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**Air Quality from Early Pittsburgh to the Present: The Science of Change**

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Throughout Pittsburgh's history over the past 250 years, coal reserves in the city and nearby have influenced its economy, demographics, and environmental quality. They have also played a major role in determining air quality in the region. For example, Pittsburgh became famous for its high particle loadings as early as the beginning of the nineteenth century, when the first complaints about air quality in the city were recorded. Nevertheless, residents tolerated the high coal smoke levels since jobs depended on the iron works, steel mills, and other industries. When natural gas was discovered just east of the city in the 1870's and replaced coal for some applications, particle concentrations decreased. But the local supplies of natural gas ran short several years later, and as industry continued to expand in the 1890's the city went back to the use of coal as its primary fuel. The return to smoky air was met with resistance that marked the beginning of sustained public outcry and initiation of several air pollution studies. The next half century was marked by periods of occasional high and low concentration, the latter due to events such as the financial panic of 1907 and the depression of the 1930's. It was not until the 1940's that effective regulations were passed to reduce smoky conditions. Particle levels fell throughout the 1950's and 1960's, and eventually the decline of heavy industry in Pittsburgh led to relatively clean air in many parts of the city. Over the past few decades, airborne particle concentrations averaged across the Pittsburgh region have remained below their earlier levels. However, there are still "hot spots" of high concentration resulting from regional background coming from upwind areas and emissions of some large sources that have continued to operate in the Pittsburgh region. Furthermore, the composition of airborne particles in the city has changed from earlier times. Such particles are now the result of emissions from sources in upwind states, greater numbers of mobile sources, and the influence of control technologies that remove certain classes of pollutants but not others.