

EDUCATION and HEALTH

STANDING COMMITTEE

***Inquiry into the Cause and Extent of
Lead Pollution in the Esperance Area***

Department of Health Submission

April 2007

DEPARTMENT of HEALTH (DOH) Submission to
Parliamentary Inquiry into the Cause and Extent of Lead Pollution in the
Esperance Area

CONTENTS

1. DOH role and responsibilities
 - 1.1. Legislative arrangements
 - 1.2. DOH advice on the Magellan Metals proposal and licence conditions
2. DOH response
 - 2.1. Timing of DOH notification
 - 2.2. Rationale for action
 - 2.3. Implementation
3. Extent of lead contamination in Esperance

1. DEPARTMENT OF HEALTH (DOH) ROLE AND RESPONSIBILITIES

1.1. Legislation Applicable to DOH

The only legislative mechanism directly available to assist with the detection and subsequent control of lead poisoning outbreaks are the *Health (Notification of Lead Poisoning) Regulations 1985* made under Part IXA of the *Health Act 1911*.

Part IXA of the Act provides, in general, for regulations to be made to promote the prevention and alleviation of certain non-infectious disease processes and physical or functional abnormalities that are prescribed as conditions of health for the purposes of that Part of the Act.

"Lead poisoning" is a "prescribed condition of health" for the purposes of Part IXA of the Act.

No notifications have been received under those regulations relative to the Esperance incidence.

With relation to environmental approvals, the Department of Health's role is an advisory one only. It provides health information and advice on request to other Departments or Authorities about potential health concerns associated with certain activities. Decisions about when DOH advice is sought, and about the uptake of that advice, is at the discretion of other decision making authorities.

Development proposals with the potential to significantly impact the environment, or where there may be public concern about likely impacts on the environment and health of communities, are referred by the Department of Environment and Conservation (DEC) to the Environmental Protection Authority (EPA). The EPA determines whether such a proposal should be assessed and, if so, at what level. The EPA may then refer a proposal to the DOH for advice on the potential health risks to the community. The seeking of DOH input is at the discretion of the EPA, and no formal agreement exists between the EPA and the DOH for the provision of such advice.

The DOH Environmental Health Directorate (EHD), upon request, assesses and provides advice to the EPA in relation to such proposals, on safety of food and drinking water, wastewater management, mosquito control and where applicable, exposure protection from emissions.

The *Health Act 1911 (as amended)* identifies the powers of the Executive Director Public Health and Scientific Services (EDPH), including the power to make inquiries (Section 13) and the power to act in emergencies (Section 15). These powers do not include the ability to require persons to seek medical attention or to undertake blood or other medical tests. The DOH and EDPH can only encourage persons to seek appropriate medical attention.

1.2.DOH advice on the Magellan Metals proposal and licence conditions

The DOH has provided advice and recommendations on the Magellan Metals proposal since 1999 and has consistently emphasised the need for appropriate dust control to prevent exposure of the public to lead.

In October 2000, the (then) Department of Environmental Protection (DEP) sought DOH advice on the proposed licence conditions for the Magellan lead carbonate project for Wiluna and Geraldton. The DOH provided advice, recommending a dust control plan be implemented and air monitoring be conducted with the objective of complying with the national ambient air quality guideline.

In November 2000, the Minister for Health provided recommendations to the Office of the Appeals Convenor, who report to the Minister for Environment, recommending appropriate dust control measures in order to prevent fugitive emissions.

In August 2005, the DEP sought advice from the DOH on appropriate dust controls to minimise health impact in relation to the export of lead carbonate from the Esperance Port.

The DOH responded in September 2005, providing advice to the DEP identifying fugitive emissions as a serious health concern and recommending a dust risk assessment in addition to appropriate dust monitoring and control procedures.

