

CASE STUDY



Reducing blood lead levels in the children of Port Pirie

The Issue

In February 2006 a major collaborative initiative, the tenby10 project, was launched in the city of Port Pirie, South Australia home of the largest primary lead smelter in the world.

The Port Pirie Smelter, owned and operated by Nyrstar, is an integrated multi-metal smelter and refinery, with flexibility to process a wide range of lead-containing feedstocks to produce refined lead, silver, zinc, copper and gold. It is a major source of employment for the local community and therefore hugely important to the regional economy. However, as part of the production process fine particles of lead dust can be created that if transported off site by emissions, wind or people and vehicle traffic, can negatively impact on the health of the local community.

Lead can enter the body through ingestion or inhalation of lead dust. Children under 5 and people who work in lead-related industries are most at risk of high blood lead levels. High blood lead levels are unhealthy for everyone, however, it is young children who are most vulnerable to the effects lead can have.

Interested parties

This case study is a clear example of the Lead Industry's practical commitment to the Lead Action 21 programme (www.ila-lead.org/21_charter), working towards a sustainable future by employing practical action to improve environmental performance and reduce the health impacts of their operations.

It also demonstrates the power of partnership with multiple stakeholders working together towards a shared goal.

From the end of 2010 the project name and structure changed with the Executive no longer overseeing the project. However Nyrstar continues to drive the project now called "ten for them" which focus is still on delivering environmental improvements on site to reduce emissions and supporting community initiatives to deliver lower blood lead in the cities children.

Prior to the end of 2010 the project was governed by the tenby10 Executive which was made up of senior representatives of the key stakeholder groups: the Port Pirie Regional Council, the Environment Protection Authority, the Department of Health and the Port Pirie Smelter.

The Executive was united in the belief that everyone in the Port Pirie community has a right to expect no adverse health impacts from exposure to lead emitted by the Port Pirie Smelter and was committed to a sustainable and healthy future for both the community and the Smelter.

The Executive agreed that blood lead levels of children in the Port Pirie community are unacceptable and also acknowledges that no one organisation alone can address the problem. The agreed way forward for the tenby10 project was that members would work co-operatively in an integrated whole of government/local government/industry approach with agreed complementary roles all contributing to the achievement of a priority goal.

The Goal

This priority goal was to have at least 95% of children in Port Pirie aged 0 to 4 years of age with a blood lead level of less than 10 micrograms per decilitre ($\mu\text{g}/\text{dL}$) by the end of 2010. A financial commitment of AU\$56M (US\$46M) was made by the Smelter at the outset. Most of this has been targeted at emissions reduction through a combination of specific capital programmes and improved working practices.



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CASE STUDY continued...

The Approach

A working group representing all parties was established to develop an overall strategy and report to the Executive, with individual partners in the group responsible for focusing on particular emission and exposure reduction initiatives.

A clear plan was developed to minimise and measure exposure in the community, especially to children, consult and communicate with the local community and actively involve them in the programme and finally, to ensure best practice monitoring of lead in air emissions and children's blood lead levels.

The implementation of the strategic plan was approached both on site with major capital projects and through behavioural changes as well as in the community via numerous local initiatives. Additional actions on site included such things as using fast growing vegetation to act as a 'dust screen' around the plant, monitoring dust emissions in different weather conditions and even stopping operations in windy conditions, plus the introduction of stringent hygiene policies for employees and contractors. All of this has led to blood lead levels being reduced significantly.

The tenby10 project and now the ten for them project has a comprehensive outreach programme involving all parts of the community, providing guidance and education on minimising exposure to lead. Community members can join a CANdo Group – Community Action Network delivering outcomes –, which works in conjunction with the ten for them project to raise the profile of the project in the community and assist in delivering outcomes.



Transferring lead to the cross floor in the Port Pirie Smelter

Results

The Australian standard for lead in blood in the workplace is 50 $\mu\text{g}/\text{dL}$. All employees and contractors are required to undertake regular blood tests to monitor levels to ensure these standards are met.

Due to efforts at the Port Pirie site, the Smelter is currently experiencing its lowest employee and contractor blood lead levels on record. As of the end of 2008, just 29 out of 785 employees and contractors recorded levels over 30 $\mu\text{g}/\text{dL}$.

Lead in air monitoring has shown consistent reductions and in terms of the project's primary aim, by the end of 2008 the percentage of children under five years old with blood lead levels of under 10 $\mu\text{g}/\text{dL}$ had increased from 43% to 65% – a remarkable achievement since the launch of the project less than two years earlier. Furthermore children's blood lead levels in the community continue to fall with more than 75.6% recording blood lead levels below 10 $\mu\text{g}/\text{dL}$ as at the end of July 2011.

Nyrstar remains committed to the ten for them project and continues to work to reduce emissions from the site and community based blood lead reduction initiatives. For further information visit www.tenforthem.com



Children taking part in the tenby10 project