



EDUCATION AND HEALTH STANDING COMMITTEE

INQUIRY INTO THE CAUSE AND EXTENT OF LEAD POLLUTION IN THE ESPERANCE AREA

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in the 37th Parliament**

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Education and Health Standing Committee

Inquiry Into the Cause and Extent of Lead Pollution in the Esperance Area

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***EDUCATION AND HEALTH STANDING
COMMITTEE***

**INQUIRY INTO THE CAUSE AND EXTENT
OF LEAD POLLUTION IN THE
ESPERANCE AREA**

Report No. 8

Presented by:
Hon Dr K.D. Hames, MLA
Laid on the Table of the Legislative Assembly
on 6 September 2007

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COMMITTEE'S FUNCTIONS AND POWERS

The functions of the Committee are to review and report to the Assembly on:

- (a) the outcomes and administration of the departments within the Committee's portfolio responsibilities;
- (b) annual reports of government departments laid on the Table of the House;
- (c) the adequacy of legislation and regulations within its jurisdiction; and
- (d) any matters referred to it by the assembly including a bill, motion, petition, vote or expenditure, other financial matter, report or paper.

At the commencement of each Parliament and as often thereafter as the Speaker considers necessary, the Speaker will determine and table a schedule showing the portfolio responsibilities for each committee. Annual report of government departments and authorities tabled in the Assembly will stand referred to the relevant committee for any inquiry the committee may make.

Whenever a committee receives or determines for itself fresh or amended terms of reference, the committee will forward them to each standing and select committee of the Assembly and Joint Committee of the Assembly and Council. The Speaker will announce them to the Assembly at the next opportunity and arrange for them to be placed on the notice boards of the Assembly.

INQUIRY TERMS OF REFERENCE

On 4 April 2007, the Legislative Assembly referred to the Education and Health Standing Committee the following Terms of Reference:

- (1) That the Education and Health Standing Committee be requested to inquire into and report by 16 August 2007, on the cause and extent of lead pollution in the Esperance area, with specific reference to the following matters -
 - (a) how the environmental approval process for the transport and export of pelletised lead enabled the transport and export of granulated lead;
 - (b) the effectiveness of dust monitoring and reporting in relation to lead levels in the area and the adequacy of the response to those reported levels;
 - (c) the extent to which handling and other practices at Esperance Port gave rise to the benthic lead levels in the harbour;
 - (d) whether the Esperance Port Authority properly exercised its responsibilities in relation to the potential lead pollution;
 - (e) whether the Department of Environment and Conservation's responsibilities in relation to the Esperance Port Authority processes, practices and procedures, including the legal and regulatory framework, were adequate and properly exercised; and
 - (f) that the Committee is given power to investigate any other issues pertinent to the cause and extent of lead pollution in the Esperance area.
- (2) The Members for Roe and Peel be appointed as members of the Education and Health Standing Committee for the purpose only of the inquiry into the Cause and Extent of Lead Pollution in the Esperance Area.

On 15 August 2007, the Legislative Assembly agreed to an extension until 6 September 2007 for the Committee to inquire and report on the cause and extent of lead pollution in the Esperance area.

CHAIRMAN'S FOREWORD

There are three things that have amazed me most in the process of considering the cause and extent of lead pollution in Esperance.

Firstly it amazes me that, in this day and age of modern methods of mining, transport, monitoring and assessment, it takes the death of native birds, like the canaries of old, to alert the people of the Town of Esperance to the poisoning of their community.

Secondly it amazes me that a Government department, the local prize winning port and a mining company could so badly let down the families, and especially the children, of Esperance who had placed their trust in those who should have ensured their protection.

Thirdly it has amazed the Committee that our Principal Research Officer, Jeannine Purdy, ably assisted by Nicole Burgess and Jo Molin, have been able, in such a relatively short space of time, to turn a mountain of written and oral information into a comprehensive document that has the support of all members of the Committee. I am certain that I speak on behalf of all of the Committee in thanking them for their wonderful effort.

I want to thank the two seconded members, the Member for Roe and the Member for Peel, who fitted well into the fabric of our Committee and both made a strong and valued contribution to the formation of the report. I would like to also take the opportunity to acknowledge the contribution of the other long standing Committee members, the Member for Wanneroo and the Member for Bassendean. My last thanks go to the Member for Wagin, whose humour and good nature sustained and bound the fabric of the committee.

I wish to also acknowledge the Chairman of the Education and Health Standing Committee, the Hon Tom Stephens MLA who, in my view, made the correct decision in stepping down for the duration of this inquiry due to his association with the Chief Executive Officer of the Esperance Port Authority.

The Government should be commended for not replacing the Chairman, as this allowed the Committee to remain balanced with three Labor, two Liberal and a National member allowing no possible accusation of bias to be made against the Committee. Early media impressions were that the Committee would be a whitewash, and yet I believe that there has developed an understanding by the media, the community and those being investigated that we would leave no stone unturned in our investigations.

I can assure all those who read this that at no stage, by any member, was any attempt made to do anything other than expose the full story of the failures revealed in this report. Rather, the Committee has done its absolute best to elucidate these failures - with a feeling of disbelief and outrage, on behalf of the Esperance Community.

We have made no specific findings against individuals. Indeed it became apparent that, while certain individuals certainly played a large part in the failings described, those failings seem to me

to be the result of an inability to adequately understand the grave consequence of their inaction rather than a deliberate attempt to deceive.

The report attempts instead to highlight in great detail the sequence of events that resulted in the lead pollution of Esperance, making it clear through the findings how these events came about, and hopefully providing a clear direction to Government as to the changes that are essential to ensure that such events never occur again. We hope also that the report will provide for the people affected by lead pollution a better understanding of the potential impact on them and their children.

It is now up to the Government to take up the baton, to seek to punish where required, but more importantly to undertake the funding and structural changes that we believe will greatly improve management of dangerous goods in Western Australia in the future.

HON DR K.D. HAMES, MLA
ACTING CHAIRMAN

ABBREVIATIONS AND ACRONYMS

ABS	Australian Bureau of Statistics
ACSS	Australian Safety and Compensation Council
ADG Code	Australian Dangerous Goods Code
AHL	Animal Health Laboratories
ANZECC	Australian and New Zealand Environment Conservation Council
AQIS	Australian Quarantine and Inspection Service
ARG	Australian Railroad Group
ARL	Analytical Reference Laboratory
ATC	Australian Transport Council
CALM	The Department of Conservation and Land Management
CEO	Chief Executive Officer
CER	Consultative Environmental Review
COAG	Council of Australian Governments
CSIRO	The Commonwealth Scientific and Research Organisation
CV	Conveyor
DEC	The Department of Environment and Conservation (previously the DoE, DEP, DEWCP, CALM)
DEP	The Department of Environmental Protection (now DEC)
DEWCP	The Department of Environment, Water and Catchments Protection (amalgamation of the Department of Environmental Protection and the Water and Rivers Commission)
DG	Dust gauge
DG Transport Act	<i>Dangerous Goods (Transport) Act 1998</i>
dl	Decilitres
DME	The Department of Minerals and Energy (now DoIR, with the 'Resources Safety' functions located in DoCEP)
DoCEP	The Department of Consumer and Employment Protection
DoE	The Department of the Environment

DOH	The Department of Health
DoIR	The Department of Industry and Resources (previously DME and the Department of Department of Industry and Technology)
DoW	The Department of Water
DPI	The Department for Planning and Infrastructure
EDG Act	<i>Explosives and Dangerous Goods Act 1961</i>
EDPH	Executive Director Public Health and Scientific Services
EEU	Environmental Enforcement Unit
EHD	Environmental Health Directorate
EIL	Ecological Investigation Level
EMS	Environmental Management System
EO	Environmental Officer (DEC officers at levels 2- 4)
EPA	Environmental Protection Authority; can also be used to refer to the Esperance Port Authority ¹
EP Act	<i>Environmental Protection Act 1986 (WA)</i>
ERS	Environmental Risk Solutions
Fe	Iron
FEL	Front-end loader
FTE	Full-Time Equivalent
HDWA	Health Department Western Australia
HEPA	High-efficiency particulate air filtered (vacuum cleaners)
HHEMP	Health, Hygiene and Environmental Management Plan
HIA	Health Impact Assessment
HNO ₃	Nitric acid
HSE	Health, Safety and Environment
ISQG	[ANZECC] Interim Sediment Quality Guideline
LEAF	Local Environmental Action Forum Inc.

¹ For the purposes of this Report, EPA is only used to refer to the Esperance Port Authority when it appears as such in direct quotes.

LED	Locals for Esperance Development
LME	London Metal Exchange
LPG	Liquid Petroleum Gas
MA	<i>Mining Act 1978</i>
mg	Milligram
mg/m ² /month	Milligrams per metre squared per month
MLA	Member of the Legislative Assembly
MSDS	Mineral Safety Data Sheet
MSIA	<i>Mines Safety and Inspection Act 1994</i>
NATA	National Association of Testing Authorities
NEPM	National Environmental Protection Measure
Ni	Nickel
NOHSC	National Occupational Health and Safety Commission (Australia) - now ACSS
NOI	Notice of Intent
NOS	Not Otherwise Specified
OH&S	Occupational Health and Safety
OHSE	Occupational Health, Safety and Environment
Pb	Lead
PbB	Lead in blood
PER	Public Environmental Review
PM	Particulate Matter
PMP	Project Management Plan
POM	Port Operations Manager
PWD	Public Works Department (now DPI)
RAG	Recherche Advisory Group Inc.
RED	Residents for Esperance Development
RNO	Ravensthorpe Nickel Operations

RSD	Resources Safety Division (of DoCEP)
SHED	Safety Health and Environment Division (previously of DoIR)
TBT	Tri-butyl tin
TEOM	Tapered Element Oscillating Microbalance
TML	Transportable Moisture Limit
TSP	Total Suspended Particulate Matter
µg	Micrograms
UN	United Nations
WMC	Western Mining Company
WRC	Water and Rivers Commission

GLOSSARY

Aerosol	A dispersion of very small solid or liquid particles in a gas. Examples are smoke and fog. ²
Acute exposure	Exposure to a chemical for a short period of time, relative to the organism's life, span for example, 14 days or less for humans. ³
Belly plate	Structure that is fitted underneath conveyors to catch material and prevent spillage.
Benthic	Relating to the bottom of a water body or to the organisms that live there.
Bioconcentrate	To become more concentrated in the tissues of plants and animals than in the surrounding environment. ⁴
Box hull ship/Spleithoff	Ship with hull configured in a set of boxed compartments.
Bulk handling	The handling of goods or cargo not in packages or boxes, usually transported in large volume, such as grain, coal or petroleum. ⁵
Bunding	A structure or wall used to contain materials and prevent or contain leakages.
Cerussite	Mineral consisting of lead carbonate (PbCO ₃).
Chronic exposure	Exposure to a chemical for a relatively long period of time (for example, 365 days (1 year) or more for humans). ⁶
Chronic toxicity	A toxic effect which occurs after repeated or prolonged exposure. Chronic effects may occur some time after exposure has ceased. ⁷
Consultative Environmental Review (CER)	This level of assessment was typically applied to proposals of local significance that raise a number of significant environmental factors, and was the lowest level of assessment required under the Environmental Protection Authority's environmental review processes.

² Australian Government, Department of Environment and Heritage, National Pollutant Inventory, Glossary, Available at: www.npi.gov.au/epg/npi/contextual_info/glossary.html Accessed 24 August 2007.

³ *ibid.*

⁴ *ibid.*

⁵ Random House Unabridged Dictionary, Available at dictionary.reference.com/browse/bulk Accessed on 27 August 2007.

⁶ Australian Government, Department of Environment and Heritage, National Pollutant Inventory, Glossary, Available at: www.npi.gov.au/epg/npi/contextual_info/glossary.html Accessed 24 August 2007.

⁷ *ibid.*

Closed evidence	Committee evidence, received by hearing or submission that is not publicly attributed to an individual or organisation. ⁸
COAG	Council of Australian Governments.
Contam	A computerised system operated by the Resources Safety Division of DoCEP that records personal exposure monitoring results for workers in mining and exploratory activities in Western Australia. Information is recorded on CONTAM forms and forwarded to DoCEP.
Dangerous goods	Dangerous goods are substances and articles that have the potential to cause harm to people, property and the environment. They are defined by their physical and chemical properties. The term is used to describe a large range of goods including petrol, LP Gas, chlorine, explosives and fireworks. ⁹
Depositional dust gauge sampling	Over the given sampling period, dust particles that settle from the ambient air, together with rainwater, are collected through a glass funnel and retained in a 2 litre glass flagon with a wide mouth. The sample is tested by a laboratory and reported in micrograms per square meter per month. Dust gauge sampling was ' <i>used as a long-term monitor to assess trends of dust levels escaping the port operations area</i> '. In Western Australia, DEC has not set standards of what is acceptable for depositional dust gauges. ¹⁰
Flotation process	Until the invention of the flotation process, the extraction of metal depended upon being able to hand-pick the material in order to be economical. The flotation process depends on the properties of minerals by which their surfaces differ in the degree by which their surfaces can be wetted, and takes best advantage of such differences by suitable choice of the solution. Ore is first ground into a powder, which is introduced to a series of tanks (known as flotation cells) holding a solution containing oils, constantly agitated, through which air is pumped. The particles of minerals adhere to the raft of air bubbles on the surface, while the majority of the worthless rock (known as the gangue) sinks. The valuable material is skimmed from the surface froth; the waste material is removed from the bottom of the tank. ¹¹
General Report Sheets	Form (FM003) used by employees and contractors at the Port of Esperance to report any incident, accident or hazard.

⁸ Legislative Assembly, Standing Order 271(3).

⁹ DoCEP website, Available at www.docep.wa.gov.au/resourcessafety/sections/Dangerous_Goods/Pages/Dangerous_Goods_Over.html Accessed 22 August 2007.

¹⁰ Esperance Port Authority, Dust Gauge Monitoring and reporting Procedure PR038, 3 May 2005; Letter from Program Manager, Environmental Protection, Swan-Goldfields-Agricultural Region, Department of Environmental Protection Water and River Commission, to the Manager, Esperance Port Authority, 17 April 2002, p2; Esperance Port Authority, *Esperance Port Environs Deposition Dust-Gauge Monitoring July-December 2001*.

¹¹ Today in Science History, 'The Flotation Process', Available at: www.todayinsci.com/Events/Technology/FlotationProcess.htm Accessed on 26 August 2007.

Hazardous substances	<p>Hazardous substances, as the term is used in this Report, have the potential, through being used at work, to harm the health or safety of persons in the workplace. They are:</p> <ul style="list-style-type: none"> • harmful/toxic - causing transient or permanent damage to body functions; • corrosive - causing damage to living tissue; • irritant - causing local irritation to living tissue; • sensitising causing an allergic reaction; • carcinogenic - causing cancer; • mutagenic - causing genetic damage; and • a substance toxic to human reproduction.¹²
Haematite	Generally used to mean iron ore.
HEPA vacuum	High-efficiency particulate air filtered vacuum cleaners.
High volume air samplers	High-volume air samplers draw a large known volume of air through samplers, and trap the dust on pre-weighed glass fibre mats (filters) for 24 hours. After sampling, the filter is re-weighed and the difference in filter weight is the particulate mass. The particulate mass can be analysed to determine the concentration of pollutants, such as lead or other metals. ¹³ These have standards for what is acceptable for lead in air; that is, a maximum concentration of 0.5µg/m ³ using the average of sampling taken every sixth day over a year. ¹⁴
Inloading	Term used by the Port to describe the act of unloading goods coming into storage, or for export.
Inorganic	Substances not containing carbon-carbon bonds.
Isotope testing	Isotopic ratios may differ for different mineral sources, and this property has been exploited in non-radioactive tracer studies to investigate environmental and metabolic pathways of minerals such as lead. Lead (Pb) has four naturally occurring isotopes with atomic weights 208, 206, 207 and 204 (in decreasing order of abundance). ¹⁵

¹² Submission No. 93(a) from Resources Safety Division, DoCEP, 19 June 2007, p8.

¹³ Queensland Government, Environmental Protection Agency, Airborne Particulates, Available at: www.epa.qld.gov.au/environmental_management/air/air_quality_monitoring/air_pollutants/airborne_particulates/?format=print Accessed on 22 August 2007.

¹⁴ Department of the Environment and Water Resources, *Lead and compounds, Substance fact sheet* - Version 1.0, July 2007.

¹⁵ World Health Organisation, Air Quality Guidelines, Second Edition Chapter 6.7, Copenhagen 2001.

Kibbles	Otherwise known as ‘tubs’, traditionally these are the open buckets used to bring ore to the surface of underground mines. For the purposes of this Report, kibbles are the large metal skips that have been used to move nickel, loaded and unloaded on to trucks or trains by front-end loader. These are covered, but not sealed, by polycarbonate tarpaulins (refer to photograph at p5).
Material Safety Data Sheet (MSDS)	<p>A MSDS is a document that provides information about a hazardous substance and how it should be used and how to avoid harm when using it at the workplace and will include:</p> <ul style="list-style-type: none"> • the identity of the hazardous substance; • chemical and physical properties; • health hazard information; • precautions for use; and • safe handling information.
Median blood lead level	Commonly known as the middle level in a range of samples. It is the number that divides the top half of scores (blood samples) from the lower.
Micrograms per cubic metre	One millionth of a gram of a substance in a cubic metre of air, soil or water. That is, 0.00000001 grams per litre of air, soil or water. ¹⁶
Milligrams per cubic metre	One thousandth of a gram of a substance in a cubic metre of air, soil or water. That is, 0.000001 grams per litre of air, soil or water. ¹⁷
Ministerial conditions	Conditions presented in Ministerial Statements.
Ministerial Statement	Following assessment of a project under Part IV of the <i>Environmental Protection Act 1986</i> , the Ministerial Statement issued by the Minister for the Environment sets out the conditions and proponent commitments which have to be satisfied to allow the project to proceed. The conditions and the commitments are legally binding.
Mobi Vac	Abbreviation for mobile vacuum truck used at the Port of Esperance to clean up spills.
Organic	Substances containing carbon-carbon bonds. Historically, the term referred to substances which are part of or derived from living organisms, although most organic compounds now are synthetic. All

¹⁶ Australian Government, Department of Environment and Heritage, National Pollutant Inventory, Glossary, Available at: www.npi.gov.au/epg/npi/contextual_info/glossary.html Accessed 24 August 2007.

¹⁷ *ibid.*

	living matter on Earth includes carbon as a component (see also 'inorganic'). ¹⁸
Outloading	Term used to describe the movement of product from port storage to ships for export. At Esperance the 'outloading' process for lead commenced when product was loaded into the reclaim hopper inside the lead shed.
Polo Citrus	Polo Citrus is the producer of a range of dust suppressant products.
Prescribed premises	Under the <i>Environment and Protection Act 1986</i> , prescribed premises are premises with significant potential to cause pollution of air, land or water are known as prescribed premises.
Pollutant	A chemical which may reduce the quality of the environment.
Pollution	Presence of one or more pollutants in the environment.
Proponent commitments	Proponent commitments set out in Ministerial Statements.
Public Environmental Review (PER)	This level of assessment was typically applied to proposals of local or regional significance that raise a number of significant environmental factors, some of which are considered complex and require detailed assessment to determine whether, and if so how, they can be managed. The PER document was released for a period of normally between four and eight weeks public review.
'Robinson Review'	<i>The Review of the Enforcement and Prosecution Guidelines of the Department of Environment by Dr Brian Robinson in 2003. The Review 'concluded that there is a lack of clarity about the role of enforcement within the Department, that there is inadequate connection between enforcement activities and other activities related to the same premises, that there is confusion on the role of prosecutions, that enforcement and prosecution skills need enhancing and that there is a need for greater transparency and communication with the community.'</i> ¹⁹
Stygofauna	Animals that live within groundwater systems.
Tapered Element Oscillating Microbalance	Tapered Element Oscillating Microbalance (TEOM) samplers can be fitted with a size-selective inlet to monitor particles of different sizes. These samplers draw air through a filter mounted on a vibrating glass tube. As the particles get trapped on the filter the additional weight changes the oscillating frequency of the tube. This frequency change is converted into a particulate mass that can be divided by the volume of air being drawn into the instrument to produce the particle concentration. TEOM samplers operate on a continuous basis and do not need filter changes as frequently as high-volume air samplers. An advantage of continuous monitoring

¹⁸ Australian Government, Department of Environment and Heritage, National Pollutant Inventory, Glossary, Available at: www.npi.gov.au/epg/npi/contextual_info/glossary.html Accessed 24 August 2007.

¹⁹ Robinson, B, *Review of the Enforcement and Prosecution Guidelines of the Department of Environment*, February 2003.

is that it can provide additional information, such as the time of day that peak concentrations occurred. Such information may be used in conjunction with meteorological data to help identify the source of an emission.

Total Suspended Particulate Matter (TSP)	This is the total amount of suspended particular material present in the atmosphere. It is measured using high-volume air samplers.
Toxic	Poisonous particularly in relation to dangerous goods for transport. ²⁰
United Nations Number	Also less commonly known as the Substance Identification Number (SI) and UN Transport Number, it is a system of four digit numbers, assigned to a substance, or a group of chemicals with similar hazardous properties. ²¹

²⁰ International Maritime Organisation, *IMDG Code 2004 Edition*, IMO, London, 2005, p73.

²¹ Chemlink, 'Glossary of terms', 28 August 2008. Available at: <http://chemlink.com.au/gloss.htm>. Accessed on 28 August 2008.

EXECUTIVE SUMMARY

Overview

*If it had not been for the dead birds and vigilant and persistent people like Michelle Crisp and others, we would still have lead and nickel dust blown all over our community with no checks and balances.*²²

In December 2006, Esperance community members recorded that birds were *'actually falling from the sky'*.²³ By the end of the month, the Department of Environment and Conservation (DEC) had received over 20 reports of bird deaths in Esperance, and estimated that the total number of deaths, based on local bird density data, was approximately 4,000.

By the end of March 2007, the estimate of bird deaths had increased to a total of 9,500 birds in the Esperance area and the Port was subject to a prevention order from DEC prohibiting it from handling lead carbonate. On 4 April 2007, it was confirmed by isotope testing²⁴ of samples taken from dead birds, soil, water and sediment in Esperance that these matched the lead in samples of Magellan Metals Pty Ltd concentrate transported into the town by rail for export through the Esperance Port.

On the same day, 4 April 2007, and after a strong community reaction to the contamination of an area known for its *'pristine'* environment, the inquiry into the cause and extent of lead pollution in the Esperance area was referred to the Education and Health Standing Committee.

The Committee is satisfied that lead pollution in the Esperance area was substantially caused by the transport of Magellan Metal's lead concentrate to, and handling through, the Port of Esperance. The Committee is particularly mindful that this lead pollution has found its way into the blood of some Esperance community members, including children.

The Committee has not tried to reassure the Esperance community, and potentially others along the transport corridor, that they need not worry. What the Committee has done is seek to document the most recent medical assessments on the impact of these kinds of exposures, particularly for children.²⁵ Through its Report, the Committee also hopes to have ensured that assistance to deal with the effects of the lead pollution is available. Beyond that, the Committee's focus has been on trying to understand how these events occurred so that it can assist in ensuring that similar events do not occur again.

²² Submission No. 49 from Mr Chris Boland, 16 May 2007, p6.

²³ Submission No. 62 from Ms Judy and Mr Mark Williamson, 24 May 2007.

²⁴ Isotopic ratios may differ for different mineral sources, and this property has been exploited in non-radioactive tracer studies to investigate environmental and metabolic pathways of minerals such as lead. Lead (Pb) has four naturally occurring isotopes with atomic weights 208, 206, 207 and 204 (in decreasing order of abundance) (World Health Organisation, Air Quality Guidelines, Second Edition Chapter 6.7, Copenhagen, 2001).

²⁵ Refer to Appendix 8.

To some extent how the lead pollution of the Esperance area occurred is, and perhaps always was, obvious. Paradoxically, however, it was the very predictability of what occurred that was one of the most perplexing aspects of this inquiry. The Committee identified a number of times, prior to these events, when various agencies and individuals, often in detail, raised concerns that were almost prophetic of the events that were to unfold. From the outset, clear advice was given about the danger of the Magellan product; the concerns about the transport route, and the risks of inadequate handling systems and environmental monitoring at the Port.

The Committee is convinced that the events that unfolded were foreseeable and in fact were foreseen. What remains less clear, and is the subject of much detailed examination in this Report, is how, despite being foreseen, the events leading to this inquiry happened anyway.

As a result, the scope of this inquiry was vast and, within the timeframe set, was challenging. The inquiry has dealt with a great many issues, regulatory regimes, parties and a massive amount of evidence. The focus of the Committee has been to make findings and recommendations relating to systemic failures and appropriate remediation responses.

The Committee has identified major failings in DEC's industry regulation function and shortcomings in other regulatory agencies. The Committee believes that these regulatory failures, combined with the irresponsible and possibly unlawful conduct of the Esperance Port Authority, Magellan Metals Pty Ltd, and BIS Industrial Logistics, exposed workers and the community to unacceptable and avoidable health and environmental risks.

Report Structure

This Report is structured according to the inquiry terms of reference as referred by the Legislative Assembly. Terms of reference (a) to (f) are as follows:

- (a) *how the environmental approval process for the transport and export of pelletised lead enabled the transport and export of granulated lead;*
- (b) *the effectiveness of dust monitoring and reporting in relation to lead levels in the area and the adequacy of the response to those reported levels;*
- (c) *the extent to which handling and other practices at Esperance Port gave rise to the benthic lead levels in the harbour;*
- (d) *whether the Esperance Port Authority properly exercised its responsibilities in relation to the potential lead pollution;*
- (e) *whether the Department of Environment and Conservation's responsibilities in relation to the Esperance Port Authority processes, practices and procedures, including the legal and regulatory framework, were adequate and properly exercised; and*
- (f) *that the Committee is given power to investigate any other issues pertinent to the cause and extent of lead pollution in the Esperance area.*

Each of these terms is the subject of a chapter, 6 to 11 respectively, in this Report. It is hoped that, for readers with a specific interest, each of these chapters can be read as '*standing alone*'.

For readers who do not already have a grasp of some of the technicalities, agencies and complex approval processes involved in the events the subject of this inquiry, a number of introductory and explanatory chapters have been included (Chapters 1 to 5). A number of more detailed appendices, relating to the chronology of events (Appendix 5), the properties of lead (Appendix 6), the transport of lead concentrate elsewhere (Appendix 7), and the health issues and impacts of lead (Appendix 8), have also been included.

Summary

Chapter 1 briefly outlines how lead pollution in the Esperance area came to the attention of the community. It also sets out the transport arrangements and the Esperance Port facilities for handling Magellan's lead concentrate, including photographs, and a site map for the Port.

Chapter 2 brings together the results of the range of tests that have been conducted in the Esperance area. These include testing of rainwater, soil, dust swabs, benthic levels and most significantly, blood lead levels. The results of blood testing of children are of particular concern to the Committee. Not only are children more susceptible to, and potentially more affected by, lead contamination, it was also the isotopic analysis of children's blood lead which most clearly identified the extent of contamination by Magellan lead.²⁶

Eighty-one of the approximately 600 children tested had blood lead levels equal to or above five micrograms per decilitre. Although adverse impacts have been demonstrated for children with exposure at these levels, studies related to longer-term exposure than occurred in Esperance. Fortunately too, the blood lead levels for the children tested in Esperance were far lower than those for the children in locations such as Port Pirie, or indeed for children tested in Western Australia in the mid-1990s when leaded petrol was still prevalent.

Overall the tests indicated that the extent of lead pollution in the Esperance area was significant, but patchy. Although DEC identified an area of '*primary impact*', close to the Port, in the absence of controlled studies to identify trends of contamination, and results for testing along the whole transport route, the Committee is not able to delineate the geographic extent of the contamination.

Before concluding the examination of the extent of lead pollution, the chapter includes the personal accounts of Esperance community members about their perceptions and experiences of pollution in Esperance.

Chapter 3 sets out the Parliamentary origins and procedures relating to this inquiry. It also outlines the extensive materials available to the Committee as evidence, including in excess of 100 submissions and 1000 documents, transcripts for more than 50 witnesses, and volumes of health and other reports. In particular, the Committee takes the opportunity to acknowledge the contribution of those individuals and community groups who gave freely of their time to assist the

²⁶ Because adults had blood lead from other sources, uncertainties associated with exposure to lead made the testing invalid for adults. The contribution of Magellan lead to the blood lead levels of children tested was between 30-87 per cent; for those children with blood lead levels of more than 3µg/dl, 84 per cent had at least 50 per cent Magellan lead (Gulson, B & Korsch, M, *Report on Lead Isotopic Analyses of Samples Associated with the Esperance Lead Investigation*, May 2007).

Committee and also those who were prepared to share their own and their family's medical details, personal concerns and experiences. This allowed the Committee and the public to grasp something of the impact these events have had on those affected.

The Committee also notes the demands placed on agencies which were already undergoing considerable strain as a result of the events that are the subject of this inquiry and records its appreciation of the cooperative, timely and professional manner in which these agencies, and in particular, the Department of Environment and Conservation, the Esperance Port Authority and Magellan Metals Pty Ltd, assisted the inquiry.

Chapter 4 provides background on the Esperance community and each of the principal agencies involved in these events. Detail of the structures and processes of relevant commercial agencies, such as the Esperance Port Authority, Magellan Metals Pty Ltd and BIS industrial Logistics, and government regulatory agencies including DEC, the Environmental Protection Authority, and the Resources Safety Division of the Department of Consumer and Employment Protection (DoCEP) are set out.

This chapter examines the broader context associated with the particular issues that are the subject of this inquiry, including deficiencies in the management structure of port authorities and the marked incapacity of DEC to meet its industry regulation targets. The chapter includes a number of significant findings and recommendations relating to these areas.

Chapter 5 explores the environmental approval processes associated with the mining, transport and export of the Magellan product. First it examines the processes, including public consultation, required by the Environmental Protection Authority when the Magellan project was initially proposed. The chapter also examines the variation to that project, allowing export through Esperance rather than Geraldton as originally proposed, and why no formal public consultation was required as part of the variation process.

The variation to the Esperance Port's environmental licence, as administered by DEC, allowing the Port to bulk handle lead concentrate, is also explored. The Committee concludes that these environmental approval processes were effective in imposing only minimal conditions to protect the Esperance area from lead pollution.

Chapter 6 is the first concerning one of the terms of reference to which the Legislative Assembly requested the Committee give particular attention. It concerns the form in which the lead concentrate was transported and whether the environmental approval processes required it to be in a pelleted rather than granulated form. This issue was initially seen as critical to how the lead pollution in the Esperance area occurred, but in the Committee's view, this did not prove to be the case. Rather it appears to the Committee that there was a lack of clarity and consistency in the language used to describe the form of the lead concentrate, and in any event, a failure to incorporate any binding requirement as to the form of the lead concentrate into the environmental approval processes by either the Environmental Protection Authority or DEC.

These environmental approval processes took into account evidence of '*public consultation*' from the Esperance Port Authority and Magellan Metals Pty Ltd when they were seeking approval to export the lead concentrate through Esperance. The Committee is concerned that the Port and

Magellan were not required to carry out any additional public consultation when the undertakings originally communicated (in this case relating to the *'agglomeration'* and *'pelletising'* of lead concentrate) were discarded.

Chapter 7 concerns the effectiveness of dust monitoring and reporting in the Esperance area and the adequacy of the response to those reports. This issue was of particular concern to the Esperance community as it appeared that the systems upon which the Port relied, and was permitted to rely, were not fit for the purpose of protecting the health and well-being of the community and the environment.

The Committee, with some alarm, concludes that community concerns, in this respect, were well founded. The Port's dust monitoring was intermittent and measured only against standards associated with *'nuisance'* dust. The Committee also finds that the reporting requirements imposed by DEC were inadequate and in any event reports were poorly responded to when available. In this chapter, the Committee examines the role of DEC, the Esperance Port and Magellan Metals in the failure of dust monitoring in the Esperance area.

Chapter 8 examines how the Port's handling and other practices contributed to benthic contamination in the Esperance harbour. This chapter notes, once more, the limited regulatory framework in which the Port operated. It was the voluntary monitoring of marine sediment by the Port which has been most useful to the Committee in gaining an understanding of benthic contamination of the harbour.

Two claims by the Port in relation to the existing nickel and lead benthic contamination are explored in this chapter: the claim that the berths were not cleaned by hosing spilled material into the harbour, and the claim that it was the storm in January 2007 which caused the contamination detected by DEC in March 2007 at the discharge pipe. The Committee finds both claims to be unsupported by the evidence.

This chapter is also the first to document in detail the concerns raised by the Esperance Port workforce about the deficiencies in the Port's infrastructure and handling practices. These concerns were raised with the Port's Board prior to its decision to enter into the contract with Magellan Metals Pty Ltd to bulk handle the Magellan product, but were only partially addressed. In particular the installation of a dirty water treatment plant, to treat the contaminated rain and cleaning water from the berths and the heavy metal sump where kibbles were unloaded from the trains, was seen as critical to the contamination of the harbour. The Committee notes that a dirty water treatment plant was only installed in or about June 2007, two years after the contract with Magellan was signed.

Chapter 9 addresses the issue of whether the Esperance Port Authority properly exercised its responsibilities in relation to the potential lead pollution. The Committee understands this term of reference as requiring it to assess what the Port knew, or should have known, about the risks of lead pollution and what it did to manage those risks. The chapter examines the adequacy of the Port's response to risks highlighted by: community complaints and its own monitoring of the nickel contamination; the advice of its workforce; its experience in outloading lead; and the monitoring of its workforce. The Committee also specifically examines the information which was available to the Port's Board and the adequacy of its response to that information.

The adequacy of the Port's response is considered within a context in which the Port stated that it was aware of the risks of lead pollution, but also one in which DEC's regulatory framework was seriously deficient. Magellan's conduct, in particular with reference to controlling moisture content of its product for safe handling, is also considered. The Committee concludes that the Port and Magellan did not properly exercise their responsibilities in relation to potential lead pollution (DEC's role is considered in Chapter 10).

Chapter 10 examines whether DEC adequately and properly exercised its responsibilities in relation to the Esperance Port. The Committee highlights that numerous findings throughout the Report identify DEC's deficiencies in relation to its industry regulation generally, and specifically its regulatory role in relation to the Esperance Port. The chapter examines in detail why this was the case.

While the Committee remains acutely aware of community concerns about DEC operations, the detailed consideration of DEC's regulation of the Esperance Port between 2002 and 2007 demonstrates the impact of the numerous restructures and reviews that have beset the Department in recent years. In particular the disruption to initiatives to improve dust monitoring at Esperance Port and the crucial loss of corporate knowledge about the operations and infrastructure at the Port undermined the efforts of individual DEC officers to respond to community concerns, and ultimately rendered these efforts ineffective. This is the context in which the Committee finds that the interests of environmental protection in this State would not be best served by DEC undergoing further review and restructure. The Committee recommends, however, that efforts to ensure that DEC officers adopt a more robust regulatory approach in the discharge of their functions remain critical.

Chapter 11 canvasses other issues that the Committee believes are pertinent to the cause and extent of lead pollution in the Esperance area.

The first concerns allegations made in a number of submissions about the potential for the interference by political lobbyists in the approvals processes concerning the export of the Magellan Metals Pty Ltd concentrate through Esperance. The Committee investigated this matter with key agencies, Magellan Metals Pty Ltd, the Esperance Port Authority and the Environmental Protection Authority, and is satisfied that, on the evidence available to it, no such interference occurred.

The second issue, examined in Chapter 11.2, regarding hazardous and dangerous goods was a particularly significant one, not least because the Committee's inquiries in this area resulted in some of its most critical findings in relation to the parties involved in the events that are the subject of this inquiry. It appears to the Committee that despite the Magellan lead carbonate being classified as hazardous and as a dangerous good, Magellan, BIS Industrial Logistics and the Esperance Port all failed to treat the product accordingly. The Committee is particularly concerned by the apparent lack of care exhibited by these three agencies in relation to the consequences for the workers, communities and natural environment coming into contact with such a product as a result of their failure to handle it appropriately. The Committee also notes that, more recently, Magellan was required to have its product retested and this clearly indicates that it is in fact a toxic dangerous good (class 6.1).

The third issue, addressed in Chapter 11.3, concerns nickel contamination in the Esperance area. Although beyond the Committee's terms of reference, the Committee received a great deal of evidence from Esperance community members about their concerns over the impact of nickel contamination. The Committee is not in a position to make any findings about this evidence or to make recommendations of the kind called for in many of the submissions, such as to require that nickel concentrate be containerised for export through the Esperance Port. While nickel is not classified as toxic, nevertheless the Committee feels under a duty of care to respond to the community's concerns and recommends that a study of the health effects of nickel exposure be undertaken so that appropriate handling requirements can be developed.

The final issue addressed, in Chapter 11.4, concerns the government response to the lead pollution in the Esperance area. While the Committee acknowledges that the response was relatively rapid, and welcomes initiatives such as the appointment of a coordinator and a community reference group to assist in the coordination of the government response, the Committee identifies a number of concerns that remain unresolved. Most significantly, the Committee believes that more should be done to ensure the decontamination of family residences where children's blood lead levels continue to be above five micrograms per decilitre. The Committee also recommends that adequate funding be made available for any outstanding remedial actions identified as a result of the current Health and Ecological Assessment being undertaken in the Esperance area and along the transport corridor.

Chapter 12 provides a very brief conclusion to the Report, emphasising that if there is a positive side to be found in this inquiry, it is in the *'vigilant and persistent people'* of the Esperance community and elsewhere who have contributed so much to the protection of their communities and environments, and to this inquiry.

FINDINGS

CHAPTER 2 THE CAUSE AND EXTENT OF LEAD POLLUTION IN THE ESPERANCE AREA

2.1 The cause of lead pollution in the Esperance area

Page 13

Finding 1

The lead pollution in Esperance was substantially lead from the Magellan Metals Pty Ltd mine site.

Page 14

Finding 2

Not all lead present in the Esperance environment and in the blood of Esperance community members, particularly adults, was lead from the Magellan Metals Pty Ltd mine site.

Page 14

Finding 3

A substantial cause of the lead pollution in the Esperance area was the transport of the lead concentrate produced by Magellan Metals Pty Ltd to the Esperance Port, and the inloading and outloading of the product at the Port.

2.2 The extent of lead pollution in Esperance

Page 19

Finding 4

Some children in Esperance were contaminated by Magellan lead concentrate, causing an increase in their blood lead levels.

Fortunately, the elevation in blood lead levels has not been of the same magnitude as has occurred elsewhere, where on-going lead contamination has resulted in far higher blood lead levels than those recorded in Esperance.

Page 19

Finding 5

Persisting elevated blood lead levels are generally associated with continuing rather than short term exposure to lead.

Page 20

Finding 6

Elevated blood lead levels detected in Esperance community members suggest that the population was exposed to continuing lead pollution rather than to a single exposure, or to a small number of discrete short-term exposures.

Page 20

Finding 7

The Committee believes that the exposure of Esperance community members to Magellan lead was a result of:

- the ongoing transport to, and inloading practices at, the Esperance Port which occurred almost every second day over some 23 months;
- the escape of lead dust during the usual outloading practices at the Esperance Port, which occurred on 22 occasions; and
- a number of key dust incidents occurring during ship-loading of the Magellan lead concentrate at the Esperance Port, which released significant lead pollution into the environment, and in the absence of any containment or clean up, caused on-going exposures to lead.

Page 29

Finding 8

The evidence of the Esperance Port Authority was that flooding as a result of the storm in January 2007 caused elevated benthic lead and nickel levels only in the area surrounding the drain outlet near berth 1.

Page 29

Finding 9

Baseline testing of benthic lead levels in Esperance harbour in 2004 showed very low levels of lead in the berth pockets and outside the harbour; therefore the elevated levels of lead detected in marine sediment since 2005 is neither naturally-occurring nor historical.

Page 32

Finding 10

The Department of Environment and Conservation and the Department of Health are currently undertaking studies along the transport route. If these studies demonstrate substantial contamination, elevated blood lead levels could have occurred in regional Aboriginal people consuming traditional foods and medicines.

Page 34

Finding 11

The Committee is unable to provide a clear outline of the geographical extent of the lead pollution in the Esperance area due to:

- inconsistent advice relating to the identification of what the Department of Environment and Conservation has identified as the '*area of primary impact*';
- the absence of results of testing along the transport corridor; and
- the lapse of time before these tests were conducted.

CHAPTER 4 THE ESPERANCE COMMUNITY AND THE AGENCIES

4.2 Commercial agencies

Page 63

Finding 12

The Committee notes that none of the Western Australian Port Operations Task Force, the Sea Freight Council of Western Australia, or the Department for Planning and Infrastructure's Marine Pollution Unit appear to have had a role in the matters that are the subject of this inquiry.

Page 64

Finding 13

The current management arrangements for the Esperance Port Authority are inadequate for the economic value and complexity of the Port's operations.

Page 66

Finding 14

The Committee believes that the emphasis upon the facilitation of trade by the Esperance Port Authority has been to the detriment of its other legislative obligations, which included *'to protect the environment of the port and minimise the impact of port activities on that environment'*.

Page 66

Finding 15

Although the *Port Authorities Act 1999* defines the functions of port authorities to include being responsible for the safe and efficient operation of the port and to protect the environment of the port, there is no specific requirement in the Act that port authorities minimise the impact of port activities on public health.

Page 68

Finding 16

The appointment of the Esperance Shire President to the Esperance Port Authority Board in a private capacity created the perception of conflict of interest and undermined community confidence in the operations of the Shire.

4.3 State government regulatory agencies

Page 76

Finding 17

The Department of Environment and Conservation policy requires that:

- high and medium high risk premises are inspected annually and the target is that these inspections are met 100 per cent;
- medium risk premises are to be inspected once every three years but the target set annually is for only 50 per cent of these to be completed;
- low risk premises are to be inspected every five years but the target set is for only 20 per cent of these to be done; and
- a similar inspection frequency and target is set for registered premises.

The average performance by the Department over the nine months to April 2007 was that 28 per cent of these annual targets had been met.

Page 76

Finding 18

Industry regulation by the Department of Environment and Conservation is grossly inadequate.

Page 83

Finding 19

Environmental protection in this State would be best served by officers of the Department of Environment and Conservation having the opportunity to consolidate their capacities and to focus on core business, without the distraction of an additional inquiry with the potential for further restructuring.

Page 85

Finding 20

Recently announced increases of fees payable for licensed premises under the *Environmental Protection Act 1986* are unlikely to ensure sufficient resourcing for the Department of Environment and Conservation to undertake adequate industry regulation.

Page 87

Finding 21

The current monitoring of compliance by those projects assessed as likely to have a significant environmental impact under Part IV of the *Environmental Protection Act 1986* is inadequate.

Page 90

Finding 22

The Committee is concerned that the existing legislative provisions available to the Department of Health may not be adequate to respond appropriately to public health emergencies.

Page 94

Finding 23

There were critical failures by the Environmental Protection Authority, the Department of Environment and Conservation and Magellan Metals Pty Ltd to implement Department of Health recommendations and advice in the environmental approval processes associated with the events that are the subject of this inquiry.

CHAPTER 5 ENVIRONMENTAL CONDITIONS FOR TRANSPORTING AND HANDLING MAGELLAN'S LEAD CONCENTRATE

5.1 Setting environmental conditions - the Environmental Protection Authority

Page 104

Finding 24

The Environmental Protection Authority's assessment of the original Magellan proposal for Geraldton was thorough, including a substantial public consultation process and detailed input from relevant agencies. It resulted in a Ministerial Statement which established a framework of conditions and proponent commitments which, if implemented, would have contributed to best practice in the environmental management of Magellan's lead concentrate.

Page 105

Finding 25

The information about the Esperance Port facilities for handling heavy metals such as the lead concentrate provided to the Environmental Protection Authority by Magellan Metals Pty Ltd, as part of its application to vary the Ministerial Statement, was incorrect.

Page 107

Finding 26

Ministerial conditions required that Magellan Metals Pty Ltd undertake a review of the Port facilities to identify potential pathways for lead to enter the environment prior to those facilities being used to handle lead concentrate. The review was to be addressed in the Health, Hygiene and Environment Management Plan.

The Environmental Protection Authority assessed the application to vary the Magellan proposal to allow export through the Esperance Port on the basis that Magellan would comply with the conditions.

Page 107

Finding 27

The Environmental Protection Authority expected that Magellan Metals Pty Ltd would need to satisfy the Ministerial condition to review the Port's storage and ship-loading facilities before these were used for the lead concentrate. Therefore, it is difficult to determine the significance of the incorrect information available to the assessor about the status of the Esperance Port's infrastructure (refer to Finding 25).

Page 108

Finding 28

The original Environmental Protection Authority Bulletin on the proposed export of Magellan lead concentrate through Geraldton included significant detail on standards to be incorporated into the Port's environmental licence by the then Department of Environmental Protection.

The Environmental Protection Authority did not recommend that these standards be included as conditions or proponent commitments in the original Ministerial Statement for Geraldton.

Subsequently, the Ministerial Statement for Geraldton was varied so that the concentrate could be exported through Esperance, subject to the original conditions and proponent commitments, but without reference to the original Environmental Protection Authority Bulletin.

As a result the Environmental Protection Authority did not assess whether the variation to the Esperance Port's environmental licence to allow the handling of the lead concentrate met the standards outlined in its Bulletin assessing the original proposal.

Page 109

Finding 29

The decision to vary the Magellan proposal to allow the export of lead concentrate through Esperance instead of Geraldton, in the absence of community consultation, appears to be within the existing legislative provisions in the *Environmental Protection Act 1986*.

Page 113

Finding 30

As part of the Health, Hygiene and Environment Management Plan, Magellan Metals Pty Ltd committed to undertaking ongoing roadside monitoring surveys on a yearly basis, and sampling of rainwater tanks within 50 metres of the proposed route '*initially and ongoing*'.

Page 113

Finding 31

Magellan Metals Pty Ltd did not undertake annual roadside monitoring surveys and sampling of rainwater tanks within 50 metres of the proposed route *'initially and ongoing'*, as it committed to do in the Health, Hygiene and Environment Management Plan.

Page 115

Finding 32

Two proponent commitments, included in the Ministerial Statement allowing the implementation of the Magellan proposal, under the topic *'Dust and particulate sampling at the Geraldton Port'* were that:

13. *'Prior to using storage areas or ship loading facilities of the Geraldton Port for lead concentrates'*, Magellan was to *'Prepare a sampling program to monitor dust produced during transfer of mineral products from storage areas via loading facilities to ships. The plan shall include: 1. The locations of sampling; 2. Sampling methods and analysis; 3. Reporting of results.'* The objective was *'To determine if existing facilities at the Geraldton port are creating dust and particulates.'* This was to be referred to the Department of Minerals and Energy.

14. *'After commencement of operations'*, Magellan was to *'Implement the dust and particulate sampling plan as referred to ... above'*. The plan was to be referred to the Department of Health, amongst other agencies.

Page 115

Finding 33

Magellan did not comply with proponent commitment 13 in the Ministerial Statement as it did not prepare a sampling program to monitor dust produced during transfer of mineral products from storage areas via loading facilities to ships.

Page 116

Finding 34

The Esperance Port, unlike the Geraldton Port, already had a dust monitoring program which met the specifications required in proponent commitment 13. Therefore it was open to the Environmental Protection Authority to assess Magellan as compliant with this commitment.

Page 116

Finding 35

Magellan Metals Pty Ltd did not comply with proponent commitment 14 in the Ministerial Statement because, although a dust and particulate sampling program was already implemented at the Esperance Port, it did not submit a copy of that program to the Department of Health.

Page 116

Finding 36

The Environmental Protection Authority assessed Magellan Metals Pty Ltd as being compliant with proponent commitment 14, and appears to have either overlooked or underestimated the requirement to refer the dust monitoring program to the Department of Health.

Page 117

Finding 37

A Ministerial condition for the Magellan proposal was that:

6-1 Prior to the commencement of ground-disturbing activities, the proponent shall prepare a Health, Hygiene and Environmental Management Program to the requirements of the Environmental Protection Authority on advice of the Department of Environmental Protection, the Department of Minerals and Energy and the Health Department of Western Australia.

This program shall:

- 5. address the review of existing storage and shiploading facilities at the Geraldton Port that is to be conducted by the proponent prior to the existing facilities being used for lead concentrates. It is to include a review of equipment, procedures and monitoring programs to identify potential pathways for lead to enter the environment, and if appropriate additional equipment, management or revised procedures are to be determined.*

Page 118

Finding 38

Magellan Metals Pty Ltd appears only to have undertaken a cursory inspection of the Esperance Port's facilities and its advice to the Environmental Protection Authority appears to describe the iron ore handling systems and not those available at the Port for handling heavy metals.

Page 118

Finding 39

If Magellan Metals Pty Ltd had undertaken anything other than a cursory examination of the Esperance Port's heavy metals infrastructure it would have readily identified '*potential pathways for lead to enter the environment*'.

Page 118

Finding 40

It is unclear on what basis the Environmental Protection Authority assessed Magellan Metals Pty Ltd as compliant with the requirement to undertake a:

review of [the Port's] equipment, procedures and monitoring programs to identify potential pathways for lead to enter the environment and if appropriate additional equipment, management or revised procedures are to be determined.

5.2 Setting environmental conditions - the Department of Environment and Conservation

Page 123

Finding 41

The reference to covered conveyor systems as 'closed' in publicly available Department of Environment and Conservation's port licensing documents was misleading.

Page 124

Finding 42

The Committee is concerned that the licence conditions for the Esperance Port Authority, and other ports, do not appear to incorporate current standards relating to environmental management and monitoring.

CHAPTER 6 PELLETISED OR GRANULATED LEAD?

6.2 Environmental approval processes

Page 129

Finding 43

The Environmental Protection Authority's view is that because the undertaking to agglomerate its lead concentrate was included in correspondence from Magellan Metals Pty Ltd when seeking a variation to the Ministerial Statement, it *'became a clear obligation of the company to transport it in that [agglomerated] form'*.

However, the Environmental Protection Authority has never prosecuted anyone for not complying with such a *'variance'*.

Page 129

Finding 44

The Committee is not convinced that all commitments made by a proponent, in correspondence, seeking a variation to a Ministerial Statement are legally enforceable. As a result it is not prepared to conclude that the environmental approval process for the Magellan proposal required Magellan Metals Pty Ltd to transport the lead concentrate as agglomerates.

Page 132

Finding 45

The Committee is unable to determine who first suggested the use of the word *'pelleted'* in the context of the amendment to the Esperance Port Authority's environmental licence to provide for the handling of Magellan Metals Pty Ltd's lead concentrate.

Page 133

Finding 46

Irrespective of who first suggested the term, Magellan Metals Pty Ltd, the Esperance Port Authority and ultimately the regulatory agency, the Department of Environment and Conservation, agreed to the inclusion of the term *'pelleted'* to describe Magellan's lead concentrate in the Port's licence.

Page 134

Finding 47

The inclusion of the term '*pelleted lead carbonate*' in the preamble to the Esperance Port Authority's environmental licence did not amount to an environmental approval requiring the transport and export of lead carbonate in a pelleted form.

6.3 The transport and export of granulated lead

Page 136

Finding 48

On the evidence before the Committee, the decision to transport the lead concentrate in an un-agglomerated form was made by Magellan Metals Pty Ltd on or around 7 April 2005.

Page 137

Finding 49

The Department of Environment and Conservation was informed of the proposal by Magellan Metals Pty Ltd to dry its product using a temporary concentrate drying pad on 3 May 2005. The advice did not refer to Magellan's intention that it would not be seeking to agglomerate its concentrate in future.

Page 139

Finding 50

Although there had been specific reference to community consultation by both the Esperance Port Authority and Magellan Metals Pty Ltd in applications to vary relevant environmental approvals to transport and handle the Magellan lead concentrate, there was no advice to the Esperance community by the Port or Magellan when the information upon which public consultation occurred was superseded.

CHAPTER 7 DUST MONITORING, REPORTING AND RESPONDING

7.3 The Department of Environment and Conservation

Page 156

Finding 51

The Committee notes the advice from the Department of Environment and Conservation that it will incorporate its finding, that '*sensitive monitoring equipment identified dust emissions and levels which were not visible to inspectors and would not have been detected without the use of equipment*', into its review of the Esperance Port Authority environmental licence.

Page 158

Finding 52

Dust monitoring results for the Esperance Port Authority were reported to the Department of Environment and Conservation in the Port's Environmental Monitoring Report on an annual basis.

These results were not responded to or effectively scrutinised by the Department of Environment and Conservation.

7.4 The Esperance Port Authority

Page 163

Finding 53

The Committee believes that the Esperance community had to rely on an inadequate dust monitoring regime for the Esperance Port with no publicly available results.

7.5 Magellan Metals Pty Ltd

Page 165

Finding 54

Magellan Metals Pty Ltd was obliged not only to ensure that dust monitoring systems were in place at the Esperance Port, as it accepts, but to also ensure that it was an effective system.

Magellan was aware of current dust monitoring technology from both the air monitoring standards referred to in the Environmental Protection Authority assessment of its original proposal and from the initial high volume dust sampling conducted at its own mine site.

The Committee believes that Magellan should have been aware that adequate environmental monitoring at the Port location required, as a minimum, a program which included high volume sampling as a means of monitoring air quality.

7.6 Conclusion

Page 166

Finding 55

The Committee believes that the Department of Environment and Conservation, the Esperance Port Authority and Magellan Metals Pty Ltd all failed substantially in meeting their responsibilities regarding the effectiveness of dust management, monitoring and reporting lead levels in the Esperance area.

CHAPTER 8 THE PORT AND BENTHIC LEAD LEVELS IN THE HARBOUR

8.2 Protection of the marine environment

Page 168

Finding 56

The Environmental Protection Authority did not effectively impose any additional environmental conditions to protect the Esperance harbour through its assessment of the Magellan proposal.

Page 169

Finding 57

A condition in the Minister's Statement 555 on the Esperance Port Upgrade required the Esperance Port Authority to prepare a Sediment Quality Management Plan for Port Operations to:

- *ensure that sediment quality outside the inner harbour complies with ... criteria as appropriate, consistent with identified Environmental Quality Objectives outside the inner harbour; and*
- *ensure that operational activities have no significant impact on beneficial users outside the inner harbour.*

Page 170

Finding 58

Although the condition requiring marine sediment monitoring in Ministerial Statement 555 was imposed in 2000, it is arguable that the condition required the Esperance Port Authority to undertake monitoring of lead in the marine sediment outside the inner harbour once the Port commenced handling the Magellan lead concentrate in 2005.

Page 170

Finding 59

A number of the offences prescribed in the *Environmental Protection Act 1986* had potential application to any discharge of lead concentrate into the marine environment of Esperance harbour, including:

- causing pollution and unreasonable emissions (section 49);
- causing serious environmental harm (section 50A);
- causing material environmental harm (section 50B); and
- failing to notify the Department of Environment and Conservation of discharges of waste (section 72).

Page 172

Finding 60

The Esperance Port Authority’s environmental licence imposed the following conditions relating to marine pollution:

G3 The licensee shall take measures to prevent or minimise:

...

(ii) discharge of raw material to any waters during loading and unloading operations.

...

CARGO SPILLAGE - ESPERANCE HARBOUR

M1(a) The licensee shall ensure that all spillage of cargo onto the deck of a vessel being loaded/unloaded is collected in a manner so as to prevent its access into the waters of Esperance harbour.

M1(b) The licensee shall collect any spillage of cargo onto the jetty in a manner so as to prevent its access into the waters of Esperance harbour.

Page 173

Finding 61

There was no change made to the Esperance Port Authority’s environmental licence in relation to protection of the marine environment when the licence was amended to allow for the bulk handling of lead concentrate.

As a result, the Port’s environmental licence did not require it to undertake any monitoring of benthic levels, sea grass and other marine life.

8.3 Marine sediment monitoring by the Esperance Port Authority

Page 174

Finding 62

The decision of the Esperance Port Authority to voluntarily monitor the marine sediment at berths 2 and 3, used to handle bulk mineral product, as well as at berth 1 near the heavy metal sump discharge outlet, so as ‘to screen for any early signs of a trend of [mineral] enrichment’, is to be commended.

Page 174

Finding 63

The monitoring of marine sediment outside the inner harbour between November 2004 and September 2005, as required under Ministerial Statement 555, indicated that detected nickel and lead levels had generally been increasing marginally, but no readings had exceeded even the lower level set by sediment quality guidelines.

Page 174

Finding 64

Based on the monitoring results for marine sediment outside the inner harbour available to September 2005, the Environmental Protection Authority agreed to the Esperance Port Authority conducting marine sediment sampling on an annual basis, in September each year.

Page 175

Finding 65

The elevated benthic levels of nickel and lead in the inner berth pockets were not relevant to the Environmental Protection Authority's assessment of whether the Esperance Port Authority's operational activities were having a significant impact on beneficial users outside the inner harbour. This was because the condition in the Ministerial Statement only required testing outside the inner harbour.

Page 175

Finding 66

The Esperance Port Authority's voluntary berth pocket monitoring proved predictive of trends of more widespread contamination. Reflecting the September 2005 results in the berth pockets, the monitoring results '*outside the inner harbour*' for October 2006 indicated increased lead levels and declining nickel levels.

8.4 Workforce concerns about handling and other practices at the Esperance Port

Page 178

Finding 67

When an independent Occupational Health and Safety Consultant conducted an inspection of the Esperance Port's nickel outloading process on 23 March 2005, to assess its adequacy for handling lead concentrate, he reported that there was '*considerable spillage*' evident and concluded:

It can be assumed that some spillage would have entered the harbour [as] there is no spillage catchment pans fitted to these conveyors.

Page 179

Finding 68

On 12 May 2005, the Esperance Port's dirty water treatment plant was identified as the highest priority by the Port's workforce in relation to '*things that need addressing with regards to lead handling*'. The Esperance Port's workforce also identified a series of modifications to the ship loader spill trays and conveyor underpans in a list of five priority items.

Page 181

Finding 69

Until the recent installation of bunding along the edge of berth 2 (the heavy metals berth) rain at Esperance Port would cause any product on the berth face to wash into the harbour.

Page 182

Finding 70

Until the time the Esperance Port started to handle bulk lead concentrate it was the practice, if not the policy, at the Port to wash down berth 2 after ship loading and for the water to run off directly into the harbour, or into the storm water drain located at berth 2 and from there into the harbour.

Page 183

Finding 71

The Heavy Metals Ship Loading Procedure of the Esperance Port Authority from August 2005 was that, in relation to the clean up after nickel loading, the berth face was to be cleaned with a bobcat and broom attachment and the residue placed back into the nickel shed. For lead, the procedure was that the 'Mobivac' was to *'vacuum up berth face and place residue back into lead shed'*. There is also evidence that an industrial wet sweeper was used to clean the Port from July 2005.

Page 184

Finding 72

Although contrary to the Esperance Port Authority policy after August 2005, on the balance of the evidence before it, the Committee concludes that, on occasion, the heavy metal berth was cleaned by being washed down. The infrastructure of the berth was such that the water would run off the sloped berth into the harbour, or into the storm water drain on the berth, and directly from there into the harbour.

Page 185

Finding 73

The longer term elevation of nickel and lead benthic levels near berth 1 are likely to have been the result of the heavy metals sump discharging rain, and water used to clean the heavy metals unloading area, through a discharge pipe near berth 1.

Page 186

Finding 74

The view of the Esperance Port Authority is that the storm in January 2007 flooded the sump at the heavy metals inloading area, causing the sump to overflow and the water to bypass the sediment trap and the interceptor pit. The Port claimed that this resulted in the elevated lead and nickel benthic levels at the drain outlet near berth 1 in March 2007.

Page 186

Finding 75

Even if the storm in January 2007 was a significant factor contributing to the elevated lead and nickel benthic levels, this would appear to be because the Port had failed to take adequate precautions when the storm warning was issued.

Page 187

Finding 76

Given the Esperance Port Authority's view of the cause of elevated lead and nickel benthic levels near berth 1 in March 2007 (refer Finding 74), it was under an obligation to report this 'environmental spill' to the Department of Environment and Conservation under section 72 of the *Environmental Protection Act 1986*.

The Port's evidence to this Committee was that it had not done so.

Page 187

Finding 77

The Committee notes the advice of the Esperance Port Authority that it has developed improved procedures to ensure that it is better prepared for storms in the future.

Page 187

Finding 78

Contrary to the Esperance Port Authority view of the cause the elevated levels of lead and nickel recorded near the outlet beneath berth 1 in March 2007 (refer to Finding 74), there was evidence at that location of elevated benthic levels of nickel since May 2005 and elevated lead levels since September 2005.

Page 188

Finding 79

In the absence of results from benthic sampling at other inner harbour sites after October 2006, the Committee is not able to conclude that the storm was the major cause of the elevated levels detected near berth 1 in March 2007.

Page 188

Finding 80

A dirty waste water treatment plant, apparently critical for the prevention of benthic contamination of the harbour, was only installed in June 2007, two years after the first lead concentrate shipment.

The dirty water treatment plant treats contaminated water to enable its *'reuse... or discharge'*.

Page 189

Finding 81

The installation of a dirty water treatment plant on or about June 2007, and bunding along the edge of berth 2 (the heavy metals berth), should minimise the risk of continuing benthic contamination from contaminated rain and washdown water entering the harbour from that berth.

Page 189

Finding 82

The installation of a dirty water treatment plant on or about June 2007 to treat the water discharged from the heavy metals sump should minimise the risk of continuing benthic contamination near berth 1.

Page 191

Finding 83

By November 2006, the Esperance Port Authority had not implemented all modifications to the heavy metals handling infrastructure which related to potential lead contamination of the marine sediment. These modifications included the installation of the spill tray, upgrade to conveyor 2 outloading gallery, and the expanded water settlement sump at the receival site. The modified loading chute was only available to be trialled on 30 October 2006.

Page 191

Finding 84

With the introduction of lead concentrate to the Esperance Port extensive changes were made to the Port's policies and procedures, particularly with reference to occupational health and safety, and cleaning the heavy metal berth. There were also some modifications to the heavy metals handling infrastructure. It is possible that these changes contributed to declining benthic nickel levels detected in September 2005 and October 2006.

Page 192

Finding 85

The failure by the Esperance Port Authority to notify the Department of Environment and Conservation of a spill of between 60 and 100 kilograms of lead concentrate into the harbour on 11 January 2006 was potentially a breach of section 72 of the *Environmental Protection Act 2006*.

Page 192

Finding 86

There was a significant spill of lead concentrate during loading of the MV POS Auckland on 5 December 2006, which required more than four hours to clean it from the wharf near berth 2.

Page 193

Finding 87

No evidence was provided to the Committee by the Esperance Port Authority to explain its apparent assessment of the significant spill of lead concentrate on 5 December 2006 as an operational spill rather than an environmental spill, requiring it to be reported to the Department of Environment and Conservation under section 72 of the *Environmental Protection Act 1986*.

Page 193

Finding 88

There was no evidence provided to the Committee by the Esperance Port Authority of any formal process of investigation of the significant spill of lead concentrate on 5 December 2006.

8.5 Conclusion

Page 194

Finding 89

There is evidence that the handling and other practices at the Esperance Port caused the rise in the benthic lead levels in the harbour. Such handling practices included:

- the inadequate dirty water treatment infrastructure at the Port;
- the inadequate outloading infrastructure for heavy metals at the Port;
- the lack of bunding which allowed rain and wash down run-off to cause concentrate to enter the harbour;
- poor preparation for storms; and
- significant incidents involving spills of lead concentrate at berth 2 and into the harbour.

CHAPTER 9 POTENTIAL LEAD POLLUTION AND THE PORT

9.2 Environmental monitoring requirements

Page 198

Finding 90

The outcome of the environmental approval processes applicable to the transport and handling of Magellan's lead concentrate resulted in the imposition of only minimal environmental monitoring requirements on the Esperance Port Authority. If the Port had been subject to more rigorous regulatory requirements, particularly in relation to the monitoring of air quality, it may have better identified and addressed the potential for lead pollution.

Page 198

Finding 91

Although the regulatory framework may not have consistently addressed the risks associated with the potential for lead pollution, the evidence of the Esperance Port Authority was that it had made itself reasonably aware of the potential damage to the community should lead dust escape from the Port environment.

9.3 Nickel contamination

Page 199

Finding 92

Dust monitoring results from 1995 to 2004 indicated the consistent presence of nickel beyond the Port's boundaries. This should have alerted the Esperance Port Authority to the potential for lead pollution if it adopted the same processes for handling lead concentrate as it did for handling nickel concentrate.

Page 199

Finding 93

The failure of the Department of Environment and Conservation to set compliance targets other than those associated with *'nuisance'* arising from the *'soiling'* characteristics of dust to monitor lead may have affected the Esperance Port's efforts to reduce the risk associated with potential lead pollution arising from lead dust escaping the Port's boundary.

Page 200

Finding 94

The ongoing problems and complaints about the odour associated with nickel, and in particular the unloading of nickel kibbles, should have alerted the Esperance Port Authority to the potential for lead pollution if it adopted the same processes for handling lead concentrate.

Page 201

Finding 95

The Esperance Port Authority's recognition of potential lead pollution arising from *'invisible'* particulates escaping the Port's boundary may have been reduced by:

- the Department of Environment and Conservation not requiring monitoring of *'invisible'* particles (particles with a diameter less than 10 microns, respirable particles) when the Esperance Port Authority commenced handling lead concentrate; and
- the inclusion of a condition in the Esperance Port Authority licence requiring it *'to prevent or minimise the emission of visible dust past the boundary of the premises'*.

Page 203

Finding 96

The combination of the chemical characteristics of, and the transport arrangements for, the Magellan lead concentrate made the inloading of the product at the Esperance Port an area of high risk for potential lead dust emission.

Page 203

Finding 97

The elevated benthic nickel levels detected in the inner harbour in 2002 and 2004 should have alerted the Esperance Port Authority to the potential for lead pollution if it adopted the same processes for handling lead concentrate.

Page 203

Finding 98

The absence of any requirement for the Esperance Port Authority to conduct marine sediment monitoring within the inner harbour may have reduced the Port's recognition of the risk associated with the potential for lead pollution arising from benthic pollution within the inner harbour.

Page 205

Finding 99

The Committee is of the view that the elevated nickel levels in rainwater tanks near the Port should have alerted the Esperance Port Authority to the risk of lead pollution if it adopted the same processes for handling lead concentrate.

This was because the Port expected lead concentrate to behave in the same manner as nickel concentrate, and the water quality guidelines applicable to lead are half the level for nickel. Furthermore, the lead content of the Magellan product was high in comparison to the nickel content in the nickel products being handled by the Port.

Page 206

Finding 100

The Esperance Port Authority did not properly exercise its responsibilities when it proposed to utilise fundamentally the same handling system for lead concentrate as it had been using for nickel concentrate. There was ample evidence that nickel was escaping into the environment from the Port and the Port Authority expected the lead concentrate to behave in the same way as the nickel.

9.4 Advice of Port's workforce

Page 209

Finding 101

Changes were made to policy and infrastructure by the Esperance Port Authority in response to workforce concerns about the handling of lead concentrate. However, the Port did not exercise its responsibilities properly in relation to the potential for lead pollution because it did not ensure that all critical infrastructure improvements identified by its workforce were implemented in a timely way.

9.5 A 'preferred product'

Page 210

Finding 102

The Esperance Port Authority and Magellan Metals Pty Ltd agreed that moisture content was the key factor in handling the Magellan lead concentrate.

Page 215

Finding 103

When the Eco Progress was loaded with lead concentrate at the Esperance Port on 8 June 2006, the moisture content of the cargo was higher than the transportable moisture limit, with the potential to put the ship's crew and the vessel at risk.

Page 216

Finding 104

Magellan's lead concentrate was prone to dusting when it had a lower moisture content; but with higher moisture content there was a risk of exceeding the transportable moisture limit for shipping. After the loading of the Eco Progress, Magellan Metals Pty Ltd was more focussed on the concentrate not being too wet rather than ensuring the product was not too dry.

Page 217

Finding 105

There was a consensus between Magellan Metals Pty Ltd and the Esperance Port Authority that the moisture content of the lead concentrate was critical to its safe handling. The Committee finds it alarming that there was a lack of clarity between the relevant parties as to which was responsible for managing the moisture content of the lead concentrate while it was in the shed awaiting shipment.

By failing to have clearly understood arrangements in place for managing the moisture content of the lead concentrate while in the shed from the outset, the Esperance Port Authority, and Magellan Metals Pty Ltd, failed to properly exercise responsibility in relation to potential lead pollution.

Page 217

Finding 106

There is clear evidence that the nominated representative of Magellan Metals Pty Ltd exercised the power under clause 4.8 of the contract between Magellan Metals and the Esperance Port Authority on 10 October 2006 to deny the Port any authority to wet down the lead concentrate in the shed. As a result Magellan Metals assumed responsibility for the moisture content of its concentrate prior to outloading.

Page 219

Finding 107

Magellan Metals Pty Ltd justified its decision not to agglomerate the lead concentrate on the basis that moisture content was the key factor in handling the product. By utilising a solar drying pad for its concentrate it did not implement appropriate means for ensuring the consistency of moisture content in its product although it knew this to be critical to its safe handling.

Page 219

Finding 108

By utilising a solar drying pad for its concentrate, resulting in very poor control of the moisture content of its product, Magellan Metals Pty Ltd failed to properly exercise its responsibilities in relation to potential lead pollution.

Page 220

Finding 109

The Esperance Port Authority was responsible for the environmental management of emissions produced during the outloading of lead concentrate at the Port.

Page 221

Finding 110

The typically strong winds of Esperance increased the potential for lead pollution during outloading and when in a south-easterly or north-easterly direction were more likely to impact on the population living close to the Port.

Page 225

Finding 111

After a major dust incident during the loading of the MV Lemmergracht with lead concentrate on 10 October 2006, the Esperance Port Authority identified small box hulled vessels as unsuitable and as having the potential for more dust generation. By allowing the same vessel back into the Port to be loaded with lead concentrate again on 11 December 2006, the Esperance Port Authority failed to properly exercise its responsibilities in relation to potential lead pollution.

Page 226

Finding 112

Magellan Metals Pty Ltd had undertaken to focus on ensuring its product was not too dry after a major dust incident while loading the MV Lemmergracht in October 2006. However, when the MV Lemmergracht returned in December 2006 the moisture content of the lead concentrate was lower than it had been for the box hulled vessels previously loaded: the Hanna C in January 2006, and the MV Lemmergracht and MV Edamgracht in October 2006.

Page 226

Finding 113

Magellan Metals Pty Ltd attended a meeting with representatives of the Esperance Port Authority to review the loading of the MV Lemmergracht on 11 to 12 December 2006, which caused '*a major dust problem*', and to '*take steps to prevent a recurrence*'. The first action agreed at the meeting was: '*Do not use this type of vessel again.*'

Page 227

Finding 114

After the incident involving the MV Lemmergracht on 11 to 12 December 2006, Magellan Metals Pty Ltd's shipping agent nominated a similar type of ship to the Esperance Port Authority to be loaded with lead carbonate in January 2007 and this was accepted by the Esperance Port Harbourmaster. As it eventuated the ship was not loaded. The reasons for this are unclear, although there were indications that the Port could '*expect major trouble from our workforce to load it*'.

Page 229

Finding 115

The view of the Esperance Port Authority's operational staff was that '*it is actually easier to see at night because the light reflects on the dust particles and you can actually see stuff that you would not [otherwise] be able to see*'. Even if this view is accepted as a generalisation, after the major dust incident during the night of 11 December 2006 while loading the MV Lemmergracht, the Port should have been aware that there were difficulties in identifying dust emissions generated by loading the lead concentrate at night.

Page 229

Finding 116

After the incident during the loading of the MV Lemmergracht on the night of 11 December 2006, the Esperance Port Authority continued to rely upon identifying visible dust as a means for monitoring dust emissions while outloading lead concentrate at night. In doing so the Esperance Port Authority failed to properly exercise its responsibilities in relation to potential lead pollution.

Page 234

Finding 117

There were three major dust incidents associated with the outloading of Magellan's lead concentrate by the Esperance Port Authority. These occurred with the loading of the MV Lemmergracht on 10 to 11 October 2006 and on 11 to 12 December 2006, and the loading of the Jin Pei on 5 March 2007.

Page 234

Finding 118

The major dust incidents associated with the outloading of Magellan's lead concentrate by the Esperance Port Authority on 11 to 12 December 2006 and 5 March 2007 were each followed within days by reports of large numbers of native bird deaths.

Page 234

Finding 119

The Esperance Port Authority did not notify the Department of Environment and Conservation of any of the major dust incidents associated with outloading Magellan's lead concentrate (refer Finding 117).

Page 247

Finding 120

Inadequate infrastructure and a varying combination of low moisture content, weather conditions, type of vessel, and night loading contributed to the three major dust incidents that occurred at the Esperance Port during the outloading of Magellan's lead concentrate (refer to Finding 117).

9.6 Biological and other monitoring of the Port's workforce

Page 249

Finding 121

Although the blood lead levels of individuals working at the Esperance Port were, other than in one instance, not above National Occupational Health and Safety Commission guidelines, they showed that:

- when baseline testing was conducted prior to the Port handling the Magellan lead concentrate, no Port worker had a blood lead level in double digits; when testing was conducted in March 2007, almost one in five did; and
- when baseline testing was conducted prior to the Port handling Magellan lead concentrate, the average was 2.84µg/dl; the average of blood lead level from tests in March 2007 was 7.91µg/dl; almost tripling the blood lead levels across the workplace in just two years.

