

other information, we have decided not to set fuel-based regulations at this time. We remain concerned that regulating fuel sold in the United States would not necessarily ensure that distillate fuel was used in U.S. waters. It is not clear under the Clean Air Act whether we can set standards for more than the fuel sold in the United States. If so, then a fuel sulfur standard would be unlikely to have a significant impact on emissions because ships may choose to refuel before entering or after leaving the United States.

However, as we noted in our proposal, Regulation 14 of MARPOL Annex VI allows areas in need of SO_x emission reductions to petition to be designated as SO_x Emission Control Areas. After the Annex goes into force, ships operating in these designated areas must use fuel with a sulfur content not to exceed 15,000 ppm or an exhaust gas cleaning system to reduce total vessel SO_x emissions to 6.0 g/kW-hr or less. The United States may propose designation of one or more areas in the future pending a review of the relevant emissions, the potential benefits, and the associated costs. However, if the Annex does not go into effect, we will address this issue in the future to the extent appropriate under the Clean Air Act.

2. What Are the MARPOL Annex VI Fuel Provisions?

MARPOL Annex VI contains requirements for fuels used onboard marine vessels. These requirements, which will be effective if and when the Annex goes into force, consist of two parts. First, Annex VI specifies that the sulfur content of fuel used onboard ships cannot exceed 45,000 ppm (4.5 percent). Information gathered in an international monitoring program indicates refiners are currently complying with this requirement and that the current sulfur level of marine bunker fuels ranges between 5,000 and 45,000 ppm with an average sulfur content of about 27,000 ppm. Second, the Annex provides a mechanism to designate SO_x Emission Control Areas, within which ships must either use fuel with a sulfur content not to exceed 15,000 ppm or an exhaust-gas cleaning system or other technology to reduce total vessel SO_x emissions (including both auxiliary and main propulsion engines) to 6.0 kW-hr or less. To date, two SO_x Emission Control Areas have been designated: the North East Atlantic (North Sea, Irish Sea, and English Channel) and the Baltic Sea. After the Annex goes into force, ships operating in these designated areas must use fuel with a sulfur content not to exceed

15,000 ppm or an exhaust gas cleaning system to reduce total vessel SO_x emissions to 6.0 g/kW-hr or less.

Refiners can produce lower-sulfur residual fuel from a lower-sulfur crude oil or they can put the fuel through a de-sulfonation step in the refinery process. They can also produce it by blending marine distillate fuel, which typically has fuel sulfur levels between 2,000 and 3,000 ppm.

3. How Will SO_x Emission-Control Areas Be Designated in the United States?

Annex VI stipulates that any proposal for designation of a SO_x Emission Control Area (SECA) must meet certain requirements before it will be taken under consideration by the Parties through IMO's Marine Environment Protection Committee (MEPC). The specific requirements, as set out in Appendix III to Annex VI, are:

- A clear delineation of the area and its boundaries;
- A description of the land and sea areas at risk from the impacts of maritime SO_x emissions;
- An assessment that describes the impact of SO_x emissions on terrestrial and aquatic ecosystems, areas of natural productivity, critical habitats, water quality, human health, and areas of cultural and scientific significance, if applicable. The source of relevant data including methodologies used, shall be identified;
- Relevant information pertaining to the meteorological conditions in the proposed area of application and the land and sea areas at risk, in particular prevailing wind patterns, or to topographical, geological, oceanographic, morphological, or other conditions that may lead to an increased probability of higher localized air pollution or levels of acidification;
- The nature of the ship traffic in the proposed area, including the patterns and density of such traffic; and
- A description of the control measures taken by the proposing Party or Parties addressing land-based sources of SO_x emissions affecting the area at risk that are in place and operating concurrent with the consideration of the proposal.

The Treaty does not establish arbitrary limits to the geographic extent of the area to be designated. Instead, it stipulates that the proposing Party or Parties support the size and extent of the proposed area by the relevant science. The two most important factors in determining the offshore boundaries of the area are meteorological conditions in the proposed area and how they influence emission transport to areas

ashore and the volume and patterns of maritime traffic.

We plan to begin investigating designation of one or more areas in the future, including a review of the relevant emissions, the potential benefits that could be attained and the associated costs. The first step will be to identify the areas we would like to be considered for SECA designation. Then, we will need to identify data necessary to support any such applications, and the organizations (other federal agencies, State agencies, ports, *etc.*) who are likely to have that data. Once we obtain the data, we will use it to develop any such applications. EPA will work with interested states to consider whether the designation of specific SO_x Emission Control Areas under the Treaty would offer significant benefits to air quality (including PM), considering associated costs. Depending upon the outcome of these consultations and the analysis of the relevant vessel traffic and emissions, the United States may propose designation of one or more areas by amendment to Regulation 14(3) of Annex VI.

4. Are There Other Fuel-Based Controls That May Be Considered?

Additional particulate matter emission benefits could be achieved from engines that use distillate marine diesel fuel by controlling the sulfur content of that fuel. Distillate marine diesel fuel is used in Category 1 and Category 2 marine diesel engines, and is used in Category 3 marine diesel engines for specific purposes such as engine maintenance and, sometimes, for maneuvering and in-port operations. Distillate marine diesel fuel is similar to land-based nonroad diesel fuel and currently has a sulfur content in the range of 2,000 to 3,000 ppm (0.2–0.3 percent).

As noted in Section I.F, above, the European Union is considering a requirement for ships to use fuel with a maximum sulfur content of 2,000 ppm while at port. This generally means that these vessels would use distillate marine diesel fuel for those operations.

In the United States, we recently set fuel standards applicable to distillate highway diesel fuel. Today, the sulfur content of this fuel is under 500 ppm; a 15-ppm cap will apply beginning in 2007. We are currently developing a separate rulemaking that will set limits for the sulfur content of distillate non-road diesel fuel. Among other things, this rule will address what level of sulfur content would be appropriate for distillate marine diesel fuel.