

# Environmental Health Centre

A division of Hunter New England Population Health

Annual Report 2005 - 06





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# 1 Foreword

This report will be the final report of the Environmental Health Centre.

We have very much appreciated the continuous involvement with the communities of Speers Point, Boolaroo and Argenton and will miss our days at the EHC. However, it provides great satisfaction that our work is now done.

With the closure of the Pasminco Cockle Creek smelter in October 2003 and the encouraging results from the last round of blood lead testing in June 2006, there is no longer a need for the EHC to have a continued presence in the community.

Services previously provided by the EHC have been handed over to other appropriate service providers.

The following summary will help with your enquiries.

<b>Issue</b>	<b>Appropriate Respondent</b>	<b>Phone</b>
<b>Development Issues</b> <ul style="list-style-type: none"><li>▪ building applications</li><li>▪ swimming pools</li><li>▪ driveways</li><li>▪ 149 Certificates</li><li>▪ safe renovations</li><li>▪ applications for soil disposal</li></ul>	<b>Lake Macquarie City Council</b>	<b>4921 0333</b>
<b>General lead and health advice</b>	<b>HNEPH Environmental Health Officers</b>	<b>4924 6477</b>
<b>Specific advice on individual children and pregnant women; Enquiries from GPs</b>	<b>HNEPH Public Health Physician</b>	<b>4924 6477</b>
<b>Soil lead testing and removal</b>	<b>Pasminco</b>	<b>0410 331 845</b>
<b>Vacuum cleaner loan service</b>	<b>Pasminco</b>	<b>0429 440 265</b>
<b>Lead Abatement Strategy (LAS)</b>	<b>Pasminco</b>	<b>0429 440 265</b>

The vacuum cleaner loan service can now be accessed on site at Pasminco. This remains a free service to the residents of Argenton, Boolaroo and Speers Point. Both the domestic and industrial HEPA filter vacuum cleaners can still be borrowed.

Detailed information about the lead issue in the North Lake Macquarie suburbs of Argenton, Boolaroo and Speers Point can be found on the website of Hunter New England Population Health (HNEPH) whilst also providing links to other related sites. A comprehensive list of frequently asked questions has been compiled and can also be accessed from the HNEPH website.

Any resident in the community who wishes to have a blood lead test should request a referral from their General Practitioner (GP).

The *Lead Safe Blitz* DVD has been distributed to 1400 GPs in the Hunter area. Copies of the DVD have also been letterbox-dropped to residents of North Lake Macquarie and Early Childhood Community Nurses have been provided with supplies of the DVD to distribute to families in the area when on home visits. Other requests for the *Lead Safe Blitz* DVD can be made to HNEPH Reception on 4924 6477.

The documented history to record the stories of those who lived in the shadow of the smelter is progressing and will be distributed in the North Lake Macquarie community when finished. Copies will also be held at the LMCC Libraries and can also be obtained by making a request to HNEPH Reception.

We wish to thank the many community members who assisted and guided us in our work.

Yours sincerely

A handwritten signature in black ink, appearing to read 'David Durrheim', written over a light blue horizontal line.

Dr David Durrheim  
Service Director, Health Protection  
Hunter New England Population Health

## 2 Abbreviations

µg/dL	Micrograms per decilitre (of blood)
CEH	Committee for Environmental Health
DEC	Department of Environment and Conservation
DET	Department of Education and Training
DNR	Department of Natural Resources
EHC	Environmental Health Centre
FDC	Family Day Care Service
HEPA	High Efficiency Particulate Air
HNEAHS	Hunter New England Area Health Service. Formerly known as Hunter Area Health Service (HAHS)
HNEPH or HNE Pop Health	Hunter New England Population Health. Formerly known as Hunter Population Health (HPH) and previously Public Health Unit (PHU)
LMCC	Lake Macquarie City Council
NHMRC	National Health and Medical Research Council
NLM	North Lake Macquarie (Referring in particular to Boolaroo, Argenton and Speers Point)
PCCS	Pasminco Cockle Creek Smelter
P&C	Parent & Citizens Association
URGE	United Residents Groups for the Environment of Lake Macquarie

### 3 Summary



The North Lake Macquarie (NLM) Environmental Health Centre (EHC) was established to reduce the blood lead levels to less than 10 micrograms per decilitre ( $\mu\text{g}/\text{dL}$ ) among children living within the area of Argenton, Boolaroo and Speers Point, to meet the National Health and Medical Research Council's (NHMRC) target.

In 1991, of the 216 children tested, there was a mean blood level of  $13.9\mu\text{g}/\text{dL}$  among children less than 13 years and  $15.7\mu\text{g}/\text{dL}$  among children aged 0-4 years. Since then, a range of actions have been conducted including a major household lead abatement program, blood lead monitoring, case management activities, greening, health promotion and monitoring ambient air quality.

The activities of the EHC during 2005-06 followed the strategic plan, which was ratified by the Committee for Environmental Health and was based on current best practice information available.

During the year, the EHC undertook a range of greening and health education activities, including the distribution of free ground covers and topsoil, and handwashing education programs in the preschool and playgroup and the development of a lead safety DVD.

Children's blood lead levels plateaued in 1997, and decreased following the closure of the smelter in September 2003, this decreasing and low blood lead prevalence accompanied a decline in the amount of lead in air found at monitoring sites.

In 2005-06 the mean blood lead level for children less than 13 years was 4.2 µg/dL, compared to 5.3 µg/dL in 2004-05 and 8.6 µg/dL in 2003-04. The average blood lead level for children less than 5 years of age was 4.5 µg/dL compared to 6.8 µg/dL in 2004-05 and 9.6 µg/dL in 2003-04.

The present blood lead screen has confirmed the findings of the 2004-05 lead survey that lead risk to children in the community has remained **low** since the closure of the smelter.

The focus will shift from community-wide screening of all children to targeting of individual children at higher risk of elevated lead levels. Local health care providers will be engaged and encouraged to identify children at risk of elevated blood lead levels.

The EHC building in Boolaroo will close on 30 September 2006 and staff will continue to operate from Hunter New England Population Health at Wallsend.

## 4 The Aim of the Environmental Health Centre

The aim of the EHC is to reduce the blood lead levels of children in NLM to the national goal of less than 10µg/dL.

The EHC provides a range of free services to the community including:

- Information and education programs to community members, schools and community groups.
- Blood lead testing at *monthly* clinics at the EHC, targeting children less than 13 years and pregnant women and *annual* testing at the local schools and preschool.
- Case management for families of children who have been identified as having elevated blood lead levels.
- Abatement actions to reduce the risk of exposure to lead.
- Greening programs to reduce dust levels within the NLM community and to improve the local environment.

## **5 The EHC Strategic Plan 2005-06**

In 2002, the EHC undertook a series of actions to assist in the planning of its priorities and strategic direction. Considering the limited funding and staffing levels, it was necessary to review past actions. A strategic plan was developed based on the best practice, environmental and human monitoring information available.

In January 2005, a new Strategic Plan was developed for 2005-06 with the following goals and objectives:

### **5.1 Goal**

To reduce the blood lead levels of all children aged 0-4 years to less than 10µg/dL in NLM by 2008.