Page 250

Finding 122

The Esperance Port Authority met the CONTAM quota requirements infrequently in relation to quota periods and occupational distribution as allocated by the Resources Safety Division.

Page 253

Finding 123

The apparent tolerance of the Esperance Port Authority and Magellan Metals Pty Ltd for the potential of short-term exposure to lead pollution is consistent with the National Environmental Protection Measure standard for lead in ambient air, which provided for samples to be taken every six days and averaged over a year.

The Committee believes that the current National Environmental Protection Measure for lead in ambient air is inadequate and notes that a review is underway which includes an assessment of this measure.

9.7 The Board

Page 254

Finding 124

The Esperance Port Authority Board was aware of the detection of nickel in rainwater tanks near the Port in early 2004.

Page 254

Finding 125

The Esperance Port Authority Board, shortly after the detection of nickel in rainwater tanks, resolved that the Chief Executive Officer should identify various environmental issues and the risk exposure associated with these and report on a quarterly basis to the Board.

Page 255

Finding 126

The proposal of Magellan Metals Pty Ltd to export lead concentrate through Esperance Port was tabled for the first time for the Board's consideration at the meeting on 18 August 2004. The Board's Environmental Status Report for November 2004 confirmed that an amended licence had been issued by the then Department of Environment to allow for the Port to handle Magellan's lead carbonate and that it required the preparation and submission of a dust management plan for lead.

Page 256

Finding 127

Although the Esperance Port Authority Board had been instrumental in implementing the regular reporting by Port personnel on environmental issues, it appears that the Board did not consistently pay due regard to the meeting papers, including the Environment Status Reports.

Page 256

Finding 128

Contrary to some of the evidence provided to the Committee, the Esperance Port Authority Board had information available to it indicating that heavy metals were polluting the environment beyond the Port's boundaries, both before and during the period that the Port was handling lead concentrate.

Page 257

Finding 129

Contrary to some of the evidence provided to the Committee, the issue of elevated benthic nickel levels and the escape of nickel dust beyond the Port's boundaries was specifically raised by the Esperance Port's Occupational Health and Safety Representatives in a memorandum tabled for the Board in March 2005 outlining their concerns about the proposal for the bulk handling of lead concentrate.

Page 258

Finding 130

The investigation of a dirty water treatment plant, the fabrication of new transfer chutes and the commissioning of design work on conveyor belly plates and a spill tray for the ship loader were included in a list of 'Heavy Metals - OH&S and Operating Recommendations' prepared by the Esperance Port Authority's Chief Executive Officer for the Port's Board at its meeting on 15 June 2005.

Page 258

Finding 131

The minutes of the Esperance Port Authority's Board meeting of 15 June 2005 recorded that:

Operating and OH&S recommendations pertaining to handling of this product [lead concentrate] were presented and endorsed by the Board as an effective way to handle the product.

The minutes also recorded that the Board endorsed the Magellan Lease and Handling Agreement.

Page 259

Finding 132

With the Agreement between Magellan Metals and the Esperance Port Authority in place, the first shipment of Magellan's lead concentrate took place less than three weeks later on 4 July 2005.

Page 260

Finding 133

The Esperance Port Authority Board's advice to the Committee was that it:

was assured that all the policies and infrastructure improvements [for handling lead concentrate], that were not yet complete, were underway and would be in place before the first shipment was expected in July [2005].

Page 261

Finding 134

It was not until November 2006 that the Esperance Port Authority Board received a report on progress achieved in heavy metal handling since lead shipments commenced, in July 2005. The report indicated that many of the infrastructure improvements were not in place.

Page 261

Finding 135

The Esperance Port Authority Board did not exercise due care in ensuring that the infrastructure required for the safe handling of the lead concentrate was, or would be, in place before entering into a contract to handle Magellan's lead concentrate.

9.8 Conclusion

Page 262

Finding 136

The Committee believes that, from the outset, there was ample evidence available to the Esperance Port Authority, including its Board, to alert it to the potential for lead pollution to occur if the Port's existing infrastructure and systems were utilised for the bulk handling of lead concentrate. The Port, including its Board, did not respond to ensure that all critical changes were in place prior to contracting to bulk handle the lead concentrate.

Page 263

Finding 137

After agreeing to handle the concentrate, and as the evidence of lead pollution accumulated, the Esperance Port Authority, including its Board, did not respond adequately to manage the risks highlighted.

CHAPTER 10 THE ROLE OF THE DEPARTMENT OF ENVIRONMENT AND CONSERVATION

10.1 The issue

Page 265

Finding 138

The Department of Environment and Conservation's responsibilities in relation to the Esperance Port Authority processes, practices and procedures, including the legal and regulatory framework, were not adequate or properly exercised (refer to Findings 17, 18, 21, 23, 41, 42, 47, 52, 53, 61, 90, 93, 95, 98, 142, 143, 144, 149, 150 and 152).

10.3 Port Upgrade 2000-2002

Page 268

Finding 139

During 2002 and 2003 the Esperance Port Authority received numerous awards for its 'Port Upgrade 2000-2002', including *'Australian Port of the Year'* for *'excellence in environmental achievement'*.

10.4 Bulk handling of nickel

Page 269

Finding 140

In response to complaints by Esperance residents in 2002, the Department of Environmental Protection staff identified *'new dust monitoring equipment and methods'* which it proposed to trial at the Esperance Port Authority. The staff were aware that the release of dust from the Port may have gone beyond an issue of amenity to become *'a health issue, especially if metals are contained in the dust'*.

Page 272

Finding 141

When the Esperance Port Authority was given the opportunity to develop new options for dust monitoring as a result of complaints from Esperance residents in 2002, it incorrectly advised the Department of Environmental Protection that a decision to change to deposition gauges from the original high volume sampling undertaken by the Port in conjunction with the Department in 1995 was due to *'a lack of correlation in the data'*. In fact, high volume sampling results were found to *'correlate extremely well to activities and weather conditions'*.

The Port only proposed modifications to its dust depositional gauge sampling and analysis, which in the Committee's view was an inadequate dust monitoring program.

Page 273

Finding 142

When management of the Department of Environmental Protection's industry regulation function for Esperance premises was transferred from its Goldfields to its Albany Office, the Esperance Port Authority's environmental reporting conditions were varied so that it needed only to provide dust monitoring results on an annual rather than a six-monthly basis. This was due to the Department's resourcing issues and was standard practice for the region.

10.5 More complaints

Page 275

Finding 143

When management of the Department of Environmental Protection's industry regulation function for Esperance premises was transferred from its Goldfields to its Albany office, the mistaken assumption was made by relevant Departmental operational staff and managers that the Esperance Port Authority's 'Upgrade 2000-2002', which applied to its iron ore handling facilities, also applied to the nickel outloading facilities.

10.6 Ongoing nickel contamination

Page 276

Finding 144

It appears that, because of the mistaken assumption by relevant Department of Environment staff that the Esperance Port Authority 'Upgrade 2000-2002' included the nickel outloading facilities, it was concluded that the continuing release of nickel dust into the Esperance environment was only associated with the truck unloading facilities.

Page 277

Finding 145

The variation to the Esperance Port Authority's environmental licence to allow it to handle bulk lead concentrate was issued by the Department of Environment on 17 November 2004. Significantly, however, the conditions were varied so that the Port was required to submit a dust management plan by 1 April 2005, before it commenced shipping the lead concentrate.

When the plan was provided it was an extract from the Port's existing Environmental Management Plan and principally dealt with dust control measures for iron ore.

10.7 The first inspection

Page 278

Finding 146

When the new Albany-based Environmental Officer from the Department of Environment had the opportunity to inspect the Esperance Port Authority in May 2005 she noted that the Port's:

Licence is very focussed towards the management of iron ore, need to ensure comparable measures are taken for lead and nickel. Discussed the possibility for further dust monitoring to capture extreme dust conditions that may attribute to some dust complaints and the high levels of nickel in rainwater tanks.

Page 279

Finding 147

On 25 August 2005, the Albany-based Environmental Officer from the Department of Environment and Conservation wrote to the Department of Health seeking advice on the health impacts of dust issues at Esperance Port. The memo, which was copied to two other Department of Environment and Conservation officers and the Esperance Port Authority's Environmental Consultant, highlighted the elevated nickel levels in rainwater tanks surrounding the Port.

Finding 148

On 21 September 2005, the Department of Health's acting Toxicologist responded by letter to the Department of Environment and Conservation's memo of 25 August 2005 and advised that lead carbonate was *'highly soluble and the contamination of rainwater tanks by fugitive dust emissions may therefore cause a serious health concern'*. The persistent nickel in rainwater tanks, in spite of Esperance Port Authority's dust management measures, was also noted as was the proposal to use the identical measures for the management of the lead.

The letter supported the Department of Environment and Conservation's recommendation of a dust risk assessment and highlighted a number of issues which did not appear in the Port's existing dust management plan including:

- restricting the duration of dust generating activities;
- minimising handling;
- restricting on-site vehicle speeds;
- reducing drop-heights wherever practicable;
- considering guideline values and monitoring methods for respirable particles;
- specifying conditions and contingency triggers for use of water sprays on stockpiles and conveyors; and
- on-site dust monitoring facilities and assessment methods such as *'dust-trak monitoring'*.

The letter also highlighted that the Port's licensing conditions were not *'sufficient to ensure adequate protection of public health'*. Monitoring and reporting were *'environmentally focussed and do not provide useful information for health risk assessment'*.

10.8 The Department's response**Finding 149**

Critical advice about the Esperance Port Authority's environmental licence and dust monitoring regime received from the Department of Health in September 2005 was not followed up by the Department of Environment until February 2007.

10.10 Conclusion

Page 286

Finding 150

The evidence available to the Committee indicates that individual officers of the Department of Environment and Conservation responded genuinely to public complaints concerning the operations of the Esperance Port Authority, and pursued various strategies to address these.

However, these responses were often delayed and overall were ineffective in managing the risks highlighted by the complaints.

Page 286

Finding 151

The major impediment to effective industry regulation by the Department of Environment and Conservation was constant restructuring which, combined with insufficient resources, resulted in ongoing staffing changes and a loss of corporate knowledge. This led to a lack of experience and capability in monitoring the complex and diverse operations subject to the Department's regulatory powers.

Page 289

Finding 152

Inadequate resourcing limited the capacity of the Department of Environment and Conservation and the Environmental Protection Authority to do anything other than rely upon self-regulation. However, the Committee has concerns that the commonly adopted approach of the Department of Environment and Conservation was one which was characterised by the lack of a compliance culture.

Page 289

Finding 153

The Committee notes that recent Department of Environment and Conservation data on enforcement activities indicates that the Department's implementation of the 'Robinson Review' recommendations could be contributing to the adoption of a more robust regulatory approach within the Department (refer to Appendix 10).

CHAPTER 11 OTHER ISSUES

11.1 Lobbyists and consultants

Page 292

Finding 154

The Committee is satisfied that, based on the evidence available to it, there was no political lobbying involved in the approvals process for the export of Magellan lead concentrate from the Esperance Port.

11.2 Hazardous and Dangerous Substances

Page 296

Finding 155

The evidence available to this Committee from various Ivernia reports is that Magellan Metals Pty Ltd commenced mining in November 2004. It was given clearance for productive mining and completed its processing plant in December 2004, and started to commission its mine in January 2005.

There is no evidence that Magellan had obtained a Material Safety Data Sheet specific to its product at the time mining commenced.

Page 297

Finding 156

The evidence of Magellan Metals Pty Ltd was that it initially *'needed'* two *'generic'* Material Safety Data Sheets for the purposes of sending its product to various locations *'as samples and later as export product'*.

Page 298

Finding 157

On the evidence available to the Committee it appears that, although Magellan Metals Pty Ltd was aware of Material Safety Data Sheets as being primarily directed toward occupational health and safety, it did not obtain a Material Safety Data Sheet specific to its product for the purpose of protecting the occupational health and safety of those working at the Magellan mine site.

Page 298

Finding 158

Magellan Metals Pty Ltd only obtained a Material Safety Data Sheet specific to its lead carbonate product in April 2005.

Page 298

Finding 159

At the time that Magellan Metals Pty Ltd obtained the Material Safety Data Sheet specific to its lead carbonate product in April 2005, which classified it as hazardous and as a dangerous good class 9, the Esperance Port Authority workforce had refused *'to tip any more concentrate until they get the MSDS'*.

Page 304

Finding 160

On 4 August 2005, Main Roads Western Australia issued BIS Industrial Logistics with concessional loading permits to cart the Magellan product, although BIS had commenced carting the Magellan product in April 2005.

Page 304

Finding 161

When BIS Industrial Logistics applied for cartage permits from Main Roads Western Australia it incorrectly specified that the product to be carted was *'lead'* and not lead carbonate.

Page 306

Finding 162

On the evidence available to it, the Committee is satisfied that, contrary to the evidence of BIS Industrial Logistics, Magellan Metals Pty Ltd provided a copy of a Material Safety Data Sheet for its lead carbonate to BIS Industrial Logistics on 19 April 2005 and that the Material Safety Data Sheet identified the product as hazardous and as a dangerous good class 9.

Page 306

Finding 163

BIS Industrial Logistics either was aware, or should have been aware, from 19 April 2005 that Magellan's Material Safety Data Sheet for its lead concentrate classified it as hazardous and as a dangerous good class 9, and BIS should have treated the concentrate accordingly.

Page 307

Finding 164

Despite the evidence of BIS Industrial Logistics that it believed it had always treated the Magellan lead concentrate as hazardous and as a dangerous good, the Committee is not satisfied that it did so.

Page 308

Finding 165

Magellan Metals Pty Ltd provided a copy of a Material Safety Data Sheet for its lead carbonate to the Esperance Port Authority on 19 April 2005 and that Material Safety Data Sheet identified the product as hazardous and as a dangerous good class 9.

Page 310

Finding 166

The Committee accepts the Esperance Port's proposition that a Material Safety Data Sheet's classification of material as a dangerous good does not, in itself, impose any legal obligation to handle the product in accordance with dangerous goods legislation and regulations.

Page 310

Finding 167

If the Esperance Port Authority did not accept the classification of the Magellan product as a dangerous good class 9, as Magellan Metals Pty Ltd specified by way of the Material Safety Data Sheet dated 12 April 2005, the Port was under a duty of care to have the product correctly classified.

There is no evidence before the Committee that the Port took any action to establish the veracity or otherwise of the Magellan classification of the lead concentrate provided to it on 19 April 2005 by way of the Magellan Material Safety Data Sheet.

Page 310

Finding 168

The Esperance Port Authority either was aware, or should have been aware, from 19 April 2005 that Magellan's Material Safety Data Sheet for its lead concentrate classified it as hazardous and a dangerous good class 9, and the Esperance Port Authority should have treated the concentrate accordingly.

Page 311

Finding 169

The Committee does not accept the proposition put forward by the Esperance Port Authority that it would only need *'to act in accordance with dangerous goods legislation and regulations'* if the lead carbonate was classified as a dangerous good class 6.1 but not if it were a dangerous good class 9.

Page 313

Finding 170

Magellan Metals Pty Ltd's *'mining of the lead ore, cerussite, producing a high concentration lead carbonate (77%), is unique in the developed world'*, and the concentrate potentially has *'significantly higher bioactivity than [the] galena (lead sulphide) concentrates that are produced in other areas of the state'*.

Page 317

Finding 171

Based on testing conducted in May 2007, the Committee finds that Magellan's lead concentrate is appropriately considered to be a soluble lead compound, in accordance with special provision 199 of the Australian Dangerous Goods Code, and it clearly meets the criteria for classification as a dangerous good class 6.1 (Toxic Substances).

The Committee is also of the view that Magellan Metals Pty Ltd failed to ensure that appropriate testing of its lead concentrate was conducted when the Magellan concentrate was first analysed in April 2005.

Page 317

Finding 172

On the evidence available to it, the Committee does not accept the submission of Magellan Metals Pty Ltd that it recognised the danger of its product, either in the general sense of the word, or within the meaning of the dangerous goods legislation.

Page 318

Finding 173

The Australian Dangerous Goods Code and related legislation has not maintained currency with revisions of the United Nations Recommendations on the Transport of Dangerous Goods on which the Code is based.

Page 320

Finding 174

Despite significant improvement in the management of its workforce's exposure to lead and the proposed methods for transporting its lead concentrate, the submission of Magellan Metals Pty Ltd to this Committee dated 1 August 2007 failed to adequately appreciate the uniqueness and the associated health and environmental risks of the particular material it proposes to mine, process, transport and export (refer to Finding 183).

Page 321

Finding 175

There are a large number of licensed dangerous goods storage sites and a broad range of activities relating to dangerous goods that fall within the regulatory functions of the Resources Safety Division.

There are a relatively small number of dangerous goods inspectors.

The Committee accepts that it is often not feasible for the Department of Consumer and Employment Protection to do other than rely upon those persons intending to store or carry out other activities involving dangerous goods to ensure that they are compliant with the relevant legislative requirements.

Page 322

Finding 176

Given that compliance with dangerous goods legislation is largely self-regulatory, the Committee welcomes the advice of the Department of Consumer and Employment Protection that this legislation is being updated, with substantially increased penalties being considered.

The Committee is also satisfied that, on the information provided by the Department subsequent to the Committee’s hearings, at least some of the maximum penalties under relevant dangerous goods legislation are substantial, particularly those:

- for persons convicted of an offence against the *Explosives and Dangerous Goods Act 1961* (\$50,000), with an additional daily fine (\$5,000) for continuing offences; and
- for persons failing to comply with the provisions of the *Dangerous Goods (Transport) Act 1998* causing death or serious injury (\$600,000); or otherwise (\$250,000).

Page 323

Finding 177

The Committee noted the advice from the Department of Consumer and Employment Protection that it is implementing a procedure which will in future systematically review the dangerous goods classifications of all heavy metals concentrates that are being exported from Western Australian ports. This is intended to make sure that, regardless of the mining companies’ responsibility to provide the correct dangerous goods classification, any potentially toxic heavy metal concentrates are properly classified as dangerous goods class 6.1 (Toxic Substances).

11.3 Nickel

Page 324

Finding 178

The Committee was pleased that the coordinator appointed by the Minister for Planning and Infrastructure to assist in the government response in Esperance had responsibilities for both lead and nickel contamination.

11.4 Response to the lead pollution

Page 326

Finding 179

Although the response to the lead pollution in the Esperance area was relatively rapid, the Committee has concerns about aspects of that response; specifically:

- the initial proposal to empty contaminated rainwater tanks onto residents gardens;
- the lack of support and information for parents whose children had elevated lead levels;
- the lack of early and specific advice to expectant and nursing mothers; and
- the provision of free HEPA vacuum cleaners without any assistance in terms of the difficult and extensive work involved in cleaning entire houses, including ceilings.

(Refer to Findings 10, 11, 180, 184, 187, 188 and Recommendations 2 and 42 also.)

Page 327

Finding 180

The initial government response to lead pollution in the Esperance area lacked coordination; in particular there was a lack of clear delineation of the various agencies' responsibilities, extended delays in providing information and results to community members, and unnecessary impediments to the sharing of relevant information.

Page 328

Finding 181

The Committee welcomed the appointment of Mr Michael Jackson, *'a health consultant and formerly a senior Department of Health officer'*, on 16 May 2007, by the Minister for Planning and Infrastructure, to assist in the coordination of the government response. It also welcomed the subsequent establishment of an advisory group, which included a number of local community groups, to create a conduit for information about contamination between the government and the local community.

Page 329

Finding 182

The risk of any further lead contamination in the Esperance area should be addressed by:

- the decision that Magellan's lead concentrate will no longer be bulk handled by Esperance Port; and
- the community's role in overseeing the removal of the remaining concentrate stored at the Port.

Page 329

Finding 183

The decision by Magellan Metals Pty Ltd to containerise its lead concentrate at the mine site for future transport and export, if effectively implemented and monitored, may minimise the risk of lead pollution occurring off-site.

Page 330

Finding 184

The Committee views the offer of free access to specialised vacuum cleaners to assist Esperance residents to remove the sources of lead dust in and around their houses as positive, but as an inadequate response to ensuring the decontamination of the Esperance area (refer to Appendix 8).

Page 330

Finding 185

Dust is considered a major source of lead intake in children under two years of age.

Page 331

Finding 186

The Committee believes that the ceiling space is a potential source of household recontamination if not cleaned.

Page 333

Finding 187

Only approximately one-third of children under the age of five years in the Esperance area were included in the original blood testing; approximately half of those identified as having elevated blood lead levels participated in follow-up testing. The Committee has concerns that although very reliable, the invasive nature of the Department of Health's preferred venous blood testing may have hindered, and possibly continues to hinder, the broader participation of children in the blood lead monitoring program.

Page 334

Finding 188

The initial results for the retesting of children with elevated blood lead levels available to the Committee indicate that:

- eighty-nine per cent of the original group of children tested with elevated blood lead levels (79 of 83) had elevated blood lead levels of between five and nine micrograms per decilitre;
- approximately half of the children with elevated blood lead levels were retested (45 out of 83); and
- only sixty four per cent of the children retested (29 of 45) three months later had blood lead levels that declined to under five micrograms per decilitre.

With a half life for lead in blood of approximately one month, it might have been expected that a greater proportion of children would have reduced blood lead content to under five micrograms per decilitre.

While the Committee has insufficient information to draw any conclusions about the results these do not appear altogether positive. This data is consistent with some ongoing exposure, or with longer-term exposures.

Page 334

Finding 189

There is evidence that prolonged exposure to lead can result in health impacts, particularly cognitive deficits, for children with blood lead levels of under 10 micrograms per decilitre.

There have been no equivalent studies of children exposed for shorter periods, such as occurred in Esperance, with a potential maximum exposure of approximately two years (refer to Appendix 8).

Page 335

Finding 190

While it is the case that no studies are available which demonstrate the affects of exposure to lead pollution, such as occurred in Esperance, it is equally the case that there are no studies which can reassure members of the Esperance community that there will be no long-term impact as a result of the exposure.

Page 335

Finding 191

Factors such as family circumstance and educational opportunities are potentially far more important to a child's cognitive ability than exposure to lead.

Page 337

Finding 192

The Committee supports the undertakings made by the Minister for Planning and Infrastructure, on behalf of government, that government will:

- not rely upon the statute of limitations in relation to legal actions arising as a result of potentially adverse consequences from exposure to lead pollution; and
- not rely upon legalities relating to the identification of the responsible government agency.

The Committee takes it that these undertakings are not confined only to potential legal action pursued on behalf of the children who were contaminated by the Magellan lead concentrate, but extend to all those potentially affected by lead pollution.

RECOMMENDATIONS

CHAPTER 2 THE CAUSE AND EXTENT OF LEAD POLLUTION IN THE ESPERANCE AREA

2.1 The cause of lead pollution in the Esperance area

Page 14

Recommendation 1

The Committee recommends that the approvals processes for, and the regulatory regimes applicable to, the transport and handling of dangerous goods such as lead concentrate in Western Australia be strengthened.

2.2 The extent of lead pollution in Esperance

Page 32

Recommendation 2

The Committee recommends that, if current studies demonstrate that there has been substantial contamination along the transport route for the lead concentrate from Wiluna to Esperance, specific testing of traditional foods and medicines be undertaken. If contaminated, targeted strategies should be developed to inform affected Aboriginal communities of the risks and how to manage those risks.

CHAPTER 4 THE ESPERANCE COMMUNITY AND THE AGENCIES

4.2 Commercial agencies

Page 63

Recommendation 3

The Committee recommends that the role of the Western Australian Port Operations Task Force, the Sea Freight Council of Western Australia, and the Department for Planning and Infrastructure's Marine Pollution Unit be included in a review of the management of ports in Western Australia (refer to Recommendation 4).

Page 65

Recommendation 4

The Committee recommends that the Minister for Planning and Infrastructure develop and implement a model for the management of ports that ensures that the management structure reflects the economic value and complexity of the ports' business or, alternatively, consider increasing the role of Departmental supervision and assistance.

Page 66

Recommendation 5

The Committee recommends that section 30 of the *Port Authorities Act 1999* (WA) be amended to include a specific function that a port authority be required to ensure that public health is not adversely impacted by its conduct.

Page 69

Recommendation 6

The Committee recommends that there should be a legislative requirement in the *Port Authorities Act 1999* that ports establish an advisory committee such as the Esperance Port's Community Development Consultation Committee. The Act should include the committees' terms of reference and membership criteria, including a provision that the local shire be represented on the consultative committee. To ensure transparency and accountability to their communities, the minutes of the proceedings of such port consultative committees should be required to be posted publicly on port websites.

4.3 State government regulatory agencies

Page 85

Recommendation 7

The Committee recommends that the Department of Environment and Conservation should be adequately funded to allow the Department to cover the true cost of its industry regulation function. This should include meeting its inspection targets and for these targets to appropriately reflect the degree of risk associated with licensed premises. Funding should be either by a policy of full cost recovery or in part augmented from consolidated revenue.

Page 87

Recommendation 8

The Committee recommends that compliance monitoring of those projects assessed as likely to have a significant environmental impact under Part IV of the *Environmental Protection Act 1986* should be adequately funded.

Page 90

Recommendation 9

The Committee recommends that the Department of Health review the adequacy of existing legislative provisions available to the Department to respond to public health emergencies in light of its experiences in responding to lead pollution in the Esperance area. Its findings should be reported to the Minister for Health, with a view to initiating legislative amendment processes if required.

Page 94

Recommendation 10

The Committee recommends that there be a legislative requirement for the Department of Health to conduct a health impact assessment as part of the Environmental Assessment Process.

**CHAPTER 5 ENVIRONMENTAL CONDITIONS FOR
TRANSPORTING AND HANDLING
MAGELLAN'S LEAD CONCENTRATE**

5.1 Setting environmental conditions - the Environmental Protection Authority

Page 108

Recommendation 11

The Committee recommends that the Environmental Protection Authority review its procedures. It should ensure that any measure of significant environmental consequence, identified as part of its assessment of a proposal, is included in the Ministerial conditions or proponent commitments, together with a precise definition of the terms used. This will ensure that there is no ambiguity about the significance of the measure and also that compliance can and will be audited by the Department of Environment and Conservation audit officers.

Page 109

Recommendation 12

The Committee recommends that all variations to Ministerial Statements should be posted on the Environmental Protection Authority's website.

Page 110

Recommendation 13

The Committee recommends that when there is an application to the Environmental Protection Authority varying a proposal to export a substance from one port through a different port, replication of any original public consultation process must occur as a minimum requirement.

Page 110

Recommendation 14

The Committee recommends that the potential for public concern about the likely impacts on the environment and health should be specific factors considered in the exercise of discretion under the relevant provisions of Part IV of the *Environmental Protection Act 1986*.

Page 113

Recommendation 15

The Committee recommends that the Environmental Protection Authority consider what action should be taken as a result of the failure by Magellan Metals Pty Ltd to undertake annual roadside monitoring surveys and sampling of rainwater tanks within 50 metres of the proposed route '*initially and ongoing*'. It committed to do this in the Health, Hygiene and Environment Management Program; a program required under the Ministerial Statement allowing the Magellan proposal to be implemented.

5.2 Setting environmental conditions - the Department of Environment and Conservation

Page 124

Recommendation 16

The Committee recommends that the Department of Environment and Conservation review the terminology used in its port licences, in particular the reference to '*open*' and '*closed*' handling systems, to ensure that these are not misleading.

Page 125

Recommendation 17

The Committee recommends that, as part of its current review of ports, the Department of Environment and Conservation review port environmental licences to ensure that the licensing conditions incorporate current standards relating to environmental management and monitoring.

CHAPTER 6 PELLETISED OR GRANULATED LEAD?

6.2 Environmental approval processes

Page 130

Recommendation 18

The Environmental Protection Authority's view is that there is a legal obligation to comply with all commitments made by a proponent in correspondence seeking a variation to a Ministerial Statement.

The Committee recommends that, unless the Environmental Protection Authority has already done so, it seek legal advice on the issue of whether all commitments made by a proponent in correspondence seeking a variation to a Ministerial Statement are legally enforceable.

If the Environmental Protection Authority's view is supported, proponents should be advised that all their undertakings made in correspondence seeking a variation to a Ministerial Statement are legally enforceable.

If the Environmental Protection Authority's view is not supported, it should review its procedures to ensure that all proponent commitments that it intends to be legally enforceable are incorporated into the Ministerial Statement, together with a precise definition of the terms used so that auditing of compliance can be effectively undertaken.

Page 134

Recommendation 19

The Committee recommends that the Department of Environment and Conservation review its procedures to ensure that any significant commitment made in an application for, or an application to vary, an environmental licence is included in the conditions of the licence, together with a precise definition of the terms used. This will ensure that there is no ambiguity about the significance of the commitment and also that compliance with these commitments can and will be inspected by the Department of Environment and Conservation licensing officers.

6.3 The transport and export of granulated lead

Page 140

Recommendation 20

Where reliance is placed on public consultation in applications to either the Environmental Protection Authority or the Department of Environment and Conservation and the information provided to the public is subsequently superseded, proponents should be required to replicate the initial consultation process.

CHAPTER 7 DUST MONITORING, REPORTING AND RESPONDING

7.3 The Department of Environment and Conservation

Page 154

Recommendation 21

The Committee recommends that the Esperance Port Authority licence include a condition that its dust monitoring program utilise a combination of depositional dust gauge sampling, high volume sampling and Tapered Element Oscillating Microbalance (TEOM) sampling. The data should be reported to the Department of Environment and Conservation within a specified timeframe after each sampling period or, in relation to TEOM sampling, be available as live stream on the Port's website (refer to examples in Appendix 7).

Page 155

Recommendation 22

The Committee recommends that the Department of Environment and Conservation review all licences that it has issued with the condition '*The licensee shall take measures to prevent or minimise the emission of visible dust past the boundary of the premises*', otherwise known as the '*visible dust*' licence condition, and allow it to remain in the licence only if the probable hazard posed is nuisance dust.

Page 156

Recommendation 23

The Committee recommends that the Department of Environment and Conservation incorporate its finding that *'sensitive monitoring equipment identified dust emissions and levels which were not visible to inspectors and would not have been detected without the use of equipment'* into all port environmental licences where dust emissions have potential detrimental impacts beyond nuisance relating to their *'soiling'* characteristics.

Page 159

Recommendation 24

The Committee recommends that the Department of Environment and Conservation be allocated adequate resources to ensure that effective and timely responses to the Esperance Port Authority's dust monitoring results can be guaranteed.

7.4 The Esperance Port Authority

Page 163

Recommendation 25

The Esperance Port Authority licence should include a condition that all dust monitoring results must be made publicly available on its website. This should occur at the same time as these are due to be reported to the Department of Environment and Conservation (refer to Recommendation 21).

CHAPTER 8 THE PORT AND BENTHIC LEAD LEVELS IN THE HARBOUR

8.3 Marine sediment monitoring by the Esperance Port Authority

Page 176

Recommendation 26

The Environmental Protection Authority and the Department of Environment and Conservation should include testing of inner harbours as a means for the early detection of contamination trends when establishing marine sediment monitoring conditions for ports.

Page 176

Recommendation 27

In determining the appropriate environmental standards for monitoring marine sediment within the boundary of an operation such as the Esperance Port Authority, consideration should be given to the proximity of population centres, recreational and tourism facilities, and other uses.

Page 177

Recommendation 28

The Environmental Protection Authority and the Department of Environment and Conservation should include a requirement in relevant approvals and licences that the results of any marine sediment and related testing by ports are sent to relevant agencies. These results should also be publicly available by way of posting on the ports' websites within a specified period after the testing is conducted.

8.5 Conclusion

Page 195

Recommendation 29

The Committee recommends that the Esperance Port Authority implement all infrastructure and other improvements necessary to address the potential for benthic contamination as a result of the Port's operations.

Page 195

Recommendation 30

The Committee recommends that the Department of Environment and Conservation review the Committee's findings relating to benthic lead levels in the Esperance harbour and conduct an investigation into the practices of the Esperance Port Authority with a view to determining if the Port has potentially breached its obligations under the *Environmental Protection Act 1986* and the conditions of its environmental licence.

CHAPTER 9 POTENTIAL LEAD POLLUTION AND THE PORT

9.4 Advice of Port's workforce

Page 209

Recommendation 31

The Committee recommends that the Minister for Planning and Infrastructure review and make changes to the existing structure of port authority boards to ensure that there is effective representation of the port workforce at this level of port operations.

9.6 Biological and other monitoring of the Port's workforce

Page 250

Recommendation 32

The Committee recommends that the Resources Safety Division review its monitoring of the CONTAM system to ensure that there is greater compliance with its quota allocations.

9.8 Conclusion

Page 263

Recommendation 33

The Committee recommends that the Department of Environment and Conservation review the Committee's findings relating to whether the Esperance Port Authority exercised its responsibilities in relation to the potential lead pollution and conduct an investigation with a view to determining if the Port has potentially breached its obligations under the *Environmental Protection Act 1986* and the conditions of its environmental licence.

CHAPTER 10 THE ROLE OF THE DEPARTMENT OF ENVIRONMENT AND CONSERVATION

10.10 Conclusion

Page 289

Recommendation 34

The Committee agrees with the Esperance community that it has been seriously let down by the Department of Environment and Conservation. It recommends that the Department's efforts to implement a more robust regulatory approach be given critical priority so that its officers will be effective in ensuring that the public is adequately protected from pollution and environmental harm.

CHAPTER 11 OTHER ISSUES

11.2 Hazardous and Dangerous Substances

Page 299

Recommendation 35

The Committee recommends that the Resources Safety Division of the Department of Consumer and Employment Protection review the Committee's findings in relation to Magellan Metals Pty Ltd with a view to determining if it potentially breached its legal obligations under the *Mines Safety and Inspection Regulations 1995*.

Page 305

Recommendation 36

The Committee recommends that Main Roads Western Australia review the Committee's findings in relation to the conduct of BIS Industrial Logistics with a view to determining whether further action in relation to BIS Industrial Logistics' cartage permits is warranted.

Page 307

Recommendation 37

The Committee recommends that WorkSafe and the Resources Safety Division of the Department of Consumer and Employment Protection review the Committee's findings concerning the workplace and transport practices adopted by BIS Industrial Logistics to determine if there were potential breaches of relevant legislative obligations.

Page 311

Recommendation 38

The Committee recommends that the Resources Safety Division of the Department of Consumer and Employment Protection review the Committee's findings concerning workplace, storage and related practices adopted by the Esperance Port Authority to determine if there were potential breaches of relevant legislative obligations.

Page 317

Recommendation 39

The Committee recommends that the Resources Safety Division of the Department of Consumer and Employment Protection review the Committee's findings concerning workplace, storage and related practices adopted by Magellan Metals Pty Ltd to determine if there were potential breaches of relevant legislative obligations.

Page 319

Recommendation 40

The Committee recommends that the Ministers representing Western Australia on the Australian Transport Council give consideration to initiating a review of the Council's processes to determine whether a more streamlined approach could be implemented to adopt revisions of the United Nations Recommendations on the Transport of Dangerous Goods into the Australian Dangerous Goods Code.

11.3 Nickel

Page 324

Recommendation 41

The Committee recommends that there be a study of the health effects of nickel exposure, upon which an assessment of the adequacy of current nickel mining, transport and handling practices can be made.

11.4 Response to the lead pollution

Page 331

Recommendation 42

The Committee recommends that for all children with blood lead levels above five micrograms per decilitre, the Department of Health should test household dust for lead contamination and, if present, fund the professional cleaning of the dwelling.

Page 331

Recommendation 43

The Committee recommends that its concerns about the adequacy of the government response to the lead pollution be drawn to the attention of the agency contracted, by the Department of Environment and Conservation, to conduct a Health and Ecological Risk Assessment for the Esperance townsite area and transport route.

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Recommendation 44

The Committee recommends that government commit to funding the full cost of any additional remediation actions that are identified as a result of the Department of Environment and Conservation Health and Ecological Risk Assessment for the Esperance townsite area and the transport route.

The Committee is also of the view that government should pursue responsible parties to recoup the costs associated with any remedial action, as appropriate.

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Recommendation 45

The Committee recommends that the Department of Health develop, implement and maintain a voluntary medical register of individuals who were exposed to the effects of the lead pollution. The register needs to:

- contain evidence of exposure to the effects of the lead pollution; and
- include any pre and post-incident exposure to potentially hazardous material.

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Recommendation 46

The Committee recommends that government consider establishing an alternative for individuals who are adversely affected by lead pollution in the Esperance area rather than requiring them to pursue compensation for demonstrable loss through adversarial legal proceedings in the courts.

MINISTERIAL RESPONSE

In accordance with Standing Order 277(1) of the Standing Orders of the Legislative Assembly, the Education and Health Standing Committee directs that the Minister for Planning and Infrastructure, the Minister for the Environment, the Minister for Health and the Minister for Employment Protection report to the Assembly as to the action, if any, proposed to be taken by the Government with respect to the recommendations of the Committee.

CHAPTER 1 INTRODUCTION²⁷

*In these days of space travel and exploration we rely on the birds to monitor for poisonous emissions just as the coal miners of yesteryear relied on the canaries. If it was not so serious one could laugh.*²⁸

1.1 Background

In December 2006, Esperance community members recorded that birds were ‘*actually falling from the sky*’.²⁹ By the end of the month, the Department of Environment and Conservation (DEC) had received over 20 reports of bird deaths in Esperance, and estimated that the total number of deaths, based on local bird density data, was approximately 4,000.

Initial testing on the cause of these deaths was limited. According to the Veterinary Pathologist of the Department of Agriculture and Food’s Animal Health Laboratories (AHL), local DEC officers were ‘*involved in fighting numerous bushfires at the peak of die-off*’ and ‘*many of the dead birds*’ were discarded because the freezer was needed for provisions for the bush fire crews.³⁰ Despite the small sample size, of only eight birds, the Veterinary Pathologist concluded that there was evidence to suggest that the birds died from lead poisoning. The Pathologist also identified the Esperance Port facilities as being used for shipping lead carbonate, as being in close proximity to the majority of bird deaths, and as having some indication of lead escaping the Port in November 2005 through its dust monitoring program.

The lead carbonate was the product of Magellan Metals Pty Ltd, a fully owned subsidiary, and sole asset, of Canadian company, Ivernia Inc.³¹ Lead carbonate ore was mined, ground into fine particles, chemically treated in what is referred to as a ‘*flotation process*’, and then partially dried in a designated open area (a ‘*concentrate drying pad*’) at the Magellan mine site just outside Wiluna.

²⁷ This Report relies upon the evidence as detailed and referenced in Appendix 4, a chronology of the Magellan mine and the Esperance Port. Due to time constraints in its preparation, references which are available in the Appendix have not generally been repeated in the substantive Report.

²⁸ Submission No. 2 from Mr Eric & Ms Anne Lewis, 18 April 2007, p2.

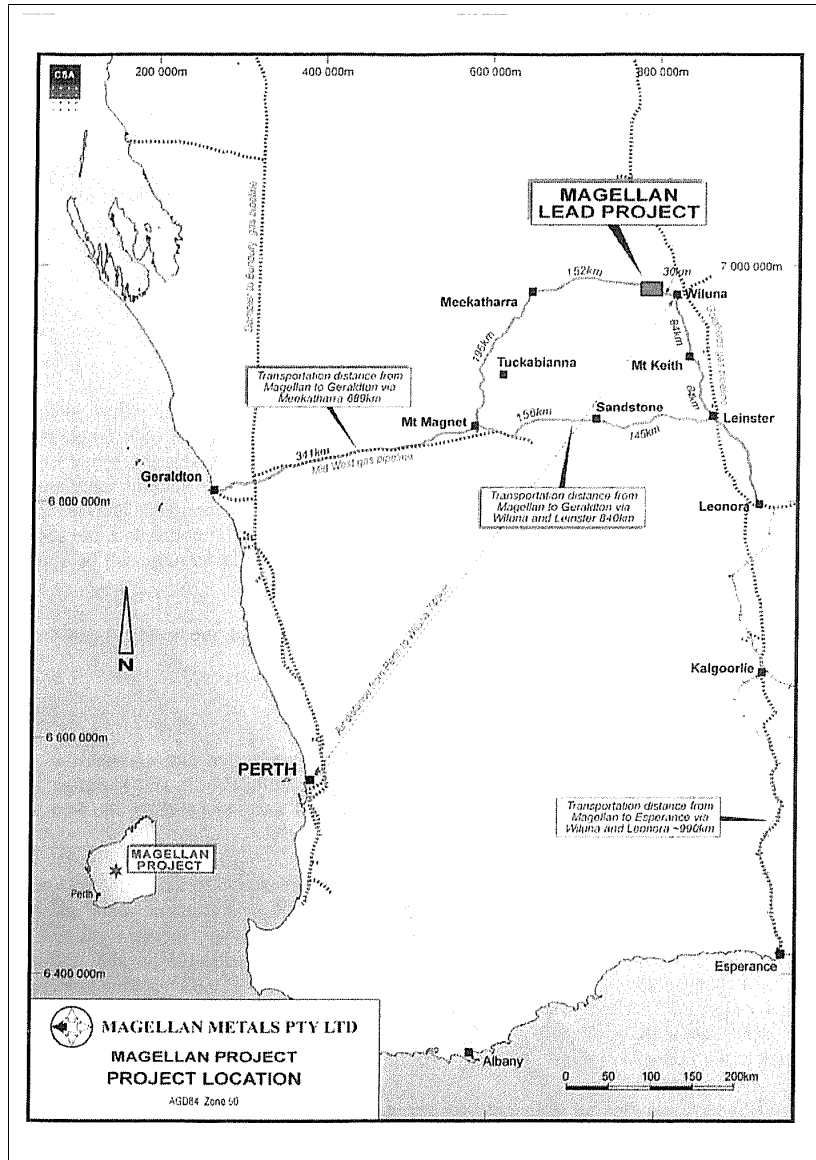
²⁹ Submission No. 62 from Ms Judy and Mr Mark Williamson, 24 May 2007.

³⁰ Letter from Veterinary Pathologist, Animal Health Laboratories, to Manager, Nature Protection Branch, DEC, 3 March 2007. DEC’s evidence on this point differs, and is that ‘*for histological purposes, frozen specimens are not suitable [and] they were asked to collect fresh specimens*’ (Mr David Mell, Manager Native Protection Branch, DEC, *Transcript of Evidence*, 30 April 2007, p8).

³¹ Mr Patrick Scott, Director, Managing Director, Magellan Metals Pty Ltd, *Transcript of Evidence*, 2 May 2007, p3.

The lead concentrate made the more than 900 kilometre journey in 'kibbles',³² metal skips with polycarbonate covers. The kibbles were initially loaded on to trucks at the mine site, then reloaded onto trains just outside of Leonora, and travelled through Kalgoorlie, Norseman and a number of other towns, before the 24 hour rail journey ended at the Esperance Port.³³

Figure 1.1 Magellan Project Location³⁴



³² Kibbles are the large metal skips that have been used to move nickel, loaded and unloaded on to trucks or trains by front-end loader. These are covered, but not sealed, by polycarbonate tarpaulins (see photograph at p5).

³³ Email from Mr K Lewsey, Chief Executive Officer, Australian Railway Group, Perth, 3 July 2007.

³⁴ F&A Sibbel Mining Consultants P/L, *Technical Report on the Magellan Project*, 2004, p13.

DEC notified the Port of the initial results of tests carried out on the bird deaths on 9 March 2007. The Port issued a press release stating that it would work with the Shire of Esperance and DEC to ‘determine the source of lead that may have caused the bird deaths’. It also stated that real time dust monitoring equipment would be installed and that:

The Port is building a \$9 million lead storage facility ... and this along with the upgrade of the conveyor systems associated with the new shed will have greater control over the movement of product in the Port. The Port has an ongoing policy of reviewing all of its 8 km of conveyors and this will continue, and where necessary work will be undertaken to ensure capture of any dust that comes off the conveyor belts.³⁵

(A description and pictorial representation of the transport arrangements and the inloading³⁶ and outloading³⁷ infrastructure at the Esperance Port for Magellan’s lead concentrate is included at Chapter 1.3.)

Shortly afterwards, on 12 March 2007 following a meeting of the Port’s Board, Magellan was informed by the Port of the suspension of all lead related activities through the Port pending the investigation of the cause of the bird deaths.

More large scale bird deaths were reported in the Esperance area during March 2007. A local school principal told the Committee:

I had a conversation with the children and they said to me that it was gorgeous the way two children had conducted a funeral service for a bird. I said “What?”... Because of the prior deaths of the birds, I made a PA announcement. I went straight into risk management mode and told the children to not touch any of the birds and that if they found any sick or dead birds, they should report it straight away. I was overwhelmed to discover that more than 50 birds were found dead on 7 March. The Nulsen Primary School site is quite small. On the day before, which was a Wednesday, two birds were found dead, and another 30 birds were found dead on the Friday.³⁸

Further testing was conducted and showed that lead poisoning was the likely cause of death. On 15 March 2007, DEC issued a prevention notice on lead handling by the Port.

³⁵ Esperance Port Authority, ‘Media Release’, 9 March 2007. At the time of writing, this media release was not available on the Port’s website.

³⁶ Term used by the Port to describe the act of unloading goods coming into storage, or for export.

³⁷ Term used to describe the movement of product from port storage to ships for export. At Esperance the ‘outloading’ process for lead commenced when product was loaded into the reclaim hopper inside the lead shed.

³⁸ Ms Lisa Helenius, *Transcript of Evidence*, 3 May 2007, p5. Subsequent testing at the school did not identify elevated lead levels.

By the end of March, the estimate of bird deaths had increased to a total of 9,500 birds in the Esperance area. By 4 April 2007, it was confirmed by isotope testing³⁹ of samples taken from dead birds, soil, water and sediment in Esperance that these matched the lead in samples of material transported into the town by rail for export through the Port.

1.2 This inquiry

The inquiry into the cause and extent of lead pollution in Esperance was referred to the Education and Health Standing Committee after lengthy debate in the Legislative Assembly on 4 April 2007.

From the outset it was acknowledged by the Minister for Planning and Infrastructure, the Hon Alannah MacTiernan, MLA, that *'things went wrong and there was culpability on the part of various agencies that have been involved in this issue, including my agency [the Esperance Port Authority]*'.⁴⁰ The Minister stated that:

The government believes that we could in fact have a full investigation into what went wrong ... We accept the view put to us by the member for Roe that in order for the people of Esperance to have confidence in that inquiry it would need to be a parliamentary inquiry.

*Our view is that we clearly start from the fact that we do not actually think that in order to get to the bottom of what has gone on - and it is not all that complex - that we need a parliamentary inquiry. However, in deference to the wishes of the member for Roe, as the representative of that community, we have been prepared to agree to a parliamentary inquiry overseeing what went wrong.*⁴¹

Others also believed that the issues being inquired into were straightforward, for example Mr Doug Winch who wrote to the Committee:

*If you want to know what the cause of the pollution was, I can tell you that without an enquiry. If you transport toxic material in unsealed containers, such as kibbles, and then load it into a ship's hold via an open conveyor belt, the toxic material will escape and cause pollution. The foregoing holds true for pelletised as well as granulated concentrate. If the containers are not sealed and the conveyors are open, the product will escape. If the product that escapes is toxic, we then have pollution. It's not really rocket science.*⁴²

³⁹ Isotopic ratios may differ for different mineral sources, and this property has been exploited in non-radioactive tracer studies to investigate environmental and metabolic pathways of minerals such as lead. Lead (Pb) has four naturally occurring isotopes with atomic weights 208, 206, 207 and 204 (in decreasing order of abundance) (World Health Organisation, Air Quality Guidelines, Second Edition Chapter 6.7, Copenhagen, 2001).

⁴⁰ Hon Alannah MacTiernan, MLA, Minister for Planning and Infrastructure, WA, Legislative Assembly, *Parliamentary Debates (Hansard)*, 4 April 2007, p1227; Hon Alannah MacTiernan, MLA, Minister for Planning and Infrastructure, *Transcript of Evidence*, 7 June 2007, p7.

⁴¹ Hon Alannah MacTiernan, MLA, Minister for Planning and Infrastructure, WA, Legislative Assembly, *Parliamentary Debates (Hansard)*, 4 April 2007, p1227.

⁴² Submission No. 91 from Mr Doug Winch, 3 June 2007.

1.3 The transport and handling of lead concentrate

(a) Transport from the mine site

As indicated, lead concentrate made the more than 900 kilometre journey in *'kibbles'*, metal skips with polycarbonate covers. The covers were unfurled across the open top of the kibbles and were anchored on only two sides. The kibbles were filled by front-end loaders at the mine site and then loaded onto the back of trucks, making the journey through Wiluna to Leonora. At a railway siding just outside of Leonora, the kibbles were unloaded and then reloaded onto train wagons. The kibbles with concentrate were either loaded immediately onto a train or could wait up to five days to be loaded; on average the delay was one day.⁴³ The trains then went through a number of populated centres and the 24 hour journey was completed when the kibbles were unloaded inside the Esperance Port.

Figure 1.2 Kibbles



Kibbles for transporting lead concentrate at the railway siding just outside of Leonora.

Figure 1.3 Kibbles loaded on train wagon



Kibbles loaded onto the back of a train wagon for transportation to Esperance Port.

⁴³ Submission No. 94 from Mr Ian Lynass, Managing Director, BIS Industrial Logistics, 27 June 2007, p5.

(b) Inloading lead carbonate

The rail line that brings product through the Esperance Port runs parallel with the lead shed and a rotating fork lift offloads the kibbles individually from the wagons into an inloading dumper known as ‘CV20’. Dumper CV20 is closed on three sides, just covering the hopper mechanism and initial run of the conveyor belt. The front of CV20 is totally open. Three kibbles of lead concentrate were uncovered at a time and these would sit in the open awaiting unloading into the dumper CV20.

CV21 then conveyed the lead carbonate into the lead shed where it was stockpiled. CV21 is enclosed once it leaves the dumper infrastructure and travels to the lead shed. The lead was dropped from the roof of the shed, where the conveyor ends, to the floor where it was stored. The shed is equipped with water sprays.

Figure 1.4 Inloading Dumper



Kibbles were unloaded from the train at the Port by a rotary forklift and the lead concentrate was tipped into an inloading dumper (CV20) by forklift.

Figure 1.5 Conveyor 21



Lead concentrate was transferred from the inloading dumper to the lead shed by conveyor (CV) 21.

Figure 1.6 Conveyor 21



The lead concentrate is moved to the lead shed by CV21.

Figure 1.7 External view of conveyor 21



Exterior view of lead transfer CV 21.

Figure 1.8 Exterior view of conveyor 21



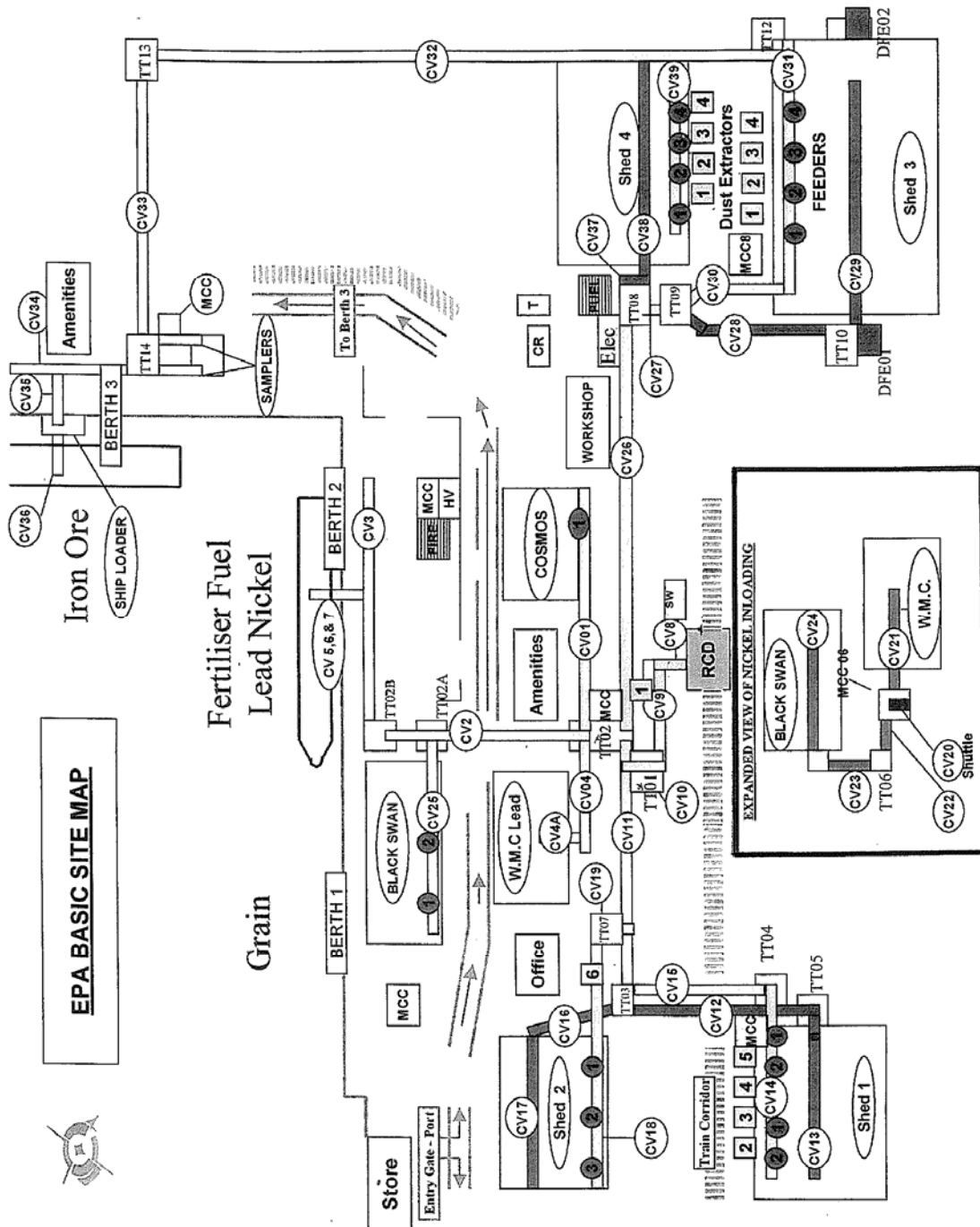
Another exterior view of CV21.

Figure 1.9 The lead shed



These doors seal the shed from the heavy metals inloading area.

Figure 1.10 Esperance Port Authority Basic Site Map



(c) Outloading

Front-end loaders transferred the lead concentrate into the reclaim hopper inside the lead shed where it was loaded to the conveyor belt CV4A for outloading. On leaving the shed on CV4A the lead concentrate then negotiated a transfer outside the shed onto CV4. Transfer points are not fully enclosed and product could spill onto the ground or walk areas below.

The lead concentrate then negotiated another transfer point to CV2 which is an enclosed conveyor system, with a grate floor suspended above the bottom of the conveyor. The lead concentrate travelled along CV2 and negotiated a right-angled transfer onto CV3. CV3 is covered but is not fully enclosed having no floor. Near the transfer point is the main sample cutter. Samples were taken to determine the moisture content of the lead carbonate. Magellan specifically required three 300 gram samples to be collected; two wet and one dry. The Port took other samples to conform with maritime regulations.

After leaving the sample cutter the conveyor system made another right angled transfer to CV5, 6 and 7 where the concentrate was outloaded to a waiting ship. CV 5, 6 and 7 are open structures that lead directly to the ship.

Figure 1.11 Reclaim hopper



The reclaim hopper is in the lead shed and the lead concentrate was loaded by front-end loaders from the stock deposited from CV21.

Figure 1.12 Transfer



Lead concentrate left the shed on CV4 and was transferred to CV2.

Figure 1.13 Conveyor 2



CV2 is the main conveyor. It has a floor and some new repair work has been completed.

Figure 1.14 Interior view of conveyor 2



CV2 has a suspended grill floor inside and a solid floor below.

Figure 1.15 Sample cutter



Port workers used the sample cutter at the end of CV2 to access the lead concentrate on the conveyor so samples could be taken for checking moisture content.

Figure 1.16 Sample cutter



Open sample cutter. A hand held bucket was used to take the sample of lead concentrate. After passing the sample cutter, the lead concentrate was transferred to CV3.

Figure 1.17 Conveyor 3



CV3 runs adjacent to the berth 2. There is no floor on CV3.

Figure 1.18 Up view of conveyor 3



An exterior view of CV3 from the berth underneath it.

Figure 1.19 Inside conveyor 3



Another view of CV3, from the inside.

Figure 1.20 Conveyor 3



The dark section in the middle is the conveyor belt.

Figure 1.21 Transfer from conveyor 3



Lead concentrate was transferred from CV3 to CV5, 6 and 7. Note the open structure.

Figure 1.22 Telechute



From CV 5, 6 and 7 the lead concentrate in more recent times was loaded via the telechute to the ship's hull.

CHAPTER 2 THE CAUSE AND EXTENT OF LEAD POLLUTION IN THE ESPERANCE AREA

2.1 The cause of lead pollution in the Esperance area

Based on the isotope analysis of samples from the livers of dead birds, water and soil in Esperance and the sample isotope analysis of Esperance community members' blood, in particular the children's,⁴⁴ the Committee is satisfied that the lead pollution in Esperance was substantially from Magellan's lead product.

Finding 1

The lead pollution in Esperance was substantially lead from the Magellan Metals Pty Ltd mine site.

The Committee also accepts that some of the lead identified in Esperance community members' blood and in the environment is from other sources.⁴⁵ The Committee acknowledges that lead occurs naturally in the environment and is also present in building and household paints applied prior to 1970s. Elevated blood lead levels may relate to exposure through occupation; working or living in houses with lead paint, particularly those undergoing renovations; or hobbies involving lead. Adults in particular are also likely to have had long-term exposure as a result of leaded petrol, which was phased out in Western Australia between 1986 and 1 January 2000.

⁴⁴ The *Report on Lead Isotopic Analyses of Samples Associated with the Esperance Lead Investigation* released by the Department of Health in June 2007 identified the contribution of Magellan lead to the blood lead levels of children tested as being between 30-87 per cent; uncertainties associated with exposure to lead of adults makes the testing invalid. For those children with blood lead levels of more than 3µg/dl, 84 per cent had at least 50 per cent Magellan lead (Gulson, B & Korsch, M, *Report on Lead Isotopic Analyses of Samples Associated with the Esperance Lead Investigation*, May 2007).

⁴⁵ The evidence of the Minister for Planning and Infrastructure, based on preliminary results, was that:

In some cases, the majority of the lead in the blood is actually from non-Magellan sources. In other cases, the majority is from Magellan sources. You can see that the picture is very complex... This is hardly surprising when you consider the results that have come in from other lead level surveys that have been done across populations that have shown comparable, if not higher, lead levels than we see in Esperance. It is not surprising that within these blood samples we are seeing non-Magellan lead as well as Magellan lead. Surprisingly, up to 70 per cent of the lead has been determined not to have been from the Magellan source. (Transcript of Evidence, 7 June 2007, p2).

Complete results, however, indicated that the majority of children with elevated blood lead levels had been significantly exposed to Magellan lead (see footnote 44).

Finding 2

Not all lead present in the Esperance environment and in the blood of Esperance community members, particularly adults, was lead from the Magellan Metals Pty Ltd mine site.

Also, for reasons similar to those outlined by Mr Winch in the submission referred to previously, the Committee's view is that a substantial cause of lead pollution in the Esperance area was the transport of Magellan's lead concentrate to the Esperance Port and the inloading and unloading of the product at the Port, although the relative contributions of the transport and the Port's handling of the product to the pollution remains unclear at this time. The handling of the lead concentrate is examined in more detail in later chapters.

Finding 3

A substantial cause of the lead pollution in the Esperance area was the transport of the lead concentrate produced by Magellan Metals Pty Ltd to the Esperance Port, and the inloading and unloading of the product at the Port.

As examined in detail throughout this Report, it is evident that the approvals processes for, and the regulatory regimes applicable to, the transport and handling of dangerous goods⁴⁶ such as lead concentrate in Western Australia failed. The Committee is satisfied that this regulatory failure was not an isolated instance.

Recommendation 1

The Committee recommends that the approvals processes for, and the regulatory regimes applicable to, the transport and handling of dangerous goods such as lead concentrate in Western Australia be strengthened.

⁴⁶ Dangerous goods are substances and articles that have the potential to cause harm to people, property and the environment. They are defined by their physical and chemical properties. The term is used to describe a large range of goods including petrol, LP Gas, chlorine, explosives and fireworks (DoCEP website, Available at: www.docep.wa.gov.au/resourcessafety/sections/Dangerous_Goods/Pages/Dangerous_Goods_Over.html Accessed 22 August 2007).⁴⁶

2.2 The extent of lead pollution in Esperance

The other broad area of inquiry, the extent of lead pollution in the Esperance area, is very much a matter that will be determined not by this Committee, but by the studies that have been and continue to be undertaken by the Shire of Esperance, other relevant Shires, the Department of Health and DEC. A number of these studies are summarised below.

(a) Blood lead levels

The Department of Health’s blood testing results as of 11 June 2007 were as follows:

Table 2.1 Cumulative blood lead levels for Esperance community members⁴⁷

Cumulative lead blood levels for Esperance community members ¹ 19 March to 11 June 2007				
Age group (years)	Number of tests	Average lead level (micrograms per decilitre)	Number with lead level in range 5 – 9 µg/dl	Number with lead level ≥ 10 µg/dl ** (values)
0 to < 5	345	3.2	74 *	7 * (11,12x3,13, 20, 22)
5 to < 10	234	2.4	19	0
10 to < 20	301	1.8	5	0
20 to < 40	535	1.9	24	3 (15,16,18)
Over 40	1307	3.1	197	21 (10x4, 11x7, 12x4, 13x3, 14, 16, 21)
Total	2722	2.7	319	31

¹ Community members only (individuals identified with occupational exposure to lead from the Port are not included in the table)

* Children aged 0 to < 5 years (81 children) with a blood lead level of 5 µg/dl or greater will be followed up until levels have dropped on two consecutive occasions

** World Health Organisation (WHO) guidelines recommend blood lead levels < 10 µg/dl

Maps made available to the Committee by the Department of Health, on 10 July 2007, showed that the areas of high concentrations of elevated blood levels are to the north and south-east of the Port, the latter being close to the railway line.⁴⁸ The Acting Director General stated:

⁴⁷ DEC, Lead Issue Update, Issue No.1, June 2007.

⁴⁸ Closed evidence (to protect patient confidentiality).

It is important that the maps [of community members presenting for blood tests and community members blood lead levels] be considered together as it shows how closely the pattern of high lead levels follows the pattern of presentations. It must be noted that the maps are based on residential location of the community member and do not consider alternative exposures that may have occurred outside the home.

The apparent correlation between the number of community members presenting for blood tests and the identification of high blood levels suggests that if more testing had been undertaken, more elevated blood levels may have been identified. However, it is also important to note that the number of community members with high blood lead levels was small, at just over one per cent of those tested if the World Health Organisation guideline level ($\geq 10\mu\text{g}/\text{dl}$) is used.

As indicated also, there are likely to be adults whose lead exposures may not be related, or significantly related, to the Magellan product. Interestingly, the baseline blood sampling undertaken by the Port of its workforce (involving 51 samples from workers) prior to the handling of lead concentrate, showed an average of $2.84\mu\text{g}/\text{dl}$ with no results above $10\mu\text{g}/\text{dl}$. This can be compared to the results in Table 2.1 from the Department of Health samples taken between March to June 2007, for age groups 20 years +, of $2.75\mu\text{g}/\text{dl}$ with 1.3 per cent of results equal to or above $10\mu\text{g}/\text{dl}$.⁴⁹

With reference to the Port's workforce, the comparison between the blood lead levels from the baseline testing and the results some two years later in March 2007, when the handling of lead by the Port stopped, is also noteworthy. As indicated the average of the baseline blood levels was $2.84\mu\text{g}/\text{dl}$; the average of blood lead levels from tests in March 2007 was $7.91\mu\text{g}/\text{dl}$. In this context the Department of Health's reassurance in March 2007 that '*while the investigation was only in its early stages, the results [of the blood lead testing in March, principally of Port workers] confirmed the view that while it was apparent that lead had found its way into the bird population, the Department of Health had not seen evidence that human health had been affected*' could be misunderstood if read as implying that the lead had not found its way into humans.

(i) Esperance children's exposure

Of most concern are the children's results. It is broadly accepted that there can be adverse impacts from exposures resulting in blood lead levels under $10\mu\text{g}/\text{dl}$ ⁵⁰ and that children are particularly susceptible to the absorption of lead because of their physiology and habits.⁵¹ However, detailed studies on the impacts of this level of lead contamination have focussed on longer term exposures. This issue is examined in more detail in Appendix 8, and considered further in Chapter 11.4.

⁴⁹ The blood lead level results for the 646 samples taken between 19 January 2005 and 5 April 2007 were provided by the Port.

⁵⁰ The report which identified this issue on the basis of a five year study was published in 2003 by Canefield, RC, Henderson CR et al, 'Intellectual Impairment in Children with Blood Lead Concentrations below $10\mu\text{g}$ per decilitre', *New England Journal of Medicine*, Volume 348: 1517-1526. Note that the evidence in relation to shorter term potential exposure, as in Esperance, is not altogether clear.

⁵¹ Dr Donald Howarth, *Transcript of Evidence*, 3 May 2007, p2.

Proportion of children affected

While elevated blood lead levels in children do not appear to be widespread in Esperance, on the data available it is significant that 81 children were identified with blood lead levels equal to or in excess of 5µg/dl. This represents almost one-quarter of the children under five who had been tested. Even if there were no additional children with elevated blood lead levels in Esperance (despite the Department of Health's finding that *'the pattern of high lead levels follows the pattern of presentations'*) this represents almost nine per cent of the population of the Esperance Shire who are under five years of age.⁵²

It is also of note that 10 per cent of children under the age of 4 years in Esperance are from an Indigenous background while eight per cent of five to nine year olds are also of Indigenous backgrounds.⁵³ The two highest blood lead levels identified in children both related to very young Indigenous children.⁵⁴ As Mr Doc Reynolds, a traditional owner and a leader of Aboriginal people in the Esperance community, stated:

*...I do not have to relate to you or to your committee the health effects that Aboriginal people face today. We do not need any more bad statistics...*⁵⁵

It is of concern to the Committee, therefore, that no particular outreach to the local Indigenous communities potentially affected by lead pollution appears to have been considered by authorities.

An Esperance primary school principal, Mrs Lisa Helenius, gave the following evidence before the Committee:

*I do not want to be critical, because everyone has processes, but sometimes it is quite white middle class. The testing of the blood has always been done by coming to us and making an appointment, which sometimes does not fit with all members of our community. I was contacted by the Department of Health asking if we would offer our site on Wednesday so that some of the Aboriginal children could be tested. The take-up of that is perhaps not as high as what everyone would like, to get a better cross section of what is happening.*⁵⁶

It may be that had authorities considered better outreach, those families with children particularly at risk may have been able to access services and assistance. This issue is discussed further at Chapter 2.2(h).

⁵² The calculation is based on Australian Bureau of Statistics (ABS) information from the 2006 Census for the Esperance Local Government Area (ABS, *2006 Census of Population and Housing Esperance (S) (Local Government Area) - WA*, (Cat. No. 2068.0).

⁵³ ABS, *2006 Census of Population and Housing Esperance (S) (Local Government Area) - WA*, (Cat. No. 2068.0).

⁵⁴ Closed evidence.

⁵⁵ Mr Doc Reynolds, *Transcript of Evidence*, 2 May 2007, p3.

⁵⁶ Mrs Lisa Helenius, *Transcript of Evidence*, 3 May 2007, p7.

Range and average of blood lead levels

Blood lead levels for those children in Esperance who were tested ranged up to 22µg/dl, but of the almost 600 tested, only two had levels in excess of 15µg/dl. The average blood lead level for children under five years of age was 3.2µg/dl and the median⁵⁷ was 3.0µg/dl.⁵⁸

Comparisons to another recent study (Brookdale in 2003), indicated that children five years and under had an average of 3.1µg/dl, although in Brookdale there had been reports of very high air lead levels sampled at the Forrestdale Primary School.⁵⁹ Other contemporary studies indicate that lower blood lead levels for children might be expected.⁶⁰

It is also the case that the results of blood lead analysis for children of Esperance do not at all resemble the results for children in areas which have experienced long term exposure to lead. For example, the following table records the blood lead levels for children in the Port Pirie area over 20 years.

Table 2.2 Blood lead levels for children in Port Pirie⁶¹

Year	n	Geometric Mean (µg/dL)	% children ≥10 µg/dL	% children ≥15 µg/dL	% children ≥20 µg/dL	% children ≥25 µg/dL
1984-1985	376	22.4	98	87	69	45
1988	570	17.4	93	75	47	25
1992	626	15.0	86	58	28	14
1995	821	12.2	67	32	11	4
1998	808	10.4	59	23	9	4
2001	711	9.8	55	22	8	3
2004	618	10.6	60	31	15	5

⁵⁷ Commonly known as the middle level in a range of samples. It is the number that divides the top half of scores (blood samples) from the lower.

⁵⁸ Submission No. 18(f) from Department of Health, 19 July 2007.

⁵⁹ WA Centre for Pathology and Medical Research, *PathCentre News*, Volume 9, No. 1, May 2003, pp1,2.

⁶⁰ For example, a US national survey showed that average blood lead levels generally declined from 12.8 to 2.8µg/dl between 1976 and 1991 (ATDSR, Draft Toxicological Profile for Lead, Georgia, September 2005); An 'opportunistic' study of children attending pathology services in NSW in 1999 showed the average blood lead level was 2.4µg/dl, with children from regional centres having higher levels (2.7µg/dl) than children from city hospitals (2.3µg/dl) (NSW Health, Report of the NSW Chief Health Officer, 'The Environment - Blood lead and leaded petrol', Available at: www.health.nsw.gov.au/public-health/chorep02/env/env_bloodpb.htm Accessed on 8 June 2007).

⁶¹ South Australia, Department of Health, *The Port Pirie Lead Implementation Program: Future Focus and Directions*, December 2005, p22.

Indeed, the levels of children in Esperance are significantly lower than those detected in children when leaded petrol was still impacting on the environment. In 1995, 10.5 percent of Western Australian children included in the Australian Institute of Health and Welfare study *Lead in Australian children* had blood lead levels equal to or greater than 10µg/dl; the data in Table 2.1 indicate just over one per cent of the children in Esperance exceeded this level.⁶²

It is Committee's view that some children in Esperance have been contaminated by Magellan lead concentrate, causing an increase in their blood lead levels. Fortunately, this is not of the same magnitude as has occurred elsewhere, where on-going lead contamination has resulted in far higher blood lead levels than recorded in Esperance.

Finding 4

Some children in Esperance were contaminated by Magellan lead concentrate, causing an increase in their blood lead levels.

Fortunately, the elevation in blood lead levels has not been of the same magnitude as has occurred elsewhere, where on-going lead contamination has resulted in far higher blood lead levels than those recorded in Esperance.

(ii) Nature of exposure

It is of note that persisting elevated blood lead levels have traditionally been associated with continuing rather than short term exposure to lead (Appendix 6).

Finding 5

Persisting elevated blood lead levels are generally associated with continuing rather than short term exposure to lead.

Elevated blood lead levels detected in Esperance community members suggest that the population has been exposed to continuing lead pollution rather than to a single exposure, or to a small number of discrete short-term exposures.

⁶² Australian Institute of Health and Welfare, *Lead in Australian children: Report on the National Survey of Lead in Children*, 1996, p26.

Finding 6

Elevated blood lead levels detected in Esperance community members suggest that the population was exposed to continuing lead pollution rather than to a single exposure, or to a small number of discrete short-term exposures.

With reference to the evidence available to the Committee, discussed in detail throughout this Report, it is possible that the exposure of Esperance community members to Magellan lead was a result of the ongoing transport and inloading practices relating to the lead concentrate, which occurred almost every second day over some 23 months. It is also possible that the ongoing outloading practices caused the contamination, with 22 ship-loadings occurring over this period. Alternatively a number of key dust incidents during ship-loading of the concentrate by the Esperance Port Authority, such as those described in Chapter 9.5, may have released significant lead pollution into the environment, and in the absence of any containment or clean up, caused on-going exposure to lead pollution.

Finding 7

The Committee believes that the exposure of Esperance community members to Magellan lead was a result of:

- the ongoing transport to, and inloading practices at, the Esperance Port which occurred almost every second day over some 23 months;
- the escape of lead dust during the usual outloading practices at the Esperance Port, which occurred on 22 occasions; and
- a number of key dust incidents occurring during ship-loading of the Magellan lead concentrate at the Esperance Port, which released significant lead pollution into the environment, and in the absence of any containment or clean up, caused on-going exposures to lead.

(b) Rainwater tank testing**Table 2.3 Rainwater tank sample results⁶³**

Rainwater Tank Sample Results 9 March to 5 May 2007		
Metal	Nickel	Lead
Total number of samples	1336	1336
Average concentrations of total samples	0.024	0.009
Number that exceeded guidelines*	363	266
- Average of exceeding samples	0.074	0.038
- Range of exceeding samples	0.021-0.95	0.011-0.4
- 90% of exceeding samples have values less than:	0.14	0.09

* Australian Drinking Water Guideline value for Nickel is 0.02 mg/L

* Australian Drinking Water Guideline value for Lead is 0.01

The rainwater tank sample results, as published by DEC in June 2007, indicate that approximately one fifth of the tanks tested in Esperance between 9 March and 5 May 2007 were above the Australian Drinking Water Guideline for lead.

