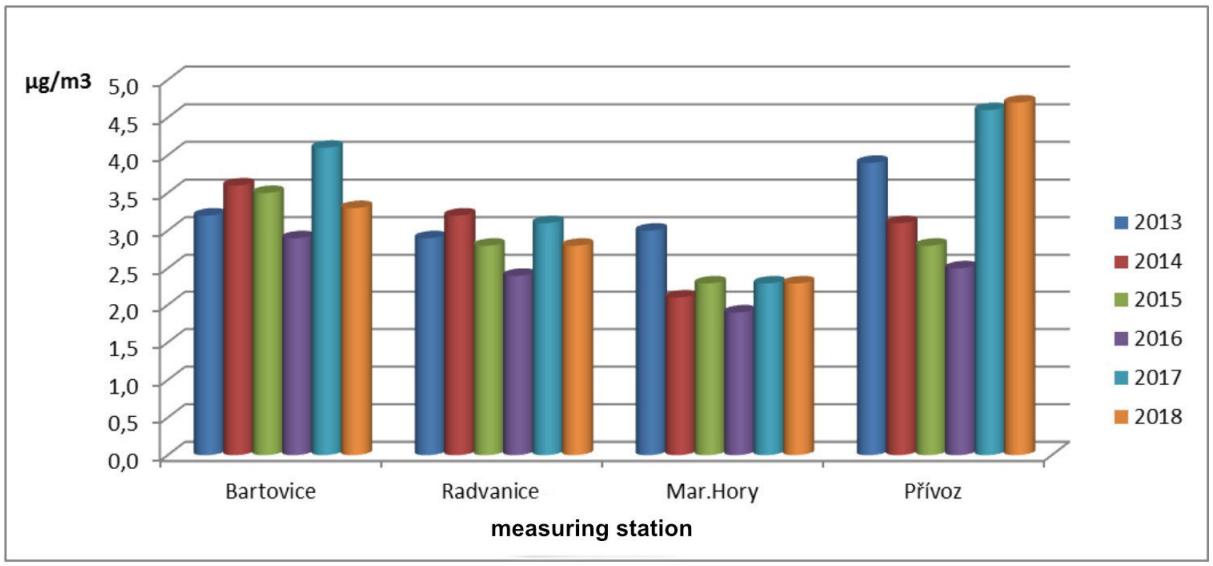
What powers do hygienists have in air protection?

The Regional Public Health Authority of Moravian-Silesian Region (RPHA) obtains information on the state of the air from publicly available data and sources, which are mainly Czech Hydrometeorological Institute (CHMI), Public Health Institute Ostrava (PHI) and The National Institute of Public Health (NIPH), but also from various seminars and conferences. RPHA further processes and transmits its knowledge to the professional and general public, for example in the form of a communication on its own website.

The preventive approach to improving air quality can be applied in the EIA process by giving an official opinion. For example, in 2018, 59 projects were submitted to RPHA at the stage of the screening or documentation. The assessment of health risks, including air, plays an important role in the overall assessment of the project, based on dispersion studies. Such assessment may only be carried out by authorized persons and it is the responsibility of RPHA staff to verify, based on local knowledge, that the input data corresponds to the real situation in the site.