### **5.2 Objectives**

- Children 0-4 years in the NLM area will have blood lead levels of less than 10µg/dL.
- Child, Health and other service providers will have improved capacity to implement lead safe activities.
- The NLM community will have increased capacity to undertake lead safe activities.
- A plan will be developed for the integration of the responsibility for implementing lead management programs into mainstream services.
- The EHC will invest in efforts to reduce health inequalities in the NLM area.

A review of the strategies in June 2006 found that all the strategies were either completed or scheduled for completion by end of 2006.

## 6 Demolition at Pasmenco

The demolition of the Pasmenco Cockle Creek site has continued, and is expected to be completed in October 2006. The Old Laboratory will be retained for heritage conservation and the remaining buildings demolished as part of the remediation works. In April 2006 many of the NLM community gathered to watch as the demolition contractor felled the concrete stack. Approval has been sought for a staged remediation of the PCCS owned land, acceptance of specified waste material from properties in Argenton, Boolaroo and Speers Point and the construction of a containment cell on the main site to store contaminated material.

PCCS has proposed a lead abatement strategy (LAS) to manage potential lead dust exposure in residential properties, which should commence in 2007.

The following pictures are courtesy of Limelight Films.



## **7 Blood Lead Testing**

The EHC has continued to focus its energy on children in the under 5 year old age group. Consequently, babies and toddlers still make up the majority of those being tested at the monthly clinics. Children in this age group are at increased risk of environmental lead absorption because of their normal hand-to-mouth activity. Parents are encouraged to bring their children to have their blood lead monitored from about 10 months of age.

Pregnant women are also encouraged to attend the EHC clinic or to request a blood lead test from their GP when they are having their routine blood tests during pregnancy. Lead can pass freely through the placenta to the unborn child increasing the risk of premature delivery and low birth weight babies.

### **7.1 Monthly Clinics**

Since 2000, monthly blood collection clinics have been introduced to make it easier for children to have their blood lead tested. Attendance at the monthly clinics has reduced since the closure of the Pasminco Cockle Creek smelter in September 2003. However, a free, convenient and accessible local service is provided for residents living in the Argenton, Boolaroo and Speers Point areas.

The regular EHC clinics are held on the first Tuesday of each month between 2.00pm and 4.45pm. The blood is collected by an experienced registered nurse from the Hunter Area Pathology Service (HAPS). Anaesthetic cream can be used to minimise any discomfort and no appointment is necessary. The results are usually available within one week and are treated with the strictest confidence.

### **7.2 Annual Testing**

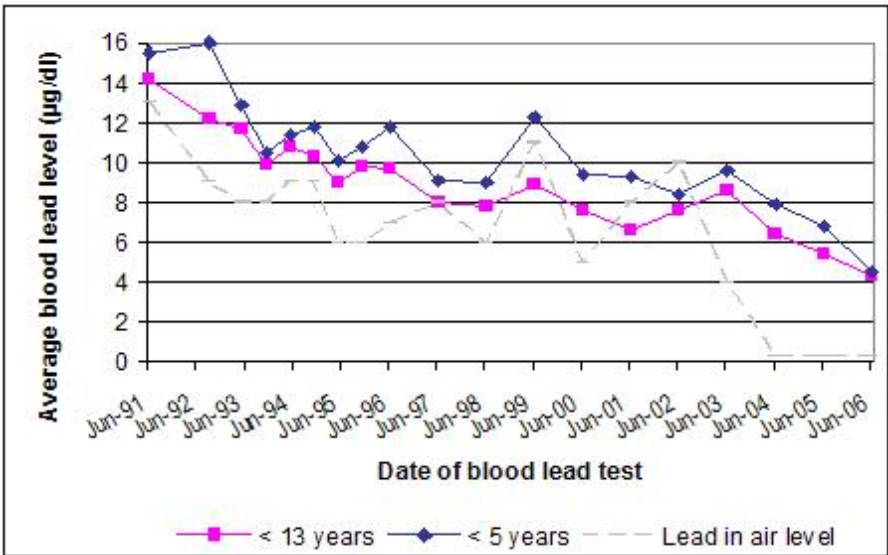
Once again, response from families invited to participate in the free blood lead monitoring program has been positive, with clinics held at Boolaroo, Argenton and Speers Point Public Schools as well as eight additional clinics at the EHC including Saturday morning and one at the Argenton Hall.

The two-week period from 19–30 June 2006 represents Round 19 of the annual phase testing. During the testing at the schools this year, blood lead testing was made available to all children under 13 years of age, however only Kindergarten, Year 1 and Year 2 children were actively invited to participate. Whilst mindful of the target group, it was recognised that some parents choose to wait until their child begins school before having their first blood lead test.

The lead program focused testing on two groups of children, those under the age of 13 years and those less than five years of age. Participation was increased this year with 240 children in North Lake Macquarie being tested in the year to 30 June 2006 compared to 171 children tested last year. One hundred and thirty of the 240 children were under five years of age. The average blood lead level for children under the age of 13 years was 4.2 µg/dL (micrograms per decilitre), as compared to 5.3 µg/dL in 2004-05 and 8.6 µg/dL in 2003-04. The average blood lead level for children less than five years of age was 4.5 µg/dL compared to 6.8 µg/dL in 2004-05 and 9.6 µg/dL in 2003-04. Graph 1 illustrates the average blood lead levels for each year since testing was introduced. There is a close association between the decrease in lead-in-air levels and blood lead levels.

**Graph 1**

**Mean blood lead levels of children <5 years and <13 years resident in North Lake Macquarie, New South Wales Australia, June 1991-June 2006.**

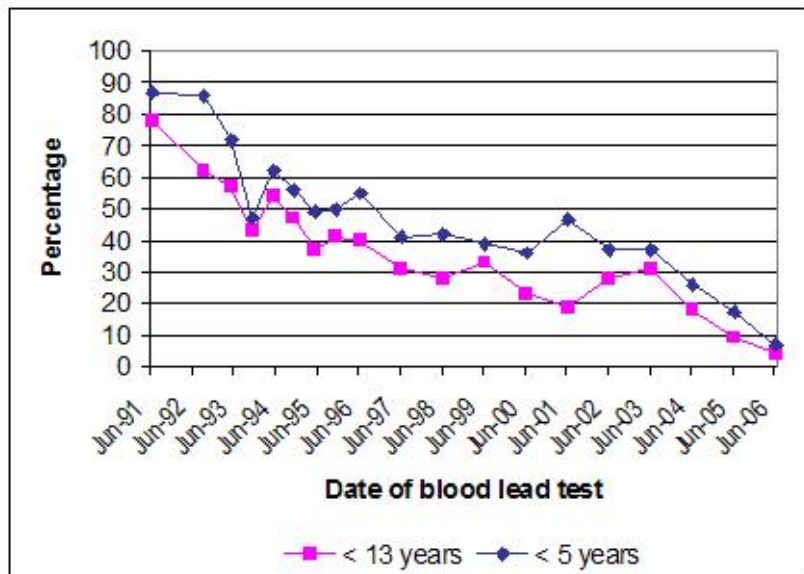


Children under the age of five years are most at risk for lead exposure due to their habit of putting their fingers and other objects in their mouths. When reading the results, it must be noted that blood testing is voluntary; therefore the number of children tested represents a small proportion of children living in North Lake Macquarie ranging from an estimated 28% of 0-4 year old children in Boolaroo, 37% in Speers Point, and 63% in Argenton based on the 2001 census.

