Final Air Toxics Rule for the Petroleum Refining Industry

July 28, 1995

TODAY'S ACTION...

The Environmental Protection Agency (EPA) is today issuing a final regulation to reduce emissions of air toxics from petroleum refineries.

Petroleum refineries process crude oil to produce automotive gasoline, diesel fuel, lubricants, and other petroleum-based products.

WHAT ARE THE HEALTH AND ENVIRONMENTAL BENEFITS?

EPA's final rule will reduce emissions of eleven air toxics, including benzene---a human carcinogen, by 53,000 tons annually, representing a 59 percent reduction from current levels. Air toxics are those pollutants known or suspected of causing cancer or other serious health effects (e.g., reproductive effects or birth defects).

Emissions of volatile organic compounds (VOCs) will be reduced under EPA's final rule by over 277,000 tons annually, representing a 60 percent reduction from current levels. VOCs contribute significantly to the formation of ground-level ozone (smog). Exposure to ground-level ozone can damage lung tissue and cause serious respiratory illness. Reductions in VOC emissions from EPA's final rule will substantially reduce damage caused to agriculture.

HOW DOES THE FINAL RULE PROVIDE FLEXIBILITY TO INDUSTRY?

EPA's final rule contains a market-based provision, "emissions averaging," that will allow facilities flexibility to choose certain emissions points to control in order to achieve the required emissions reductions in the most cost-effective manner possible. In some situations, facilities may find it more cost-effective to overcontrol certain emissions points and undercontrol others, so that the overall result would be greater emissions reductions at lesser control costs.

EPA's final rule provides additional flexibility by permitting the use of emissions averaging among petroleum refineries, marine terminal loading operations, and gasoline distribution facilities located at the same site.

The final rule spells out how facilities may use emissions averaging and which emissions points may be included.

For requirements pertaining to equipment leaks, EPA's final rule provides industry with the choice of two compliance options.

BACKGROUND

Under the Clean Air Act Amendments of 1990, EPA is required to regulate emissions of 189 listed hazardous air pollutants (air toxics). On July 16, 1992, EPA published a list of source categories that emit one or more of these hazardous air pollutants. For listed categories of "major" sources (those that emit 10 tons annually or more of a listed pollutant or 25 tons or more of a combination

of pollutants annually), the Act requires EPA to develop standards that will require the application of maximum achievable control technology (MACT).

In its July 16, 1992 published list of industry groups to be regulated, EPA identified petroleum refineries as a major source of hazardous air pollutant emissions.

WHO WILL BE AFFECTED BY THE FINAL RULE?

There are 192 petroleum refineries in the United States, all of which are anticipated to be major sources of air toxics, and will therefore be subject to the regulation.

WHAT DOES THE FINAL RULE REQUIRE?

EPA's final rule will require controls for emissions of air toxics from storage tanks, equipment leaks, process vents, and wastewater collection and treatment systems.

The monitoring, recordkeeping, and reporting requirements are outlined in the final rule.

HOW MUCH WILL THE RULE COST?

The nationwide capital cost for the rule is estimated to be $213 million. The nationwide annualized cost of the rule, including monitoring, recordkeeping, and reporting, is estimated to be $95 million.

FOR MORE INFORMATION...

... contact James F. Durham at (919) 541-5672.

TECHNICAL ADDENDUM TO PETROLEUM REFINERIES FACT SHEET

WHAT DOES EPA'S FINAL REGULATION REQUIRE?

All petroleum refineries classified as major sources must meet the requirements listed below:

STORAGE TANKS

Existing storage tanks - petroleum liquids with true vapor pressures (TVP) equal to or greater than 10.3 kilopascals (kPa) must be stored in tanks equipped with floating roofs. The outer rims of the floating roofs must be equipped with two seals to prevent evaporation between the roofs and the tank walls.

New storage tanks - petroleum liquids with TVPs equal to or greater than 3.4 kPa must be stored in tanks equipped with floating roofs. The rim seal requirements for new tanks are the same as for existing tanks. In addition, for new tanks, all access hatches and openings for guide poles and other equipment on the floating roofs must be gasketed and sealed to reduce evaporation.

Controls must be installed on existing floating roof storage tanks when tanks are removed from service for inspection and maintenance but no later than 10 years after promulgation of the rule. Fixed roof tanks must be in compliance within three years from the promulgation date.

Controls are not required for existing tanks that contain petroleum liquids with less than 4 percent HAPs by weight. For new tanks, controls are not required if the HAP content of the petroleum liquids is less than 2 percent by weight.

EQUIPMENT LEAKS

Refiners must implement a program to detect and repair leaks (LDAR) from pumps, valves and other refinery equipment when the HAP content of products from the process units is equal to or greater than 5 percent by weight. Refiners have the choice of complying with the LDAR provisions in (1) the New Source Performance Standard (NSPS) for petroleum refineries (40 CFR 60 subpart VV) or (2) with a modified version of the hazardous organic national emission standards for hazardous air pollutants (NESHAP) rule for the synthetic organic chemical manufacturing industry (known as the SOCMI "HON" rule), which was promulgated in February 1994 (40 CFR part 63 subpart H).

Both options have the same initial leak definition (10,000 ppmv VOC) and monitoring frequencies. Refiners that have implemented the NSPS can avoid the cost of starting a new LDAR program and complying with the more stringent leak definitions contained in the modified HON rule. On the other hand, refiners that select the modified HON rule can realize cost savings through reduced monitoring requirements for good performance.

New sources of equipment leaks must comply with the modified version of the SOCMI HON rule.

PROCESS VENTS

Existing process vents must be controlled if the VOC content equals or exceeds 33 kg/day and the HAP concentration equals or exceeds 20 ppmv. For new sources, control is required when the VOC content of a vent equals or exceeds 6.8 kg/day and the HAP concentration equals or exceeds 20 ppmv. The HAP content for both new and existing vents must be reduced by 98 percent or to 20 ppmv, whichever is less stringent.

WASTEWATER COLLECTION AND TREATMENT SYSTEMS

EPA's final petroleum refinery air toxics rule defers to EPA's benzene waste NESHAP rule (40 CFR 61 Subpart FF). Refineries that are in compliance with the Benzene Waste NESHAP (BWN) rule are in compliance with the refinery NESHAP rule. Under the BWN rule, refineries with 10 Mg/yr or more of benzene in the waste streams must control streams that contain 10 ppmw or more of benzene. The requirements are the same for both new and existing wastewater sources.

EMISSIONS AVERAGING

EPA's rule permits emissions averaging among process vents, storage tanks, wastewater streams, marine transfer operations and gasoline distribution facilities located at the same site. The emissions averaging provisions and constraints are identical to those in EPA's HON rule.

REPORTING REQUIREMENTS

Refiners are required to report the following information:

Notify the appropriate agency of anticipated and actual start-up dates of new construction and physical or operational changes to existing facilities.

Submit a report documenting that the refinery is in compliance with the rule.

Submit semiannual reports documenting exceedances of monitoring parameters and instances where inspections revealed problems.

For equipment leaks, refiners must submit an initial report and semiannual summaries of leak detection and repair.