

Klamath Falls PM_{2.5} Attainment Plan



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Quality

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DEQ is a leader in restoring, maintaining and enhancing the quality of Oregon's air, land and water.

Overview

This document describes how a comprehensive plan to reduce particulate pollution will allow the Klamath Falls area to comply with air quality laws. The plan will need to be adopted by the Oregon Environmental Quality Commission and approved by the U.S. Environmental Protection Agency before going into effect.



Dec. 8, 2011 morning smoke inversion over Klamath Falls south suburbs

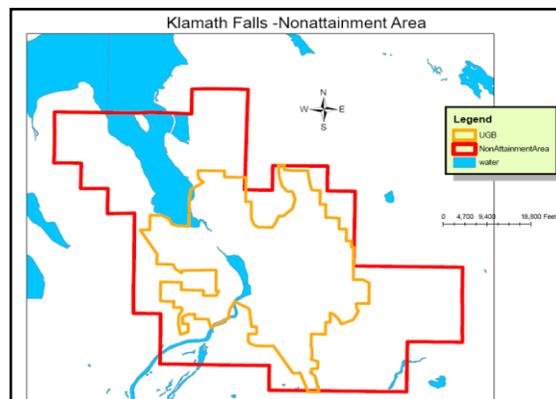
Is the air in Klamath Falls healthy to breathe?

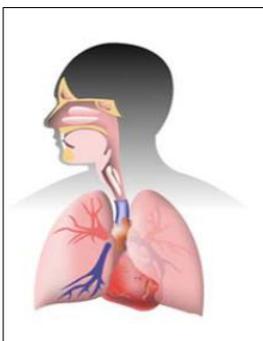
Because of topography, weather and a large number of woodstoves, the Klamath Falls area has had a long history of identifying and working to solve problems with particulate pollution. Thanks to focused community efforts over the past 20 years, air quality in Klamath Falls has improved dramatically. However, Klamath Falls still experiences periods when levels of particulate pollution are unhealthy to breathe.

What's the problem?

The Klamath area is designated as a nonattainment area for the 24-hour fine particulate air pollution standard. This means that the area does not meet the federal fine particulate standard, and residents are exposed to unhealthy levels of air pollution primarily during the winter months. The federal deadline to meet the fine particulate standard in Klamath Falls is Dec. 31, 2014.

In addition to addressing concerns about public health, there are strong economic reasons for Klamath Falls to return to attainment with the federal particulate standard. While in violation of the PM_{2.5} standard, the community is subject to more stringent industrial growth rules, the possibility of restrictions on federal transportation funding and impediments to local economic growth in some industrial sectors.