The National Health and Medical Research Council goal is for all Australians to have a blood lead level less than 10 µg/dL. 4 per cent of children less than 13 years of age and seven per cent of children less than 5 years of age had a blood lead level of 10 µg/dL or more (Graph 2).

**Graph 2**

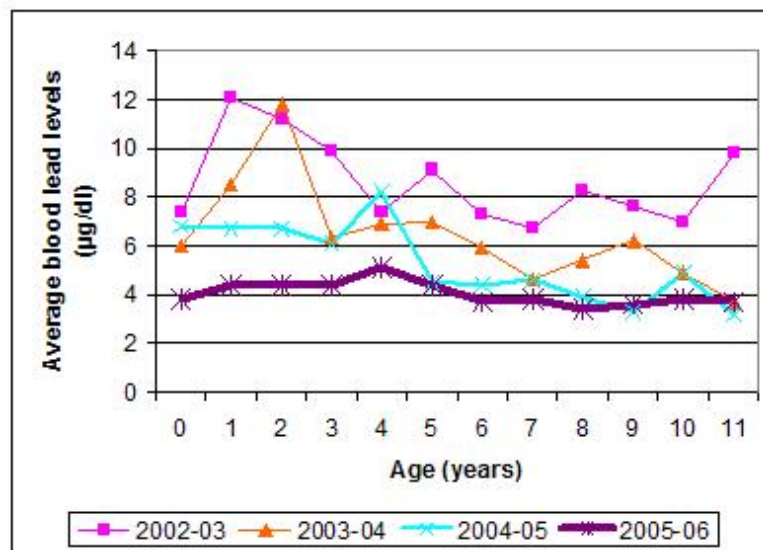
**Percentage of blood lead levels greater than or equal to 10 µg/dL of children <5 years and <13 years resident in North Lake Macquarie, New South Wales Australia, June 1991-June 2006.**



Graph 3 demonstrates a marked reduction in the average blood lead level in all age groups over time but particularly in children less than three years of age since the 2004-05 monitoring year, the first complete year of blood lead monitoring following closure of the smelter in September 2003, and across all age groups in the 2005-06 monitoring period.

### Graph 3

**Average blood lead levels by age group of children <13 years from 2002-03 to 2005-06, resident in North Lake Macquarie, New South Wales Australia, June 1991-June 2005.**



The mean blood lead levels by suburb for children less than five years were: Boolaroo 5.6 µg/dL; Speers Point 3.7 µg/dL; and Argenton 5 µg/dL.

#### What do the results mean?

The most important finding of the 2005-06 blood lead analysis is the suppression of the typical peak in blood lead levels usually seen at two years of age (Graph 3). While this peak was seen in 2002-03 and 2003-04 (and in prior analyses of data back to the early 90s), it was not seen in 2004-05 or 2005-06. The smelter was still operating in the first three months of the 2003-04 monitoring year, but with the closure of the smelter on 12 September 2003, the 2004-05 monitoring year was the first full year of blood lead monitoring since active smelter emissions stopped.

Graph 1 shows how the average blood lead levels have decreased as lead-in-air levels have decreased. Children's blood lead levels typically peak around two years of age as their hand to mouth behaviour and susceptibility to lead absorption reach a peak. This is the peak age for accumulation of body lead burden that could have a lifelong impact. These results demonstrate that the closure of the smelter has led to a marked reduction in blood lead in all age groups monitored but particularly in children less than three years of age.

#### Notes on interpretation of these results:

The data displayed here are summary only. Blood lead testing is voluntary and the children who are tested each year may not be fully representative of the children in the area who are not tested. This may influence year-to-year comparisons because of varying participation rates. Since 2000, monthly blood-taking clinics have been introduced to make it easier for children to have their testing done. For this report, results from the monthly clinics from July 2005 through June 2006 and the mass testing in June 2006 have been combined. Where children have had multiple tests within the year, only one test (the highest result) is included in this annual summary.

These results suggest that while the smelter was in operation, the main source of lead for young children in North Lake Macquarie was fresh or recent, rather than historical, smelter emissions.

Even though the smelter has ceased production and is no longer actively emitting lead into the air, the soil and dust within local communities will still contain some lead from the smelter's past operations, however, lead based paint released from deteriorated household painted surfaces is an increasingly recognised cause of elevated lead levels in the area.

### **What next?**

It is important that the local community, and all communities, practise lead-safe behaviours. A DVD promoting lead safe behaviours for families that addresses both contaminated soils and lead paint removal will be distributed in the North Lake Macquarie during 2006.

The present blood lead screen has confirmed the findings of the 2004-05 lead survey that lead risk to children in the community has remained **low** since the closure of the smelter. It is important to shift the focus of activities from community-wide screening of all children to targeting of individual children at higher risk of elevated lead levels. Local healthcare providers will be engaged and encouraged to identify children at risk of elevated blood lead levels such as children with pica (eating dirt), developmental delay, and exposure to lead based paint chips.

## **7.3 Case Management**

Case management of individual children with elevated blood lead levels has continued, however with the closure of the smelter, there has been a significant decline in the number of children who are case managed. In June 2006 there were only 10 children with elevated blood lead levels and only two of these above 15µg/dL, which is the notifiable level under the 1991 Public Health Act.

## **7.4 Pregnancy and Lead**

The EHC has undertaken to identify pregnant women who live in the NLM area as a strategy towards achieving its goal of reducing blood lead levels in young children. This will ensure a preventative approach to the harmful effects of lead on the neurological development of babies and young children

It is well documented that even at low concentrations, lead in the mother's blood can easily cross the placenta to her unborn child, thus increasing the chance of impaired early neurological development. An elevated blood lead level during pregnancy also increases the risk of premature delivery and low birth weight babies.

The EHC encourages all pregnant women who live in the suburbs of Argenton, Boolaroo and Speers Point to have their blood lead monitored. Pregnancy is often a time when renovations occur to make room for the new addition to the family. Pregnant women and small children should not remain on the premises while renovation is taking place.

To encourage service providers to refer pregnant women to blood lead testing, the EHC has addressed antenatal educators and midwives on lead in pregnancy and provided written information to the 30 GP practices who service the community of NLM.

## 8 Families and Children

### 8.1 Healthy Morning Teas at Preschool

The EHC has continued its support of the local Boolaroo Speers Point Community Kindergarten located in Sixth Street Boolaroo where approximately 80 families attend each week.

Two healthy morning teas were held at the preschool in July 2005 and again, two more in April 2006. Milk was donated by Norco Pauls Milk and healthy morning tea food was provided by the EHC. The purpose of the morning teas was to help develop an awareness of the importance of hand washing - particularly before meals and after playing in the dirt. Children had fun when they were attempting to wash the 'magic cream' from their hands during the process of learning about how dirt 'clings' to particular areas of their hands. They also learned that a healthy diet could assist with preventing lead absorption as well as to build strong and healthy bodies. Staff at the preschool reinforced this message with pre and post lessons.

The EHC also supplies free sand, soil and groundcovers to the Preschool upon request.

### 8.2 School Activities

Approximately 320 children attend the three local primary schools of Argenton, Boolaroo and Speers Point. The EHC has continued to assist School Principals to promote lead safety in their schools in a number of ways.