⁶³ DEC, Lead Issue Update, Issue No.1, June 2007.

(c) Soil scans, samples and related results

Soil sample results, published by DEC in April 2007, are as follows:

Table 2.4 Soil scans and samples⁶⁴

Soil scans (initial)

The following results were obtained from a portable heavy metals detector, which has a lead detection limit of 65 mg/kg (readings less than this can have high errors).

Guideline for soil investigation level: ecological		300 mg/kg
Guideline for soil investigation level: human health, residential land, primary schools		300 mg/kg
Guideline for soil investigation level: human health, parks, recreational open spaces		600 mg/kg
Location of samples	Number of scans	Range of results
Port washdown areas above 300 mg/kg	10, of which 6 were above 300 mg/kg	106 – 18,000 mg/kg
Areas close to port	49, of which 2 were above 300 mg/kg	No reading – 362.6 mg/kg
Schools	17, none of which were above 300 mg/kg	No reading – 100 mg/kg
Railway line	26, of which 5 were above 300 mg/kg	No reading – 1045 mg/kg

Soil samples sent to Chemistry Centre

	Lead	Nickel
Guidelines as for previous table		
Location of samples		
Beach outside port	<0.5 – 15 mg/kg	0.9 – 4.2 mg/kg
Along railway line	7.3 – 160 mg/kg (av. 72.98 mg/kg)	14 – 460 mg/kg (av. 144.3 mg/kg)

These results indicate that while there were elevated lead levels in soil scans and samples taken in Esperance, they were not uniform and the majority were below the guideline level for lead.

Significantly, DEC advised in June 2007 that of:

the 35 soil samples taken from 19 sites covering parks, kindergartens, primary schools, high schools, vacant lots in residential areas and one industrial area adjacent to the Port, the highest lead reading recorded of 380 milligrams per kilogram (mg/kg) came from bare

⁶⁴ DEC, Lead Issue Update, Issue No.1, June 2007.

*soil beside the ‘quarantine station’ next to the port and railway line. The trigger level for further investigation of such sites under the commercial/industrial health standard is 1500 mg/kg for lead. The trigger levels for residential areas and parks and schools are naturally much lower, 300 and 600 mg/kg respectively. The highest reading recorded at these sites was 88 mg/kg and the majority were less than 10 mg/kg.*⁶⁵

DEC recently provided mapped soil sample results to the Committee. These results are summarised below:

Table 2.5

Esperance Soil Sampling - Lead

(Lead values above 300 mg/kg are above Australian Soil Ecological Investigation Levels and Australian Health Investigation Levels)

No. of Samples	mg/kg
77	0-100
7	101-200
0	201-300
1	300+

Table 2.6

Esperance Soil Sampling - Nickel

(Nickel values above 600mg/kg are above Australian Health Investigation Levels)

No. of Samples	mg/kg
79	0-150
0	151-300
3	301-450
1	450-600

The soil sampling by the Department of Environment and Conservation provided to the Inquiry contained sampling for a radius of about 5 kilometres from the Port of Esperance. These established the lead concentration measurements in soils in milligrams per kilogram (mg/kg). The majority of samples were within a 3 kilometre range of the Port, in the suburbs of Esperance, West Beach, Sinclair, Nulsen and Castletown.

While only one sample recorded a significant value above the 300mg/kg Australian Soil Ecological Investigation Level (EIL) and Health Investigation Level, there were seven between 101 and 200mg/kg, and it should be noted that the soil guideline for lead in residential properties and parks in Canada is 140mg/kg.⁶⁶

⁶⁵ DEC, Lead Issue Update, Issue No.1, June 2007.

⁶⁶ Canadian Council of Ministers of the Environment (CCME), ‘Canadian Environmental Quality Guidelines’.

While the levels are generally low the sampling process was extremely restricted. The higher values of lead are, except in one instance, located in closer proximity to the Port with three along the railway line; the four higher values for nickel are all along the railway line. Testing along the transport route through to Wiluna was not included.⁶⁷

(d) Dust swabs

The US Environment and Protection Agency in 1995⁶⁸ reported that fine dust may be the most biologically significant for the hand-to-mouth route of childhood lead contamination. The Agency indicated that such a conclusion could be reached as:

Studies suggest that fine dust particles stick to a child's hands more readily than do other components of dust and that most research shows that lead is generally more concentrated in the fine fraction of dust.

Prior to establishing a sampling strategy, the USA Environment and Protection Agency suggests the target group of the study will determine which surfaces and how surfaces should be sampled.⁶⁹ They recommend multiple floor samples to be taken particularly if the sampling was to impact on children's exposure.

The NSW Environmental Protection Authority report that the following dust standards, measured in micrograms per area measured (e.g. $\mu\text{g}/\text{cm}^2$), are used as a guide in the USA and New Zealand for environmental investigation of lead contamination:⁷⁰

- bare and carpeted floors - $1000 \mu\text{g}/\text{m}^2$ ($0.1 \mu\text{g}/\text{cm}^2$);
- interior window sills and ledges - $5400 \mu\text{g}/\text{m}^2$ ($0.54 \mu\text{g}/\text{cm}^2$); and
- window troughs and exterior surfaces (verandas, paths etc) - $8600 \mu\text{g}/\text{m}^2$ ($0.86 \mu\text{g}/\text{cm}^2$).

The Western Australian Department of Health advised that:

No Australian Standards have been established for lead in dust around home. However, the Department of Health would consider a clean up goal for lead in dust on surfaces accessible to young children to be $0.04 \mu\text{g}/\text{cm}$ per square centimetre. For other surfaces

⁶⁷ DEC, *Addendum to Transcript of Evidence*, Answers to Questions, Hearing 5 June 2007.

⁶⁸ US Environmental Protection Agency, *Final Report: Sampling House Dust for Lead - Basic Concepts and Literature Review*, Technical Programs Branch EPA, Washington, September 1995 EPA 747-R-95-007, p4.2.

⁶⁹ *ibid*, p7.1.

⁷⁰ Planning NSW, NSW EPA May 2003, *Managing lead Contamination in Home Maintenance, Renovation and Demolition Practices*, A Guide for Councils, p16.

around the home that would be readily accessed by adults but not by young children, the clean up goal for lead surfaces would be 0.4µg per square centimetre.⁷¹

The standards used by the Department of Health therefore are comparatively rigorous. The Department of Health undertook dust sampling at Esperance on advice from Professor Brian Gulson, of the Graduate School of the Environment, Macquarie University. Professor Gulson nominated what he considered would be places to find lead dust if a home had been impacted by lead containing dust and if there was regular cleaning of the home. For example, the most appropriate surfaces that would lend to most human exposure such as floors and table surfaces would be cleaned regularly and hence not useful surfaces to swab to determine lead dust incursion.⁷² Sixty dust samples were taken from 11 houses. Twenty-one dust swabs taken within homes showed a lead content ranging from 0.014 to 1.1µg/cm². The samples at both ends of the range were taken from the tops of kitchen cupboards. Outside the houses 22 swabs revealed a lead component ranging from 0.16 to 34µg/cm². The highest level was recorded on an upstairs window sill. Another upstairs window ledge possessed a lead level of 27µg/cm².

The Department issued advice to residents on the cleaning of houses as proper cleaning is important to reducing dust lead levels. Subsequently it provided free access to specialised vacuum cleaners.⁷³ The adequacy of this response is discussed further at Chapter 11.4.

In June 2007, DEC reported that results of the Department of Health:

dust swab survey show that homes closest to the Port have been impacted the greatest.

The areas of primary impact includes:

- *Esperance Townsite, bounded by Harbour Road and Brazier Street;*
- *West Beach (East of Connolly Street);*
- *Nulsen, South-East corner flanked by Pink Lake Road, Rowse Street and Symons Street; and*
- *Sinclair.⁷⁴*

Significantly, when this Committee requested the mapped results of the Department of Health's dust and soil sampling results, the Department advised that its:

dust and soil sampling has only been conducted in a small number of homes where the occupant's blood lead levels have been elevated. The purpose of collecting these samples

⁷¹ Department of Health, Toxicology Branch Press Release *Report on Dust Swabbing and Soil Sampling Undertaken on the Weekend of April 15 and 15, 2007.*

⁷² Email from Dr Martin Matinson, Department of Health, 6 August 2007.

⁷³ Department of Health, Media Release, 'Esperance residents urged to clean dust from homes', 6 June 2007.

⁷⁴ DEC, Lead Issue Update, Issue No.1, June 2007.

*was to determine the potential pathways of exposure for the affected individuals, so that appropriate and specific measures could be implemented to reduce an individual's exposure, rather than to identify a trend in the environment. Hence there are too few samples to map.*⁷⁵

The basis for DEC's identification of the 'area of primary impact' is therefore unclear to the Committee. It does, however, appear to coincide with the areas of highest density of blood lead levels as indicated by the confidential mapped results provided by the Department of Health to the Committee. However, as the Department of Health noted, these results were mapped on the basis of residence, but lead exposure may have been through other avenues. In any event, because these results were based on voluntary presentation for blood testing rather than a rigorous testing regime, with control sampling, the results are not a reliable indicator of the geographic extent of the lead pollution.

(e) Water body and sediment samples

Table 2.7 Water body and sediment samples⁷⁶

Water body and sediment samples

	Lead	Nickel
Guideline level for freshwater ecosystems	0.0034 mg/L	0.011 mg/L
Guideline levels for marine water ecosystems	0.0044 – 0.005 mg/L	0.007 mg/L
Location of samples		
Water from heavy metal washdown sump in port	0.028 – 0.074 mg/L	56 – 58 mg/L
Water bodies outside port	0.0006 – 0.51 mg/L (av. 0.079 mg/L)	0.003 – 0.54 mg/L (av. 0.15 mg/L)
Water body sediments outside port	No reading – 140 mg/kg (av. where lead was detected 76.6 mg/kg)	2.2 – 1200 mg/kg (av. 244.73 mg/kg)

The water body and sediment samples, as published by DEC in April 2007, again indicate that elevated lead levels are not uniform in the water bodies and water body sediments outside the Port.

(f) Benthic levels⁷⁷

Marine sediment near the Port has been tested for lead levels since 2004. Levels for many of the samples from the berth pockets in October 2006 exceeded the upper limit of environmental standards for lead, in two instances by 20 times. In October 2006, benthic lead levels above the low range of the environmental standards were also detected in one sample taken outside the harbour. No testing has been conducted on the bioavailability of this lead. Table 2.8, which

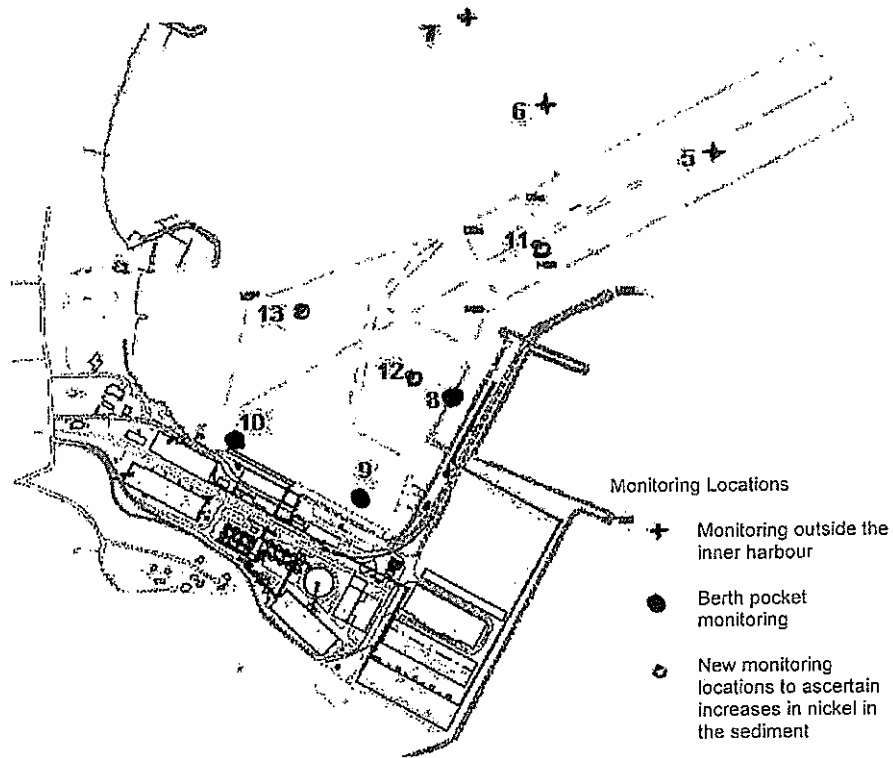
⁷⁵ Submission No. 18(e) from Department of Health, 9 July 2007.

⁷⁶ DEC, Lead Issue Update, Issue No.1, June 2007.

⁷⁷ Benthic is defined as relating to the bottom of a water body or to the organisms that live there.

follows, indicates the results of marine sediment tests for nickel and lead between 2004 and 2006; the monitoring sites are indicated in Figure 2.1 below.

Figure 2.1
Esperance Port Authority's routine sediment monitoring sites⁷⁸



⁷⁸ Oceanica, *Port of Esperance Survey of Lead and Nickel in Marine Sediments Sampling and Analysis of Program*, June 2007, p3.

Table 2.8

Results for total levels (strong acid extraction) of lead and nickel in marine sediments found in sampling carried out by the Esperance Port Authority (all data in mg/kg dry weight of sediment)⁷⁹

Site	October 2002		November 2004		May 2005		September 2005		October 2006	
	Lead	Nickel	Lead	Nickel	Lead	Nickel	Lead	Nickel	Lead	Nickel
ISQG - low	50	21	50	21	50	21	50	21	50	21
ISQG - high	220	52	220	52	220	52	220	52	220	52
Outside the harbour										
5	-	2.0	0.6	3.9	0.6	30	0.7	2.4	3	2.0
							1.6	3.6	3	2.0
									4	2.5
									4	2.6
									9	3.6
6	-	1.4	0.5	1.1	0.7	8.1	0.7	2.7	<1	1.4
							1.0	5.0	1	1.4
									2	1.7
									5	1.7
									54	3.2
7	-	0.71	0.3	0.9	0.4	2.1	0.5	1.0	1	1.1
		0.86					0.6	1.3	2	1.2
		0.93							2	1.4
									3	1.7
									4	3.7
Inner harbour – turning basin & channel										
11	-	-	-	-					3	1.9
									3	3.4
									4	17
									6	33
									6	54
12	-	-	-	-					14	4.8
									14	5.3
									15	5.8
									15	6.8
									15	7.2
13	-	-	-	-	-	-	-	-	14	18
									16	19
									16	21
									16	22
									22	24
Inner harbour – berth pockets										
8	-	61	3.2	110	1.2	86	7.9	73	60	46
		74	16	130	1.4	130	10	85	76	50
			18	140	2.2	190	20	88	76	57
									92	58
									100	59
9	-	1,000	1.9	430	2.7	1,400	81	500	360	160
		1,000	2.2	520	3.5	1,500	97	510	990	180
			2.4	540	5.3	1,800	110	570	1,100	260
									4,400	380
									4,500	400
10	-	-			0.8	97	130	120	43	110
					1.1	140	170	160	50	140
					1.2	170	180	180	53	140
									73	200
									91	230

⁷⁹ Oceanica, Port of Esperance Survey of Lead and Nickel in Marine Sediments Sampling and Analysis of Program, June 2007, p4.

DEC's testing of the marine sediment near the Port's discharge pipe (near site 10) in March 2007 revealed very high levels of lead, between 3,600 and 29,000 mg/kg, up to 130 times the upper limit of environmental standards for lead.⁸⁰ The Chairman of the Port's Board subsequently placed an advertisement in the local Esperance paper confirming:

*that no product from the Port is washed into the ocean. We believe that the high levels of nickel and lead recorded near a storm drain outlet beneath berth one is the result of flooding during the storm in January.*⁸¹

In response to questioning by the Committee about the advertisement the Port stated:

*In order to further clarify, the Chairman was referring only to the high lead levels in the area surrounding the exit of the storm drains.*⁸²

Finding 8

The evidence of the Esperance Port Authority was that flooding as a result of the storm in January 2007 caused elevated benthic lead and nickel levels only in the area surrounding the drain outlet near berth 1.

As a result, the Port has not proffered an explanation of the elevated benthic lead levels at other locations or detected prior to 2007. Because baseline testing in 2004 showed very low levels of lead in the berth pockets and outside the harbour, it can be assumed that the detected levels of lead since 2005 are neither naturally-occurring nor historical.

Finding 9

Baseline testing of benthic lead levels in Esperance harbour in 2004 showed very low levels of lead in the berth pockets and outside the harbour; therefore the elevated levels of lead detected in marine sediment since 2005 is neither naturally-occurring nor historical.

The issue of benthic lead levels in the harbour is discussed in more detail in Chapter 8.

⁸⁰ DEC, Media statement, 'Esperance - initial results', 26 March 2007. The results for nickel were between 3,300 and 6,600mg/kg.

⁸¹ Attachment to Submission No. 42 from Ms Audrey Abell, 11 May 2007.

⁸² Esperance Port Authority, *Addendum to Transcript of Evidence*, Answers to Questions, Hearing 6 June 2007, p15.

(g) Fish and sea worm samples

Table 2.9 Fish and sea tube worm samples⁸³

Fish and sea tube worm samples	
Guideline level for ecological investigation for fish	0.5mg/kg of lead
Sea worms	2.6 mg/kg
Herring*	0.091 mg/kg

*Further fish testing has been carried out by the Department of Health

These initial results, published by DEC in April 2007, give reason for some concern, as it appears that lead was bioavailable, given the high lead levels in the sea worms.

The Department of Health subsequently advised, however, that following testing of more than 40 fish it was *'confident that eating the fish does not pose a risk to human health'*.⁸⁴ This was despite one of the sample fish having a lead level of 2.1 mg/kg which was four times the recommended level.

Submissions to the Committee raised concerns that the Department's testing may have been inadequate, and in particular whether *'bottom feeding'* fish had been a focus.⁸⁵ When questioned on this issue the Department of Health stated that the aim of the sampling was to understand the potential lead intake from edible fish available to the general public, and that two of the species tested were *'bottom feeding'*.⁸⁶

It is of note that the Department continues to advise people not to eat crustaceans or other shellfish taken from around the area as a precautionary measure.⁸⁷

(h) Leaf, flower and bird feather testing

On 12 March 2007, the Department of Health issued an Information Sheet about the bird deaths in Esperance. It stated:

*The birds affected so far have been nectar eating birds and so it is likely that they have been exposed to lead dust which has fallen on to plants and flowers upon which they feed.*⁸⁸

⁸³ DEC, Lead Issue Update, Issue No.1, June 2007.

⁸⁴ Department of Health, Press Release, 'Department of Health gives Esperance fish the all clear', 17 April 2007.

⁸⁵ Submission No. 16 from Recherche Advisory Group Inc., 26 April 2007, p2.

⁸⁶ Department of Health, *Addendum to Transcript of Evidence*, Answers to Questions, Hearing 30 April 2007, pp4,5;

⁸⁷ DEC, Lead Issue Update, Issue No.1, June 2007.

⁸⁸ Department of Health, Information Sheet, 'Esperance Bird Deaths', 12 March 2007.

The next day, DEC advised:

... local DEC officers had started collecting native plant blossom samples for testing to help determine if local birds might have ingested any toxins through their main food source...

“Any possible feeding and drinking sources will be checked” ...

DEC is sending investigation and sampling teams to Esperance this week to carry out further investigations on the bird deaths to determine any potential sources of toxins.

There have been 187 bird deaths reported in the townsite over the past week – the birds most affected were purple-crowned lorikeets.⁸⁹

In April 2007, DEC reported in relation to leaf, flower and bird feather testing that:

Preliminary results show high lead levels. The data suggest that dust was ingested from the flowers and preening, and the birds collected extra dust on their feathers from their activities in the foliage. Analysis of the results is continuing.⁹⁰

No other results appear to be available publicly.

It is of note that DEC’s investigation of native vegetation was conducted in the context of seeking to identify the cause of the bird deaths. Evidence before the Committee raised other concerns related to the potential contamination of native vegetation. Mr Doc Reynolds stated:

right from the transport corridor from the minesite to the Esperance port Aboriginal people gather and hunt food. As you would have heard from various speakers prior to me coming on board, because of the transport areas of dust are getting in there. We have bush food that is collected right in the rail corridor. I know that because I collect it myself. There are bush medicines. Due to intellectual property rights, I know the plants and the issues regarding them and that people do use one of the plants as a healing agent for cancer. That is well documented within Aboriginal circles. Whether it is mind over matter or medically proven, one does not know, but the reality of it is that it is still used today. That is also collected within the rail corridor. I am talking only of the area I am familiar with; I am not talking about anything north. Issues were raised with me with regard to up in the Wiluna area where the more traditional people live who hunt and gather in close proximity to the minesite maybe. Has anything been done about those people? I cannot speak for and on behalf of them, but that is an issue I would like the committee to bring up, hopefully during the course of their inquiry...⁹¹

When asked about any specific advice given to regional Aboriginal people in relation to the consumption of ‘bush tucker’, the Department of Health advised that ‘the standard advice of

⁸⁹ DEC, Media Statement, ‘Esperance Bird Deaths Update’, 13 March 2007.

⁹⁰ DEC, Lead Issue Update, Issue No.1, June 2007.

⁹¹ Mr Doc Reynolds, *Transcript of Evidence*, 2 May 2007, pp2,3.

washing all foods before cooking and eating applies'.⁹² The Committee is concerned that no specific testing appears to have been conducted in relation to the potential for contamination of bush foods and nor does it appear that any specific strategies to inform Aboriginal communities of the potential risks have been considered.

It appears likely that if the current studies by DEC and the Department of Health demonstrate substantial contamination along the transport route, there may be an impact on regional Aboriginal people, and this may not be sufficiently addressed by the advice that food should be washed prior to consumption.

Finding 10

The Department of Environment and Conservation and the Department of Health are currently undertaking studies along the transport route. If these studies demonstrate substantial contamination, elevated blood lead levels could have occurred in regional Aboriginal people consuming traditional foods and medicines.

Recommendation 2

The Committee recommends that, if current studies demonstrate that there has been substantial contamination along the transport route for the lead concentrate from Wiluna to Esperance, specific testing of traditional foods and medicines be undertaken. If contaminated, targeted strategies should be developed to inform affected Aboriginal communities of the risks and how to manage those risks.

(i) Isotope testing

Lead (Pb) has four naturally occurring isotopes with atomic weights 208, 206, 207 and 204 (in decreasing order of abundance). Isotopic ratios may differ for different mineral sources, and this property has been exploited in non-radioactive tracer studies to investigate environmental and metabolic pathways of minerals such as lead.⁹³

DEC reported in April 2007 that:

DEC commissioned Macquarie University in Sydney in collaboration with the CSIRO Radiogenic Isotope Laboratory to analyse the lead 'fingerprint' for a range of samples.

⁹² Department of Health, *Addendum to Transcript of Evidence*, Answers to Questions, Hearing 5 June 2007, p3.

⁹³ World Health Organisation, *Air Quality Guidelines*, Second Edition Chapter 6.7, Copenhagen, 2001.

In summary, the lead found in all the bird liver samples provided, water from four out of the five rainwater tank samples, and water from the heavy metal washdown sump at the port was similar to the ore sample collected.

The soil sediment sample provided was found to be a mixture of this lead and another, unknown geologically old source. The water from the fifth rainwater tank was found to be a mixture of the same lead and another, geologically younger source.

The isotope testing of blood lead samples has been referred to previously (Chapter 2.2(a)).

(j) The extent of the pollution

As a result of these studies, it appears that the extent of lead pollution in the Esperance area is significant, but patchy. Identifying the geographic boundary for this pollution has been difficult.

As indicated, DEC's published explanation for its identification of the 'area of primary impact' appears unreliable, and although it does coincide with other information available to the Committee, it cannot be regarded as definitive. In addition, at the time of writing, the study of lead pollution along the transport corridor had not been completed, although the Committee had pressed for such testing to be undertaken from the outset.⁹⁴

DEC published an advertisement on 20 April 2007 advising that 'soil scans had been conducted along the railway line and no contamination from lead was identified'.⁹⁵ However, at that time testing along the whole transport corridor had not taken place.⁹⁶ When soil sampling results were made available to the Committee by DEC on 9 July 2007, all samples were from within the immediate Esperance area.⁹⁷ Moreover, as indicated at Chapter 2.2(c), although the values were in only one instance in excess of relevant guidelines, the majority of higher level readings for lead, and all higher values for nickel, were along the railway line.

At the time of writing, no other results relating to the transport corridor are available to the Committee. In its supplementary answers to questions from the hearing of 5 June 2007, the Department of Health advised that testing of rainwater tank sampling was 'in progress' and that the Public Health Physician for the Goldfields had travelled to Leonora to assess the handling of product and 'did not observe any additional exposure pathway created at this point'.

The Committee is pleased that studies of lead pollution along the transport corridor are being undertaken. However, it has some concerns about the lapse of time and the circumstances in which such tests are being conducted; that is, in the absence of any actual handling of the product

⁹⁴ DEC, *Addendum to Transcript of Evidence*, Answers to Questions, Hearing 30 April 2007, pp11,12; Department of Health, *Addendum to Transcript of Evidence*, Answers to Questions, Hearing 30 April 2007, p4; DEC, *Addendum to Transcript of Evidence*, Answers to Questions, Hearing 5 July 2007, p15; Department of Health, *Addendum to Transcript of Evidence*, Answers to Questions, Hearing 5 June 2007, p7.

⁹⁵ DEC, 'Lead issue update', 20 April 2007.

⁹⁶ DEC, *Addendum to Transcript of Evidence*, Answers to Questions, Hearing 5 June 2007, p18.

⁹⁷ Submission No. 27(g) from DEC, 12 July 2007.

and some three months after the last movement of lead carbonate along the transport corridor. For example, the evidence before the Committee is that the outside of the kibbles were cleaned prior to leaving the minesite for the Port, but not for the journey back.⁹⁸ Often concentrate would have adhered to the outside after moist concentrate was tipped into the dumper and because of the damaged condition of some kibbles.⁹⁹ The Committee also received evidence that:

- the rollback covers were often in disrepair and would only be repaired if they were more than half torn from the steel rod which secured them; and
- that kibbles with torn and damaged covers were returned to the Lenora siding, allowing the residue to be blown into the environment.¹⁰⁰

It is not known if the Public Health Physician for the Goldfields was able to identify the risks of these potential exposure pathways from observing a railway siding that was not in use and in the apparent absence of a public consultation process.

As a result of the above issues, the Committee is unable to provide a clear outline of the geographical extent of the lead pollution.

Finding 11

The Committee is unable to provide a clear outline of the geographical extent of the lead pollution in the Esperance area due to:

- inconsistent advice relating to the identification of what the Department of Environment and Conservation has identified as the '*area of primary impact*';
- the absence of results of testing along the transport corridor; and
- the lapse of time before these tests were conducted.

What is clear is that where isotope testing has been conducted, it has established a clear link between the Magellan concentrate and the lead pollution in many, but not in all, instances of pollution. It follows that the extent of lead pollution in the Esperance area is also certainly less than it would have been but for the death of potentially many thousands of birds.

⁹⁸ Submission No. 94 from BIS Industrial Logistics, 27 June 2007, p3.

⁹⁹ For example, email from General Manager, Magellan Metals Pty Ltd, to Ivernia, 5 April 2005 (regarding the first train load of lead concentrate and including photograph, '*Damage in kibble showing concentrate stuck to damaged portion*').

¹⁰⁰ Closed evidence.

(k) Experience and perception of pollution in Esperance

There is another dimension to the pollution that should also be acknowledged in this Report, and that is how these incidents have been experienced and perceived by local community members. The Committee was made very aware early on in this inquiry that the people of Esperance had feelings of resentment, anger, disenchantment and disillusionment over the responses of relevant parties to the presence of lead in their community:

*We as a community have been let down by a lot of people... Due to this complete failure at all levels and our personal contamination I have no faith in the Esperance Port Authority, Magellan, the licensing and environmental process and any of the governmental watchdogs to ensure our future safety.*¹⁰¹

*Emotionally this has taken me, like a lot of the community, through a gambit. From anger and fear initially to despair and cynicism. Cynicism of multi-national companies, the local port and the bodies representing the people of Western Australia.*¹⁰²

*As time goes by more and more Esperance residents are becoming angry with the port for the way it has carried out its business and also with the relevant government departments. If the port were a private business they would have been closed down by the government...*¹⁰³

*We have lost our faith and trust in the board and all those connected to the scandal that has come about at the Esperance port.*¹⁰⁴

Other submissions provided different observations. The Committee is not including these accounts to try to quantify or to objectively evaluate the impact of the pollution on Esperance residents; and it is not known if all of the effects described are a result of exposure to lead. Rather, the following accounts are included so that there is an appreciation of the experiences and perceptions in Esperance:

Our house is directly opposite the railway line which is used for transporting the lead and nickel to the Port facility for exporting.

We bought [the house] in January 2003 and have resided there since February 2003.

We have spent a significant amount of money improving the garden and have planted some 60 plants. We also installed a rainwater tank in August 2003 and we used that water for drinking and watering our garden.

We have documented the following:

September 2006

¹⁰¹ Submission No. 13 from Ms Pam Norris, 25 April 2007, p2.

¹⁰² Submission No. 63 from Ms Penny Boardman, 25 May 2007, p3.

¹⁰³ Submission No. 21(d) from Mr JF and Mrs MM Woodhouse, 21 May 2007, p2.

¹⁰⁴ *ibid*, p7.

Both complained of headaches. [Wife] having abscess under left eyelid required medical treatment and medication for same. Noticed fine grey dust on leaves of trees and plants in our garden both back and front. Also fine grey dust on furniture window sills inside home furniture on front balcony coated in fine dust.

October 2006

[Wife] noticed she had a very dry throat and mouth. Was constantly drinking rain water during the day and throughout the night, the dryness would wake her, stating it was difficult to moisten the inside of her mouth. Left side of [wife's] face the skin became very dry and flaky, applied cream daily. Still more fine grey dust in our bedroom, lounge kitchen and dining room, venetian blinds very dusty, in bedroom, especially the front facing the transport corridor and port area. No birds or bees in garden, trees or plants. [Wife's] right eye became infected requiring medical treatment again. Noticed there weren't any frogs in garden. Decided to shut windows to stop dust and shut out the odour, coming from the trains freight and then from the port. Dead birds found, Esperance Express release, queries, lead poisoning.

November 2006

Constantly cleaning inside home, we are both becoming quite fed up with whole situation, also ...broken sleep now, trains passing throughout the night more frequently and very noisy as well. Feeling lethargic, falling asleep during the day due to having no energy. Fruit trees looking stressed, plants around the garden dying, despite having the same watering regime as the previous year when the plants flourished. Water for the plants was with the rainwater from tank.

December 2006

We are becoming quite stressed with our situation, the dust the odour, headaches, now rumours of lead being transported unsafely to the port via the railways.

January 2007

Still feeling lethargic, sick of cleaning the whole of the house, and garage roof garden furniture. Have told grandchildren not to go in the garden

February 2007

More dead birds found in gardens; however no dead birds in our garden. Stopped drinking water from rain water tank. [Husband] left for Melbourne

March 2007

Notified by friend regarding the lead clinic at the Esperance District Hospital. [Husband] returned from Melbourne ... Both had bloods tested 13/3/07. Notified of blood levels [wife's] 12, [husband's] 6. Had rainwater tested waiting for results.

April 2007

Notified by [doctor] re blood levels he also stated to have levels tests repeated in 3 months. Results of rainwater test, Nickel [mg/l] 0.15. Lead[mg/l] 0.033 ...

We received jug and filter. Received tap filter from port authority. Disappointed with the Port Authority, Shire of Esperance and State Government as there has not been any duty of care for residents, visitors, tourists in caravan parks, drinking contaminated water, business who cater for tourists and visitors to the town. What is the long term effect for Esperance?

May 2007

We are not happy with our situation or where we live.

Now the recent rain has washed away the dust covering the trees and plants, we are still constantly cleaning, wiping sweeping. Curtains will need dry cleaning, the mattress on which we sleep will require professional cleaning as the dust filtered into it as well. Plus the outside of the house has a deep layer of black grime on garage roof gutters house roof and gutters.

Other issues

Our grandchildren... would play in the yard 4 days a week. We have told them they are now not allowed to play in the yard at all.

We have not been able to fully utilise and enjoy our home since OCTOBER 2006, when the public were told about the lead and nickel dust.

The house requires professional decontamination to remove the lead from the roof garage, soil, water tank, carpets, furniture, and curtains.

The value of the house would now be significantly less than its value before the lead contamination.

We have been directed by Health Department that we can not use water from our water tank for drinking.¹⁰⁵

Another instance was recounted to the Committee by the Secretary of LEAF, Local Environmental Action Forum Inc., Mr Keith Archer, on behalf of an Esperance resident:

I would like to go through a piece of anecdotal evidence that was presented to me not more than two hours ago. [The Esperance resident] was happy for me to present his note. He is building a house almost in central town. It is still not complete. It had its roof put on before the big storm in January. Since then, he has been up on the roof four times to wash it down. Even after that, he has noted that there is a little tail of sparkling dust in each and every corrugation of the colourbond roof. About five weeks ago he collected some of that dust from the roof. It sat at council for a while as it did not know what to do with it, but it was eventually sent on to the Department of Health. He received a phone call from them today advising him and his family not to drink the water from that tank. The lead levels in the dust on his roof were extraordinarily high. The nickel was also high.¹⁰⁶

From another Esperance witness:

I do not want to become too emotive but I mentioned it is the impact on families and sometimes you cannot always predict what that will be. I would like to recount something that happened four days ago in my own family. I have a young boy, Lachie, who is five years of age. He asked me if Mia [18 month old sister with elevated blood lead levels] was going to die. I was really floored. His logic came from what he was witnessing. I had not really looked at the true impact of what it is like in the life of a five-year-old. He is watching the news and the media and hearing conversations between me and my husband. Lachie just related birds, lead, dead. He thought of Mia and lead. Obviously, there were

¹⁰⁵ Submission available as tabled in Parliament. The Committee resolved not to publish the name of persons making personal submissions quoted in the Report.

¹⁰⁶ Mr Keith Archer, Secretary, Local Environmental Action Forum Inc., *Transcript of Evidence*, 2 May 2007, p3.

*reassurances but it was quite profound for me just to look at it from that particular angle. I do not want to become too emotive but it needs to be recognised that people are viewing it in different ways, and so are children.*¹⁰⁷

And another:

I realise that this may not strictly fall within the terms of reference however I would like to advise of how the Esperance Ports activities have directly affected myself and my family.

We had our rainwater tank tested by the Shire with results coming back at Lead - .033 and Nickel .12. The chap that tested the tank advised us to have tests done on ourselves in regards to both the Lead and Nickel. My daughter's (now almost 9 months old) lead test came back at 5 with mine being 9. I received a visit from the Department of Health with their doctor recommending that for the baby's health I discontinue to breastfeed. I don't know if you can imagine how distressing this was to me. I made several phone calls and looked into lead on the internet, but became even more confused and upset as all the information was conflicting in regards to how much of the lead would pass from my blood into the breast milk and then onto my daughter.

A couple of weeks later the Nickel results became available with my husband's coming back at 11, mine 15 and ... my daughter having a level of 45. Naturally this was a huge concern as the recommended level was 10 or below. I received another visit from the Department of Health. I requested that [my daughter] be retested and was advised that this should not be necessary as the Nickel only stays in the body a couple of days after exposure however if it would give me peace of mind I could have her retested. Three weeks later this result came back at 20 so obviously [my daughter] was somehow still being exposed. I was given advice once more that I needed to fully clean my house. I work and have a baby and I consider myself to be extremely house proud, but for the health of my child I would do anything to minimise her exposure and have now become so paranoid about dust in the house that this in itself has created a problem. I rushed out and purchased a \$1,000 hepa [high-efficiency particulate air] filter vacuum cleaner and find that I am washing non stop. I requested approximately 6 weeks ago that my house and yard be swabbed and tested but have not seen nor heard from anyone.

*My husband and I tried for several years to have this baby and what should have been a joyous time for us, because of the Port issues it has become very worrying and has taken away from us what should have been a wonderful time, a time which we will never get back.*¹⁰⁸

2.3 The terms of reference

In addition to the broad issues of the cause and extent of lead pollution in the Esperance area, the Committee has been requested to inquire into a number of additional specific terms of reference.

¹⁰⁷ Mrs Lisa Helenius, *Transcript of Evidence*, 3 May 2007, p3.

¹⁰⁸ Submission available as tabled in Parliament. The Committee resolved not to publish the name of persons making personal submissions quoted in the Report.

Critically these raise the issue of how the events that are the subject of inquiry were able to take place.

As indicated by this Report's opening quote, we live in a time of advanced technology, technology which can, as indicated, not only identify the level of lead in children's blood but confirm its geological source. We also live in a time when we are assured of corporate social responsibility; and failing that, have numerous government regulatory agencies which are accountable to a public who, we are told, are well-informed and have increasingly high expectations. How is it then, in these times, the Esperance community '*just as the coal miners of yesteryear*' had to rely upon birds dying to become aware of the toxic contamination of their environment?

Whatever the reasons underlying the events that are the subject of this inquiry, there are two overwhelming themes apparent from the submissions and testimonies of the people of Esperance to this Committee: a profound sense of betrayal of trust, and an acute concern for those children exposed to lead pollution.

The Committee cannot repair this breach of trust, although it hopes to provide some answers as to how these events occurred and try to ensure that assistance to deal with effects of the lead pollution is available. Nor can, or should, the Committee try to reassure the Esperance community, and potentially others along the transport corridor, that they need not worry. What the Committee has done is seek to document the most recent medical assessments on the impact of these kinds of exposures, particularly for children. Beyond that, the Committee's focus has been on trying to understand how these events occurred so that it can assist in ensuring that similar events do not occur again.

CHAPTER 3 THE CONDUCT OF THIS INQUIRY

3.1 Inquiry procedure

The Inquiry into the Cause and Extent of Lead Pollution in the Esperance Area was referred by the Legislative Assembly after lengthy debate on 4 April 2007. That debate concerned both the kind of committee - select or standing - and also which of the standing committees of the Legislative Assembly would be most appropriate to inquire into this matter.¹⁰⁹ In the end, the inquiry was referred to the Education and Health Standing Committee and conducted according to the usual Committee procedure, subject to the following exceptions:

- The Committee membership, generally of five, was increased. Two additional members were seconded, the Member for Roe, Dr G.G. Jacobs, MLA, whose electorate includes the Esperance area and who was instrumental in having this inquiry established, and the Member for Peel, Mr P. Papalia, MLA, to maintain the balance of government and non-government membership on the Committee according to the usual practice of the Assembly; and
- The Committee was requested by the Assembly to inquire into and report by 16 August 2007.

3.2 Committee membership

The contribution of the Members for Roe and Peel is acknowledged by the other members of the Committee, in particular given the unusual demands associated with this inquiry, as detailed below.

The Committee also records the decisions of its substantive Chairman, the Member for Central Kimberley-Pilbara, Hon T.G. Stephens, MLA, to first stand aside as Chair, on 5 April 2007, and then to stand aside altogether from this inquiry, on 4 May 2007, because of his association with the Chief Executive Officer (CEO) of the Esperance Port Authority.¹¹⁰ These decisions resulted first in the Committee's Deputy Chairman, the Member for Dawesville, Hon Dr K.D. Hames, MLA, assuming the Chair for the purposes of this inquiry, and then in the composition of the Committee being equally divided between government and non-government members. It is of note that with the government not appointing another government member to this inquiry, the

¹⁰⁹ WA, Legislative Assembly, *Parliamentary Debates (Hansard)*, 4 April 2007, pp1224-1248

¹¹⁰ The Port's CEO, Mr Colin Stewart, announced his resignation and stepped down from that position in May 2007, prior to appearing as a witness before the Committee for a second time on 6 June 2007. Mr Stewart's resignation took effect in July 2007 (Laurie, T, 'Esperance port chief quits amid poison scandal', *The West Australian*, 31 May 2007, p19; ABC News, 'Port moving on new CEO', Available at www.abc.net.au/news/stories/2007/08/22/22011846.htm Accessed on 22 August 2007). For the purposes of this Report, Mr Stewart is referred to as the Port's CEO.

Committee assumed an unusual composition for the Lower House. It was not only chaired by a member of the opposition but it was also not dominated by government members.

The Committee would like to acknowledge the Member for Central Kimberley-Pilbara for seeking to ensure that any perception of conflict of interest associated with him did not adversely impact on the Committee's efforts.

3.3 Reporting deadline

The setting of a reporting date by the Assembly created some dilemmas for this Committee. The quantity of evidence before the Committee in this inquiry has been, in some respects, without precedent, particularly within the timeframe for inquiry envisaged of under five months. The chronology of events relating to the Magellan mine and Esperance Port, as outlined at Appendix 5, provides some indication of the scope and detail of the materials available to the Committee.

This evidence was made available to the Committee as a result of:

- advertisements calling for submissions on the terms of reference in newspapers with Australia-wide, State-wide, Esperance and Kalgoorlie distributions;
- requests to the Department of Environment and Conservation, the Esperance Port Authority, the Department of Health, the Department for Planning and Infrastructure and Magellan Metals Pty Ltd, for copies of all documents relevant to the Committee's terms of reference;
- individual letters to all directors and employees of the Esperance Port Authority, Magellan Metals Pty Ltd,¹¹¹ and BIS Industrial Logistics¹¹² inviting them to make submissions, including as '*closed evidence*',¹¹³ to the Committee; and

¹¹¹ Magellan Metals Pty Ltd only provided the names and addresses of former officers which were already publicly available and was not prepared to provide details of employees in the absence of a legal requirement to do so (Letter from Clayton Utz on behalf of Magellan Metals Pty Ltd, 30 April 2007). The Committee elected not to do so as Magellan had no employees working on the transport route or at Esperance Port, the focus of its inquiry.

- six days of public hearings, three days of which were held in Esperance, and at which a total of in excess of 50 witnesses appeared.

The Committee received:

- over 100 written submissions, and over 20 supplementary submissions;
- a number of submissions as closed evidence; and
- seven boxes of unindexed files and bundles of documents from various agencies.

The Committee also conducted site visits to the Magellan mine outside of Wiluna, the rail siding at Leonora where the loading and unloading of trains took place, and the Esperance Port. It has also accumulated more than 400 items of correspondence relating to this inquiry.

The dilemma facing the Committee was whether to seek a substantial extension of time to report on its inquiry to allow it to devote more time to the analysis of the available evidence. The Committee was aware of the obvious and understandable expectation of the public, and in particular the Esperance community, that the Committee's report on its inquiry be available as soon as possible. At the same time, the Committee was also conscious of the need to do justice to the information available to it and to the people who had contributed so much of this information to the inquiry.

Ultimately, the Committee sought a short extension of time from the Legislative Assembly, of three weeks, allowing a total inquiry and reporting timeframe of five months. The Committee sought to comply with the original timeframe, rather than seek a substantial extension because the Committee was conscious that no matter how long it spent on this inquiry, the nature of a parliamentary committee's procedures and capacities would always limit the degree to which the Committee could address all of the issues raised by the evidence before it. Certainly there is evidence, much of it documented in Appendix 5, which raises questions about the culpability of

¹¹² Formerly Brambles, BIS Industrial Logistics entered into a joint partnership with the Australian Railroad Group (ARG) to provide the loading, transport and unloading of the kibbles of lead concentrate under contract for Magellan Metals Pty Ltd (see Chapter 4.2(c)). BIS also declined to provide employee details in the absence of a legal requirement to do so. When a summons was issued, BIS initially provided the names and addresses of 10 managers, on the basis that these were the only '*employees, directors and board members over the period of BIS's operations which BIS believe are relevant to the Education and Health Standing Committee's Inquiry*' (Email from Freehills, on behalf of BIS Industrial Logistics, 23 May 2007). This advice was subsequently confirmed by Freehills, BIS' legal representatives, on the basis that '*to the best of my client's knowledge and belief, the list provided contains the names of all of the involved*' (Email from Freehills, on behalf of BIS Industrial Logistics, 23 May 2007). BIS was then requested to confirm that the list included '*the operational staff who worked at the Magellan Mine, on the trucks, at the Leonora railway siding and at Esperance Port who were involved in the transport, loading and unloading of the lead carbonate on behalf of BIS*' and responded that '*The List did not include the operational personnel as it was not clear that the summons extended to those persons*'. The contact details for operational staff was then provided (Email from Freehills, on behalf of BIS Industrial Logistics, 24 May 2007).

¹¹³ Evidence to the Committee, received by hearing or submission that is not publicly attributed to an individual or organisation (Legislative Assembly Standing Order 271(3)).

individuals and agencies. It is important to be aware, however, that because of the complexity and scope of this inquiry, it has not been possible to give individuals and agencies the opportunity to explain that evidence. Nor has it been possible to assess the damage suffered by individuals as a result of these events. Such matters of culpability and damage are for different kinds of inquiries - by the courts or tribunals.

In fact two government regulatory agencies, the Department of Environment and Conservation and the Department of Consumer and Employment Protection, in their original submissions to this Committee, indicated that investigations were under way to determine whether there were any potential offences under relevant legislation.¹¹⁴ Recently, the Committee has been advised that the Department of Environment and Conservation had initiated proceedings against the Esperance Port Authority.¹¹⁵ It is not appropriate for the Committee to comment further, other than to reiterate that the Report's recommendations still stand and relevant agencies should review the Committee's findings with a view to determining whether further potential offences have occurred.

The Committee's focus has been primarily on reporting on the terms of reference. It has done this by developing a detailed, and publicly available, account of the events that are the subject of inquiry, the chronology at Appendix 5 which is drawn from in excess of 1,000 documents which were made available by various agencies. Using this documentary evidence as a basis, the Committee has then sought, in this Report, to incorporate the insights and explanations available from submissions and witnesses' testimony to identify both the systemic failures which have contributed to these events and, through its recommendations, possible ways to address these failures.

3.4 Acknowledgments

There are many whose efforts should be acknowledged by the Committee. The large number of individuals who have appeared as witnesses at formal, and on occasions extended or reconvened, hearings before this Committee are acknowledged. Interstate and international specialists and other professionals freely provided expert advice on health and transport issues related to lead for the purposes of the appendices to this Report. There are also many individuals, groups and agencies who made written submissions, some of which were very detailed and plainly took considerable time to prepare. In particular, the Committee appreciates the contribution of those individuals and community groups who gave freely of their time to assist the Committee and also those who were prepared to share their own and their family's medical details, personal concerns and experiences. This allowed the Committee and the public to grasp something of the impact these events have had on those affected.

¹¹⁴ Submission No. 27(a) from DEC, 26 April 2007, pp15,16; Submission No. 93(a), Resources Safety Division, DoCEP, 19 June 2007, p12.

¹¹⁵ Letter from the Director General, Department of Environment and Conservation, to the Clerk, Legislative Assembly, 7 August 2007.

The Committee would also like to acknowledge the resolve of those who made written submissions or appeared before the Committee to provide ‘closed evidence’. For a variety of reasons, these individuals felt that giving public evidence to the Committee would place them in a difficult position. The Committee is, of course, not able to publicly acknowledge their individual contributions, but would like to record its appreciation of those who were prepared to participate and assist this inquiry despite the difficulties this posed for them.

The Committee also acknowledges the assistance of those who arranged site visits and those who trawled through vast quantities of documents to identify the materials relevant to this inquiry. These demands were often placed on agencies which were already undergoing considerable strain as a result of the events that are the subject of inquiry. The Committee would like to record its appreciation of the cooperative, timely and professional manner in which these agencies, and in particular, the Department of Environment and Conservation, the Esperance Port Authority and Magellan Metals Pty Ltd, assisted the inquiry.

3.5 ‘Obviously, in hindsight you could always do better’¹¹⁶

In reporting on the issues raised by this inquiry the Committee has been conscious not to be blind to the benefits of hindsight. As Mr Mike Rowe, Director, Health Management, of the Department of Consumer and Employment Protection (DoCEP) stated to the Committee, ‘Obviously, in hindsight you could always do better.’ In this respect, there is a need for particular caution in interpreting the synthesis of the evidence in this inquiry, as appears in Appendix 5. When documented in that form, the sequence of events can appear stark and obvious. Hindsight is a wonderful thing!

More than that, it is also true that none of those who participated in these events were involved solely with the issues the subject of this inquiry. When asked about the workforce concerns about the proposed handling of lead by the Port, for example, the evidence of Mr Rob Stewart, Port worker and Occupational Health and Safety Representative, was:

Certainly, we had concerns. I think those concerns have been borne out to some degree by events that have happened since then. What perhaps has not been that noticeable in all the interest over the heavy metals is that we have a lot of other jobs that we do as well. Every one of us here plays a whole number of roles. The heavy metals circuit, as we identified, had serious issues. A lot of that was because it was built at a time when a lot of the safety and environmental concerns we have today were not necessarily of high profile. It was a relatively primitive, in our terms, system, and we were identifying those problems and trying to address them. However, given all the other things that were going on at the port at the time, the priorities were not always focused on these issues. Often people at the various levels were distracted with all the developments that were going on with the iron ore, the RNO [Ravensthorpe Nickel Operations] and all the other things, so we often got frustrated with this.¹¹⁷

¹¹⁶ Mr Mike Rowe, Director, Health Management, DoCEP, *Transcript of Evidence*, 5 June 2007, p14.

¹¹⁷ Mr Robert Stewart, Port Worker and Occupational Health and Safety Representative, Esperance Port Authority, *Transcript of Evidence*, 28 June 2007, pp2,3.

The same can be said, for example, of DEC officers. Ms Lisa Chandler, previously Manager, Environmental Audit, DEC, wrote the following in her submission to the Committee:

... I am very familiar with the DEC's framework for project assessment and post-approval compliance monitoring of major projects under Part IV of the [Environmental Protection] Act (both the Esperance Port and the Magellan Mine fall into this category). The simple fact that there are approximately ten times as many officers assigned to project assessments as there are to post-approval compliance checking is reasonably telling. The simple reality is that although many environmental conditions are imposed on proponents, very few resources are available to check that proponents do what they are required to do. At the time I left DEC there were five full time audit officers (including myself) responsible for monitoring compliance of about 490 major projects. Our annual operational budget for 2006-2007 was less than \$400.¹¹⁸

The documentation which has been available to this Committee was first vetted to ensure that it was of relevance to the terms of reference. While testimony and submissions from agencies and the public can assist to put some of these events into the broader context in which they occurred, the focus of a chronology, such as the one appended to this Report, will not do justice to the complex and varied issues which arise for people in the course of a normal day.

Despite this note of caution, however, it is worth remarking on one of the most perplexing aspects of this inquiry: the number of times various agencies and individuals, without the benefit of hindsight, were able to, often in detail, raise concerns that were almost prophetic of the events that were to unfold. From the outset, clear advice was given about the danger of the Magellan product; the concerns about the transport route, and the risks of inadequate handling systems and environmental monitoring at the Port. These include:

- The Senior Chemical Engineer of Department of Mines and Energy (DME now the Department of Industry and Resources DoIR) who gave the following advice to the Department of Environmental Protection (DEP now DEC) in 1999, years before the Magellan project was approved:

The proposal is incorrectly identified as a lead oxide mine and concentrator. The mineral to be mined is suspected cerussite, a type of lead carbonate. The selection of description for this project, as with any project, needs to [be] clear and precise regardless of the additional level of emotive issues it may raise in the public arena. The amphoteric nature of this mineral suggests significantly higher bioactivity than with galena (lead sulphide) concentrates that are produced in other areas of the state. The exact nature to the concentrate similarly needs to be recognised and

¹¹⁸ Submission No. 12 from Ms Lisa Chandler, 25 April 2007, p3. DEC largely endorsed Ms Chandler's comments (Mr Kim Taylor, A/Deputy Director General, Environment, DEC, *Transcript of Evidence*, 30 April 2007, p6), but the Director General also noted that:

*the sum total of our effort in monitoring and compliance should not be equated to the fact that there are five staff in the audit branch. It is the totality of the industry regulation resources that is relevant. As I said in my opening remarks, there are about 75 positions in that division, both regionally and centrally in Perth. (Mr Keiran McNamara, Director General, DEC, *Transcript of Evidence*, 30 April 2007, p6).*

stated even at this early stage... The ramifications for hazardous substance¹¹⁹ and dangerous goods management at the mine and port storage facility and during transport can then be better understood.¹²⁰

- The original Environmental Protection Authority approval process, which required a review of the Port's storage and ship loading facilities, the identification of potential pathways for lead to enter the environment, and determination of additional equipment, management and revised procedures to address these.¹²¹
- The Department of Health, which repeatedly raised concerns about the need to monitor the transport route; for example, in the following advice to Magellan in 2004:

Experience with other projects has shown that dust generation may occur during transportation and transhipment of concentrate. Magellan metals should be required to conduct a risk analysis and establish a monitoring program along the transportation route and including the port facility with particular attention to rainwater tank contamination.¹²²

The Department also repeatedly raised concerns about the need to implement air quality monitoring at the Port that had a public health focus. For example in 2005, the Department not only recommended an assessment of dust generation associated with the transport of ore to the Port but highlighted that the Port's licensing conditions were not *'sufficient to ensure adequate protection of public health'*. The advice continued that current monitoring and reporting by the Port *'are environmentally focussed and do not provide useful information for health risk assessment'*; that the conditions in the licence were set in the absence of suitable health guidance; and that new standards were not considered during the recent licence amendment.¹²³

- An Esperance community member, Ms Michelle Crisp, attended the Port open day concerning the increase in iron ore exports and the proposed handling of lead concentrate in December 2004. The Port's notes from that day record Ms Crisp asking *'how [the Port]*

¹¹⁹ Hazardous substances, as the term is used in this Report, have the potential, through being used at work, to harm the health or safety of persons in the workplace. They are: harmful/toxic - causing transient or permanent damage to body functions; corrosive - causing damage to living tissue; irritant - causing local irritation to living tissue; sensitising causing an allergic reaction; carcinogenic - causing cancer; mutagenic - causing genetic damage; and a substance toxic to human reproduction (Submission No. 93(a) from Resources Safety Division, DoCEP, 19 June 2007, p8).

¹²⁰ Facsimile from Senior Chemical Engineer, DME to DEP, 4 May 1999.

¹²¹ EPA, *Magellan Lead Carbonate Project - Report and recommendations of the Environmental Protection Authority*, Bulletin 996, September 2000. This is discussed in Chapter 5.

¹²² Letter from Director, Environmental Health Directorate, Department of Health, to General Manager, Magellan Metals, 8 November 2004.

¹²³ Letter from Acting Principal Toxicologist, Department of Health to Environmental Officer, DEC, 21 October 2005. Issues associated with the Department of Health's role in environmental approval processes are discussed further at Chapter 4.3(c).

will manage lead carbonate ... given we have some issues with nickel being detected off site.¹²⁴

- The DEC officers, who at different times raised the need to fundamentally alter the nature of the Port's licensing requirements as these related to environmental monitoring. For example, in 2003, there were internal emails discussing the '*trialling of new dust monitoring equipment and methods*' and highlighting that there may not only be an amenity issue with visible dust at Esperance Port but also '*a health issue, especially if metals are contained in the dust*'.¹²⁵

Later, in 2005 after a licensing inspection of the Port, a different DEC officer noted:

*Licence is very focussed towards the management of iron ore, need to ensure comparable measures are taken for lead and nickel. Discussed the possibility for further dust monitoring to capture extreme dust conditions that may attribute to some dust complaints and the high levels of nickel in rainwater tanks.*¹²⁶

- The Port's own workforce, who raised what proved to be, sadly, their prophetic concerns about the adequacy of the Port's infrastructure for the safe handling of lead concentrate in early 2005:

The current proposed method of shipment of the Magellan Mine's lead concentrate would see covered kibbles of prill form of the concentrate railed to Esperance in a similar manner to the W.M.C. product from Mount Keith. Brambles would unload the product into the nickel inloading dumphopper, the product then travelling via CV20 and CV21 to the top of the former W.M.C. shed and dropped onto the stockpile. The lead concentrate would remain in the stockpile until outloaded onto the ship. The outloading procedure entails Brambles FE [front-end] loaders feeding into the feedhopper of CV4a, the product then travelling via CV4 on to CV2 then CV3 before passing through the Tripper chute onto the tailchute of CV5 on the Berth 2 shiploader then to CV6 and CV7 and finally down through the dispatch chute to the ship's hold.

This process involves the product passing through 12 transfer points and along 9 different conveyors to reach the ship's hold. Only three of these conveyors are fully enclosed and a number of the components of the loading system are exposed to the elements making it virtually impossible to avoid the escape of dust generated in transporting the concentrate. The degree to which the prill product may break down to form hazardous lead impregnated dust is impossible to quantify without testing the prill form under similar conditions.

¹²⁴ Esperance Port Authority, 'Port Open Day - 18 December 2004 Iron Ore Upgrade', [undated].

¹²⁵ DEP, (Internal) emails, 29 August 2002, 30 August 2002, 3 September 2003.

¹²⁶ Letter from Regional Manager, South Coast Regional Operations Division, DoE to Chief Executive Officer, Esperance Port Authority, 25 November 2005.

The risks posed by the escape of lead product dust from the partially enclosed bulk loading system are significantly different to those resulting from the loading of nickel concentrates. The degree to which the dust can be managed and controlled by the use of dust suppressants and water sprays has yet to be established and must be balanced against the increased adhesion of product to the conveyor belts and other components with resultant build up throughout the loading system, and the subsequent difficulty in cleaning of the loading system...

The hazardous and persistent nature of the lead concentrate in dust form could put Port employees, contractors, ships' crews and any others in the vicinity at risk when loading is in process and may persist well after loading has ceased unless the cleanup and decontamination is particularly thorough.

Experience with loading nickel concentrate has shown the difficulty in containing the dust produced within the port. Significantly measurable amounts are apparent in the seabed sediments and reported beyond the boundaries of the port.¹²⁷

The workforce was to continue to raise concerns throughout the time the lead concentrate was being handled by the Port.

Perhaps, as Mr Winch indicated '*this is not rocket science*' after all and these issues are, and were, obvious. What appears to be without doubt to the Committee is that, even in the absence of hindsight, the events that unfolded were foreseeable and in fact were foreseen. What remains less clear, and is the subject of the remainder of this Report, is how, despite being foreseen, the events leading to this inquiry happened anyway.

¹²⁷ '*Magellan Lead Project Export Proposal 2005, Bulk Handling at Esperance Port*', 18 March 2005.

CHAPTER 4 THE ESPERANCE COMMUNITY AND THE AGENCIES

The terms of reference for this inquiry, other than (f) relating to ‘*any other issues pertinent to the cause and extent of lead pollution in the Esperance area*’, are specific. As the Committee discovered, there is a range of commercial interests and a complex regulatory regime associated with the events in Esperance. It is useful to describe each of the relevant agencies, highlighting their roles and responsibilities, as the Committee understands it, that are of relevance to the terms of reference.

First, however, it is useful to also have an understanding of the Esperance community.

4.1 Esperance community

Esperance is on the southern coast of Western Australia, more than 900 kilometres by road south-east of Perth and almost 400 kilometres south of Kalgoorlie. It is located in the Recherche Archipelago. The physical environment of Esperance, often referred to as ‘*pristine*’, has been an attraction to an increasing tourist industry in recent years. The environment was also a significant factor for many of the Esperance community members who made submissions to this inquiry, and who decided to live in the area to raise their children or to retire.

The Goldfields Esperance Development Corporation describes the Shire of Esperance as follows:

If you love beaches and the outdoors, the natural beauty of the Shire of Esperance is unrivalled. Featuring magnificent coastal and island scenery, a holiday atmosphere and all the facilities for a great lifestyle, Esperance and surrounding towns make the sea change dream a reality.

Employment and business opportunities are excellent, with a local population of over 14,000 supported by a wide variety of industry, from agriculture to tree farming, fishing, general business and tourism. The Port of Esperance is an industry in itself. Developed in the 1890s to export gold, it is now the deepest port in Southern Australia exporting nickel concentrates, handling bulk imports, and it’s also a major grain-exporting hub.

Esperance is known for its active arts scene, great shopping, cafés and restaurants, plus a wide range of outdoor and sporting activities. Outstanding community facilities combined with a unique semi-rural lifestyle, and an unspoiled coastal environment, make Esperance a popular choice when seeking the perfect balance between family, work and play.¹²⁸

(a) Economy

Other data linked to the Development Corporation’s website include details of Gross Regional Product for 2005/06. The Goldfields/Esperance region was reported as contributing \$7,322

¹²⁸ Goldfields Esperance Development Corporation, Available at: www.gedc.wa.gov.au/esperance.php Accessed on 16 July 2007.

million to Gross Regional Product, 6.1 per cent of the total for the State, and \$136,326 per capita, second only to the Gross Regional Product per capita for the Pilbara and at least double any other region. Mining was far and away the most significant economic sector in the region, worth approximately \$6 billion in 2005/6.¹²⁹

In recent years Esperance's Port, which is located centrally to the town, has also been the location for the export of iron and nickel. The Chamber of Minerals and Energy advised that in 2005/06 nickel was the most valuable resource in the Goldfields-Esperance region worth a record \$3.5 billion. Western Australia is the only remaining nickel-mining state in Australia and Esperance was described as the largest nickel concentrates exporting Port in the southern hemisphere.¹³⁰

(b) Community

From the submissions made available to the Committee, the Esperance community appears to have a significant number of dynamic and community-minded individuals who have established a range of community groups. It appears without doubt to the Committee that these groups have played and continue to play a very significant role in the dissemination of useful information and the attainment of positive outcomes for their community. Such groups include Local Environmental Action Forum Inc. (LEAF), Locals for Esperance Development (LED), and the Recherche Advisory Group Inc. (RAG). These groups have not only assisted their community but, through their submissions and evidence, have also provided invaluable information and insights into the events at Esperance to the Committee.¹³¹

An example of what can be achieved through such groups was referred to in evidence before the Committee. The Residents for Esperance Development (RED) group was active in the early 1990s when the Port announced plans to export iron ore from Koolyanobbing. According to the evidence before the Committee:

The plan was to store the ore at the port in open heaps and minimise the dust by the use of 'water cannons'. A group opposing this, Residents for Esperance Development (RED) and the community raised objections which forced the Esperance Port Authority (EPA) to house the ore in a pressure negative shed and to cover all conveyors and elevators. It was

¹²⁹ Department of Local Government and Regional Development, 'Statistical Snapshot - Regional Economy' Available at: www.dlgrd.wa.gov.au/Publications/Docs/StatSnapshot_regionEconomy.asp Accessed on 16 July 2007.

¹³⁰ Submission No. 71 from Chamber of Minerals and Energy, 25 May 2007, p1.

¹³¹ See Submissions No. 20(a) - 20(c) from Local Environmental Action Forum Inc, 26 April 2007, 3 May 2007, 25 May 2007; Mrs Cheryl Bradley, Vice President, and Mr Keith Archer, Secretary, Local Environmental Action Forum Inc., *Transcript of Evidence*, 3 May 2007; Submissions No. 15(a) - (f) from Locals for Esperance Development, 26 April 2007, 28 April 2007, 8 May 2007 (x3), 25 May 2007; Mr Ben Curtis, Ms Michelle Crisp, Mrs Pam Norris, Locals for Esperance Development, *Transcript of Evidence*, 3 May 2007; Submission No. 16 from Recherche Advisory Group Inc., 26 April 2007, Mr Brian Pearce, Committee Member, Recherche Advisory Group Inc, *Transcript of Evidence*, 3 May 2007.

this measure that ultimately won the Port a “Golden Gecko” and other environmental awards.¹³²

Despite exporting millions of tonnes of iron ore through the Port, Esperance has not been marred by the red iron ore dust that is so evident in other towns. The Port has also been awarded with numerous prizes for its environmental initiatives including Australian Port of the Year in 2003. The Port also won the Premier’s Award for Excellence in Public Sector Management in the Economic Development category. The *Esperance Report* reported that in making the award, the Premier stated that:

By investing considerable effort in an inclusive and collaborative process, the EPA [Esperance Port Authority] turned rejection into advocacy. This process has been widely recognised as a model for public sector community consultation for infrastructure development projects.

It is one of many lost opportunities that have been raised in evidence that processes were not in place to better include the Esperance community in decisions relating to the handling of lead concentrate by the Port.

4.2 Commercial agencies

The role of four commercial agencies involved with the production, transport and export of Magellan lead concentrate has been raised to varying degrees by the evidence before the Committee. These agencies are described below.

(a) Magellan Metals Pty Ltd

(i) Ownership

Magellan Metals Pty Ltd is an Australian corporation, currently 100 per cent owned by Ivernia Inc., a company listed on the Canadian Stock Exchange.

In 1997 Magellan Metals entered into an agreement with the owner of the Magellan mining lease, being granted the right to earn a 100 per cent interest in the tenements subject to expenditure and royalty terms. At the time Magellan Metals was owned by a Brisbane-based company, Polymetals Pty Ltd. By the time Magellan Metals completed a feasibility study in January 2001, it was 91 per cent owned by Ivernia West Plc (an Irish base metal producer) which was moving to 100 per cent ownership of the project through the acquisition of Polymetals Pty Ltd. At the time Ivernia held other interests, including the Lisheen zinc-lead mine in Ireland.

However, in that year lead prices hit near historic lows and by 2002 Ivernia decided to defer financing the development of the Magellan Project. By 2003 it appears the company was failing

¹³² Submission No. 26 from Mr Chris Siemer, 27 April 2007, p1; and see Mrs Pam Norris, LED, *Transcript of Evidence*, 3 May 2007, p13; Ms Michelle Crisp, LED, *Transcript of Evidence*, 3 May 2007, p13; Mrs Cheryl Bradley, Vice President, LEAF, *Transcript of Evidence*, 3 May 2007, p9.

and Ivernia's 2004 *Annual Report* recorded that it sold the Lisheen mine during the year, and told its shareholders: 'One year ago your Company was close to falling.' In 2004 Ivernia's prospects improved and it found a joint partner, Sentient Global Resources Fund, to fund Phase 1 of the Magellan Project, costing a total of over \$34 million. This allowed Magellan to take advantage of the increasing lead prices. By April 2005, and with the mine in production, Ivernia consolidated 100 per cent interest in the Magellan lead mine by acquiring its joint-venture partner's 49 per cent interest.

Magellan's submission to the Committee describes its operations:¹³³

Magellan operates an open cut lead mine and processing plant located approximately 30 kilometres west of Wiluna. The processing of ore from the mine commenced in February 2005. This process results in lead concentrate being produced. The concentrate's composition is predominately a lead carbonate but includes other minerals such as lead sulphate and silica. This material is sent to refineries to be smelted into lead bullion, primarily for use in the production of lead-acid batteries for the automotive industry.

On 2 April 2005 Magellan commenced transporting lead concentrate via road in covered "kibbles" (metal containers with weatherproof canvas covers) to Leonora. The kibbles are then loaded on to a train and transported by rail to the Port of Esperance for storage [of the concentrate] and [its] subsequent export. The first shipment of Magellan lead concentrate was exported on 4 July 2005.

The lead concentrate is transported to the port pursuant to an agreement between Brambles Australia Limited and Australia Western Railroad Pty Ltd. On arrival at the Port, the lead concentrate is discharged into a hopper inside the port facility and moved by conveyer into a storage shed. The lead concentrate is then exported after being loaded on ships pursuant to an agreement between Magellan and the Esperance Port Authority.

Mr Patrick Scott, the Managing Director of Magellan Metals for the past year, confirmed that the Magellan mine site is Ivernia's and Magellan Metals' sole source of income.¹³⁴

Magellan is currently in negotiations over the transport and export of its concentrate in sealed containers through Fremantle Port.¹³⁵

(ii) Economic contribution

Ivernia is described on its website as:

¹³³ Submission No. 33(a) from Magellan Metals Pty Ltd, 26 April 2007, p3.

¹³⁴ Mr Patrick Scott, Director, Managing Director, Magellan Metals Pty Ltd, *Transcript of Evidence*, 2 May 2007, p3.

¹³⁵ Magellan Metals Pty Ltd, 'Plan to Transport Lead Concentrate through the Port of Fremantle - Fact Sheet', July 2007; Magellan Metals Pty Ltd, 'Frequently Asked Questions', Available at: www.magellanmine.com/html/faq.html Accessed on 7 July 2007.

an international base metals, exploration, development and operating company. It is the sole owner and operator of the Magellan lead mine in Western Australia. At full production, Magellan is expected to be one of the top five lead-producing mines in the world, yielding close to 3% of total world mine production. The inferred resources and considerable regional exploration opportunities offer significant potential to extend the mine's current long reserve life...

*The Magellan lead mine was officially opened and achieved commercial production at the end of the third quarter of 2005. Currently in the ramp up phase to full operating capacity, Magellan provides Ivernia with a strong foundation to grow in the base metals business and create greater shareholder value.*¹³⁶

Magellan Metals Pty Ltd was required to pay a bond for its mining leases, totalling \$2.47 million. Use of the bond appears to be restricted to remediating environmental issues on the mining leases in the event that Magellan does not comply with the requirements of its closure plan. Magellan stated that it *'would be surprised if the government could draw down on the bank undertakings for any other circumstances'*.¹³⁷

Magellan advised the Committee that the value of its product and its contribution to the Western Australian economy was as follows:

Table 4.1

Magellan Metals Pty Ltd - Economic contribution 2005, 2006¹³⁸

Economic Benefits	Amount	Comments
Value of goods produced.	2005: (AUD)\$23.5 million 2006: (AUD)\$82.9 million	Value of goods sold for each financial year. Sale value dependent on actual lead price and USD exchange rate at the time of transaction.
Royalties paid.	2005: (AUD)\$1.2 million 2006: (AUD)\$4.1 million	5% royalties on receipt of payment on actual sales.
Actual payroll expense.	2005: (AUD)\$2.3 million 2006: (AUD)\$6.6 million	Payroll for Magellan Employees only. This excludes contractors and contract staff. They will be included in purchases.
Payroll Tax.	2005: (AUD)\$1.3 million 2006: (AUD)\$2.4 million	Actual tax paid. This includes PAYG, Payroll tax, FBT and NRWHT.
Annualised benefit to the people and businesses of Western Australia (i.e. spin off benefits)	2005: (AUD)\$184.4 million 2006: (AUD)\$275.3 million	Based on total purchasing costs of the mine of 2005: AUD\$61.5 million 2006: AUD\$91.8 (This figure includes payroll) which has been multiplied by 3 in accordance with industry standards to determine the overall benefit to the economy.

¹³⁶ Ivernia Inc., Available at: www.ivernia.com/indx.aspx Accessed on 16 July 2007.

¹³⁷ Magellan Metals Pty Ltd, *Addendum to Transcript of Evidence*, Answers to Questions, Hearing 6 June 2007, p23.

¹³⁸ *ibid*, p32.

(b) Esperance Port Authority**(i) Economic contribution**

There are eight port authorities in Western Australia classified as Public Non-Financial Corporations for the purposes of the State Budget. In 2006-07 the port authorities paid \$12.3 million in dividends to the State Government and in 2007-08 this is expected to increase marginally to \$12.4 million.

Table 4.2**Revenue to Government from Public Corporations (Port Authorities)¹³⁹**

Port Authority	2006-07 Estimated Actual \$'000	2007-08 Budget Estimate \$'000
Albany	1,546	555
Broome	0	772
Bunbury	2,300	2,037
Dampier	0	279
Esperance	1,585	2,148
Fremantle	4,891	3,907
Geraldton	733	375
Port Hedland	1,259	2,369
Total	12,314	12,442

The Chamber of Minerals and Energy wrote to the Committee that:

The Esperance Port has grown significantly over the past decade, underwritten largely by the iron ore industry and nickel industry support activities in the region... With the completion of a \$54 million port upgrade in February 2002, Esperance became the deepest port in southern Australia, capable of handling Cape Class vessels up to 200,000 tonnes, plus fully loaded Panamax class vessels up to 75,000 tonnes. As a result of this development, iron ore exports through the Port are expected to total 8 million tonnes per year by 2008. The Port is also a major grain exporting hub and handles bulk imports such as fuel and fertilisers...

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Government of Western Australia, 2007-08 Budget - Economic and Fiscal Outlook Budget Paper No. 3, WA Government, Perth, 10 May 2007, p244.

*The report titled, *The Economic Impact of the Port of Esperance*, was produced [in 2001] by the independent economic research firm, EconSearch Pty Ltd, which is based in Adelaide.*

The report found that the economic impact generated by the Port's operations included:

- *\$45 million in output (gross revenue).*
- *\$24 million in value added (output, less the cost of goods and services in producing the output).*
- *More than \$10 million in household income.*
- *Almost 250 jobs (full-time equivalent).*
- *Each of the 129 ships which called at the Port in 1999-2000 generated, on average:*
 - *\$249,000 of output*
 - *\$188,000 value added*
 - *\$80,000 of household income*
 - *1.9 full-time equivalent jobs for one year.*

The largest economic impacts occurred in land transport and storage sectors:

- *The value of service provided in this area was \$11 million, with flow-ons to other sectors of the regional economy of almost \$7 million.*

With shipping and tonnages at Esperance Port having increased significantly since the report study year of 1999-2000, there has been a subsequent corresponding increase in positive economic impacts within the region as a direct result of the operations of the Port.¹⁴⁰

The Port's evidence to the Committee was that its annual Gross Revenue was \$27 million and that the current value of goods going through the Port varies due to commodity prices and the value of the Australian dollar, but was in the range of \$4.5 to \$5.5 billion. The gross annual value to the Port of the handling and export of lead concentrate was approximately \$550,000.¹⁴¹

The Port advised that it customarily makes a profit, 50 per cent of which is paid to the State government, with the remainder either going back into the Port for refurbishment and

¹⁴⁰ Submission No. 71 from Chamber of Minerals & Energy, 25 May 2007, pp1,2.