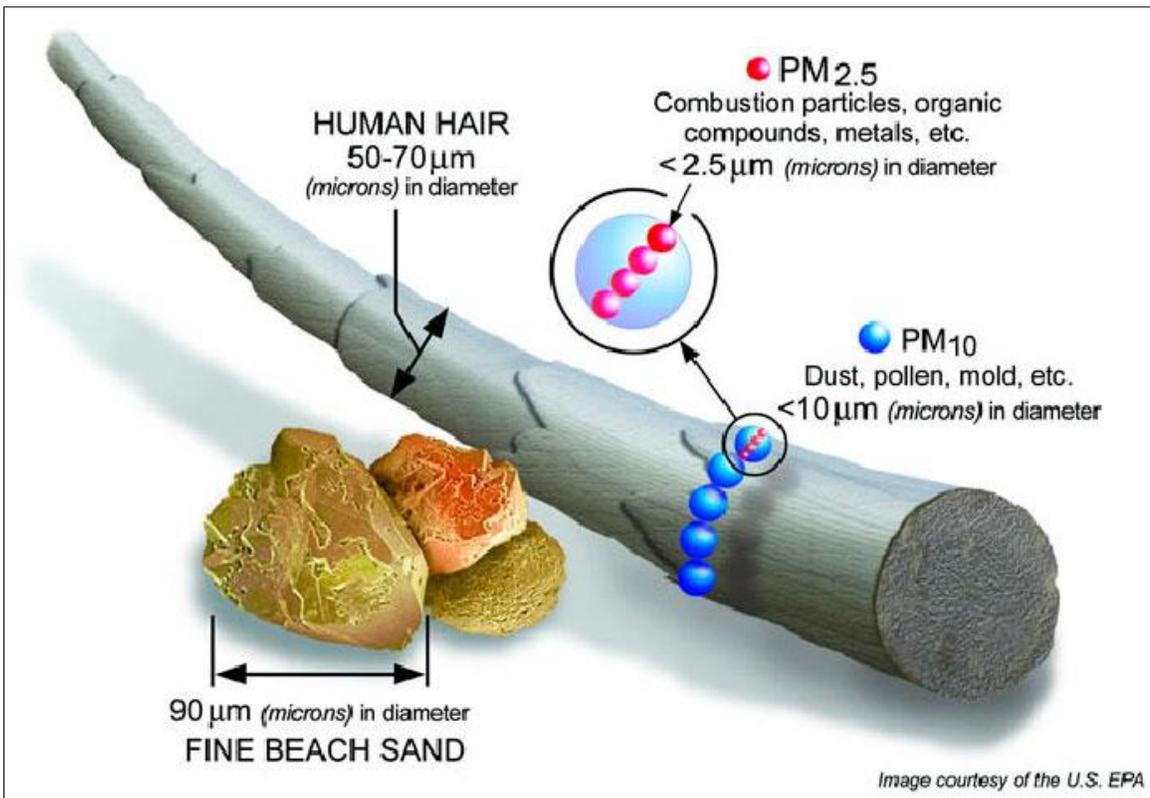




What is fine particulate and how does it affect health?

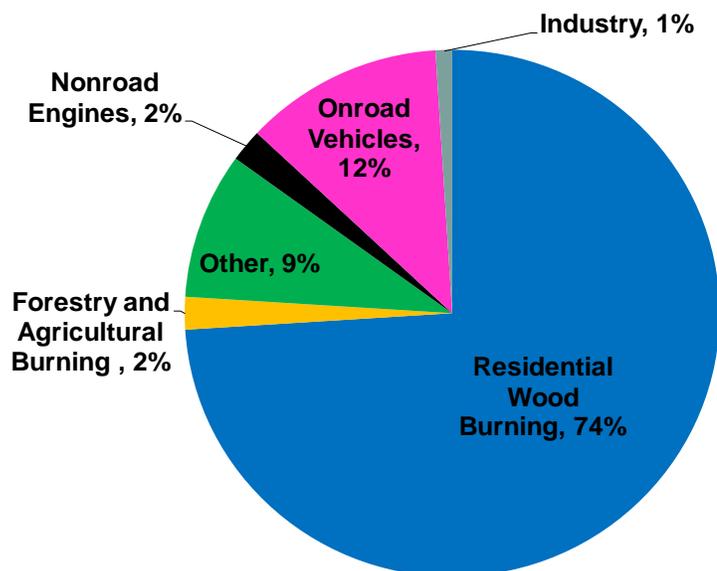
Fine particulate matter, also known as PM_{2.5} because it consists of particles less than 2.5 micrometers (µm) in diameter, can be inhaled deeply into the lungs. PM_{2.5} can cause heart or respiratory damage – especially in the young, the elderly and those with respiratory or circulatory problems.

Recent medical studies show that exposure to fine particulate air pollution causes more severe health problems than previously known. As a result, in 2006, the U.S. Environmental Protection Agency revised the daily fine particulate standard to a lower, more protective level. Winter air pollution levels in Klamath Falls currently violate the 24-hour fine particulate standard.



What are the sources of particulate pollution?

Wood smoke is the largest contributor of particulate pollution. Other sources include industry, gas and diesel-powered engines, agricultural burning and wildfires. The pie chart below shows the relative impacts of Klamath Falls particulate sources on days when levels exceed the standard.



How does DEQ measure particulate pollution?