These include:

- Providing all new students with information to take home to parents about how to reduce their exposure to lead;
- Supporting student hand washing policies in the schools by:
- Encouraging school staff to borrow the hand washing tester box for use as a hygiene exercise for children;
- Developing an Educational Resource Package for use across the Key Learning Areas of the NSW school curriculum in the three local schools;
- Environmental assessments at the three schools to monitor lead levels in the classrooms and school grounds;
- Supplying free ground cover to the three schools on request to reduce lead levels in accessible soil;
- Providing information to the school communities about living safely with lead via the school and EHC newsletters;
- Acting in a consultative role to the school canteen committees;
- Providing education and information to school ancillary staff.



### **8.3 Lead Interagency Meetings**

The Interagency group meets once per school term to discuss and address issues relevant to the three local primary schools of Argenton, Boolaroo and Speers Point. The group comprises Principals from the schools, representatives from the Department of Commerce, school cleaning contractors, an Environmental Consultant and representatives from the EHC.

### **8.4 Healthy School Canteens**

The EHC offers continued support to the Canteen Committees of Argenton, Boolaroo and Speers Point schools in their efforts to provide nutritious and healthy alternatives for sale in the school canteens.

A Canteen Policy, individualised for each school was developed in consultation with the schools. It reflects the school philosophy of placing value on healthy eating practices and also addresses lead safe issues of hygiene and nutrition within the school environment.

Canteen Committee members have been provided with Ready-Reference Folders that contain Resource Material for Promotional Ideas, Recipes for healthy alternatives of popular foodstuffs; Fun and nutritious Menu Ideas; Canteen Staff Training Modules; Information on how to read food labels; Distributor/Supplier Lists and more. Teachers have also been given some lesson planning ideas which use the school canteen as a resource and a vehicle for practical learning opportunities for students.



## 8.5 Needs Assessment

The Community Needs Assessment conducted by the EHC is currently being analysed by an external consultant experienced in Qualitative Analysis.

## 8.6 Peli's Playgroup

Peli's Playgroup meets at Argenton Public School every Tuesday of school term between 9.30am and 11.30am. The playgroup is continuing to thrive, with old members whose children have moved on to school being replaced by new members with younger children. At any one time, approximately 12 families have current membership.

Peli's Playgroup provides social support for both children and parents, and is now completely self-supporting and independent of the EHC. Fundraising activities have allowed members of the Executive Committee to replace perishable items as necessary and purchase additional play equipment for the children. The EHC Project Officer visits the playgroup once per term and offers advice and information about living safely with lead and blood lead testing.

During 2005-06, the EHC has also provided activities that help develop awareness of the importance of hand washing, particularly before meals and after playing in the dirt. These activities included stories, craft, songs and a hand washing activity.



## 9 Health Promotion

### 9.1 Family Day Care

In July 2002, the EHC worked with the Lake Macquarie Family Day Care Service (FDC) to develop gold standards for the five FDC Carers in the area within the standards set for lead safety and also within the FDC Quality Assurance Guidelines. The EHC is providing the FDC workers with assistance to ensure that children attending their home for care are in a lead safe environment.

In 2005-06, as part of its continued contact and support for the NLM Family Day Carers and the children in their care, the EHC conducted handwashing programs with the children in their Family Day Care environment. The children and their Carers had fun trying to wash the “magic cream” from their hands and received a novelty nail brush for their efforts.

### 9.2 Lead Safe DVD



As the EHC reduced its presence, it started to look for a sustainable health promotion tool on lead safety for young families within the community.

It was important to develop a simple, accessible tool that would provide ongoing, relevant information to both mainstream health care providers who provide care and support to lead affected families and the local community. While most lead risk is controlled, it is important for parents and health care workers to be aware of the residual lead hazards in the area, particularly for very young children.

Currently, information about lead is delivered to new parents through home visits from EHC staff. A recent needs assessment found this to be both beneficial and timely. A US study found that a lead safety DVD equipped health care workers and parents with skills and knowledge to prevent lead poisoning in the early critical stage of the child's life<sup>1</sup>.

Early Childhood Nurses have an important role in community education. As Early Childhood Nurses are already stretched for resources, those working in the area were consulted to establish the appropriateness and acceptability of a DVD for information provision to both Early Childhood Nurses and their client families.

There will also be an increased demand on General Practitioners to monitor blood lead levels and provide ongoing case management of children with elevated blood lead levels.

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<sup>1</sup> Kersten HB, Moughan B, Moran MM, Spector ND, Smals LE & DeLago CW 2004 A videotape to improve parental knowledge of lead poisoning. *Ambulatory Pediatrics*, Vol 4, pp344-347.

The EHC obtained a small grant for the DVD from Ferrier Hodgson and employed Limelight Films. The budget allowed for the production of 5,000 copies to ensure widespread distribution through health care workers. Every household in the smelter affected area will receive a free DVD.

There was a very positive response by the community to the notion of a lead safe DVD. A local family, Sharon and Simon Clifford and their daughter Rebecca, took a lead role in the DVD which also featured Peli's playgroup. Children from Year 6 at Argenton Public School also featured, performing their Lead Rap, which was used as the theme for the DVD.



The Lead Safe Blitz was launched in August at Lake Cinema Boolaroo.

### **9.3 Documentation of the Community Co-Existing with Lead**

With the aim of telling the story of the community's co-existence with the Pasminco smelter, in late 2005 the EHC began compiling a 32 page book based on historical facts, public reports as well as the community's recollections of events, particularly over the last 15 years.

The book will be a broad account of how a small Lake Macquarie community coped for more than a century with a giant smelter in its backyard. It will include both the history of the smelter, and a detailed account of the associated health issues, but would also have an important focus on the people of the area. Personal quotes and anecdotes are being gathered on the community's impressions of living near the smelter – what memories they have, what issues they have faced, what interesting anecdotes they will remember, and how they expect things will be different in the future.

It is planned to release the book in late 2007 and it will be distributed throughout the North Lake Macquarie community, however it is hoped the book would be welcome in regional libraries, particularly Lake Macquarie and Newcastle school libraries.

### **9.4 Other Services**

The EHC continues to provide a HEPA (High Energy Particulate Air) filter vacuum cleaner loan service to the community. There are a total of 12 vacuum cleaners. Of these, two are on long-term loan to families with children under case management. The loan service is extremely well utilised, with 173 short term loans in the 12 month period.

On their closure, the Pasminco Cockle Creek Smelter donated their two industrial HEPA vacuum Cleaners to the EHC. New protocols were developed for their use and are now loaned out regularly to the community for heavy-duty usage.

Written information is available to the general public in the form of fact sheets, pamphlets and guides on ways to reduce exposure to lead, with several new pamphlets developed over the last 12 months. Some of the more popular guides include:

- EPA 1998 'Lead Safe: A Renovators' Guide to the Dangers of Lead'
- EPA 1998 'Lead Safe: A Guide to Keeping Your Family Safe from Lead'
- EPA 1998 'Lead Safe Fact Sheet: Lead Safe Housekeeping'
- EPA 1998 'Lead and Home Cleaning'

Updated pamphlets produced by the EHC are:  
(see *appendix*)

- Environmental Health Centre
- Peli's Playgroup
- Free Blood Lead Testing – Venous Method
- Lead and your Baby
- Disposal of Soil
- Free Groundcover for your Home

## **9.5 EHC Newsletter**

(see *Appendix*)

The EHC produces a newsletter twice a year to inform the community of EHC services and to offer information and advice about how to reduce children's exposure to lead.

