

**Repeal of Regulations on Special Protection Areas for Sulfur Dioxide
(18 AAC 50.025(c)(1)-(2)) and Ice Fog (18 AAC 50.080)**

The Alaska Department of Environmental Conservation (ADEC) is proposing to repeal regulations to streamline 18 AAC 50. The Division of Air Quality has identified one subsection, 18 AAC 50.025(c), and one section, 18 AAC 50.080, that are no longer needed due to conditions having changed and improved since their inclusion in 18 AAC 50. ADEC is proposing to remove those regulations and cross-references to them from the Federally-approved Alaska State Implementation Plan (SIP) because these older regulations were not mandatory measures required by the Clean Air Act (CAA) and/or EPA regulations, and were established by ADEC as measures to address specific situations that have since been resolved. Their removal will not interfere with any applicable requirement concerning attainment and reasonable further progress or any other applicable requirement of the CAA.

Special Protection Areas for Sulfur Dioxide

The regulations for the special protection areas for sulfur dioxide (SO₂) were established in January 18, 1997, to protect the island fishing communities of Unalaska and St. Paul from high SO₂ emission levels then prevalent with the use of high-sulfur fuel oils. Both communities are surrounded by steep terrain, and both marine vessels and onshore power generation plants burned large quantities of high sulfur fuel, with sulfur content potentially as high as 50,000 ppm (5% by weight). Additionally, exploratory drilling in 1985 in the Navarin Basin involved air and marine support services conducted from both St. Paul and Unalaska, which further contributed to high SO₂ levels. In the 1990s, further work was undertaken to prepare for a large oil and gas lease sale in the Navarin Basin. The U.S. Department of the Interior conducted an Environmental Impact Statement (EIS) that showed the construction of the oil platforms and the drilling of dozens of associated wells would require significant air and marine support services to be based in St. Paul and Unalaska. The support services would likely have contributed to increased SO₂ levels in the communities.

In the years since the development of the regulations, both U.S. and international regulations have mandated lower sulfur marine diesel fuels for commercial use than were being burned in the 1980s and 1990s when the special protection areas were established.

North America Emissions Control Area (ECA)

The North American Emissions Control Area (ECA) was established in 2010 for the Gulf of Alaska and Southeast Alaska, along with the coastal areas of the contiguous United States. Under the terms of the ECA, vessels are only allowed to burn marine low sulfur fuel with 1,000 ppm (0.10%) sulfur content. The enforcement of the North American ECA has already been linked to air quality improvements in the western United States. Although the ECA covers Southeast Alaska and parts of the Gulf of Alaska, it does not cover Western or Northern Alaska, nor the Aleutian Islands. This coverage gap leaves both St. Paul and Unalaska out of the ECA. This gap potentially exposes them to higher levels of marine generated SO₂ due to disparities in international regulations on permissible sulfur.

I.M.O Low-Sulfur Marine Diesel Regulation

As of January 1, 2020, all International Marine Organization (IMO) signatory states are treaty-bound to sell only low-sulfur marine fuel for commercial use. Prior to this rule, high-sulfur fuel oil (HSFO), bunker oil, and other less refined fuels were sold and burned for commercial use by vessels in many developing countries. In the United States, Western Europe, and Japan, low sulfur content marine fuel has been sold for nearly two decades. The declaration of emissions control areas along the U.S. coasts and in the Baltic Sea have resulted in further use of marine ULSD in these areas. With the January 1, 2020, imposition of low-sulfur global marine fuel sales among IMO signatories, most vessels transiting shipping routes located in the vicinity of Alaska will be burning 5,000 ppm (0.5%) sulfur content fuel.

Although the IMO regulation does not limit marine fuel sulfur content to levels as low as the ECA does, marine fuel allowed under either regulation will comply with the State SO₂ emissions standards of 18 AAC 50.055(c) and have a significantly lower sulfur level than that being burned when the special protection areas were established. Therefore, it is not expected that the air quality in St. Paul and Unalaska will be impacted by SO₂ emissions from marine vessels, and the regulation in question is no longer necessary since the reduction in allowable fuel sulfur content precludes emissions reaching the level limited by the regulation.