<i>Attachment 1.2A</i>	<i>Chronology of events and advice given by DOH</i>
<i>Attachment 1.2B</i>	<i>11 October 1999 DOH letter to EPA commenting on the Consultative Environmental Review for the Magellan Lead Carbonate Project</i>
<i>Attachment 1.2C</i>	<i>25 October 2000 DOH letter to DEP on proposed licence conditions</i>
<i>Attachment 1.2D</i>	<i>6 November 2000 Minister for Health letter to the Appeals Convenor</i>
<i>Attachment 1.2E</i>	<i>14 May 2001 DOH letter to DEP advising of need for dust control to ensure no risk to public health</i>
<i>Attachment 1.2F</i>	<i>8 November 2004 DOH letter to Magellan Metals commenting on Health Hygiene and Environmental Management Program</i>
<i>Attachment 1.2G</i>	<i>21 September 2005 DOH letter to DEP identifying lead dust as a serious health concern and identifying appropriate monitoring and need for more stringent licence conditions</i>

2. DOH RESPONSE TO THE LEAD ISSUE

2.1. Timing of DOH notification

The DOH first became aware that bird deaths in the Esperance area were due to lead contamination on Tuesday 27 February 2007 via email correspondence from the Department of Environment and Conservation (DEC) – the successor department to the DEP. The correspondence indicated that results were still unconfirmed and that the DEC was awaiting the report and interpretation of results from the Animal Health Laboratories at the Department of Agriculture and Food.

The DOH sought and reviewed blood lead test results from the previous 3 months from PathWest and Western Diagnostic. Results did not indicate that the general community was being affected.

On 8 March 2007, the DEC advised DOH of a pending media release to confirm that bird deaths were due to lead poisoning. Formal written advice confirming lead as the cause of bird deaths was received by the DOH on 9 March 2007, the same day of the DEC media release.

- Attachment 2.1A 27 February 2007 DEC email to DOH advising of lead as likely cause of bird deaths*
- Attachment 2.1B 2 March 2007 Internal DOH email relating to recent blood lead results in Esperance*
- Attachment 2.1C 8 March 2007 Internal DOH email regarding pending DEC media release*
- Attachment 2.1D 9 March 2007 Faxed letter from the DEC to the Director General of Health, Dr Neale Fong*
- Attachment 2.1E Letter from Director General of Health Dr Neale Fong to the Director General of the Department of Environment and Conservation, Kieran MacNamara.*

2.2. Rationale for action

The DOH review of recent blood lead levels in reports provided by PathWest and Western Diagnostic Pathology provided no evidence to suggest that lead had made its way into the human population at levels of health concern.

The DOH was aware that the transport of lead carbonate to the Port and export from the Port had only been conducted for a period of approximately 18 months. The DOH considered, therefore, that the potential length of exposure for the human population was short.

Knowing the background of the potential exposure pathways for lead to enter the human body, it was possible for the DOH to determine that it was unlikely that lead had made its way into the human population at levels that would constitute a health concern. However, the DOH undertook to establish if environmental contamination had occurred and to provide cautionary advice to the Esperance community about the consumption of rainwater and homegrown produce.

The DOH response was evidence based and was refined as new evidence became available.

2.3. Implementation

Community liaison and advice

The DOH sent a team of two senior officers, including a Toxicologist, to Esperance on Thursday 15 March to obtain information about the potential source of lead and extent of potential lead contamination in the Shire of Esperance and at the Esperance Port Authority.

The DOH immediately advised Esperance residents through the media to not drink rainwater unless it had been tested and shown to comply with the Australian Drinking Water Guidelines and to visit their Medical Practitioner if they had concerns about their health.

The DOH attended and presented advice, information and the rationale for its activities at a public meeting in the Esperance Town Hall on 26 March 2007.

Environmental and biological monitoring

In response to the increase in demand for blood testing, the DOH arranged for an additional blood testing clinic to be established and operational on 21 March, to supplement the normal service offered through the Esperance Hospital.

The DOH continues to fund and support the rainwater tank sampling program conducted by the Shire of Esperance. Over 1200 residents have sought rainwater tank testing. The DOH has rotated staff through Esperance to assist Council officers in its sampling program.

DOH physicians and Environmental Health Officers have been, and continue to, follow up on rainwater tank exceedances and elevated blood lead levels, providing a range of information to general practitioners and residents in the area.