The Klamath Falls area has one particulate monitoring sampler, located at 4856 Clinton St., at the Peterson School. DEQ has monitored at the Peterson School for particulate pollution since 1987. The location, which has some of the highest levels of particulate in the area, is typical of many neighborhoods in Klamath Falls. Particulate samples are analyzed at DEQ's laboratory in Hillsboro. Following rigorous quality checks, DEQ uses the Peterson School site data to determine compliance with the federal particulate standard. A summary of Klamath Falls monitoring results is available in DEQ's Annual Report at:

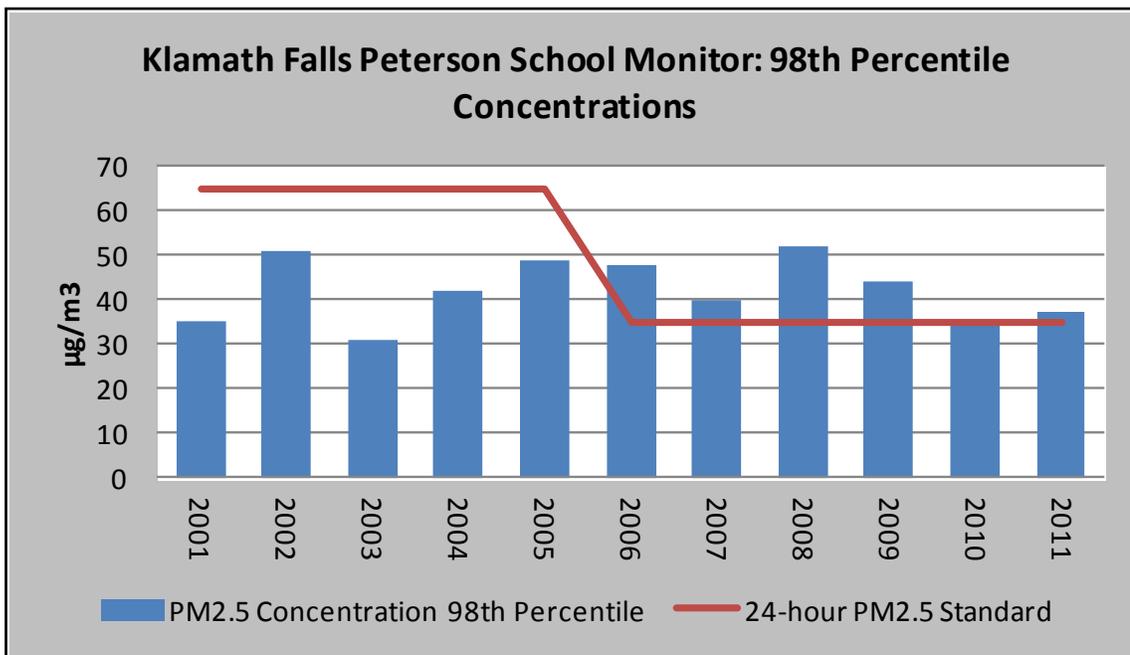


Particulate sampler at the Peterson School

www.deq.state.or.us/aq/forms/2011AirQualityAnnualReport.pdf

What are the measured levels of PM_{2.5}?

Monitoring data using the 98th percentile, or high concentration levels as required by federal regulations, shows that the Klamath Falls area has been in violation of the current 24-hour daily standard every year since 2006. Out of 100 samples, the 98th percentile means that the 98th highest sample would be used. The chart below shows monitoring data between 2001 and 2011. In 2006, the federal standard was changed to a lower limit - to be more protective of public health. Particulate levels are generally higher during years with stronger wintertime temperature inversions, during which colder upper air and low wind speeds trap and concentrate pollution closer to the ground.



How will the Klamath Falls community solve its particulate pollution problem?