¹⁴¹ Esperance Port Authority, *Addendum to Transcript of Evidence*, Answers to Questions, Hearing 6 June 2007, p15.

improvements or back into the community of Esperance.¹⁴² In 2005/06 its Gross Profit was \$3.5 million.¹⁴³

(ii) Port Governance and Planning in Western Australia

The Esperance Port Authority was created by an Act of Parliament in 1968, the *Esperance Port Authority Act 1968* (WA), and the Esperance Port Authority took over control of the Port following its construction by the Public Works Department (PWD) in the early 1960s. According to the Port:

The 1970s was a period of consolidation and, increasingly, a move towards genuine autonomy of management at the port. The influence of the state government, in particular PWD, was phased out and the Port Authority was to control its own destiny.

By 1987, the *Esperance Port Authority Act 1968* was amended to give the Authority exclusive control over the Port, subject only to direction from the Minister, the requirement that the Port meet an annual financial target, and pay dividends to the State.

The *Port Authorities Act 1999* (WA) saw the legislative basis for port authorities change. Section 30 sets out the functions of the port authorities established under that Act, including Esperance Port:

30. Functions

(1) The functions of a port authority are:

(a) to facilitate trade within and through the port and plan for future growth and development of the port;

(b) to undertake or arrange for activities that will encourage and facilitate the development of trade and commerce generally for the economic benefit of the State through the use of the port and related facilities;

(c) to control business and other activities in the port or in connection with the operation of the port;

(d) to be responsible for the safe and efficient operation of the port;

(e) to be responsible for the maintenance and preservation of vested property and other property held by it; and

(f) to protect the environment of the port and minimise the impact of port activities on that environment.

¹⁴² Esperance Port Authority, *Addendum to Transcript of Evidence*, Answers to Questions, Hearing 2 May 2007, p8.

¹⁴³ *ibid*, p15.

The Act states that port authorities are not part of the public sector and that ports are to function in accordance with prudent commercial principles and endeavour to make a profit. The evidence of the Esperance Port was that the port authorities within Western Australia are self-funded independent Statutory Authorities and are subject to Corporations Law.¹⁴⁴ It is for these reasons that, despite being a corporation created by an Act of Parliament, the Esperance Port Authority is listed as a commercial agency for the purposes of this inquiry.

Department for Planning and Infrastructure

The Minister for Planning and Infrastructure receives advice from the Department for Planning and Infrastructure (DPI) on port planning when requested. The budget papers also indicate that the Department for Planning and Infrastructure was undertaking a review of the *Port Authorities Act 1999*. This arose from the undertaking of the Western Australian Government in 2006 to review ports as part of its Council of Australian Governments (COAG) responsibilities. The review was reported as follows in the 2007-2008 Budget Papers.

*COAG - proposed Review of Ports*¹⁴⁵

In signing the Competition and Reform Agreement on February 10 2006, all jurisdictions committed to conducting a review of ports and port authorities, handling and storage facility operations at significant ports (including capital city ports, major bulk commodity export ports, major bulk commodity export ports except those considered part of integrated production processes, and major regional ports), to determine:

- *whether a clear need for economic regulation exists, in order to promote competition in upstream or downstream markets or to prevent the misuse of market power; and*
- *whether competition in the provision of port and related infrastructure facilities should be restricted in the public interest, to prevent the entry of new suppliers of port and related infrastructure services.*

It is understood that the report will be tabled in December 2007.

The evidence of the then Director General of the Department for Infrastructure and Planning, Mr Greg Martin, to the Committee was that:

The Department for Planning and Infrastructure is a department of state, and our role in respect of ports is to have no direct role with them, other than when the ports ask us to be involved in some aspect of the operation or, alternatively, if the Minister asks for advice. Traditionally, our role with ports is to give advice to the Minister in respect of infrastructure, planning and development on the ports. We have the usual responsibility to

¹⁴⁴ Esperance Port Authority, *Addendum to Transcript of Evidence*, Answers to Questions, Hearing 2 May 2007, p8.

¹⁴⁵ Government of Western Australia, 2007-08 Budget - Economic and Fiscal Outlook Budget Paper No. 3, WA Government, Perth, 10 May 2007, p173.

give the minister advice on the strategic development plan and the statement of corporate intent that the ports are required to produce each year, and our role is to give the minister advice about the adequacy and completeness of those reports. They are typically looking at the infrastructure proposals for development of the ports. In respect to the ports, if you refer to the Port Authorities Act 1999, you will find that we are specifically excluded from interfering or giving advice or having any administrative role in the operation of the ports. The ports are constituted with their own boards and the ports and their boards have complete freedom to take action as they deem necessary. They have the full authority, and the only exception is if they receive a direction from the minister. So in that case, there is a specific provision in the Port Authority Act that they take no direction from government or an agency of government, and we would regard that as DPI's situation...¹⁴⁶

Specifically in relation to the appointment of Board members, DPI advised:

The Port Authorities Act 1999 (the Act) makes provision for the appointment of directors to port authority boards by the Minister. While the Act requires the Minister to have regard to all relevant guidelines published, approved, endorsed or administered by the Minister for Public Sector Management, the Act is silent on the specific processes for recruiting and selecting persons for port authority board appointment.

While the Department for Planning and Infrastructure (DPI) has no formal role under the Act, it assists the Minister in the administration of the Act by providing advice, conducting reviews/investigations etc at the request of and solely at the discretion of the Minister.

Since appointment, upon commencement of the previous term of the Labor Government, the Minister has:

- *selected persons for appointment to port authority boards; and*
- *sought the endorsement of Cabinet before persons are appointed or re-appointed to port authority boards.*

The cvs of persons proposed by the Minister for appointment to port authority boards are attached to the Cabinet submissions.

Previously, upon request, the DPI regularly raised Cabinet submissions and appointment letters in respect of persons selected by the Minister for appointment to port authority boards.

More recently, over the past two to three years, the requests for DPI to raise Cabinet submissions and appointment letters in respect of persons selected for appointment to port authority boards have been irregular.¹⁴⁷

The Board has a broad discretion, subject to endeavouring to make a profit, to act as it sees fit. The result of current legislative provisions is that Port Authority Boards are appointed by the Minister, answerable to the Minister and take direction only from the Minister.

¹⁴⁶ Mr Greg Martin, Director General, DPI, *Transcript of Evidence*, 30 April 2007, pp1,2.

¹⁴⁷ DPI, *Addendum to Transcript of Evidence*, Answers to Questions, Hearing 30 April 2007, pp3,4.

The Minister also has other advisory organisations to assist with port issues.

Western Australian Port Operations Task Force

In 1987 the State Government formed the Western Australian Port Operations Task Force¹⁴⁸ to ensure that a Western Australian voice was heard in national waterfront reform policy-making processes. It was also intended to address any problems in WA that were perceived to be endemic in industrial practices and operational processes and systems in port operations. The Taskforce represents industry sectors including stevedores, shipowners, shipping agents, exporters, importers, port authorities, road transport operators, container parks, maritime and transport unions, brokers and forwarders, Customs, Australian Quarantine and Inspection Service (AQIS) and Main Roads Western Australia.

The current role of the Task Force is to identify operational impediments to the efficient passage of goods and vessels through Western Australian ports, and determine practical measures to overcome those impediments. Specifically, according to its Terms of Reference,¹⁴⁹ it is:

- 1 *To identify operational impediments to the efficient passage of goods and vessels through Western Australian ports.*
- 2 *To determine practical measures to overcome the identified impediments.*
- 3 *To offer appropriate advice to the Government of Western Australia through the Minister for Transport.*
- 4 *To provide a forum for a two-way exchange of views between the industry and the Government of Western Australia on operational matters affecting the efficient passage of goods and vessels through Western Australian ports.*
- 5 *To represent, as appropriate, the view of the Western Australian industry in national decision making forums.*
- 6 *To investigate and report on specific issues in respect of port operations as raised by the Western Australian Minister for Transport.*

*The Sea Freight Council of Western Australia*¹⁵⁰

The Sea Freight Council is a forum for the exchange of views and provides policy advice on issues impacting on the movement of freight through Western Australian ports. The result is intended to enhance government policy and improve industry practice.

¹⁴⁸ Department of Planning and Infrastructure, Marine Information - Western Australian Port Operations Task Force, Available at www.dpi.wa.gov.au/seafreight/3003.asp Accessed on 8 August 2007.

¹⁴⁹ Email from Mr Vernon Durling, Western Australian Port Operations Task Force, 7 August 2007.

¹⁵⁰ Department of Planning and Infrastructure, Marine Information - The Sea Freight Council of Western Australia, Available at www.dpi.wa.gov.au/seafreight/3003.asp Accessed on 8 August 2007.

The Sea Freight Council is currently working on a number of projects including contributing to the development of national policy that will give greater support to the Australian shipping industry; defining national policy impacting on emergency response to marine incidents; and allowing Fremantle Port container trade to grow, unconstrained by concerns regarding heavy vehicle impacts. According to the Department for Planning and Infrastructure, the Sea Freight Council is also working with the State's land based freight councils to assist regional exporters to improve their logistics practices and introduce effective buffer zones around ports and port access routes, amongst other things.

Marine Environmental Protection Unit

The Marine Environmental Protection Unit is part of the Department for Planning and Infrastructure. It described its role as being '*to protect the marine environment in WA from pollution*'.¹⁵¹ The Committee had expected that this Unit would have had a significant role in the matters that are the subject of this inquiry. However, as indicated, the evidence of the then Director General of DPI was that DPI had no direct role in relation to ports. Mr Martin's specific advice in relation to the Unit was that:

*It deals with oil spills primarily. It does not deal with chemical spills. ... Marine Safety within the department deals with oil spills as a result of some sort of mishap with recreational or commercial vessels.*¹⁵²

The Department also explained that the basis for the Unit was Policy Statement 7 of the State Emergency Services Authority (FESA) arrangements, which vested the Department with authority for dealing with ship sourced oil pollution.¹⁵³

The Unit described its role as:

- *The role of DPI as a Hazard Management Agency is to protect the marine environment in WA from oil pollution. This is done through the principles of preparation, prevention, response and recovery, as detailed in the National Marine Oil Spill Contingency Plan.*
- *The Marine Environment Protection Unit is part of the Marine Safety Business Unit in Department for Planning and Infrastructure (DPI). The unit's main activities include:*
- *Develop and manage oil spill response capabilities in Western Australia in line with WestPlan Marine Oil Pollution;*
- *Provide resources and support during marine oil spill response operations in Western Australia;*

¹⁵¹ Marine Environmental Protection, Department of Planning and Infrastructure, Available at: www.dpi.wa.gov.au/13941.asp Accessed on: 15 August 2007.

¹⁵² Mr Greg Martin, Director General, DPI, *Transcript of Evidence*, 30 April 2007, p10.

¹⁵³ DPI, *Addendum to Transcript of Evidence*, Answers to Questions, Hearing 30 April 2007, p13.

- *Maintain equipment around the state to enable an effective response to marine oil pollution incidents;*
- *Develop and deliver appropriate training programs for marine oil spill response around the State;*
- *Assist ports and industry in developing marine oil spill contingency plans in line with WestPlan;*
- *Provide 24 hour on call support for marine oil spills;*
- *Develop national networks to ensure Western Australia is up to date in oil spill response techniques;*
- *Maintain the oil spill coastal response atlas (OSRA); and*
- *Raise community awareness about the impact of marine oil spills.*¹⁵⁴

Finding 12

The Committee notes that none of the Western Australian Port Operations Task Force, the Sea Freight Council of Western Australia, or the Department for Planning and Infrastructure's Marine Pollution Unit appear to have had a role in the matters that are the subject of this inquiry.

Recommendation 3

The Committee recommends that the role of the Western Australian Port Operations Task Force, the Sea Freight Council of Western Australia, and the Department for Planning and Infrastructure's Marine Pollution Unit be included in a review of the management of ports in Western Australia (refer to Recommendation 4).

(iii) Esperance Port Authority Board

Within the broader context of governance and planning regimes under which the Esperance Port Authority Board operates, it is important to note that the Board consists of a Chairperson and four

¹⁵⁴ Marine Environmental Protection, Department of Planning and Infrastructure, Available at: www.dpi.wa.gov.au/13941.asp Accessed on: 15 August 2007.

Directors, who receive approximately \$26,000 and \$12,000 p.a. respectively¹⁵⁵ (and miscellaneous other expenses).¹⁵⁶ The Board generally meets 11 times a year, an arrangement that appears to have been similar to what has been in place since the establishment of the Authority 40 years ago. Over this period, however, trade has grown at the Port from 161,182 tonnes in 28 vessels in 1966, to a record trade throughput of 7.29 million tonnes in 2004/05 carried in 154 vessels. By 2008, the current Chairman expects that some \$7 billion worth of exports will be going through the Port.¹⁵⁷ The Port is expected to handle 8 million tonnes of iron ore per annum, and have capacity to load the iron into Cape Class vessels which can carry more in one shipment than the total tonnage loaded by the Port in 1966. It will also import fuel, fertiliser and bulk sulphur, and export bulk nickel sulphite, containerised nickel, grain, and fertiliser.

This significant industry is run by a handful of part-time directors, on nominal pay, who report directly to a Minister without the assistance of any departmental oversight. In this context the CEO, Mr Colin Stewart, appears to largely have operated in isolation. The evidence of the Esperance Port's recently appointed Chairman was:

*When I got there, one of the things that struck me... was that Colin, in his capacity as CEO, was batting, he was bowling, he was wicketkeeping and I think on Sunday mowing the lawn! There was then and there still is a need to have a structure in place that complements what is happening with the growth of the port.*¹⁵⁸

The Committee agrees with the Chairman's assessment.

Finding 13

The current management arrangements for the Esperance Port Authority are inadequate for the economic value and complexity of the Port's operations.

¹⁵⁵ Including post-employment superannuation entitlements.

¹⁵⁶ Totalling almost \$30,000 in 2005/06 and 2006/07 for expenses related to accommodation, travel (for 2006/07 only) and car hire.

¹⁵⁷ Mr Jim Matijasevich, Chairman, Esperance Port Authority, *Transcript of Evidence*, 2 May 2007, p23.

¹⁵⁸ Mr Jim Matijasevich, Chairman, Esperance Port Authority, *Transcript of Evidence*, 6 June 2007, p6.

Recommendation 4

The Committee recommends that the Minister for Planning and Infrastructure develop and implement a model for the management of ports that ensures that the management structure reflects the economic value and complexity of the ports' business or, alternatively, consider increasing the role of Departmental supervision and assistance.

The Minister for Planning and Infrastructure, the Hon Alannah MacTiernan, MLA, was aware of the significant changes affecting port operations. The Minister's evidence to the Committee was that:

when I came into government, I could see that in every port, to some extent, the ports had operated as local fiefdoms. There was very little cooperation because they were there looking after their fiefdoms. This is why we wanted to bring in a totally new style of management. We wanted people who had experience of running listed companies and who understood what a board was supposed to do and who would be prepared to challenge a CEO. I regret that I left it perhaps too long to put that same structure in place in Esperance, but there were two problems: the first was that the port appeared to be doing reasonably well and was winning awards, and the second was it was difficult to find a suitable person who could take on that role and do it at that level. We have seen a great turnaround in the other ports. Those boards now think of themselves differently.¹⁵⁹

After spending some time trying to find an appointment to ensure that the Esperance Port's management and its Board would become more 'strategic', the Minister appointed Mr Jim Matijasevich to the Esperance Port Authority Board in August 2006.¹⁶⁰ Mr Matijasevich clearly has a very strong commercial background,¹⁶¹ and his evidence was that:

when I joined, the first thing you focus on are those things that are part of your background. Possibly that is what I did. Whilst I have always dealt with the environment, it has never been one of my paramount areas. I do not have great experience in that area, but I have experience in other areas, and I suppose my main focus when I got there was the structure report and the adequacies that were needed to be brought to the port to make it operate in a manner that would complement what was happening [in relation to the growth of the Port].¹⁶²

The evidence of Mr Colin Stewart, CEO of the Esperance Port Authority, was that: *'The first function as articulated in the Port Authorities Act is the ports are there to facilitate trade. That is my job.'* The Committee has concerns that there was an emphasis upon the facilitation of trade by

¹⁵⁹ Minister for Planning and Infrastructure, *Transcript of Evidence*, 7 June 2007, pp10,11.

¹⁶⁰ *ibid*, p10.

¹⁶¹ Mr Jim Matijasevich, Chairman, Esperance Port Authority, *Transcript of Evidence*, 2 May 2007, p6.

¹⁶² Mr Jim Matijasevich, Chairman, Esperance Port Authority, *Transcript of Evidence*, 6 June 2007, p14.

the Port to the detriment of its other legislative obligations, which included *'to protect the environment of the port and minimise the impact of port activities on that environment'*.¹⁶³ The Committee also has concerns that under the Act the Port's functions do not specify any requirement to protect public health and minimise the impact of port activities on public health.

Finding 14

The Committee believes that the emphasis upon the facilitation of trade by the Esperance Port Authority has been to the detriment of its other legislative obligations, which included *'to protect the environment of the port and minimise the impact of port activities on that environment'*.

Finding 15

Although the *Port Authorities Act 1999* defines the functions of port authorities to include being responsible for the safe and efficient operation of the port and to protect the environment of the port, there is no specific requirement in the Act that port authorities minimise the impact of port activities on public health.

The Committee believes that in order to enforce boards' awareness of their obligations for public health, an amendment to the *Port Authorities Act 1999* to specifically acknowledge this responsibility amongst the other duties outlined in section 30 of the Act would be useful.¹⁶⁴

Recommendation 5

The Committee recommends that section 30 of the *Port Authorities Act 1999* (WA) be amended to include a specific function that a port authority be required to ensure that public health is not adversely impacted by its conduct.

¹⁶³ *Port Authorities Act 1999* (WA), section 30(1)(f). The evidence of both Minister and the Chairman was that the Port's management was deficient in this respect (Minister for Planning and Infrastructure, *Transcript of Evidence*, 7 June 2007, p12; Mr Jim Matijasevich, Chairman, Esperance Port Authority, *Transcript of Evidence*, 2 May 2007, p2).

¹⁶⁴ There is a current provision in the Act which relates to the need to operate the Port in a safe manner. However, it appears this tends to be associated with the issues of Occupational Health and Safety, which certainly from the evidence of Board meetings available to the Committee appeared to be given far more attention than the issue of broader public health implications of the Port's conduct.

The Committee is of the view that although legislative change may assist in directing board members to consider public health impacts, it is also important that this change in emphasis be reflected more broadly in the operations of port boards. This issue is examined next.

Shires, with responsibilities in the areas of the environment and public health, appear ideally suited to contribute to the port board deliberations. During the period relevant to this inquiry, two members of the Board were Presidents of the Local Shires - one for Esperance and one for Ravensthorpe. However, it appears that neither was appointed to the Board in that capacity. As a result, information available to these members as Directors of the Port's Board was not available to the Shires.

There is a potential for both criticism of the individuals appointed to the boards, and a perceived conflict of interest for the shires, because of these arrangements. The evidence of Mr Ian Mickel, Esperance Shire President and, previously, a Director of the Esperance Port Authority Board, on this issue was as follows:

I believe that it was an excellent opportunity to get things done and to work together with a major corporate and the shire. I certainly was not appointed as a delegate of the council; I was appointed as Ian Stanley Mickel in my own right as a director of the Esperance Port Authority. When problems like this [with lead contamination from the Port] come about and there is a major conflict, there is no way that I can sit in both roles because of the public perception that there would be a cover-up by the council. That is what brought me to the point of making my decision to stand away from the Esperance Port Authority - to resign from the Esperance Port Authority - and stand away from the council for some time to allow it to arrive at its position.

...We had a council meeting on the Tuesday prior to my decision being made. The president of the Esperance Ratepayers' Association came into the public question time with an extended criticism of the council allowing things to happen. It was quite uninformed in regards to a number of issues, I believe, particularly in regard to myself and my appointment to the Esperance Port Authority. That was one. The second one was that a statement was made by one of my fellow councillors to The West Australian. I think the headline called for the sacking of the board of the Esperance Port Authority. I believed then that if councillors had varying views on what should be done, I should stand away and let them have the full opportunity to resolve any differences they might have, particularly if they believed that the public perceived that I was in there manipulating views of the council - anything the council was doing. I needed to give them room to work it out without me being at the table at all. And they did that. I had a strong request from a number of my fellow councillors to come back. I withdrew it after three and a half weeks, I think it was; I withdrew my request [to stand aside from the council]. It had not been considered by council; they needed a special meeting to consider it. They had resolved at that time not to consider it until they had spoken further to me. I was requested by councillors to withdraw it. I must say that it was a significant number but it was not a unanimous council decision. I do not know what the numbers might have been. Those councillors are still there. I did withdraw on that basis.

The Committee accepts that there is the potential for benefit from the Shire and a 'major corporate' such as the Port working collaboratively. However, the arrangements in place do not

provide for such collaboration; the Esperance Shire President was not appointed to the Board in that capacity. Board deliberations and decisions remain confidential from the Shire and, despite people's expectations; the Shire President was not representing the community on the Board.

From a number of submissions received,¹⁶⁵ it appears unfortunate that the effective work that the Shire has undertaken through its Environmental Officers in responding to residents' complaints and in raising concerns about the Port's activities over the years¹⁶⁶ has been undermined by the perceived conflict of interest derived from the dual role of the Shire President. It is evident too, from the Committee's access to Port Board meeting minutes and papers, that there was material which would appear to have been of significance to the Shire, such as the concerns of the Port's workforce about the handling of the lead concentrate and subsequent rainwater tank test results, as well as the advice of various problems with ship loadings and benthic lead levels. A shire councillor, however, would not be at liberty to share this information with the shire due to obligations to maintain confidentiality, and to abide by '*commercial in confidence*' restrictions, under Corporations and Contract Law.

Finding 16

The appointment of the Esperance Shire President to the Esperance Port Authority Board in a private capacity created the perception of conflict of interest and undermined community confidence in the operations of the Shire.

The Committee is aware that it would be unfair and unduly detrimental to individuals to oppose their appointment to roles such as that of director to a port authority because of their role as a shire councillor or president; and for that matter, equally the other way around.

The Committee believes, however, that there should be a significant and clearly identified role for local shires in port operations. The Committee notes that the Esperance Port already has a significant forum for liaison with the broader community, the Port Development Consultative Committee. It is described as representing '*the Esperance community and includes prominent Esperance community members*', and includes representation from the Shire.¹⁶⁷

The Committee is of the view that the effectiveness of such a forum could be enhanced if there was a legislative basis for its establishment, terms of reference and membership under the *Port*

¹⁶⁵ See for example, Submission No. 25 from Mr Doc Reynolds, 26 April 2007; Submission No. 26 from Mr Chris Siemer, 27 April 2007; Submission No. 53 from Ms Suzanne and Mr John Stevens, 23 May 2007; Mrs Pam Norris, *Transcript of Evidence*, 3 May 2007, p3.

¹⁶⁶ Refer to Appendix 5; the Shire Environmental Officers appear to have been instrumental in raising the issue of nickel contamination of rainwater tanks leading to the rainwater tank monitoring program of the Port and more recently in raising concern about the handling of lead concentrate through the Port. See also Submission No. 22(a) from the Shire of Esperance, 26 April 2007.

¹⁶⁷ Submission No. 24 from the Esperance Port Authority, 26 April 2007, A18.

Authorities Act 1999. In particular the Committee believes there should be a statutory role for the local shire on the consultative committee, so that shires' expertise in environmental health can be brought to bear on port operations. Moreover, to ensure transparency and accountability to their communities, it is the Committee's view that minutes of the proceedings of such port consultative committees should be required to be posted publicly on port websites.

Recommendation 6

The Committee recommends that there should be a legislative requirement in the *Port Authorities Act 1999* that ports establish an advisory committee such as the Esperance Port's Community Development Consultation Committee. The Act should include the committees' terms of reference and membership criteria, including a provision that the local shire be represented on the consultative committee. To ensure transparency and accountability to their communities, the minutes of the proceedings of such port consultative committees should be required to be posted publicly on port websites.

The Committee would also expect that such consultative committees would advise the Minister of any serious concerns that arose which were not able to be resolved through liaison with the ports' boards.

(c) BIS Industrial Solutions & Australian Railways Group

BIS Industrial Logistics (previously Brambles) and the Australian Railroad Group (ARG) entered into a joint venture to provide transport services to Magellan Metals for its lead concentrate.

The role of ARG, a private entity, was limited to the provision of rail freight services between Leonora and Esperance. ARG describes its Western Australian operations as follows:

In Western Australia, ARG operates over almost 5,000 kilometres of standard and narrow gauge track, carrying approximately 33 million tonnes of intrastate rail freight each year.

Annually, it provides some 40,000 train services, transports about 60,000 containers and moves approximately 1.5 million tonnes by road feeder services.

The main freight commodities include grain, alumina, bauxite, iron ore, nickel ore, mineral sands and woodchips.

Almost 95 percent of the freight carried by ARG in Western Australia is related to exports through the ports of Geraldton, Fremantle, Kwinana, Bunbury, Albany and Esperance.¹⁶⁸

¹⁶⁸

ARG, Available at: www.arg.net.au/ops.aspx Accessed on 19 April 2007.

ARG's role in rail freight came about in December 2000, when the State's Westrail's freight business was sold to Australian Western Railroad, a subsidiary of ARG. Westrail's freight rail lines were also leased to WestNet Rail, another subsidiary of ARG. The public entity, Westrail, continues to own the track, but WestNet manages it under the terms of a 49-year lease.¹⁶⁹ WestNet Rail advises that it is responsible for maintaining the track infrastructure, supply of the train control function, and determination of track access fees.¹⁷⁰

The focus of the inquiry has been more on BIS Industrial Logistics given its role at the Port, although it is apparent that ARG employees would also have come into contact with the lead concentrate.¹⁷¹

BIS is described as follows on the Chamber of Commerce and Industry's Western Australian Resources Development Services Directory:

Principal Services - Specialised bulk on and off road bulk material handling and haulage, specialist logistics services, process and task management services, bulk and liquid transport, services to the oil and gas industry.

Company Record - Industrial services, logistics and materials handling contracts with: Minara Resources, BHP Billiton Ltd. (Nickel West), Rio Tinto Limited (Dampier Salt and HIsmelt), Cockburn Cement Ltd., Coles Myer Ltd., Peters and Brownes Group, Tiwest Joint Venture, Woodside Petroleum, BHP Petroleum, Shell Australia Limited, Newcrest Mining Limited and other large resource based companies.

Plant & Equipment- Front end loaders, dump trucks, excavators, bulldozers, graders. A large variety of specialised road transport, eg dual powered road trains, road trains, tip trucks, bulk and liquid transport, temperature controlled transport.¹⁷²

BIS Industrial Solutions has described its role in the events that are the subject of inquiry as follows:

We are responsible and contracted to haul lead concentrate from [the mine] site to the Leonora rail site, transfer the kibbles onto the rail and unload the kibbles at the Port of Esperance into the shed.¹⁷³

BIS also had a role in relation to the lead concentrate in the shed, particularly in loading the concentrate into the reclaim hopper for ship-loading. The responsibilities associated with that role proved to be contentious and this issue is addressed in more detail in Chapter 9.5(a).

¹⁶⁹ Railways in Western Australia, Available at: www.pta.wa.gov.au/scripts/viewoverview_contact.asp?NID=1256 Accessed on 19 April 2007.

¹⁷⁰ WestNet Rail, Available at: www.wnr.com.au/index.asp Accessed on 19 April 2007.

¹⁷¹ Submission No. 40 from Mr Aaron and Ms Emma Pedretti, 8 May 2007, p1.

¹⁷² Western Australian Resources Development Services Directory, Available at: repsdir.cciwa.com/reps.php3 Accessed on 16 July 2007.

¹⁷³ Mr Ian Lynass, Managing Director, BIS Industrial Logistics, *Transcript of Evidence*, 5 June 2007, p1.

4.3 State government regulatory agencies

The Committee identified six State government regulatory agencies that had a direct role in the production, transport and export of Magellan lead concentrate and were of relevance to this inquiry.

(a) Department of Environment and Conservation

DEC described its functions, and provides other relevant background to this inquiry, as follows:

1.1 Department of Environment and Conservation

The Department of Environment and Conservation (DEC) was established on 1 July 2006 bringing together the former Department of Environment (DoE) and Department of Conservation and Land Management.*

*(*The DoE and Water and Rivers Commission (WRC) operated together as a single agency between July 2001 and October 2005. Following the establishment the Department of Water (DoW) in October 2005, DoE operated as a separate agency to 30 June 2006, although certain functions of DoE, and subsequently DEC, continued to be delegated to DoW/WRC until September 2006).*

1.2 Environmental Protection Act 1986

One of DEC's functions is to administer the Environmental Protection Act 1986 (EP Act). The EP Act is an Act to provide for, amongst other things, the "prevention, control and abatement of pollution".

In general terms, the EP Act seeks to achieve this through three courses:

- 1. Setting legal requirements that people and companies processing and handling potentially polluting materials must comply with, and making it an offence for them to cause pollution;*
- 2. Establishing functions for the Department to regulate industries, principally through licensing certain premises, to seek to prevent pollution, and establishing powers to control and abate pollution (Part V of the Act — "Environmental regulation"); and*
- 3. Establishing provisions for Environmental Impact Assessment of significant proposals (Part IV of the Act — "Environmental impact assessment"). Environmental Impact Assessment is undertaken by the Environmental Protection Authority (EPA) with the support of DEC. DEC also monitors compliance of conditions for projects which have been subject to Environmental Impact Assessment.*

...

1.3 Legal requirements on individuals and companies

The Act seeks to prevent pollution by:

- a) *Making it an offence for any person to cause pollution or allow pollution to be caused; emitting or causing an unreasonable emission; or causing or allowing waste to be placed in any position that could reasonably be expected to gain access to the environment and in so gaining access would be likely to result in pollution. These are serious (Tier 1 and Tier 2) offences under the Act with maximum penalties from \$62,500 to \$500,000 and up to 5 years jail for individuals, and \$125,000 to \$1,000,000 for bodies corporate;*
- b) *Requiring that occupiers of certain premises processing or handling potentially polluting materials (referred to as “prescribed premises”) hold a valid licence under the Act;*
- c) *Requiring occupiers of prescribed premises to seek works approvals and/or licence amendment before carrying out any work or altering the method of operation or process carried out on the premises, or altering the type of materials or products used;*
- d) *Requiring licensees of prescribed premises to comply with licence conditions; and*
- e) *Requiring the occupier of premises to notify DEC, as soon as practical, of the discharge of any waste that has or is likely to cause pollution.*

To strengthen the obligation on individuals and companies not to cause pollution, the Government has commenced a process to increase the penalties for causing pollution and failing to meet the other requirements indicated above, to make them the toughest in Australia. A public discussion paper (DEC 2006) was released on this in May last year, and DEC is currently considering submissions received prior to proceeding to Government for approval for drafting amendments to the EP Act for introduction to Parliament. The proposed increases would see the maximum penalty for causing pollution increase to \$1,000,000 for individuals and \$5,000,000 for bodies corporate.

1.4 Functions of DEC under the EP Act

The EP Act establishes both specific and implied functions for DEC. In general terms these are to:

- a) *assess licence and works approvals applications (after having advertised them and sought public comments) and decide whether to grant or refuse the licence or works approvals;*
- b) *set environmental conditions relating to the prevention, control, abatement or mitigation of pollution where it grants a licence or works approvals;*
- c) *carry out inspections and monitor compliance with environmental conditions; and*
- d) *enforce powers where pollution has or is likely to occur, on where other requirements of the Act have been breached.¹⁷⁴*

¹⁷⁴ Submission No. 27(a) from DEC, 26 April 2007, pp1-3.

Issues relating to DEC's capacity to adequately undertake its functions in relation to the Esperance Port Authority are discussed in detail in Chapter 10, 'The Role of the Department of Environment and Conservation'. There are, however, broader issues relating to DEC's industry regulation function, its current structure and the funding of its industry regulation function which the Committee wishes to address.

(i) DEC's industry regulation function

DEC conceded from the outset¹⁷⁵ that there have been inadequacies in the exercise of its regulatory functions in relation to the lead pollution in Esperance. The evidence of the Director General, Mr Keiran McNamara, at the Department's first hearing before the Committee was:

DEC acknowledges that there were inadequacies in the exercise [of its] functions which, if improved, could have resulted in detection of the elevated lead dust levels at Esperance sooner than has occurred.

*We are reviewing our regulation of the Esperance Port Authority and Magellan Metals for environmental approvals. While these reviews are not yet complete, we have identified that there were inadequacies in our regulation in a number of areas, including our inspection frequency and effectiveness, the licence conditions for monitoring and our responses to monitoring reports.*¹⁷⁶

The evidence of Mr Kim Taylor, DEC's Acting Deputy Director General, Environment, was that:

*...we recognise there have been inadequacies in our processes, and one of those is clearly the time frame taken to respond to those reports [on dust monitoring by the Port]. We acknowledge that, but, at the same time, if a complete report had come in on the due date as required by the licence, it would have greatly assisted us in determining that there was a pattern of high results.*¹⁷⁷

More recently, after there had been critical attention to the conduct of inspections and licence reviews by operational DEC officers, the Department provided a further submission stating:

*The Department has acknowledged that there were inadequacies in its regulatory processes at the port. The Department considers that these were departmental deficiencies in terms of its processes, instructions and training, and not of individual officers.*¹⁷⁸

The submission enclosed a copy of a letter sent by Mr McNamara to the *Esperance Express* on 8 May 2007. The letter states:

In response to your editorial of 4 May 2007, the Department of Environment and Conservation has acknowledged publicly in evidence to the Parliamentary Standing

¹⁷⁵ Submission No. 27(a) from DEC, 26 April 2007, p25.

¹⁷⁶ Mr Keiran McNamara, Director General, DEC, *Transcript of Evidence*, 30 April 2007, p3.

¹⁷⁷ Mr Kim Taylor, A/Deputy Director General, Environment, DEC, *Transcript of Evidence*, 30 April 2007, p7.

¹⁷⁸ Submission No. 27(e) from DEC, 3 July 2007.

Committee on Education and Health inquiry into the Esperance lead issue that there were inadequacies in its regulatory processes at the part of Esperance.

These were deficiencies of the Department and not of individual officers.

DEC emphasises that it is taking steps to improve its processes to ensure that environmental issues in relation to the port do not have a detrimental impact on the Esperance community.

The officers involved in inspections at Esperance are very committed to protecting the environment and it is unfair and unwarranted to criticise individual staff for what has occurred. Any such criticism should be levelled at the Department.¹⁷⁹

As indicated, the details of DEC's regulation of the issues raised by the lead pollution in the Esperance area are examined in more detail in Chapter 10. The broader context of Departmental operations is examined here.

A large number of the submissions to this inquiry emphasised to the Committee that the inadequacies of DEC's performance in relation to the Esperance inquiry were not isolated instances.¹⁸⁰ Other evidence provided by DEC confirmed that the inadequacies in its industry regulation function extended well beyond Esperance:

Premises which are required to be licensed under the EP Act are called 'prescribed premises', the categories for which are listed in Schedule 1 of the Environmental Protection Regulations 1987. Premises listed in Part 2 of that schedule are exempt from holding a licence if they are registered, as many of these premises are covered by regulations. Premises range in size and complexity from the Woodside Gas plant in Dampier to concrete batching plants. ... there are approximately 2500 prescribed premises in Western Australia, about 860 of which are licensed and 1670 are registered.

Prescribed premises cover those industrial activities which are considered to present a significant environmental risk. Prescribed premises which pose a greater level of risk are subject to licensing. Some prescribed premises which pose a lower risk are only subject to registration as they do not require a prescriptive conditional licence. There are a large number and range of other industrial activities, which are not prescribed, but are still required to comply with other elements of the EP Act, including regulations, and must be operated so as not to cause unreasonable emissions, environmental harm or pollution. While these are not directly regulated by DEC through the administration of a licence or registration, significant staff time goes into responding to complaints associated with these industries.

¹⁷⁹ Letter from Mr Keiran McNamara, Director General, DEC to the Editor, *Esperance Express*, 8 May 2007.

¹⁸⁰ See Submission No. 5 from the Conservation Council, 24 April 2007; Submission No. 29 from Alliance for a Clean Environment Inc., 27 April 2004; Submission No. 52 from Ms Shirley Birney, 23 May 2007; Submission No. 72 from Mr Ronald Jones, 25 May 2007, Submissions No. 84(a) and 84(b) from Mr R Kean, 25 May 2007, 22 June 2007; Submission No. 86, Anonymous, 28 May 2007; Submission No. 90 from Mr Chris Right, 5 June 2007; Submission No. 92 from Kwinana Progress Association Inc. and Kwinana Watchdog Group.

DEC has established a risk rating process to determine the level of environmental risk each licensed premises poses and thus how frequently it should be inspected to determine licence compliance and environmental performance.

Application of the risk rating process results in one of four classifications, being high, medium high, medium and low. Registered premises are not risk rated but are dealt with as a separate group. Of the 860 licensed premises, about 130 are classified as high or medium high risk, 180 as medium risk and 550 as low risk.

DEC has adopted a hierarchy of frequency of inspections of all licensed premises based on the risk assessed. It has then set targets for the numbers of inspections to be carried out annually in each risk area based on the resources available in the industry regulation program. More frequent inspections in any risk category would be undertaken if circumstances arose which warranted an inspection, eg a series of complaints, or elevated monitoring results.

DEC policy requires that high and medium high risk premises are to be inspected annually and the target is 100%. Medium risk premises are to be inspected once every three years but the target set annually is for only 50% of these to be completed. Low risk premises are to be inspected every five years but the target set is for only 20% of these to be done. A similar inspection frequency and target is set for registered premises. These targets recognise the available staff resources to conduct inspections and recognise that these same staff also carry out assessments of works approvals, new and renewed licences, investigations and enforcement actions, advice and guidance to the community and industry, and investigate all complaints received relating to pollution or environmental harm, whether or not they relate to a licensed premises. In addition to the aforementioned tasks, the same officers also provide regional input to the EPA's assessment process.

...

The resources boom is significantly impacting on DEC's ability to conduct scheduled operations. The numbers of active works approvals and licences have increased by 50% and 12% respectively in the last nine months in the South Coast Region [which is responsible for the Esperance area].

The achievement of inspection targets varies across the State. The average performance for DEC over the last 9 months is 28% of the annual target set, which is reflective of limited resources and organisation changes that have occurred in the last two years.¹⁸¹

¹⁸¹

Submission No. 27(a) from DEC, 26 April 2007, pp4-6.

Finding 17

The Department of Environment and Conservation policy requires that:

- high and medium high risk premises are inspected annually and the target is that these inspections are met 100 per cent;
- medium risk premises are to be inspected once every three years but the target set annually is for only 50 per cent of these to be completed;
- low risk premises are to be inspected every five years but the target set is for only 20 per cent of these to be done; and
- a similar inspection frequency and target is set for registered premises.

The average performance by the Department over the nine months to April 2007 was that 28 per cent of these annual targets had been met.

DEC's evidence of its failure to meet inspection targets reflects concerns raised in numerous submissions to this inquiry that DEC's industry regulation is grossly inadequate.

Finding 18

Industry regulation by the Department of Environment and Conservation is grossly inadequate.

The context of these inadequacies was explained by the Department as follows:

The Department is funded to undertake ... functions (referred to as industry regulation) through the appropriation of revenue from fees for licences, works approvals and registrations. (Some premises only require registration without prescriptive conditions applied and are managed through the general regulations under the Act). The Department does not receive separate Consolidated Funding for these functions.

DEC's industry regulation program is funded solely from net appropriated fees from licences, works approvals and registrations. Revenue from this source is budgeted at about \$8 million for 2006/2007.

Established FTE's for this program total about 75 staff, including both professional and administrative staff. Of these staff, 52 are located in the Department's Regional Services Division (27 metropolitan based and 25 in country areas, 4 of whom are currently in the South Coast Region), 19 in head office with an additional 3.5 FTE's in specialist technical areas such as marine, air quality and noise. It is stressed that whilst these are the established positions, there are approximately 14 vacancies at present both due to

resignations and some positions not being currently funded. The South Coast Region currently has one vacancy.

Recent attempts to recruit staff at levels 5 and 6 (about 6-8 years experience) have been problematic with no suitable external applicants.

...

DEC is facing difficulties in recruiting and retaining experienced staff, particularly in regional centres. While this is a common problem in Western Australia with the resources boom, it is particularly acute in industry regulation. Experienced regulatory staff are highly sought after by private enterprise to coordinate environmental approvals and undertake company environmental compliance.¹⁸²

The submission of the Civil Service Association of WA lends support to DEC's analysis:

The Union contend that the following negatively impact upon DEC's ability to audit/monitor compliance with license conditions and undertake investigations/prepare prosecutions. These issues are not only pertinent to the present inquiry, but to the operations of DEC throughout the state. In the submission we distinguish between the licensing (approvals process), audit/monitoring of compliance with licences, and investigations which may lead to prosecution. All three (3) roles are performed by environmental officers (EO) based in DEC regional workplaces:

- *Inadequate numbers of appropriately qualified and experienced EOs.*
- *DEC's inability to replace qualified and experienced staff (when they leave) with officers having similar levels of experience.*
- *Inadequate training and mentoring for EOs.*
- *The high workloads of EOs (and others involved in licensing/compliance/investigations)*
- *The turnover of staff in key positions and the loss of staff to the private sector.*
- *The restructuring history of the Department.*
- *A focus on the assessment, drafting and issuing of licenses (approvals), to the detriment of monitoring/compliance.*
- *The expectation that licence holders will self regulate and continually update DEC of developments.*

In consequence of these assertions the Union calls for the Government to reassess the resources allocated to DEC to undertake its functions, and an internal review by DEC of how it allocates resources [to] re gain public confidence in its compliance and

¹⁸²

Submission No. 27(a) from DEC, 26 April 2007, pp4,6.

*investigations roles. The Union seeks a significant increase of (qualified and experienced) officers undertaking EO roles, and any activity related to licensing and/or compliance and/or investigations. We see the need for improved training courses for EOs and for DEC to commit to back filling positions when officers are training.*¹⁸³

Others, in submissions and hearings before the Committee, also emphasised factors beyond simply resourcing issues. The Committee has been informed that many people are attracted to work for DEC irrespective of the income because of the sophisticated and challenging nature of the work and the training opportunities. The Committee were advised that a key factor in the inability of DEC to retain staff has been that employees feel *'unable to do the job they are employed to do'* and become *'either an apologist or a spin doctor'*. This was related to a lack of a *'compliance culture'* in the Department, and the dust monitoring method nominated for the Esperance Port by DEC, with the absence of any compliance targets associated with it, was cited as an example.¹⁸⁴ Another submission, from Dr Iain Cameron, a former Senior Environmental Scientist with the Department of Environment, makes a similar point:

*The License issued to the EPA [Esperance Port Authority] provides no protection to the physical and human environment from lead or other mineral pollutants in the environs of its operating facility. There are no action statements or requirements for lead or other minerals being detected beyond the EPA operational boundary.*¹⁸⁵

The specific issue of dust monitoring at the Port is discussed further in Chapter 7, but the style of regulation by DEC in the Esperance instance is, the Committee has been told, a systemic problem. For example, Ms Shirley Birney wrote:

... the cause and effect of lead pollution in the Esperance area is not an isolated instance of neglect but is part of a system and framework within, where these abuses are inevitable.

There is overwhelming evidence that the self-regulation and voluntary measures adopted by industry is not sufficient to guarantee community safety and an effective legal framework is yet to be adopted by successive governments within this state... DEC operates its agency without regard for affected communities or the environment.

The lack of emissions control and the reluctance by the Department of Environment and Conservation, to enforce regulations, by minimizing the Conditions in Licences, have significantly impacted on the welfare of residents and their amenities.

...

The DEC has a culture of non-enforcement. They are continually ignoring environmental damage perpetrated by many varying pollutant industries...

¹⁸³ Submission No. 58 from Civil Service Association, 25 May 2007, pp2,3.

¹⁸⁴ Closed evidence.

¹⁸⁵ Submission No. 50 from Dr Iain Cameron, 17 May 2007, p2.

It appears the DEC's overriding aim is to serve the interests of industry. Despite the enquiry over the disastrous Bellevue catastrophe and the hundreds of DEC publications "educating" citizens on environmental issues, many of us believe the DEC and the DOH [Department of Health] remain complicit in the vandalism of the environment and community health.

Unfortunately, successive state governments, imbued with the ethos of development and large-scale projects, have yet to grasp the depth of public concern for environmental protection and the scales continue to be tipped towards industry at all costs.¹⁸⁶

A number of submissions to the Committee allege that DEC officers have a deliberate intent to collaborate with industry against community interests. For example, Mr R Kean wrote:

...the Department of Environment from the conduct of their behaviour ... deliver a clear perception that they knowingly and willingly participate in failing to enforce the laws and licence conditions providing special privileges for selectively favoured parties of industry to operate outside the statutory laws and licence conditions...

It is a worrying concern as to the repetitive nature of their devious administrative conduct and the overall extent of undue and unnecessary harm being extensively caused with no concern or compassion in relation to what they are doing other than to serve the vested interest of the industry at the expense of damage and harm to the community and the environment.¹⁸⁷

The Kwinana Progress Association Inc. and Kwinana Watchdog Group wrote:

After all these inquiries/reviews the sad fact is that on the ground little has changed with the DEC. We still see an inept government department more willing to work against community groups like ours in protecting industry at any cost. The DEC now more than ever treats community right to know with contempt. Those community groups like ours involved on a day to day basis have no faith whatsoever that this department is capable of protecting our families from environmental harm. In our view the main problem with the department is its culture. This culture within the DEC, despite all the reviews and claimed improvements, remains unchanged.

We in Kwinana have numerous examples of a careless attitude by the DEC towards a community at risk from pollution and a department with a protect industry at any cost attitude.

...

¹⁸⁶ Submission No. 52 from Ms Shirley Birney, 22 May 2007, pp1,8.

¹⁸⁷ Submission No. 84 from Mr R Kean, 25 May 2007, p1.

*We constantly hear that there is a resources problem with the DEC. However, we strongly believe that the culture problem is the most serious and also believe that nothing will change until this culture problem within the DEC is satisfactorily addressed.*¹⁸⁸

A proper consideration of the volume of evidence available on these issues has been beyond the scope of the current inquiry, given its limited timeframe. One of the options available to the Committee was to endorse the call for a further inquiry into DEC as suggested in some submissions. The Committee has decided not to do so for a variety of reasons elaborated in the following sections of the Report.

Its reasons, in summary, are that DEC has been subjected to numerous reviews, audits and restructures in recent years, and is currently undergoing another independent review of the Department's audit and inspection processes for the Esperance Port to identify what is required to improve those processes. This latest review was announced by the Minister for the Environment, the Hon Mr David Templeman, MLA, on 4 April 2007.¹⁸⁹ It is the Committee's view that environmental protection in this State would be best served by DEC officers having the opportunity to consolidate their capacities and to focus on core business, without the distraction of an additional inquiry with the potential for further restructuring.

This conclusion was influenced largely by the detailed examination of the evidence available to the Committee on the Esperance matter. There is without doubt evidence that numerous opportunities which may have prevented or limited the lead pollution in Esperance were not adequately pursued by DEC. Despite the sometimes vigorous examination of DEC's actions, such as its failure to implement the September 2005 advice of the Department of Health concerning dust monitoring and other licensing conditions at the Esperance Port, the Committee found no evidence of collusion between DEC officers and industry. Instead the significant factors contributing to these failures appeared to the Committee to be:

- the lack of a '*compliance culture*' in the Department, referred to previously;
- a lack of continuity in Departmental organisational structures which served to significantly limit corporate knowledge and which engendered inexperience; and
- a critical lack of resources which can only be justified if industry self-regulation is effective.

The Committee has attempted to address each of these factors through this Report, particularly in Chapter 10.

¹⁸⁸ Submission No. 92 from Kwinana Progress Association Inc. and Kwinana Watchdog Group, 8 June 2007, p5.

¹⁸⁹ Hon Mr David Templeman, Minister for the Environment, WA, Legislative Assembly, *Parliamentary Debates (Hansard)*, 4 April 2007, p1203.

(ii) Restructures, reviews and audits

As indicated the Committee does not believe it is currently in the interests of environmental protection in this State to subject DEC to further inquiry, investigation or restructuring at this time. While recent restructures, reviews and audits have had significant and beneficial outcomes, these also come at a cost.

The list of recent reviews, audits and restructures impacting on DEC in recent years is as follows:

- **July 2001:** The Department of Environmental Protection (DEP) and the Water and Rivers Commission amalgamate to operate as a single agency, officially known as the Department of Environment, Water and Catchments Protection (DEWCP).
- **August 2002:** Internal DEP rearrangements of workloads resulted in the transfer of management of the Esperance Port Authority file and others from Kalgoorlie to the Albany Regional Office of DEP.
- **February 2003:** DEP received the ‘Welker Review’, *Western Australian Licensing Review - Independent Strategic Review*. DEP reported that *‘The Welker review’s key objective is to reformat licences to ensure they are more relevant, understandable, legally enforceable and consistent with current DEP policies.’*¹⁹⁰ The Civil Service Association stated that its members believed that a consequence of the review was that DEP:

*became too focussed on the assessment, drafting, and issuing of licences. Training and operational priorities were reviewed to achieve these objectives... this also resulted in a lesser focus on monitoring/compliance/investigations and the skill sets for those activities.*¹⁹¹

- **February 2003:** DEP also received the ‘Robinson Review’, the *Review of the Enforcement and Prosecution Guidelines*. The Review found:

In summary, the Guidelines were found to be largely similar to those published in other states, but the language and tone could lead to an interpretation that the role of enforcement was de-emphasised in the Department’s overall approach and that, in particular, the barriers to prosecution were overemphasized compared to the benefits... While simple comparisons with other states can be misleading, the population based pro rata prosecution rate under the Environmental Protection Act 1986 (and indeed the rate of other punitive enforcement measures) appears to be below that which would be expected, drawing on the experience in the larger States, of what constitutes effective enforcement... The review has concluded that there is a lack of clarity about the role of enforcement within the Department, that there is inadequate connection between enforcement activities and other activities related to the same premises, that there is confusion on the role of prosecutions, that enforcement and prosecution skills need enhancing and that there is a need

¹⁹⁰ DEC, ‘Community Information Open Day, Fact sheet 9 Industry licensing reform’, [undated].

¹⁹¹ Submission No. 58 from Civil Service Association, 25 May 2007, p9.

*for greater transparency and communication with the community. The enforceability of licence conditions and the requirements in notices and other statutory instruments has at times been an impediment to effective enforcement.*¹⁹²

The Civil Service Association submission stated that the resulting establishment of the Environmental Enforcement Unit (EEU) was described by its members as 'beneficial' but as placing:

*the burden on EOs and other field operatives to collect/assess evidence, and prepare statements/prosecution briefs to the new standards set by [the] EEU. The EOs view these requirements as too onerous given their other duties. Some members assert licence approvals, compliance monitoring, and investigations are three (3) specialised roles, unable to be adequately performed by one EO.*¹⁹³

- **30 June 2004:** The Department of Environmental Protection became the Department of Environment (DoE). This was described by the CEO of DoE as 'a big step towards becoming the single entity following the amalgamation of the former DEP and the Water and Rivers Commission under the State Government's machinery of government reforms'.
- **October 2005:** The Department of Water was established. Reversing the previous five years of amalgamation, DoE started to operate as a separate agency, although certain functions continued to be delegated to the Water and Rivers Commission/Department of Water until September 2006.
- **23 March 2006:** DoE received the *Review of the Organisation of the Department of Environment*. The review was commissioned because the recent separation of DoE and DoW required 'major adjustments to management and service delivery arrangements, and organisation structures'.¹⁹⁴ Major conclusions and recommendations related to the Departments' strategic vision, organisational structure and management reform. DEC advised that this was superseded by the formation of DEC.¹⁹⁵
- **1 July 2006:** The Department Environment and Conservation (DEC) was established. The new Department was the result of the amalgamation of the Department of the Environment (DoE) and the Department for Conservation and Land Management (CALM).
- **8 January 2007:** DEC received a draft audit report, *Audit of Waste Discharge Licensing, Works Approvals and Registration Functions*. The draft audit identified a 'lack of comprehensive and user friendly policies and procedures' and 'ineffective monitoring' of

¹⁹² Robinson, B, *Review of the Enforcement and Prosecution Guidelines of the Department of Environment*, February 2003.

¹⁹³ Submission No. 58 from Civil Service Association, 25 May 2007, p10.

¹⁹⁴ Pollett, C, Cipher International Pty Ltd and C Welker, Stratagem Environmental Consultants, *Review of the Enforcement and Prosecution Guidelines of the Department of Environment*, 23 March 2006.

¹⁹⁵ DEC, *Addendum to Transcript of Evidence*, Answers to Questions, Hearing 5 June 2007, p1.

less experienced officers in the regions, as well as *'inadequate controls over licence inspections'* as high priorities for the Department to address.¹⁹⁶

- **4 April 2007:** The Minister for the Environment announced an independent review of the Department's audit and inspection processes for the Esperance Port to identify what was required to improve those processes.

As stated, it is the Committee's view that environmental protection in this State would be best served by DEC officers having the opportunity to consolidate their capacities and to focus on core business, without the distraction of an additional inquiry with the potential for further restructuring. The detailed examination of the evidence available to the Committee on the Esperance matter indicated that the lack of continuity in Departmental organisational structures which significantly limited corporate knowledge and engendered inexperience, contributed adversely to the effectiveness of DEC's industry regulation. The details of this evidence are discussed in Chapter 10.

Finding 19

Environmental protection in this State would be best served by officers of the Department of Environment and Conservation having the opportunity to consolidate their capacities and to focus on core business, without the distraction of an additional inquiry with the potential for further restructuring.

(iii) Funding DEC's industry regulation function

The Committee noted DEC's advice, highlighted previously, that its industry regulation function was funded solely through the appropriation of revenue from fees for licences, works approvals and registrations.¹⁹⁷ The Department advised that revenue from this source was budgeted at about \$8 million for 2006/2007 and that it does not receive separate Consolidated Funding for these functions.

DEC's advice was also that it was substantially failing to meet its licensing inspection targets, which are set considerably lower than 100 per cent compliance for medium and low risk premises. Only 28 per cent of the annual inspection target set was met in the first nine months of 2006/07,

¹⁹⁶ Stamfords, *Draft Audit Report - Audit of Waste Discharge Licensing, Works Approvals and Registration Functions*, 8 January 2007.

¹⁹⁷ *'Net appropriation'* for DEC's industry regulation function was introduced in 2002/03. The introduction of this financial policy did not appear to result in any reduction in the amount of funding, which had previously been taken from Consolidated Revenue. The 2003/04 Budget Papers indicate that the pollution regulation budget for 2002/03 was \$5,586,000; the net appropriation licence revenue in 2003/04 was \$6,008,000 - although there were substantial additional funds also made available from Consolidated Revenue, but for activities not generally related to the actual industry licensing and inspection program (Email from Mr Kim Taylor, Acting Deputy Director General, Environment, DEC, 20 July 2007).

and it appears there is a Departmental focus on the processing of applications as opposed to the monitoring compliance once licenses are issued. This is perhaps not surprising when there are 860 licensed premises,¹⁹⁸ a total of 75 positions across the State involved in industry regulation, 14 of which are vacant; and just 25 such positions in country areas, including administrative support and management positions.

The Committee noted the announcement by the Minister for the Environment that fees payable for the State's licensed premises will be increased by approximately 50 per cent over the next two years.¹⁹⁹ The review of fees was initiated, the Minister advised, prior to his appointment in March 2007 and had been underway in the lead-up to the setting of the budget for 2007/08.²⁰⁰ Given the current fees settings, however, the Committee believes that such an increase will not, of itself, be adequate to ensure that DEC is resourced to adequately fulfil its industry regulation function in relation to licensed premises.

This is evident in the context of the fees payable by the Esperance Port to DEC for its annual environmental licence. As the Minister highlighted, this was \$1,125 per annum.²⁰¹ At the time, the Port was assessed as a medium risk facility requiring a compliance inspection every three years, and within a category identified by DEC in its inspections targets as only being met 50 per cent of the time.²⁰² Even if the ranking of the Port as a medium risk facility, which therefore required inspection every three years and was targeted to be met half the time, was not problematic, it is not feasible to believe that the fee payable by the Port could remotely cover the costs associated with the environmental licensing of the Port. The DEC regulatory function included responding to ongoing community complaints about odour and dust associated with the Port, monitoring a two year rainwater testing program, reviewing what were initially six-monthly, and later, annual environmental reports, and inspections. The Port was also undergoing rapid development and although works approvals were subject to additional fees, in some cases an assessment was made that this was not required.²⁰³ Variations to the Port's environmental licence, such as the addition of the bulk handling of lead carbonate or increasing the amount of iron ore being handled by the Port from four to eight million tonnes a year, were without charge.²⁰⁴ The costs of all of these processes would be increased by costs associated with administration, resourcing, management, travel and any specialist technical advice that might be considered essential to the adequate monitoring of a complex operating facility such as the Port.

¹⁹⁸ Although not all are subject to an inspections regime by DEC.

¹⁹⁹ Minister for the Environment, Media Statement 'Industry to cover the cost of environmental compliance', 24 May 2007.

²⁰⁰ Hon Mr David Templeman, MLA, Minister for the Environment, *Transcript of Evidence*, 5 June 2007, p2.

²⁰¹ *ibid*, p3.

²⁰² Submission No. 27(a) from DEC, 26 April 2007, p6.

²⁰³ For example, the Port's application to construct the new 'lead shed' was assessed under existing guidelines as not substantial and the fee of \$4,575 was refunded to the Port (Letter from Program Manager, South Coast to Esperance Port Authority, 28 November 2005).

²⁰⁴ DEC, *Addendum to Transcript of Evidence*, Answers to Questions, Hearing 5 June 2007, p2.

It appears unlikely to the Committee that an increase of even 50 percent of the fee payable is going to cover the costs of existing efforts by DEC to regulate the Port even if it were correctly assessed as a medium risk facility. The increase certainly would not be sufficient to contribute to the Department meeting its targets, such as they are, more broadly, let alone allow for a reappraisal of the adequacy of a compliance inspection every three years for a medium risk facility. The Committee notes the advice of the Minister for the Environment that DEC is reviewing the licensing fees payable by Ports,²⁰⁵ but believes the issue is a broader one.

Finding 20

Recently announced increases of fees payable for licensed premises under the *Environmental Protection Act 1986* are unlikely to ensure sufficient resourcing for the Department of Environment and Conservation to undertake adequate industry regulation.

Recommendation 7

The Committee recommends that the Department of Environment and Conservation should be adequately funded to allow the Department to cover the true cost of its industry regulation function. This should include meeting its inspection targets and for these targets to appropriately reflect the degree of risk associated with licensed premises. Funding should be either by a policy of full cost recovery or in part augmented from consolidated revenue.

(b) Environmental Protection Authority

The Environmental Protection Authority provided that following evidence to the Committee on its role and responsibilities, as relevant to this inquiry:

Role of the EPA under Part IV of the Environmental Protection Act 1986

Part II of the Environmental Protection Act 1986 (the EP Act) establishes the Environmental Protection Authority (EPA) as the Government's principal adviser on environmental matters.

Under Part IV of the EP Act the EPA is given the specific function of assessing the likely effects on the environment of new proposals for development and advising the government on whether or not the proposals should proceed and, if so, under what environmental conditions of approval.

²⁰⁵

Hon Mr David Templeman, MLA, Minister for the Environment, *Transcript of Evidence*, 5 June 2007, p3.

Section 38 requires certain persons to refer proposals likely to have a significant effect on the environment to the EPA, which then decides whether environmental impact assessment is required. The EPA sets a level of assessment and advises the proponent of its requirements for the conduct of the assessment. The proponent prepares documentation outlining the proposal, its likely impacts on the environment, steps that have been taken to minimize or mitigate those impacts and management that is proposed of the remaining impacts.

The proponent's documentation is made public and submissions invited. The proponent is required to respond to the matters raised in submissions received on the proponent's document. The EPA then assesses the proposal, including the submissions and responses and reports publicly (in a "Bulletin") to the Minister for the Environment on its assessment, whether or not the proposal should proceed and, if so, what conditions should be attached to any approval to ensure the environment is protected from the impacts of the proposal. Anyone may appeal to the Minister against the EPA's report and recommendations.

The Minister determines any appeals and, if approving the proposal, issues a statement that the proposal may be implemented, listing any environmental conditions to which that approval may be subject. The proponent may appeal the decision. Once finalized, these conditions must be complied with by the proponent in implementing the proposal.

If the proposal changes, there are two options for dealing with the matter. If the proposed change to the proposal is not expected to have a significant detrimental effect on the environment in addition to or different from the effect of the original proposal, and can be implemented without changing the existing conditions of approval, the Minister is empowered under section 45C of the EP Act to approve the variation. Alternatively, if the revised proposal is likely to have a significant detrimental effect on the environment in addition to or different from the original proposal, it may warrant a new assessment by the EPA.

If the proposal requires a change of the conditions of approval, the Minister can request the EPA, under section 46 of the EP Act, to review and report on whether or not the conditions should be changed.

The EPA is supported in undertaking its statutory functions by staff of the Department of Environment and Conservation (DEC).²⁰⁶

The Environmental Protection Authority's conduct of its functions in relation to the 'Magellan Project' is examined in some detail throughout this report, particularly in Chapters 5 and 6. The analysis in those chapters supports other evidence before the Committee that indicated that DEC's capacity to monitor the implementation of Ministerial Statements²⁰⁷ issued as a result of

²⁰⁶ Submission No. 17(a) from Environmental Protection Authority, 26 April 2007, pp1,2.

²⁰⁷ Following assessment of a project under Part IV of the *Environmental Protection Act 1986*, the Ministerial Statement issued by the Minister for the Environment sets out the conditions and proponent commitments which have to be satisfied to allow the project to proceed. The conditions and the commitments are legally binding.

Environmental Protection Authority processes was likely to significantly impede their effectiveness. Known as 'Part IV' approvals under the *Environmental Protection Act 1986*, the Committee was advised by a former Manager of the Environmental Audit Section of DEC, Ms Lisa Chandler, that there were just five auditors, with an annual operational budget of \$400, to audit 490 major projects.²⁰⁸ This, Ms Chandler advised, compared to ten times as many officers who were assigned to project assessments.

In his evidence before the Committee, the Minister for the Environment, the Hon Mr David Templeman, MLA, conceded that his Department had recognised inadequacies in the current assessment, auditing and monitoring under Part IV of the *Environmental Protection Act*.²⁰⁹ It should be noted that Part IV processes apply to those projects which are assessed as being 'likely, if implemented, to have a significant effect on the environment'.²¹⁰ The Part IV implementation statements, the Minister advised, do not attract a fee and no fee is currently associated with the assessment, audit and monitoring approvals for the 500 projects that have been assessed and approved over the past 20 years that have current approvals. The conditions of approval of these projects generally require that they submit a periodic compliance report to DEC in accordance with an approved audit program.

The Minister advised that since last year, a new condition has been added to approvals, which requires the CEO, or another approved senior officer, to sign off. The Minister also advised that it had been drawn to his attention that DEC recognises that an increased auditing and compliance monitoring of Part IV approvals under the *Environmental Protection Act 1986* is required and is now reviewing how additional resources can be applied to this function.²¹¹

Finding 21

The current monitoring of compliance by those projects assessed as likely to have a significant environmental impact under Part IV of the *Environmental Protection Act 1986* is inadequate.

Recommendation 8

The Committee recommends that compliance monitoring of those projects assessed as likely to have a significant environmental impact under Part IV of the *Environmental Protection Act 1986* should be adequately funded.

²⁰⁸ Submission No. 12 from Ms Lisa Chandler, 25 April 2007, p3.

²⁰⁹ Hon Mr David Templeman, MLA, Minister for the Environment, *Transcript of Evidence*, 5 June 2007, p2.

²¹⁰ *Environmental Protection Act 1986*, section 37B.

²¹¹ Hon Mr David Templeman, MLA, Minister for the Environment, *Transcript of Evidence*, 5 June 2007, p2.

(c) Department of Health

The Department of Health (DOH) provided the following evidence to the Committee on its role and responsibilities, as relevant to this inquiry:

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.²¹²

²¹²

Submission No. 18(a) from Department of Health, 26 April 2007, p2.

The Committee had two key concerns relating to the role and responsibilities of the Department of Health as outlined, and consideration of these follows.

(i) The Department's legislative powers

The first relates to the only legislative mechanism directly available to the Department of Health to assist with the detection and subsequent control of lead poisoning outbreaks; the *Health (Notification of Lead Poisoning) Regulations 1985* (WA) made under Part IXA of the *Health Act 1911* (WA). The Department indicated it had received no notifications under these provisions in relation to the Esperance incidence.

The Committee had concerns about this and investigated the legislative provisions further with the Department of Health. It explained:

Regulation 3 of the Health (Notification of Lead Poisoning) Regulations 1985, made under Part IXA of the Health Act 1911 (as amended), defines "lead poisoning" as meaning any "acute or chronic poisoning by taking of lead into the body".

Regulation 5(1) requires a medical practitioner who attends a person who is or may be suffering from lead poisoning to inform the Executive Director, Public Health (EDPH). As the sampling was initiated by the Department of Health and PathWest reported all results to EDPH, EDPH is satisfied that this requirement has been met.

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.

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.²¹³

The Committee notes that the Department of Health was satisfied that the legislative requirement was met in the Esperance incidence. However, it appears to the Committee that in different circumstances, the existing legislative provisions available to the Department of Health may not be adequate to respond appropriately to public health emergencies. The Committee notes, for example, that the Department need only be notified of elevated blood lead levels where these constitute 'poisoning'. In Esperance not one person who was tested had reached this level of exposure.

It also appears to the Committee that the absence of a legislative ability to require persons to seek medical attention or to undertake blood or other medical tests has the potential to seriously impede

²¹³ Department of Health, *Addendum to Transcript of Evidence*, Answers to Questions, Hearing 5 June 2007, p5.

the Department's effectiveness in responding to circumstances of potentially wide-spread public health emergencies. This is an issue that warrants further assessment and debate.

Finding 22

The Committee is concerned that the existing legislative provisions available to the Department of Health may not be adequate to respond appropriately to public health emergencies.

While the Committee has not been in a position to pursue this concern further with the Department of Health, the Esperance incidence provides an opportunity for the Department to review the adequacy of the existing legislative provisions.

Recommendation 9

The Committee recommends that the Department of Health review the adequacy of existing legislative provisions available to the Department to respond to public health emergencies in light of its experiences in responding to lead pollution in the Esperance area. Its findings should be reported to the Minister for Health, with a view to initiating legislative amendment processes if required.

(ii) *The Department's role in environmental approvals*

The Department of Health has indicated that it currently has only an advisory role in the environmental approval process. It is disheartening to this Committee that this remains the case as the same issue was addressed by the Economics and Industry Standing Committee five years ago when it tabled its report on the Bellevue Hazardous Waste Fire. It recommended that there be a legislative role for the Department of Health to be involved in the health impact assessment within the Environmental Assessment Process.²¹⁴ The State government response was tabled in October 2002, and an undertaking was made to issue a discussion paper outlining the various options for adopting a Health Impact Assessment into the Environmental Impact Assessment process within the *Environmental Protection Act 1986* by September 2003. The Committee records that the discussion paper on this proposal was issued by the Department of Health on 15 June 2007.

The Committee notes the concerns expressed to it by the Chamber of Minerals and Energy that the proposal for the Department of Health to have a specific and separate role in the approvals of resource projects was unnecessary and contrary to the recommendations of the Keating review. It

²¹⁴ Legislative Assembly, Economics and Industry Standing Committee, *Bellevue Hazardous Waste Fire Inquiry - Report No. 2, 2002*, Recommendation 8.

believed that existing regulations - covering environmental, planning, local government, dangerous goods, and occupational health and safety approvals - could accommodate that input from the Department of Health.²¹⁵ These concerns were put to the Department of Health and its response was:

The Department believes that the most effective way of ensuring that health advice is taken up by both government agencies and industry is through the introduction of a legal requirement for Health Impact Assessment (HIA). The World Health Organisation recommends that HIA be incorporated into planning and approvals processes. HIA is at various stages of implementation across Australia; however, if successful, Western Australia would be the first jurisdiction to complete implementation of this important process.

*The DOH is aware of some resistance from industry to the proposed introduction of a Health Impact Assessment process and is intent on minimising the impact on the timing of approvals processes.*²¹⁶

The Committee believes that there is some merit to the Chamber's view that existing processes should be able to accommodate input from the Department of Health. However, there were ultimately failures to do so in relation to the events that are the subject of this inquiry.

An example of this is the Department of Health's advice about the risks and management of transporting the Magellan lead concentrate. The Department first raised its concerns in 1999 as part of the environmental approval process conducted by the Environmental Protection Authority. The Environmental Protection Authority had decided that the Magellan proposal should be subject to a Consultative Environmental Review (CER) which required the proponent, Magellan Metals Pty Ltd, to issue a document for the purposes of public consultation.²¹⁷ Prior to developing this document, the Environmental Protection Authority sought advice from relevant agencies about the scope of the review to be covered in the CER document. The Department of Health provided formal advice, on 4 May 1999, that there needed to be a management strategy to minimise the lead dispersal and for the containment of lead during transport. The Department then provided comment on the CER document for the Magellan Project on 11 October 1999. Amongst other things, the Department highlighted that:

The 670 km journey by road train may reduce moisture content of the ore concentrate, given the average regional summer temperatures exceed 35 °C. Although the unloading of

²¹⁵ Submission No. 71 from Chamber of Minerals and Energy, 25 May 2007, pp2,3.

²¹⁶ Department of Health, *Addendum to Transcript of Evidence*, Answers to Questions, Hearing 5 June 2007, p4.

²¹⁷ This level of assessment was typically applied to proposals of local significance that raised a number of significant environmental factors, and was the lowest level of assessment required under the Environmental Protection Authority's environmental review processes. The Public Environmental Review (PER), for example, was typically applied to proposals of local or regional significance that raised a number of significant environmental factors, some of which are considered complex and require detailed assessment to determine whether, and if so how, they can be managed. The PER document was released for a period of normally between four and eight weeks public review.

kibbles is not anticipated to generate dust ... a decreased moisture content of the concentrate would increase this possibility.

Magellan responded to these concerns by advising that *'additional testwork has shown that the moisture content will be 12% not 8%... Unloading the kibbles will occur in an enclosed area'*, but it made no reference to the Dangerous Goods legislation.²¹⁸ In the Environmental Protection Authority's subsequent 'Summary of identification of relevant environmental factors', however, concerns about transport were responded to by reference to the *Explosives and Dangerous Goods Act 1961* (WA), which was described as requiring transport and safety procedures. Reference was also made to a Health, Hygiene and Environment Management Plan (HHEMP) which was to address the transport issue, and that sampling would be done along the transport route. The outcome recorded was that this factor did not require further Environmental Protection Authority evaluation.²¹⁹

The Environmental Protection Authority issued Bulletin 996 recommending that the Minister approve the Magellan proposal subject to a number of conditions, one of which was the development of a HHEMP. The HHEMP was to address a number of issues including emergency response procedures for spills along the transport route. Reference was made to the *Explosives and Dangerous Goods Act* administered by the then Department of Minerals and Energy (DME) as another applicable regulatory mechanism, and the Bulletin stated that the proponent would be required to comply with that Act in respect to the handling and transport of the lead product.²²⁰

The Department of Health wrote to the Environmental Protection Authority on 25 October 2000 seeking to review the dust and sampling plan for the Port through which the Magellan concentrate was to be exported, and to be able to review the HHEMP when available. The Minister for Health wrote to the Minister for the Environment on 6 November 2000 requesting that the Department of Health be identified as being required to give advice to the Environmental Protection Authority on the adequacy of the HHEMP in the formal approval conditions for the project.

The Minister for the Environment approved the Magellan proposal on 28 November 2000 with the conditions and commitments recommended by the Environmental Protection Authority, and subject to the Department of Health being nominated to give advice on the adequacy of the HHEMP.

On 14 May 2001, the Department of Health wrote to DEP to clarify its role in relation to assessing compliance with commitments and reporting such compliance to DEP. The Department of Health indicated that its role is advisory only, and stated that in terms of DEP's own auditing of Magellan's compliance, the proponent should outline mechanisms for controlling dust and lead

²¹⁸ Letter from Mr Trevor Watters, Feasibility Manager, Magellan Metals to Mr M Jefferies, Director, Evaluation Division, DEP, 21 November 1999.

²¹⁹ Environmental Protection Authority, *Magellan Lead Carbonate Project - Report and recommendations of the Environmental Protection Authority*, (Bulletin 996), September 2000, Appendix 3.

²²⁰ *ibid*, p20.

'tailings emissions' so that there was no risk to public health whilst the lead carbonate was being transported.

The Department of Health then had the opportunity to comment on Magellan's HHEMP and the Department's advice to Magellan on 8 November 2004 included reference to:

Experience with other projects has shown that dust generation may occur during transportation and transshipment of concentrate. Magellan metals should be required to conduct a risk analysis and establish a monitoring program along the transportation route to and including the port facility with particular attention to rainwater tank contamination.