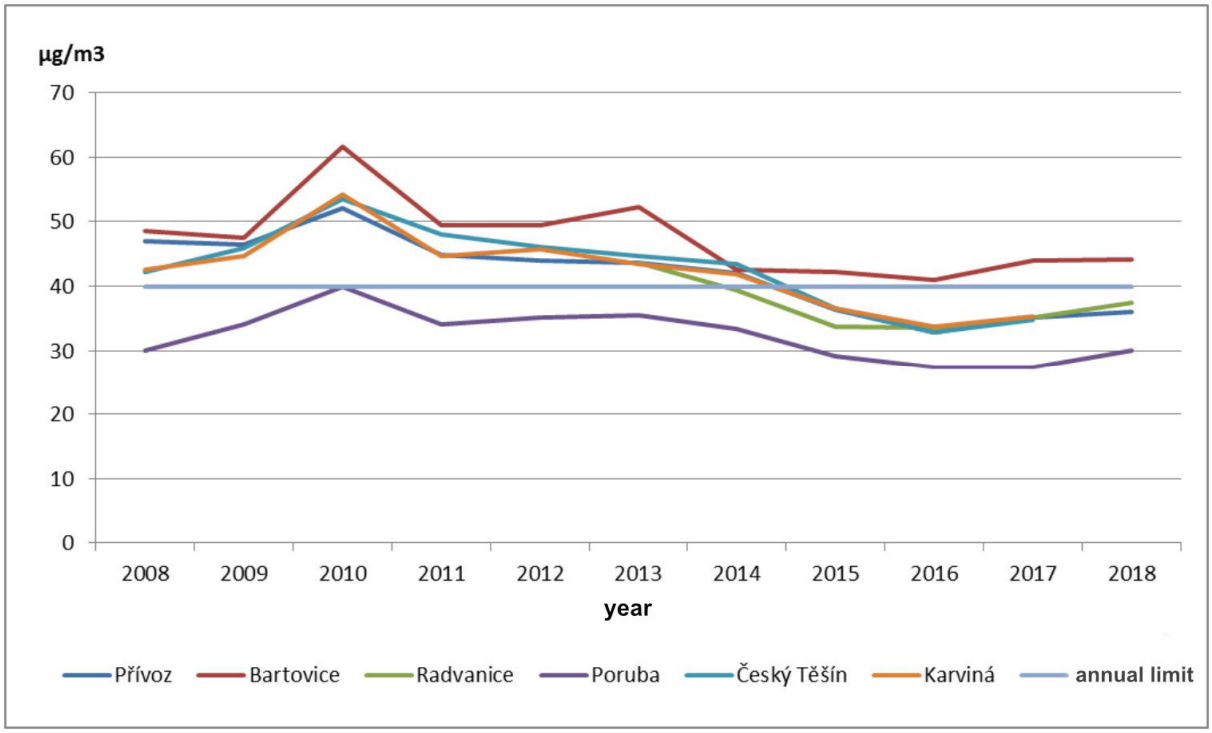
As an example of the project, where the main criterion of the assessment was just influencing the immission situation, the 2018 project “Modernization of TKV” for the expansion of the Karviná Heating Plant with the simultaneous shutdown of the ČSA Heating Plant can be mentioned. The dispersion study was conducted for a wide range of pollutants produced in heat production. According to the individual pollutants, the change in health risk from their immission effects was assessed, which was evaluated as insignificant, with the assumption of maintaining the current level of health risk. Such a conclusion was the basis for a favourable opinion on the project and at the same time the conditions for the next phases of assessment were set.

Annual benzene concentration, Ostrava, 2013 - 2018, (Source: PHI and CHMI)



Another example of increased interest and the need for close cooperation with the public authorities responsible for air protection were situations related to the rehabilitation of Ostramo lagoons. Part of the preparatory work for the rehabilitation of the lagoons included a thorough environmental impact assessment, where the authorized official carried out a health risk assessment concluding that citizens could be disturbed by odors, but serious health impacts were not foreseen. However, during the realization of the work, there were conditions that could not be predicted and were associated with higher development of irritating sulfur dioxide. Although the monitoring system responded to increased concentrations by subsequent work stoppages, the smells persisted with some time lag and citizens in different parts of Ostrava were burdened with an annoying odor of petroleum or oil character. In connection with these situations, RPHA asked citizens to visit their attending physician in case of health problems they would experience as a result of a significant lagoon odor. The effects of elevated sulfur dioxide concentrations have had a short-term effect on asthmatics who had to increase the use of medication and look for other environments. RPHA participated in the review of the integrated permit issued by the Regional Authority of the Moravian-Silesian Region, which set binding conditions of operation including its monitoring or conditions for interruption of work and commented on other proposed measures to reduce the production of odorous substances and thus health risks.

