEP believes that the Massachusetts Draft PAL policy, as currently being implemented is at least as stringent, if not more stringent, then the revised federal PAL rule. For example:

In calculating baseline for establishing a cap, DEP requires a facility to use an average of the last two years emissions, unless DEP is convinced that a more representative period exists within the previous 5 years. The revised federal rules allow a ten-year look back

[2] Under Massachusetts law it is well established that DEP may announce new rules or standards in an adjudicatory proceeding, [e.g., a permit proceeding incorporating a PAL under 310 CMR 7.02], as opposed to formal rulemaking. See *Town of Brookline, et al., v. Commissioner, Department of Environmental Quality Engineering,* 439 N.E. 2d 792, 799, 387 Mass. 372, (1982).

period. Under the federal rule there is far greater chance that sources will be allowed higher caps, allowing greater emissions.

Massachusetts PALs are reevaluated every five years, in conjunction with renewal of a facilities' Title V operating permit. In contrast, it is suggested but not required, that federal PALs be recalculated every 10 years. Earlier reevaluation will allow for the installation of cost effective additional controls, thereby reducing the PAL cap.

The Mass DEP policy also provides that the addition of new sources that exceed the cap at a PAL facility will require a state NSR permit (with a BACT analysis under 310 CMR 7.02). In addition, a new source triggering *major NSR* will require an Appendix A approval. There are no such provisions in the revised federal rule.

Conclusions

Mass DEP returned delegation of the federal Prevention of Significant Deterioration Program in 2003, but maintains an aggressive state new source review program for new sources and minor and major modifications, triggered by emission increases of greater than 1 tpy potential. This stringent program relies on technology forcing permitting based on BACT determinations, but has incorporated flexibility for facilities through performance standards (permit by rules) for certain emissions activities and units.

The current regulatory program contains requirements for determining if a proposed modification at an existing major stationary source is subject to NNSR that are more broad in scope than the current federal rule. More modifications would be considered major modifications and thus be subject to NSR under the Massachusetts regulatory program.

Mass DEP has issued Plantwide Applicability Limit permits to VOC-emitting sources through a policy interpretation its air pollution control regulations and will continue to do so.

Based on the foregoing, Mass DEP concludes that its current non-attainment new source review program is at least as stringent, if not more so, than the revised federal NSR regulations. The Massachusetts rules also afford flexibility to its industrial facilities through regulatory certainty in the form of performance standards, as well as through Mass DEP's ability to issue environmentally beneficial PALs.