



## Norilsk, Russia

**Pollutant:** Copper, nickel oxide, other heavy metals

**Population Affected:** 135,000

Norilsk is an industrial city founded in 1935. Mining and smelting operations began in the 1930s and Norilsk contained the world's largest heavy metals smelting complex as recently as the early 2000s. Nearly 500 tons each of copper and nickel oxides and 2 million tons of sulfur dioxide are released annually into the air.<sup>1</sup> Life expectancy for factory workers in Norilsk is 10 years below the Russian average.

While the exact number of people potentially affected by pollution in Norilsk is unknown, it's estimated that over 130,000 local residents are being exposed to particulates, sulfur dioxide, heavy metals, and phenols each day from air pollution.<sup>2</sup> Past studies have found elevated copper and nickel concentrations in soil nearly everywhere within a 60km radius of the city. This has led to increased levels of respiratory diseases, and cancers of the lungs and digestive system. Children are especially vulnerable, and become ill one and a half times more frequently than children from surrounding districts.<sup>3</sup> While investments have recently been aimed at reducing environmental emissions, the surrounding area remains seriously contaminated.

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<sup>1</sup> EPA, 2007. Available at:

<http://www.epa.gov/wed/pages/publications/abstracts/archive2003/allen-gil03.htm>

<sup>2</sup> Norilsk Nickel Wrestles with an Old Polluter, 2010. Available at:

<http://www.tandfonline.com/doi/abs/10.1080/00139157.1996.9930998?journalCode=venv20#.UnLMZ-DPY-d>

<sup>3</sup> Geocurrents: Pollution Problems in Norilsk, 2012. Available at:

<http://www.geocurrents.info/place/russia-ukraine-and-caucasus/siberia/pollution-problems-in-norilsk>