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**GENERAL PERMIT TO INSTALL FOR  
A NATURAL GAS-FIRED BURNOFF OVEN**

**BACKGROUND**

On July 23, 2003, the Michigan Department of Environment, Great Lakes, and Energy (EGLE), Air Quality Division (AQD), issued a general permit to install for batch type natural gas-fired burnoff ovens. This general permit, issued pursuant to R 336.1201a promulgated pursuant to Part 55, Air Pollution Control, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (Rule 201a), provides a streamlined permitting alternative for affected facilities which meet the specified applicability criteria and allows facilities more operational flexibility. Prior to approval, EGLE held a 30-day public comment period to receive comments on the proposed permit. A public hearing was not requested and no written comments were received during the comment period.

**EMISSIONS**

Batch type burnoff ovens are used to remove cured paints, oil or grease from metal parts such as part hangers or engines by thermal decomposition of the paints, oil or grease. The applicability criteria specify the types of parts and materials which may not be processed in the ovens. The burnoff oven must be equipped with a secondary chamber or afterburner to meet the requirements of this general permit.

A natural gas-fired burnoff oven is a highly specialized oven that operates at 600 to 800°F. The heat in the furnace thermally decomposes the organic residues in the cured coating, oil or grease to smoke and volatile gases. The smoke and gases are then drawn into the secondary chamber or afterburner where they are completely burned at 1400 to 1600°F for effective pollution control. The gases discharged to the atmosphere consist primarily of water vapor and carbon dioxide. Proper operating temperatures and retention times reduce the amount of smoke and odors emitted to the atmosphere. Inorganic materials such as pigments are unaffected by the heat of the burnoff oven and remain in the furnace predominantly as ash.

Emissions from the burning of fuel and products of incomplete combustion will also be generated by the burnoff oven. However, a natural gas-fired burnoff oven proposed for coverage under this general permit to install would generally have a total heat input (primary and secondary chamber/afterburner combined) of not more than one million Btu per hour. Various natural gas-fired combustion sources of this size are exempt from the requirement to obtain a permit to install when combustion is the only expected source of emissions (i.e., boilers, certain heat treatment furnaces, etc.). These exemptions are based on a determination that the hourly and annual emissions of all criteria pollutants, toxic air contaminants (TACs), metals, and hazardous air pollutants (HAPs) from these sources are insignificant considering established emission factors for natural gas combustion as developed by the United States Environmental Protection Agency.

## **AMBIENT AIR IMPACTS**

Operation of a batch-type burnoff oven under the terms and conditions of the general permit to install will have minimal impact on the ambient air. Data from actual burnoff oven stack tests was reviewed and evaluated, together with coating formulation data, to estimate emissions of typical contaminants found in coatings likely to be removed from parts in a burnoff oven. Dispersion modeling of a burnoff oven, equipped with an exhaust stack of at least one and one half times the height of the building and an unobstructed vertical discharge, showed the impacts of toxic air contaminants will meet all applicable screening levels per the requirements of Rule 225. In addition, the impacts of all federally regulated criteria pollutants meet the National Ambient Air Quality Standards (NAAQS) under the specified exhaust stack requirements.

There are no state rules which apply to natural gas combustion sources such as batch-type burnoff ovens with emissions less than the significance levels. Experience has shown no impact upon the NAAQS during the 20 year period in which Michigan permitted natural gas boilers with capacities of 50 MMBtu/hr or less.

## **REVISIONS**

The AQD may revise or update a general permit to install for various reasons, including administrative changes (i.e., addresses, contacts, formatting), clarifying instructions or permit language, or correcting an underlying applicable requirement. These types of minor changes are made without a comment period because they do not affect the applicability criteria or the special conditions of the general permit.

The general permit for natural gas-fired burnoff ovens has been revised and/or updated as follows:

- December 2010 - clarified stack height requirement (from ground level to point of discharge), revised format of Special Conditions and updated General Information and Process Information forms (EQP5727 and EQP5784).
- June 2017 – made minor administrative changes to Background document.

If a change or revision will affect the applicability criteria or special conditions of the general permit, EGLE will hold a public comment period to receive comments on the proposed changes. If the applicability criteria or special conditions become less stringent as a result of the change (e.g., a setback requirement relaxed from 1000 feet to 500 feet; a reporting requirement reduced from daily to monthly), sources operating under an existing general permit will be notified of the change and allowed to operate under the revised criteria, which can be downloaded from the internet. A source operating under an existing general permit to install will not be required to meet the new requirements if the applicability criteria or special conditions become more stringent as a result of the change.

The most recent version of the general permit is available on the [AQD General Permit to Install web site](#). All changes to the general permit are summarized in the Background document.