## 10 Abatement Activities

### 10.1 Zonal Remediation

Zonal remediation of homes in the NLM area ceased in March 2001 with the total number of homes participating being 642. Properties closest to the PCCS were offered the remediation package first, with the program moving outwards. Remediation is more correctly termed abatement.

### 10.2 Other Abatement Activities

#### 10.2.1 *Ground cover and topsoil*

The EHC has continued to supply free ground cover and topsoil for residents in the NLM area who have children aged five years or younger. The aim of providing ground cover and topsoil is to allow the formation of a natural protective barrier to any lead within the existing soil, leading to effective lead abatement. Written advice on the use of ground cover is delivered with each load of ground cover or topsoil. Sand is provided for sandpits.

As a quality assurance activity, a random selection of properties is visited each month to discuss the use of the topsoil, grass growth and ground cover with the resident. Altogether, 14 homes have taken part in the quality assurance activity and have provided useful feedback on the service. Overall, everyone reported being happy with the delivery, service and quality, and most residents had distributed the delivery to the correct depth.

Between July 2005 and June 2006, the following quantities of ground cover, sand and topsoil were distributed.

#### Ground Cover Totals July 2005 to June 2006

	Unit Cost	Units Provided	Total Cost
Fine Pine Bark	\$60.00	24	\$1,779.50
Chunky Pine Bark	\$60.00	12	\$724.00
Supreme Organic Soil	\$49.50	30	\$1,485.00
Native Garden Mulch	\$54.50	5	\$272.50
Eucalyptus Mulch	\$36.00	10	\$387.00
Road Base	\$42.00	9	\$378.00
Sand	\$44.00	13	\$730.00
Quarry Gravel	\$65.00	2	\$130.00
Large Quarry Gravel	\$55.50	2	\$110.50
		<b>TOTAL</b>	<b>\$5,996.50</b>

### 10.2.2 *Greening*

Local greening initiatives continue to be supported by the EHC with the provision of topsoil and groundcovers to young families and to the schools and preschool in the NLM area.

The two 'lead dust barriers' constructed in 1998/99, between PCCS and the northern suburb of Argenton, continue to grow well and a spectacular display of wattles in early spring. The barrier planted by the Boolaroo school children and the EHC in 2000 along Main Road is now well established, with bottlebrushes and native grasses improving the appearance of the gateway to Boolaroo. These areas are acting as natural dust barriers, as well as beautifying the area.

During 2002-03, the EHC worked with Trees in Newcastle and the local schools to increase the natural dust barrier and the general amenity of the schools. Over six days, parents and school children joined the EHC staff and Trees in Newcastle Volunteers to mulch garden beds and plant over 500 trees, shrubs and native grasses in each school. The schools provided willing workers and a lovely barbecue lunch, so the days became a good learning experience for the children in a fun environment.



Working together to provide natural dust barriers in schools  
Argenton Public School, April 2003

### 10.2.3 Rainwater tanks

Prior to closure of the smelter the EHC had recommended that rainwater tanks not be used for drinking, however residents are now installing rainwater tanks for use in gardens and have requested advice on drinking the water collected in the tanks. There has been a recent study into vegetables grown in the NLM that indicates there is an increased uptake of lead into some vegetables.

Australian Drinking Water Guidelines recommend levels of 0.01mg/L or less, however it was not known if rainwater tanks in the NLM area complied with these standards.

In September 2005, the EHC was approached by a local resident requesting advice on the use of his newly installed rainwater tank. The resident was provided with information from Environmental Health and asked if he would be happy for the EHC to conduct sampling of his rainwater tank. The resident gave permission and a sampling protocol established.

#### Method

Water was collected in a polyethylene container, where there was no possibility of leaching or contamination of a sample. The hose from the rainwater tank was flushed for at least three minutes before collecting water in the container, which was then filled halfway, shaken and water discarded. The container was then filled all the way to the top, with a minimum of one litre of water from the rainwater tank. The container then labelled and sent to the Chemical Laboratory at Division of Analytical Laboratories, Lidcombe. Six samples were collected approximately one month apart, with one sample taken after a heavy rainfall. The rainwater tank has the capacity to hold 2,500 litres of rainwater collected from the roof.

#### Results

Sample	Date	Rainfall	Results mg/L		
			Lead 0.01#	Cadmium 0.002#	Selenium 0.01#
1	25/11/05	Nil one week prior	<0.002	0.0017	<0.002
2	22/12/05	Nil one week prior	0.017*		
3	30/01/06	Scattered rain prior to collection	0.021*	0.0019	<0.002
4	2/03/06	Heavy rain – tank overflowing	0.009	<0.0005	<0.002
5	4/04/06	No rain for 4 days	0.014*	0.0016	<0.002
6	11/05/06	Light overnight rain	0.022*	0.0021*	<0.002

# Guidelines values (mg/L)

\* Exceeds guidelines value

## **Discussion**

With the increasing popularity of rainwater tanks it is important that accurate information be available to the community on the advisability of drinking the water collected by rainwater tanks or for using it on vegetable gardens.

In the samples collected over a six month period, four of the six samples had levels that exceeded the guideline of 0.01mg/L for lead. While only a small sample it can be seen that there was a slight increase in rainwater tank lead levels over time, which was reduced following heavy rain, which presumably flushed the lead from the tank. Following this there was a repeated slight build up in lead levels within the rainwater tank. There was a similar pattern with the cadmium levels although only once did it exceed guidelines.

As most of the lead results and one of the cadmium results were over the guidelines, we cannot recommend consumption as drinking water, however it may be used in vegetable gardens if simple precautions are followed. It will continue to be important for people to wash all vegetables thoroughly before use, particularly green leafy vegetables such as spinach that collects lead bearing dust more readily than other vegetables and to peel all root vegetables.

# 11 Project Management

## 11.1 Management of the Environmental Health Centre

The staff at the EHC consists of three staff members: one full-time Project Co-ordinator, one part-time Project Officer and one part-time Administrative Officer.

The Committee for Environmental Health (CEH) was established to develop the strategic direction of the EHC. It is responsible for the development of the over arching strategies and policies for the EHC and guidance on the allocation of budget against strategic plans. It is supported by the Technical, Clinical, Community Consultative and Education/Health Promotion/ Greening Subcommittees.

The CEH consists of:

- Community representatives from the Argenton, Boolaroo and Speers Point areas
- Representative from Environmental Group URGE (United Residents Groups for the Environment of Lake Macquarie)
- Hunter New England Area Health Service (HNEAHS)
- Department of Conservation and the Environment (DEC) (formerly known as Environment Protection Authority)
- Department of Natural Resources (DNR)
- Lake Macquarie City Council (LMCC)
- Pasminco Cockle Creek Smelter (PCCS)

The EHC is jointly funded through NSW Government and PCCS.