When the HHEMP was finalised in November 2004, Magellan committed to ongoing roadside monitoring surveys on a yearly basis and sampling of rainwater tanks within 50 metres of the proposed route initially and ongoing, as well as a:

*formal risk assessment ... when the transport route and port facilities selection has been finalised. This risk assessment shall identify key risks relating to the transport operations, and facilitate the development of controls and emergency response procedures.*²²¹

This issue is discussed further at Chapter 5.1(d), however, it appears that after all of this, extraordinarily, Magellan did not conduct the formal risk assessment and nor did it monitor the transport route or sample rainwater tanks along the route. Moreover, these omissions were not noted by DEC, when it assessed Magellan's Environmental Management System and environmental reports.

As the results of studies of lead pollution along the transport corridor have not yet been completed, the affect of this apparent failure to heed the advice of the Department of Health cannot be assessed. However, the Committee believes that there is a recurrent theme throughout the events that are the subject of this inquiry and that is a failure to place public health considerations on the same basis of other considerations. It appears to the Committee that the absence of monitoring along the transport route as recommended by the Department of Health, and other issues referred to previously such as the lack of compliance targets for dust monitoring in DEC's licensing conditions for the Esperance Port, the existing formulation of port authorities' functions under the relevant legislation, and perhaps even the delay in instigating the Health Impact Assessment discussion paper, indicate a failure to act with any urgency on public health issues by a range of government agencies.

It is of note that in his consultation draft on the review of the *Mines Safety and Inspection Act 1994* in 2002, Mr Robert Laing noted:

*The involvement of the broader community in matters previously only the concern of parties in the [mine's] workplace is also an issue that will increasingly impinge on the Department [of Industry and Resources].*²²²

²²¹ Environmental Protection Authority, *Magellan Lead Carbonate Project - Report and recommendations of the Environmental Protection Authority*, (Bulletin 996), September 2000, p24.

This view was echoed in a number of submissions received by the Committee, referred to previously, which alleged the broader failure of government agencies, in particular DEC, to address the impact of resource developments on nearby residents and communities.²²³

On balance the Committee is persuaded that the Department of Health's position, that it be given a defined legislative role in the approval of resource proposals, should be supported.

Finding 23

There were critical failures by the Environmental Protection Authority, the Department of Environment and Conservation and Magellan Metals Pty Ltd to implement Department of Health recommendations and advice in the environmental approval processes associated with the events that are the subject of this inquiry.

Recommendation 10

The Committee recommends that there be a legislative requirement for the Department of Health to conduct a health impact assessment as part of the Environmental Assessment Process.

(d) Department of Consumer and Employment Protection/Department of Industry and Resources

The Department of Consumer and Employment Protection provided the following information as background on its role and responsibilities as these are relevant to the current inquiry. The background includes a description of the past and current roles of the Department of Industry and Resources.

Mining Operations

To assist the Committee set out in this submission is the legislative processes that would be required for Magellan Metals to commence mining operations.

²²² Laing, R, *Review of the Mines Safety and Inspection Act 1994 - Consultation Draft*, 2002, p139.

²²³ The Committee does not mean to imply that its proposal to implement the HIA would be supported by those providing these submissions, many of whom were highly critical of the Department of Health.

A. Background to Resources Safety Division

1. The Department of Industry and Resources (DoIR*) which was previously Department of Minerals and Energy (DME) administered legislation including the Mining Act 1978 (MA) and the Mines Safety and Inspection Act (MSIA). The MA is essentially a system for registering titles to mining tenements. As part of the grant of a tenement for a mining lease environmental conditions applied. The MSIA provides for the regulation of occupational safety and health for workers on mining operations.

(* The Department of Industry and Resources (DoIR) was established on 3 February 2003 under the Public Sector Management Act 1994 (WA) by the redesignation of the Department of Mineral and Petroleum Resources and the transfer of functions from the abolished Department of Industry and Technology.)

2. The objective of the Mines Safety and Inspection Act 1994 (MSIA) is to promote and improve occupational safety and health for people who work in mines in Western Australia. It imposes a general duty of care to maintain safety and healthy workplaces at mines, protect persons at work from hazards and outlines the conduct required of people responsible for safety and health. The aim of the legislation is to make each person who works at a mining operation responsible for his or her own safety and the safety of others who would be affected by those actions.

3. The Safety Health and Environment Division of DoIR comprised:

- the Mining Safety Branch which administered the MSIA;
- the Dangerous Goods Branch which administered the Explosives and Dangerous Goods Act 1961 and the Dangerous Goods Transport Act 1998; and
- the Environment Branch which administered the environmental conditions of the MA under which the Minister may impose conditions on the granting of a mining tenement to prevent or reduce injury to the land.

4. In July 2005 the Government of Western Australia moved the Division (SHED [Safety Health and Environment Division] renamed Resources Safety Division (RSD)) which comprised the Mining Safety Branch and the Dangerous Goods Branch and the relevant legislation from DoIR to DoCEP. The Environment Branch remained with DoIR.

B. Application for a mining lease

Relevant legislative provisions

5. Section 6 of the Mining Act 1978 (MA) provides that:

(1) This Act shall be read and construed subject to the Environmental Protection Act 1986, to the intent that if a provision of this Act is inconsistent with a provision of that Act, the first-mentioned provision shall, to the extent of the inconsistency, be deemed to be inoperative.

6. Section 38 of the Environmental Protection Act 1986 in respect of referrals under the EPA [Environmental Protection Act] for environmental assessment, provides that:

(1) Subject to subsections (2) and (5j), any person may refer a significant proposal to the Authority.

“Significant proposal” is defined as ‘a proposal likely, if implemented, to have a significant effect on the environment’.

7. Section 74 (1)(ca) of the MA provides that an application for a mining lease must, *inter alia*, be accompanied by a mining proposal which is defined as a document which:

(a) is in the form required by the guidelines; and

(b) contains information of the kind required by the guidelines about proposed mining operations in, on or under the land in respect of which a mining lease is sought or granted, as the case requires;

8. The ‘proposal’ required under the MA is known as the Notice of Intent (NOI) and is submitted to Department of Industry and Resources [(DoIR) — at that time Department of Minerals and Energy (DME)] as part of the application for the lease.

...

G. Obligations of employer in respect of hazardous substances at a mine

26. Part 7, Division 3 of the MSIR deals with hazardous substances. Regulation 7.25 requires each responsible person at the mine to ensure that a register of all hazardous substances used or produced at the mine is kept and maintained. The register must set out -

a. details of all hazardous substances to which an employee may potentially be at risk of being exposed at each workplace at the mine; and

b. in respect of each hazardous substance -

i. the MSDS [Material Safety Data Sheet]²²⁴ for that substance; and

ii. details of any assessment and report under regulation 7.27.

27. Regulation 7.27 requires a risk assessment to be carried out in respect of the consequences to the health of any person exposed to hazardous substance at the mine and, if a significant risk is found, a written report must be prepared outlining the means by which that risk may be reduced. Regulation 7.29 requires the monitoring of atmospheric

²²⁴

A MSDS is a document that provides information about a hazardous substance and how it should be used and how to avoid harm when using it at the workplace and will include: the identity of the hazardous substance; chemical and physical properties; health hazard information; precautions for use; and safe handling information (DoCEP Guidance Note: Provision of Information on Hazardous Substances at Workplaces - MSDS, Available at: www.worksafe.wa.gov.au/newsite/worksafe/content/guidnotes/guidhazs0004.html Accessed 22 August 2007).

contaminants at a mine and regulation 7.30 mandates health surveillance, including biological monitoring, for all employees at a mine. ...

H. Inspectorate

28. *Western Australia is one of the most productive and diversified mineral regions in the world. It has over 400 commercial mineral projects embracing more than 700 individual operating mines (open pit and underground mines and quarries) and in excess of 140 processing plants with some 50 different minerals in commercial production. The mineral industry projects range from some of the largest surface and underground mines (and in the recent past, dredging operations) in the world to simple, one man sandpits and from technologically innovative and highly complex, large processing operations to simple gravity concentration plants using no reagents.*

29. *The Mines Safety Branch within Resources Safety has both general mines inspectors as well as specialist inspectors for such areas as plant, electrical and occupational health.*

30. *There are currently a total of 32 mining inspectors comprising:*

- *District Inspectors, and*
- *specialist inspectors, being*
 - *electrical,*
 - *mechanical,*
 - *geotechnical,*
 - *structural, and*
 - *employee inspectors*

In respect to Occupational Safety and Health inspectors there are a total of 7 inspectors comprising

- *Senior Engineer (Noise)*
- *Senior Scientific Officer (Radiation)*
- *Senior Occupational Hygienists*
- *Senior Occupational Health Inspectors*

...

32. *Section 4 of the MSIA defines “mining operations” to include:*

(f) *the crushing, screening, sorting, stacking and loading and handling of ore or other mining products at any road or rail terminal or any loading or transshipment points, including seaports.*

...

35. *The usual procedure when a port is designated as a mine is for Resources Safety to liaise with the stevedoring company, the persons responsible for loading and transporting the ore and with the personnel responsible for the sampling under the biological monitoring programs. In addition, the inspectorate investigates complaints and also talks to people on the ground at the port during inspections or investigations.*

DANGEROUS GOODS REGULATION

...

2. *In Australia, dangerous goods are defined by the Australian Dangerous Goods Code (ADG Code). The classification criteria used in the ADG Code is based on the United Nations Recommendations for the Transport of Dangerous Goods. Except for very small packages, all packages and containers, shipping containers, unit loads, tankers, etc. which hold dangerous goods for transport must carry the correct Class Label. This label (or diamond sign) shows the nature of the hazard by the colour and symbol, and the Class of the goods by numeral. The responsibility for classification of products lies with the manufacturer or person packaging the products.*

...

8. *The legislation is aimed at regulating the classification, marking, storage, and transport of dangerous goods in this State to ensure that these activities are carried out safely.*²²⁵

(More detail on DoCEP's regulation of dangerous goods is included in Chapter 11.2.)

(e) Main Roads Western Australia

Main Roads Western Australia had a limited role in relation to the events that are the subject of this inquiry, related to its role in issuing permits allowing the carting of concessional loads.

The Commissioner of Main Roads under the Road Traffic (Vehicle Standards) Regulations 2002 may by notice or permit exempt Restricted Vehicles from a mass and or dimension limit subject to conditions, including conditions as to roads on which the vehicles may be driven. Main Roads' Inspectors are empowered to enforce the licensing provisions of the Road Traffic Act 1974 which amongst other things include permit conditions, mass, dimension, load restraint and roadworthiness.

An application from the proponent to cart specific commodities on specific routes using specific vehicles is assessed against the Heavy Vehicle Operations Work Instruction —

²²⁵

Submission No. 93(a) from Resources Safety Division, DoCEP, 19 June 2007, pp2,3,5,6,8,9.

Concessional Loading Scheme for Bulk Commodities. The process addresses the following key points:

- *Define the commodity, route, tonnages, number of trips, days of week, duration.*
- *Check vehicle specifications.*
- *Check the proposed route (including pick up and drop off points) for its capacity to safely accommodate the proposed vehicle type.*
- *Assess against Government direction regarding sea and rail modes of transport.*
- *Check if the commodity is classified as a dangerous good and ensure approvals have been granted.*
- *Check pavements and structures capacity to carry the extra mass.*
- *Examine the proponent's Quality Assurance Plan.²²⁶*

²²⁶

Submission No. 98 from Main Roads Western Australia, 3 July 2007, pp2,3.

CHAPTER 5 ENVIRONMENTAL CONDITIONS FOR TRANSPORTING AND HANDLING MAGELLAN'S LEAD CONCENTRATE

5.1 Setting environmental conditions - the Environmental Protection Authority

There are complex regulatory processes associated with a proposal, such as Magellan's, to mine and transport lead carbonate. One process concerns the role of the Environmental Protection Authority and this is examined with particular reference to a number of the environmental conditions and commitments imposed by the Environmental Protection Authority that were relevant to the transporting and handling of Magellan's lead concentrate.

(a) The original Magellan proposal

In 1998, a proposal was put forward by Magellan Metals for the *Development of a Lead Oxide Mine and Flotation Concentrator near Wiluna and a Refinery near Geraldton, Western Australia*. The original proposal was to mine lead oxide, grind it and subject it to a sulphidisation flotation to concentrate it to an *'exceptionally clean oxide concentrate'* with a lead grade of 75 per cent, transport it by road train in *'kibbles'* to a refinery to produce bullion near Geraldton, and export the product from the Geraldton Port. It stated that lead oxide was not classified as a hazardous material. When Magellan applied for a mining lease with the proposal, known as a 'Notice of Intent', to the Department of Minerals and Energy, it was referred for assessment under Part IV of the *Environmental Protection Act 1986* as it was a proposal likely to have a significant environmental impact.²²⁷

The Environmental Protection Authority required that Magellan's proposal go through a formal public consultation process, a CER, in 1999. Magellan advised that it wanted the refinery to be assessed separately. Amongst other things, the CER for the mining, transport and export of the lead concentrate stated that after *'a flotation circuit'* the concentrate would be *'dried by a pressure filter'* reducing the moisture content to eight per cent before being transported to Geraldton. It also referred to the *'wet concentrate'* being transported in covered kibbles by road train and stated that dust would not be generated during the unloading, storing and ship loading operations at Geraldton Port *'as the concentrate is moist and operations occur inside an enclosed shed or by covered conveyor'*.

After a public consultation process on the CER for what is now correctly referred to as lead carbonate (and not lead oxide),²²⁸ the Environmental Protection Authority published Bulletin 996, its report and recommendations on the Magellan Lead Carbonate proposal. It recommended that

²²⁷ Submission No. 93(a) from Resources Safety Division, DoCEP, 19 June 2007, p3.

²²⁸ This change was made, prior to the issue of the CER document, on the advice of the Senior Chemical Engineer of Department of Mines and Energy referred to in Chapter 3.5.

the Minister for the Environment approve of the Magellan proposal, subject to a number of conditions and proponent commitments. The Environmental Protection Authority advised the proponent, Magellan, that these conditions and commitments would be legally enforceable. At the time, the Environmental Protection Authority noted that following the preparation of the CER, Magellan '*advised it has no immediate intentions to export lead concentrate through Geraldton Port, instead opting to refine concentrates at the Wiluna minesite to produce lead metal*'; but as the option to export concentrate remained open the Environmental Protection Authority continued with its assessment.

In 2000, the Magellan project was approved by the Minister subject to a number of conditions and proponent commitments as outlined in Ministerial Statement 559. These conditions were substantially those recommended in the Environmental Protection Authority Bulletin.²²⁹ Significantly these included that a Health, Hygiene and Environmental Management Plan (HHEMP) be prepared to the requirements of the Environmental Protection Authority seeking advice from DEP, DME and the Health Department, before any ground-breaking activities occur on the project.

When it considered the Magellan proposal in 2000, the Environmental Protection Authority appeared very conscious of the risks of lead escaping into the harbour and general environment around the Port, based largely on concerns raised by the then DEP's Mid West Region Office.

DEP suggested that Magellan's proposed Environmental Management Plan should identify all possible pathways for lead concentrate to enter the environment of the Port and set out procedures for the use of equipment to minimise those losses. It noted that this may require present loading and transfer facilities to undergo modification. DEP further noted that there was water quality monitoring being undertaken by the Port but that it had not yet included sediment sampling.

In its Bulletin, recommending that the Minister approve the Magellan proposal, the Environmental Protection Authority stated that:

Although it is the proponent who is proposing to export lead concentrate, in the event that this part of the proposal proceeds, the responsibility for seeking environmental approval is the Geraldton Port Authority's as the Geraldton Port facilities are prescribed under the EP Act.

The Environmental Protection Authority went on to cite the existing National Environmental Protection Measure (NEPM) for lead which recommended environmental limits for lead particulates in air at 0.5 micrograms per cubic metre as an annual average and states: '*The NEPM for lead particulates ... will form the basis for the DEP establishing a licence limit for lead in air at the port.*' It also referred to the Australian Water Quality Guidelines for Fresh and Marine Waters which specified the concentration of lead in marine waters and marine sediment and continued:

²²⁹ Other than the inclusion in the Ministerial conditions of the Department of Health as a nominated advisor on the HHEMP, referred to in Chapter 4.3(c).

The EPA [Environmental Protection Authority] notes that the proponent of the current proposal has not carried out background dust and particulate monitoring or sediment sampling at the port, as it is not responsible for the existing shiploading activities. However, in the event that the proponent proceeds with its proposal to export lead concentrates the proponent has confirmed its agreement to participate in a joint sampling program in order to establish ambient air quality and marine sediment limits for lead in the port.

...appropriate standards for lead in the air and in the marine environment already exist and in the event that lead concentrates are proposed to be exported through Geraldton Port, the DEP licence issued to the Geraldton Port Authority would require an amendment to allow this. The addition of lead mineral products to the licence would occur only where the Geraldton Port Authority can demonstrate to the satisfaction of DEP, through its licence approvals process, the appropriate standards and guidelines for lead in the environment can be met. The licence, if amended, would then specify additional licence limits, monitoring and reporting requirements relevant to lead mineral products, which Geraldton would be required to meet.

Whilst the EPA notes that approvals from DEP are required before export of lead concentrates can occur, the EPA is concerned that there are presently indications that mineral products may be entering the marine environment and the air from existing activities at the port.²³⁰

The Environmental Protection Authority Bulletin noted that since the proponent, Magellan, was not the operator of the port facilities it was likely to find it difficult to effect changes to the existing equipment and procedures, but the Environmental Protection Authority remained *'firmly of the view ... the onus is on the proponent to demonstrate that the procedures and facilities are adequate to protect the environment'*. As a result, the Environmental Protection Authority recommended, as part of the Minister's environmental conditions, that a HHEMP be developed by Magellan prior to any ground-breaking activities. Item 5 specified that the HHEMP shall:

address the review of the existing storage and shiploading facilities at the Geraldton Port that is to be conducted by the proponent prior to the existing facilities being used for lead concentrates. It is to include a review of equipment, procedures and monitoring programs to identify potential pathways for lead to enter the environment, and if appropriate additional equipment, management or revised procedures are to be determined.

Two recommended proponent commitments, 13 and 14, required Magellan to undertake a sampling program for dust and particulate monitoring at the Port prior to using its facilities for lead concentrate and to implement the program after the commencement of its operations. The plan was to be sent to the Department of Health, amongst other agencies, for advice before it was accepted by DoE.

²³⁰ Environmental Protection Authority, *Magellan Lead Carbonate Project - Report and recommendations of the Environmental Protection Authority*, (Bulletin 996), September 2000, p18.

The Minister accepted the recommendations in the Environmental Protection Authority's Bulletin and issued a Statement allowing the Magellan proposal to proceed, subject to specified conditions and commitments, on 28 November 2000.

Finding 24

The Environmental Protection Authority's assessment of the original Magellan proposal for Geraldton was thorough, including a substantial public consultation process and detailed input from relevant agencies. It resulted in a Ministerial Statement which established a framework of conditions and proponent commitments which, if implemented, would have contributed to best practice in the environmental management of Magellan's lead concentrate.

(b) The variation to the Magellan proposal

Magellan Metals applied for a variation to the Ministerial Statement approving the implementation of the Magellan proposal on 8 October 2004. It wrote to the Environmental Protection Authority stating that Magellan was giving serious consideration to exporting the concentrate through Esperance, because Geraldton had withdrawn its offer of storage at the wharf and this would result in double handling because the concentrate would need to be stored at an off-site facility prior to transshipment to the Port for ship loading.²³¹ It stated that:

... the unloading, storage and ship loading facilities at Esperance are more suited to the Magellan product... The shed has a self-contained reclaim hopper with covered conveyors and associated walkways. Of particular note is the [Esperance Port] ducted vacuum cleaning system, which extends to all conveyors.

Magellan also stated that the conditions of Ministerial Statement impacted by the proposed change were addressed as follows:

MINISTERIAL CONDITIONS

The conditions detailed in the Ministerial Statement 559 that are impacted by the proposed change are addressed below. All other conditions and commitments are independent of the export Port.

2 Proponent Commitments

Items 13, 14 of Schedule 2 require Magellan to submit a Port monitoring plan. This aspect has been covered by the commitment of Magellan to participate in relevant Port's EMS

²³¹

It is of note that in a recent media release, Ivernia reports that the reasons for not utilising the Geraldton Port option were that its conveyors were prone to wind and consequent dusting; and that the proposal would have involved a large number of truck movements (Ivernia, Media Release, 'Magellan Metals appears before WA Parliamentary Committee Esperance Lead Inquiry', 2 May 2007).

which details all monitoring activities and have been deemed to be adequate for the monitoring of all relevant Port and community conditions.

6 Health, Hygiene and Environmental Management Program

6-1 5. The loading and storage facilities at Esperance Port have been inspected and are considered more than adequate to contain Magellan concentrate. The operating and monitoring procedures are more robust than those in place at Geraldton, due primarily to the use of a vacuum based cleaning system rather than using water or sweepers. The reclaim hopper and discharge conveyor is completely contained within the storage shed, which further reduces the risk of dust emissions. Removing the need to double-handle the concentrate presents an additional significant benefit with this system. Their system permits rapid unloading of the kibbles from rail and at no time will kibbles be uncovered in the open environment.

The EPA maintains a rigorous Port and community monitoring program so that any if any rogue dust emissions are detected, corrective action can be taken.

(i) Storage and ship loading at Esperance Port

The advice to the Environmental Protection Authority from Magellan about Esperance Port's handling facilities was incorrect. For example, the facilities did not and could not include a 'ducted vacuum cleaning system, which extends to all conveyors' because many of the conveyors used for the handling of heavy metals at Esperance Port were not enclosed (refer to Chapter 1.3); kibbles were uncovered in the open environment.

Finding 25

The information about the Esperance Port facilities for handling heavy metals such as the lead concentrate provided to the Environmental Protection Authority by Magellan Metals Pty Ltd, as part of its application to vary the Ministerial Statement, was incorrect.

It is of note that Magellan stated that, in satisfaction of the requirement that it review the existing storage and ship loading facilities, *'the loading and storage facilities at Esperance Port have been inspected and are considered more than adequate to contain Magellan concentrate'*.²³² As indicated, the information provided was incorrect. More than that, an inspection was conducted by Mr Kim Riseborough, OH&S consultant, on 23 March 2005, to address the Port's workforce concerns about handling lead. To be in a position to address those concerns, Mr Riseborough observed the outloading of nickel, as the lead concentrate was to use the same handling system within the Port. Mr Riseborough noted that there was *'considerable spillage'* evident in the observation of nickel loading and that *'It can be assumed that some spillage would have entered the harbour [as] there is no spillage catchment pans fitted to these conveyors.'* There was a

²³²

See also Submission No. 33(a) from Magellan Metals Pty Ltd, 27 April 2007, paragraph 11.

subsequent meeting at the Port, on 30 March 2005, to discuss the Consultant's recommendations. The minutes recorded that the spillage on the conveyor and transfer points was to be handled by an industrial wet sweeper, and that the *'installation of vacuum piping to the shipper [was] a priority'*. The minutes also noted that another Port consultant advised that the cost estimate for *'completely enclosing the shiploader was sought over 5 years ago and deemed too expensive'*; and that, due to the layout in the sheds, the only means of wetting the product was overhead sprays. These were to be installed and clean up was to be by wet sweeping or hosing down.

Magellan's evidence was that it acted on the advice of the Port in relation to the standards of its facilities and environmental monitoring.²³³ However, as indicated above, in its Bulletin assessing the original proposal, the Environmental Protection Authority had been *'firmly of the view ... the onus is on the proponent to demonstrate that the procedures and facilities are adequate to protect the environment'*.²³⁴

The assessment of Magellan's application to vary the proposal by the Environmental Protection Authority noted that:

The Esperance Port has contemporary infrastructure included dedicated storage and ship loading facilities with self contained reclaim hoppers, covered conveyors and ducted vacuum systems.

In evidence to the Committee, when asked if the history, or perceived history, of Esperance Port had affected the decision to allow the variation, Mr Murray responded:

Yes. We had some familiarity with the fact that they invested a lot of money on new equipment - conveyors and things like that.

In fact the upgrade at the Port related only to the iron ore handling systems and according to the Port's records, the heavy metal ship loader was constructed by the Port in 1992. Mr Robert Stewart, Port worker and OH&S representative, whose evidence has previously been referred to, stated:

The heavy metals circuit, as we identified, had serious issues. A lot of that was because it was built at a time when a lot of the safety and environmental concerns we have today were not necessarily of high profile. It was a relatively primitive, in our terms, system.

It is important to note, however that the assessment of the application to vary also discussed Condition 6-1 of the original Ministerial Statement. This condition related to the HHEMP, and the assessor confirmed:

point 5 provides for a review of existing storage and ship loading facilities prior to the existing facilities being used for lead concentrates... As the project is still in the

²³³ Mr Patrick Scott, Director, Managing Director, Magellan Metals Pty Ltd, *Transcript of Evidence*, 2 May 2007, p11.

²³⁴ See also Dr Andrea Hinwood, Deputy Chair, Environmental Protection Authority and Mr Colin Murray, Acting Director, Environmental Impact Assessment, Department of Environment and Conservation, *Transcript of Evidence*, 7 June 2007, p13.

development phase, this condition will need to be satisfied before exporting of lead can occur.

Whatever assessment had been made of the Esperance Port's facilities at that time, it remained the case that these facilities were supposed to be reviewed before the exporting of lead could occur. The significance of the incorrect information available to the assessor about the status of the Port's infrastructure is therefore difficult to determine.

Finding 26

Ministerial conditions required that Magellan Metals Pty Ltd undertake a review of the Port facilities to identify potential pathways for lead to enter the environment prior to those facilities being used to handle lead concentrate. The review was to be addressed in the Health, Hygiene and Environment Management Plan.

The Environmental Protection Authority assessed the application to vary the Magellan proposal to allow export through the Esperance Port on the basis that Magellan would comply with the conditions.

Finding 27

The Environmental Protection Authority expected that Magellan Metals Pty Ltd would need to satisfy the Ministerial condition to review the Port's storage and ship-loading facilities before these were used for the lead concentrate. Therefore, it is difficult to determine the significance of the incorrect information available to the assessor about the status of the Esperance Port's infrastructure (refer to Finding 25).

(ii) Esperance Port's operating licence

The Environmental Protection Authority assessment of the variation also noted that the Esperance Port Authority's licence had already been varied to allow the loading of lead carbonate.

There was no requirement imposed under the original Ministerial Statement to verify that all the factors the Environmental Protection Authority referred to in its Bulletin would be incorporated into the Port's environmental licence to accommodate the handling of lead concentrate, such as the air and marine monitoring standards. It appears that the adequacy of the Esperance Port's amended licence was not assessed against these standards.

Finding 28

The original Environmental Protection Authority Bulletin on the proposed export of Magellan lead concentrate through Geraldton included significant detail on standards to be incorporated into the Port's environmental licence by the then Department of Environmental Protection.

The Environmental Protection Authority did not recommend that these standards be included as conditions or proponent commitments in the original Ministerial Statement for Geraldton.

Subsequently, the Ministerial Statement for Geraldton was varied so that the concentrate could be exported through Esperance, subject to the original conditions and proponent commitments, but without reference to the original Environmental Protection Authority Bulletin.

As a result the Environmental Protection Authority did not assess whether the variation to the Esperance Port's environmental licence to allow the handling of the lead concentrate met the standards outlined in its Bulletin assessing the original proposal.

Recommendation 11

The Committee recommends that the Environmental Protection Authority review its procedures. It should ensure that any measure of significant environmental consequence, identified as part of its assessment of a proposal, is included in the Ministerial conditions or proponent commitments, together with a precise definition of the terms used. This will ensure that there is no ambiguity about the significance of the measure and also that compliance can and will be audited by the Department of Environment and Conservation audit officers.

(c) Public consultation

On 6 December 2004, the Chairman of the Environmental Protection Authority recommended that the Minister for the Environment approve the variation of the export of the Magellan lead carbonate project from Geraldton to Esperance on the basis that '*any additional or different detrimental effects are not significant*'. On 29 December 2004, the Minister agreed and the change was approved under section 45(c) of the *Environmental Protection Act 1986*.

This decision not only meant that no additional conditions applied to the variation of the Magellan proposal, but it also exempted Magellan from the need to undertake a further public consultation process. The evidence of the Environmental Protection Authority was that:

*It was the view of the EPA at the time, and the EPA service unit that was advising the EPA, that the consultation had been adequate.*²³⁵

Obviously, and with good reason, Esperance community members will object to the view that consultation had been adequate, when they had not been consulted. It is also true that there had been extensive and very effective consultation in relation to the original proposal. It is important to consider the parameters of what the Environmental Protection Authority was assessing under the relevant section of the Act. As Dr Hinwood, Deputy Director, advised the Committee:

*From EPA's point of view, there were no environmental impacts associated with the proposal to change from Geraldton to Esperance; hence, it was not reassessed, which we can do [underlining added for emphasis].*²³⁶

If considered within the terms of the requirements of section 45(c), which refers only to additional or different detrimental effects of proposed changes in the context of the existing Ministerial conditions, it is difficult to fault that position.

Finding 29

The decision to vary the Magellan proposal to allow the export of lead concentrate through Esperance instead of Geraldton, in the absence of community consultation, appears to be within the existing legislative provisions in the *Environmental Protection Act 1986*.

The Committee noted that even if the decision appears to be within the terms of the existing provisions, the failure to post that variation on the Environmental Protection Authority's website,²³⁷ where the original Environmental Protection Authority Bulletin is posted, made it extremely difficult for members of the public to be informed about the variation.

Recommendation 12

The Committee recommends that all variations to Ministerial Statements should be posted on the Environmental Protection Authority's website.

²³⁵ Mr Colin Murray, Acting Director, Environmental Impact Assessment, Department of Environment and Conservation, *Transcript of Evidence*, 7 June 2007, p9.

²³⁶ Dr Andrea Hinwood, Deputy Chair, Environmental Protection Authority, *Transcript of Evidence*, 7 June 2007, p15.

²³⁷ Mr Colin Murray, Acting Director, Environmental Impact Assessment, Department of Environment and Conservation, *Transcript of Evidence*, 7 June 2007, pp10,11.

On the more substantive issue relating to public consultation, the Committee welcomed the evidence of the Environmental Protection Authority at the hearing that in future:

*In the event of a change in location such as that, we would pick up the community consultation aspect of it or require it as part of the process.*²³⁸

The Committee has concerns that the importance of community consultation is not clearly recognised in the relevant legislative provisions. There is scope for the Minister generally to refer a proposal for assessment by the Environmental Protection Authority if ‘it appears to the Minister there is public concern about the likely effect of a proposal’ (section 38(4)), but of course this could be limited if the public are not aware of a proposal. The advice of the Department of Health, referred to previously, is that:

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).

Although this may reflect the actual practice of DEC, it is not reflected in the legislation. The Committee believes that the importance of ensuring that communities are informed and have opportunities for consultation should not only apply in the event of there being the potential for serious environmental impact, or for significant additional or different detrimental environmental effects.

Recommendation 13

The Committee recommends that when there is an application to the Environmental Protection Authority varying a proposal to export a substance from one port through a different port, replication of any original public consultation process must occur as a minimum requirement.

Recommendation 14

The Committee recommends that the potential for public concern about the likely impacts on the environment and health should be specific factors considered in the exercise of discretion under the relevant provisions of Part IV of the *Environmental Protection Act 1986*.

²³⁸

Dr Andrea Hinwood, Deputy Chair, Environmental Protection Authority, *Transcript of Evidence*, 7 June 2007, p13.

The issue of public consultation and accountability is discussed further in Chapter 6.3.

(d) HHEMP

In early 2004, Magellan had commenced construction on its mining site after receiving approval from the Department of Industry and Resources for its Project Management Plan, required under the *Mining Safety and Inspection Act 1984* (WA). It apparently was also given a works approval to commence construction by the Swan-Goldfields Regional Office of DEP. Later Magellan contracted a consultant to audit whether it had complied with its legislative and other obligations, and on 5 August 2004 Magellan advised DEP that it had commenced construction without complying with any of the clearances required under Statement 559, including the development of a HHEMP.

Magellan issued the draft HHEMP on 31 August 2004, and the document was unclear as to whether the lead concentrate would be exported through Geraldton or Esperance Port, and both options were canvassed with copies of the Ports' environmental licences attached. At this time the Esperance Port's licence had not been amended to provide for the export of lead carbonate. As a result relevant advisory agencies would have had no opportunity to comment on the adequacy of the HHEMP in the context of the very limited Port licence conditions for the handling of the lead which were subsequently inserted into the licence in November 2004. What the attached licences showed, however, was that Esperance Port's licence required it to have a dust monitoring program, unlike the Geraldton Port's licensing requirements.

The original HHEMP was sent to nominated agencies for comment, stating in its opening paragraph:

The project will utilise the sulphidisation flotation and batch refining process to produce lead bullion from ore mined from open pits.

It is of note that at the time, the construction of a refinery to produce 'lead bullion' had not been approved in any of the processes associated with the Magellan proposal.

Other relevant extracts from the draft HHEMP follow:

A flotation circuit will concentrate the ore with concentrated lead carbonate dried by pressure filtration. The product will be transported by road to the Port of Geraldton for export... It is planned to install a refinery as soon as concentrate production is established...

Concentrate will be filtered to reduce the moisture content to 6%, the level suitable for road transport. Concentrate will be stored in a covered storage area, prior to granulation and transport to the Port of Geraldton or Esperance...

Product (concentrate) will be transported by road to either Geraldton or Esperance. The concentrate will be carried in standard, covered kibbles to avoid dust emissions. In addition, concentrate will be produced at a moisture content of 6% and agglomerated to avoid dust generation while being handled...

The [Esperance] Port is being seriously considered, as the storage and ship loading systems are robust and well established. Concentrate would be delivered by rail in covered kibbles to a siding within the confines of the Port and alongside a dedicated shed. The kibbles would be transferred within the shed before the tipping and would be recovered prior to transfer back to rail for the return journey to Leonora... Magellan will have no choice other than to comply with the Esperance Port Authority's (EPA's) EMS. The EPA has applied for a variation to their Works Approval to allow for the storage and loading of lead concentrate. (Licence 5099/9; Refer appendix 9) Given that the proposed change has been publicly communicated with no negative response, it is expected that approval will be granted in late November...

Bulk concentrate will be granulated to prevent dusting and loaded into kibbles using a screw feeder within a closed concentrate shed at Wiluna site. [The discussion continues about road trains moving the kibbles, with no reference to trains.]

The successful haulage contractor will have an established Emergency Response Plan, nevertheless a formal risk assessment will be undertaken with the contractor when the transport route and port facilities selection has been finalised...

On 14 October 2004, DoE responded to the draft HHEMP stating that:

Please note that condition 6-1 cannot be fully cleared prior to the required Port Review being undertaken. This condition is as applicable to Esperance as to Geraldton. The condition specified that the HHEMP is to address the review of the storage and ship loading facilities and include a review of equipment, procedures and monitoring programs to identify pathways for lead to enter the environment, amongst other things.

As indicated in Chapter 4.3(c), the Department of Health also raised concerns about the transportation and transshipment of the lead, and recommended that Magellan Metals should be required to conduct a risk analysis and establish a monitoring program along the transportation route to, and including, the port facility with particular attention to rainwater tank contamination.

A consultant employed by Magellan provided a partial audit of Magellan's compliance with the Ministerial conditions to the Environmental Audit Section of DoE on 2 December 2004. It only addressed those conditions and commitments about which comments had been received from agencies in relation to the draft HHEMP. As there were no comments specifically on the proponent commitments 13 and 14, regarding the Port's dust and particulate sampling program, these were not identified as being an issue. The consultant advised that in relation to Ministerial condition 6.1:

Comments made by DoE, DoIR²³⁹ and HDWA [Health Department WA] have mainly been addressed through revisions of relevant sections of the HHEMP as confirmed by the accredited auditor... It is recommended that the EPA [Environmental Protection Authority] consider [this condition] to be fulfilled.

²³⁹

The comments made by DoIR were not relevant to the transport and handling of the lead concentrate and so have not been included.

(i) The transport route

The consultant's report stated that, specifically in response to the Department of Health's comments, roadside surveys and ongoing monitoring including rainwater tank sampling had been included in the HHEMP. This was reflected in the revised and final version of the HHEMP dated November 2004.

Finding 30

As part of the Health, Hygiene and Environment Management Plan, Magellan Metals Pty Ltd committed to undertaking ongoing roadside monitoring surveys on a yearly basis, and sampling of rainwater tanks within 50 metres of the proposed route *'initially and ongoing'*.

As indicated in Chapter 4.3(c) Magellan did not appear to have ever conducted monitoring of the roadside (and railway) or the rainwater tanks. When asked about whether it acted on the Department of Health's advice in relation to the dust risk analysis of the Port and transport, Magellan responded that it had. However, the details it relied upon only concern the Port and there was no evidence in its Annual Environmental Reports that it undertook any monitoring or sampling in accordance with its HHEMP undertaking.

Finding 31

Magellan Metals Pty Ltd did not undertake annual roadside monitoring surveys and sampling of rainwater tanks within 50 metres of the proposed route *'initially and ongoing'*, as it committed to do in the Health, Hygiene and Environment Management Plan.

Recommendation 15

The Committee recommends that the Environmental Protection Authority consider what action should be taken as a result of the failure by Magellan Metals Pty Ltd to undertake annual roadside monitoring surveys and sampling of rainwater tanks within 50 metres of the proposed route *'initially and ongoing'*. It committed to do this in the Health, Hygiene and Environment Management Program; a program required under the Ministerial Statement allowing the Magellan proposal to be implemented.

(ii) The Port

In relation to the comments from DoE about the review of the Port, the ‘*Evidence of compliance*’ as recorded by the Magellan consultant was:

Noted. Review of Geraldton Port facilities undertaken by Geraldton Port Authority and “Bulk Handling Facility Environmental Action Plan” produced, included in HHEMP as Appendix 8. Esperance alternative under review by DoE: re non-substantial change. DoE licence has been issued for Esperance Port taking into account lead product handling from Magellan. Geraldton Port Licence also includes lead handling - Appendix 7 - HHEMP.

In its table ‘Conditions/Commitments Compliance Status’ with reference to the Port review, the consultant referred to the Geraldton and Esperance environmental licences and to the ‘Geraldton Port Bulk Handling Facility Environmental Plan’ as evidence and recorded the status as ‘Compliant’. It omitted reference to the two proponent commitments concerning the sampling program at the Port, and a number of other conditions and commitments, as only those conditions and commitments that were the subject of comment were audited. There was also no reference to the Department of Health’s comments which not only applied to the transport route, but also recommended monitoring including rainwater tank sampling near the Port.

The only difference between the draft and final HHEMP relevant to the Port was that the amended Esperance Port’s licence issued on 28 November 2004, which referred to the lead carbonate as pelleted in the preamble, was included in the final revision of the HHEMP.

(e) Environmental Protection Authority assesses Magellan as compliant

On 29 December 2004, the Chairman of Environmental Protection Authority advised the CEO, DoE that, with the exception of Stygofauna²⁴⁰ Management Plan, the Environmental Protection Authority was satisfied with the environmental management plans, including the HHEMP, that were required to be completed and in place prior to the commencement of mining by Magellan Metals. Magellan had requested clearance of the Minister’s Statement 559 commitments to enable commencement of ‘*productive mining*’; the actual requirement of the Statement was that these be finalised before any ‘*groundbreaking activities*’.

The Chairman’s advice was based on an assessment undertaken by the Environmental Audit Section of DoE, including an assessment that the HHEMP was considered satisfactory to the DoE on the advice of DoIR and the Health Department.

As indicated, the Ministerial Statement included a condition and two proponent commitments relevant to the transport and handling of the Magellan lead concentrate.

²⁴⁰ Animals that live within groundwater systems.

(i) Proponent commitments 13 and 14**Finding 32**

Two proponent commitments, included in the Ministerial Statement allowing the implementation of the Magellan proposal, under the topic *'Dust and particulate sampling at the Geraldton Port'* were that:

13. *'Prior to using storage areas or ship loading facilities of the Geraldton Port for lead concentrates'*, Magellan was to *'Prepare a sampling program to monitor dust produced during transfer of mineral products from storage areas via loading facilities to ships. The plan shall include: 1. The locations of sampling; 2. Sampling methods and analysis; 3. Reporting of results.'* The objective was *'To determine if existing facilities at the Geraldton port are creating dust and particulates.'* This was to be referred to the Department of Minerals and Energy.

14. *'After commencement of operations'*, Magellan was to *'Implement the dust and particulate sampling plan as referred to ... above'*. The plan was to be referred to the Department of Health, amongst other agencies.

The basis upon which the Environmental Audit Section of DoE recommended that Magellan was in compliance with the above commitments is not clear.

Magellan's advice, of 8 October 2004 when it sought the variation of the Ministerial Statement, may be relevant in that it stated that it was not required to submit a Port monitoring plan for dust and particulates, as the Esperance Port's EMS *'details all monitoring activities and have been deemed to be adequate for the monitoring of all relevant Port and community conditions'*. As indicated, at the relevant time it did not appear that Geraldton Port, despite being authorised to handle lead, had any air quality monitoring requirements as part of its licence. As also indicated, while the original Environmental Protection Authority's assessment of the Magellan Project, which had stated: *'The NEPM [National Environmental Protection Measure] for lead particulates ... will form the basis for the DEP establishing a licence limit for lead in air at the port'* this did not form part of the Ministerial conditions or proponents commitments. As a result, in assessing the issue of compliance with the commitment 13 as it was formulated, there was no reason to require Magellan to develop a different dust and particulate sampling program, specifying locations of sampling; sampling methods and analysis; and reporting of results, when a program meeting those specifications was already in place at Esperance Port.

Finding 33

Magellan did not comply with proponent commitment 13 in the Ministerial Statement as it did not prepare a sampling program to monitor dust produced during transfer of mineral products from storage areas via loading facilities to ships.

Finding 34

The Esperance Port, unlike the Geraldton Port, already had a dust monitoring program which met the specifications required in proponent commitment 13. Therefore it was open to the Environmental Protection Authority to assess Magellan as compliant with this commitment.

It is of note, however, that commitment 14 required that after the commencement of operations, the Port's monitoring plan for dust and particulates was to be submitted to the Department of Health. Even though the lead operations at the Port had not commenced, the Environmental Protection Authority approved the commitment without referral of the plan to the Department of Health. If it had, it seems likely, given the Department's previously raised concerns about the quality of air monitoring, the plan would have been revised to include monitoring standards related to public health. For example, on 25 October 2000, the Department had written to DEP raising concerns about the utilisation of Geraldton Port for the export of lead carbonate '*due to intermittent nature of stockpiling and ship loading*'. The Department suggested setting licence limits for lead at appropriate boundaries with 24 hour and 90 day levels, in accordance with National Environmental Protection Measure (NEPM) for Ambient Air Quality. The Department believed this would '*ensure that the public are protected from fugitive lead emissions during periods of high activity and the limits would complement the Air NEPM annual standard for lead of 0.5 µg/m³*'.

Finding 35

Magellan Metals Pty Ltd did not comply with proponent commitment 14 in the Ministerial Statement because, although a dust and particulate sampling program was already implemented at the Esperance Port, it did not submit a copy of that program to the Department of Health.

Finding 36

The Environmental Protection Authority assessed Magellan Metals Pty Ltd as being compliant with proponent commitment 14, and appears to have either overlooked or underestimated the requirement to refer the dust monitoring program to the Department of Health.

The Committee believes that its recommendation that the Department of Health have a recognised legislative role in the impact assessment of resource developments would address such oversights in future.

(ii) Ministerial condition 6-1.5**Finding 37**

A Ministerial condition for the Magellan proposal was that:

6-1 Prior to the commencement of ground-disturbing activities, the proponent shall prepare a Health, Hygiene and Environmental Management Program to the requirements of the Environmental Protection Authority on advice of the Department of Environmental Protection, the Department of Minerals and Energy and the Health Department of Western Australia.

This program shall:

- 5. address the review of existing storage and shiploading facilities at the Geraldton Port that is to be conducted by the proponent prior to the existing facilities being used for lead concentrates. It is to include a review of equipment, procedures and monitoring programs to identify potential pathways for lead to enter the environment, and if appropriate additional equipment, management or revised procedures are to be determined.*

The Environmental Protection Authority assessed Magellan as compliant with this Ministerial Condition, but the basis on which it did so is not clear.

The review, according to the original Environmental Protection Authority Bulletin, was to include the proponent undertaking joint air and marine sediment sampling programs and the Environmental Protection Authority was *'firmly of the view ... the onus is on the proponent to demonstrate that the procedures and facilities are adequate to protect the environment'*. At the relevant time, Esperance Port already had in place air quality monitoring and marine sediment monitoring programs, so the Environmental Protection Authority may have considered that this was sufficient as it did in relation to the other commitments already discussed. Interestingly however, what the monitoring programs demonstrated was that nickel from the Port was likely to have been escaping into the environment, into dust gauges and the berth pockets. Indeed in the same month that Magellan's compliance with the Ministerial conditions was being considered the Port had reported elevated nickel levels in rainwater tanks near the Port.

Magellan's advice, as part of its application to vary the proposal, had been:

6-1 5. The loading and storage facilities at Esperance Port have been inspected and are considered more than adequate to contain Magellan concentrate. The operating and monitoring procedures are more robust than those in place at Geraldton, due primarily to the use of a vacuum based cleaning system rather than using water or sweepers. The reclaim hopper and discharge conveyor is completely contained within the storage shed, which further reduces the risk of dust emissions. Removing the need to double-handle the concentrate presents an additional significant benefit with this system. Their system permits rapid unloading of the kibbles from rail and at no time will kibbles be uncovered in the open environment.

As indicated, the information provided by Magellan was incorrect.

Finding 38

Magellan Metals Pty Ltd appears only to have undertaken a cursory inspection of the Esperance Port's facilities and its advice to the Environmental Protection Authority appears to describe the iron ore handling systems and not those available at the Port for handling heavy metals.

Magellan now claims that:

the evidence strongly suggests that it was not the infrastructure at the Port which led to any escape of lead into the environment, but the way in which that infrastructure and supporting systems were operated and maintained or applied.²⁴¹

As indicated throughout this Report, and in particular Chapters 1.3, 8.4 and 9.4, there is ample evidence that anything other than a cursory examination of the Port's heavy metals infrastructure would have identified '*potential pathways for lead to enter the environment*'.

Finding 39

If Magellan Metals Pty Ltd had undertaken anything other than a cursory examination of the Esperance Port's heavy metals infrastructure it would have readily identified '*potential pathways for lead to enter the environment*'.

Correspondence from Magellan's own consultant, who conducted an audit of Magellan's compliance with Ministerial conditions including 6-1.5, indicated that evidence of compliance with this requirement, in relation to the Esperance Port, was only that the '*DoE licence has been issued for Esperance Port taking into account lead product handling from Magellan.*'

Finding 40

It is unclear on what basis the Environmental Protection Authority assessed Magellan Metals Pty Ltd as compliant with the requirement to undertake a:

review of [the Port's] equipment, procedures and monitoring programs to identify potential pathways for lead to enter the environment and if appropriate additional equipment, management or revised procedures are to be determined.

²⁴¹

Submission No. 33(c) from Magellan Metals Pty Ltd, 1 August 2007, p2.

Possibly the Environmental Protection Authority considered that the variation to the Port's licence by DEC would address these matters. This is considered next.

5.2 Setting environmental conditions - the Department of Environment and Conservation

The Department of Environment and Conservation also had a role in setting the environmental conditions for the transport and handling of Magellan's lead concentrate. These included both the conditions generally applicable under the *Environmental Protection Act 1986*, and the specific conditions imposed as part of the Port's environmental licence.

(a) General conditions

As indicated in Chapter 4.3(a), the conditions generally applicable under the *Environmental Protection Act 1986* and relevant to the Port's operations are provisions defining it as an offence for any person '*who intentionally or with criminal negligence*' or otherwise:

- '*causes pollution*' or '*allows pollution to be caused*';
- '*emits*' or '*causes an unreasonable emission*';
- '*allows waste to be placed in any position which the waste could reasonably be expected to gain access to the environment and in so gaining access would in doing so be likely to result in pollution*';
- '*causes serious environmental harm; or allows serious environmental harm to be caused*';
or
- '*causes material environmental harm; or allows material environmental harm to be caused*'.

The Act also requires the occupier of premises '*to take all reasonable and practicable measures to prevent or minimise emissions*' and to notify DEC, as soon as practical, of the discharge of any waste that has or is likely to cause pollution.

(b) Licensing conditions

The Port, an occupier of a premises processing or handling potentially polluting materials, was also a '*prescribed premises*' under the terms of the *Environmental Protection Act 1986* and as such was required to hold a valid licence under the Act. DEC's licensing of the Port's operations established conditions with which the Port was expected to comply.

Prior to November 2004, the Esperance Port Authority's environmental licence was not a substantial document, just eight pages long. It was divided into two sections - a preamble, and conditions of licence. The latter was divided into general conditions, air pollution control conditions, marine pollution control conditions, noise pollution control conditions and severance.

One of the requirements under the *Environmental Protection Act 1986* and in 'general conditions' in the licences issued by DEC is that occupiers of prescribed premises seek works approvals and/or licence amendment before carrying out any work or altering the method of operation or process carried out on the premises, or altering the type of materials or products used. It was these provisions which prompted the Port's application to have its licence varied to allow for the bulk handling of lead carbonate.

It is of relevance that another of the general conditions required the Port to provide environmental monitoring reports to DEC annually. This had been changed from a requirement to report on a six monthly basis in 2003, when management of the Esperance Port's licensing was transferred from DEC's Goldfields to its South West Region Office. (This is discussed further in Chapter 10.)

Another general condition, referring to material handling, states:

G3 The licensee shall take measures to prevent or minimise:

- *the emission of visible dust past the boundary of the premises, and;*
- *discharge of raw material to any waters during loading and unloading operations.*

There were other relevant conditions in the remainder of the licence and the most substantial section of the licence related to the air pollution control conditions, which included the requirement to have a dust gauge sampling program. As discussed in more detail in Chapter 7, the method of sampling was through depositional dust monitors and there were no compliance targets associated with what the results meant or what action should follow. As discussed in Chapter 8, while there was a section relating to marine pollution, there were no sediment or sea grass monitoring requirements under the licence.

(i) Application to vary the Port's licence

On 28 September 2004, the CEO of the Port applied to vary the licence stating that the 'lead carbonate would be exported through our existing nickel handling system. This conveyor system is enclosed and water sprays are used for dust suppression.' The letter also referred to Magellan's advice that as a further measure to prevent dust emissions the lead carbonate would be produced in 'moist, small "agglomerates" (or balls) < 10 mm for shipment'. The letter referred to the export of lead carbonate being for about two years, 'after which time the mine's refinery will come on line which would refine the lead into a solid product'. It stated that the Port's environmental, health and safety and dust gauge monitoring would be updated. Also, 'as part of our ongoing commitment to community involvement', the Port advised that a media release had been issued, there had been articles in the local paper, and Magellan had made a presentation to the Port Development Consultative Committee.

The enclosed media release 'Port Considering Export of Lead Carbonate and Metal Ingots', dated 31 August 2004, quoted the Port's CEO as stating that 'The port would uphold the highest operational standards if it were to export the lead carbonate ...[which] would be handled through

the port's existing enclosed conveyor system. It referred to the export of the lead carbonate being for about two years, after which the export would be of a *'soft lead product'* and also referred to the minimisation of dust through agglomeration of the product.

(ii) Variation to the Port's licence

A number of amendments were made to the Port's licence as a result of its application. When the licence was finalised, on 18 November 2004, there was a reference to *'pelleted lead carbonate'* in the preamble, and the addition of *'lead carbonate'* to the *'Nominal rated throughput'* under *'Closed system'*. Amendments are underlined below:

PREAMBLE

Applicability

This licence is issued to Esperance Port Authority for storage and shiploading of iron ore, nickel concentrate, pelleted lead carbonate and unloading fertiliser products at the port of Esperance, Reserve No.28207 Esperance. The Port is a prescribed premises within Schedule 1 of the Environment Protection Regulations as outlined in Table 1

Table 1: Categories under which Esperance Port Authority are prescribed.

Category number	Category name	Description	Design capacity
58	<i>Bulk Material Loading or Unloading</i>	<i>Premises on which clinker, coal, ore, ore concentrate or any other bulk granular material is loaded onto or unloaded from vessels by an open materials loading system</i>	<i>Not more than 5,000 tonnes per day</i>
86	<i>Bulk Material Loading or Unloading</i>	<i>Premises on which clinker, coal, ore, ore concentrate or any other bulk granular material is loaded onto or unloaded from vessels by a closed materials loading system</i>	<i>More than 100 tonnes per day</i>

Nominal Rated Throughput

The nominal rated throughput of the premises covered by this licence is in accordance with the following:

- Quantity of material loaded or unloaded: 6 million tonnes per annum*
- Open system (licensed) - Fertiliser: Greater than 5,000 not more than 10, 000 tonnes per day*
- Closed system (registered). — iron ore, nickel concentrate & lead carbonate: Greater than 100 tonnes per day (iron ore not to exceed 4 million tonnes per annum)*

There were two references to the lead concentrate in the section of the licence headed 'CONDITIONS OF LICENCE'. The first is under General Conditions, and stated:

G1 The licence shall inform the Director prior to any new granular bulk material (additional to iron and nickel ore concentrate, lead carbonate and fertiliser products) being loaded/unloaded at the Esperance Berths under the control of Esperance Port.²⁴²

The second reference appeared in relation to the Port's existing depositional dust gauge sampling, at A13(c), which was varied so that the samples were to be analysed for lead.

Other changes made at the time related to a condition requiring the licensee to develop a dust management plan to be submitted to DEC by 1 April 2005, to include a series of dust control measures for specific materials handled by the Port and equipment and handling processes.

The expectations of the Environmental Protection Authority were outlined in its Bulletin when it assessed the Magellan proposal in 2000; that is, because:

appropriate standards for lead in the air and in the marine environment already exist and in the event that lead concentrates are proposed to be exported through the ... Port, the DEP licence issued to the ... Port Authority would require an amendment to allow this. The addition of lead mineral products to the licence would occur only where the ... Port Authority can demonstrate to the satisfaction of DEP, through its licence approvals process, the appropriate standards and guidelines for lead in the environment can be met. The licence, if amended, would then specify additional licence limits, monitoring and reporting requirements relevant to lead mineral products, which [the Port] would be required to meet.

None of the appropriate standards considered by the Environmental Protection Authority were included in the amended Esperance Port licence. As indicated in Chapter 5.1, the amendments that the Environmental Protection Authority had expected to be made to the exporting port's licence were not formulated into a formal or enforceable requirement. As such there was no obligation on DEC, or any other agency, arising as a result of the Environmental Protection Authority's expectations that it incorporate these conditions into the exporting port's licence.

It should be noted, however, that the DEC Environmental Officer with responsibility for making the amendments to the Esperance Port's licence did consider a range of factors when amending the licence and contacted the DEC support unit for the Environmental Protection Authority. The 'Licensing memo' on the issue of the Port's amended licence, dated 16 November 2004, identified that the only concern in relation to the Part IV approvals for the Magellan project under Statement 559 was the background sampling and 'rainwater tank issue'. The rainwater tank issue was, as referred to previously, the detection of elevated nickel in rainwater tanks near the Port. The memo continued 'Port has found potential Ni source (truck unloading in sheds, Port undergoing further investigations). It is relevant that, at this time, it appears that the Environmental Officer making the amendments to the licence, and the relevant managers in the South West Region Office of

²⁴² DEP, *Environmental Protection Act 1986 Amended Licence*, Licence No. 5099/09, for the Esperance Port Authority, 17 November 2004.

DEC, were under the mistaken impression that the upgrade at the Esperance Port had resulted in the heavy metals handling systems being enclosed in 2002. This issue is discussed further in Chapter 10.

As a result it appears that the presence of nickel in the rainwater tanks was attributed to the unloading of trucks, which would not apply to the lead concentrate. The issue of *'background sampling'* was presumably to be addressed through the requirement that the Port develop a dust monitoring plan by 1 April 2005.

(c) Port licences generally

The Committee has a number of concerns which relate to port licences generally.

The first concern relates to the *Environmental Protection Act 1986* categories for the bulk handling systems, as rated through the port licences, of *'open'* and *'closed'*. There is no definition of these terms and it appears that, as an industry standard, these refer to conveyor systems that are in the open and those that are covered. With reference to the licence for the Esperance Port, the category of *'closed'* applied to the iron ore and heavy metals handling systems although the former was an award winning, state of the art system of enclosed conveyors and transfer points and negative pressure shed. The other and much older handling system for heavy metals was not upgraded in 2002 and in fact, as previously described was regarded as primitive and as being constructed at a time when health and safety concerns were not what they are today - although in some of the Port's publications this would not be at all apparent. For example, the *Esperance Report* included an article on 'Monitoring the Harbour's Eco-Health' by the Port's then environmental consultant, Environmental Risk Solutions, in March 2002. It stated that:

Working together with bulk material product exporters, the Port Authority has established best practice materials handling processes. These incorporate enclosed storage and transfer systems. Performance of dust collection equipment is monitored to ensure its capacity to efficiently contain dust within the enclosed system.

In addition it appears that this terminology, like *'covered'* and *'enclosed'* kiddles, can be ambiguous and misleading. While it is undoubtedly true that a covered conveyor is less likely to cause dust, it is less clear that this equates in general terms to a *'closed'* system and in general speech certainly is not the same as an enclosed system. Submissions have therefore criticised the information provided to the public by the Esperance Port when it proposed the export of lead through the Port and described its heavy metal system as *'enclosed'*.²⁴³

Finding 41

The reference to covered conveyor systems as *'closed'* in publicly available Department of Environment and Conservation's port licensing documents was misleading.

²⁴³ Submission No. 13 from Ms Pam Norris, 26 April 2007.

Recommendation 16

The Committee recommends that the Department of Environment and Conservation review the terminology used in its port licences, in particular the reference to 'open' and 'closed' handling systems, to ensure that these are not misleading.

The Committee highlights other concerns about the enforceability of the Esperance Port's licensing conditions in the next chapter. It also deals with specific issues about the Esperance Port's licence in relation to dust and marine sediment monitoring in the following two chapters. Other evidence available to the Committee indicates that these issues are not confined to the Esperance Port. For example, Geraldton Port did not have any air quality monitoring licence requirements when it was considered as an option for the transport of Magellan's lead carbonate in 2004 (Chapter 5.1(d)). It is of note that although Geraldton Port had incorporated sediment sampling requirements by 2001, it did not include any dust monitoring requirements, even though by then approval had been granted to handle lead (not lead carbonate).

The Committee requested that DEC provide information on the current air monitoring standards applied to Western Australian ports under DEC's licensing conditions, and that information is included in Appendix 9.²⁴⁴ The recent information provided by DEC indicated that Geraldton had only been trialling dust monitoring for approximately the past 12 months and it remained unclear whether these were required as part of the Port's licensing conditions. Similarly other ports appear, in the main, to have only implemented measures such as high volume monitoring recently, if at all.

The Committee is concerned that the licence conditions for Esperance Port, and others, appear not to incorporate current standards relating to environmental management and monitoring. The Committee understands that DEC is currently reviewing heavy metal exposure at ports throughout the State.²⁴⁵

Finding 42

The Committee is concerned that the licence conditions for the Esperance Port Authority, and other ports, do not appear to incorporate current standards relating to environmental management and monitoring.

²⁴⁴ DEC, *Addendum to Transcript of Evidence*, Answers to Questions, Hearing 5 June 2007, Attachment 7.

²⁴⁵ DEC, Media Statement, 'DEC carries out ports assessment', 12 July 2007.

Recommendation 17

The Committee recommends that, as part of its current review of ports, the Department of Environment and Conservation review port environmental licences to ensure that the licensing conditions incorporate current standards relating to environmental management and monitoring.

CHAPTER 6 PELLETISED OR GRANULATED LEAD?

6.1 The issue

The Committee was requested to inquire into and report on how the environmental approval process for the transport and export of pelletised lead enabled the transport and export of granulated lead.

This reference is not altogether clear to the Committee. One of the difficulties with the inquiry, and indeed the processes associated with the Magellan product generally, has been the elasticity in the terminology used: whether the product is *'lead oxide'*, *'lead carbonate'*, *'lead concentrate'*, or *'lead'*; in the form of *'ore'*, *'moist filter cake'*, *'pebble-like'*, *'prill'*, *'agglomerates'*, *'granules'* or *'pellets'*.

To clarify, the Committee interprets this term of reference as requesting it to inquire into and report on whether there was a difference between the approved form in which lead concentrate was to be transported and exported and the form in which it was transported and exported. There are two environmental approval processes that have been examined by the Committee, the first related to the Ministerial conditions as managed by the Environmental Protection Authority and the other relates to the amendment of the environmental licence of the Esperance Port Authority by DEC.

6.2 Environmental approval processes

(a) The Environmental Protection Authority

(i) *Original proposal*

The Minister accepted the Environmental Protection Authority's recommendation that she allow the Magellan proposal to be implemented on the basis of a number of conditions and commitments. The Environmental Protection Authority also recommended that the proponent's commitments be made legally enforceable. However, neither the Ministerial conditions nor the proponent's commitments referred specifically to the form in which the concentrate was to be transported and exported. The Environmental Protection Authority's Bulletin on the Magellan proposal referred only to the concentrate being transported as *'a moist filter cake'*.

(ii) *HHEMP*

One of the original Ministerial conditions concerned the development of a Health, Hygiene and Environmental Management Program by Magellan prior to any *'groundbreaking activities'* at the mine site. It was to address a range of issues, but the Ministerial Statement made no reference to a required form of the concentrate for transport and handling. The original HHEMP of August 2004 referred to the lead carbonate being variously *'granulated'* or *'agglomerated'* to prevent dusting.

The HHEMP, as revised in November 2004, was provided to a number of public libraries in January 2005. It continued to refer to the lead carbonate as being in a 'granulated' or 'agglomerated' form. However it had a copy of the revised Esperance Port Authority licence of 17 November 2004 attached. The revised licence referred to the lead carbonate as being 'pelleted'.

(iii) Variation to Ministerial Statement

The letter, dated 8 October 2004, seeking a variation to the original Ministerial Statement approving the implementation of the Magellan proposal stated: *'In seeking approval to export through Esperance, Magellan is not proposing to alter the quantum or type of material.'* It also referred to the additional processing step of 'agglomeration' which *'will significantly reduce the risk of rogue dust emissions during handling and ship loading'*.

The Environmental Protection Authority assessment of Magellan's requested variation, dated 3 December 2004, made no reference to the agglomeration of the lead concentrate. The assessment also noted that the Esperance Port Authority's licence had been varied to allow the loading of lead carbonate, but did not refer to the lead being 'pelleted'. The subsequent Chairman's recommendation to the Minister on 6 December 2004 also made no reference to Magellan's undertaking to agglomerate the concentrate or to the reference to pelleted lead in the Port's licence.

On 29 December 2004, the variation of the Magellan Lead Carbonate Project to allow the transport to and export from Esperance was approved by the Minister without the need for a revised proposal to be submitted to the Environmental Protection Authority, on the basis that the changes would not have a significant environmental impact. The Minister advised Magellan that the *'detrimental environmental impacts associated with the variation to export through the port of Esperance are not considered significant'*, and the handling, transport, storage and shipping loading activities *'can be managed by the existing conditions of Statement 559'*.

The evidence of the Environmental Protection Authority to this Committee was that the advice to the Minister to accept Magellan's proposed variation on the basis that the changes would not have a significant environmental impact *'was based largely on advice that the lead carbonate material would be transported and shipped in moist agglomerates (pellet-like) form'*.²⁴⁶

The Environmental Protection Authority was questioned about this at a hearing before the Committee. It indicated that the application to it had indicated that agglomeration would reduce the dust emissions and that:

the variation [application] does, in fact, is redefine the proposal to which the conditions are subject. So, in fact, there was no need to actually specify this agglomerated material

²⁴⁶

Submission No. 17(a) from Environmental Protection Authority, 26 April 2007, p4.

*within the condition, because legally, the variation that the company had put to us, which included that one-centimetre granule, formed part of its new approval.*²⁴⁷

The Environmental Protection Authority confirmed that it *'became a clear obligation of the company to transport it in that form'* but that it had never prosecuted anyone for not complying with a *'variance'*.²⁴⁸

Finding 43

The Environmental Protection Authority's view is that because the undertaking to agglomerate its lead concentrate was included in correspondence from Magellan Metals Pty Ltd when seeking a variation to the Ministerial Statement, it *'became a clear obligation of the company to transport it in that [agglomerated] form'*.

However, the Environmental Protection Authority has never prosecuted anyone for not complying with such a *'variance'*.

The Committee notes that this view appears somewhat at odds with the advice to proponents from the Environmental Protection Authority that the proponent's commitments appended to a Ministerial Statement are legally enforceable, the implication being that the other various undertakings made by the proponent may not be. It strikes the Committee as odd that information proffered by the proponent, but not included in the Ministerial Statement, would have a different status depending on whether it was part of the original approval process or related to a subsequent variation. Possibly the Environmental Protection Authority's view is that all undertakings in related correspondence is legally enforceable, but again this appears at odds with the advice that the proponent's commitments appended to the Ministerial statement are enforceable.

Finding 44

The Committee is not convinced that all commitments made by a proponent, in correspondence, seeking a variation to a Ministerial Statement are legally enforceable. As a result it is not prepared to conclude that the environmental approval process for the Magellan proposal required Magellan Metals Pty Ltd to transport the lead concentrate as agglomerates.

²⁴⁷ Mr Colin Murray, Acting Director, Environmental Impact Assessment, Department of Environment and Conservation, *Transcript of Evidence*, 7 June 2007, p10.

²⁴⁸ *ibid*, pp10,12.

Recommendation 18

The Environmental Protection Authority's view is that there is a legal obligation to comply with all commitments made by a proponent in correspondence seeking a variation to a Ministerial Statement.

The Committee recommends that, unless the Environmental Protection Authority has already done so, it seek legal advice on the issue of whether all commitments made by a proponent in correspondence seeking a variation to a Ministerial Statement are legally enforceable.

If the Environmental Protection Authority's view is supported, proponents should be advised that all their undertakings made in correspondence seeking a variation to a Ministerial Statement are legally enforceable.

If the Environmental Protection Authority's view is not supported, it should review its procedures to ensure that all proponent commitments that it intends to be legally enforceable are incorporated into the Ministerial Statement, together with a precise definition of the terms used so that auditing of compliance can be effectively undertaken.

(b) The Department of Environment and Conservation

When the CEO of the Port applied to DEC on 28 September 2004, to vary its environmental licence, he referred to Magellan's advice that as a further measure to prevent dust emissions the lead carbonate would be produced in 'moist, small "agglomerates" (or balls) < 10mm for shipment'. The enclosed media release 'Port Considering Export of Lead Carbonate and Metal Ingots', dated 31 August 2004, referred to the minimisation of dust through agglomeration of the product.

The DEC Environmental Officer responsible for the Port's licensing at that time, Ms Catherine MacCallum, gave the following evidence to the Committee about the how the application to export lead carbonate came to be referred to in the preamble to the licence as 'pelleted lead carbonate'.

When I did the licence amendment with the application, the information they gave me did not have "pelletised" or anything; it was the wet agglomerate balls. Through discussion and negotiation with the port during that amendment process, I had clearly said to them, "Look, the management of dust is going to be very important here, and I want to clearly nut out what these agglomerate balls are, and an appropriate word that could be used to really underline the fact that it was compacted material that was less likely to produce dust when handled." The port had also put in an application for prilled sulfur that it was going to be handling, and I indicated that we wanted a word that can describe a similar sort of formation to what the lead would be like, as that was my understanding of what the lead product would be handled as - that it would be a compacted, pelletised compound... Our licences are publicly available items and it needs to be clearly understood by all parties as to what is being dealt with, and the opportunity arises in the preamble of the licence to

clearly set out the intent of the licence, and I wanted to make the idea clear that the compound they would be working with was going to be a compacted form... which means it is less likely that dust is going to arise from the handling of the material.

... I only put it to the port and Magellan to come up with a word that adequately described what they were going to be doing. ... they came up with "pelletised"...It was between Magellan and the port, so I could not tell you exactly which one of them came up with the word.²⁴⁹

The evidence of the Environmental Consultant at the Port,²⁵⁰ Mrs Shelley Grasty was different, however, and she stated:

Originally we submitted our licence application and we got it back with an email from Catherine. I opened up the file and it said, "pelleted," and I said, "..., this isn't pelleted." The first thing I did was ring her up right away. I said, "Catherine, it's not pelleted; it's never going to be pelleted. Can we get a different word?" She said, "We needed a word to describe the lead," so I said, "Okay, I'm going to go and ask Magellan what they want, because it's their product." So I sent the email to Trevor, asking him. He was happy with "pelleted" and Catherine had suggested "pelleted", so I did not see any problem. You can understand; I am Canadian and I thought, "Well, they both want to call it 'pelleted'. Maybe that's an Australian word they want to use to describe it." Trevor was happy; it was his product. The fact that Trevor was happy with it was the main thing that took my concerns away.²⁵¹

The evidence of Mr Trevor Watters, of Magellan Metals, was different again, and he initially indicated that Magellan had not been consulted about the use of the word 'pelleted' in the licence. When Mr Watters was referred to the email of 11 November 2004, he stated:

The word pelleted is as good as any, granulated would also work, but your call.

Cheers, Trevor.²⁵²

Mr Watters' evidence was:

That is correct because we did not see any distinction between the use of the word pelleted, the use of the word granulated, or the use of the word agglomerated. They all conjured up to us the same quality of particles.²⁵³

²⁴⁹ Ms Catherine MacCallum, Senior Environmental Officer, Department of Environment and Conservation, Transcript of Evidence, 6 June 2007, pp3,4.

²⁵⁰ Mrs Grasty is employed by Esperance Environmental but worked as a consultant for the Esperance Port Authority. In correspondence on behalf of the Port, Mrs Grasty identified as 'Environmental Consultant, Esperance Port Authority' and this designation has been retained for this Report. (Mrs Shelley Grasty, Environmental Consultant, Esperance Port Authority, Transcript of Evidence, 28 June 2007, p1).

²⁵¹ *ibid*, p6.

²⁵² Mr Trevor Watters, General Manager, Strategic Development, Magellan Metals Pty Ltd, Transcript of Evidence, 2 May 2007, p10.

The Committee has access to the emails relating to the use of the word pelleted to describe the product, but not the draft amended licence from Ms MacCallum referred to by Mrs Grasty. The Committee also notes that both the Port and Magellan had referred to the product in correspondence relating to the export of the product via Esperance as being in an agglomerated form. When Mr Watters made a presentation on 24 September 2004, to the Port Development Consultative Committee, on the issue of the export of lead carbonate through the Port the minutes record him referring to a granulated product. The terminology in the HHEMP was variously '*granulated*' and '*agglomerated*'.

At the same time, however, it should also be noted that Magellan had '*pelletisation testwork*' conducted on its concentrate in 2001 and the report used that terminology interchangeably with '*agglomerates*',²⁵⁴ the Ivernia press release in May 2004 referred to:

the main area of lead concentrate handling yet to be finalised. Test work was completed on this area during the quarter and a highly satisfactory pelletising process was defined using an inert binder.

The Technical Report issued by Ivernia on 30 September 2004 for filing with the Canadian authorities referred to a '*friable product*' which would be air dried and pelletised prior to transport (the definition of friable is '*easily crumbled or reduced to powder*').

Given the available evidence the Committee is not able to determine who first suggested the use of the word '*pelleted*' in the context of the amendment to the Port's environmental licence to provide for the handling of Magellan's lead concentrate. However, it is clear that Magellan Metals, the Port, and ultimately the regulatory agency, DEC, agreed to its inclusion in the licence.

Finding 45

The Committee is unable to determine who first suggested the use of the word '*pelleted*' in the context of the amendment to the Esperance Port Authority's environmental licence to provide for the handling of Magellan Metals Pty Ltd's lead concentrate.

²⁵³ Mr Trevor Watters, General Manager, Strategic Development, Magellan Metals Pty Ltd, *Transcript of Evidence*, 2 May 2007, p10.

²⁵⁴ Lakefield Orestest, *Pelletisation testwork on flotation concentrate*, 26 September 2001. Magellan's advice is that this testwork was related to the proposed refinery (Magellan Metals Pty Ltd, *Addendum to Transcript of Evidence*, Answers to Questions, Hearing 2 May 2007, p7).

Finding 46

Irrespective of who first suggested the term, Magellan Metals Pty Ltd, the Esperance Port Authority and ultimately the regulatory agency, the Department of Environment and Conservation, agreed to the inclusion of the term '*pelleted*' to describe Magellan's lead concentrate in the Port's licence.

As indicated in Chapter 5.2(b), the licence, when it was finalised, had only one reference to '*pelleted lead carbonate*' and that was in the preamble. The other references were to the '*throughput*' of '*lead carbonate*', through the Port's '*closed system*' and a reference to '*lead carbonate*' in relation to a condition of the licence that:

*The licensee shall inform the Director prior to any new granular bulk material (additional to iron and nickel ore concentrate, lead carbonate and fertiliser products) being loaded/unloaded at the Esperance Berths under the control of Esperance Port.*²⁵⁵

The evidence of Magellan was that the term was not included in the Port's licence conditions, but only in the preamble and as such was not a requirement. It also stated that it was not a precise industrial term.²⁵⁶ Magellan's view gained support from the inspection *pro forma* for DEC's Environmental Officers. The *pro forma* set out a list of licensing conditions which the Officers were required to assess/comment on. There was no specific provision to assess the preamble, and as a likely consequence of this none of the DEC officers who undertook licence inspections while lead carbonate was being handled by the Port inspected the form of the lead carbonate. Moreover, both the category description applicable to the lead carbonate and the general condition G1 referred to '*granular material*' and '*granular bulk raw material*'.

