



Seattle Steam's Wood-Fired Boiler and Air Quality

Key Points

Air pollutant emissions from Seattle Steam's wood-fired boiler are regulated by the Puget Sound Clean Air Agency (PSCAA). Seattle Steam utilizes emission controls and routine monitoring to ensure the emissions from that boiler stay within permitted levels, and faces penalties if those levels are exceeded.

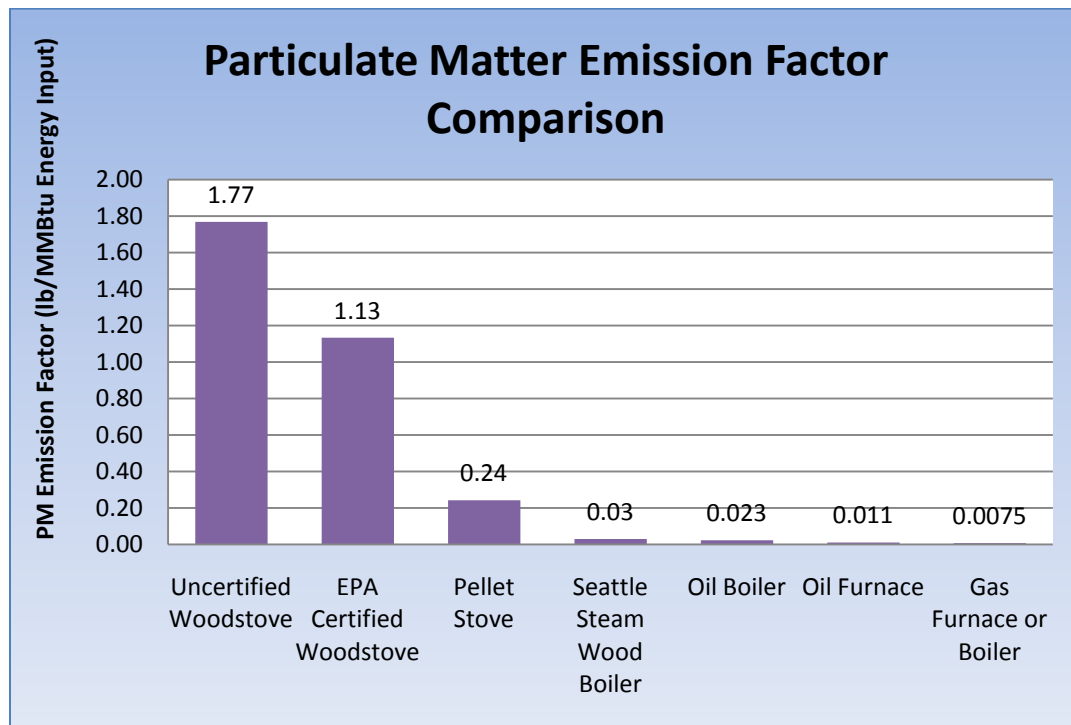
- Seattle is in compliance with the Clean Air Act on fine particulate matter (PM 2.5). The American Lung Association's poor air quality rating of the Puget Sound region is due to significant air quality issues in Tacoma and Pierce County, not issues in Seattle.
- In downtown Seattle, Seattle Steam's wood-fired boiler is just one of a number of sources of particulate emissions. Other significant sources of particulate emissions around the Pike Place Market area include diesel emissions from vehicle traffic on the Alaskan Way Viaduct and ships docked along the water front.

PSCAA Regulatory Context

In 2006, Seattle Steam received a Notice of Construction (NOC) application approval from the PSCAA to replace a natural gas boiler in its Western Avenue location with a wood-fired boiler (not an incinerator, which has a specific regulatory definition). The final permit approval includes emission limits, continuous monitoring, periodic testing, and recordkeeping/reporting requirements. Seattle Steam has been working through its construction, startup, and shakedown process, which is still in progress, and has been working closely with the PSCAA to ensure the project remains in compliance with the requirements of the NOC permit.

Particulate Emissions from Wood-Fired Boilers

The Seattle Steam wood-fired boiler uses state-of-the-art emissions control technology, and is heavily controlled through design and operation. The following graph illustrates the emission rates for particulate matter for common energy uses, including Seattle Steam's wood-fired boiler for comparison.