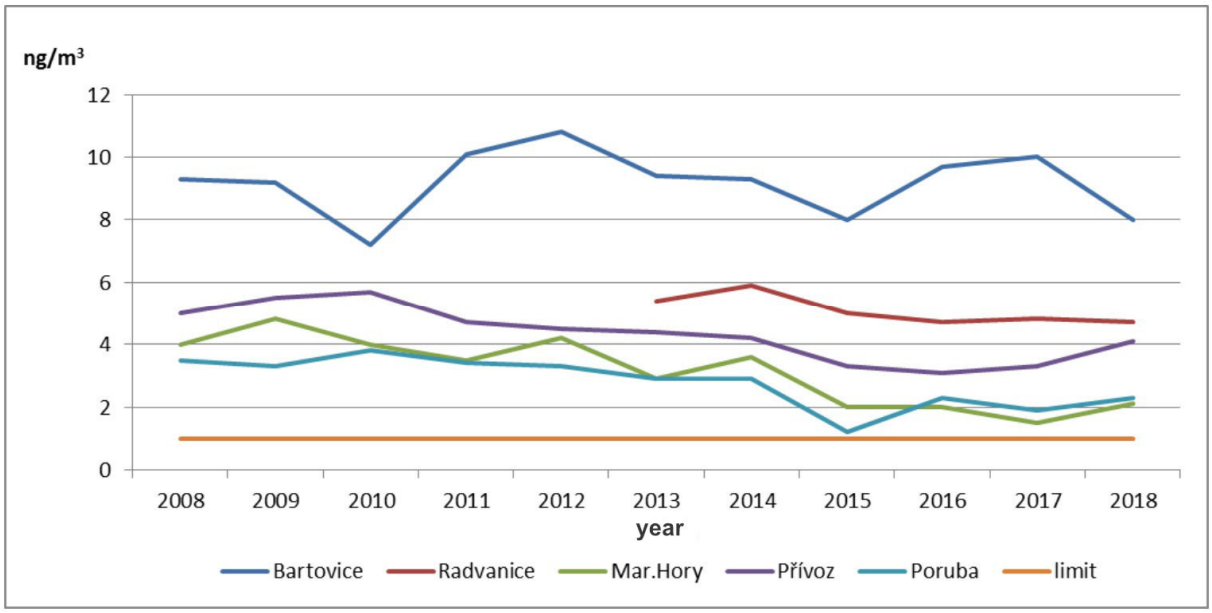
Trend of PM_{10} development, MS Region, 2008 - 2018, (Source: PHI and CHMI)



Monitoring and decision-making is based on the monitoring of trends in health-relevant pollutants, of which dust particles, benzo(a)pyrene and benzene are the most important in our region. The local occurrence of benzene, which is related to the Ostrava - Přívoz area, has been below the annual limit value of 5 µg/m^3 since 2013, for the other two mentioned pollutants the unfavorable situation persists.

The concentration of dust particles is significantly influenced by the course of the heating season, the occurrence of smog situations and the meteorological situation. Measures to improve air quality, both on large industrial sources and in household heating, are also evident. This is in line with the favorable trend in the assessment of average annual PM_{10} concentrations. Based on a comparison of selected air pollution monitoring stations, the annual limit of 40 µg/m^3 at the station Bartovice (Nad Obcí Street) is still not observed. The Radvanice (OZO) station, distant from it approximately 1.3 km north, which was included in the monitoring network in 2013, already demonstrates compliance with the limit set by Act No. 201/2012 Coll., On air protection. However, this situation is still unfavorable in relation to the annual average concentration of PM_{10} of 20 µg/m^3 recommended by the World Health Organization.

Trend of benzo(a)pyrene concentration, MS Region, 2008 - 2018, (Source: PHI and CHMI)



Benzo(a)pyrene as a proven human carcinogen with an established annual limit of 1 ng/m^3 (concentration corresponding to the recommended level to ensure an acceptable level of health risk of 1.10-6) has long been a serious problem in the atmosphere of the Moravian-Silesian Region. None of the 12 measuring stations at which it is measured in our region has yet been exceeded. The worst situation is around Bartovice Station (Nad Obcí Street). The slightly decreasing trend from 2008 to 2018 is very gradual, therefore the maximum of activities that may be its source should lead to its further decrease.

Sources:

Public Health Institute Ostrava: http://zuova.eu/

Czech Hydrometeorological Institute: http://portal.chmi.cz/?l=en