The DOH has undertaken ongoing Global Information System mapping of rainwater tank test results to assist in determining the nature and extent of lead contamination in Esperance.

The DOH also coordinated fish sampling in the Esperance area utilising local Fisheries officers. Of 41 fish sampled, only one exceeded the Food Standards Australia maximum level for lead in fish.

Expert advice and assistance

The DOH sought advice from an independent expert on the potential health risks of exposure to nickel, which has also been exported from the Port for a number of years. This was undertaken following a number of rainwater tank results also showing varying degrees of nickel residue.

The DOH has also sought the assistance of Professor Brian Gulson to isotopic fingerprint the type of lead detected in blood samples. This may

assist in providing public health advice regarding prevention of further exposure to lead by determining the source/s of the lead in the community. may assist in determining the source/s of the lead in the community. Results of fingerprinting are yet to be received by the DOH.

Ongoing community engagement

The Director General of Health and the Chief Health Officer, accompanying Minister MacTiernan, met with Port members and the Esperance Council on 03 April 2007.

Senior DOH officers met with local community groups and participated in an Open Day on Saturday 14 April and continue to communicate regularly with community groups, and individuals found to have elevated blood lead levels.

3. EXTENT OF LEAD CONTAMINATION IN ESPERANCE

Rainwater Tank Sampling

Rainwater tank testing around Esperance revealed that, of the 1187 tanks sampled to date, 245 (21%) have exceeded the Australian Drinking Water Guideline (ADWG) of 0.01 mg/litre for lead, while 356 (30%) have exceeded the ADWG of 0.02mg/litre for nickel.

Blood Lead Level Results

The Table below is taken from the DOH website, and indicates the results of blood testing. As at 23 April 2007, a total of 2073 test results indicate that 26 (or 1.3%) exceed the World Health Organisation guidelines (that is $\geq 10 \mu\text{g/dl}$). Interpretation of these results need to be undertaken with caution and may reflect different sources of lead contamination in the community over time (especially in older individuals).

Cumulative lead blood levels for Esperance community members from 19 March to 23 April 2007

Age group (years)	0 to < 5 (years)	5 to <10 (years)	10 to < 20 (years)	20 to < 40 (years)	> 40 (years)	Total
Number of tests	239	180	230	403	1021	2073
Average lead level ($\mu\text{g/dl}$)	3.3	2.4	1.7	1.9	3.1	2.7
Number $\geq 10 \mu\text{g/dl}$ * (values)	6 (11,12x2,13, 20,22)	0	0	2 (16,18)	17 (10x4, 11x6, 12, 13x2, 14, 16, 18x2, 21)	26

World Health Organisation (WHO) guidelines recommend blood lead levels < 10 $\mu\text{g/dl}$

Lead and Public Health in Esperance

Chronology of information and advice given by Department of Health (DOH)

4 May 1999	DOH provides formal advice to the (then) Department of Environmental Protection (DEP) on Draft Environmental Review Instructions to define scope of environmental review. DOH identifies need for a management strategy to minimise lead dispersal and for containment of lead during transport.
10 Sept 1999	DOH received request for comment from the DEP on the Magellan Lead Carbonate Project for Wiluna and Geraldton. The proposal specified that lead carbonate would be transported to the Geraldton Port.
11 Oct 1999	DOH sent formal advice to Environmental Protection Authority (EPA) on the consultative Environmental Review for the Magellan Lead Carbonate Project (EPA Assessment 1262) for Wiluna and Geraldton.
9 Oct 2000	DOH receives letter from DEP advising that EPA approved Magellan proposal for implementation
17 Oct 2000	Minister for Environment seeks DOH comment on licensing conditions for the proposal.
25 Oct 2000	DOH provides comment on Bulletin 996 to DEP in a letter, recommending more stringent licence restrictions on emissions, and suggesting that licence limits for ambient lead concentrations be set, consistent with the National Environmental Protection Measure (NEPM), to prevent exposure of the public.
6 Nov 2000	Minister for Health writes to the Office of the Appeals Convenor, reporting to the Minister for Environment, recommending appropriate dust control and to prevent fugitive emissions
28 Nov 2000	Minister for Environment announces proposal may proceed subject to conditions.
21 Mar 2001	DOH receives letter from DEP identifying areas for which DOH has responsibility under the environmental conditions and commitments for the project.
14 May 2001	DOH writes to DEP emphasising need for proponent to control dust and lead emissions to ensure no risk to

