

# Municipal Waste Incineration

Anyone operating an incinerator in Saskatchewan, including a municipal waste incinerator, is required to submit an Environmental Protection Plan (EPP) for ministry review and approval. An incinerator is any equipment, apparatus, device, mechanism or structure for reducing material to ashes. It is designed to incinerate garbage, wood waste, refuse, liquid or gaseous waste, or any other non-toxic or toxic waste materials and is capable of controlling the combustion temperature, the degree of gaseous mixing and the length of time that combustion gases reside in the incinerator. Pursuant to 51(e) of *The Environmental Management and Protection Act 2010* (EMPA), sections 1-7 of the Industrial Source (Air Quality) chapter of the Saskatchewan Environmental Code (Code), indicate that an incinerator is an industrial source.

## Environmental Protection Plan to Operate a Municipal Waste Incinerator

Authorization to operate a municipal waste incinerator requires:

1. **Proponent Self-Assessment:** A preliminary assessment of the expected impacts of the proposed project on the environment and their relative significance to identify whether a project is likely to be a 'development' under Environmental Assessment and requires approval of the Minister of Environment. Proponents complete the [Environmental Assessment online Self-Assessment](#).
2. **Air Quality Standards and Testing:** In addition to meeting the Saskatchewan Ambient Air Quality Standards, incinerators need to meet the [Canada-wide Standard for dioxins and furans](#). Operators should provide stack test data (emission data) to the ministry prior to the purchase of an incinerator. The frequency of testing will be determined by the submitted and approved EPP. The dioxin and furan emission limits for incinerators of any size and for all uses (municipal waste, medical waste, hazardous waste, sewage sludge) is 80 pg I-TEQ/Rm<sup>3</sup> at 11% O<sub>2</sub> (picograms of toxicity equivalents per reference cubic metre corrected to 11 per cent oxygen) while the mercury emission limit is 20 µg/Rm<sup>3</sup> at 11% O<sub>2</sub> (micrograms per reference cubic metre corrected to 11 per cent oxygen). Other parameters to stack test for are outlined below.
  - Particulate matter (filterable)
  - Condensable particulate matter
  - Sulphur dioxide
  - Nitrogen oxides (NO, NO<sub>2</sub>, NOx)
  - Hydrogen chloride
  - Metals including arsenic, cadmium, chromium, lead
  - Carbon monoxide
  - Velocity, volumetric flow rate, moisture and molecular weight of organic and non-organic compounds
3. **Residual Ash Testing:** The [USEPA Test Method 1311, Toxicity Characteristic Leaching Procedure – TCLP](#) provides guidance to determine if ash is safe to dispose of in a municipal landfill. This method analyzes residuals and is designed to simulate the process a material would be subjected to if placed in a landfill. Ash testing could occur during each stack testing. Following the TCLP analyses, the ash should be tested for metals, mercury and organics.
4. **Environmental Protection Plan:** Under Industrial Source (Air Quality) Chapter of the Code, persons operating any type of incinerator are required to submit an EPP certified by a [Qualified Person \(QP\)](#). EMPA defines an EPP as a conceptual plan that details the methods to be employed to prevent, minimize, monitor, mitigate, remedy or reclaim an adverse effect before, during or after any activity. It is a plan that spells out the overall environmental management of an industrial source. Use of best available pollution prevention and control techniques will be outlined in the EPP. It is up to a QP to design an EPP to ensure the industrial sources do not create adverse effects on the environment. EPPs could include but are not limited to:
  - air dispersion modeling plans
  - stack testing surveys
  - continuous emission monitoring systems
  - air quality monitoring and reporting systems
  - engineering details of air pollution control systems
  - a plan of how to minimize fugitive emissions (leak detection and repair) from wastewater treatment systems, storage tank farms, storage piles, ash or tailings management facilities, unpaved roads or dykes and reclamation areas and train or truck loading facilities

- air monitoring equipment calibration logs including quality assurance and quality control (QA/QC) procedures and audit results
- operation details of flare and incineration systems
- emissions inventory reporting
- an assessment of possible air contaminant reductions proposed fugitive emissions surveys
- recent or proposed engineering studies related to air quality
- engagement with local residents, municipalities and other key stakeholders
- membership in an air management zone, if one exists
- air quality related log books
- environmental emergency contingency plan
- other applicable air quality management information

## Why Follow Canada-wide Standards?

**General accountability:** Under EMPA, the results-based regulatory framework focuses on required environmental outcomes, emphasizes best practices, and encourages innovation by making operators accountable to find the best way to achieve or exceed the required outcomes. Saskatchewan's overall approach to management of dioxins and furans and mercury emissions from waste incineration facilities will be to endorse the Canada-wide Standard as accepted standards pursuant to EMPA. Therefore, an EPP can demonstrate compliance of standards through best practices. If the construction of a waste

incineration facility is such that it would be considered to be a "development", during the project development and assessment stage, management of emissions will be introduced through the processes associated with *The Environmental Assessment Act (EAA)*. These provisions will apply for municipal waste incineration, medical waste incineration, hazardous waste incineration and sewage sludge incineration as defined within the Canada-wide Standard. There are currently no dedicated municipal, hazardous or sludge incinerators in Saskatchewan. Since all waste incinerators, including the 12 existing medical waste facilities, are to be operated with a relatively small loading of less than 26 tonnes per year for dioxins and furans and less than 120 tonnes per year for mercury emissions, EPPs will provide for choice of pollution control upgrading and stack testing or "determined efforts" including diversion planning and waste audits.

### Public role and access to

**information:** Under sections 11, 12 and 13 of the EAA, the public may inspect environmental impact statements, submit written comments and attend public meetings regarding new projects classified as "developments" that may include large municipal, medical or hazardous waste incinerators. Public feedback is obtained through these means during the assessment phase for waste incineration facilities. Public meetings may be held as appropriate to afford local stakeholders the

opportunity to have input to the assessment process. In this way, the public will have the ability to ensure that the Canada-wide Standard will be met at any facility. Once operational, information on emissions may be obtained through direct request to the ministry or through The Freedom of Information and Protection of Privacy Act (FOIP). There is no pre-defined public role in the implementation of environmental standards for existing waste incineration facilities in Saskatchewan. However, information on facility performance and emissions from existing waste incinerators or measures taken to control emissions may be obtained through direct request to the ministry or through FOIP.

## Technology Selection Guidance

Environment Canada provides additional guidance on the selection of appropriate incineration technologies and best practices. The following steps are recommended: [\(more details here\)](#).

1. Understand your waste stream
2. Select the appropriate incinerator (or evaluate the existing system)
3. Properly equip and install the incinerator
4. Operate the incinerator for optimum combustion
5. Safely handle and dispose of incinerator residues
6. Maintain records and report

## More info?

Contact the Saskatchewan Ministry of Environment  
Client Service Office at  
Tel: 1-800-567-4224 (toll-free in North America)  
or 306-787-2584.  
Email: [centre.inquiry@gov.sk.ca](mailto:centre.inquiry@gov.sk.ca)