The evidence of DEC to this Committee, however, does not rely upon the preamble being prescriptive. Instead it stated that the change of the form of lead carbonate was a change of materials or methods of operation which may cause an emission and that was not in accordance with the licence or other approval process. DEC stated that this may constitute an offence under the terms of section 53 of the *Environmental Protection Act 1986*. DEC stated its investigations were still continuing but '*it appears that the Port Authority may have been receiving lead carbonate material with a significant dust component since the latter part of 2005*'.²⁵⁷

The Committee does not wish to pre-empt any potential prosecution, but on the evidence available to it, there appears to be difficulties in arguing that the lead concentrate had '*changed*' to one which had a substantial dust component in the absence of any clear definition of the characteristics of '*pelleted*' lead carbonate.

²⁵⁵ DEP, *Environmental Protection Act 1986 Amended Licence*, Licence No. 5099/09, for the Esperance Port Authority, 17 November 2004.

²⁵⁶ Submission No. 33(a) from Magellan Metals Pty Ltd, 27 April 2007, p2.

²⁵⁷ Submission No. 27(a) from DEC, 26 April 2007, p9.

For the purposes of this inquiry, however, it is sufficient for the Committee to conclude that the inclusion of the term *'pelleted lead carbonate'* in the preamble to the Esperance Port Authority's environmental licence did not amount to an environmental approval for the transport and export of pelletised lead.

Finding 47

The inclusion of the term *'pelleted lead carbonate'* in the preamble to the Esperance Port Authority's environmental licence did not amount to an environmental approval requiring the transport and export of lead carbonate in a pelleted form.

Recommendation 19

The Committee recommends that the Department of Environment and Conservation review its procedures to ensure that any significant commitment made in an application for, or an application to vary, an environmental licence is included in the conditions of the licence, together with a precise definition of the terms used. This will ensure that there is no ambiguity about the significance of the commitment and also that compliance with these commitments can and will be inspected by the Department of Environment and Conservation licensing officers.

6.3 The transport and export of granulated lead

The Committee does not consider that a requirement to transport and export pelleted lead carbonate resulted from the environmental approval processes applied by either the Environmental Protection Authority or DEC. As indicated in the LEAF submission, if it was intended to make pelletising a condition of the licence or approval, there should have been strict specifications for the process of forming the pellets, standards which had to be met for compression testing, abrasion resistance and surface shedding of dust in a simulated transport and handling test, samples to be provided, and a consistent use of the terminology used.²⁵⁸ Mr Ron Jones, a retired mechanical engineer, stated in his submission that:

no competent person would believe that a so-called "Pellet" would survive the necessary handling, solely because it contained % of moisture. The fact being that with a moisture content at the % rates proffered, the moisture would only serve to weaken any balling or pelleting, without further treatment such as compressing and baking etc...

²⁵⁸

Submission No. 20(a) from LEAF, 26 April 2007, p2.

Evidence given at Esperance by Magellan on this subject, where the use of a screw [feeder] was allegedly employed to produce a Pellet, was found by the Author to attain no credibility whatsoever.

A screw [feeder] is simply not capable of producing anything like a pellet, a tablet, or briquette, and certainly unable to produce any such thing that would survive even its first movement ... it needs be further said, that even with a pellet with good qualities, it would still generate "fines" that could be blown away, each and every time it is handled, and that includes each time it is transferred from conveyor to conveyor.²⁵⁹

Nonetheless there had been clear indications that the lead concentrate would be transported and exported in a different form. It is interesting to examine when and how this occurred, and who was informed.

(a) The decision not to agglomerate

There had been concerns expressed by the Port's workforce and the Board about the occupational, safety and health implications of the proposal to handle the lead concentrate. As a result a delegation from the Port visited the Magellan mine site on 15 March 2005. At that time, the mine advised that the agglomerator had just arrived and was not yet operational and the mine undertook to make a sample of the agglomerated product available to the Port as soon as the agglomerator was functioning.²⁶⁰

Days after hosting the delegation from the Port, Mr Trevor Watters General Manager, Magellan Metals, emailed Mr Colin Stewart CEO, Esperance Port Authority, on 19 March 2005, and advised:

it will take us a few days to optimise the agglomerator. In any event, given the height from which the product will fall into your shed, it is apparent that the first of the granules will certainly break on impact. ... At 10% moisture, I don't see the ship loading is going to create any dust issues, but with a TML of over 11%, there is plenty of scope to add water during the loading process.

On 4 April 2004, after the Port received the first trainload of lead concentrate there was a meeting of Port employees, Brambles staff, Magellan representatives and the Port's Occupational Health and Safety (OH&S) consultant to review procedures. It was recorded that *'the prill had degraded in transit from the mine and the product arrived at the Port resembling damp nickel concentrate'*.

²⁵⁹ Submission No. 72 from Mr Ron Jones, 25 May 2007, pp18,29,30.

²⁶⁰ According to the briefing note prepared by the Port's Chief Executive Officer for the Board meeting on 21 March 2005, which states: *'the agglomerator has only recently become available to Magellan. The agglomerator turns the concentrate into prill/pebble like product so as to enhance its handling and shipping characteristics'*. The note advises that samples of the agglomerated product will be provided to Port and also that *'there remain concerns as to the OH&S issues associated with the handling of lead carbonate. Such concerns stem from uncertainty as to how much dust will be generated during the handling of the product.'*

By 7 April 2005, the Operations Manager, Magellan emailed Mr Stewart stating that the agglomerator had '*frequent tripping out, bogging etc & as a consequence very low loading rates*'. It also noted that the product lost its agglomerated characteristics by the time it reached the Port and that this was:

confirmed when the kibbles were inspected after completing the 35kms of dirt road to Wiluna ... Whilst we have complained relentlessly about the dirt road to the authorities, nothing has yet happened. ... the road is taking its toll on Brambles trucks & as a result, Brambles now drive 20km/hr... So between the low agglomerator loading rates & extended haulage times we find ourselves in unacceptable situation.

The email continued that the result was that, after discussion with the General Manager of Magellan mine:

the kibbles were loaded directly with the FEL [front-end loader]. Whilst I am certain this will have no impact on your concentrate unloading routines (because we both agree that its more about moisture content than anything else), maybe you should attempt to continue to monitor the kibbles to identify any differences associated with un-agglomerated product.²⁶¹

Finding 48

On the evidence before the Committee, the decision to transport the lead concentrate in an un-agglomerated form was made by Magellan Metals Pty Ltd on or around 7 April 2005.

Magellan's evidence was that it did not consider the change to an un-agglomerated product as significant with reference to the handling of the product beyond the mine site as it conformed with its environmental licence, which referred to concentrate, and because:

the strong view was that the dust characteristics of this material were really about moisture, and agglomeration was, if you like, really almost a red herring.²⁶²

In the following weeks there were ongoing problems at the Port with the Magellan product being too wet, blocking the hopper, and being '*sticky*'.

On 3 May 2005, Magellan Metals applied to DoIR for approval of a temporary concentrate drying pad for its product. The application was copied to the Kalgoorlie office of DEC. The application stated that the drying pad was required because the filters were not performing to specifications.

²⁶¹ This is confirmed in Magellan's most recent submission (Submission No. 33(d) from Magellan Metals Pty Ltd, 3 August 2007, p1) in which it states on or about 7 April 2005:

the screw-feeder used to attempt to produce agglomerates was discontinued and physically removed from the production process (although the machine is still stored at the mine).

²⁶² Mr Patrick Scott, Managing Director, Magellan Metals Pty Ltd, *Transcript of Evidence*, 2 May 2007, p8.

There was no reference to any implications for the agglomeration or granulation of the concentrate.²⁶³ In subsequent correspondence, as required by DoIR in consultation with DoE, Magellan stated that it:

*viewed the storage of the concentrate on a dedicated drying pad as an extension of our existing processing practices and not a significant change... As our nearest neighbours are property owners some 18km distance and the township of Wiluna is 32 km to the east, the wider community is not at risk from the proposed storage.*²⁶⁴

Information provided to the Committee was that drying on a pad is the cheapest system of drying products and that the Australian climate is very suited to it. However, it was also emphasised that it does not give quality control. While there is a commercial logic for the mining company to use the climate to dry out its product it is at the cost of quality control in terms of moisture content of the product.²⁶⁵ Given Magellan's view that *'the dust characteristics of this material were really about moisture'* the decision to use a drying pad appears questionable; however Magellan stated that the installation of a filter would take approximately 12 months to complete and *'we are at a critical stage of commissioning and the continuing operation is totally dependant upon generating cash flow through the product export'*.²⁶⁶ Magellan did not obtain a high pressure filter to remove the moisture from its product, referred to in its CER document of 1999, until 2007. This issue is discussed further in Chapter 9.5(a).

Finding 49

The Department of Environment and Conservation was informed of the proposal by Magellan Metals Pty Ltd to dry its product using a temporary concentrate drying pad on 3 May 2005. The advice did not refer to Magellan's intention that it would not be seeking to agglomerate its concentrate in future.

(b) Advice to agencies and the Esperance community

There appears to have been no formal advice to those agencies or the Esperance community which may have been interested to know that the concentrate was not being transported in a pelleted/agglomerated/granulated form. The initial evidence of Mr Stewart, of the Port, was that he did not advise DEC, the Department of Health, or the local community of the change in the

²⁶³ Letter from Mr Trevor Watters, General Manager, Magellan Metals, to Mr Andrew Wallace, Environmental Officer, DoIR, Kalgoorlie, 29 April 2005.

²⁶⁴ Letter from Mr Trevor Watters, General Manager, Magellan Metals, to Mr Andrew Wallace, Environmental Officer, DoIR, Kalgoorlie, 8 May 2005.

²⁶⁵ Closed evidence.

²⁶⁶ Letter from Mr Trevor Watters, General Manager, Magellan Metals, to Mr Andrew Wallace, Environmental Officer, DoIR, Kalgoorlie, 29 April 2005; Letter from Mr Trevor Watters, General Manager, Magellan Metals, to Mr Andrew Wallace, Environmental Officer, DoIR, Kalgoorlie, 8 May 2005.

form of the product as he did not believe it had changed materially.²⁶⁷ Mr Ian Mickel, a Director on the Port's Board, in a submission to the Committee, stated that Mr Stewart reported after the project started that the product handled well but had broken down, and that DEC in Albany had been informed and had no concerns.²⁶⁸ Subsequently Mr Stewart's evidence was that:

*Certainly at the board level we discussed that the product had broken down in transit... I have no doubt in my mind that we would have talked to DEC in Albany about it. Do we have a paper trail to prove that? I do not believe that we have. However, there is little doubt in my mind that due to the interest in the product from a variety of parties, not the least of whom was DEC, we would have mentioned it.*²⁶⁹

Ms MacCallum, the Environmental Officer with responsibility for the Port's licence, stated that *'at no time did the port bring up any issue that the lead was being dealt with in any other way than what had been discussed at the point of time when we were doing the licence amendment'*.²⁷⁰

As it is the Committee's view that there was not a requirement under relevant environmental approval processes that the lead concentrate be pelleted, it has not tried to assess the competing evidence on the issue of who was told what about the break down of the agglomerates and when.

(c) 'agglomeration was... really almost a red herring'²⁷¹

Whether there was an environmental approval process requiring the lead carbonate to be in a pelleted, agglomerated or granulated form, had implications for the obligations of the Port and Magellan. However, there is another aspect to this issue, and that is the information which was made available to the public as part of the environmental approval processes.

As part of the Port's application to DEC in September 2004 to vary its environmental license to allow it to handle the Magellan product, it cited a press release, media articles and consultation with the Port Development Consultative Committee. Similarly, when Magellan applied to vary its Ministerial Statement in October 2004 so that its lead product would be sent via Esperance rather than Geraldton, it cited public consultation. This included the press release of the Port, the resulting front page article and editorial, and presentations to the Port's workforce and Port Development Consultative Committee. Magellan's position now is that:

the proposal to agglomerate the product was primarily directed to creating a more efficient furnace feed product in light of the initial proposal by Magellan to construct and

²⁶⁷ Mr Colin Stewart, Chief Executive Officer, Esperance Port Authority, *Transcript of Evidence*, 2 May 2007, p11.

²⁶⁸ Submission No. 64 from Mr Ian Mickel, 25 May 2007, p2.

²⁶⁹ Mr Colin Stewart, Chief Executive Officer, Esperance Port Authority, *Transcript of Evidence*, 6 June 2007, pp6,7.

²⁷⁰ Ms Catherine MacCallum, Senior Environmental Officer, DEC, *Transcript of Evidence*, 6 June 2007, p3.

²⁷¹ Mr Patrick Scott, Managing Director, Magellan Metals Pty Ltd, *Transcript of Evidence*, 2 May 2007, p8.

*operate a smelter at the mine site ... [and] it was thought that a side benefit of this process would be to assist in controlling dust.*²⁷²

This was not at all apparent from the advice that Magellan gave to the Environmental Protection Authority, nor the publicity it relied upon, when seeking to vary the Ministerial Statement so it could export its product through Esperance.

From the evidence available to the Committee it appears in each instance referred to by the Port and Magellan, the information presented to the public was that the Magellan product would be agglomerated or granulated to reduce the risk of dust emissions during handling. When the variation to the Port's licence was issued in November 2004, the preamble stated that the lead carbonate would be pelleted. The reason for inclusion of this terminology was that the licence was a publicly available document and the relevant DEC officer wanted a word that was readily understood by the public.

When it was decided that this agglomeration/granulation would no longer be pursued by Magellan and the Port was notified in April 2005, there was no concomitant advice to the public that the information previously provided was no longer applicable.

Finding 50

Although there had been specific reference to community consultation by both the Esperance Port Authority and Magellan Metals Pty Ltd in applications to vary relevant environmental approvals to transport and handle the Magellan lead concentrate, there was no advice to the Esperance community by the Port or Magellan when the information upon which public consultation occurred was superseded.

It is of concern to the Committee that this failure to correct the public record may have contributed to the circulation of misleading information. An article which appeared in the *Esperance Express* on 3 May 2005, a month after it was known that the agglomeration process was ineffective, reported that the Port had started to receive lead about four weeks previously. It stated that the lead '*is being transported to the Port in pellet form on the end of nickel trains*'; that the Port's environmental licence had been amended to allow '*the stockpiling and loading of lead carbonate pellets*'; and that '*Dust generation is minimised by turning the lead into pellets and using water sprays.*' The source of the information was not revealed in the article, although it may have been the reference to the pelleted lead carbonate in the licence which was the basis for the assumption in the article that the lead carbonate was being transported, stockpiled and loaded in this form.

The laudable intent of DEC to be open to the public in relation to its environmental licenses resulted in further disinformation to the public. In August 2005 the Magellan mine was issued with a renewed environmental licence by the Goldfields DEC regional office. As part of this

²⁷² Submission No. 33(c) from Magellan Metals Pty Ltd, 1 August 2007, p6.

process an Environmental Assessment Report was prepared and made publicly available ‘to inform the community and licensees of the factors considered to prepare the Department of Environment (DoE) approach to managing the prescribed premises’.²⁷³ In a process diagram prepared by the Department, a step referred to as ‘granulation’ was included between the storage and transport off site of the concentrate. Magellan had not provided formal advice to the Department that it had abandoned plans to agglomerate/granulate the concentrate.²⁷⁴ Magellan advised that it did not correct the report when it was provided to it in draft form because of an oversight, and emphasised that the document had not been prepared by Magellan.²⁷⁵ The result, once again, was that publicly available information on the ‘Magellan Project’ was misleading.

The Committee is concerned that the Port and Magellan were able to rely upon evidence of public consultation to secure a favourable outcome for their respective applications to the Department of Environment and Conservation and the Environmental Protection Authority, but appear to have been under no obligation to inform the public in a comparable way, for example through the issuing of a press release and consultation with employee and community reference groups, when the information provided was superseded.

Recommendation 20

Where reliance is placed on public consultation in applications to either the Environmental Protection Authority or the Department of Environment and Conservation and the information provided to the public is subsequently superseded, proponents should be required to replicate the initial consultation process.

6.4 Conclusion

The Committee is of the view that the environmental approval processes of neither the Environmental Protection Authority as it applied to the original Magellan project or its variation, nor of DEC as it applied to the variation of the Port’s environmental licence, required the export and transport of pelletised/agglomerated/granulated lead. As a result it does not appear to be a breach of the environmental approval process to have transported or exported the lead concentrate in an un-pelleted form. Although DEC argues that it still may constitute a breach of the Port’s

²⁷³ DoE, Environmental Assessment Report, Magellan Metals Pty Ltd, Magellan Lead Project, 20 September 2005.

²⁷⁴ Mr Scott’s evidence to the Committee was he was not aware of any specific advice to any agency or the public, other than Esperance Port, of the decision not to agglomerate (Mr Patrick Scott, Managing Director, Magellan Metals Pty Ltd, *Transcript of Evidence*, 2 May 2007, p8).

²⁷⁵ Submission No. 33(d) from Magellan Metals Pty Ltd, 3 August 2007, p2. Magellan indicated that there were other inaccuracies in the Process Diagram, which although it does not consider these materials, indicate that it was not initially scrutinised in as much detail as the proposed licence conditions.

obligation to notify it of a change in material or process requirement. The Committee has not had the opportunity to fully inquire into the conditions of Magellan's environmental licence.

On the evidence before the Committee, the decision to transport the lead concentrate in an un-agglomerated form was made by Magellan Metals on or around 7 April 2005. The evidence as to who was informed of the change to an un-agglomerated concentrate, and when this occurred, is not clear. Given the Committee's findings that it was not a requirement under the environmental approval process (finding 44 and 47), this issue was not pursued further.

Irrespective of the status of the undertaking to pelletise/agglomerate/granulate the concentrate, the Committee is concerned that although Magellan and the Port were able to rely upon evidence of public consultation to secure a favourable outcome for their respective applications to the Department of Environment and Conservation and the Environmental Protection Authority, there appears to have been no obligation to inform the public in a comparable way, for example through the issuing of a press release and consultation with employee and community reference groups, when the information provided was superseded.

CHAPTER 7 DUST MONITORING, REPORTING AND RESPONDING

7.1 The Issue

The Committee was requested to inquire into the effectiveness of dust monitoring and reporting in relation to lead levels in the Esperance area and the adequacy of the response to those reported levels.

In addressing this second term of reference Committee members were made aware that the people of Esperance were particularly upset and concerned about the effectiveness of the dust monitoring of the Esperance Port's operations on which their health and well-being had relied. The Committee was told in a number of submissions views such as:

*Existing monitoring by the designated agencies has patently failed our community.*²⁷⁶

*The Esperance Port Authority dust monitoring and reporting and Department of Environment responsibilities for overseeing and independently assessing dust issues has completely failed. The responsibilities of the Esperance Port Authority in assessing, monitoring and avoiding lead pollution have been non existent.*²⁷⁷

*After the port had their lead spills and high levels of lead recorded in their dust monitoring equipment - they did not report this or ensure that the townspeople were safe from it - so how can we trust the port in anything they do now.*²⁷⁸

7.2 Dust Monitoring

The Esperance Port Authority started its dust monitoring program in February 1994, before it commenced exporting iron ore. High volume air samplers were initially used until July 1995 when the Esperance Port Authority switched over to dust deposition monitoring. It would appear the Port told residents that high volume dust monitors 'were stopped after a couple of months as they were too high maintenance'²⁷⁹ and 'that it did not deem it necessary'.²⁸⁰ (The change from high volume to dust deposition monitoring is discussed in more detail in Chapter 10.4(b).) The dust monitoring program at the Port, relying upon dust deposition gauges, did not alter substantially for more than eleven years.

²⁷⁶ Submission No. 70 from Mr David Reichstein, 25 May 2007, p1.

²⁷⁷ Submission No. 13 from Ms Pam Norris, 25 April 2007, p1.

²⁷⁸ Submission No. 21(c) from Ms Natasha Woodhouse, 3 May 2007, p2.

²⁷⁹ Submission No. 15(a) from Locals for Esperance Development, 26 April 2007, p5.

²⁸⁰ Ms Pam Norris, Member, LED, *Transcript of Evidence*, 3 May 2007, p7.

To understand why the Committee questions a number of actions taken with regard to the use of dust deposition sampling in Esperance it is useful to have an understanding of the three methods available to monitor air quality and the lead levels.

(a) Depositional dust gauge sampling

Until recently, depositional dust gauge sampling (sometimes called passive dust monitoring) was the principle mechanical method used by the Esperance Port Authority for monitoring air quality. Over a given sampling period, usually a month, dust particles that settle from the ambient air, together with rainwater, are collected through a glass funnel and retained in a 2 litre glass flagon with a wide mouth. The sample is tested by a laboratory and reported in micrograms per square metre per month. This form of monitoring is described as being '*commonly used to determine if a particle source poses an unacceptable level of nuisance to nearby residents*',²⁸¹ although the samples can also be tested to identify concentrations of pollutants, such as lead or other metals.

This method would appear to have been more common '*historically quite a long time ago*'²⁸² and, as information provided by the Department of Health stated:

*there are several more up-to-date and useful methods available to monitor dust than the dust gauge monitoring currently specified.*²⁸³

The Committee heard some very strong opinions on the value of utilising dust gauge sampling as a means of monitoring air quality; opinions that are summed up in the following:

*Any person employed by the Regulator, [Health or Environment], who believes or pretends that Deposition Monitoring is an appropriate tool to safeguard human health, or the health of native fauna, should not be allowed to remain in that employ.*²⁸⁴

(b) High volume air samplers

Total suspended particulate matter (TSP), the total amount of suspended particular material present in the atmosphere, is measured using a high-volume air sampler. High-volume air samplers draw a large known volume of air through samplers, and trap the dust on pre-weighed glass fibre mats (filters) for 24 hours. After sampling, the filter is re-weighed and the difference in

²⁸¹ Queensland Government, Environmental Protection Agency, Airborne Particulates, Available at: www.epa.qld.gov.au/environmental_management/air/air_quality_monitoring/air_pollutants/airborne_particulates/?format=print Accessed on 22 August 2007.

²⁸² Dr Donald Howarth, Medical Practitioner, *Transcript of Evidence*, 3 May 2007, p4.

²⁸³ Letter from Mr Martin Matisons, A/Principal Toxicologist, Department of Health, 21 September 2005, pp2,3.

²⁸⁴ Submission No. 72 from Mr Ronald Jones, 25 May 2007, p12.

filter weight is the particulate mass. The particulate mass can be analysed to determine the concentration of pollutants, such as lead or other metals.²⁸⁵

The design of the air inlet means that airborne particles with diameters greater than 50µm are unlikely to be drawn into the sampler. TSP sampling takes place at six-day intervals and there is a standard for what is acceptable for lead in air; a maximum concentration of 0.5µg/m³ averaging samples over a year.²⁸⁶

High volume samplers can also be used to monitor particles smaller than 10µm (PM10). These are of particular concern as these particles can enter the human respiratory system and penetrate deeply into the lungs, causing adverse effects.²⁸⁷

This type of monitoring is seen as more efficient and effective than dust deposition sampling. Dr Donald Howarth, an Esperance Medical Practitioner who has written a number of publications dealing with the issue of lead in children and had significant experience in dealing with lead affected communities from working in Broken Hill, said high volume sampling:

*is the standard method worldwide, and there are standards for what number of micrograms, or fractions of a microgram actually, per cubic metre starts ringing alarm bells.*²⁸⁸

(c) Tapered Element Oscillating Microbalance sampling²⁸⁹

The Committee recognises that even when high volume samplers are used to monitor dust, the data they provide, like depositional dust monitoring, will only be available after laboratory analysis days or weeks later.

Real-time dust monitors, known as Tapered Element Oscillating Microbalance (TEOM) samplers, record dust levels 24 hours a day. These provide a system where swift feedback on current dust levels can occur and allows rapid management response.

TEOM samplers can be fitted with a size-selective inlet to monitor particles of different sizes. These samplers draw air through a filter mounted on a vibrating glass tube. As the particles get trapped on the filter the additional weight changes the oscillating frequency of the tube. This frequency change is converted into a particulate mass that can be divided by the volume of air

²⁸⁵ Queensland Government, Environmental Protection Agency, Airborne Particulates, Available at: www.epa.qld.gov.au/environmental_management/air/air_quality_monitoring/air_pollutants/airborne_particulates/?format=print Accessed on 22 August 2007.

²⁸⁶ *ibid.*

²⁸⁷ *ibid.*

²⁸⁸ Dr Donald Howarth, Medical Practitioner, *Transcript of Evidence*, 3 May 2007, p4.

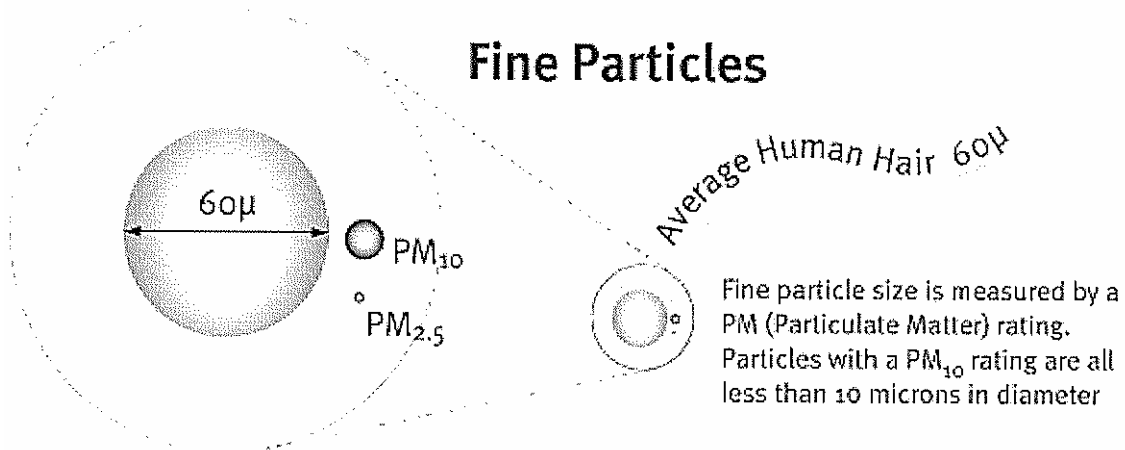
²⁸⁹ Queensland Government, Environmental Protection Agency, Airborne Particulates, Available at: www.epa.qld.gov.au/environmental_management/air/air_quality_monitoring/air_pollutants/airborne_particulates/?format=print Accessed on 22 August 2007.

being drawn into the instrument to produce the particle concentration. TEOM samplers operate on a continuous basis and do not need filter changes as frequently as high-volume air samplers.

An advantage of continuous monitoring is that it can provide additional information, such as the time of day that peak concentrations occurred. Such information may be used in conjunction with meteorological data to help identify the source of an emission.

TEOM samplers can be set to measure concentrations of those particles with aerodynamic diameters below 2.5 micron, or PM_{2.5}, which are now considered to be the major contributor to human health effects, as these particles can penetrate and block the very small passages of the lungs. As the particles are so small and fine, they can remain suspended in the atmosphere for very long periods.

Figure 7.1 Fine particles²⁹⁰



(d) Licence Conditions

At the time it commenced handling lead concentrate in 2005, the licence issued to the Esperance Port Authority by the Department of Environment and Conservation under the *Environmental Protection Act 1986* contained only minimal dust monitoring requirements.²⁹¹

The licence determined seven dust gauge sampling locations and stated the following:

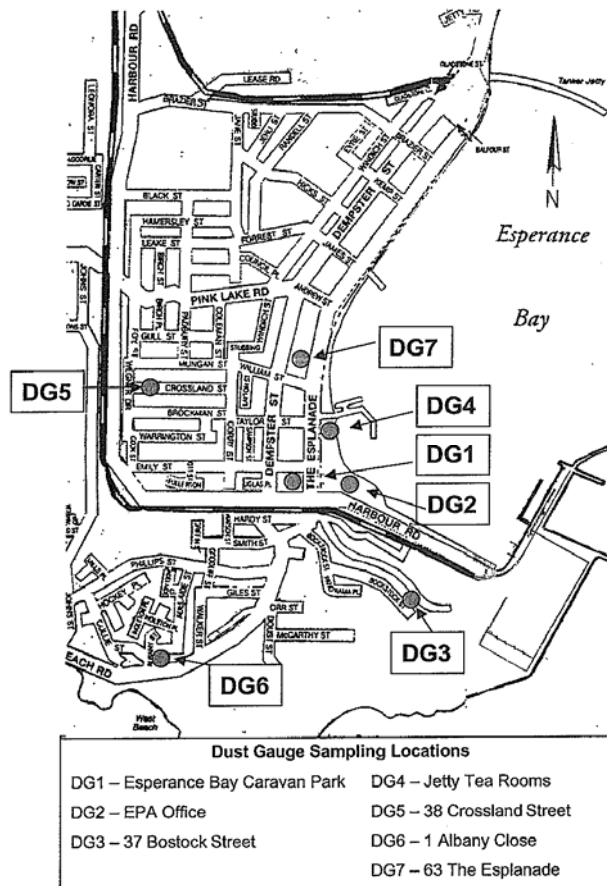
²⁹⁰ Queensland Government, Environmental Protection Agency, Airborne Particulates, Available at: www.epa.qld.gov.au/environmental_management/air/air_quality_monitoring/air_pollutants/airborne_particulates/?format=print Accessed on 22 August 2007.

²⁹¹ Esperance Port Authority, *Annual Environmental Monitoring Report Document No: 06-02*, October 2005 - September 2006, p1.

A13 (a) The licensee shall undertake the dust gauge sampling in accordance with Australian Standard 3580.10.1.1991, 'Methods for sampling and analysis of ambient air',²⁹²

As indicated in the Port's *Annual Environmental Monitoring Report, Document No. 06-02*, dust deposition monitoring fulfilled its licence condition and was in accordance with: the *Australian Standard 2922 (1987): Ambient Air - Guide for the Siting of Sampling Units*; and the *Australian Standard 3580.10.1 (1991): Methods for sampling and Analysis of Ambient Air. Method 10.1 Determination of Particulates - Deposited Matter - Gravimetric Method*. The monitoring network of dust deposition gauges was established at the locations indicated in Figure 7.2.

Figure 7.2



The Committee is aware that there were additional dust monitors, voluntarily maintained by the Port, at a private residence (DG8) and within the Port (DG9 - heavy metal unloading area, and DG10 - berth 2). While all 10 sites were included in the laboratory reports provided to DEC, only

²⁹² Esperance Port Authority - Reserve No 28207, *Environmental Protection Act 1986*, Licence Number: 5099/10 File Number: L6/74, Issued Thursday 28 September 2006, pp3, 6.

the first seven locations were included in the Annual Environmental Monitoring Report which was required to be presented to DEC by 1 November each year.

In what appears to have been yet another lost opportunity to have averted the pollution in Esperance, DEC officers appear not to have considered the lead levels for the three monitoring sites DG8, 9 and 10. These indicated very high levels of lead both within the Port precinct and, of more concern, in relation to DG8, at a private residence beyond the Port's boundary:

I have always had a dust monitor at my house, and we get the results from the port authority on an annual basis. This year's came back - we had levels in November 2005 that we had a level of 62 milligrams per metre squared per month ... I have seen a World Health Organisation document which states that anything over 7.5 milligrams per metre squared per month would be expected to lead to increases in blood lead levels.²⁹³

Airborne particulate samples were collected from the dust gauges at all sites on a three-monthly basis in February, May, August and November of each year.²⁹⁴ Not only did this mean that no monitoring whatsoever was done for eight months of the year but, as was pointed out to the Committee by a number of residents, summer is the major time for significant winds in the Esperance township and the months of December and January were ignored. Local community group, LED, commented in its submission to the Committee:

The prevailing winds in summer (N, NE, E, and SE) are generally from the port to the residential area of Esperance. Monitoring should occur at ALL TIMES the port is operating and especially during handling and shipping of the highly toxic lead carbonate.²⁹⁵

The Committee noted that the practice of sampling lead dust over a month meant any out of the ordinary spikes would be hard to pinpoint and would make trying to link increases to specific days or events, in particular when a shipment of lead carbonate was being loaded, near to impossible. This problem was also highlighted in submissions such as the following:

We have heard that the few air monitor readings recorded were apparently distorted via averaging over periods of time and may not even have covered those times when lead was being handled at the Port.²⁹⁶

(e) Visible v. Invisible dust

In addition to the requirement to maintain dust deposition monitoring, one of the general requirements with regard to material handling under the conditions of the Port's licence was that:

²⁹³ Ms Michelle Crisp, Pharmacist and Member, LED, *Transcript of Evidence*, 3 May 2007, p10.

²⁹⁴ Esperance Port Authority - Reserve No 28207, *Environmental Protection Act 1986*, Licence Number: 5099/9 File Number: L6/74, Issued Tuesday 28 September 2004, p7.

²⁹⁵ Submission No. 15(a) from Locals for Esperance Development, 26 April 2007, pp4,5.

²⁹⁶ Submission No. 28 from Mr Neil Coy, 27 April 2007, p4.

G3 The licensee shall take measures to prevent or minimise:

(i) the emission of visible dust past the boundary of the premises.²⁹⁷

In justifying its position in relation to recognising the risk associated with, and reporting on, incidences of dust emissions, the Esperance Port Authority and its workforce placed a great deal of weight upon the environmental licence condition that it not allow visible dust to go beyond its boundary.

The Port's CEO advised the Committee that: *'the primary measure we use for monitoring dust control was visible dust'*.²⁹⁸

7.3 The Department of Environment and Conservation

Many people within the community of Esperance felt let down by what they considered to be a failure by DEC to ensure that:

- effective dust monitoring was conducted by the Port;
- reports detailing lead levels were received in a timely manner; and
- the information contained in the reports was acted upon.

From the outset, DEC acknowledged to this Committee that there had been failures in relation to its regulation of the Esperance Port:

*there were inadequacies in the exercise of its regulatory functions which, if improved, could have resulted in detection of the elevated lead dust levels at Esperance sooner than has occurred.*²⁹⁹

The Director General also advised that he had commissioned an independent review of the Department's audit and inspection processes for the Esperance Port.

Under the *Environmental Protection Act 1986* DEC is required to:

- consider and determine whether or not to grant licences and works approvals;
- establish environmental conditions that will stop, manage, or diminish pollution;
- perform inspections and monitor compliance; and

²⁹⁷ *Environmental Protection Act 1986*, Licence Number: 5099/10 File Number: L6/74.

²⁹⁸ Mr Colin Stewart, Chief Executive Officer, Esperance Port Authority, *Transcript of Evidence*, 6 June 2007, p20.

²⁹⁹ Submission No. 27(a) from Department of Environment and Conservation, 26 April 2007, p25.

- undertake enforcement proceedings.

As apparent throughout this Report, the Committee considers DEC to have been seriously deficient in its industry regulation and, in particular, in relation to the Esperance Port. Specific issues considered in this chapter relate to the air monitoring standards applied by DEC to the Port and its response to monitoring reports.

(a) Air monitoring methodology

In addition to the condition relating to the emission of visible dust past the Port’s boundary, discussed also at Chapter 9.3(b), DEC required the Port to monitor the air quality beyond the Port’s boundary through depositional dust gauge sampling.

The results of that dust monitoring over the relevant timeframe just prior to and during the handling of lead concentrate at the Port follow at Table 7.1. It should be noted that there were no specific compliance targets set by DEC in relation to depositional dust gauge monitoring in Western Australia. Informal standards associated with these samples by DEC were the relatively lax guidelines in the UK and NSW for ‘nuisance’ - and not harmful or toxic³⁰⁰ - dust. Such guidelines only varied according to the ‘soiling’ characteristics of the dust, so that the general guideline of 6,000-10,500 mg/m²/month was reduced to 2,400 mg/m²/month if the dust had a dark colour.

Table 7.1

Results of dust gauge sample testing undertaken by Esperance Port Authority

Date	Details	Result
November 2004	First base-line dust gauge sample testing for lead	The results for the seven dust gauge samples (DG (dust gauge) 1-7), later reported to DEC, are recorded as <1 mg/m ² /month. ³⁰¹
February 2005	Second baseline dust gauge sample testing for lead	The results are reported as <15 mg/m ² /month for all gauges. The change from November 2004 is attributed to a change in laboratory methods. ³⁰²
May 2005	Third dust gauge sample testing for lead - the first following the handling of lead concentrate by the Port	The results for the seven dust gauge samples later, reported to DEC, are in the range between <0.1 to 3.5 mg/m ² /month. The remaining results, which are not included in the DEC reporting requirements, are for DG8 (private residence) 0.0; DG9 (Port) 5.5 and DG10 (Port) 160 mg/m ² /month. ³⁰³

³⁰⁰ Poisonous particularly in relation to dangerous goods for transport (International Maritime Organisation, *IMDG Code 2004 Edition*, IMO, London, 2005, p73).

³⁰¹ Laboratory Report, ARL Lab No: 33756-62, 10 January 2005.

³⁰² Laboratory Report, ARL Lab No: 6042-48, 30 August 2005.

³⁰³ Laboratory Report, ARL Lab No: 15039-48, 1 November 2005.

Date	Details	Result
August 2005	Fourth dust gauge sample testing for lead - the first following the shipment of lead through the Port	The results for the seven dust gauge samples, later reported to DEC, are <0.1 to 2.3 mg/m ² /month. The remaining results, which are not included in the DEC reporting requirements, are for DG8 (private residence) <0.1, DG9 (Port) 1,500 and DG10 (Port) 850 mg/m ² /month. ³⁰⁴
November 2005	Fifth dust gauge sample testing for lead	The results for the six of the seven dust gauge samples, later reported to DEC, are 2.4 to 6.8 mg/m ² /month - there was no result for the sample from DG 5. The remaining results, which are not included in the DEC reporting requirements, are for DG8 (private residence) 62; DG9 (Port) 690 and DG10 (Port) 64 mg/m ² /month. ³⁰⁵
February 2006	Sixth dust gauge sample testing for lead	The results for the seven dust gauge samples later reported to DEC are 2.4 to 42 mg/m ² /month. The remaining results, which are not included in the DEC reporting requirements, are for DG8 (private residence) 620; DG9 (Port) 2 and DG10 (Port) 650 mg/m ² /month, although the evidence of the Port's Environmental Consultant is that the results for DG8 and 9 were reversed. ³⁰⁶
30 May 2006	Seventh dust gauge sample testing for lead	The results for the seven dust gauge samples, later reported to DEC, are <1 to 28 mg/m ² /month. The remaining results, which are not included in the DEC reporting requirements, are for DG8 (private residence) 2.0, DG9 (Port) 150 and DG10 (Port) 240 mg/m ² /month. ³⁰⁷
August 2006	Eighth dust gauge sample testing for lead.	The results for the seven dust gauge samples, later reported to DEC, are <1 to 3.0 mg/m ² /month. The remaining results, which are not included in the reporting requirements, are for DG8 (private residence) 3.0, DG9 (Port) 240 and DG10 (Port) 620 mg/m ² /month. ³⁰⁸
November 2006	Ninth dust gauge sample testing for lead	The results for the seven dust gauge samples, to be reported to DEC later, are between 0.001 to 0.071 mg/L. The remaining results, which are not included in the reporting requirements, are for DG8 (private residence) 0.028; DG9 (Port) 1.23 and DG10 (Port) 0.059 mg/L. The laboratory advises that these results cannot be converted to mg/m ² /month (as required under the Port's licence) ' <i>due to the testing methodology undertaken and agreed by the Esperance Port Authority</i> '. ³⁰⁹

³⁰⁴ Laboratory Report, ARL Lab No: 24040-41, 1 November 2005.

³⁰⁵ Laboratory Report, ARL Lab No: 31282-31291, 23 October 2006.

³⁰⁶ Laboratory Report, ARL Lab No: 5297-5306, 17 January 2007; Mrs Shelley Grasty, Environmental Consultant, Esperance Port Authority, *Transcript of Evidence*, 28 June 2007, p2.

³⁰⁷ Laboratory Report, ARL Lab No: 15358-15367, 12 September 2006.

³⁰⁸ Laboratory Report, ARL Lab No: 21027 - 21036, 23 October 2006.

³⁰⁹ Email from Laboratory Manager, ALS Laboratory Group, to Environmental Consultant, Esperance Port Authority, 5 July 2007.

Date	Details	Result
February 2007	Tenth dust gauge sample testing for lead.	The results for the six of the seven dust gauge samples, to be reported to DEC later, are 1.0 to 21 mg/m ² /month. The remaining results, which are not included in DEC's reporting requirements, are DG9 (Port) 700 and DG10 (Port) 132 mg/m ² /month. Results are not available for DG2 or 8. ³¹⁰
April 2007	Eleventh dust gauge sample testing for lead	The results for six of the seven dust gauge samples, to be reported to DEC later, are not indicated and the Laboratory states that this is because the results are below the detection limit. There is no sample for DG2. The remaining results, which are not included in the reporting requirements for DEC, are for DG8 (private residence) not indicated; DG9 (Port) 809 and DG10 (Port) 268 mg/m ² /month. ³¹¹

As the data reported in Table 7.1 indicates, the guideline values for 'nuisance' dust were far in excess of any of the lead dust levels reported by the Port.

It is of note that the Esperance Port trialled high volume sampling in February 2007, and these results have been made available to the Committee. Of the eight high volume samples taken at and near the Port, the results included 0.03µg/m³ over one day; 0.25µg/m³ over four days; 1.4µg/m³ over three days; 0.18µg/m³ over three days; and 1.5µg/m³ over one day. Only the first result related to the loading of a lead vessel.³¹² There is a compliance target set for high volume sampling for lead and this is a maximum of 0.5µg/m³, averaged over a year, and no exceedences are allowed. This standard, which relates to the volume of air (cubic metres) samples cannot be converted to a standard which applies to depositional sampling which measures dust in terms of area (metres squared).

Dr Iain Cameron, a former Manager, Environmental Monitoring in WA's Department of Environmental Protection between 1987 and 1997, a Senior Environmental Scientist with more than 15 years experience and 20 years as a chemist and chemical engineer, stated in his submission to the Committee:

the methodology required to be used in [the Port's licence] is in my opinion seriously inadequate and offers no protection to the surrounding physical or human environment. Once lead was detected beyond the EPA [the Port] boundary a system of High Volume Samplers should have replaced all dust deposit gauges together with a greatly increased frequency of monitoring and data collection and reporting should have been implemented

³¹⁰ Email from Laboratory Manager, ALS Laboratory Group, to Environmental Consultant, Esperance Port Authority, 5 July 2007.

³¹¹ *ibid.*

³¹² Department of the Environment and Water Resources, *Lead and compounds, Substance fact sheet - Version 1.0*, July 2007; Esperance Port Authority, *High Volume Monitoring Report February - May 2007*, Doc. No. 07-02, 11 June 2007.

*along with improved dust suppression measures within the EPA [the Port] operation and more frequent inspections by appropriately trained DEC personnel.*³¹³

It would appear that the Department of the Environment was aware of the suitability of using high volume monitoring within a townsite, as is outlined in the following observations. In early 2005, Mr Michael Bell, Department of the Environment, reviewed the *Magellan Metals Lead Carbonate Mine Site Air Monitoring Report November 2004*, which included high volume sampling, and recommended the change to depositional dust monitoring. In assessing the monitoring requirements at the mine site, Mr Bell commented on the use of high volume monitors as follows:

Open pit mining operations are not usually required to conduct particulate monitoring of any kind, unless there are nearby sensitive receptors, such as a population centre, or there are particular pollutants of concern. Lead in air is potentially of concern around a lead mine and processing plant and it is appropriate that some monitoring be undertaken.

*.....the NEPM for Ambient Air Quality prescribes an air quality standard for lead in air of 50 micrograms per cubic metre, as a one year average. However, the NEPM is intended to protect the health and amenity of the human population, and so the NEPM standards are applied "where the people are", i.e. where people live or congregate. I understand that the nearest population centre to the Magellan site is the town of Wiluna, some thirty kilometres away, and so the NEPM standards would not be applied near the Magellan mine site.*³¹⁴

The monitoring protocol accompanying the NEPM standard also described the operation of high volume air samplers required for measurement against this standard.

DEC did acknowledge the usefulness of high volume monitors and, in evidence before the Committee, Mr Kim Taylor advised:

*Obviously, in reflection, at the time that lead was approved for shipping, there should have been a review of the appropriateness of that practice [of depositional dust monitoring] for lead. Conclusions should have been drawn that in addition to the deposition, a high volume should have been established as well.*³¹⁵

However, DEC did not insist on high volume monitors until this year.

I first noticed the high-volume dust monitor after it was announced that lead shipments had stopped due to the bird deaths. I walked down to the boat in the marina, and there was a high-volume dust monitor that had appeared underneath the start tower at the Esperance Bay Yacht Club...I can categorically say that there was never any dust monitor there until that particular point in time. When I went to the open day, I quizzed the port about it. I asked the Department of Environment and Conservation about this machine, which I

³¹³ Submission No. 50 from Dr Iain Cameron, 17 May 2007, p3.

³¹⁴ Memo from Michael Bell, DoE, to Fiona Westacott, Swan Goldfields Agricultural Region, DoE, 13 January 2005, p1.

³¹⁵ Mr Kim Taylor, Acting Deputy Director General, Environment, Department of Environment and Conservation, *Transcript of Evidence*, 5 June 2007, p21.

*presumed was some sort of monitor, but I did not know what it was. DEC explained to me that it was a high-volume dust monitor and that it had been placed there at DEC's request.*³¹⁶

The Committee finds it difficult to understand why high volume monitoring was not insisted upon earlier, particularly as DEC was well aware of the advances being made with reference to air monitoring technology,³¹⁷ and appeared to have a clear understanding of what would have constituted an effective dust monitoring regime. For example, Mr Kim Taylor, Acting Deputy Director General, DEC, commented that any level of either visible or non-visible lead dust leaving the Port boundary should have been identified and acted upon:

*We really should have been looking at a zero target off-site; that is the bottom line. There just should have been at the time of the approval zero lead dust off-site; as soon as it is detected stop. Whether it is a high vol or whether it is a deposition, we should have done both, but there should have been a zero tolerance off-site... Really we should be looking at the deposition gauges and saying basically negligible or zero should have been an acceptable environmental and health level, and so we should have been acting on those.*³¹⁸

Recommendation 21

The Committee recommends that the Esperance Port Authority licence include a condition that its dust monitoring program utilise a combination of depositional dust gauge sampling, high volume sampling and Tapered Element Oscillating Microbalance (TEOM) sampling. The data should be reported to the Department of Environment and Conservation within a specified timeframe after each sampling period or, in relation to TEOM sampling, be available as live stream on the Port's website (refer to examples in Appendix 7).

(b) Visible v. Invisible dust

The Committee has significant concerns about the Port's emphasis on visible dust as a '*primary measure*' for environmental regulation, referred to previously. Dr Cameron stated in his submission to the Committee:

³¹⁶ Ms Pam Norris, Member, LED, *Transcript of Evidence*, 3 May 2007, pp6,7.

³¹⁷ For example, on 15 November 2002, the then Department of Environmental Protection issued a Media Statement arranging for a public meeting to discuss changes to national air quality standards relating to the inclusion of new guidelines for particles 2.5 micrometres or less (DEP, Media Statement, 'Proposed air quality standards changes taken to the public', 15 November 2002).

³¹⁸ Mr Kim Taylor, Acting Deputy Director General, Environment, Department of Environment and Conservation, *Transcript of Evidence*, 5 June 2007, p20.

*This is highly subjective and would require continuous surveillance for complying during any port operation... Once any dust has migrated across the boundary it is almost too late and means what dust control within the boundary is lacking or inadequate.*³¹⁹

In discussions about these licensing requirements with DEC, the Committee was informed that the condition relating to visible dust was not intended to imply that invisible dust leaving the site was acceptable. Instead the intention was to clearly outline to the Port that visible or 'nuisance' dust should not be leaving the Port boundaries.³²⁰ Whatever the intention, however, it appears that the emphasis on visible dust in the licence conditions was understood by the Port as meaning this was the critical tool for environmental monitoring.

Recommendation 22

The Committee recommends that the Department of Environment and Conservation review all licences that it has issued with the condition *'The licensee shall take measures to prevent or minimise the emission of visible dust past the boundary of the premises'*, otherwise known as the *'visible dust'* licence condition, and allow it to remain in the licence only if the probable hazard posed is nuisance dust.

It is also of concern that the limitations of *'visible dust'* as an environmental measure was not understood or appreciated by some at the Department of Environment and Conservation which, in a submission to the Committee, stated:

*One issue of significance that came out of this monitoring [of recent ship-loading of nickel at Esperance] was that sensitive monitoring equipment identified dust emissions and levels which were not visible to inspectors and would not have been detected without the use of equipment.*³²¹

The Committee notes the advice from DEC that this *'finding'* will be incorporated into the licence review and future monitoring to nickel ship-loading at Esperance.

³¹⁹ Submission No. 50 from Dr Iain Cameron, 17 May 2007, p2.

³²⁰ Mr Kim Taylor, Acting Deputy Director General, Environment, Department of Environment and Conservation, *Transcript of Evidence*, 5 June 2007, p11.

³²¹ Submission No. 27(c) from DEC, 1 June 2007, p1.

Finding 51

The Committee notes the advice from the Department of Environment and Conservation that it will incorporate its finding, that '*sensitive monitoring equipment identified dust emissions and levels which were not visible to inspectors and would not have been detected without the use of equipment*', into its review of the Esperance Port Authority environmental licence.

As reinforced by Mr Taylor from DEC during a hearing:

*That is where the monitoring is crucial, so that you can detect whether there is non-visible dust going off site. As we have acknowledged, the monitoring program should have been stronger in this case to deal with the non-visible dust.*³²²

The Committee endorses Mr Taylor's view and believes that its relevance is not only confined to the operations of the Esperance Port.

Recommendation 23

The Committee recommends that the Department of Environment and Conservation incorporate its finding that '*sensitive monitoring equipment identified dust emissions and levels which were not visible to inspectors and would not have been detected without the use of equipment*' into all port environmental licences where dust emissions have potential detrimental impacts beyond nuisance relating to their '*soiling*' characteristics.

(c) Timeliness

A number of the people making submissions asked questions such as:

*Why has the port been left to monitor itself and allowed to get away with late reports to the EPA?*³²³

In the Committee's view the standards established by DEC for the Port to report its dust monitoring results were seriously inadequate. At the time it was handling the lead concentrate, the Port was required to submit its dust monitoring results to DEC on an annual basis. DEC contended that, despite it requiring the Port to only report to it on an annual basis:

³²² Mr Kim Taylor, Acting Deputy Director General, Environment, Department of Environment and Conservation, *Transcript of Evidence*, 5 June 2007, p11.

³²³ Submission No. 28 from Mr Neil Coy, 27 April 2007, p7.

*with sound and responsible environmental practices, samples would have been analysed promptly and should any samples indicate an issue of concern, results would be reported to DEC immediately.*³²⁴

While the Committee concedes that this is correct, it also believes that the establishment by DEC of an annual reporting requirement, contributed to the Port not viewing the results as being of any particular significance or urgency until these were needed for the annual report to DEC. This is examined in more detail in Chapter 7.4(b).

It also appears to the Committee that DEC itself did not necessarily respond with any urgency when issues arose in relation to dust monitoring. As discussed in more detail in Chapter 10.4, DEC agreed, as a response to complaints about dust from the Port in late 2002, that the Port should revise its dust monitoring program. The Port put forward a revised program in November 2002, but DEC never properly responded to this; even to point out the inadequacies of the proposed changes which consisted of nothing more than alterations to the existing depositional dust gauge monitoring.

The Committee believes that there was a lack of timeliness and appreciation of the potential risks by DEC with regard to follow-up on the incomplete Annual Environmental Monitoring Report submitted to DEC by the Port in October 2006. After its first full year of handling the lead concentrate, on the 5 October 2006, the Port applied for an extension of time to submit an Annual Environmental Monitoring Report:

Due to the delay we have experienced this past year in receiving the monitoring results from our dust gauge monitoring program.

DEC disallowed the request for an extension³²⁵ and the Port then submitted an incomplete 'Annual Environmental Monitoring report October 2005 - September 2006' on 26 October 2006. All results for dust gauge sample testing for lead in February 2006 were missing, as was the result for DG5 in November 2005. The available results showed general increases in lead levels, including two readings outside the Port's boundary in May 2006 of 14 and 28 mg/m²/month, although the most recent results for August 2006 indicated a general decline in lead levels.³²⁶

DEC responded on 22 December 2006 and allowed the Port until 31 January 2007 to submit a complete report. When the complete report was submitted on that date it indicated one reading of 42 mg/m²/month of lead beyond the Port's boundary. The Port stated that as it had only recently commenced shipping lead:

³²⁴ Submission No. 27(c) from DEC, 1 June 2007, p12.

³²⁵ Letter from Chief Executive Officer, Esperance Port Authority to Director, Environmental Management, DEC, 5 October 2006; Letter from Chief Executive Officer, Esperance Port Authority to Director, Environmental Management, DEC, 26 October 2006.

³²⁶ Letter from Chief Executive Officer, Esperance Port Authority to Director, Environmental Management, DEC, 26 October 2006.

results above previously recorded levels are to be expected. In addition, lead exported from the port is about 70% lead, compared to the nickel concentrate which is about 14% nickel. Therefore lead results higher than the nickel results would be expected.

DEC inspected the Port the following day and responded to the issues raised by the Port's Annual Environmental Monitoring Report on 27 February 2007. Amongst other things, DEC referred to the dust monitoring for lead as being 'well above the historic trends', with one reading in February well above all historic results, as well as highlighting the two elevated results in May 2006. DEC stated that the Port's current dust monitoring program needed to be urgently updated, and finally referred to NEPM limits for lead and particulates as well as to the letter from the Department of Health of 25 September 2005 and enclosed a copy. DEC requested written advice by 14 March 2007 of the Port's timeframes in upgrading its air quality monitoring and recommended that the Port continue its trial of high volume sampling.

Members of the Esperance community relayed their concern in submissions they provided to the Committee, such as:

Dust monitoring completely failed us and the Port's and DEC's response to the same was so grossly inadequate that it took thousands of dead birds to alert us to high lead carbonate dust levels and the contamination of our community, our children and our environment.³²⁷

Finding 52

Dust monitoring results for the Esperance Port Authority were reported to the Department of Environment and Conservation in the Port's Environmental Monitoring Report on an annual basis.

These results were not responded to or effectively scrutinised by the Department of Environment and Conservation.

As examined in detail in Chapters 4.3(a) and 10, the Committee has found that there are a number of factors, such as: numerous staffing reshuffles; Departmental reorganisations; and inadequate resourcing; that have contributed to the way in which DEC carried out its role in Esperance.

People need to have confidence that DEC's industry regulation division, as with all regulatory agencies, is competent in overseeing and enforcing relevant legislation:

The Esperance community has the right to believe & expect that the Department of Environment & Conservation are acting at all times within their guidelines & with

³²⁷

Submission No. 15(a) from Locals for Esperance Development, 26 April 2007, p4.

*ultimately the best intentions of the community & the people they are supposed to be protecting....*³²⁸

The Committee hopes that the lessons learnt from the experiences in Esperance will ensure that the community's legitimate expectations are met by regulatory agencies:

Recommendation 24

The Committee recommends that the Department of Environment and Conservation be allocated adequate resources to ensure that effective and timely responses to the Esperance Port Authority's dust monitoring results can be guaranteed.

7.4 The Esperance Port Authority

In the context of questioning about the deficiencies in DEC's regulation of the Port leading to the problems with the Port, Mr Kim Taylor, A/Deputy Director General, Environment, highlighted the legal obligations that apply generally under the *Environmental Protection Act 1986*. He also made this point:

*I will give an analogy. We believe that is like somebody saying that they were speeding at 145 kilometres an hour and because there was no radar, the police are to blame for the accident. The Act provides that the people who are handling the material have a clear legal obligation under the Act not to cause pollution. If they cause pollution, there are defences. However, I would not have thought that a defence is that the regulator [was deficient]...*³²⁹

(a) Dust gauge monitoring

In hearings before the Committee Mr Colin Stewart, CEO, Esperance Port Authority, was questioned on the proposition that the land-based dust monitors (the only dust monitors used at the Port until very recently) were inadequate to monitor the emissions into the environment, because with strong winds the fine particulates of lead carbonate can disperse into higher atmospheric layers before descending some kilometres away. Mr Stewart acknowledged:

Our dust monitoring program is a program that we did not develop in isolation. We developed that program in cooperation with the Department of Environment. It is well

³²⁸ Submission No. 23 from Mrs Vivien Bowkett, 25 April 2007, p1.

³²⁹ Mr Kim Taylor, Acting Deputy Director General, Environment, Department of Environment and Conservation, *Transcript of Evidence*, 30 April 2007, p17.

*aware of our monitoring program. Certainly, there are more sophisticated techniques of monitoring these days. High-vol dust sampling is one of them.*³³⁰

The Committee wonders why it took so long for the Port to implement improved monitoring technologies such as high volume sampling when, as detailed in Chapter 10, DEC had previously given the Port ample opportunity to develop, review and update its own dust management plan. As referred to previously, in 2002 the Port's then environmental consultant undertook to develop a new dust monitoring plan incorporating new monitoring techniques, but failed to do so. As part of the more recent approval process to vary its environmental licence to handle lead concentrate, the Port was specifically required to submit a dust monitoring plan to DEC in March 2005. It simply provided an extract from its existing Environmental Management Program, a plan which relied solely upon depositional dust monitoring and was very much focussed on minimising iron ore dust.

The Committee notes that the Port appears only recently to have acknowledged the value of the effective dust monitoring that high volume sampling provides as highlighted by the Port's CEO when he stated:

*We quite frankly are still trying to come to terms within our own operational sense with exactly what is going on; hence our desire to get these high-volume dust samples in place as soon as possible. We have some in place. We are investigating as we speak the installation of real-time dust monitoring that can pick up these sorts of dust levels. To answer your question, I think it goes without saying that we now all appreciate that invisible dust is one of the issues we are grappling with down here.*³³¹

The CEO also pointed out:

*As soon as we became aware of those elevated levels, we immediately brought in high-volume dust samplers and put them in to try to get a handle on what was happening.*³³²

As indicated by the data in Table 7.1, it is not strictly true that the Port acted immediately to bring in high volume samplers when elevated dust levels were reported to it. It was aware of the November 2005 highly elevated lead levels at DG8, the Crisp's residence, on 23 October 2006; it was aware of the two elevated readings from May 2006 on 12 September 2006. The Port did nothing to improve its dust monitoring at the time.

It also appears that the Port was not in any particular hurry to obtain or review the dust monitoring results, as discussed next, at Chapter 7.4(b).

³³⁰ Mr Colin Stewart, Chief Executive Officer, Esperance Port Authority, *Transcript of Evidence*, 2 May 2007, p17.

³³¹ *ibid*, p14.

³³² *ibid*, p13.

(b) Delays

Under its licence conditions the Port's dust monitoring samples had to be analysed by a National Association of Testing Authorities (NATA) accredited laboratory. Since 2001 the Port had used the Analytical Reference Laboratory (WA) Pty Ltd (ARL). Under the existing licence, the Port was required to provide an Annual Environmental Monitoring Report to DEC by 1 November.

As indicated, however, the Port was not in a position to file a complete report by 31 October 2006, as required under its licence. Delays in the receipt of results of dust monitoring analysis for samples in late 2005 and in 2006 severely hindered any potential for a more rapid response to the lead contamination. It was this contamination which was eventually to be detected in Esperance community members' blood lead levels.

When it requested an extension of time to submit its Annual Environmental Monitoring Report, the Port stated that this was:

*Due to the delay we have experienced this past year in receiving the monitoring results from our dust gauge monitoring program.*³³³

When questioned by this Committee about why the report was incomplete, Mr Colin Stewart, CEO, Esperance Port remarked:

*Absolutely fundamentally because we were let down by the laboratories who do the work for us. We have been using a laboratory called ARL to do all our environmental monitoring. They subcontracted out that work to CSIRO.*³³⁴

When asked why they had not changed to a new provider Mr Stewart advised:

*Primarily because once you start an annual environmental monitoring program for scientific analysis, it is best if you stay with the same company for the period; in this case it was four separate rounds of monitoring. It makes good scientific sense to use the same laboratory. We have since ceased using that laboratory, because once they let us down as badly as they did, we immediately went and looked for another laboratory.*³³⁵

Understanding the meaning of the results of the dust gauge monitoring also caused the Port some anxiety as explained by Mrs Shelley Grasty, the Port's Environmental Consultant, who told the Committee that:

I guess there was a lot of discussion and research about what the numbers meant, and that is where the problem arose. The problem was, firstly, with the delay in receiving the results, so that the port was not able to act quickly on the results. The problem was,

³³³ Letter from Chief Executive Officer, Esperance Port Authority to Director, Environmental Management, DEC, 5 October 2006; Letter from Chief Executive Officer, Esperance Port Authority to Director, Environmental Management, DEC, 26 October 2006.

³³⁴ Mr Colin Stewart, Chief Executive Officer, Esperance Port Authority, *Transcript of Evidence*, 2 May 2007, p15.

³³⁵ *ibid.*

*secondly, what did the results actually mean, which is another thing - not having a standard to be able to compare it with, when we have a requirement in our licence to monitor in a certain way and report in a certain way; that is, what do the numbers mean when the feedback we have always got from the DEC is that we have low levels of deposition?*³³⁶

The Committee wondered why the Port had not addressed this issue during any of the many opportunities provided, such as when it renewed its licence annually.

Even though the Port's evidence was that *'we followed it up constantly'*, the Committee finds it disturbing that the Port waited 11 months to receive the laboratory reports when at the same time it was getting complaints from the public regarding the dust. In fact, the evidence provided to the Committee by the Port showed that it only commenced seriously pursuing the results when its reporting deadline was looming, from September 2006 - as might be expected if the focus was on meeting the reporting obligation rather than on effective monitoring of the environment.

Before considering this issue further, the Committee noted that there was a difference of opinion between the two laboratories involved in analysing the Port's dust monitoring samples, CSIRO and ARL. CSIRO indicated that it had reluctantly undertaken to conduct some experimental analysis for ARL on a non-commercial basis. The primary focus, CSIRO stated, was to determine the proportion of haematite,³³⁷ and it considered its work to be supplementary to, and not in place of, the standard analytical procedures for determination of metal loads on air filters.³³⁸

ARL did not dispute that its arrangement with CSIRO was primarily in relation to the testing of haematite, which required specialised instrumentation that is generally not economically viable for commercial laboratories to operate. However, ARL stated that it believed the arrangement with the CSIRO was based on its practice over 15 years of sub-contracting with a different section of CSIRO; that is, there was no service contract but it was assumed to be a commercial agreement. ARL states it repeatedly followed up with CSIRO about the results, and would have removed the samples if it had been aware that CSIRO was reluctant to undertake the analysis, as opposed to being aware of the difficulties in analysing these types of samples.³³⁹

It is of note that in fact the critical lead results from February 2006 were made available to ARL by CSIRO in July 2006.³⁴⁰ These were not provided to the Port, however, because ARL was awaiting the results of the haematite analysis. This preoccupation with iron ore to the detriment of adequate management of lead has proved to be something of an all too familiar theme in the events that are the subject of this inquiry.

³³⁶ Mrs Shelley Grasty, Environmental Consultant, Esperance Port Authority, *Transcript of Evidence*, 28 June 2007, pp4,5.

³³⁷ Generally used to mean iron ore.

³³⁸ Submission No. 77(a) from CSIRO, 25 May 2007.

³³⁹ Submission No. 96 from ARL, 2 July 2007.

³⁴⁰ Submission No. 77(b) from CSIRO, 7 June 2007.

In any event the Committee did not seek to resolve the different accounts provided by CSIRO and ARL. As a result of laboratory delays, no matter what the cause, the reporting of the key February 2006 results to DEC was delayed by three months (1 November 2006 to 31 January 2007). Although this may well have impeded the response to the lead pollution, it needs to be understood in the context of DEC initiating no particular response to the elevated lead levels of May 2006, which were available to it by the end of October 2006. Although these results were not as high as the elevated dust monitoring result in February 2006 (42 mg/m²/month), they were still considerable at 14 and 28 mg/m²/month, and potentially indicative of a less localised area of contamination.

From the Committee's perspective the delays inherent in the annual reporting requirement imposed by DEC and the absence of any appropriate compliance targets for lead emissions are of far more significance than the three month delay arising from the late laboratory results. (Refer to Recommendations 21 to 24.)

The Committee also believes that the major breach of trust between members of the Esperance community and the Port will not be quickly healed;

The port has betrayed the trust of its community neighbours, severely damaged the clean, green reputation of our town and totally abrogated its rights to self-regulation under the guise of its professed commitment to 'best environmental practise'.³⁴¹

The community should have independent access to dust monitoring results, including real-time monitors, referred to previously.

Finding 53

The Committee believes that the Esperance community had to rely on an inadequate dust monitoring regime for the Esperance Port with no publicly available results.

Recommendation 25

The Esperance Port Authority licence should include a condition that all dust monitoring results must be made publicly available on its website. This should occur at the same time as these are due to be reported to the Department of Environment and Conservation (refer to Recommendation 21).

³⁴¹ Submission No. 28 from Mr Neil Coy, 27 April 2007, p7.

The Esperance Port Authority had a vital role in ensuring that the dust monitoring arrangements it used were effective and able to achieve accurate results, provide useful data, and serve as a valuable warning system if lead escaped into the Esperance environment. While the Port did appear to generally adhere to the minimal licence conditions regarding dust monitoring it failed to live up to its 'multiple award winning' reputation achieved in 2002 and 2003 and its claim to be 'providing world best practice in dust management' and 'innovative environmental controls'.³⁴²

7.5 Magellan Metals Pty Ltd

Magellan Metals Pty Ltd, in its October 2004 application to DoE to vary its proposal to export concentrate via Esperance instead of Geraldton, stated that the Esperance Port maintained a 'rigorous Port and community monitoring program so that if any rogue dust emissions are detected, corrective action can be taken'.³⁴³

In their contract with the Port, Magellan Metals had a duty of care to advise the contractors and the Port Authority employees of foreseeable and known hazards in the handling and storage of lead concentrate. When questioned on how Magellan saw its duty of care towards assessing the Port's capability to monitor and control dust Mr Trevor Watters, of Magellan Metals, advised that they had discussions with the CEO and other representatives from the Port. The Port representatives advised on the Port's dust management plan and had provided them with assurances that the Port was taking steps to ensure that recent nickel emissions would not continue to occur. In evidence to the Committee Mr Watters recounted:

*Back when we first starting talking to the port we were most impressed with their systems and what was happening. There was some mention of escapes of iron ore dust in the past. The port informed us - basically, demonstrated - that they had resolved the iron ore dust issues. I believed that to be correct. Regarding incidences of any nickel dust escaping from the port, they said they were isolated events and they had an action plan in place to address all of those.*³⁴⁴

Magellan made many trips to the Port to oversee their procedures and made extensive use of external consultants to provide them with advice. It would appear to the Committee that Magellan Metals just accepted the Port's environmental management program as appropriate for monitoring the export of lead concentrate. Magellan Metals Managing Director, Patrick Scott told the Committee that:

I think we took it that the same requirement did apply [to Esperance as it did to Geraldton Port under the environmental approval process] and really proceeded on that basis. Magellan took the view, particularly after seeing the various expert consultants' reports, that the dust monitoring and marine sediment monitoring that was already in place and

³⁴² Esperance Port Authority, *Esperance Report*, December 2002.

³⁴³ Letter from General Manager, Magellan Metals, to Manager Infrastructure and Major Projects, DoE, 8 October 2004.

³⁴⁴ Mr Trevor Watters, Consultant, Magellan Metals Pty Ltd, *Transcript of Evidence*, 2 May 2007, p13.

*proposed and run by the port was appropriate. We basically, essentially, relied on their systems.*³⁴⁵

It is of note that Magellan was well aware of current dust monitoring technology from both the air monitoring standards referred to in the Environmental Protection Authority assessment of its original proposal and from the initial high volume dust sampling conducted at its own mine site. It should have been aware of the deficiencies in the Port's environmental management which relied solely upon depositional dust monitoring.

Finding 54

Magellan Metals Pty Ltd was obliged not only to ensure that dust monitoring systems were in place at the Esperance Port, as it accepts, but to also ensure that it was an effective system.

Magellan was aware of current dust monitoring technology from both the air monitoring standards referred to in the Environmental Protection Authority assessment of its original proposal and from the initial high volume dust sampling conducted at its own mine site.

The Committee believes that Magellan should have been aware that adequate environmental monitoring at the Port location required, as a minimum, a program which included high volume sampling as a means of monitoring air quality.

7.6 Conclusion

This chapter gives some insight into the lack of effective dust monitoring that was used to meet the requirements of the Esperance people. It includes a discussion of the failure of dust monitoring to be useful in the absence of relevant compliance targets, and the delayed and inadequate responses to reported lead levels when these were available. There are a number of examples where there was an ongoing failure by DEC to satisfactorily regulate dust monitoring. Many people within the community of Esperance felt there was also a lack of effective government agency response and follow up.

The Committee believes that DEC, the Esperance Port Authority and Magellan all failed substantially in meeting their responsibilities regarding the effectiveness of dust management, monitoring and reporting lead levels in the Esperance area.

³⁴⁵

Mr Patrick Scott, Managing Director, Magellan Metals Pty Ltd, *Transcript of Evidence*, 2 May 2007, p13.

Finding 55

The Committee believes that the Department of Environment and Conservation, the Esperance Port Authority and Magellan Metals Pty Ltd all failed substantially in meeting their responsibilities regarding the effectiveness of dust management, monitoring and reporting lead levels in the Esperance area.

Not only did it appear that the equipment and processes used were outdated and inefficient but the reports generated by this substandard monitoring were delayed or incomplete. This failed to allow adequate follow up, comparison and action.

Dr Howarth, in evidence to the Committee, discussed the two ways that he believed lead could damage a town. One way was by '*this anxiety that it creates among the population that is potentially being poisoned*'.³⁴⁶ The Committee agrees and wants the community of Esperance not to feel threatened by the workings of its Port; to be satisfied that any monitoring conducted in the town can be relied upon; and to have confidence that the agencies responsible for regulating industry conduct themselves responsibly. In the words of Dr Howarth:

*I think we owe it to people to make sure we have a system that makes them feel safe.*³⁴⁷

³⁴⁶ Dr Donald Howarth, Medical Practitioner, *Transcript of Evidence*, 3 May 2007, p4.

³⁴⁷ *ibid.*

CHAPTER 8 THE PORT AND BENTHIC LEAD LEVELS IN THE HARBOUR

8.1 The issue

The Committee was requested to inquire into and report on the extent to which handling and other practices at Esperance Port gave rise to benthic lead levels in the harbour.

The levels of benthic lead in Esperance harbour have already been discussed at Chapter 2.2(f). As stated there, because baseline testing in 2004 showed very low levels of lead in the berth pockets and outside the harbour, the Committee is satisfied that the elevated levels of lead detected since 2005 are neither naturally-occurring nor historical.

On inquiring into how the Port's handling and other practices gave rise to the benthic lead levels, it is important to first place the Port's practices within the context of what it was obliged to do. In this context it becomes clear, for example, that elevated lead levels in the Esperance harbour were first identified as a result of voluntary monitoring of the marine sediment in the berth pockets by the Esperance Port Authority.

8.2 Protection of the marine environment

(a) The Environmental Protection Authority - The Magellan proposal

When it originally considered the Magellan proposal in 2000, the Environmental Protection Authority appeared very conscious of the risks of lead escaping into the harbour and general environment around the Port (at that time in Geraldton), based largely on concerns raised by the then Department of Environmental Protection's Mid West Region Office. In the summary of relevant environmental factors, DEP was cited as raising concerns about:

- the spillage of materials during ship loading, with materials spilling from conveyors and transport chutes onto the wharf, into the marine environment and onto ships' surfaces;
- stormwater drainage in the vicinity of the minerals handling area contributing to the loss of mineral concentrate into the marine environment following rainfall; and
- the washdown for the loading facility, given its use for various mineral products, causing the loss of some mineral concentrate in the washwater to the marine environment.

The Environmental Protection Authority recommended to the Minister that Magellan be required to undertake a review of the Port's:

existing storage and shiploading facilities ... prior to the existing facilities being used for lead concentrates. It is to include a review of equipment, procedures and monitoring programs to identify potential pathways for lead to enter the environment, and if

appropriate additional equipment, management or revised procedures are to be determined.

As indicated in Chapters 5.1(d) and (e) the review was not conducted, but the Environmental Protection Authority assessed Magellan as compliant with the Ministerial conditions.

As discussed in Chapter 5.1(b)(ii), the Environmental Protection Authority also believed that the Port's environmental licence would be varied by DEP to require the Port to comply with marine sediment monitoring and standards. However, because this was not included as a condition or commitment in the Ministerial Statement, the Port's licence was not assessed for compliance by the Environmental Protection Authority.

The result was that the Environmental Protection Authority did not effectively impose any additional environmental conditions to protect the Esperance harbour through its assessment of the Magellan proposal.

Finding 56

The Environmental Protection Authority did not effectively impose any additional environmental conditions to protect the Esperance harbour through its assessment of the Magellan proposal.

