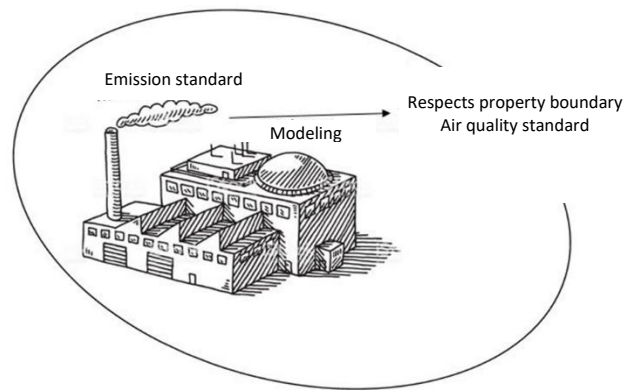


1. What is the difference between an emission standard and an air quality standard?

The Ministère de l'Environnement et de Lutte contre les changements climatiques uses two types of standards to protect the environment by limiting the release of contaminants into the air.

Emission standards: These are limit values, expressed in terms of the mass of a contaminant emitted per quantity of material produced or by a given concentration at a source, such as a stack. The standards ensure that the best available technology is used at the point of emission.

Air quality standards: These are limit values applicable to the ambient air outside of property boundaries and industrial sectors. The standards make it possible to take cumulative impact and the characteristics of the receiving environment into account as well.



2. What does “atmospheric dispersion of contaminants” mean?

The atmospheric dispersion of emitted contaminants depends on various factors, such as the type of source, local weather, topography, and downwash effects. **Natural dilution of concentrations** takes place in the atmosphere and, as such, concentrations vary widely in space and time. Generally speaking, ambient air concentration **decreases rapidly** with distance from the source of emission.

Air quality compliance checking is performed by means of **complex models** that simulate concentrations in a defined area and time scale, or by ambient air measurements taken at stations accredited by the Ministère.

3. What do the results of atmospheric dispersion models look like and how are they interpreted?

Atmospheric dispersion models are used to calculate the **expected ambient air concentrations** around an emission source by considering the characteristics of the source and the area where the source is located, as well as locally observed weather conditions. The dispersion models used by the MELCC display the results of the simulations in map form. Similar to what is used in topography, the lines on these maps show predicted concentration values for a given contaminant.

As an example, the **blue area** on the map on the following page shows that concentrations of the contaminant (in this case arsenic) fall between 1 and 3 ng/m³ and that a **concentration gradient exists** between the lines.

The **white zone** corresponds to the application boundary for ambient air standards, i.e. the company's property line and zoned industrial area.

On the map, **pink dots** show the locations of the Horne Smelter ambient air monitoring stations. Modeling result maps may also use blue circles and red diamonds, respectively representing diffuse and channelled sources of emissions.

Figure 1: Annual arsenic concentrations at the end of Phase II, from BBA (August 29, 2022). Atmospheric Dispersion Modeling, Glencore Horne Smelter Technical Report, Expected Impact on Atmospheric Air Quality in the New Action Plan—Phase I and Phase II. No. 5040189-030001-4E0001/R00, 16 pages and 5 appendices

