

OTC Stationary Area Source Committee
DRAFT: Potential 2008 8-Hour Ozone NAAQS Control Measures

Purpose

In 2008, the 8-hour ozone national ambient air quality standard (NAAQS) was lowered to 75 ppb. Those states that have areas designated as nonattainment for the 2008 ozone NAAQS are required to submit a plan to the U.S. Environmental Protection Agency describing how each area will attain the NAAQS by the designated attainment date. Attainment plans must include adopted control measures that will reduce ozone precursor emissions within the timeframe necessary to assist attainment.

The OTC Stationary/Area Source Committee has been charged with developing potential control measures that may be suitable for adoption in each OTC state with an ozone nonattainment area. The descriptions provided here is a preliminary list of control measures under consideration by the OTC as possible regional measures. There will be a rigorous evaluation of the costs and potential emissions reductions.

Brief Descriptions of Potential NO_x Measures

1. Municipal waste incinerators

Reevaluation of the federally required facility-specific emission limits for the municipal solid waste (MSW) incinerators revealed that air pollution control technologies have advanced sufficiently over the past several years to justify further NO_x emission reductions.

Control optimization of existing selective non-catalytic reduction (SNCR) systems can often result in additional emission reductions at relatively low capital cost. NO_x emission concentrations of 90 - 150 parts per million by volume, dry basis at seven percent oxygen for MSW incinerators may be achievable. Control optimization may include the application of computational fluid dynamic modeling to determine better distribution of reagent, addition of reagent injection ports, and/or upgrading from ammonia-based SNCR to urea-based SNCR.

2. Performance standards for High Electric Demand Day (HEDD) electric generating units (EGU)

This control strategy reduces the maximum allowable emission rates of NO_x from oil and gas-fired HEDD units. For HEDD turbines, maximum allowable NO_x emission limits can be achieved by natural gas-fired turbines with dry low NO_x combustors and fuel oil-fired turbines with water injection. New Jersey's proposed rule requires replacement of very old turbines which cannot be retrofitted by 2015. For HEDD oil and gas-fired units boilers, lower NO_x rates can be achieved by installing low NO_x burners and/or a selective non-catalytic reduction system on existing boilers. This control strategy could be implemented similar to New Jersey's NO_x performance standard methodology or through an alternative compliance scenario that achieves comparable results from HEDDs.

3. Performance standards for boilers serving electric generating units (EGU)

This control strategy for non HEDD EGU boilers involves a multi pollutant approach to reduce allowable NO_x, particulate and SO₂ emissions from coal-fired EGU boilers, and to lower the maximum allowable emission rates of NO_x, particulate and SO₂ from gas and oil-fired EGU boilers. The available control devices to achieve lower NO_x, PM and SO₂ emission rates from coal-fired boilers include Selective Catalytic Reduction, baghouses, and wet/dry scrubbers and wet scrubbers, respectively. These control devices are used widely in industry throughout the United States.

4. Natural gas boilers – Ultra Low NO_x Burners ULNB(s)

Review and update information on NO_x emissions reductions achieved through the installation of Ultra Low NO_x Burners on natural gas-fired industrial, commercial and

institutional (ICI) boilers, process heaters, and water heaters. Update information on NO_x limits in state rules for natural gas-fired ICI boilers, process heaters, and water heaters (e.g., New Jersey DEP RACT Plus Rules, Texas Rules 117.3200 - 117.3125 and 117.2000 - 117.2045, California Air Resources Board Rules 1121 and 1146). Compare recommended NO_x limits in OTC Addendum to Resolution 06-02 to NO_x limits in state rules.

5. Diesel internal combustion engines and natural gas turbines

This is a state level program designed to limit uncontrolled ozone season use of emergency generators, demand response sources and economic dispatch distributed generation while retaining the capability to generate power from emergency generators to maintain electric system reliability. Regulations may require control of existing generators or the purchase of new, cleaner engines. Application of advanced emission control technologies would allow use of engines for power generation during high electric demand days.

6. Energy efficiency / Renewable energy

State climate and comprehensive electric system planning efforts involve assessing all options to meet future electric demand. An energy efficiency/renewable strategy would leverage the maximum air quality benefit from these efforts for SIP credit. This measure addresses multiple sectors including electricity generation and use; fuels; boilers and process heaters; heating and cooling equipment and others. A variety of technologies and methods are encompassed in this measure. Because of the breadth of this measure, there is no single performance standard or emission level associated with it.

7. Minor source review

This OTC model rule would seek the control of non-attainment pollutant emissions from new or modified sources that are below major new source review (NSR) threshold. We propose to study such existing rules in DE, NJ, ME and CT to develop the most appropriate model rule. Although the Clean Air Act requires states to have a minor source program, it does not require the installation of controls. Such activity can seriously impact control measures. Generally, states use this category to register smaller sources and to inventory emissions. In certain cases, states may impose controls if the planned source or modification is thought to be a threat to attainment status goals. Some states in the OTR have developed minor new source review (MNSR) rules for sources that fall below the threshold emission levels of major new source review programs that do require the installation of controls. While such MNSR programs may not reduce current emission levels, they will prevent the increase in emissions when levels of VOC and NO_x (and any other pollutants the state wishes to control) as various sources are constructed or modified but that fall below the major source threshold levels for major NSR.