(b) The Environmental Protection Authority - The Port Upgrade 2000

The Environmental Protection Authority had assessed another proposal of the Esperance Port Authority and this had resulted in relevant environmental conditions being imposed. The Port's application to upgrade its facilities in 2000 included dredging sand from the main harbour basin (to allow for a new berth pocket and to deepen the main shipping channel), using the dredged sand to reclaim a considerable area of land (between 15 and 23 hectares³⁴⁸), and constructing a new groyne and seawall breakers.³⁴⁹

When seeking environmental approval for this project, referred to as the Port Upgrade 2000-2002, the Port committed to a marine sediment monitoring program for nickel and tri-butyl tin, immediately post reclamation, and on a six monthly basis for two years. After that time the

³⁴⁸ On 29 January 2002, the Esperance Port Authority reprimanded by DEP for failing to apply for approval of a change in the construction plans for reclamation associated with the Port upgrade. The internal memorandum stated that:

... it is not clear that either the assessing officer or the EPA understood that the total area of disturbance would be the area shown on the map and not only the 15 ha area enclosed by the breakwater. The EPA Bulletin for the project refers only to the disturbance area internal to the original position of the proposed breakwater.

³⁴⁹ Esperance Port Authority, Environmental Management Plan PL009, 4 June 2003, p2.

Environmental Protection Authority would determine if further testing was required. This was incorporated into the Minister's Statement for the Port Upgrade and required the testing of the marine sediment immediately adjacent to the reclamation area.³⁵⁰ The Port conducted baseline testing in 2001.

The Minister also required the Port to undertake monitoring of marine sediments '*outside the inner harbour*'. This was to ensure that the sediment met relevant environmental quality criteria and objectives, and that the Port's operational activities, through its impacts on sediment quality, had no significant impact on environmental values outside the inner harbour.

Finding 57

A condition in the Minister's Statement 555 on the Esperance Port Upgrade required the Esperance Port Authority to prepare a Sediment Quality Management Plan for Port Operations to:

- *ensure that sediment quality outside the inner harbour complies with ... criteria as appropriate, consistent with identified Environmental Quality Objectives outside the inner harbour; and*
- *ensure that operational activities have no significant impact on beneficial users outside the inner harbour.*

The monitoring was required to be undertaken on a six monthly basis for two years, unless earlier completion was agreed to, or an extension was required, by the Environmental Protection Authority. The Port noted that the term '*outside the inner harbour*' had no legal meaning or common use at the Esperance Port, but the Port adopted a definition based on the area outside the '*sheltered waters*' of the Port and dredged areas. It adopted standards relating to the Environmental Protection Authority's Revised Environmental Quality Criteria Reference Document (Cockburn Sound) November 2002. Sampling commenced in October 2002.³⁵¹

The Ministerial condition was formulated prior to the Port's handling of lead in 2005. However, because the Port was required to undertake monitoring to ensure that the Port's operational activities, through its impacts on sediment quality, had no significant impact on environmental values outside the inner harbour, it could be interpreted as requiring the Port to undertake lead monitoring once it commenced handling the Magellan lead concentrate.

³⁵⁰ Esperance Port Authority, Environmental Management Plan PL009, 4 June 2003, p65.

³⁵¹ *ibid*, pp65-68.

Finding 58

Although the condition requiring marine sediment monitoring in Ministerial Statement 555 was imposed in 2000, it is arguable that the condition required the Esperance Port Authority to undertake monitoring of lead in the marine sediment outside the inner harbour once the Port commenced handling the Magellan lead concentrate in 2005.

(c) The Department of Environment and Conservation - General obligations under the *Environmental Protection Act 1986*

As indicated, the Esperance Port Authority was subject to the general provisions of the *Environmental Protection Act 1986* which create offences including:

- causing pollution and unreasonable emissions (section 49);
- causing serious environmental harm (section 50A);
- causing material environmental harm (section 50B); and
- failing to notify the Department of Environment and Conservation (DEC) of discharges of waste (section 72).

Each of these offences had potential application to any discharge of lead concentrate into the marine environment of Esperance harbour.

Finding 59

A number of the offences prescribed in the *Environmental Protection Act 1986* had potential application to any discharge of lead concentrate into the marine environment of Esperance harbour, including:

- causing pollution and unreasonable emissions (section 49);
- causing serious environmental harm (section 50A);
- causing material environmental harm (section 50B); and
- failing to notify the Department of Environment and Conservation of discharges of waste (section 72).

(d) The Department of Environment and Conservation - Esperance Port Authority's environmental licence

DEC's process in amending the Esperance Port Authority's licence to allow for the bulk handling of lead carbonate is described in Chapter 5.2.

The amended licence, as issued to the Port by DEC on 17 November 2004, included a general requirement relating to material handling which stated:

The licensee shall take measures to prevent or minimise:

...

(ii) discharge of raw material to any waters during loading and unloading operations.

The licence also made specific reference to 'Marine Pollution Control Conditions'. In total, the marine pollution control conditions were as follows:

CARGO SPILLAGE - ESPERANCE HARBOUR

MI(a) The licensee shall ensure that all spillage of cargo into the deck of a vessel being loaded/unloaded is collected in a manner so as to prevent its access into the waters of Esperance harbour.

MI(b) The licensee shall collect any spillage of cargo into the jetty in a manner so as to prevent its access into the waters of Esperance harbour.

Finding 60

The Esperance Port Authority's environmental licence imposed the following conditions relating to marine pollution:

G3 The licensee shall take measures to prevent or minimise:

...

(ii) discharge of raw material to any waters during loading and unloading operations.

...

CARGO SPILLAGE - ESPERANCE HARBOUR

MI(a) The licensee shall ensure that all spillage of cargo onto the deck of a vessel being loaded/unloaded is collected in a manner so as to prevent its access into the waters of Esperance harbour.

MI(b) The licensee shall collect any spillage of cargo onto the jetty in a manner so as to prevent its access into the waters of Esperance harbour.

These licence conditions appear consistent with the Port's policies and procedures which distinguish between operational and environmental spills:

(a) An operational spill differs to that of an environmental spill.

(b) An operational spill refers to a spillage of a product handled by the Authority onto or into an area that enables it to be contained and cleaned up. For example a spillage onto an operational berth is considered to be an operational spill as it is onto a concrete or bitumen surface where it can be contained and has no adverse effects on the environment.

(c) An environmental spill is a spill into the natural environment, ie the harbour.

(d) The Authority only has an obligation to report environmental spills.³⁵²

The Port further advised:

(a) All operational spills are still recorded by operations personnel in the Authority's "General Report Sheet"³⁵³ where they can be investigated.

³⁵² DEC, *Addendum to Transcript of Evidence*, Answers to Questions, Hearing 2 May 2007, p2.

³⁵³ Form (FM003) used by employees and contractors at the Port of Esperance to report any incident, accident or hazard.

(b) If the spill is an environmental spill and therefore involved material entering the harbour, then this spill is required to be, and would have been, reported to the DEC under Section 72 of the Environmental Protection Act.³⁵⁴

The Port's Heavy Metals Ship Loading Procedure defined spills onto land or ships which were less than 10m³ as a minor spillage, to be cleaned up as soon as feasible; any spillage on land or ships over 10m³ was defined as a major spillage, required to be reported immediately and for the bobcat or vacuum truck to be called and an incident report raised. Any spillages into the harbour exceeding 1m³ were to be reported, a preliminary investigation conducted, and an incident report completed.³⁵⁵

Although requiring it to prevent or minimise environmental spills, the Port's environmental licence did not require it to undertake any monitoring of benthic levels, sea grass and other marine life. This was consistent with the licensing requirements that applied to the Port prior to approval to handle bulk lead concentrate.

Finding 61

There was no change made to the Esperance Port Authority's environmental licence in relation to protection of the marine environment when the licence was amended to allow for the bulk handling of lead concentrate.

As a result, the Port's environmental licence did not require it to undertake any monitoring of benthic levels, sea grass and other marine life.

8.3 Marine sediment monitoring by the Esperance Port Authority

The Esperance Port Authority was required, within three months of completing the construction of the Port's new facilities, to monitor the marine sediment '*outside the inner harbour*' but was under no obligation to monitor the marine sediment in the inner berth pockets of the harbour.

When the Port commenced its monitoring program, it voluntarily decided to collect and test samples of marine sediment within the inner harbour at each of the two berths used to handle bulk mineral product, berths 2 and 3, as well as at berth 1 near the heavy metal sump discharge outlet. The Port stated:

These samples are intended to provide an indication of the concentration of nickel and TBT [tri-butyl tin] in the sediments within the core operational area of the Port and to screen for any early signs of a trend of enrichment.

³⁵⁴ DEC, *Addendum to Transcript of Evidence*, Answers to Questions, Hearing 2 May 2007, p2.

³⁵⁵ Esperance Port Authority, Heavy Metals Ship Loading Procedure PR026, 1 August 2005, p23.

Finding 62

The decision of the Esperance Port Authority to voluntarily monitor the marine sediment at berths 2 and 3, used to handle bulk mineral product, as well as at berth 1 near the heavy metal sump discharge outlet, so as *'to screen for any early signs of a trend of [mineral] enrichment'*, is to be commended.

(a) 'Outside the inner harbour'

The marine sediment sampling outside the inner harbour under the terms of the Ministerial Statement did not occur on a six-monthly basis, as required, but instead took place in November 2004, May 2005 and September 2005 (refer Table 2.8). Although detected nickel and lead levels *'outside the inner harbour'* had been generally increasing marginally, no readings had exceeded even the lower level set by sediment quality guidelines.

Finding 63

The monitoring of marine sediment outside the inner harbour between November 2004 and September 2005, as required under Ministerial Statement 555, indicated that detected nickel and lead levels had generally been increasing marginally, but no readings had exceeded even the lower level set by sediment quality guidelines.

Based on the monitoring results, the Environmental Protection Authority agreed to the Esperance Port Authority conducting marine sediment sampling on an annual basis.

Finding 64

Based on the monitoring results for marine sediment outside the inner harbour available to September 2005, the Environmental Protection Authority agreed to the Esperance Port Authority conducting marine sediment sampling on an annual basis, in September each year.

(b) Testing in the berth pockets

From the outset, in October 2002, the testing for nickel in the berth pockets exceeded the upper limits of the sediment quality guidelines, and nickel levels increased in the following two sampling results. In September 2005, although nickel levels continued to be above the upper limits of the sediment quality guidelines, the levels at two of the three monitoring sites declined.

Over the period from November 2004, when testing for lead commenced, until September 2005, lead in the marine sediment of the berth pockets also increased. This increase was to such a degree that by 2005, the lead levels at two of the monitoring sites were in excess of the lower limit of the sediment quality guidelines.

Because the monitoring of the berth pockets was conducted outside the requirements of the Ministerial Statement, these results were not relevant to the Environmental Protection Authority's assessment of whether the Port's operational activities were having a significant impact on beneficial users outside the inner harbour.

Finding 65

The elevated benthic levels of nickel and lead in the inner berth pockets were not relevant to the Environmental Protection Authority's assessment of whether the Esperance Port Authority's operational activities were having a significant impact on beneficial users outside the inner harbour. This was because the condition in the Ministerial Statement only required testing outside the inner harbour.

Significantly, the Port's assessment that monitoring of the berth pockets was an early detection of more widespread contamination appears to have been correct. Reflecting the September 2005 results in the berth pockets, the monitoring results '*outside the inner harbour*' for October 2006 indicated increased lead levels and declining nickel levels.

It is of note too, that when the Port voluntarily undertook monitoring at additional sites in the inner harbour in October 2006, although lead levels did not exceed guidelines, these were considerably higher than baseline results for the berth pockets in 2004. This also appears to indicate that the trends in the berth pockets were reflected, over time, at sites further away.

Finding 66

The Esperance Port Authority's voluntary berth pocket monitoring proved predictive of trends of more widespread contamination. Reflecting the September 2005 results in the berth pockets, the monitoring results '*outside the inner harbour*' for October 2006 indicated increased lead levels and declining nickel levels.

The Environmental Protection Authority's focus on sediment contamination outside of the '*inner harbour*' appears to be similar to the approach adopted by DEC in relation to air quality management: both appear unconcerned about contamination within the perimeter of the Port's boundary. A point made by one of the witnesses before the Committee, Mr Brian Pearce of the

Recherche Advisory Group, in a different context but relating to marine contamination, appears equally relevant to this issue:

*One of the things we need to do is to make sure that we are getting no pollution into our water in the harbour so that it generates into the archipelago. One of the things that concerns me is that we were advised not to eat fish caught one kilometre from the loading facility at the port. I have never seen a fish that stops one kilometre from the jetty! Perhaps there are signs down there saying, "Please don't go any further; you are within one kilometre"!*³⁵⁶

It appears unlikely that marine life and waters do not circulate into and through the berth pockets. This is of particular significance in the context of an operation such as the Port's, which is located in a populated area with recreational and tourism facilities in very close proximity.

Recommendation 26

The Environmental Protection Authority and the Department of Environment and Conservation should include testing of inner harbours as a means for the early detection of contamination trends when establishing marine sediment monitoring conditions for ports.

Recommendation 27

In determining the appropriate environmental standards for monitoring marine sediment within the boundary of an operation such as the Esperance Port Authority, consideration should be given to the proximity of population centres, recreational and tourism facilities, and other uses.

The results of the Esperance Port's marine sediment testing were not publicly available. Indeed it appears that, apart from the baseline marine sediment results in 2002, these results were reported to the Audit Section of DEC but not to DEC's licensing officers.³⁵⁷

³⁵⁶ Mr Brian Pearce, Recherche Advisory Group, *Transcript of Evidence*, 2 May 2007, p4.

³⁵⁷ A courtesy copy of the letter to the Environmental Protection Authority from the Port, dated 14 January 2003, advising of the first marine sediment results was sent to the DEP officer responsible for monitoring the Esperance Port Authority operating licence. No other correspondence relating to marine sediment results was available on the DEC files provided available to the Committee. DEC advised that the elevated lead and nickel levels had not been reported (Submission No. 27(a) form DEC, p15).

Recommendation 28

The Environmental Protection Authority and the Department of Environment and Conservation should include a requirement in relevant approvals and licences that the results of any marine sediment and related testing by ports are sent to relevant agencies. These results should also be publicly available by way of posting on the ports' websites within a specified period after the testing is conducted.

8.4 Workforce concerns about handling and other practices at the Esperance Port

A number of the general handling and other practices adopted at Esperance Port, such as those relating to dust management discussed in more detail in Chapter 9, had the potential to contribute to benthic lead levels in the harbour. The handling and other practices examined in this section are those which were highlighted by the Port's workforce and specifically related to the discharge, and potential discharge, of lead into the harbour.

The Esperance Port Authority Board resolved, on 21 March 2005, to accept a parcel of lead concentrate to test and assess handling procedures and protocols in order to establish safe handling practices and to ensure that staff were happy with handling the product.

As referred to previously, the Port was proposing to use its nickel handling facilities for the lead concentrate. In response to workforce concerns, the Port organised for an Occupational Health and Safety (OH&S) Consultant to visit the Port on 23 March 2005, to observe the unloading of nickel concentrate. The Consultant made a number of recommendations, stating amongst other things that '*High gusty winds are common in the area which will affect the way the material may move through spillage and dust*'; and that there was '*considerable spillage*' evident in the observation of nickel loading:

It can be assumed that some spillage would have entered the harbour [as] there is no spillage catchment pans fitted to these conveyors.

Finding 67

When an independent Occupational Health and Safety Consultant conducted an inspection of the Esperance Port's nickel outloading process on 23 March 2005, to assess its adequacy for handling lead concentrate, he reported that there was '*considerable spillage*' evident and concluded:

It can be assumed that some spillage would have entered the harbour [as] there is no spillage catchment pans fitted to these conveyors.

On 30 March 2005, a meeting was held at the Port to discuss the OH&S Consultant's recommendations and to allocate responsibilities. The minutes of the meeting recorded that:

- the spillage on the conveyor and transfer points was to be handled by an industrial wet sweeper;
- the '*installation of vacuum piping to the shipper [was] a priority*'; and
- clean up needed to be wet sweeping or hosing down.

Sometime after, the Port's workforce identified an extensive series of issues associated with the handling of lead concentrate through the Port's existing infrastructure. In relation to benthic lead levels³⁵⁸ these issues included:

- CV2 was not closed at the tail and drops into a storm drain;
- lack of under-pans on CV3, 5, 6 and 7;
- older belts could be replaced and new type of scraper systems installed to reduce carry-back;
- CV2, 3, 4, 5, 6 and 7 was not fully enclosed;
- CV2-4 had no bunded areas³⁵⁹ with sumps;
- CV3 had no floor under the conveyor and the counterweight was not enclosed;
- with heavy rains, the product on the floor in the shed under CV4 was washed into the storm drain;

³⁵⁸ The diagram at Figure 1.10 identifies the location of the Esperance Port's conveyors and other equipment in relation to its proximity to the berths and therefore the harbour.

³⁵⁹ Bunding is a structure or wall used to contain materials and prevent or contain leakages.

- the tail end of the CV5 area should have been enclosed;
- new chutes to be designed for nickel and lead;
- the polly-boards were corroded by the nickel;
- the ship loader was not enclosed and spillage went into the ocean surrounding the berth;
- no bunding or sumps on berth 2;
- the sump at CV20 drained contaminated water straight into the ocean; and
- none of the transfer points on the berth 2 ship loader were set up for concentrate types of product, consequently large amounts were left behind.

An email to the CEO, 'Prioritised lead tasks' from the Environmental Consultant, and apparently on behalf of the Port's workforce, was sent on 12 May 2005. It is of note that on 4 April 2005 the Port had started accepting the lead concentrate by train, but no shipment had yet taken place.

The email identified the '5 key things that need addressing with regards to lead handling' and relevant to benthic contamination stated that:

1. Consensus was that the highest priority is addressing the wastewater problem. A water treatment system is needed that will address the increase in nickel/lead contaminated wastewater. The current sump at the unloading hopper is not adequate and is continually overloaded. It is suggested that we obtain services of a specialist consultant to recommend to the port the best system, whether it be a simple tank with filtration or a bigger system that could eventually handle the washdown water from the berths after shiploading etc. The system to also address water management from the unloading hopper ...

...

4. Modifications to the shiploader - it was suggested the development of concept designs for the spill tray on shiploader, underpans on CV3, CV5 and CV6 should be raised in priority... Spill plate on shiploader to be first priority: As it is unlikely a spill tray will be in place for the first shipment, Phil is going to investigate whether the current fertiliser spill trays can be positioned in place for the first lead shipment, as only one hatch is likely to be loaded.

Finding 68

On 12 May 2005, the Esperance Port's dirty water treatment plant was identified as the highest priority by the Port's workforce in relation to 'things that need addressing with regards to lead handling'. The Esperance Port's workforce also identified a series of modifications to the ship loader spill trays and conveyor underpans in a list of five priority items.

The two priority issues as identified by the Port's workforce, the lack of a dirty water treatment plant and the deficiencies in the ship loader and conveyor infrastructure, are examined in more detail below. This is followed by a discussion, in Chapter 8.4(c), regarding two spills of lead concentrate which may constitute '*environmental spills*' into the harbour.

(a) Dirty water treatment plant

A dirty water treatment plant had the potential to address two key areas of risk relating to the Port's handling and other practices: contaminated water from the heavy metal berth; and discharges from the heavy metal sump.

(i) Water from the heavy metal berth

Allegations had been made that the practice at Esperance Port was to wash waste from the berths into the harbour. When elevated benthic nickel and lead levels in the harbour were highlighted following the testing conducted by DEC earlier this year, the current Chairman of the Esperance Port Authority placed an advertisement in the local newspaper, advising that '*no product from the Port is washed into the ocean*'. The Chairman stated:

We believe that high levels of lead and nickel recorded near a storm drain outlet beneath berth one is the result of flooding during the storm in January [2007].

The effects of the storm are considered in more detail next, in Chapter 8.4(a)(ii). It is of note that the storm has not been put forward by the Port as an explanation of elevated nickel and lead levels at the monitoring sites other than near berth 1. It is also the case that, contrary to the Port's advice that no product was washed into the ocean, the evidence before the Committee indicates that both rain and washdown water from the heavy metal berth contributed to contamination of the marine sediment near berths 2 and 3.

In June 2007, the Port's Environmental Consultant gave evidence about the recent bunding of berth 2 at the Port:

we have done sort of bunding all along the edge of the berth, because you might be aware the berth slopes towards the water, so if you have anything there and if you have rain events, obviously, you are going to get it in there. So we have bunded the whole edge of the berth so that we can clean the berth properly and so that it is not going to get washed into the ocean; it is going to wash through a drainage system into a storage tank now.³⁶⁰

It appears from Mrs Grasty's evidence that prior to the recent bunding of the berth, rainwater would run down the slope of the wharf and into the harbour; indeed it appears that the berth was designed for this to occur. The Committee also received independent evidence of such '*rain events*' from Mr Frank Totterdell. He wrote:

³⁶⁰ Mrs Shelley Grasty, Environmental Consultant, Esperance Port Authority, *Transcript of Evidence*, 28 June 2007, p15.

I have worked as a captain (Australian Master) on a research vessel that was using the [Esperance] port berths between 1999 and 2006... I feel compelled to tell what I have witnessed, at the port, after reading press and community statements from the Esperance port about a one off storm and flood event in January 07 being the only cause of pollution on the sea bed, which in my opinion is not true.

...

I have ... observed numerous rain and thunderstorm events over the previous seven years which have washed sediment straight into the sea off the ground level areas of the wharf adjacent to the berths. During these events I have witnessed the change in colour of the ocean at the port from clear but murky green to a muddy brown colour which has extended 20 metres seaward from the berth face & completely encompassing our vessel. It would only take a 15 minute heavy rain thunder storm to create this situation.³⁶¹

Finding 69

Until the recent installation of bunding along the edge of berth 2 (the heavy metals berth) rain at Esperance Port would cause any product on the berth face to wash into the harbour.

Significantly, Mr Totterdell's evidence was not confined to rain at the Port. He also stated:

Although I have worked from the port area over a number of years it is only during the months of January, February and March. The total days I have been at the port only amounts to eight to ten days per year. I have seen washing off of the port area on at least 3 separate occasions with high pressure hoses cleaning the land back wharf area [berths 1 and 2] into the ocean. On one occasion I was asked how long our vessel would be there, or could we possibly move, as they wanted to hose off that area of the wharf into the ocean as well.³⁶²

Although the washing down of product into the ocean was denied by the Port,³⁶³ Mr Totterdell's evidence was supported by other evidence before the Committee. The advice of the OH&S Consultant who advised the Port in March 2005 in relation to its heavy metal handling system was that clean up after ship loading needed to be by 'wet sweeping or hosing down'. The comments of the Port's workforce relating to concerns about the 'the washdown water from the berths after shiploading' also indicated that, at least in May 2005, the practice of the Port was to wash down the berths after ship loading.

³⁶¹ Submission No. 55 from Mr Frank Totterdell, 23 May 2007, pp1,2.

³⁶² *ibid.*

³⁶³ As indicated by the Chairman's advertisement. See also the evidence of Mr Dave Jameson, Shipping Support Officer (Mr David Jamieson, Shipping Support Officer, Esperance Port Authority, *Transcript of Evidence*, 28 June 2007, p6).

The more detailed concerns outlined by the Port workforce at about that time also indicate the absence of sumps and bunding at berth 2. There was also evidence that in other areas of the Port, such as the area where the kibbles are unloaded, washing down product spills continued to be the practice (refer Chapter 8.4(a)(ii)).

The Committee is satisfied that at least until the handling of lead concentrate by the Port, it was the practice, if not the policy,³⁶⁴ at the Esperance Port to wash down berth 2 after ship loading and for the water to run off directly into the harbour, or into the storm water drain located at berth 2 and from there into the harbour.

Finding 70

Until the time the Esperance Port started to handle bulk lead concentrate it was the practice, if not the policy, at the Port to wash down berth 2 after ship loading and for the water to run off directly into the harbour, or into the storm water drain located at berth 2 and from there into the harbour.

However, there were changes to the Port's capabilities with the introduction of lead concentrate. In particular the Port's evidence was that, after the recommendation of the OH&S consultant in March 2005, an industrial wet sweeper was contracted for each heavy metal loading.³⁶⁵

The Port's relevant policy document as updated in August 2005, makes no reference to the wet sweeper. It states that in relation to nickel loading, the berth face is to be cleaned with a bobcat and broom attachment and the residue placed back into the nickel shed; and for lead, 'mobivac'³⁶⁶ is to 'vacuum up berth face and place residue back into lead shed'.³⁶⁷ However, the evidence of the Port's Shipping Support Officer was that:

We have two cleaners... We have got two wet sweeping - Mobi Vac mainly does all the systems because it has high suction with the pipes. It can go into our systems and suck all the systems. Craig Mader has got the water suction vacuum truck which virtually wet sweeps and sucks the berth. Mobi Vac go on and make sure they suck the rails. As you know, the rails are on the berth, so they make sure they get it out. We use them in

³⁶⁴ The Committee does not have a copy of the relevant policy from this time.

³⁶⁵ Esperance Port Authority, *Addendum to Transcript of Evidence*, Answers to Questions, Hearing 2 May 2007, pp8,9.

³⁶⁶ Abbreviation for mobile vacuum truck used at the Port of Esperance to clean up spills.

³⁶⁷ The only relevant policy document appears to be the Esperance Port Authority's 'Heavy Metal Loading Procedure PR26', 1 August 2005.

*conjunction. They are used all the time. Mobi Vac are doing two shifts a day and going to three shifts a day at the port. Craig Mader is on site all the time.*³⁶⁸

Although not reflected in the Port's policy document, blood testing results from the Port indicate that 'Mader' (wet sweeper) employees were tested from July 2005, and this indicates that the wet sweeper was used at the Port from July 2005.

Finding 71

The Heavy Metals Ship Loading Procedure of the Esperance Port Authority from August 2005 was that, in relation to the clean up after nickel loading, the berth face was to be cleaned with a bobcat and broom attachment and the residue placed back into the nickel shed. For lead, the procedure was that the 'Mobivac' was to 'vacuum up berth face and place residue back into lead shed'. There is also evidence that an industrial wet sweeper was used to clean the Port from July 2005.

As indicated, the evidence of the Port's Environmental Consultant was that berth 2 had recently been bunded to stop water flowing down the slope of the wharf towards the ocean. It is of note that the Consultant's evidence continued that the bunding would allow workers to '*clean the berth properly and so that it is not going to get washed into the ocean; it is going to wash through a drainage system into a storage tank now*'. It appears that washing down the berths was viewed as a more effective means of cleaning.

This is consistent with evidence the Committee received detailing problems with the other cleaning options, for example an email from Mr Rob Stewart, as a Port Team Leader, to Harbourmaster, dated 28 August 2006. It raised concerns about the loading of the MV Seven Seas on 27 August 2006 and stated that there were:

ongoing issues with containment of spillage and escape of fine lead material particularly around the TT2 ... and shiploader ... and with the vacuum truck out of action the clean up is problematical and yet these issues were clearly identified last year before we took on the lead loading and we still seem to be some way off resolving them it seems fair to query whether we should be operating without vacuum truck to clean up spills.

Recent evidence from the Port's OH&S Representatives to this Committee also highlighted the difficulties of using a vacuum to clean lead concentrate from the handling system when the concentrate was moist and stuck to the walkways, belly plates³⁶⁹ and belts.³⁷⁰

³⁶⁸ Mr David Jamieson, Shipping Support Officer, Esperance Port Authority, *Transcript of Evidence*, 28 June 2007, p10.

³⁶⁹ A structure that is fitted underneath conveyors to catch material and prevent spillage.

Mr Colin White, who worked as the Occupational Health and Safety Officer at the Port between January and March 2007, also submitted to the Committee that on one occasion while he was at the Port *'there was a ship being loaded with lead and there was a great deal of spillage on berth 2 that was hosed down into the harbour'*.³⁷¹ A General Report Sheet lodged on 5 March 2007, in relation to the loading of the Jin Pei, recorded:

Dust was pouring out of all transfer points, and onto ground and in air being blown from CV02 towards lead shed...

Mobi-Vac wash all this away with a hose and lots of water.

Finding 72

Although contrary to the Esperance Port Authority policy after August 2005, on the balance of the evidence before it, the Committee concludes that, on occasion, the heavy metal berth was cleaned by being washed down. The infrastructure of the berth was such that the water would run off the sloped berth into the harbour, or into the storm water drain on the berth, and directly from there into the harbour.

(ii) The heavy metal sump

Long-term contamination

Sampling of the benthic lead and nickel levels near berth 1, near the discharge pipe for the heavy metals sump, had detected elevated nickel levels since May 2005 and elevated lead levels since September 2005.

In May 2005, the Port's workforce identified the priority issue for handling lead as a dirty water treatment plant because the *'current sump at the unloading hopper is not adequate and is continually overloaded'*. It also raised concerns that the sump drained contaminated water straight into the ocean.

The evidence of Mr Colin Stewart, the Port's CEO, on managing potential contamination from the sump was that:

³⁷⁰ Mr Anthony Willoughby, Boilermaker and Occupational Health and Safety Representative and Mr Edward Wierobiej, Port Employee and Occupational Health and Safety Representative, Esperance Port Authority, Transcript of Evidence, 28 June 2007, p6.

³⁷¹ Submission No. 35 from Mr Colin White, former Occupational Health and Safety Officer, Esperance Port Authority, 2 May 2007. Mr White has been in public dispute with the Port as to the cessation of his employment with the Port. The details of that dispute need not be entered into as part of this inquiry, but the Committee notes that aspects of the information provided to the Committee by Mr White are consistent with other evidence available to it; other issues raised by Mr White's submission have not been investigated.

Our judgement was that it [the sump] was cleaned up when the sediment trap was full, and that was monitored by our operational staff.³⁷²

In response to the concerns identified in the draft report by the Port's Environmental Consultant in October 2006, Mr Stewart responded:

At one stage we were cleaning out the sump on a bimonthly basis. Because of the amount of material that we were collecting, we changed the procedure so that it was cleaned out more regularly.³⁷³

The concerns raised in the draft report were about the potential for creating a dust source as the sediment dried out waiting to be collected and returned to the shed. The concern would be equally applicable to the effectiveness of the sump in filtering out contaminants.

When a Port inspection was conducted by an Environmental Officer from the Esperance Shire in February 2007, the Environmental Officer, Mr Troy Doncon, noted that:

A water wash-down procedure collects this dust [after the kibbles have been unloaded] and washes it into a sump pit. The sump has a series of weirs to allow the contamination and subsequent collection of the mineral ore concentrated sediment. The water is transferred to a secondary sump and is finally dumped into the harbour as described by a port authority officer. This water has been in direct contact with both the nickel and lead minerals ore that is handled at the train unloading carrier.³⁷⁴

Finding 73

The longer term elevation of nickel and lead benthic levels near berth 1 are likely to have been the result of the heavy metals sump discharging rain, and water used to clean the heavy metals unloading area, through a discharge pipe near berth 1.

The storm

DEC's testing of the marine sediment near the Port's discharge pipe in March 2007, referred to previously, revealed very high levels of lead, between 3,600 and 29,000 mg/kg, up to 130 times the upper limit of environmental standards for lead. As indicated at Finding 8, the Port's view was that these results, which were from samples taken near a drain outlet near berth 1, were the result of flooding in January 2007. In evidence the Port's CEO clarified that the flooding of the

³⁷² Mr Colin Stewart, Chief Executive Officer, Esperance Port Authority, *Transcript of Evidence*, 2 May 2007, p19.

³⁷³ Mr Colin Stewart, Chief Executive Officer, Esperance Port Authority, *Transcript of Evidence*, 6 June 2007, p31.

³⁷⁴ (Internal) File Note by Mr Troy Doncon, Environmental Health, Shire of Esperance, 'Esperance Port - Heavy metal ore concentrate transfer procedure, 12 March 2007.

sump at the heavy metals inloading area caused the sump to overflow and the water to bypass the sediment trap and the interceptor pit. This would normally operate to collect the concentrate, and create sediment.³⁷⁵ Instead, the water flowed directly into the harbour through the discharge pipe.

Finding 74

The view of the Esperance Port Authority is that the storm in January 2007 flooded the sump at the heavy metals inloading area, causing the sump to overflow and the water to bypass the sediment trap and the interceptor pit. The Port claimed that this resulted in the elevated lead and nickel benthic levels at the drain outlet near berth 1 in March 2007.

The Committee notes that even if the storm in January 2007 was a significant factor contributing to the elevated lead and nickel benthic levels, this would appear to be because the Port had failed to take adequate precautions when the storm warning was issued. Esperance community members asked why the Port had not cleaned the heavy metal sump before the storm.³⁷⁶

Finding 75

Even if the storm in January 2007 was a significant factor contributing to the elevated lead and nickel benthic levels, this would appear to be because the Port had failed to take adequate precautions when the storm warning was issued.

The Recherche Advisory Group asked, if the Port was relying upon the storm as the cause of the elevated lead and nickel benthic levels in March 2007, why had it not reported the spill to DEC as required under the *Environmental Protection Act 1986*.³⁷⁷

DEC's evidence to the Committee was that when it asked the Port to explain the elevated benthic levels of lead and nickel it identified, in March 2007, the Port advised that it believed this '*may primarily be a result of the severe storm... which may have washed the material from the heavy metals handling area into the harbour*'.³⁷⁸ The Port also advised DEC:

Now we are aware of the contamination, we will be reporting it under section 72.

³⁷⁵ Mr Colin Stewart, Chief Executive Officer, Esperance Port Authority, *Transcript of Evidence*, 2 May 2007, p2.

³⁷⁶ For example, Submission 15(a) from Locals for Esperance Development, 26 April 2007, p.9; and Submission No. 16 from Recherche Advisory Group, 26 April 2007, p2.

³⁷⁷ Submission No. 16 from Recherche Advisory Group, 26 April 2007, p2.

³⁷⁸ Submission No. 27(a) from DEC, p14 and Attachment 9.

Except for the one spill referred to in Chapter 8.4(c), which was identified as a result of the Committee's questioning, the Port's evidence as at June 2007 was that it had not reported any spills under section 72 of the *Environmental Protection Act 1986*.³⁷⁹

Finding 76

Given the Esperance Port Authority's view of the cause of elevated lead and nickel benthic levels near berth 1 in March 2007 (refer Finding 74), it was under an obligation to report this 'environmental spill' to the Department of Environment and Conservation under section 72 of the *Environmental Protection Act 1986*.

The Port's evidence to this Committee was that it had not done so.

The Committee notes the advice of the Port that it has since 'developed a pre-storm process, for want of a better description' to ensure that it is better prepared in future for such events.³⁸⁰

Finding 77

The Committee notes the advice of the Esperance Port Authority that it has developed improved procedures to ensure that it is better prepared for storms in the future.

Sediment testing conducted by the Port had detected evidence of lead and nickel at all berths, including berth 1, long before the storm in January 2007. It is true, however, that the levels identified at berth 1 between May 2005 and October 2006 (refer to the results for site 10 in Table 2.8) were much lower than those detected in March 2007.

Finding 78

Contrary to the Esperance Port Authority view of the cause the elevated levels of lead and nickel recorded near the outlet beneath berth 1 in March 2007 (refer to Finding 74), there was evidence at that location of elevated benthic levels of nickel since May 2005 and elevated lead levels since September 2005.

³⁷⁹ Esperance Port Authority, *Addendum to Transcript of Evidence*, Answers to Questions, Hearing 6 June 2007, p11.

³⁸⁰ Mr Colin Stewart, Chief Executive Officer, Esperance Port Authority, *Transcript of Evidence*, 2 May 2007, p20.

It is possible that the storm was a significant factor leading to the very high benthic lead and nickel levels detected in March 2007. However, there had been a number of specific incidents of potentially major environmental consequence occurring at the Port between October 2006 and March 2007, discussed in Chapters 8.4(c) and 9.5(e). In the absence of results from benthic sampling at other inner harbour sites, the Committee is not able to conclude that the storm was a major cause of the elevated levels detected near berth 1 in March 2007.

Finding 79

In the absence of results from benthic sampling at other inner harbour sites after October 2006, the Committee is not able to conclude that the storm was the major cause of the elevated levels detected near berth 1 in March 2007.

(iii) Installation of the dirty water treatment plant

Despite the critical relevance of a dirty water treatment plant to benthic contamination of the harbour, it was not installed until approximately June 2007.³⁸¹ The plant takes contaminated rainwater, and contaminated cleaning water, from berth 2 (the heavy metals berth) through a drainage system and into a storage tank. It also takes the water from the heavy metal sump, *'enabl[ing] the reuse of water, or [its] discharge'*, presumably with minimal risk of contamination.

Finding 80

A dirty waste water treatment plant, apparently critical for the prevention of benthic contamination of the harbour, was only installed in June 2007, two years after the first lead concentrate shipment.

The dirty water treatment plant treats contaminated water to enable its *'reuse... or discharge'*.

The recent installation of bunding along the edge of berth 2 and the dirty water treatment plant should reduce the risk of ongoing contamination of the harbour from rain and washdown water entering the harbour from the berth.

³⁸¹ Environmental Consultant, Esperance Port Authority, Environment Status Report - June 2007.

Finding 81

The installation of a dirty water treatment plant on or about June 2007, and bunding along the edge of berth 2 (the heavy metals berth), should minimise the risk of continuing benthic contamination from contaminated rain and washdown water entering the harbour from that berth.

The recent installation of a dirty water treatment plant should minimise the risk of continuing benthic contamination from the heavy metal sump.

Finding 82

The installation of a dirty water treatment plant on or about June 2007 to treat the water discharged from the heavy metals sump should minimise the risk of continuing benthic contamination near berth 1.

(b) Ship loader and conveyors

The Port's evidence to the Committee is that it believed that improvements it had made, including alterations to its heavy metal ship loader and conveyors as detailed below, ensured that it had a *'safe system equipped to handle lead concentrate'*:

(xiii) *The Authority commenced trial testing of a new dust suppression system, Polo Citrus,³⁸² into its out loading system at the tail end of CV2.*

(xiv) *The Authority fabricated an extension chute for the berth 2 ship loader loading chute.*

(xv) *Also at this time the Authority was addressing the following improvements and awaiting approval or funding:*

- *installation of Polo Citrus system to CV 2 and CV3;*
- *spill tray to the ship loader;*
- *in line product moisture determination units for installation to the port's in and out loading system at CV2 and CV3;*
- *new modified ship loader loading chute - specifically designed to out load heavy metals;*

³⁸²

Polo Citrus is the producer of a range of dust suppressant products.

- *upgrade to CV2 out loading gallery*
- *an expanded water settlement sump at the receival site.*³⁸³

It has been difficult to establish the precise dates upon which these modifications took place.

The Port's Environmental Consultant developed a draft report, 'Heavy Metals Handling Summary' in October 2006. It noted amongst other things that the heavy metal sump filled quickly and dried out, creating a dust source. It also noted that although CV4, which exits the lead shed, had now been fully enclosed; CV3, 5, 6 and 7 were not:

Loading in windy conditions results in the product being blown from the belts onto the berth and covering the shiploader.

The draft report continued:

Since removal of the original telescopic loading chute, the loading chute is not able to be extended into the hatch during loading. When slewing the loading chute out to fill the far side of the hatch, the chute is even more elevated out of the hatch... during windy conditions nickel/lead can end up on the deck of the vessel and in the ocean.

Minutes of a meeting of Port personnel shortly afterwards, on 17 October 2006, also recorded that:

- the Port was using the wrong chute to load and that an extension was being manufactured;
- the spill tray was still to be built; and
- there had been no progress on further enclosing the conveyors.

When the CEO reported to the Board in November 2006 a number of the improvements originally identified as required for the safe handling of lead concentrate had not yet been implemented, including:

- the spill tray;
- the upgrade to CV2 out loading gallery;
- an expanded water settlement sump at the receival site; and
- a modified loading chute.

The report noted that the chute would be ready to be trialled on 30 October 2006.

³⁸³ Esperance Port Authority, *Addendum to Transcript of Evidence*, Answers to Questions, Hearing 2 May 2007, pp3,4.

Finding 83

By November 2006, the Esperance Port Authority had not implemented all modifications to the heavy metals handling infrastructure which related to potential lead contamination of the marine sediment. These modifications included the installation of the spill tray, upgrade to conveyor 2 outloading gallery, and the expanded water settlement sump at the receival site. The modified loading chute was only available to be trialled on 30 October 2006.

At the same time, it should be noted that with the introduction of lead concentrate to the Esperance Port extensive changes were made to the Port's policies and procedures, particularly with reference to occupational health and safety, and cleaning the heavy metal berths (discussed at Chapter 8.4(a)(i)). There were also some modifications made to the heavy metals handling infrastructure.³⁸⁴ It is possible that these improvements contributed to declining benthic nickel levels detected in September 2005.

Finding 84

With the introduction of lead concentrate to the Esperance Port extensive changes were made to the Port's policies and procedures, particularly with reference to occupational health and safety, and cleaning the heavy metal berth. There were also some modifications to the heavy metals handling infrastructure. It is possible that these changes contributed to declining benthic nickel levels detected in September 2005 and October 2006.

(c) Specific incidents

There is also evidence of specific incidents which may have contributed to the benthic lead levels in Esperance harbour. A number of these, relating to significant dust problems encountered during ship loading are examined in the next chapter. Two specific incidents came to the Committee's attention which relate more directly to potential contamination of the harbour.

The first related to a spillage of '*between 60 to 100 kilograms of lead into the sea*' recorded in a Port 'General Report Sheet' of 11 January 2006. Although clearly fitting with the Port's definition of an '*environmental spill*' it was not reported to DEC. The Port stated that:

³⁸⁴ Esperance Port Authority, *Addendum to Transcript of Evidence*, Answers to Questions, Hearing 2 May 2007, pp2-4.

*An administrative oversight meant that it wasn't initially reported to the Ports Environmental Officer. There was however, a procedural change to eliminate the future risk of this type of spill occurring again.*³⁸⁵

The spill was subsequently reported to DEC.

Finding 85

The failure by the Esperance Port Authority to notify the Department of Environment and Conservation of a spill of between 60 and 100 kilograms of lead concentrate into the harbour on 11 January 2006 was potentially a breach of section 72 of the *Environmental Protection Act 2006*.

Another potentially much more significant incident occurred in early December 2006, when there was a major product spill during the loading of lead concentrate onto the MV POS Auckland. The ship loading was delayed for 4 hours 34 minutes while the berth area was cleaned. This incident was later described by the Port's Shipping Officer as follows:

the MV POS Auckland, had a similar spill to the MV Port Victoria, but this was due to a CV4A fault on start up, and the spill occurred at CV3 to CV40 (CV3 overran), before any product had even reached the vessel. This spill was cleaned up by Mobivac as soon as they had geared up, and was of no environmental consequence. Otherwise the complete loading of this vessel was trouble free.

It is of note that CV3 runs along the berth front and this was a considerable spill requiring hours to clean.

Finding 86

There was a significant spill of lead concentrate during loading of the MV POS Auckland on 5 December 2006, which required more than four hours to clean it from the wharf near berth 2.

The information about the incident is largely available from internal Port emails (although the Committee has other information that a conservative estimate of the size of the spill was 10 tonne).³⁸⁶ The Port's emails were written in response to an enquiry from DEC. DEC advised that there had been an anonymous allegation from an Esperance resident who claimed 'to have it on

³⁸⁵ Esperance Port Authority, *Addendum to Transcript of Evidence*, Answers to Questions, Hearing 6 June 2007, p7.

³⁸⁶ Closed evidence.

good authority' from a friend who worked at the Port that there had been two spills, including a *'huge'* one between 7 and 10 December 2006, which had resulted in the closing of the access road to the Port. The Port did not provide the information in its internal email correspondence to DEC.

The Port's position was that:

*we believe that there was no obligation to do so. In accordance with their licence the Port only had an obligation to report to the DEC in relation to their licence for dust emissions that extended beyond the Port boundaries or discharges that were classified as environmental spills as opposed to operational spills.*³⁸⁷

As indicated, the Port understood that operational spills referred to a spillage of a product handled by the Authority onto or into an area that enabled it to be contained and cleaned up. For example, it cited a spillage onto a berth as an operational spill as it was onto a concrete or bitumen surface where it could be contained and had no adverse effects on the environment. The Port's advice, consistent with the policy referred to previously, was that all operational spills were recorded by operations personnel in the Authority's 'General Report Sheet' where they could be investigated.

It is of note that no general report sheet was made available to the Committee in relation to what the Port has assessed as an *'operational spill'* and presumably none was completed. As a result there is no evidence of the adequacy of, or indeed any, Port investigation of this significant spill of lead concentrate.

Finding 87

No evidence was provided to the Committee by the Esperance Port Authority to explain its apparent assessment of the significant spill of lead concentrate on 5 December 2006 as an operational spill rather than an environmental spill, requiring it to be reported to the Department of Environment and Conservation under section 72 of the *Environmental Protection Act 1986*.

Finding 88

There was no evidence provided to the Committee by the Esperance Port Authority of any formal process of investigation of the significant spill of lead concentrate on 5 December 2006.

³⁸⁷

The Esperance Port Authority was not questioned specifically in relation to this incident, but its advice was that it did not report any spills to DEC other than the one on 11 January 2006, as a result of the Committee's inquiries (Esperance Port Authority, *Addendum to Transcript of Evidence*, Answers to Questions, Hearing 6 June 2007, p11).

The issue of the Port's response to incidents involving the potential for environmental pollution is examined in more detail in Chapter 9.

8.5 Conclusion

The Port's practices in relation to the contamination of the Esperance harbour had taken place in a legal context in which no monitoring of potential contamination of the inner harbour had been required under any of the environmental approval processes associated with the mining and export of Magellan's lead concentrate.

Nevertheless, the Port was subject to general legislative requirements in relation to causing environmental harm and the reporting of waste discharges, as well as to licensing conditions which required it not to pollute the marine environment.

There is evidence that the handling and other practices at Esperance Port caused the rise in the benthic lead levels in the harbour. Such handling practices included:

- the inadequate dirty water treatment infrastructure at the Port;
- the inadequate outloading infrastructure for heavy metals at the Port;
- the lack of bunding which allowed rain and wash down run-off to cause concentrate to enter the harbour;
- poor preparation for a storm; and
- significant incidents involving spills of lead concentrate at berth 2 and into the harbour.

Finding 89

There is evidence that the handling and other practices at the Esperance Port caused the rise in the benthic lead levels in the harbour. Such handling practices included:

- the inadequate dirty water treatment infrastructure at the Port;
- the inadequate outloading infrastructure for heavy metals at the Port;
- the lack of bunding which allowed rain and wash down run-off to cause concentrate to enter the harbour;
- poor preparation for storms; and
- significant incidents involving spills of lead concentrate at berth 2 and into the harbour.

Recommendation 29

The Committee recommends that the Esperance Port Authority implement all infrastructure and other improvements necessary to address the potential for benthic contamination as a result of the Port's operations.

Recommendation 30

The Committee recommends that the Department of Environment and Conservation review the Committee's findings relating to benthic lead levels in the Esperance harbour and conduct an investigation into the practices of the Esperance Port Authority with a view to determining if the Port has potentially breached its obligations under the *Environmental Protection Act 1986* and the conditions of its environmental licence.

CHAPTER 9 POTENTIAL LEAD POLLUTION AND THE PORT

9.1 The issue

The Committee was requested to inquire into whether the Esperance Port Authority properly exercised its responsibilities in relation to the potential lead pollution.

The Committee has interpreted this term of reference to require it to determine how the Port exercised its responsibilities given the potential for lead pollution. The emphasis is therefore upon what the Port knew or should have known about the risks of lead pollution and what it did to manage those risks.

The Committee has identified a number of specific areas of evidence which, the Committee believes, can be assessed to determine the degree to which the Port was alerted to the potential for its handling and other practices to cause lead pollution. These include the information available to the Port, through community complaints and its own monitoring, about nickel contamination; the advice of its workforce; its experience in conducting outloading of the lead concentrate; and the monitoring of its workforce. The Committee also assesses whether the Port responded adequately to address any risks highlighted by the information available to it. Finally, in this chapter, the Committee examines what the Port's Board knew, or should have known, about these matters, and whether the Board itself responded adequately to the potential for lead pollution.

A related issue to this term of reference is the status of the Magellan lead concentrate as a dangerous good. This relates more to the consequences of the potential lead pollution rather than to the risk of pollution itself. This issue is deferred until Chapter 11.2 because the question of the identification and management of dangerous goods raises implications that go well beyond the Port's responsibilities.

9.2 Environmental monitoring requirements

For the reasons already set out in Chapters 5, 7 and 8, the outcome of the environmental approval processes applicable to the transport and handling of Magellan's lead concentrate resulted in the imposition of only minimal environmental monitoring requirements on the Esperance Port Authority. The role of the Department of Environment and Conservation is considered in the next chapter, Chapter 10. If the Port had been subject to more rigorous regulatory requirements, particularly in relation to the monitoring of air quality, it may have better identified and addressed the potential for lead pollution.

Finding 90

The outcome of the environmental approval processes applicable to the transport and handling of Magellan's lead concentrate resulted in the imposition of only minimal environmental monitoring requirements on the Esperance Port Authority. If the Port had been subject to more rigorous regulatory requirements, particularly in relation to the monitoring of air quality, it may have better identified and addressed the potential for lead pollution.

As discussed in more detail next, the regulatory framework did not consistently address the risks associated with the potential for lead pollution. However, the Esperance Port's evidence, as would be expected, was that when it was approached to export the lead concentrate through the Port, it sought advice primarily from external experts. It used the services of a Specialist Occupational Physician and an Occupational Health and Safety Consultant. The Port believed that it had made itself reasonably aware of the potential damage to the community should lead dust escape from the Port environment.³⁸⁸

Finding 91

Although the regulatory framework may not have consistently addressed the risks associated with the potential for lead pollution, the evidence of the Esperance Port Authority was that it had made itself reasonably aware of the potential damage to the community should lead dust escape from the Port environment.

9.3 Nickel contamination**(a) Dust monitoring results**

The Port had information about the escape of nickel dust and particulates available from its dust gauge monitoring program since 1995. The information indicated the consistent presence of nickel beyond the Port's boundaries and this should have alerted the Port that utilising the same system for handling lead concentrate was likely to cause lead pollution.

³⁸⁸

Mr Colin Stewart, Chief Executive Officer, Esperance Port Authority, *Transcript of Evidence*, 2 May 2007, p5.

Finding 92

Dust monitoring results from 1995 to 2004 indicated the consistent presence of nickel beyond the Port's boundaries. This should have alerted the Esperance Port Authority to the potential for lead pollution if it adopted the same processes for handling lead concentrate as it did for handling nickel concentrate.

As indicated in Chapters 4.3(a)(i) and 7, the kind of dust gauge monitoring employed at the Port had no formal compliance targets attached, and was understood by the Port as useful only to monitor long term trends in emissions. In the absence of compliance targets, in 2002 the then Department of Environmental Protection's (DEP's) advice to the Port was that the results could be assessed against guidelines set in the UK and NSW relating to '*nuisance*' dust. Such guidelines varied according to the '*soiling*' characteristics of the dust, with 200-350 mg/m²/day applying generally but a lower level of 80mg/m²/day applying to dark coloured dust.³⁸⁹

When the Port's environmental licence was varied to allow the bulk handling of lead concentrate on 17 November 2004, this dust monitoring regime was not changed other than to require that the dust samples be analysed for lead content. (There was a requirement that the Port also provide a dust management plan by 1 April 2005. This is discussed at 9.3(e).)

Finding 93

The failure of the Department of Environment and Conservation to set compliance targets other than those associated with '*nuisance*' arising from the '*soiling*' characteristics of dust to monitor lead may have affected the Esperance Port's efforts to reduce the risk associated with potential lead pollution arising from lead dust escaping the Port's boundary.

(b) Odour complaints

The Port received complaints from Esperance community members about the xanthate odour associated with nickel concentrates over a number of years.

On 21 February 2002, the Port received a letter from DEP about a nickel odour study. The letter requested that the Port assist the nickel producers in the trial of a carbon scrubber to minimise xanthate and associated odours caused by the pyrolytic decomposition of xanthate from the handling of nickel concentrates. The letter advised that attempts to use lime to stabilise the product had proved impractical.

³⁸⁹ Letter from Program Manager, Environmental Protection, Swan-Goldfields-Agricultural Region, Department of Environmental Protection Water and River Commission, to the Manager, Esperance Port Authority, 17 April 2002, p2.

On 14 March 2002, the *Final Report on Esperance Port Nickel Odour Study* was published. The study was undertaken because of the 'occasional odour complaints' since nickel handling recommenced at the Port in 1993. It found that odour was '*particularly noticeable off-site during the summer months, at least in part due to the prevailing wind direction being onshore*'. The study concluded that:

- *Odour emissions were most intense at the time of unloading nickel concentrate on arrival at the Port;*
- *Off-site odour events were primarily attributable to meteorological conditions carrying emissions over populated areas, rather than variability in odour emissions; and*
- *Therefore the control measures need to focus on unloading activities in order to eliminate off-site odour.*

Odour is caused by particulates, often so small as to be invisible and respirable (capable of being inhaled).

The Port proposed to use the same infrastructure and procedures it used to inload nickel for inloading Magellan's lead concentrate.

Finding 94

The ongoing problems and complaints about the odour associated with nickel, and in particular the unloading of nickel kibbles, should have alerted the Esperance Port Authority to the potential for lead pollution if it adopted the same processes for handling lead concentrate.

However, the Port's recognition of the risk associated with potential lead pollution may have been reduced because the Department of Environment and Conservation did not require monitoring of '*invisible*' PM10 (particles with a diameter less than 10 microns; respirable particles) when the Esperance Port Authority commenced handling lead concentrate. Moreover, the condition in the Esperance Port Authority licence was only '*to prevent or minimise the emission of **visible** dust past the boundary of the premises*'.

Finding 95

The Esperance Port Authority's recognition of potential lead pollution arising from 'invisible' particulates escaping the Port's boundary may have been reduced by:

- the Department of Environment and Conservation not requiring monitoring of 'invisible' particles (particles with a diameter less than 10 microns, respirable particles) when the Esperance Port Authority commenced handling lead concentrate; and
- the inclusion of a condition in the Esperance Port Authority licence requiring it 'to prevent or minimise the emission of *visible* dust past the boundary of the premises'.

(i) A particular risk

This issue is a significant one in relation to the potential sources of lead pollution of the Esperance area. While there were only 22 ship loadings of lead concentrate, kibbles of lead concentrate were unloaded every two to three days at the Port between 4 April 2005 and 12 March 2007.³⁹⁰ Evidence that the concentrate had lost its agglomerated form by the time it arrived at the Port, indeed according to Magellan Metals Pty Ltd, after the road trip to Leonora, has already been referred to in Chapter 6.3. The Department of Health raised additional concerns, also referred to previously at Chapter 4.3(c)(ii), that transport in kibbles may cause the moisture content of the concentrate to decline and increase the risk of dust. The Committee has concerns that the extended transport route may also have caused the particle size to breakdown.

Magellan agreed that lead carbonate is a very brittle crystalline mineral, but denied that the transportation and handling of the lead carbonate would reduce its particle size. It stated that, at the mine site, the lead carbonate ore was ground in a ball mill, where it was:

subjected to quite high impact forces between relatively large (approximately 20mm to 80mm) steel balls.

The circumstances of filtration, loading, conveying and otherwise handling simply do not generate the kinds of force generated in the ball mill. There would be no significant, probably not even a detectable, change in the particle size distribution of the concentrate as a result of these operations.

Any dust that is liberated to potentially become airborne during these operations would not be generated because individual particles have been further reduced in size, but rather

³⁹⁰ Mr Colin Stewart, Chief Executive Officer, Esperance Port Authority, *Transcript of Evidence*, 2 May 2007, p21.

*because the concentrate moisture content has been allowed to decrease below the point where there is sufficient water present to keep the particles effectively bound together.*³⁹¹

However, other evidence available to the Committee indicated that this response only addressed the processes at the mine site. The Committee was advised that the ore went through the ball mill for perhaps one to three minutes. While the flotation, filtering and drying processes may not be comparable, transport of the concentrate 1000 kilometres in kibbles, vibrating on unsealed roads and a railway track, is a very different prospect, particularly where the effect of transport on a dry particle will be immensely different to the effect of transport on a wet particle, because in a wet particle the water surrounding it will cushion vibrations.³⁹²

The Committee was advised that transport over this distance and in this manner could cause particle-size degradation, particularly if the concentrate was transported with a lower moisture content, and therefore increase the risk from respirable sized particles. It was also possible with strong wind conditions, common in Esperance, for microscopic particles to get blown into the atmosphere, returning to the ground again kilometres away from the original source. This meant that land based dust monitoring, proximate to the source of the particles such as that implemented by the Port, may under-estimate their prevalence.³⁹³ (Refer to Appendix 6 also.)

At the Port, inloading processes for lead concentrate included removing the kibbles from the train wagons and placing these in the open 'heavy metals' inloading area. Generally three kibbles would be uncovered at a time.³⁹⁴ These kibbles would be lifted, one at a time, by a front-end loader and tipped into a hopper, enclosed on three sides and fitted with a dust extraction unit. (Refer to photographs and diagram at Chapter 1.3.)

BIS Industry Logistics, which managed the inloading process, issued a policy to its operators which required the dust extractor to be turned off during inloading of lead concentrate unless 'dust is being generated'. The advice of BIS that 'the general practice on site at the port has been to

³⁹¹ Magellan Metals Pty Ltd, *Addendum to Transcript of Evidence*, Answers to Questions, Hearing 2 May 2007, p6.

³⁹² The evidence of Mr Ron Padgurskis, Consultant, was that:

The other thing that occurs when you have both nickel and lead arriving at the port is that it sits in the kibble, but on top of it there might be two or three inches of water - pure water. As it is in transit, it is vibrating and the water is rising to the top ..

...some of the product arrived, and there could be two or three inches of water on it, yet it might have been relatively dry in between (Transcript of Evidence, 28 June 2007, p11).

³⁹³ Closed evidence.

³⁹⁴ Mr Colin Stewart, Chief Executive Officer, Esperance Port Authority, *Transcript of Evidence*, 2 May 2007, p21.

have the dust extractor turned on,³⁹⁵ suggests that generally dust was generated when the lead concentrate was inloaded.

Finding 96

The combination of the chemical characteristics of, and the transport arrangements for, the Magellan lead concentrate made the inloading of the product at the Esperance Port an area of high risk for potential lead dust emission.

(c) Marine sediment monitoring

This has been discussed in detail in Chapter 8. Since voluntary monitoring of the inner harbour by the Port commenced in 2002, elevated benthic levels of nickel had been detected.

Finding 97

The elevated benthic nickel levels detected in the inner harbour in 2002 and 2004 should have alerted the Esperance Port Authority to the potential for lead pollution if it adopted the same processes for handling lead concentrate.

However, as also discussed, there was no requirement for the Port to conduct marine sediment monitoring within the inner harbour, and this may have limited the Port's recognition of the risk associated with the potential for lead pollution arising from benthic pollution of the inner harbour.

Finding 98

The absence of any requirement for the Esperance Port Authority to conduct marine sediment monitoring within the inner harbour may have reduced the Port's recognition of the risk associated with the potential for lead pollution arising from benthic pollution within the inner harbour.

³⁹⁵

Submission No. 94 from Mr Ian Lynass, Managing Director, BIS Industrial Logistics, 27 June 2007, p2. BIS advised that its policy issued 11 January 2007 requires the dust extraction unit to be switched off, but its current Heavy Metals Train Unloading Log confirms it is to be turned on. The original Log of 18 April 2005 required the dust extraction unit to be switched off.

(d) Rainwater tanks

On 12 December 2003, the Port wrote to what was at the time the Department of Environment (DoE) and advised that, following a complaint from a resident in the Esplanade, dust samples were collected on 7 October 2003. Analysis confirmed that the majority of the matter was consistent with pollen. The rainwater tank samples, however, showed elevated levels of nickel beyond national drinking water guidelines. The Port initiated its own investigation and results showed the presence of nickel in rain water tanks at residences close to the Port. The Port indicated that as the tanks had not been cleaned regularly, this would be done by the Port at the end of summer and nickel levels would then be monitored.

On 10 February 2004, further rainwater tank samples were analysed and eight of the 14 samples were above the recommended level for nickel. These results were not included in what became the Port's *'two year monitoring program'*. On 3 September 2004, the Port advised DoE of the rainwater tank monitoring results for sampling conducted on 10 August 2004. Of the 13 results reported, eight were equal to or above the recommended guideline value for nickel. The Port stated that these results were the *'first round of sampling in our two year monitoring program... At this stage we are reluctant to make any conclusions about these initial results.'*

On 31 January 2005, the Port advised DoE of the rainwater tank testing results for November 2004. These indicated that five of the available six tanks had elevated nickel levels, above the 0.02 mg/L guideline, and ranged from 0.03 to 0.09 mg/L.

Unlike the other issues discussed in this section, there were clear standards applying to nickel and lead in drinking water - the Australian Drinking Water Quality Guidelines, and the Port was aware that the acceptable level for lead (0.01 mg/L) was half that applicable to nickel (0.02 mg/L). In addition, the concentration of lead in the Magellan product, at 70 per cent, was much higher than the concentration of nickel in the nickel products being handled by the Port. If lead concentrate did have similar physical properties and behaved in the same way as nickel concentrate, as the Port expected,³⁹⁶ there was every reason to believe that lead would also contaminate the rainwater tanks.

It appears to be the case that DoE, once more, at least initially, underestimated the significance of the rainwater tank results. For example, when the Department wrote to Esperance residents in January 2004 about the initial rainwater test results it stated:

The most likely cause of the nickel in the rain water is the accumulation of dust from past nickel concentrate (predominately nickel sulphide) loading practices at Esperance Port.

The Esperance Port operates a closed materials loading system for all iron ore and nickel loading, minimising the potential for any dust emissions from the port...

³⁹⁶ For example, the Port's OH&S consultant, Mr Kim Riseborough, reported on 23 March 2005 that:

It was agreed that nickel and lead concentrate will have similar physical properties and it is expected that the material will behave in the same manner during transport and transfer on the conveyor system.

*... I am confident the problem [of nickel in rainwater tanks] will be well managed and your rainwater will be safe and normal, as current loading practices control dust much better than past practices.*³⁹⁷

As can be seen from this advice it appears that DoE officers assumed that infrastructure improvements at the Port had included its heavy metal handling systems. The Port did not appear to have corrected the Department's error. This issue is discussed further in Chapter 10.

Finding 99

The Committee is of the view that the elevated nickel levels in rainwater tanks near the Port should have alerted the Esperance Port Authority to the risk of lead pollution if it adopted the same processes for handling lead concentrate.

This was because the Port expected lead concentrate to behave in the same manner as nickel concentrate, and the water quality guidelines applicable to lead are half the level for nickel. Furthermore, the lead content of the Magellan product was high in comparison to the nickel content in the nickel products being handled by the Port.

(e) The Port's response

There was ample evidence, known to the Port, that nickel dust was entering the environment beyond the Port's boundaries. Given this, when it was approached to handle lead concentrate, what did the Port propose?

A media release 'Port Considering Export of Lead Carbonate and Metal Ingots', dated 31 August 2004, quoted the Port's CEO as stating that:

The port would uphold the highest operational standards if it were to export the lead carbonate ... [which] would be handled through the port's existing enclosed conveyor system.

The minutes of the Port Development Consultative Committee for 24 September 2004 recorded the Port's CEO as stating that the Port would '*handle the lead carbonate in the same wa[y] as the existing nickel concentrate*'.

On 28 September 2004, the application from the Esperance Port to the DoE to vary its licence to allow the loading of lead carbonate stated that the '*lead carbonate would be exported through our existing nickel handling system*'.

On 18 December 2004, a Public Information Day was held at the Port. As referred to previously, a note recorded that Ms Michelle Crisp, an Esperance resident, was:

³⁹⁷ Letter to Residents from Regional Manager, South Coast Region, DoE, 15 January 2004.

Interested in how we will manage lead carbonate ... given we have some issues with nickel being detected off site. Advised that recladding of shed was occurring prior to handling of lead carbonate and dust extraction unit would be installed in shed above hopper.

The installation of a dust extraction hopper was, in fact, part of the plan for the new lead shed (which at the time of writing is still under construction).

On 30 March 2005, a dust management plan for the Port was provided to the Department of the Environment in satisfaction of an environmental licensing requirement imposed when the licence was amended to allow for the bulk handling of lead concentrate. The 'plan' was an extract from the Port's existing Environmental Management Plan. It outlined in detail the 'Dust Control Measures for Iron Ore', included a briefer section on 'Dust Control Measures for Nickel Concentrate', and a very brief section on 'Dust Control measures for Lead Carbonate' which stated in full:

Lead Carbonate is a new product to be handled by the Port Authority. This product will be handled within the same system currently used for nickel concentrate.

The lead carbonate will be stored within the shed previously used for storing of western mining nickel concentrate. This shed has been upgraded by way of improved sealing of the shed. The lead carbonate will be unloaded into the shed via the nickel unloading hopper, equipped with a dust extraction system and water sprays on the inloading conveyors. Fog sprays are being installed in the storage shed.

As with nickel concentrate, the lead carbonate will be unloaded from trains and loaded onto ships by contractors. The guidance document "Mineral Concentrate — Guidance in Development of HSE Management Procedures" (PR046) applies to the handling of Lead Carbonate, as to all mineral concentrate products.

A new shiploading procedure for lead carbonate will be developed, similar to the existing nickel shiploading procedure but with additional requirements for safe handling of the lead carbonate.

On 20 June 2005, a draft heavy metals handling procedure for the Port was developed. It was described as 'the nickel procedure just modified slightly for lead'.

Finding 100

The Esperance Port Authority did not properly exercise its responsibilities when it proposed to utilise fundamentally the same handling system for lead concentrate as it had been using for nickel concentrate. There was ample evidence that nickel was escaping into the environment from the Port and the Port Authority expected the lead concentrate to behave in the same way as the nickel.

9.4 Advice of Port's workforce

The Port's workforce provided specific advice about its concerns in relation to the proposal to utilise the nickel outloading system for lead concentrate. This has been detailed elsewhere (refer to Chapters 3.5 and 8.4). It is, however, worth restating some of the comments provided to the Port's CEO and Board:

The risks posed by the escape of lead product dust from the partially enclosed bulk loading system are significantly different to those resulting from the loading of nickel concentrates...

The hazardous and persistent nature of the lead concentrate in dust form could put Port employees, contractors, ships' crews and any others in the vicinity at risk when loading is in process and may persist well after loading has ceased unless the cleanup and decontamination is particularly thorough.

Experience with loading nickel concentrate has shown the difficulty in containing the dust produced within the Port. Significantly measurable amounts are apparent in the seabed sediments and reported beyond the boundaries of the Port.

The Port's workforce provided detailed advice of the areas of risk in relation to the heavy metals handling system. There was also a record of the concerns raised by individuals:

If lead has similar physical properties to nickel and is expected to behave in the same manner then surely it is going to create the same dust problem we have now with the nickel which is going to affect us and the environment...

We cannot handle dust anywhere near good enough to warrant handling lead.

Using the current loading method, lead will be tracked all through the port and transferred through town by utes and peoples clothes.

Ships, berths, handrails, vehicle[s] (personal and work) are always covered after nickel loading.

On windy days nickel dust can be seen blowing around, lead dust would be far worse.

One suggestion was made to load lead in sealed bags, 'therefore eliminating majority of workforce concerns' and the response recorded was that 'This has been considered by the mine but too expensive.'

It should be acknowledged that changes were made to infrastructure, and in particular the occupational health and safety policies applicable at the Esperance Port, in response to the workforce concerns. As indicated the effectiveness of the infrastructure and other changes may be apparent in the reduced nickel benthic levels detected in the harbour from 2005. However, as examined in more detail in Chapter 8.4, crucial issues raised by the Port's workforce were not addressed before the outloading of lead concentrate commenced at the Port. Indeed some of the

apparently critical infrastructure improvements, such as the installation of the dirty water treatment plant, were only implemented in June 2007, after the Port had been prohibited from handling lead concentrate.

In a submission from Mr Rob Stewart, OH&S Representative, 'B' Team, Esperance Port, dated 13 July 2005, he wrote:

*Over the period that Lead concentrate has been handled at the port there has been an ongoing effort by the workforce to improve performance in lead handling, but many of the key engineering shortcomings identified in early 2005 have still not been addressed.*³⁹⁸

The 'General Report Sheets' completed by operational staff during the period lead concentrate was handled by the Port document the ongoing consequences of the failure to implement an adequate handling system for lead concentrate. In addition to the reports referred to previously, these Sheets record incidents of lead dust travelling the length of CV26, covering the workers in the tower in dust; of spills of lead into the water as a result of no spill trays being installed; of ongoing lead concentrate escaping the lead shed; of a hole in the CV5 tail allowing spillage. These Sheets also document in some detail major incidents involved in the outloading of lead concentrate, discussed at 9.5.

Critical evidence from Mr Leigh Klug indicated the extent to which the failure by the Port's management to respond to its workforce's concerns contributed to lead pollution in Esperance. Mr Klug advised that he worked for the Esperance Port Authority between December 2005 and August 2006, and subsequently for a contractor working at the Port. Mr Klug stated that he was:

rostered onto several shifts in which I loaded lead onto the ships, [and] I was totally amazed in how the loader and conveyors simply failed to contain the lead. I will list several things that I myself and a majority of the employees and management saw and talked about in general conversation, on what was considered to be normal for the loading procedure.

- *Lead constantly falling into the bay from the loader.*
- *Lead lying on the berth even after being cleaned by the street sweeper for the rain and wind to blow and wash into the bay*
- *The lead not being cleaned at all in one case after a loading.*
- *Lead dust swirling around and away from the berth.*

*I believe in my personal opinion that the majority of employees including management had seen all of the above and the loader and systems in my view were inadequate.*³⁹⁹

³⁹⁸ Submission No. 101 from Mr Robert Stewart, OH&S Representative, 'B' Team, Esperance Port, 13 July 2007, p2.

³⁹⁹ Submission No. 67 from Mr Leigh Klug, 25 May 2007.

Mr Klug also stated that:

I handed in my resignation for the sole fact that I was sick and tired of the disrespect, ignorance and total inaction from the management and systems they had in place.

Finding 101

Changes were made to policy and infrastructure by the Esperance Port Authority in response to workforce concerns about the handling of lead concentrate. However, the Port did not exercise its responsibilities properly in relation to the potential for lead pollution because it did not ensure that all critical infrastructure improvements identified by its workforce were implemented in a timely way.

Recommendation 31

The Committee recommends that the Minister for Planning and Infrastructure review and make changes to the existing structure of port authority boards to ensure that there is effective representation of the port workforce at this level of port operations.

9.5 A 'preferred product'

The Esperance Port Authority regarded Magellan's lead concentrate as a *'preferred product'*.⁴⁰⁰ Considering the difficulties and sometimes conflicting obligations confronting the Port in handling this product, including, as detailed next, the moisture content, transportable moisture limit (TML), weather conditions, vessel type, and night loading, this is perhaps indicative of the complexity involved in the Port's operations.

(a) Moisture content

When Magellan Metals decided not to agglomerate its product it wrote to the Port:

... I am certain this will have no impact on your concentrate unloading routines (because we both agree that its more about moisture content than anything else)...

The evidence of Mr Patrick Scott, Managing Director of Magellan Metals to this Committee was that:

⁴⁰⁰ The Chief Executive Officer explained that this was partly because it did not have associated odour concerns like nickel, but also because it was less likely than nickel to damage equipment being less prone to 'lumping' and less corrosive (Mr Colin Stewart, Chief Executive Officer, Esperance Port Authority, 6 June 2007, p4).

the strong view was that the dust characteristics of this material were really about moisture, and agglomeration was, if you like, really almost a red herring.

The evidence of Mr Colin Stewart, CEO of the Port, to this Committee was that:

We were fundamentally talking about a concentrate. The handling of a concentrate involves a number of features that make it better or worse. The fundamental feature is getting the moisture control right.⁴⁰¹

The evidence of the Port's OH&S Representatives to this Committee endorsed that assessment, but placed it in the context that in part the significance of the moisture content was because of the standard of the infrastructure at the Port:

Again, a lot of that equipment is old and not, in our view, ideal for the job it was doing. The big key is the moisture levels within the product we were handling.⁴⁰²

Finding 102

The Esperance Port Authority and Magellan Metals Pty Ltd agreed that moisture content was the key factor in handling the Magellan lead concentrate.

Given the consensus on the significance of the moisture content of the lead concentrate, it is of concern that this was highly variable, with samples obtained during ship-loading ranging between 4.43 per cent and 9.4 per cent moisture content (refer to Table 9.1).

Mr Rob Stewart's evidence before the Committee, on behalf of the Port's OH&S Representatives, was that:

When I was talking about Port Pirie, the key issue we understood from that [site visit] was the use of water to control the dust. The moisture content of the product was also a key issue. We had difficulties because it seemed like the communication that we kept presenting to the people who we were accountable to, about things like the control of the dust, and the moisture levels, were not being responded to in the way we would have liked...

The difficulty we had was the inconsistent product more than anything. Magellan did not send us a consistent product. It varied from shipment to shipment. It varied depending on the conditions of transport. We never really knew when we started out-loading just what

⁴⁰¹ Mr Colin Stewart, Chief Executive Officer, Esperance Port Authority, *Transcript of Evidence*, 6 June 2007, p6.