## 11.2 Community Consultation Meeting

In November 2005 and August 2006 the EHC combined with Fitzwalter, the Pasminco Decommissioning agent to hold a very successful informal community meeting. Those attending included school principals, representatives from school Parent & Citizens Associations (P&C) and EHC community representatives, several local business people and other interested community members. Anthony Freeman gave an overview of activities at the PCCS site and plans for the future. There was good discussion at the meeting and the opportunity for people to ask questions. All were satisfied with the answers given and were pleased with the opportunity to present their point of view.



## 11.3 Interagency Co-operation

Interagency co-operation has continued with regular meetings between groups such as the Department of Commerce, Department of Education and Training, Graeme Waller & Associates and the EHC. The Project officers have continued to work with a range of services including Schools, Pre-school, Family Day Care, Antenatal Departments at John Hunter and Belmont Hospitals, and the Child and Family Health Services.

## 11.4 Future Planning

With the closure of the Pasminco Cockle Creek Smelter and the decrease in children's blood lead levels, the EHC has commenced planning its integration strategy. It is important that changes to the EHC are planned carefully to ensure a smooth handover of services to appropriate agencies.

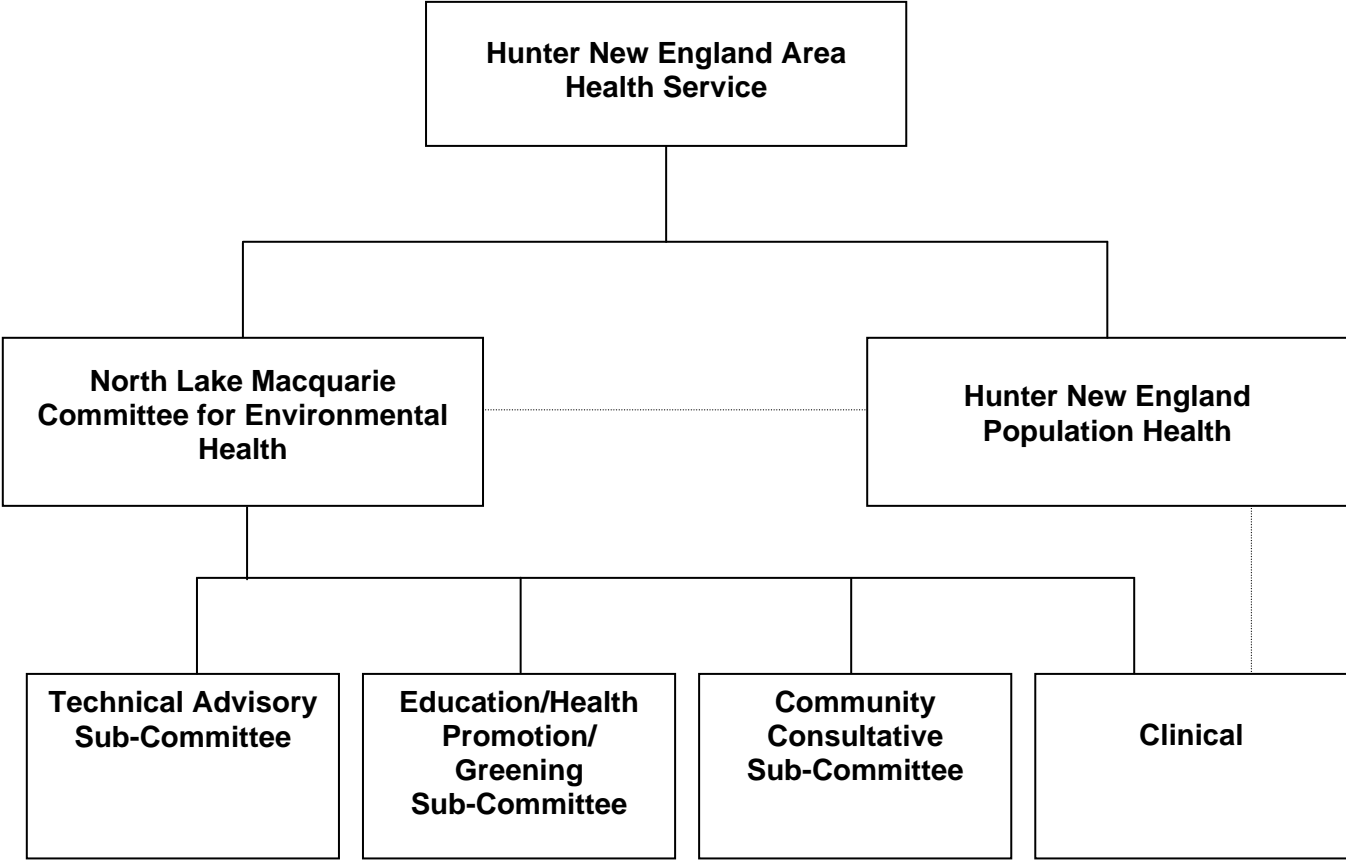
## 11.5 Financial Reports

The financial statement for 2005-06 is appended to this document. The statement follows the format for 2004/05 with expenditure items being grouped into areas aligned with the activities of the EHC.

While regular payments to the EHC ceased, a cheque from Pasminco, through Ferrier Hodgson for \$100, 000 was received in June 2004.

# 12 Appendices

## 12.1 Appendix A - Organisational Chart



## 12.2 Appendix B - Committee Membership

<b>Committee for Environmental Health</b>	<b>Technical Advisory Sub-Committee</b>	<b>Education/Health Promotion/ Greening Sub-Committee</b>	<b>Community Consultation Sub-Committee</b>	<b>Clinical Advisory Sub-Committee</b>
David Rothery Chair & Speers Point Community Rep.	David Rothery Chair & Speers Point Community Rep.	Joanne Victor Chair & Boolaroo Community Rep.	David Rothery Speers Point Community Rep.	Prof G Vimpani Kaleidoscope HNEAHS
Karen Tripp Deputy Chair & Speers Point Community Rep.	Karen Tripp Speers Point Community Rep.	Susan Williams Argenton Community Rep	Joanne Victor Boolaroo Community Rep.	Dr Craig Dalton HNEPH
Joanne Victor Boolaroo Community Rep.	Graeme Waller Graeme Waller & Associates	Principals Argenton, Boolaroo & Speers Point Public Schools	Karen Tripp Speers Point Community Rep.	Dianne Sinclair EHC
Louise Botham Boolaroo Community Rep.	Joe Kostiw DEC	Karen Gillham HNEPH	Louise Botham Boolaroo Community Rep.	Lucy Bates EHC
Peter Morris URGE	Stuart Munro PCCS	Dianne Sinclair EHC	Susan Williams Argenton Community Rep	
Dr Craig Dalton HNEPH	Lucy Bates EHC	Lucy Bates EHC	Peter Morris URGE	
Stuart Munro PCCS	Chris Williams HNEPH		Lucy Bates EHC	
Graham Clarke DEC				
Cr Wendy Harrison LMCC				
Scott Jeffries DNR				
Lucy Bates EHC				
Dr David Durrheim HNEPH				