Source: Puget Sound Clean Air Agency

Emissions Testing & Regional Air Quality

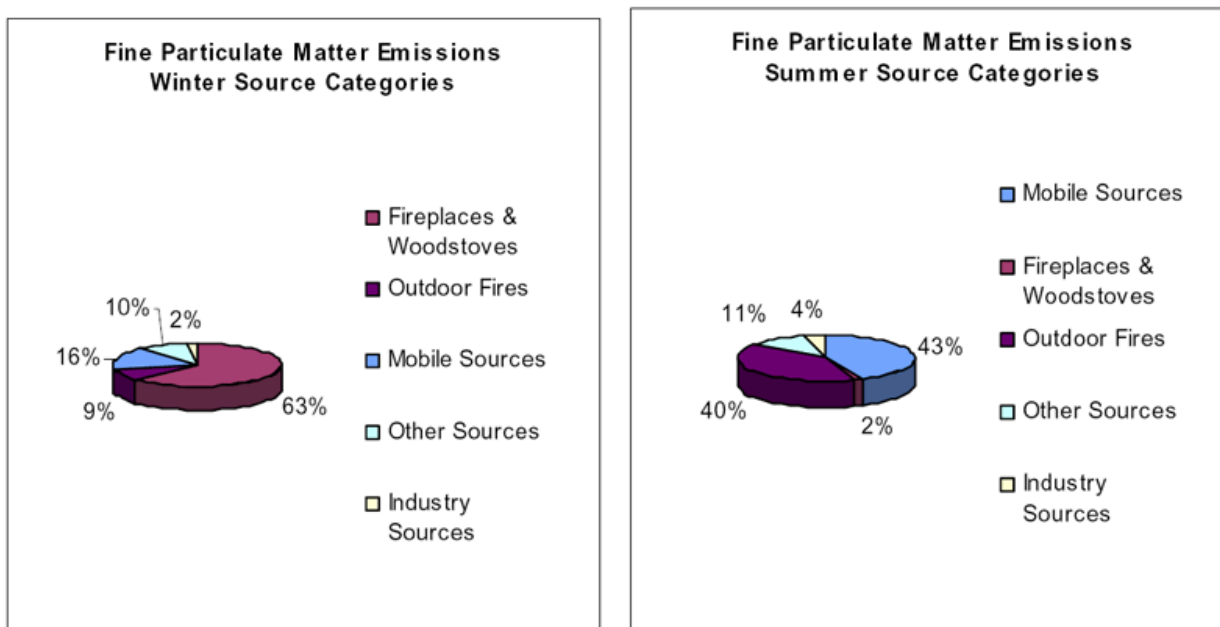
There is no monitoring of particulate emissions directly surrounding Seattle Steam's Pike Place plant. Emissions are monitored in two places: 1) the plant's smoke stack and 2) at regional air quality monitors that are designed to test ambient air quality. As noted above, Seattle Steam has strict emissions limits on what comes out of the smoke stack that are monitored by the PSCAA, with penalties assessed if they fail to meet them.

To monitor ambient air quality, PSCAA operates a network of continuous monitoring stations strategically placed to provide a representative sample of general air quality. Ambient air monitoring stations in downtown Seattle are located on Olive Way and on Queen Anne Hill. Test results from these stations are normally at or below PSCAA's health goal, which is more stringent than the EPA's required emission standards.

Emissions monitoring directly surrounding the Pike Place plant could be done, but it is very expensive and PSCAA does not have the resources to conduct that monitoring. In addition, it is unclear what information that monitoring would provide about the Seattle Steam plant's impact on particulate emissions. Near Pike Place Market, Seattle Steam's wood-fired boiler is just one of a number of sources of particulate emissions. Other significant sources of particulate emissions include diesel emissions from vehicle traffic on the Alaskan Way Viaduct and ships docked along the water front.

Within the Seattle area, PSCAA has suggested exhaust from diesel engines is the most significant source of particulate matter, and toxic pollution more generally. In residential areas, the most significant contributor is wood stoves and fireplaces. The PSCAA believes that the most effective pollutant reduction strategy in the downtown area would be focused on diesel particulate matter from vehicles and cruise ships.

While we don't have Seattle-specific data on the sources of particulate emissions, the graphs below illustrate sources of particulate matter emissions in the Puget Sound region. Wood smoke from heating is the dominant emissions source in winter months, and mobile sources (including vehicles and ships) and outdoor fires serve as the prime sources of emissions in summer months. Industry sources produce a minority of emissions year round.



Source: Puget Sound Clean Air Agency