The only Alaska regulations that rely on these designations as special protection areas are the minor new source review (NSR) rules in Article 5. ADEC has determined that more stringent SO₂ permitting regulations for stationary sources in these areas are no longer necessary and that the basic minor NSR rules are adequate to ensure National Ambient Air Quality Standards (NAAQS) compliance in the future. ADEC, therefore, is proposing to repeal 18 AAC 50.025(c) regulations regarding the special protection areas for SO₂ for Unalaska and St. Paul, as well as the associated regulations—in 18 AAC 50.502(c)(2)(B); 18 AAC 50.540(c)(2)(C); and 18 AAC 50.542(a)(1)(B)—that cross reference the 18 AAC 50.025(c) regulation.

Regulations:

18 AAC 50.025(c) Special protection areas for sulfur dioxide are established to prevent the violation of the ambient air quality standard and maximum allowable ambient concentration for sulfur dioxide. The following areas are designated as sulfur dioxide special protection areas:

(1) in the Unalaska area, the land and water areas within a 3.4-mile radius of the intersection of 53° 53' 4" N latitude and 166° 32' 11" W longitude; and

(2) in the St. Paul Island area, the land and water areas south of UTM Northing 6333.00 kilometers (57° 8' 29" N latitude) and within 0.6 kilometers of St. Paul Island.

18 AAC 50.502(c)(2)(B)

(B) after October 1, 2004 of an emissions unit with a rated capacity of 10 million Btu or more per hour in a sulfur dioxide special protection area established under 18 AAC 50.025(c);

18 AAC 50.540(c)(2)(C)

(C) sulfur dioxide for a stationary source in a sulfur dioxide special protection area established under 18 AAC 50.025(c); or

18 AAC 50.542(a)(1)(B)

(B) in a sulfur dioxide special protection area established under 18 AAC 50.025(c);

Ice Fog

The regulations for ice fog standards were established in the original 1972 SIP to address visibility issues created by ice fog, particularly in areas with very cold climates and large amounts of water vapor in the atmosphere. The justification for developing ice fog standards focused on potential sources of water vapor development, including combustion from motor vehicles, home heating furnaces, power plants, and municipal utilities systems, as well as evaporation from sewer treatment facilities, cooling ponds, and open sections of rivers. The SIP also stated that "...the control strategies and evaluations proposed for carbon monoxide should be directly beneficial to abating the ice fog problem."

In the 49 years since the ice fog standards were established, control strategies and technologies have decreased the development of ice fog in cold climate areas of the state. As a result, the department has included the need to take measures to prevent ice fog development in a very limited number of permits, and predominately only for permits for older industrial turbines in the Fairbanks inversion area that use water injection as a NO_x control measure. Those permits direct permittees to take steps to prevent ice fog development in the case that their operations cause ice fog. The department has not taken a compliance action against any permittee for ice fog issues under 18 AAC 50.080.

As an additional measure, the department also has authority under 18 AAC 50.110 to prohibit air pollution "which is injurious to human health or welfare, animal or plant life, or property, or which would unreasonably interfere with the enjoyment of life or property." This regulation thus allows the department to address future ice fog issues if they arise absent this regulation that we propose to remove.

Water vapor (and resulting ice fog) is not a criteria pollutant under the CAA, nor is it a regulated pollutant as defined in the CAA and the EPA's pre-construction permitting regulations that apply to stationary sources of pollution. As a result, removal of this provision from the SIP will not interfere with any applicable requirement concerning attainment and reasonable further progress, or any other applicable requirement of the CAA. ADEC, therefore, believes the ice fog standards are no longer necessary and proposes to repeal them.

Regulations:

18 AAC 50.080 Ice fog standards. The department will, in its discretion, require a person who proposes to build or operate an industrial process, fuel-burning equipment, or incinerator in an area of potential ice fog to obtain a permit and to reduce water emissions.