**R307. Environmental Quality, Air Quality.**
**R307-315. $NO_x$ Emission Controls for Natural Gas-Fired Boilers 2.0-5.0 MMBtu.**
**R307-315-1. Purpose.**

Rule R307-315 establishes maximum emission thresholds for the emissions of oxides of nitrogen ($NO_x$) for new or modified natural gas-fired boilers with a total rated heat input of at least 2.0 million British Thermal Units per hour (MMBtu/hr) and not more than 5.0 MMBtu/hr.

**R307-315-2. Applicability.**

(1) Rule R307-315 applies to each boiler that begins construction or modification after the compliance date defined in Section R307-315-6 that:

(a) is fueled by natural gas;
(b) has a total rated heat input greater than 2.0 MMBtu/hr and not more than 5.0 MMBtu/hr;
(c) is an industrial boiler, institutional boiler, or commercial boiler;
(d) is located in Salt Lake, Utah, Davis, Weber, or Tooele County; and
(e) is not a temporary boiler.

(2) Exemptions to this rule include:

(a) residential boilers as defined in this rule;
(b) CO boilers as defined in this rule;
(c) waste heat boilers as defined by this rule; and
(d) process heat boilers as defined by this rule.

**R307-315-3. Definitions.**

As used in this rule:

"Boiler" means an enclosed device using controlled flame combustion of natural gas, as defined by this rule, in which water is heated to recover thermal energy in the form of steam or hot water. Controlled flame combustion refers to a steady-state, or near steady-state, process wherein fuel or oxidizer feed rates are controlled.

"Burner" means the functional component of a boiler that provides the heat input by combustion of a fossil fuel, with air or oxygen. Burners are available either as part of the boiler package from the manufacturer, as stand-alone products for custom installations, or as replacement products.

“CO boiler” means a boiler that is fired with gaseous fuel with an integral waste heat recovery system used to oxidize CO-rich waste gases generated by a Fluid Catalytic Cracking Unit.

“Commercial boiler” means a boiler used in commercial establishments such as hotels, restaurants, and laundries to provide electricity, steam, or hot water.

"Construction" means any physical change or change in the method of operation including fabrication, erection, installation, demolition, or modification of a source which would result in a change in actual emissions.

“Industrial boiler” means a boiler used in manufacturing, processing, mining, and refining or any other industry to provide steam, hot water, or electricity.

“Institutional boiler” means a boiler used in institutional establishments such as medical centers, nursing homes, research centers, institutions of higher education, elementary and secondary schools, libraries, religious establishments, and governmental buildings to provide electricity, steam, or hot water.

"Modification" means any planned change in a source which results in a potential increase of emission.

"Natural gas" means:

(1) a mixture of gaseous hydrocarbons, with at least 80% methane by volume, and of pipeline quality, such as the gas sold or distributed by any utility company regulated by the Utah Division of Public Utilities;

(2) liquefied petroleum gas, as defined by the American Society for Testing and Materials in ASTM D1835, or propane, propane-derived synthetic natural gas, or mixtures thereof; or

(3) propane or propane-derived synthetic natural gas.

“Process Heater” means an enclosed device using controlled flame, and the unit's primary purpose is to transfer heat indirectly to a process material such as liquid, gas, or solid, or to a heat transfer material such as glycol or a mixture of glycol and water, for use in a process unit, instead of generating steam. Process heaters are devices in which the combustion gases do not come into direct contact with process materials. Process heaters include units that heat water and water mixtures for pool heating, sidewalk heating, cooling tower water heating, power washing, or oil heating.

“Propane” means a colorless gas derived from petroleum and natural gas, with the molecular structure C3H8.

“Residential boiler” means a boiler used to provide heat or hot water or as part of a residential combined heat and power system. This definition includes boilers located at an institutional facility such as a university campus, military base, church grounds, or a commercial, or industrial, such as a farm, used primarily to provide heat or hot water for:

(1) a dwelling containing four or fewer families; or

(2) a single unit residence dwelling that has since been converted or sub-divided into condominiums or apartments.

"Temporary boiler" means any gaseous or liquid fuel-fired steam generating unit that is designed to, and is capable of, being carried or moved from one location to another by wheels, skids, carrying handles, dollies, trailers, or platforms. A steam generating unit is not a temporary boiler if any one of the following conditions exists:

(1) the equipment is attached to a foundation;

(2) the steam generating unit or a replacement remains at a location for more than 180 consecutive days and any temporary boiler that replaces a temporary boiler at a location and performs the same or similar function shall be included in calculating the consecutive time period;

(3) the equipment is located at a seasonal facility and operates during the full annual operating period of the seasonal facility, remains at the facility for at least two years, and operates at that facility for at least three months each year; or

(4) the equipment is moved from one location to another in an attempt to circumvent the residence time requirements of this definition.

“Waste heat boiler” means a device that recovers normally unused energy such as hot exhaust gas and converts it to usable heat. Waste heat boilers are also referred to as heat recovery steam generators. Waste heat boilers are heat exchangers generating steam from incoming hot exhaust gas from an industrial or power equipment such as thermal oxidizers, kilns, furnaces, combustion turbines, and engines. Duct burners are sometimes used to increase the temperature of the incoming hot exhaust gas.

**R307-315-4. Requirements.**

(1) A person that:

(a) begins construction, or modification of a boiler;

(b) replaces a burner in a boiler; or

(c) replaces 50% or more of the burners in a multi-burner boiler for a boiler meeting the requirements of Section R307-315-2 shall install a burner that is certified to meet a $NO_x$ emission rate of nine parts per million by volume (ppmv) or less at 3% volume stack gas oxygen on a dry basis.

(2) An owner or operator of a boiler subject to Subsection R307-315-4(1) shall:

(a) operate and maintain the boiler and boiler subsystems, including burners, according to the manufacturer's instructions;

(b) determine continued compliance based on Section R307-315-6; and

(c) meet the applicable recordkeeping requirements for any control device.

**R307-315-5. Recordkeeping.**

(1) The owner or operator of any boiler subject to Rule R307-315 shall:

(a) retain documentation of the unit's emission rate specifications;

(b) retain a copy of the manufacturer's recommendations for proper operation and maintenance of units

covered by Rule R307-315; and

(c) maintain records showing proper operation and maintenance of units covered by Rule R307-315 following manufacturer's recommendations.

(2) Operation and maintenance records shall be retained for five years and shall be made available to the director upon request.

**R307-315-6. Compliance Schedule.**

(1) Compliance with the $NO_x$ emission requirement listed in Subsection R307-315-4(2) shall be determined according to the following procedures:

(a) U.S. EPA Reference Method 7E, Determination of Nitrogen Oxides Emissions from Stationary Sources;

(b) other EPA-approved testing methods acceptable to the Director; or

(c) combustion analysis as part of a regular maintenance schedule.

(2) Compliance Determination shall be conducted once every five years.

(3) The compliance schedule for this rule shall begin on May 1, 2024.

**KEY: air pollution, boiler, $NO_x$, nitrogen oxides**
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