To bring the area back into compliance with particulate standards, as required by federal law, DEQ and community representatives have developed a particulate emission reduction plan, known as the Klamath Falls PM_{2.5} plan. After consulting with local technical experts on a scientific and technical advisory committee, DEQ collaborated with a local Klamath Air Quality Advisory Committee to develop pollution reduction strategies with the highest chance of success in meeting the PM_{2.5} standard. The advisory committee submitted a report to the Klamath County Commission, which selected strategies for inclusion in local ordinances that will implement parts of the plan. The committee report and related documents can be found at: www.deq.state.or.us/aq/planning/docs/kfalls/acReport.pdf.





The Klamath Air Quality Advisory Committee in session

What are the elements of the Klamath Falls PM_{2.5} Attainment Plan?

The attainment plan provides information on particulate emissions contributing to the area, emission reduction strategies, and a technical analysis of how the strategies will ensure Klamath Falls meets the PM_{2.5} standards by December 2014. Klamath Falls can demonstrate compliance with the federal standard through three consecutive years of monitoring data at levels below the standard. Should monitoring data show that the community does not meet the standard by 2014, automatic contingency measures in the attainment plan will take effect. (See section below for details on these contingencies.)

The plan is a comprehensive mixture of emission reduction strategies including local ordinances, DEQ regulations, interagency agreements and non-regulatory incentives and education. It describes what action will be taken, who will conduct the work, and when and how it will be done. Plan strategies focus on reducing particulate pollution from woodstoves and industry. The plan can be found at: www.deq.state.or.us/aq/rulemaking/KlamathFallsRulemaking.htm.

What are the specific plan recommendations?

The proposed Klamath Falls PM_{2.5} attainment plan consists of current reduction strategies the community adopted between 2007 and 2009, plus new strategies developed by DEQ, the citizen advisory committee and the Klamath County Commissioners.

Current reduction strategies

In November 2007, Klamath County revised its Clean Air Ordinance to implement early particulate reductions, including:

- Revising woodstove curtailment levels to restrict wood burning when weather conditions could lead to accumulation of particulate in the Klamath Falls area
- Requiring removal of an uncertified woodstove upon sale of a home
- Prohibiting the use of burn barrels
- Tightening enforcement of wood stove curtailment
- A series of woodstove change-out efforts funded by the city of Klamath Falls, EPA and the American Recovery and Reinvestment Act resulted in replacement of 584 woodstoves and significant emission reductions between 2008 and 2011.



New reduction strategies

Residential wood burning: Strategies to reduce emissions from residential wood burning will result in the majority of the reductions necessary to meet the PM_{2.5} standard. They include:

- Pursuing funds to continue offering woodstove change-outs and fireplace conversions within the nonattainment area
- A continued focus of enforcement on individuals habitually violating curtailment requirements
- Amending the county building code to set a new residential construction requirement for installation of clean fireplaces that emit 5.1 g/kg or less as determined by ASTM International, which sets performance standards for products including fireplaces
- Expansion of educational efforts to reduce PM_{2.5} from wood smoke

Vehicle emissions: Federal, state and local transportation regulations and programs recently implemented will reduce mobile and non-road emissions. These include:

- Federal regulations requiring increased fuel economy
- Oregon regulations requiring low emissions vehicles beginning with model year 2009
- Local programs implementing diesel retrofits of city and county buses

Industrial emissions: Although industrial emissions make up a smaller percentage of PM_{2.5} measured in Klamath Falls, there are several proposed regulatory particulate reduction measures that are reasonably available:

- Limit industrial boiler emissions to 20 percent opacity (a measure of particulate density)
- For wood products and other major industrial facilities, require controls on fugitive emissions, which are particulates that escape from windows, doors, storage piles and roadways
- Require industrial facilities to have a plan for best operations and maintenance practices to prevent breakdowns and ensure proper operation of pollution control equipment
- Allow facilities to obtain particulate emission offsets and reduce air pollution by working with homeowners to remove and destroy dirty uncertified wood stoves. For projects that would require emissions offsets, facilities would be able to increase their emissions one ton for every one ton of particulate reduced through woodstove removal. Currently the only offsets available in Klamath Falls come from other industries, with limited availability. The proposal would provide a dual benefit of removing uncertified woodstoves from the community and providing an additional opportunity for economic growth.