Brief Descriptions of Potential VOC Measures:

1. Auto refinishing rule (underway)

The OTC 2002 Mobile Equipment Repair and Refinishing (MERR) Model Rule is being considered for revision to include the 2005 California Air Resources Board (CARB) suggested control measure (SCM) recommendations for auto refinishing coatings. The primary control component of this measure is the addition of volatile organic compound content limits for a variety of auto coating categories. Some key items that were discussed by the OTC Workgroup included: clarification of the intended regulated population - coating manufacturers, coating applicators or both; the requirements for the evaluation of transfer efficiency for alternative coating application technology; how the rule should handle coating thinned by the coating applicator or end-user; automatic acceptance of CARB-approved alternative coating application methodologies; product dating and sell-through provisions; the compliance date; and consistency with the CARB SCM.

2. AIM rule (New CARB)

The OTC developed its 2002 Architectural and Industrial Maintenance (AIM) Coatings Model Rule based upon the 2000 CARB Suggested Control Measure (SCM). In 2007, CARB proposed an updated SCM for Architectural Coatings, which generally lowers VOC emissions through product reformulation and improves definitions of many categories from the 2000 SCM. Of the 47 coating categories regulated in the 2000 SCM, 15 categories have been eliminated (replaced by new categories or deemed unnecessary), 10 categories were added, and 19 have stricter VOC limits. The updated SCM also contains some revised compliance and reporting requirements. The OTC intends to review these SCM changes and use them as a basis for updating its own model rule.

3. Consumer products rules

The OTC states adopted CARB's 2005 consumer product regulations. CARB has revised its consumer product regulations twice since 2005, in 2006 and 2008. The OTC examining the 2006 CARB revisions at this time and will consider the 2008 CARB revisions, after their adoption in California:

CARB 2006. CARB's 2006 consumer products regulatory amendments will set new VOC limits for 15 consumer product categories, including three new categories, for which new product definitions and VOC limits were adopted.

CARB 2008. CARB's proposed 2008 consumer products amendments are designed not only to reduce VOC emissions but also air toxic emissions and greenhouse gas compounds. The CARB amendments are scheduled for final adoption in May 2009.

4. Lower solvent degreaser

This control measure would address volatile organic compounds (VOC) emissions from cold cleaning machines (the major source of VOC emissions), open-top vapor degreasers, all types of conveyORIZED degreasers and air-tight and airless cleaning systems that carry out solvent degreasing operations with a solvent containing VOC. The issue of including NESHAP halogenated solvents as practiced under 2004 California rules will be considered. Cleaning operations would be required to use solvent with a material VOC content of 25 g/l or less. The former vapor pressure limit (1.0 mmHg) is no longer used by California.

5. Lubricant used in metal rolling operations

This control measure would address a gap in most existing state regulations. Metal working lubricants, fluids, and rust inhibitors are not addressed in control technique guidelines for miscellaneous metal parts or state rules addressing the VOC content of

consumer products. A model rule would achieve VOC reductions through two basic components: sale and manufacture restrictions that limit the VOC content of metal working fluids, lubricants and rust inhibitors sold in the state; and use restrictions. Use requirements consist of reformulation to low-VOC metal working fluids, lubricants, and rust inhibitors or the use of air pollution control equipment.

6. CARB EVR-Stage I and Stage II (Gasoline loading and refueling)

In addition to comparing existing vapor recovery programs at gasoline dispensing facilities to the newly adopted NESHAP, this control measure would be based on CARB EVR 2000 to adopt enhancements to components in the vapor recovery system specifications to get additional emission reductions.

- Proposed changes to Stage I certification consist of an increase in the efficiency requirement from 95% to 98%, a new specification for Stage I couplers to reduce leaks, new performance specifications for drain valves in spill containment boxes, and other improved Stage I equipment specifications.
- The proposed certification requirements for Stage II vapor recovery system certification include new standards applicable to all Stage II systems, new standards for balance systems, new requirements for assist systems, including assist systems with processors, and amended new and repealed test procedures for Stage II vapor recovery. Specifics are outlined in CP-201, "Certification Procedure for Vapor Recovery Systems for Gasoline Dispensing Facilities".
- Require that the Stage II vapor recovery system not exceed the emission factor of 0.38 lbs/1000 gallons and pressure-related fugitive emissions shall not exceed 50 percent of the emission factor.

7. Stage I/II Vent Pipe Off-Gas Collection System

The measure would require a vapor recovery system with a membrane system can separate air from VOCs in the gasoline storage tanks at gasoline stations, venting the air to the atmosphere while controlling and recycling the larger VOC molecules. Storage tanks and vessels can be controlled and kept under slight vacuum relative to the atmosphere, virtually eliminating fugitive and vent emissions from the system.

8. VOC large storage tanks

Volatile organic compounds are often stored in aboveground stationary storage tanks which are significant sources of VOC emissions. The tanks that store VOCs come in many sizes. They are located at many types of facilities including refineries, terminals, and pipeline breakout stations. California's South Coast Air Quality Management District, California's San Joaquin Valley Unified Air Pollution Control District, and the Texas Council on Environmental Quality have better regulations in place to regulate floating roof VOC stationary storage tanks. The State of New Jersey proposed amended rules for this source category. The better control measures can be grouped into five categories: deck fittings and seals, domes, roof landings, degassing and cleaning, and inspection and maintenance.