

## MEMORANDUM

**TO:** Air Quality Board

**THROUGH:** Bryce C. Bird, Executive Secretary

**THROUGH:** Bo Wood, Rules Coordinator

**FROM:** Ryan Bares, Environmental Scientist

**DATE:** December 7<sup>th</sup>, 2022

**SUBJECT:** PROPOSE FOR PUBLIC COMMENT: New Rules R307-315; NO<sub>x</sub> Emission Controls for Natural Gas-Fired Boilers 2.0-5.0 MMBtu and R307-316; NO<sub>x</sub> Emission Controls for Natural Gas-fired Boilers greater than 5.0 MMBtu.

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On August 3, 2018, the U.S. Environmental Protection Agency (EPA) designated Utah's Northern Wasatch Front (NWF) as a marginal nonattainment area (NAA) for the 2015 National Ambient Air Quality Standard for 8-hour ozone concentrations (83 FR 25776). On October 7th, 2022, EPA finalized the reclassification of the NWF NAA from marginal to moderate status (87 FR 60897) because the area failed to attain the standard by the attainment date. Monitoring data from the NAA from 2021 and 2022 indicate that the area will not attain the standard under the moderate timeline, and will most likely be reclassified to serious nonattainment status in 2024.

As a result of these designations the state of Utah must identify and implement reductions of ozone precursor emissions, including Volatile Organic Compounds (VOCs) and Oxides of Nitrogen (NO<sub>x</sub>), in the designated NAA as part of its State Implementation Plan (SIP) obligations under section 172(c)(2) of the Clean Air Act.

R307-315 and R307-316 will reduce NO<sub>x</sub> emissions from industrial, commercial, and institutional natural gas-fired boilers in Salt Lake, Weber, Davis, Tooele, and Utah counties by requiring that any new boiler, or burner installed on a boiler in these areas be certified to emit no more than 9 parts per million by volume (ppmv) of NO<sub>x</sub> while operating. These rules do not require retrofits or replacements of any existing boilers. These rules will help reduce emissions from boilers within the nonattainment and surrounding areas over time as the existing boiler stock is replaced with compliant boilers. Future emissions will also be curbed as the areas continue to grow by requiring new boiler installations to comply.

On September 9<sup>th</sup>, 2022, UDAQ staff sent out an Advanced Notice of Proposed Rulemaking (ANPR) to a wide array of potentially impacted stakeholders, allowing staff and stakeholders to engage, discuss, and comment on the proposed rules. At the request of multiple impacted industry stakeholders, staff extended the deadline for ANPR from October 3<sup>rd</sup> to October 13<sup>th</sup>, allowing additional time for feedback. Throughout the ANPR period, staff engaged in multiple substantive conversations to fully understand the impacts of the proposed rules and also received several sets of comments from stakeholders during this period. Staff has worked to address the remarks received during these meetings and in the submitted comments, which are reflected in the proposed language of R307-315 and R307-316.

Staff also conducted an emission estimate and a Best Available Control Technology (BACT) cost analysis for both of the proposed rules. For R307-315, staff identified 2,026 boilers in the 2.0 – 5.0 MMBtu range, which combine to produce an estimated 1,936 tons per year (tpy) of NO<sub>x</sub> emissions. Staff estimates that, once fully implemented, the adoption of R307-315 would result in a reduction of 1,727 tpy of these emissions, representing an 89.2% reduction of current emissions. Staff further concluded that the cost to adopt a 9 ppmv emission standard for this range of boiler would generally cost between \$2,567 and \$7,208 per ton of NO<sub>x</sub> reduced. Staff determined that the emission reductions proposed in R307-315 are economically feasible.

For R307-316, staff identified 620 natural gas-fired boilers with a design value greater than 5.0 MMBtu. These boilers produce an estimated 1,791 tpy of NO<sub>x</sub> emissions, of which an estimated 1,298 tpy could be reduced over time with the adoption of a 9 ppmv standard. This represents a 73.0% reduction in emissions with the adoption of R307-316. Staff also found the cost of implementing the standard proposed in R307-316 as economically feasible with the BACT cost ranging between \$575 and \$5,221 per ton of NO<sub>x</sub> reduced. However, staff recognizes that within this large range of boilers, there is a substantial array of applications within industry, and that there will be instances where it may not be either technologically or financially feasible to meet this this emission standard. As a result, R307-316 includes an alternative method of control in which a source may submit to the director for approval, a demonstration showing why the standard cannot be met and a proposed alternative best achievable level of control.

Utah has the fastest growing population in the nation, and these rules will limit future emissions associated with this sector. NO<sub>x</sub> emissions are a primary precursor to the formation of ozone as well as secondary fine particulate matter (PM<sub>2.5</sub>) which continues to be problematic in Utah during wintertime. The implementation of these rules will benefit public health year-round.

**Recommendation:** Staff recommends the Board approve Rules R307-315; NO<sub>x</sub> Emission Controls for Natural Gas-Fired Boilers 2.0-5.0 MMBtu and R307-316; NO<sub>x</sub> Emission Controls for Natural Gas-fired Boilers greater than 5.0 MMBtu, for a 30-day public comment period.