## 12.3 Appendix C - Financial Statements

### *Expenditure Report for 2005/06*

<b>Annual Expenditure EHC July 05 - June 06</b>	
<b>Health Promotion</b>	
Delivery	\$1,000
DVD production	\$49,807
Education	\$4,686
Printing	\$2,138
<i>Subtotal</i>	<b>\$57,631</b>
<b>Clinical</b>	
Case Management	\$604
HAPS	\$8,820
Rewards	\$2,936
<i>Subtotal</i>	<b>\$12,360</b>
<b>Abatement</b>	
Ground cover	\$7,765
Remediaiton	\$107
Vacuums	\$1,417
<i>Subtotal</i>	<b>\$9,290</b>
<b>Facilities</b>	
Cleaning	\$3,415
Computer	\$3,460
Electricity	\$1,388
Motor vehicle	\$1,065
Petty cash	\$870
Pest control	\$819
Postage	\$555
Printing/Stationary	\$898
Security	\$5,168
Telephone	\$1,615
Training/Journals/staff	\$3,623
<i>Subtotal</i>	<b>\$22,875</b>
<b>S&amp;W</b>	<b>\$184,690</b>
<b>Total Payments</b>	<b>\$286,846</b>

***Income and Expenditure Report 2005 / 2006***

<b>Opening Balance as at 1 July 2005</b>		<b>121,277.00</b>
<b>Income</b>		
Government Funding	\$106,709	
Interest	\$10,223	
Industry Contributions	\$100,000	\$216,932
<b>Total Income</b>		<b>\$216,932</b>
<b>Less : Expenditure</b>		<b>\$286,846</b>
<b>Equals Net Trust Assets/Closing Balance as at 30/06/06</b>		<b>\$ 51,363</b>

## Funds Working Paper

### FUNDS WORKING PAPER RMC/CEH ACCOUNT 2156

		LMCC	PCCS	EPA/DEC	HEALTH	INTEREST OTHER	TOTAL
<b>1995/96</b>	Income						
	Project Management <u>General</u>	30,000 -	30,000 100,000	60,000 -	30,000 -	- 11,051	150,000 111,051
	Available Funds LESS Expenditure EQUALS Closing Balance as at 30/06/96	30,000	130,000	60,000	30,000	11,051	261,051 118,834 142,217
<b>1996/97</b>	Opening Balance as at 1/7/96						<b>142,217</b>
	PLUS Income Project Management <u>General</u>	30,000 -	30,000 121,000	- 154,000	30,000 -	- 13,432	90,000 288,432
	Available Funds LESS Expenditure EQUALS Closing Balance as at 30/06/97	30,000	151,000	154,000	30,000	13,432	520,649 198,764 321,885
<b>1997/98</b>	Opening Balance as @ 01/07/97						<b>321,885</b>
	LESS Adjustment EQUALS Adjusted Opening Balance at 01/07/97					322	321,563
	PLUS Income <u>General</u>	-	-	193,000	500,000	22,626	715,626
	Available Funds LESS Expenditure EQUALS Closing Balance as at 30/06/98	-	-	193,000	500,000	22,626	1,037,188 702,370 334,818
<b>1998/99</b>	Opening Balance as at 01/07/98						<b>334,818</b>
	PLUS Income <u>General</u> General	-	-	1,035,000	500,000	43,686	1,578,686
	Available Funds LESS Expenditure EQUALS Closing Balance as at 30/06/99	-	-	1,035,000	500,000	43,686	1,913,504 1,095,369 818,135
<b>1999/00</b>	Opening Balance as at 01/07/99						<b>818,135</b>
	PLUS Income <u>General</u>	-	248,696	-	500,000	55,876	804,572
	Available Funds LESS Expenditure EQUALS Closing Balance as at 30/06/00	-	248,696	-	500,000	55,876	1,622,707 846,389 776,318

<b>2000/01</b>	Opening Balance as at 01/07/00					<b>776,318</b>	
	PLUS Income <u>General</u>	-	320,994	-	-	39,218	360,212
	Available Funds	-	320,994	-	-	39,218	1,136,530
	LESS Expenditure						930,582
	EQUALS Closing Balance as at 30/06/01						<i>205,948</i>
<b>2001/02</b>	Opening Balance as at 01/07/01					<b>205,948</b>	
	PLUS Income		460,224			49,323	509,547
	Available Funds		460,224			49,323	715,495
	LESS Expenditure						344,425
	EQUALS Closing Balance as at 30/06/02						<i>371,070</i>
<b>2002/03</b>	Opening Balance as at 01/07/02					<b>371,070</b>	
	PLUS Income		225,112			24,375	249,487
	Available Funds		225,112			24,374	620,556
	LESS Expenditure						227,946
	EQUALS Closing Balance as at 30/06/03						<i>392,610</i>
<b>2003/04</b>	Opening Balance as at 01/07/03					<b>392,610</b>	
	PLUS Income		100,000			18,675	118,675
	Available Funds		100,000			18,675	511,285
	LESS Expenditure						285,829
	EQUALS Closing Balance as at 30/06/04						<i>225,456</i>
<b>2004/05</b>	Opening Balance as at 01/07/04					<b>225,456</b>	
	PLUS Income		100,000			29,020	129,020
	Available Funds		100,000			29,020	354,476
	LESS Expenditure						233,199
	EQUALS Closing Balance as at 30/06/05						<i>121,277</i>
<b>2005/06</b>	Opening Balance as at 01/07/05					<b>121,277</b>	
	PLUS Income		100,000	102,000	4,709	\$10,223	216,932
	Available Funds		100,000	102,000	4,709	10,223	338,209
	LESS Expenditure						286,846
	EQUALS Closing Balance as at 30/06/06						<i>51,363</i>

**12.4 Appendix D – Newsletter (December 2005)**



# Thinking of selling your home?



## Before you put your house on the market you may want to know the soil lead levels.

Why? A soil lead level of 300 parts per million (ppm) has been set by the National Health and Medical Research Council as a level for further investigation, however many lending institutions are not lending money if the soil lead level is above this.

The best way for North Lake Macquarie residents to find out what their soil lead levels are is to **contact Pasmenco Cockle Creek Smelter and request a free soil test.** Up to 4 separate areas in the lawn will be tested at a depth of 25cm and 50cm. A written report will be given to the homeowner identifying the lead levels within each area as well as the average level across the block. Allow at least 2 months for testing.



## Garden Notes



Lead may be found in your yard in many forms. It may be in paint chips, near the base of walls and fences; as fill on paths; garden beds and any part of the garden; in patches of soil; in vegetable patches and under houses.

Mulch, as well as stopping water loss, is a great barrier to lead in the garden. It is important to cover all the bare soil and 'top up' the mulch when it starts to thin. Watering should be done early in the morning or in the cool of the afternoon/early evening to reduce water wastage and prevent leaf burn.

Another way to create a barrier between lead in the soil and the family is to have a thick grass growth.

Here are some tips for looking after your lawn:

- Spread topsoil about 15 mm (about ½ inch) thick. This will allow the existing grass to grow through.
- Water the ground regularly to help grass grow
- Don't cut the grass lower than 2.5 cm. A thick dense cover of grass is best.
- Mow regularly with sharp blades.

Give the lawn a soaking every few days. If water runs off the surface, it is being wasted.

If you have children aged 5 years or less contact the EHC for free topsoil, mulch or gravel to help you form a natural barrier and reduce the



## ~ Pasmenco Update ~

The appearance of the Pasmenco site continues to change with the demolition of the main plant and associated buildings now well advanced. Further site maintenance activities have also been undertaken including the removal of sediments from the detention dams and some fire protection measures are being implemented in advance of summer. A second DA to demolish several remaining structures is currently being prepared and will be lodged with Council shortly.