Contingency strategies: Because of the community's past history of success in solving particulate pollution problems, DEQ expects that the proposed attainment measures will achieve the PM_{2.5} standard by December 2014. However, the federal Clean Air Act requires that the attainment plan include contingency measures to be triggered if the Klamath Falls area fails to meet the PM_{2.5} standard. The contingency measures function as a backstop until the plan can be reevaluated and corrected. Contingency measures must achieve rapid particulate reductions and must take effect automatically in the event that the original attainment measures fail to meet the standard.



The contingency strategy proposed to reduce PM_{2.5} from wood burning would:

- Prohibit use of non-ASTM-certified fireplaces in the Klamath Falls area during the winter.

Proposed contingencies for industrial facilities are:

- Further limiting industrial emissions by decreasing the grain loading limit, a measurement of particulate concentration. The proposal would decrease the grain loading standard from 0.2 to 0.1 grains per standard cubic foot.
- Requiring installation and use of continuous emission monitoring equipment for wood-fired boilers.

Does the plan adequately control industrial emissions?

Several large industrial facilities are located in the Klamath Falls area. During the Klamath Air Quality Advisory Committee meetings, citizens commented that necessary emission reductions should be borne by industry as well as residents who burn wood. Community representatives have also requested an approach that matches industrial reductions to their relative contribution to the particulate problem and is



also sensitive to fiscal impacts on businesses struggling to recover from the area's severe economic downturn. DEQ's technical analysis showed that impacts from industrial emissions in the Klamath Falls airshed were much less than impacts from wood burning. DEQ issues permits to industrial facilities, inspects them and requires them to report the amount and type of pollution they emit annually. Based on its technical analysis, DEQ expects that the proposed emission reduction and contingency measures in the attainment plan will adequately control industrial PM_{2.5} impacts.



Forest woodwaste biomass

How will the plan address new industrial emissions?

DEQ is aware of two potential new major sources of industrial emissions in the Klamath Falls area in the next few years. Both are biomass facilities that burn wood waste or plant material to produce energy. The first facility, Klamath Bioenergy, has been permitted but not yet built. It is planned for a location less than a mile outside of the non-attainment area boundary and is currently proceeding through the Oregon Department of Energy's energy facility siting process. A DEQ-approved impact analysis conducted for Klamath Bioenergy showed no significant impact on PM_{2.5} levels in the Klamath Falls area, and DEQ has issued an air quality permit for the facility.

The second potential biomass facility, Iberdrola, is still in the planning stage, and has not yet filed a permit application. It could be located within the non-attainment area boundary. As with all major new facilities inside the nonattainment area, Iberdrola would be required to evaluate impacts on particulate levels, install the highest level of air pollution control technology and offset its emissions so its facility would not slow progress towards reaching the federal PM_{2.5} standard.

How will the proposed emission reduction strategies affect the community?

The attainment plan could reduce the amount of time people can burn in woodstoves and uncertified fireplaces and include additional monitoring and control requirements for industrial facilities. If in place, the plan will positively affect the health of Klamath Falls residents by ensuring that they're not exposed to unhealthy levels of fine particulate air pollution. Demonstrated compliance with the standard would also allow the area to lift some of the very strict federal emissions requirements currently in effect. This could make it easier for industry to locate to and expand within the Klamath Falls area.

What are the next steps?

DEQ held two public meetings in Klamath Falls in August 2012 and accepted comments on the draft plan until the Sept. 4, 2012 deadline. Currently, DEQ is considering comments received and will present the plan with a recommendation for adoption to the Oregon Environmental Quality Commission on Dec. 6-7, 2012 in Portland. Information = about the December commission meeting will be posted to the commission web page at: <http://www.deq.state.or.us/about/eqc/EQCmtgs.htm>.

Alternative formats

Alternative formats (Braille, large type) of this document can be made available. Contact DEQ's Office of Communications and Outreach, Portland, at 503-229-5696, or toll-free in Oregon at 1-800-452-4011, ext. 5696.

