Compelling new evidence shows Mount Isa mine emissions are contaminating the city, cause of childhood lead poisoning

June 17 2013

Credit: Professor Mark Taylor

Despite upgrades to technology and ore management techniques, new and compelling research shows that the combined effects of historic and contemporary emissions are the definitive cause of environmental lead contamination in the city of Mount Isa.

The Macquarie University study used powerful lead isotopic fingerprinting techniques to debunk the long-propagated myth that the contamination in the city is due to natural mineralisation from regional geology.

The study, published today in *Environmental Pollution*, identified the sources, pathways and relative risk of environmental lead at Mount Isa via analysis of the concentrations and isotopic compositions of lead in soil, aerosols, dust and rock.

"The data we've generated from this research provides conclusive and unequivocal information for the state's regulatory authorities who are responsible for Mount Isa's environmental remediation and human health protection," says Professor Mark Taylor.

"Xstrata Pty Ltd and Queensland Government agencies have long disputed the industrial source of environmental lead, arguing that the elevated lead in local children comes from natural surface exposures of orebodies. This is fundamentally and scientifically incorrect and this study provides sufficient evidence to bring closure to that distracting debate."

"This research shows the naturally occurring argument is a 'myth' for several reasons:

- Environmental samples of property dust wipes, aerosol particulates and surface soils from within the city area contain lead that is virtually indistinguishable from the Mount Isa lead orebody.
- Sub-surface soils and rocks from the urban area have completely different isotopic signatures to the Mount Isa lead orebody, showing that contamination cannot have come from in situ weathering of bedrock but from atmospheric deposition of

contaminants.

- There is no substantial lead source from natural surface exposures of minerals in Mount Isa's urban area. This new study confirms and consolidates earlier research by Macquarie University that demonstrated mine emissions were the cause of blood poisoning amongst the city's children.

The methods and research design used in this study are of direct relevance to other mining towns in Australia elsewhere in the world, where mining and industrial activities pose a serious risk of harm and the source and cause of contamination is disputed.

"Families in Mount Isa need to be informed of the exposure sources and to make informed choices about their lives and any risks associated with their place of work, recreation or inhabitation. The people of Mount Isa deserve the same protection from air, soil and water contamination as is afforded to the rest of Queensland and Australia" says Professor Taylor.

Professor Taylor's research team has published 17 peer-reviewed papers over the last 8 years, examining lead and other metals around Mt Isa.

More information: Mackay, A. Identification of environmental lead sources and pathways in a mining and smelting town: Mount Isa, Australia, *Environmental Pollution* (2013). envsci.mq.edu.au/staff/mt/2013-mount-isa/

Provided by Macquarie University