	public health. DOH recommends that DEP seek DOH advice on matters pertaining to public health risks.
6 Oct 2004	DOH receives documentation from Magellan Metals on its Environmental Management System for comment.
3 Nov 2004	DOH responds to Magellan Metals with no additional comments.
8 Nov 2004	DOH writes to Magellan Metals with comments on the Health Hygiene and Environmental Management Program recommending that Magellan Metals conduct a dust risk analysis and establish a monitoring program along the transportation route to and including the Port with attention to rainwater tank contamination.
1 Sept 2005	DOH receives memo from DEP seeking DOH advice and recommendations on appropriate controls to reduce health impact, additional monitoring to detect dust levels that may cause health problems and any other information that relates to the issue.
13 Sept 2005	DOH receives copy of Esperance Port Authority Air Monitoring Programme 1995 from DEP
21 Sept 2005	DOH wrote to the DEP providing the following information: <ul style="list-style-type: none"> • Fugitive dusts may pose a serious health concern • DOH supports recommendation to conduct a dust risk assessment • DOH recommends the following additional action by the DEC <ol style="list-style-type: none"> i. Restrict duration of dust generating activities ii. Investigate additional procedures to minimize unnecessary handling iii. Restrict on-site vehicle speeds iv. Reduce drop heights wherever possible v. Consider guideline values and monitoring methods for PM10 under the NEPM (Ambient Air Quality) vi. Specify appropriate conditions and contingency triggers for the use of water sprays etc on stockpiles and conveyers vii. On site dust monitoring facilities and assessment methods (dust-trak monitoring up wind during loading/unloading operations) • DOH recommended that the proposed EPA conditions be made more stringent to ensure adequate protection of public health. Specifically: <ol style="list-style-type: none"> i. The conditions are environmentally focused and do not provide useful information for health risk assessment.

- ii. Requirements suggested by DEC for dust control are non-specific and of little use for the enforcement of a suitable standard
- iii. Objectives and methods for handling and/or managing dust and particulates under the NFPM do not appear to have been considered during the licence amendments for the Port Authority.
- iv. More suitable dust monitoring methods are available that would allow assessment against relevant health standards
- v. DOH cited AS 3580.9.6 High Volume Sampling – Gravimetric method, AS 3580.9.7 Dichotomous sampling – Gravimetric method and AS 3580.9.8 TEOM sampling – Continuous direct mass method. DOH suggested Tapered Element Oscillating Microbalance (used for measuring PM10) may be most appropriate method to allow for real-time measurements.

19 May 2006

DOH receives letter from Keith Lindbeck and Associates Environmental Management Consultants, seeking DOH comment on the Scope of Work for monitoring of lead uptake in vegetation at the project.

7 July 2006

DOH writes to Keith Lindbeck and Associates identifying potential risks to animals grazing on land contaminated with lead. DOH recommended that livestock be excluded from mining area during mining and once mining has ceased.

Cumulative lead blood levels for Esperance community members from 19 March to 23 April 2007

Age group (years)	0 to < 5 (years)	5 to <10 (years)	10 to < 20 (years)	20 to < 40 (years)	> 40 (years)	Total
Number of tests	239	180	230	403	1021	2073
Average lead level ($\mu\text{g}/\text{dl}$)	3.3	2.4	1.7	1.9	3.1	2.7
Number $\geq 10 \mu\text{g}/\text{dl}$ * (values)	6 (11,12x2,13, 20,22)	0	0	2 (16,18)	18 (10x4, 11x6, 12, 13x2, 14, 16, 18x2, 21)	26

* World Health Organisation (WIO) guidelines recommend blood lead levels < 10 $\mu\text{g}/\text{dl}$