Lake Macquarie City Council has recently completed their report on the draft Pasmenco Munibung Hill Land Use Strategy. The principles diagrams completed as part of the strategy will provide direction to Council in dealing with

applications for rezoning and development. Two applications for rezoning and another to subdivide part of the site are currently with Council for assessment.

PCCS is now preparing an Environmental Assessment to seek approval under Part 3A of the EP&A Act for the construction of an on-site containment cell and to carry out associated remediation works. The Fitzwalter Group will be issuing a detailed newsletter in the coming weeks which provides more information on this process.

**If you have any queries or wish to provide feedback on matters in relation to the Pasmenco site please contact your local EHC representative or the Project Hotline on 4958 0801.**

# The more sinister side of lead...



During the Middle Ages, lead was widely used by alchemists as a key part in turning metals into gold.



The advantages of the metal as an invisible and slow-acting poison were not lost on the Lucrezia Borgias and Catherine de Medicis of Renaissance Europe. Lead was known to be extremely convenient for eliminating inconvenient relatives. In fact, the French jokingly called lead *poudre de la succession* - or succession powder.



Another sinister use of lead is, of course, in the mass production of pistols, rifles, and cannons and the ammunition designed to blaze a bloody trail from their barrels. Today in the USA gun owners are warned that exposure to lead dust and fumes at the firing range can be a health risk to shooters and that lead dust can collect on clothes during the day. When those clothes are worn home, the lead can contaminate shooters' and workers' cars and homes and place their children at risk.

## Good News Results for Blood Lead Testing!

**Thank you to all those families who participated in the 2004/05 blood lead testing program.**

This is the first full year of blood lead monitoring since the smelter closed. Participation in the program is voluntary and was lower this year with only 171 children tested, compared with 223 children tested last year.

The most important finding of the 2004/05 blood lead analysis is the control of the typical peak in blood lead levels, usually seen at 2 years of age. This is the peak age period for accumulation of lead in the body that may have a life-long effect on the child. These results strongly suggest that the closure of the smelter has helped reduce blood lead in children less than 3 years of age.

The average blood lead level for children aged less than 13 years was 5.3mg/dL as compared to 8.6mg/dL in 2003/04 and for

children aged less than 5 years was 6.8mg/dL compared to 9.6mg/dL in 2003/04.

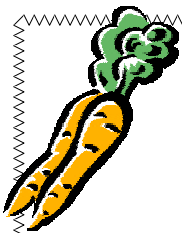


Children living closest to the smelter still have the highest blood lead levels.

### **What does this mean for our family?**

This year's results are very promising and suggest that the main source of lead for young children in North Lake Macquarie was fresh or recent smelter emissions. However other sources of lead exposure, such as lead based paint are becoming more important contributors to elevated blood lead levels.

**It is important that the local community persists with lead safe behaviours and that children participate in the annual blood lead screening and other testing recommended by the Environmental Health Centre or their General Practitioner.**



## The Fussy Eater

We've all known a "fussy" eater at some point in our lives. Maybe you were a fussy eater yourself! Many things can influence a child's eating habits and whilst we all have our own likes and dislikes, it is important not to pass these preferences on to our children before they have tried the wide variety of foods, flavours and textures

available.

When our children refuse to eat their food, we worry about whether they are having enough to eat. If children refuse food, they are either *not* hungry or they are using the situation to voice their opinion about something else. Children who refuse to eat, generally will *not* starve. They will eat

# Christmas Closure

The EHC will close at 5.00pm on Thursday 22 December 2005 and reopen 8.30am Tuesday 3 January 2006.

The staff at the EHC would like to wish you and your family a safe and happy festive period.



## Peli's Recipe Corner Frozen Fruit Smoothie (Serves 1)

- ½ cup milk
- 6 strawberries (or fruit of your choice)
- ¼ cup yoghurt



Puree ingredients and pour into a drink cup.

**Tip:** In summer, use a small vacuum flask to keep drink cold or freeze into ice cube trays. Smoothies can also be frozen in a drink flask for school as it will melt by lunchtime. Simply shake before drinking.



**Want to know how to get closer to your child and improve their language skills at the same time?**

*Spend 10 minutes per day reading to them!*

Leading children's author Mem Fox believes that reading to your children for 10 minutes per day can bring enormous benefits.

### Why?

- By spending time with your child you are letting them know that you love them.
- Literacy arises out of the love that parents show for their children
- Reading aloud stimulates children's brain development in many ways.

Reading to your child should begin from the day they are born.

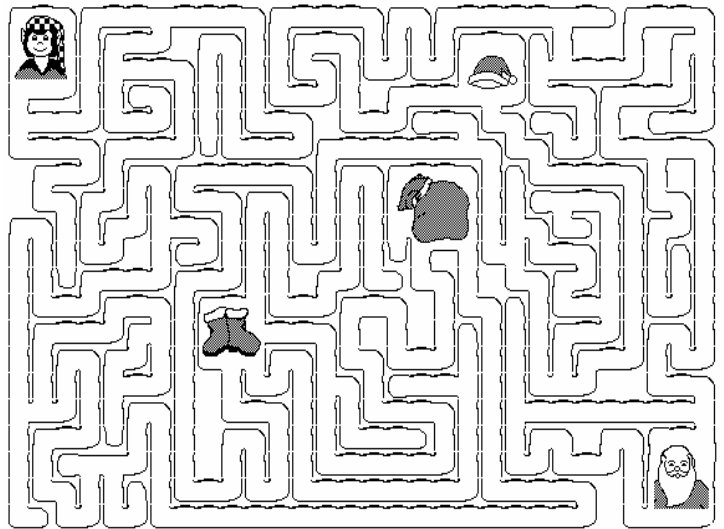
Here are a few great books recommended by Mem Fox for children aged from birth to four: **The very hungry caterpillar** (by Eric Carle); **Who sank the boat?** (by Pamela Allen); **Going on a bear hunt** (by Michel Rosen).

## Lead Safe Tip

Change outdoor clothes and shoes for indoor activities.



## Christmas Maze



Help the Elf get Santa ready for the chance to win two movie tickets to the Lake Cinema, Boolaroo. You must pass Santa's boots, sack and hat and return them to Santa.

(Extra entry forms available from the EHC only one entry per child)

**CLOSING DATE** 4.00pm, 14 December 2005

## WIN MOVIE TICKETS!

Mail or drop your entry into the:  
Environmental Health Centre, PO Box 219,  
3 Main Rd, BOOLAROO NSW 2284

**Open to all children aged 0-13 years**

Your Name: \_\_\_\_\_

Your address: \_\_\_\_\_

Suburb: \_\_\_\_\_

Contact Phone Number: \_\_\_\_\_

Your date of birth: \_\_\_\_\_

School attended: \_\_\_\_\_



Contact:

**Craig Dalton**

Public Health Physician

Tel **+61 2 4924 6477**

Fax **+61 2 4924 6212**

Email [craig.dalton@hnehealth.nsw.gov.au](mailto:craig.dalton@hnehealth.nsw.gov.au)

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