

New research shows smelting emissions are escaping regulation in Australia

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The ineffectiveness of regulatory authorities and inconsistencies in pollution licensing of Australia's lead smelting towns of Mount Isa and Port Pirie are examined in detail in a new article published this week in *Aeolian Research*.

In the article, Macquarie University environmental scientists show how

the license arrangements for the mining and smelting operations in these cities permit massive emissions of the toxic pollutants arsenic, cadmium, lead and [sulfur dioxide](#).

In Port Pirie the national standard for [sulfur dioxide emissions](#) (1 hour) was exceeded 50 times in 2012, and recent 24 hour maximum lead-, arsenic- and cadmium-in-air levels were 45, 42 and 36 times above recommended annual levels for air quality.

At Mount Isa, the national 1 hour standard for sulfur dioxide emissions was exceeded 49 times in 2012 and recent 24 hour maximum lead-, arsenic- and cadmium-in-air levels were 25, 495 and 36 times above recommended annual levels for air quality.

"These emissions escape regulation because of special pollution arrangements in Mount Isa, which permit exceedences until the end of 2016, and because the pollution measures are based on an annual average value, they do not reflect massive short-term events," says lead researcher Professor Mark Taylor.

In the case of Port Pirie, air concentration emissions of arsenic, cadmium and sulfur dioxide at Port Pirie are not included in the license arrangements for the smelter and therefore cannot be enforced. With respect to lead-in-air, the atmospheric pollution measures are based only on an annual average like Mount Isa, and as a result, do not capture the massive short-term emissions.

"In essence," says Taylor, "the companies running the smelting operations in these cities have been granted a license to pollute, which would not be acceptable elsewhere in the state."

The data shows that not only are the emissions related to elevated [blood lead](#) levels, but that respiratory health in each of these towns is

significantly worse than elsewhere in the state. For example, 2007/2008 records show that the Port Pirie City district area had hospital separations for respiratory illness at a rate of 3774 per 100,000 population, compared with 2036 per 100,000 population for the remainder of South Australia. At Mount Isa, hospitalization rates (n = 109) were significantly higher (80%) compared to the rest of Queensland, and asthma mortality rates (n = 5) were similarly greater, being 322% higher than the rest of the state.

The human effects of exposure to massive arsenic-in-air and cadmium-in-air concentrations have never been examined in either city, but the preliminary evidence in this study suggests that that the outcomes are highly likely to be adverse.

The study shows clearly that the South Australian Health Department uses the most favourable blood lead statistics, which has the effect of reducing the apparent number of children with a blood lead over the national goal by 5.8 and 13.6% over the period 2006 to 2010.

The air quality index data provided by Queensland Government is also incorrect and very misleading.

Contemporary air quality is compared against 24-hour values for arsenic and lead of 300 ng/m³ and 2.0 µg/m³, as opposed to the Queensland statutory values of 6 ng/m³ and 0.5 µg/m³ for arsenic and lead, respectively, as is suggested on the government website (www.qld.gov.au/environment/pollution/air-quality-index/).

An quality index of 100 represents the maximum pollution goal concentration.

The effect of not using the statutory air quality values can be seen by examining the data for December 21, 2011

([www.ehp.qld.gov.au/air/data/se ... 12&year=2011&hour=07](http://www.ehp.qld.gov.au/air/data/se...12&year=2011&hour=07)). This shows lead in air as 'Good' at 0.784 $\mu\text{g}/\text{m}^3$ and arsenic as fair at 202 ng/m^3 , when in fact proper calculation of the index values show that they would be both poor with index of 156.8 and 3,366 for [lead](#) and arsenic.

On April 25th 2011 the 24-hour arsenic-in-air at 9-10 am was 2973 ng/m^3 , producing an [air quality](#) index of 49,550.

More information: "Licensed to pollute but not to poison: The ineffectiveness of regulatory authorities at protecting public health from atmospheric arsenic, lead and other contaminants resulting from mining and smelting operations." *Aeolian Research* (2014), Mark Patrick Taylor, Peter J. Davies, Louise Jane Kristensen, Janae Lynn Csavina

Provided by Macquarie University

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