⁴⁰² Mr Robert Stewart, Port Worker and Occupational Health and Safety Representative, Esperance Port Authority, *Transcript of Evidence*, 28 June 2007, p3.

*product we were going to get. Even from one loader bucket to the next loader bucket, there could be variation.*⁴⁰³

In a supplementary submission, Mr Stewart stated:

*There were no clear, objective parameters to guide loading personnel on acceptable limits but as can be seen there was considerable variation. The difficulty in managing the control measures with such an inconsistent product was a key issue for teams responsible for out-loading heavy metal cargoes. The issue of moisture levels within the storage shed was [an] ongoing contentious issue as there appeared to be no accountable person managing the stockpile.*⁴⁰⁴

(i) Moisture content at the mine

Magellan prepared the concentrate at the mine site for transport to the Port. In its Consultative Environmental Review document released in 1999 it stated that the lead concentrate will be *'dried by a pressure filter'* reducing the moisture content to eight per cent before being transported. When the Department of Health queried the risk of the product drying out during transport and generating dust, because of the distance proposed (at that time to Geraldton), Magellan Metals responded that *'additional testwork has shown that the moisture content will be 12% not 8%'*. When Magellan applied to vary the Ministerial Statement to allow the transport of the lead concentrate through Esperance instead of Geraldton, in October 2004, it referred to the product being in moist agglomerated balls which *'will significantly reduce the risk of rogue dust emissions during handling and ship loading'*, but made no specific reference to the moisture content. However, in the *Technical Report on the Magellan Project*, by F&A Sibbel Mining Consultants, issued by Ivernia in September 2004, it stated that the product would be dried to less than 7.5 per cent moisture content and then agglomerated into granules less than 10mm, based on test work. The Health, Hygiene, and Environment Management Plan (HHEMP) for the Magellan Project, as revised in November 2004, stated that the lead carbonate would be filtered to reduce it to a moisture content of six per cent *'the level suitable for road transport'*, and granulated to prevent dusting.

On 19 March 2005, in an email, the General Manager, Magellan Metals wrote to the CEO, Esperance Port Authority, that:

At 10% moisture, I don't see the ship loading is going to create any dust issues, but with a TML of over 11%, there is plenty of scope to add water during the loading process.

When the Port's workforce raised concerns about the problems with the escape of dust from handling heavy metals, and the OH&S Consultant was asked to review the Port's handling system on 23 March 2005, he advised, amongst other things, that the product should have a moisture content of 10 per cent.

⁴⁰³ Mr Robert Stewart, Port Worker and Occupational Health and Safety Representative, Esperance Port Authority, *Transcript of Evidence*, 28 June 2007, pp2,3

⁴⁰⁴ Submission No. 101 from Mr Robert Stewart, OH&S Representative, 'B' Team, Esperance Port, 13 July 2007, p2.

On 7 April 2005, when Magellan advised the Port that it was not intending to agglomerate the lead concentrate it also stated:

Having completed our experimenting with different moistures of concentrates, I believe we now understand from your observations that the moisture content conducive to minimising dust and spillages is +/-9%.

(ii) Moisture content during inloading

There were ongoing problems with the inloading of lead concentrate at the Port. There is evidence from very early in the handling of the lead concentrate through the Port that the unloading hopper was becoming blocked, taking seven hours to 'bog out' because the concentrate was too wet when it was unloaded. In an email from the Port's Ventilation Officer to the CEO just days after the lead concentrate had started to arrive at the Port in April 2005, the Ventilation Officer referred to the problems with the agglomerator and added that this:

may in part add to the problem we have when Brambles are forced to pressure wash the lead out of the dump hopper as happened on Saturday night which resulted in a lot of spill and mess getting over return idlers and head/tail pulleys etc. In addition, and more to the point the moisture levels definitely appear to need to be kept lower than we have seen. The average for the one we have put on hold was above 10 and we risk blockages at this level.

The Committee has received evidence that when the hoppers became blocked, BIS' employees would also climb inside with a crowbar to dislodge the concentrate.⁴⁰⁵ When the BIS Managing Director was asked how the hopper was unblocked, the Committee was referred to the BIS policy which stated that 'If unloading of wet product has resulted in the hopper becoming bogged, the operator shall arrange for the hopper to be cleaned out...'.⁴⁰⁶ The Committee was also informed that:

*BIS operators were responsible for a visual check of the product to ensure that it was not too wet for unloading into the hopper which would cause a blockage of the hopper.*⁴⁰⁷

During the course of handling the Magellan concentrate, the Port returned a large number of kibbles to the mine site without being unloaded because the moisture content was too high. According to BIS Industrial Logistics records, the total number was approximately 100.⁴⁰⁸

By October 2005, emails between the Port and Magellan were about overly dry concentrate, and the Port advised that the concentrate was:

⁴⁰⁵ Closed evidence.

⁴⁰⁶ Submission No. 94 from Mr Ian Lynass, Managing Director, BIS Industrial Logistics, 27 June 2007, p6.

⁴⁰⁷ *ibid*, p2.

⁴⁰⁸ *ibid*, p5.

starting to show signs of dusting to the point that Brambles are concerned about unloading kibbles as there is dust being generated that has potential to go outside the unloading and storage system.

Other evidence available to the Committee indicated that when the product was dry, tipping it into the hopper would cause clouds of dust to come out, with the potential to drench the Brambles' operators in dust.⁴⁰⁹ There was no evidence before the Committee that kibbles were ever returned because the product was too dusty.⁴¹⁰ As indicated previously, at Chapter 9.3(b), the inloading of the lead concentrate appears to have been an area of particular risk in relation to potential lead pollution.

(iii) Moisture content in the shed

Factors that needed to be taken into account in ship-loading critically included the 'TML' or transportable moisture limit, for a product. Mr Dave Jamieson, the Shipping Support Officer for the Port described TML in this way:

As stevedores we cannot load a vessel that is over a TML - a transportable moisture limit. Ours is not worrying about the lower limit; ours is worrying about the upper limit, otherwise we completely endanger the ship and all personnel because the ore itself can liquefy if its gets past its flow point. ..

[The TML for a product] *varies.*

... The actual mine site would send it to someone like SGS, which is an analysing body, and they would put it through a flow point test. So they would actually dry the samples they have out and then they would weigh them and then they would probably - I am not a chemical man - wet the pipe up until it became a solution, where it would actually move or float. Once they got that they would do a determination. Ten per cent under that would be a safe transportable moisture limit.⁴¹¹

Higher moisture content not only risks the safety of the crew and vessel, but can cause problems for in- and outloading equipment, with, for example, chutes and hoppers becoming blocked.

Significantly, however, too low a moisture content created other problems, particularly dusting of the product. Consistently the evidence in this inquiry has been that moisture content is the key factor in controlling the potential for dust emissions in handling lead concentrate.

⁴⁰⁹ Closed evidence. BIS Industrial Logistics evidence was that it was not aware of any instances of the product being 'too dry'. Their only reference in its unloading procedure to dust in the 'pre-unloading checklist' is to dust and spillage on the wagons being washed down (Submission No. 94 from Mr Ian Lynass, Managing Director, BIS Industrial Logistics, 27 June 2007, p5; BIS Industrial Logistics, 'Unloading Heavy Metal Tubs into the Hopper', 11 January 2007; BIS Industrial Logistics, 'Competency Checklist - Unloading Heavy Metal Tubs into the Hopper', (11 January 2007).

⁴¹⁰ Submission No. 94 from BIS Industrial Logistics, p5.

⁴¹¹ Mr David Jamieson, Shipping Support Officer, Esperance Port Authority, *Transcript of Evidence*, 28 June 2007, pp2,9.

Who was responsible?

In an email exchange, from June to August 2005, between the Port's Environmental Consultant and what was at the time Brambles (now BIS Industrial Logistics) the Consultant suggested that the procedure for outloading Magellan lead concentrate should indicate that Brambles was responsible for wetting down the product (in the shed) as it was under Brambles' control until it was on the outloading belts. This was consistent with the Brambles' procedure for outloading nickel concentrate.⁴¹² Brambles responded that it was not responsible for product quality:

we will work as directed by the principle (either Magellan or EPA [Esperance Port Authority]) but will not guarantee product quality by wetting down as Brambles are the handler of the material and not the principal supplier. I will change our procedure to show this.

Later, on 3 October 2005, the Port requested that Magellan:

get some handle on the moisture level at the mine site as we can not effectively achieve this at the port... if possible somewhere above 7% and under 9.2% seems to be best for handling through our system.

Magellan's Operations and Registered Manager responded on 4 October 2005 stating that the 'over dry concentrate' was

due to the warm and windy weather accelerating the solar drying activities. We are to implement a procedure to re-wet over-dry conc's before dispatch, this will be effective tomorrow.

After this change in procedure at the mine site, it appears that significant numbers of kibbles were once more returned to the mine site as too wet, with BIS records indicating that 32 kibbles were returned on 26 January 2006 and 15 on 7 May 2006 (although the Port's 'Log of Trains Arriving Esperance - Magellan' had no entries to this effect).

On 8 June 2006, when Magellan's lead concentrate was loaded into the Eco Progress its moisture content exceeded the TML, potentially placing the crew and vessel at risk.⁴¹³

At a hearing on 28 June 2007, Mr Ron Padgurskis, a Consultant representing Magellan Metals during ship loading⁴¹⁴ stated:

we had a shipment of product that was loaded and it exceeded the TML... The TML, hypothetically, was 10, and we went to 11. We went aboard the ship for the documentation with the captain and he would not accept the product. We had exceeded the TML...

⁴¹² BIS Industrial Logistics, 'Unloading Heavy Metal Tubs into the Hopper', 17 December 2005, p2.

⁴¹³ Refer to Table 9.1.

⁴¹⁴ Mr Padgurskis advised that he is an 'engineering consultant cum project manager' and included the Esperance Port Authority as one of his clients (Mr Ronald Padgurskis, Projects Manager/Consultant, *Transcript of Evidence*, 28 June 2007, p1).

... they had to fly people from Perth to change the documentation and the legalities and the guarantees because the port had exceeded the TML in the loading .⁴¹⁵

Finding 103

When the Eco Progress was loaded with lead concentrate at the Esperance Port on 8 June 2006, the moisture content of the cargo was higher than the transportable moisture limit, with the potential to put the ship's crew and the vessel at risk.

This was followed by an attempt by Magellan, on 21 June 2006, to have the moisture content of samples from ship loading reported to the Magellan representative rather than the Port's Cargo Supervisor so that:

any problems that arise similar to those involving the Eco Progress can be dealt with swiftly and through a single channel.

The Port's Shipping Support Officer pointed out that this would be a breach of the Bulk Cargo Code as there are strict regulations concerning the TML given that it can result in concentrate liquefying and endangering the vessel and crew. He went on to state:

The easiest solution to TML is for controls to be put in place at the minesite, to ensure the product is not transported to the port already exceeding TML.

There was another major incident in loading a vessel on 10 October 2006, involving a box hull ship,⁴¹⁶ this time involving a dry product and strong winds (described in more detail in Chapter 9.5(e)).

A suggestion at the time from the Port's Environmental Consultant that the Port's Cargo Supervisor check and water the lead concentrate the day before loading was responded to by the Magellan representative:

DO NOT APPLY WATER TO THE PRODUCT IN THE SHED WITHOUT MY WRITTEN APPROVAL... The dust problem is not the product but the lack of housekeeping... the application of water on the lead is a NO GO...

The following day the representative, Mr Ron Padgurskis, advised Magellan that with moisture content below 7.2 per cent the product was '*very dusty and is not suitable for loading without the application of water*'; however, four of the samples for this shipment exceeded the TML: '*this was old product*'. The minutes of a meeting between Magellan and the Port on 19 October 2006, about the incident on 10 October 2006, recorded that Magellan noted that:

⁴¹⁵ Mr Ronald Padgurskis, Projects Manager/Consultant, *Transcript of Evidence*, 28 June 2007, p4.

⁴¹⁶ Ship with hull configured in a set of boxed compartments; the Spleithoff ships are one of the vessels configured in this way.

the mine had been focussed on the product not being too wet, and therefore possibly over TML but realized that they needed also to focus on ensuring the product was not too dry.

Finding 104

Magellan's lead concentrate was prone to dusting when it had a lower moisture content; but with higher moisture content there was a risk of exceeding the transportable moisture limit for shipping. After the loading of the Eco Progress, Magellan Metals Pty Ltd was more focussed on the concentrate not being too wet rather than ensuring the product was not too dry.

Mr Padgurskis' evidence to the Committee was that the Magellan mine was responsible for the moisture content of the lead concentrate product in the shed.⁴¹⁷ Magellan Metals' recent evidence to this Committee was that its representative, Mr Padgurskis, was incorrect in this view. It stated that the contract between Magellan and the Port, made it clear that:

*the Port is responsible for transferring the product from the stockpile in the shed to the loading system for loading onto a ship (refer ... Schedule II) and managing the environmental aspects of the loading operation. Magellan has responsibility for sending its product from the mine at a moisture level within a specified range nominated by the Port.*⁴¹⁸

The contract does state the Port is responsible for transferring the product from the shed stockpiles for loading onto the ship, under Schedule II, and for managing the environmental aspects of the loading operation, as Magellan asserts. However, the contract also states at clause 4.8 that:

The Lessee or its nominated representative reserves the right to direct the Lessor in operational matters relating to the Lessors provision of the facilities and services described in 4.2 (d)...

Clause 4.2(d) refers to the Lessor's obligation to *'provide the services and facilities required by Schedule II'*.

Although Magellan's interpretation of the Port's obligations under Schedule II to manage the moisture content of the concentrate in the shed is not as clear to the Committee as Magellan asserts, even if Magellan's interpretation is accepted, what is clear is that Magellan, and its nominated representative, retained the contractual right to direct the Port in relation to such matters. The exchange of emails on 10 October 2006, between Magellan's nominated representative and the Port appears to leave no doubt that Magellan, through its nominated representative, had exercised its powers under clause 4.8 and asserted its right to control the moisture content of the product in the shed.

⁴¹⁷ Mr Ronald Padgurskis, Projects Manager/Consultant, *Transcript of Evidence*, 28 June 2007, p2.

⁴¹⁸ Submission No. 33(c) from Magellan Metals Pty Ltd, 1 August 2007, p9.

Finding 105

There was a consensus between Magellan Metals Pty Ltd and the Esperance Port Authority that the moisture content of the lead concentrate was critical to its safe handling. The Committee finds it alarming that there was a lack of clarity between the relevant parties as to which was responsible for managing the moisture content of the lead concentrate while it was in the shed awaiting shipment.

By failing to have clearly understood arrangements in place for managing the moisture content of the lead concentrate while in the shed from the outset, the Esperance Port Authority, and Magellan Metals Pty Ltd, failed to properly exercise responsibility in relation to potential lead pollution.

Finding 106

There is clear evidence that the nominated representative of Magellan Metals Pty Ltd exercised the power under clause 4.8 of the contract between Magellan Metals and the Esperance Port Authority on 10 October 2006 to deny the Port any authority to wet down the lead concentrate in the shed. As a result Magellan Metals assumed responsibility for the moisture content of its concentrate prior to outloading.

(iv) Magellan's concentrate drying pad

After the agglomeration was unsuccessful, Magellan Metals Pty Ltd applied for and received approval for a concentrate drying pad to manage the moisture content of its product, in May 2005. As indicated previously, the evidence before the Committee was that this would be a commercially attractive way to handle product moisture for the company, but with tonnes of product left in the open, being turned by front-end loaders, it would appear not a particularly reliable one. The quality control of the moisture content of lead concentrate was made more difficult by the requirement of travelling long distances in unsealed kibbles, and being stored in a shed for four to six weeks before being outloaded.⁴¹⁹

The minutes of a meeting between Magellan and the Port on 19 October 2006, about the incident on 10 October 2006, recorded that:

- the product was *'very dusty and resulted in the vessel and berth being covered with lead dust'*;

⁴¹⁹ Mr Ronald Padgurskis, Projects Manager/Consultant, *Transcript of Evidence*, 28 June 2007, p2.

- the ‘*ideal solutions*’ would be to have a telechute, which the Port used to have, but in the meantime a 3m stainless steel extension will be added to the existing chute;
- the water sprays failed on CV3; and
- by March 2007, Magellan should have a new pressure filter, which will help them achieve a concentrate with consistent moisture content. Currently:

the concentrate is coming out at about 20% moisture and put into a shed, and then taken out to a lead pad and solar dried. This results in the product being inconsistent in moisture content with some parts very dry and some still wet.

- Magellan is recorded as noting that:

the mine had been focussed on the product not being too wet, and therefore possibly over TML but realized that they needed also to focus on ensuring the product was not too dry. [The Port’s Shipping Support Officer] indicted that the best moisture content was about 1% below the TML, about 7.5 - 8%.

- *Whether Brambles should be directed to manage water sprays in the sheds when product is unloaded, when required, needs to be discussed between Brambles and Magellan. The role of the product representative was discussed but the role was seen as managing the product onto the ship, not being directly involved in managing the quality of the product. Magellan may need to review the role of the product representative at the port.*
- *It was discussed whether the port needs to be managing the product more when it arrives at the port, but that this is best done at the mine site.*

In January 2007, Magellan was to advise the Port that:

due to the nature of our drying process and distance to transport the product to the port, Magellan believes it is an unattainable requirement to provide product that will definitely not produce dust.

The EPA [Esperance Port Authority] is aware that Magellan is presently relying on solar drying as a means of reducing moistures in our product. However, new pressure filters are scheduled for commissioning in March 2007, which will provide for improved management of moisture ranges of our product and reduce potential for dusting incidents during ship loading.

In addition, Magellan will continue to provide personnel for monitoring ship loadings, where possible.⁴²⁰

⁴²⁰

Letter from Mr Paul Cullen, General Manager, Operations, Magellan Metals Pty Ltd to Mr Colin Stewart, Chief Executive Officer, Esperance Port Authority, 22 January 2007.

It is not surprising that the Port's workforce found the moisture content of the lead concentrate varied *'from one loader bucket to the next loader bucket'*.

Finding 107

Magellan Metals Pty Ltd justified its decision not to agglomerate the lead concentrate on the basis that moisture content was the key factor in handling the product. By utilising a solar drying pad for its concentrate it did not implement appropriate means for ensuring the consistency of moisture content in its product although it knew this to be critical to its safe handling.

Finding 108

By utilising a solar drying pad for its concentrate, resulting in very poor control of the moisture content of its product, Magellan Metals Pty Ltd failed to properly exercise its responsibilities in relation to potential lead pollution.

(v) Ship-loading

For the reasons given previously (refer to Findings 106 and 107), the Committee is satisfied that Magellan was responsible for the moisture content of the lead concentrate in the shed, and that Magellan did not take appropriate measures to ensure the consistency in the moisture content of its product although it knew this to be critical to its safe handling. A different issue is who was responsible to manage the dust emissions from the lead concentrate if it became dusty during the actual loading of the ship.

The evidence of Mr Dave Jamieson, cited earlier, indicated that the Port's responsibility was to not load a ship if the cargo exceeded TML. The Port, apart from any other contractual arrangements it entered into, was also the occupier of licensed premises and as such was subject to licensing conditions requiring it, as the licensee, to:

take measures to prevent or minimise:

- *the emission of visible dust past the boundary of the premises, and;*
- *discharge of raw material to any waters during loading and unloading operations.*

As the occupier of premises it was subject to the *Environmental Protection Act 1986* provisions making it an offence to pollute or otherwise harm the environment.

The evidence of the Magellan representative, Mr Ron Padgurskis, and the Port's Shipping Support Officer, Mr Dave Jamieson, agreed on this point. Mr Padgurskis indicated that he wished to be advised if the Port had decided to use dust suppression mist sprays while loading the product, in case of TML issues, but that he would not be able to stop the Port taking this action if it believed it was required.⁴²¹ Mr Jamieson's evidence was that:

basically if you are loading and there is dust, we treat the dust in our systems with water - CV3 and CV5 - and, if we can, we use a loading spout. If that is not effective, we stop. Once we stop, it is up to the shipper's representative to come in and condition that product. We might start loading again and if it is still dusty, we will stop again.

...The cargo supervisor monitors the loading. He gets the information from the hatch man, who is on deck with the control box to control the load out. He would say, "It's starting to get dusty up here. Okay, can we apply water and CV3 and CV5 in the chute? It's fine now. Everything's good. Look, there is still plenty of dust; let's stop."

... if we were not allowed to use the sprays, that would be determined by the ship's crew, or the ship's master. As you would know, they have got to raise a concern about the product. If they see any water at all on the product, they think it is going to alter the product. We cannot explain that you need to put, like, a tonne of water on it, or whatever. Then, if there was still dust, we would stop and just say we are not going to use it. Then we would call in perhaps Ian Harrod, the captain, to come down and explain to the master that we need to use those sprays.⁴²²

Finding 109

The Esperance Port Authority was responsible for the environmental management of emissions produced during the outloading of lead concentrate at the Port.

(b) Weather conditions

The significance of weather conditions in Esperance was obvious. The Port's Environmental Management Plan stated:

Strong winds are experienced in Esperance around the year. Strong south to south easterly sea breezes are typical during the summer afternoons with typical wind speeds of 20 - 40 km/h. During winter, westerly through to north westerly winds prevail.⁴²³

When the Port trialled high volume dust monitors in 1995, the report stated:

⁴²¹ Mr Ronald Padgurskis, Projects Manager/Consultant, *Transcript of Evidence*, 28 June 2007, pp4,5.

⁴²² Mr David Jamieson, Shipping Support Officer, Esperance Port Authority, *Transcript of Evidence*, 28 June 2007, pp12,13,15.

⁴²³ Esperance Port Authority, Environmental Management Plan PL009, 28 June 2005, p26.

Some lower levels [of dust from product handled by the Port] ... have been associated with SW winds which generally is away from the main monitors. It is evident SE and NE winds give rise to higher... levels particularly when wind changes around this aspect.⁴²⁴

In 2002, the *Final Report on Esperance Port Nickel Odour Study* found that odour from the Port was 'particularly noticeable off-site during the summer months, at least in part due to the prevailing wind direction being onshore'. It concluded that:

Off-site odour events were primarily attributable to meteorological conditions carrying emissions over populated areas, rather than variability in odour emissions.

When the OH&S consultant inspected the outloading of nickel concentrate in 2005, he noted: 'High gusty winds are common in the area which will affect the way the material may move through spillage and dust.'

The Port's Environmental Consultant noted in her draft report on heavy metal handling in October 2006 that:

Loading in windy conditions results in the product being blown from the belts onto the berth and covering the shiploader...

Since removal of the original telescopic loading chute, the loading chute is not able to be extended into the hatch during loading. When slewing the loading chute out to fill the far side of the hatch, the chute is even more elevated out of the hatch... during windy conditions nickel/lead can end up on the deck of the vessel and in the ocean.

It is clear from the above that strong winds were likely to increase the potential for lead pollution during outloading, and in particular, that strong winds in a south-easterly or north-easterly direction were likely to impact more on the population near the Port.

Finding 110

The typically strong winds of Esperance increased the potential for lead pollution during outloading and when in a south-easterly or north-easterly direction were more likely to impact on the population living close to the Port.

(c) Type of vessel

Another issue relevant to the potential for dust pollution was the type of vessel being loaded. After the first major dusting incident occurred in early October 2006 during the loading of the *Lemmergracht*, it was felt that the configuration of the vessel, a *Spleithoff*, was significant. One of a category of 'box hulled' ships, these are generally smaller and so sit lower in the water when

⁴²⁴ Esperance Port Authority, Air Monitoring Programme, 1995, p3.

loaded with cargo. The hull is also configured as an ‘open box’ rather than as a more enclosed compartment (refer to Figures 9.1 and 9.2).

In two of the major dusting incidents in October 2006 and December 2006, the ship involved was a Spleithoff; indeed it was the same vessel, the MV Lemmergracht. The day after the initial incident on 10 October 2006, Magellan’s representative, Mr Ron Padgurskis, wrote to Magellan about the incident and stated that, amongst other things, ‘*the type of ship that was loaded is not very suitable for our ship loader chutes and creates problems in loading*’.

In a subsequent email, on 18 January 2007, the Port’s Shipping Support Officer stated that:

This was the first of the Spleithoff vessel configuration, and it was noted then that these vessels were not suitable to load this type of product.

Magellan Metals’ evidence to the Committee was that this is incorrect. Another vessel, the Hanna C, which had been loaded with no reported problem on 10 January 2006, was also a box hulled type vessel of a similar size to the MV Lemmergracht. Magellan also stated that shortly after the loading of the MV Lemmergracht, on 31 October 2006, another Spleithoff vessel was successfully loaded at the Port, the MV Edamgracht.

The Port’s Shipping Support Officer reported to Magellan on 31 October 2006 that there was still:

a minor dust problem over the last 2000mt of loading due to the vessels draft (lower in the water) even with the loading chute (even with our extension) was above the hatch comings.⁴²⁵

The Port’s Shipping Support Officer also stated: ‘*Still the overall loading was good*’, but went on to include the two diagrams (extracted on the previous page) and stated that these will:

explain the difference between a conventional bulk carrier hold arrangement, and a Spleithoff hold arrangement, which will explain why these types of ship add to the generation of dust emission escaping from the hold during loading.

This among other issues are the reason why these Spleithoff type vessels are not really suitable for loading dust generating products.⁴²⁶

⁴²⁵ Email from Shipping Support Officer, Esperance Port Authority, to Shipping Agent, 31 October 2006.

⁴²⁶ *ibid.*

Figure 9.1 Cross section of a conventional ship's hold⁴²⁷

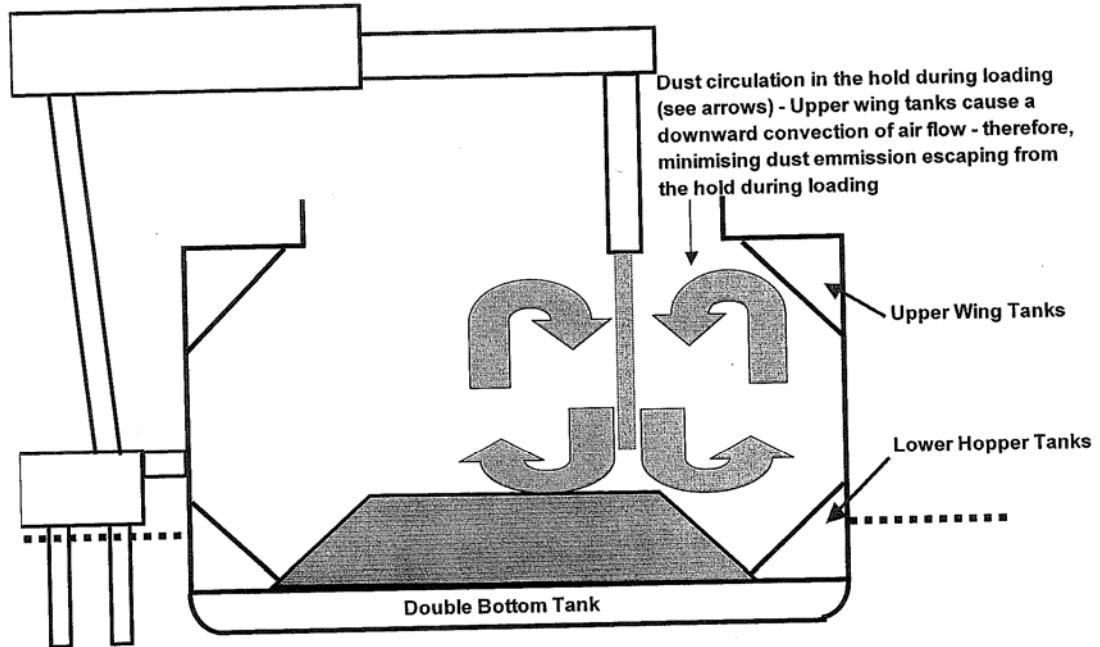
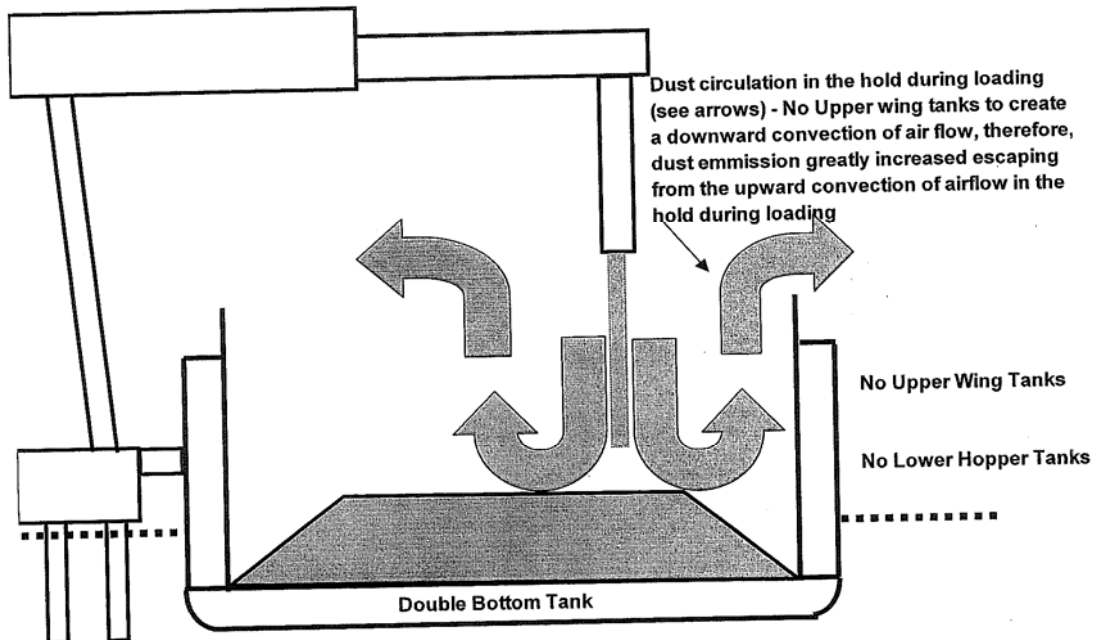


Figure 9.2 Cross section of a Splithoff (vertical side) ship's hold⁴²⁸



⁴²⁷ Esperance Port Authority, 'Beyond the Mine Site' Workshop, 4 December 2006.

⁴²⁸ *ibid.*

The meeting between Magellan and the Port's representatives about the incident on 10 October 2006, was reported by one of the Magellan participants in similar terms to the Port's minutes of the meeting (referred to in Chapter 9.5(a)(iv)).⁴²⁹ Neither the Port's minutes nor the Magellan record refer to the vessel type and Magellan's evidence is that:

Following the successful loading of the MV Edamgratch, Magellan was of the view that the issues with this type of ship had been addressed by the Esperance Port Authority and that they were suitable for loading Magellan product as long as the above steps [concerning moisture content, the extended loading chute, and the dust suppressant system on the conveyors] were taken.

However at the 'Beyond the Mine Site' workshop convened for heavy metal producers by the Esperance Port Authority on 4 December 2006, the Port identified 'vessel selection' as having the potential to 'impact dust during loading':

Smaller vessels are lower in the water and therefore the product needs to fall further resulting in potential or more dust emissions.

It also cited the following as an example of a dust complaint:

- *10/10/06*
- *Shiploading of lead concentrate*
- *Small vessel*
- *Very dust product*
- *Very light easterly winds*
- *Port personnel, ships crew, vessel and shiploader covered in lead dust*
- *Personnel on vessel also complained of vapour from product during loading.*

Six days later, on 10 December 2006, the Port allowed the MV Lemmergracht back to be loaded with lead concentrate. When asked why this was allowed given the Port's view of the problems with loading that vessel, the Port's evidence was that:

The vessel when it previously visited the port had generated problems for us. We brought to the attention of Magellan and, more particularly, Magellan's ship brokers that these sorts of vessels were inappropriate. As it turned out, that vessel had already been chartered for another cargo. In fact, after it left Esperance, to the best of my knowledge it went and discharged its lead concentrate in China. It then returned to the east coast where it picked up a load of new containers for the nickel project and brought a full load of empty containers into Esperance. These were brand-new containers for the

⁴²⁹ Email from Manager Metallurgy, Magellan Metals, to General Manager, Magellan Metals, 11 November 2006.

*Ravensthorpe nickel project. Once those containers had been discharged, it picked up a cargo of lead concentrate, again out of Esperance, for China. At the time, we became aware that this vessel had created some problems for us. That charter, if you like, from the east coast to Esperance had already been committed. I guess what we said to Magellan was that, all right, on the basis that it is already coming back into Esperance with a load of empty containers, we would be prepared, on a one-off basis, to allow it to come, but under no circumstances was this style of vessel to visit the port in the future.*⁴³⁰

The Port also relied upon other improvements made by Magellan to better control the moisture content of its product and the Port by ensuring its water sprays were functioning and installing Polo Citrus dust suppressants.⁴³¹

When the MV Lemmergracht was loaded with lead concentrate at Esperance Port on 11 and 12 December 2006 there was another major dust incident.

Finding 111

After a major dust incident during the loading of the MV Lemmergracht with lead concentrate on 10 October 2006, the Esperance Port Authority identified small box hulled vessels as unsuitable and as having the potential for more dust generation. By allowing the same vessel back into the Port to be loaded with lead concentrate again on 11 December 2006, the Esperance Port Authority failed to properly exercise its responsibilities in relation to potential lead pollution.

As indicated previously, Magellan Metals Pty Ltd had undertaken to focus on ensuring its product was not too dry after a major dust incident while loading the MV Lemmergracht in October 2006. However, when the MV Lemmergracht returned in December 2006 the moisture content of the lead concentrate was lower than it had been for the box hulled vessels previously loaded: the Hanna C in January 2006, the MV Edamgracht, and the Lemmergracht in October 2006 (refer Table 9.1).

⁴³⁰ Mr Colin Stewart, Chief Executive Officer, Esperance Port Authority, *Transcript of Evidence*, 6 June 2007, p2.

⁴³¹ *ibid*, p3.

Finding 112

Magellan Metals Pty Ltd had undertaken to focus on ensuring its product was not too dry after a major dust incident while loading the MV Lemmergracht in October 2006. However, when the MV Lemmergracht returned in December 2006 the moisture content of the lead concentrate was lower than it had been for the box hulled vessels previously loaded: the Hanna C in January 2006, and the MV Lemmergracht and MV Edamgracht in October 2006.

After the second major incident during the loading of the MV Lemmergracht on 10 and 11 December 2006, Magellan's General Manager recorded that he:

attended the port the next day and was shown for the first time evidence of very severe dusting...

A number of factors coincided to cause the problem:

...

- *The vessel is the same one that caused dust problems last time it was used. It is smaller than those that have been used in the past, but it is the fact that there are no bulk heads in the hold that causes much of the problem. The hold needs to be loaded in 12 positions (repeatedly) to keep the ship in an even keel which means it has to be completely open allowing the wind to blow through the hold... [larger vessels have] 'turned in' edges ... which assists in preventing dusting [and] have four separate compartments so that only one is open at any one time... coupled with the greater depths of the hold....*

The Magellan General Manager also recorded notes of the meeting he attended at the Port with Port representatives to review the loading of the MV Lemmergracht and to take steps to prevent a recurrence on 12 December 2006. He noted that the Port representatives:

stressed that this event was totally unacceptable and this was liable to turn operations opinion of Magellan concentrates from the preferred product (which it was initially) to the same as nickel.

The first action listed was *'Do not to use this type of vessel again.'*

Finding 113

Magellan Metals Pty Ltd attended a meeting with representatives of the Esperance Port Authority to review the loading of the MV Lemmergracht on 11 to 12 December 2006, which caused *'a major dust problem'*, and to *'take steps to prevent a recurrence'*. The first action agreed at the meeting was: *'Do not use this type of vessel again.'*

On 21 December 2006, the vessel Opal Ace was proposed for loading lead concentrate in January 2006 by Magellan's shipping agent. The Port's Harbourmaster replied that:

This is the type of vessel that we have been having a lot of dust problems with recently... Our preference is for the more conventional type of bulk carrier... However, on this occasion, if it is the only vessel available to you we will accept it.

The correspondence was then forwarded to the Port's Shipping Support Officer with an explanation from the Harbourmaster that this 'was an urgent request as it looked like the charter would fall over in the next hour or so'. The Shipping Support Officer replied:

in the case of this vessel being confirmed, we can expect major trouble from our workforce to load it. The [Port] was given the promise by [the General Manager of Magellan] that these types of vessels would no longer be nominated to load lead. This promise was given to us at the emergency meeting we all attended when we had major dust issues with the last vessel of this configuration.

The Opal Ace was not loaded at Esperance in January 2007.

Magellan's evidence, despite the advice of its General Manager after the meeting with Port representatives on 12 December 2006, was that:

This type of vessel had been successfully loaded on 10 January 2006 and 31 October 2006. Magellan believed therefore that the ship type was suitable if the correct systems were employed to load it. Notwithstanding this belief, Magellan decided not to employ this type of ship again.⁴³²

Finding 114

After the incident involving the MV Lemmergracht on 11 to 12 December 2006, Magellan Metals Pty Ltd's shipping agent nominated a similar type of ship to the Esperance Port Authority to be loaded with lead carbonate in January 2007 and this was accepted by the Esperance Port Harbourmaster. As it eventuated the ship was not loaded. The reasons for this are unclear, although there were indications that the Port could 'expect major trouble from our workforce to load it'.

(d) Night loading

The issue of visible dust has been discussed in Chapter 7, but also has a particular relevance to the issue of ship-loading at night. The evidence of the Port's Shipping Support Officer was that:

⁴³² Submission No 33(b) from Magellan Metals Pty Ltd, 7 June 2007, p6.

*Unless you see dust, you cannot stop it. If it is invisible, it is invisible. You cannot see it and I cannot see it.*⁴³³

Given that emphasis, it would seem that loading at night created particular risks because it might be assumed that dust would be more difficult to identify. However, the evidence of the Port's Environmental Consultant was as follows:

*We had a discussion about this at the port, because I did actually say, "We should not load at night", and the response from the operations manager was, "No. Look, the berth is lit well enough for us to load at night." And if you even read some of the transcripts from the operational people, which I have read, they have said it is actually easier to see at night because the light reflects on the dust particles and you can actually see stuff that you would not be able to see. So I do not think that you could fairly say that, because there has been the argument, and the decision was that, yes, loading at night is fine because we have adequate lighting and it is actually maybe even better. So [the issue of night loading is] something that needs to be investigated rather than just assuming because that is what I assumed too.*⁴³⁴

The Committee accepts that with an issue such as this one, it is important not to simply make assumptions. However, there is evidence before the Committee that night-loading did result in the failure of the Port to detect the generation of dust in a timely way.

In relation to the second major dust issue, associated with the loading of the MV Lemmergracht on 11 and 12 December 2006, the Port's Shipping Support Officer stated:

This fugitive dust emission situation unfortunately occurred during the middle of the night. Therefore it was difficult to gauge the intensity of the incident until daylight.

When Magellan's General Manager attended the Port on 12 December 2006, he noted that he:

was shown for the first time evidence of very severe dusting. It was clear from viewing this evidence that the ship loading must have proceeded for some considerable time after the product first started dusting.

Another major dust incident occurred with the loading of the Jin Pei on 5 March 2007. On 7 March 2007, DEC sought a response from the Port to an anonymous complaint about the loading of the Jin Pei on 5 March 2007. The Port responded to the complaint with a summary of the loading as had been provided by the Shipping Support Officer (described in more detail at 9.5(e)(iii)) - except that a reference to 'At 1st light (dawn) they noticed dust escaping from under CV3, and 5, so immediately shutdown' was changed to: 'At 540 they noticed...'

⁴³³ Mr David Jamieson, Shipping Support Officer, Esperance Port Authority, *Transcript of Evidence*, 28 June 2007, p13.

⁴³⁴ Mrs Shelley Grasty, Environmental Consultant, Esperance Port Authority, *Transcript of Evidence*, 28 June 2007, p18.

Finding 115

The view of the Esperance Port Authority's operational staff was that *'it is actually easier to see at night because the light reflects on the dust particles and you can actually see stuff that you would not [otherwise] be able to see'*. Even if this view is accepted as a generalisation, after the major dust incident during the night of 11 December 2006 while loading the MV Lemmergracht, the Port should have been aware that there were difficulties in identifying dust emissions generated by loading the lead concentrate at night.

Finding 116

After the incident during the loading of the MV Lemmergracht on the night of 11 December 2006, the Esperance Port Authority continued to rely upon identifying visible dust as a means for monitoring dust emissions while outloading lead concentrate at night. In doing so the Esperance Port Authority failed to properly exercise its responsibilities in relation to potential lead pollution.

(e) Specific incidents

On the evidence available to the Committee there were three major dust incidents which occurred during outloading the Magellan lead concentrate. The available descriptions of these three specific incidents follow.

(i) MV Lemmergracht, 10-11 October 2006

The incident was recorded in the Port's Abnormal Dust Register:

Dust plume at start of loading of Magellan lead concentrate, and dusty during remaining loading... resulting in dust visible on vessel, and berth under shipload.

It also recorded that an investigation was to be conducted by the Port and that *'Magellan reps will visit the port ... to discuss.'*

A description of the incident, written two days after the incident by the Port's Environmental Consultant stated:

On 10/10/06, during loading of lead concentrate, the product was very dusty and resulted in a visible dust plume emanating from the hatch. Generally, until there is a pile of product at the bottom of the hatch for the product to fall on, more dust is generated as the product falls directly onto the floor of the hatch. It was debated whether to cease loading however watersprays were turned on at CV3. The product loading continued although it was very dusty resulting in the vessel becoming covered in a layer of dust, as well as the shiploader

and the berth below the shiploader. It was found that if the shiploading chute was placed on an angle rather than directly vertical, less dust would be visible during loading. Port personnel on the deck of the vessel controlling loading were very quickly completely covered in lead dust. Vapour emanating from the lead concentrate was also strong. As the loading progressed, water sprays on CV3 were turned off as personnel were uncertain how much water they were adding and whether it would affect the TML. Sprays on CV6 were turned on. A water meter was hooked up to monitor the amount of water being added to the product. The water spray ring was not used. The product representative did not want Brambles wetting down product in the shed due to the effect it may have on the TML. It was also noted that the ships crew were not taking adequate precautions in working with the product and communication with the ships crew revealed that they had not received any information regarding the product and what precautions should be taken.

Another account of the incident written considerably after the incident by the Port's Shipping Support Officer noted that:

This was the first of the Spleithoff vessel configuration, and it was noted then that these vessels were not suitable to load this type of product. During the first part of the loading was the worst due to the product having a low moisture content, and with the prevailing wind / sea breeze from the East, air could rush along the entire length of the hold causing a small "whirly wind" effect on already loaded product - expelling dust emissions from the opposite end of the vessel. EPA personnel had the vessel's C/O shut hatches, but this only created a "blowhole" wind effect. The air would travel down the length of the hold, turn around at the engine room bulk head and be forced back up through the open hatch cover bringing with it fugitive dust. After the completion of this vessel Captain Ian Harrod was informed - requesting that no more of these types of vessels be accepted as nomination to load lead cons by the POM [Port Operations Manager] - Trumby. At this time a nomination for the same vessel had been accepted for the same vessel to reload in a month's time, so Captain Harrod could not refuse the vessel. Polo Citrus and water was used on the product during loading this vessel, but with negative results due to the configuration of the ships cargo carrying space.

Three General Report Sheets were also lodged together with a related General Report Investigation. The reports concerned dust during loading of lead concentrate and referred to 'dry, dusty product'; that the product had not been cleaned off the chute; and that concerns were raised about the product falling on people on the stairway because of spillage and carry-back on CV4. The investigation related to the report about the dusty product, and indicated that:

Initially water sprays were applied to CV3, then to CV6. Ron P. [Magellan representative] stated no water to be added without his prior approval; therefore procedure needs to be changed to reflect this.

(ii) MV Lemmergracht, 11-12 December 2006

The incident was recorded in the Port's Abnormal Dust Register:

Lead Concentrate dust escaping from the ship's hold during loading of vessel MV Lemmergracht... The operation of loading the lead concentrate had been in progress 13

hours when the product became very dusty with increasing egress of fugitive dust emissions escaping from the shiploader load chute & the ships hold. Wind direction ENE 20-25 knts. All fugitive dust emissions were blown onshore to berth 2 and progressed along B2 amenities building, and stretched from east end of Cosmos shed to the west end of Black Swan shed.

It also noted that when the 'ship loader operator noticed the event' Polo Citrus sprays at CV2, water sprays at CV3, water sprays at CV5, and water sprays at the loading chute spout were all tried with 'no effect'. The loading ceased and an attempt was made to load product from a different part of the stockpile but this also generated 'uncontrollable dust emissions at ships hold'. Loading ceased again. As a result there was to be an 'emergency meeting with the product owners to determine the application of a "dust bind" agent to the product' and the product was also to be adjusted prior to the next shipment so that it arrived at the Port with a higher moisture content. There would also be 'a complete loading system evaluation with the implementation of modifications to CV2 & 3 and the shiploader'. It was decided to only complete the loading with new product from Magellan.

On the morning of 12 December 2006, the Environmental Consultant emailed Magellan and advised:

We had to stop loading at Lam today because of dust, and we're not sure how we're going to finish the shipment. It's one of those smaller ships we're trying to load. We've closed off the road around the berth and the cleaners are sweeping up the dust.

Even when the new product arrived there were problems. An email on 12 December 2006 requested that the Harbourmaster be present when reloading was to commence because:

The product currently being inloaded from the train appears to be very dusty, as we already have dust egress from under the shed sides onto the walkway (northside) along the shed. Taffy [BIS] has stated that it is extremely dusty inside the shed as the train is unloading, so this product may be lower moisture content than what was remaining in the shed when we ceased loading at 0100hrs this morning.

The Shipping Support Officer later described the incident as follows:

Once again a Spleithoff vessel and the last one of its configuration to be accepted for head cons loading (ever). This vessel started off OK, but strong hot Northerly winds and low product moisture (6.67% opposed to TML of 8.48%) created fugitive dust emissions to be blown during loading to the 82 amenities and channel down the corridor between WMC / Black Swan Sheds. The Cargo Supervisor made the decision to cease loading at 0045hrs / 11th, and no further loading was undertaken of the "old" product in storage, however only "new" product arriving on the train on the 11th was used to complete loading the vessel. The T/L closed down the corridor between WMC/Bswan sheds, up to the east end of Cosmos Sheds until Mader completed cleaning this area as well as berth 2. An Emergency meeting was held at the EPA Board Room involving Trevor Watters, Ron Padgurskis, Capt Ian Harrod, Trumby, and myself, and it was then discussed that most of this dust issue was due to the vessel's configuration, therefore a declaration was made by Magellan to NOT nominate any more of these types of vessels, only standard bulk carrier configuration

vessels. (Vessels with holds individually separated by solid bulkheads with separate hatch covers.). The product was also discussed as to the consistency of the moisture and the investigation [into] "dust bind" reagents to be applied to the product during out loading. The prevailing weather conditions were also discussed with a positive directive relayed to the Cargo Supervisors on the outcome. This fugitive dust emission situation unfortunately occurred during the middle of the night. Therefore it was difficult to gauge the intensity of the incident until daylight. Polo Citrus and water was used on the product during loading this vessel, but with negative results due to the configuration of the ships cargo carrying space.

Magellan's General Manager:

attended the port the next day and was shown for the first time evidence of very severe dusting. It was clear from viewing this evidence that the ship loading must have proceeded for some considerable time after the product first started dusting.

He also stated that:

dust was spread a considerable distance from the ship, no doubt a result of the +40 knot winds that developed late in the day... A number of factors coincided to cause the problem:

- *The vessel is the same one that caused dust problems last time it was used. It is smaller than those that have been used in the past, but it is the fact that there are no bulk heads in the hold that causes much of the problem. The hold needs to be loaded in 12 positions (repeatedly) to keep the ship in an even keel which means it has to be completely open allowing the wind to blow through the hold... [larger vessels have] 'turned in' edges ... which assists in preventing dusting [and] have four separate compartments so that only one is open at any one time... coupled with the greater depths of the hold...*
- *Some of the concentrate was drier than usual... Many of the spot moistures were below 7%, so that with high winds, product was dusting from conveyors as well...*
- *The winds were exceptionally strong yesterday...*

A General Report Sheet relating to this incident was also lodged, reporting that the lead in the shed and entire lead conveyors was 'way too dusty'; 'when on ship could not see [illegible word] and covered in lead dust'. The report stated that water sprays were used on CV3 but the product was still too dusty, and that the Polo Citrus was no good as it made the product sticky 'blocking up the chutes'. A meeting with the mine was to be called as a result.

Postscript

It is of note that one day later, on 13 December 2006, the second report of significant bird deaths was made. Forty dead honeyeaters, wattle birds and yellow throated miners were collected at a property adjacent to the Port Authority building. DEC believes the first bird deaths reported in Esperance, of 15 dead seagulls collected near the Port Authority building on 7 December 2006,

were unrelated to the later reported deaths of honeyeaters, wattle birds and yellow-throated miners.⁴³⁵

(iii) Jin Pei, 5 March 2007

There was an extensive record of this incident in the Port's Abnormal Dust Register, including that the wind conditions were checked at 2:39 am and were north-easterly at 5 to 19 knots; that at 5:40 am dust was noticed escaping from under CV3 and 5, 6 & 7; and the comment that:

no dust egressed off the site, as the NE breeze, had blown the fugitive dust toward and up against the amenities building at Berth 2 - No dust egressed into the harbour.

A number of General Report Sheets were completed in relation to the lead dust while loading the Jin Pei:

- *'Dust everywhere up to amenities';*
- *'Work utes covered/ground etc. how are you going to clean the gravel?';*
- *'Dry product/ inadequate loading system, CV2 and CV3 are in a terrible state of repair in regard to the sheeting condition';* and
- the suggested measure to be taken was *'use containers'*.

Another General Report Sheet documented not being able to contact appropriate people for advice when loading was stopped due to excessive dust and the complaint was made that *'I take note of time, Public Holiday & morning after concert but still should not have to wait 1 hour plus to receive further instructions!'*; another stated that the clean down of chutes after lead loading was unacceptable as a result of the build-up.

Suggested measures were:

- not to load lead - at least not at night;
- *'containers, bulka bags, ingots or just don't do it';* and
- *'don't load lead if it handles like nickel'*.

Another report stated that dust was pouring out of the transfer points and onto the ground where it was blown towards the lead shed; it also recorded that *'mobi-vac wash all this away with a hose and lots of water'*. It is of note that the Jin Pei was not a box hulled vessel.

⁴³⁵ Note however, that the major spill of lead concentrate on the wharf at berth 2 described in Chapter 8.4(c) occurred the day prior to the first reported bird deaths.

Postscript

Two hundred and ninety more bird deaths were reported in the Esperance area from 7 March. Estimates of bird deaths, including calculations based on the deaths in March, totalled 9,500.

Seven days after the loading of the Jin Pei, the Port decided to suspend handling lead concentrate. As referred to previously, on the same day, DEC sought a response from the Port to an anonymous complaint about the loading of the Jin Pei on 5 March 2007. This was the only advice from the Port to DEC in relation to the three ship-loading incidents.

The Port's evidence was that none of the incidents were reported because:

we believe that there was no obligation to do so. In accordance with their licence the Port only had an obligation to report to the DEC in relation to their licence for dust emissions that extended beyond the Port boundaries or discharges that were classified as environmental spills as opposed to operational spills.

On 15 March 2007, DEC issued a Prevention Notice on lead carbonate handling at Esperance Port.

Finding 117

There were three major dust incidents associated with the outloading of Magellan's lead concentrate by the Esperance Port Authority. These occurred with the loading of the MV Lemmergracht on 10 to 11 October 2006 and on 11 to 12 December 2006, and the loading of the Jin Pei on 5 March 2007.

Finding 118

The major dust incidents associated with the outloading of Magellan's lead concentrate by the Esperance Port Authority on 11 to 12 December 2006 and 5 March 2007 were each followed within days by reports of large numbers of native bird deaths.

Finding 119

The Esperance Port Authority did not notify the Department of Environment and Conservation of any of the major dust incidents associated with outloading Magellan's lead concentrate (refer Finding 117).

(f) A combination of factors

A table summarising a range of factors in relation to each of the lead concentrate shipments from Esperance Port follows. It is not possible to identify any specific issue that applied to all three major dust incidents, and that did not also apply, at least on occasion, to other ship-loading that occurred without apparent incident.

EDUCATION AND HEALTH STANDING COMMITTEE

CHAPTER 9

Table 9.1 - Summary of relevant shipping issues

VESSEL [#]	DATE	TML	AVERAGE MOISTURE	MOISTURE RANGE	WEATHER CONDITIONS					TONNES HANDLED	PORT FEES PAYABLE
					TIME	°C	TEMP	WIND DIR	KNOTS		
1. Albany Sound <i>'CV 7 Build Up (no Poly Boards in Place) ... CV 5 Scrapper and 6 Adjustment'</i>	4/07/05 start 8:40 finish 19:01	9.3%	8.15%	6.87 - 9.2%						5,081	\$31,298.96
					0900	11.9	70%	NW	17		
					1200	14.7	48%	WNW	17		
					1500	15.0	39%	WNW	19		
					1800	10.6	62%	NW	12		
2. Port Kenny <i>Rain delays due to storm</i>	30/08/05 start 15:30 finish 9:44 31/08/05	9.02%	7.24%	6.23 - 8.16%	1500	11.0	52%	SSW	15	9,967	\$75,685.90
					1800	09.3	56%	SSW	12		
					2100	09.4	56%	S	9		
					0000	08.4	65%	WSW	6		
					0300	06.2	91%	N	5		
					0600	06.1	97%	NW	6		
					0900	08.6	88%	WNW	6		
3. Changi Hope	12/10/05 start 14:30 finish 22:30	8.96%	6.91%	6.53 - 7.53%	1200	12.4	88%	WSW	12	5,000	\$38,222.71
					1500	13.2	57%	WSW	15		
					1800	12.1	53%	SW	14		
					2100	11.1	72%	SW	9		

VESSEL [#]	DATE	TML	AVERAGE MOISTURE	MOISTURE RANGE	WEATHER CONDITIONS					TONNES HANDLED	PORT FEES PAYABLE	
					TIME	°C	TEMP	WIND DIR	KNOTS			
4. Eco Chaser <i>'Blocked Chute [x 3]... Shed empty, Await train product'</i>	26/10/05	8.8%	6.67%	5.27 - 8.2%						9,083	\$68,567.37	
	start 7:30											
					0600	08.5	77%	WNW	13			
					0900	14.7	59%	W	14			
					1200	15.9	51%	WSW	15			
					1500	16.3	57%	SSW	13			
					1800	13.8	63%	S	8			
					2100	12.8	73%	SSE	7			
	finish 12:29				0000	09.4	90%	WNW	11			
	28/10/05											
5. Cape Nelson	29/11/05	9.16%	6.58%	5.5 - 7.75%						5,498	\$41,583.97	
	start 8:15											
					0900	18.0	69%	WSW	13			
					1200	19.7	59%	SW	13			
					1500	17.4	71%	SSW	15			
	finish 15:59				1800	15.9	62%	SSW	11			
6. Silver Bay <i>'cv5 tail chute overloading'</i>	20/12/05	8.72%	7.0%	5.87 - 8.03%						5,499	\$41,348.01	
	start 8:00											
					0600	17.3	83%	NW	10			
					0900	23.0	39%	W	13			
					1200	22.7	45%	SSW	15			
					1500	21.4	56%	S	16			
	finish 16:45				1800	18.3	64%	S	13			

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VESSEL [#]	DATE	TML	AVERAGE MOISTURE	MOISTURE RANGE	WEATHER CONDITIONS					TONNES HANDLED	PORT FEES PAYABLE
					TIME	°C	TEMP	WIND DIR	KNOTS		
7. Hanna C* <i>'cv5 spill'</i>	9/01/06 start 21:45 finish 11:50 10/01/06	8.72%	7.48%	5.4 - 8.8%	2100	15.4	83%	SSE	10	7,506	\$53,881.53
					0000	15.5	66%	S	12		
					0300	14.8	62%	S	8		
					0600	15.4	60%	S	9		
					0900	17.6	51%	S	11		
					1200	19.4	48%	SSE	12		
8. Captain Correli	24/02/06 start 21:20 finish 12:44 25/02/06	9.25%	7.82%	6.24 - 9.32%	2100	16.7	70%	SE	9	9,195	\$66,723.31
					0000	15.3	83%	N	3		
					0300	14.7	86%	0	0		
					0600	15.2	82%	N	4		
					0900	19.2	62%	SE	7		
					1200	20.6	55%	SSE	14		
9. Kibi	26/03/06 start 7:30 finish 18:44	8.83%	6.8%	6 - 7.9%	0600	15.2	65%	S	9	6,568	\$49,473.38
					0900	17.7	52%	S	13		
					1200	18.4	43%	S	13		
					1500	18.6	43%	SSE	11		
					1800	16.1	53%	SE	10		

VESSEL [#]	DATE	TML	AVERAGE MOISTURE	MOISTURE RANGE	WEATHER CONDITIONS					TONNES HANDLED	PORT FEES PAYABLE
					TIME	°C	TEMP	WIND DIR	KNOTS		
10. Mount Rainer	3/05/06 start 1:45 finish 23:29	8.19%	7.6%	6.5 - 8.8%	0000	14.0	97%	WSW	4	7,287	\$53,480.82
					0300	14.2	93%	NW	5		
					0600	13.9	97%	NW	4		
					0900	15.8	88%	NW	7		
					1200	19.2	68%	NW	8		
					1500	17.9	80%	S	7		
					1800	15.4	89%	SW	4		
					2100	12.8	99%	N	5		
					0000	12.0	54%	SSW	9		
11. Eco Progress Average moisture of load in excess of TML <i>'CV5 Belt Drift... Damaged Roller on Shiploader... TML high...'</i>	8/06/06 start 7:40 finish 21:55	8.4%	8.53%	7.43 - 9.4%	0600	11.2	73%	S	12	7,185	\$54,317.52
					0900	13.0	64%	S	11		
					1200	14.2	61%	SSE	10		
					1500	13.3	58%	S	12		
					1800	13.0	59%	SSE	16		
					2100	12.4	69%	SSE	11		

VESSEL [#]	DATE	TML	AVERAGE MOISTURE	MOISTURE RANGE	WEATHER CONDITIONS					TONNES HANDLED	PORT FEES PAYABLE
					TIME	°C	TEMP	WIND DIR	KNOTS		
14. Seven Seas <i>'Cleaning CV02 Chute'</i>	27/08/06 start 7:40 finish 17:19	9.09%	7.7%	7.17 - 8.4%	0600	09.3	88%	NW	8	7,005	\$57,134.48
					0900	14.3	68%	WNW	10		
					1200	17.1	62%	W	5		
					1500	17.9	61%	SSW	6		
					1800	14.3	83%	SSW	4		
15. Lemmergracht* Environmental delay - 1 Hour 41 Minutes <i>'Product very dusty... CV05 Belt Drift ... CV05 Belt Drift.'</i>	10/10/06 start 8:50 finish 4:25 11/10/06	8.32%	7.42%	6.8 - 8.75%	0600	11.0	81%	0	0	8,531	\$64,415.17
					0900	25.5	35%	NW	10		
					1200	31.5	22%	NW	12		
					1500	25.2	44%	SSE	11		
					1800	21.7	58%	ESE	9		
					2100	19.6	62%	SSE	6		
					0000	16.2	90%	WSW	5		
					0300	13.5	94%	NW	7		
					0600	13.1	88%	NNW	7		

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VESSEL [#]	DATE	TML	AVERAGE MOISTURE	MOISTURE RANGE	WEATHER CONDITIONS					TONNES HANDLED	PORT FEES PAYABLE
					TIME	°C	TEMP	WIND DIR	KNOTS		
16. Edamgracht* <i>'Belt Drift CV5 ... Blocked Chute CV2'</i>	30/10/06 start 7:30 finish 3:37 31/10/06	8.4%	7.22%	6.4 - 8.34%	0600	16.3	79%	S	9	11,220	\$81,295.50
					0900	17.2	71%	S	13		
					1200	17.9	62%	S	14		
					1500	16.8	60%	S	11		
					1800	15.2	69%	S	7		
					2100	15.0	67%	S	7		
					0000	14.6	70%	S	6		
					0300	14.4	70%	E	3		
					17. POS Auckland Environmental delay - 4 hours 34 minutes <i>'CV 4A Fault ... CV3 Brake Fault/PLC Comms Fault CV4 Failed To Stop... Clean Up CV40 Product Spill... Shift change and clean up CV40... CV4 Shut down'</i>	5/12/06 start 10:15 finish 5:59 6/12/06	8.48%	7.14%	5.6 - 7.77%		
1200	19.0	46%	SSE	15							
1500	18.1	50%	SSE	15							
1800	17.7	54%	SSE	13							
2100	15.4	60%	SE	9							
0000	12.5	75%	ENE	6							
0300	11.5	77%	NNE	6							
0600	10.5	83%	NE	6							

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VESSEL #	DATE	TML	AVERAGE MOISTURE	MOISTURE RANGE	WEATHER CONDITIONS					TONNES HANDLED	PORT FEES PAYABLE		
					TIME	°C	TEMP	WIND DIR	KNOTS				
19. Super Adventure <i>'Shiploader Travel Fault... CV4A variable gate drive blown ... CV2 Blocked Chute Alarm... CV4A shutdown for no apparent reason ... CV2 Blocked Chute Alarm [x 2] ...Await until 0730/29th for train to discharge into shed... Loader Bogged in Stack... System Shut Down...'</i>	28/12/06	8.56%	7.28%	6.63 - 7.93%						7,497	\$61,883.67		
	start 10:15												
	0900				21.4	47%	NE	13					
	1200				30.4	23%	NNE	11					
	1500				33.4	26%	SSE	11					
	1800				28.9	44%	SE	17					
	2100				25.7	45%	ENE	13					
	0000				23.1	55%	N	18					
	0300				23.8	46%	NE	14					
	0600				18.9	87%	WNW	10					
	0900				22.3	67%	NW	14					
	1200				23.7	60%	WSW	13					
	1500				24.9	48%	SW	13					
	1800				20.2	78%	S	15					
	2100				19.1	85%	S	9					
	0000				17.4	93%	SW	5					
	0300				17.1	93%	SSW	6					
0600	15.9	95%	SW	6									
finish 9:10													
30/12/06					0900	20.1	72%	S	10				

VESSEL [#]	DATE	TML	AVERAGE MOISTURE	MOISTURE RANGE	WEATHER CONDITIONS					TONNES HANDLED	PORT FEES PAYABLE			
					TIME	°C	TEMP	WIND DIR	KNOTS					
20. Shimanami Star	14/01/07 start 19:00	8.56%	7.16%	6.3 - 8.07%	1800	29.0	49%	SE	13	4,996	\$37,962.78			
					2100	23.4	71%	ESE	8					
	0000				21.1	72%	ENE							
	0300				20.6	64%	NNE							
	0600				20.8	61%	NNE	30						
	finish 3:44 15/01/07													
21. Changi Hope <i>'CV05 Belt Drift... CV4 Not Starting'</i>	1/02/07 start 14:00	8.71%	6.28%	4.43 - 7.57%	1200	21.4	70%	SSW	10	7,501	\$58,725.33			
					1500	20.8	74%	S	11					
	1800				20.6	77%	S	12						
	2100				19.5	79%	S	11						
	0000				19.2	76%	SSE	10						
	finish 2:25 2/02/07							0300	18.9			72%	SE	9

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VESSEL [#]	DATE	TML	AVERAGE MOISTURE	MOISTURE RANGE	WEATHER CONDITIONS					TONNES HANDLED	PORT FEES PAYABLE	
					TIME	°C	TEMP	WIND DIR	KNOTS			
22. Jin Pei Environmental delay - 5 hours <i>'CV 4 Stopped No alarm? Excessive dust turned water on CV3, 5 & discharge chute... CV 6 Belt Drift... Excessively Dusty Stopped loading, await further instructions...'</i>	5/03/07	8.76%	6.01%	5.6 - 6.5%						7,554	\$74,978.47	
	start 1:15											
					0000	16.1	69%	E	8			
					0300	14.0	78%	E	7			
					0600	12.1	87%	E	4			
					0900	19.2	62%	NNE	11			
					1200	27.1	37%	NE	10			
					1500	28.2	37%	SSE	12			
	1800	23.3	64%	SE	14							
	finish 17:59											

[#] Extracted quotes are taken from the contemporaneous Esperance Port Authority 'Cargo Loading Shift Logs' completed while each loading took place.

* Spleithoff/box hull vessels

Outloading of Magellan's lead concentrate sometimes occurred without incident using the same infrastructure, handling procedures and lead concentrate. Two of the incidents appear to be associated with the type of ship and weather conditions; one with low moisture content; two were apparently aggravated because night loading made the dust difficult to detect visually. At other times the same type of vessel was loaded without apparent problem, the same wind directions did not cause dust, and loading occurred overnight without apparent incident.

There appears to have been a varying combination of factors relevant to the three major dust incidents occurring during the outloading of Magellan's lead concentrate at the Esperance Port Authority.

Finding 120

Inadequate infrastructure and a varying combination of low moisture content, weather conditions, type of vessel, and night loading contributed to the three major dust incidents that occurred at the Esperance Port during the outloading of Magellan's lead concentrate (refer to Finding 117).

9.6 Biological and other monitoring of the Port's workforce

(a) Blood lead levels

The evidence of the Port is that the biological monitoring of its workforce stopped it from believing that there were problems associated with its handling of the lead concentrate. For example, when the Port's CEO, Mr Colin Stewart, was asked whether there was potentially a threat to the people in the town as a result of operational spills at the Port, he responded:

Not based on the blood lead level readings we were getting back from our own employees, who were at the coalface, so to speak. That is not only the people actually loading the ship; there were a lot of operational people in and around the port on any given day, so we were seeing the blood lead levels as being a pre-eminent or important way of monitoring what was actually happening.⁴³⁶

As indicated in Chapter 2.2(a), the Department of Health also relied on the biological monitoring results for the individuals who worked at the Port to allay fears about human lead contamination.

However, Mr Rob Stewart, one of the Port's OH&S Representatives who gave evidence before the Committee, stated that:

⁴³⁶ Mr Colin Stewart, Chief Executive Officer, Esperance Port Authority, *Transcript of Evidence*, 5 June 2007, p15.

There were concerns right throughout the period, I think, that we were not getting it right. A lot of emphasis was placed on the fact that our blood levels should show if we were not having good control.⁴³⁷

In a subsequent submission to the Committee, Mr Robert Stewart elaborated:

my own blood lead levels [went] from my first reading of 2 micrograms/decilitre on 16/2/2005 to a peak of 28 in Feb 2007 to my most recent result of 13 in May 2007. During the first year of handling lead my average blood lead level was 10, but in the second year the average was 22.

Within my team two other team members peaked at 52 and 35 following some "hot work" upgrading the lead-hopper.

Other team members whose exposure to the lead circuit was less, returned peaks in the "teens", while others consistently maintained 2s, 3s and 4s.

There was considerable discussion within the team regarding the relative exposure, blood lead levels and the possible causes and consequences for those exposed to lead. There was strong concern that the background lead levels were rising well beyond the Heavy Metal circuit, especially over the summer months with the increase in persistent drying winds, and increasingly dry lead concentrate that was arriving and being stored and shipped out.

The blood lead levels for employees showed an increase from an average of about 4 micrograms/decilitre in April 06 to nearly 6 by October 06, and although these averages were well inside the recommended occupational exposure limits, there was concern at the workforce level that the increase reflected our problems with containment and clean up.⁴³⁸

When the Senior Occupational Health Inspector from the Department of Consumer and Employment, Resources Safety Division inspected Esperance Port on 22 February 2006 he noted that:

[Blood lead] results greater than single digits are a cause for concern and should be investigated to determine how best to minimise exposure... measures to engineer out contact with lead mineral products should be pursued.

When baseline testing was conducted, no Port workers had blood lead levels in double digits; when testing was done after the handling of lead at the Port ceased, almost one in five did. When baseline blood testing was conducted prior to the Port's handling of the Magellan lead concentrate, the average was 2.84µg/dl. The average of blood lead level from tests in March 2007, some two years later, was 7.91µg/dl. Although that average is well below the threshold levels for occupational health (currently at 50µg/dl generally and lower for females of

⁴³⁷ Mr Robert Stewart, Port Worker and Occupational Health and Safety Representative, Esperance Port Authority, *Transcript of Evidence*, 28 June 2007, p3.

⁴³⁸ Submission No. 101 from Mr Robert Stewart, OH&S Representative, 'B' Team, Esperance Port, 13 July 2007, pp1,2.

reproductive capacity or who are pregnant or breastfeeding)⁴³⁹ it nevertheless demonstrated that blood lead levels almost tripled throughout the workplace in just two years.

Finding 121

Although the blood lead levels of individuals working at the Esperance Port were, other than in one instance, not above National Occupational Health and Safety Commission guidelines, they showed that:

- when baseline testing was conducted prior to the Port handling the Magellan lead concentrate, no Port worker had a blood lead level in double digits; when testing was conducted in March 2007, almost one in five did; and
- when baseline testing was conducted prior to the Port handling Magellan lead concentrate, the average was 2.84µg/dl; the average of blood lead level from tests in March 2007 was 7.91µg/dl; almost tripling the blood lead levels across the workplace in just two years.

(b) CONTAM results

Under the *Mines Safety and Inspection Act 1994*, the Port was a declared mine site and it was also subject to the Resources Safety Division's 'CONTAM' system.

The CONTAM system is described by DoCEP as using:

a database to retrieve and record representative, personal exposure monitoring results randomly collected from mining and exploration activities in Western Australia. It is used to assess the efficiency of management programs aimed to control dust and other airborne contaminants, with the main objectives to:

- *collect comparative exposure data for different occupation groups, locations, and industry sectors for analysis of emerging trends within the industry;*
- *identify exposure groups that contribute to long-term health effects in mining employees; and*
- *monitor statutory compliance in the maintenance of acceptable working environments.*⁴⁴⁰

⁴³⁹ NOHSC, *Control of Inorganic Lead at Work - National Standard for Control of Inorganic Lead at Work* [NOHSC:1012(1994)], p27.

⁴⁴⁰ DoCEP, Resources Safety, CONTAM system procedures, November 2006, p4.

The CONTAM monitoring conducted by the Port was to be in accordance with Resources Safety procedures, and, according to the Port's CONTAM Occupational Dust Monitoring Procedure:

The Port is required to submit a Workforce Survey Form so that [the Department] can calculate minimum sampling requirements. The information supplied in the Workforce Survey Form will be used by [the Department] to calculate minimum annual sampling requirements or sample quotas. The Port will be informed of its quota each year via a Quota allocation Report.

... There are 4 quota periods a year, requiring submission of sampling results four times per year. The quota periods are specified on the Quota Allocation report...

The [Department] should be notified if there are significant changes in workforce (ie numbers or type of work conducted), by submission of a new Workforce Survey form.

The sampling strategy should be representative of all employees in each occupation group and use a random sampling design (ie sampling should be performed over different shifts and different employees).

Over the period between 4 July 2005 when the Port commenced CONTAM sampling for lead and 13 February 2007, there were 86 samples reported to Resources Safety. Although these samples were required to be based on the quota periods and occupational distribution this appears to have been complied with infrequently by the Port.

Finding 122

The Esperance Port Authority met the CONTAM quota requirements infrequently in relation to quota periods and occupational distribution as allocated by the Resources Safety Division.

Although there is no evidence that the Port's CONTAM results were deliberately manipulated, the capacity to not comply with the quota samples as required, particularly in a context where Port employee's bonus payments were linked to meeting the Port's safety compliance requirements,⁴⁴¹ has the potential to undermine confidence in the integrity of the monitoring system.

Recommendation 32

The Committee recommends that the Resources Safety Division review its monitoring of the CONTAM system to ensure that there is greater compliance with its quota allocations.

⁴⁴¹ Esperance Port Authority, Minutes of 447th Meeting of the Board, 19 December 2005.

The WorkSafe Australia exposure standard for atmospheric contaminants in the occupational environment for lead is 0.15 mg/m³ for lead. This standard was exceeded on ten occasions, once by a factor of seven times. In one report which included seven results exceeding the criterion for lead, the explanation provided was that six samples were taken during lead ship-loading.⁴⁴² The other exceedences were in the main attributed to similar issues; that is, the worker was involved in lead related work. In each case, it was emphasised that such workers likely to come into contact with lead wore full personal protective equipment.

It would appear that, although the Port recognised that such contact was outside OH&S standards, it was not altogether concerned about intermittent contact with lead. This is consistent with the 'Basic Lead Awareness Induction' conducted by the Port, in which it stated:

*Short term exposures of lead are not of concern, however, if exposure continues over an extended period, the amount stored in the body can increase.*⁴⁴³

The Port was asked why it included this in its induction. It responded:

The Port understands from consultant experts that there is no risk to human health for short term, low level exposure to lead concentrate. Short term, low level exposure is the level that was plausible that the Port workers could be exposed to.

In any event the Port workers had ongoing health surveillance in relation to possible exposure to lead.

This view was also based on the independent occupational hygiene and physiological advice provided to the Port on this issue.

Further, the Port relied on the information provided by Magellan in relation to their product and the short term, low level exposure.

*The Port based its induction training on the independent advice it received, and on the induction training given by Magellan at their mine site. This comment was a part of Magellan's induction.*⁴⁴⁴

The Magellan Metals Occupational Health Safety and Environment Coordinator's view, expressed on 19 January 2006 (examined in more detail in Chapter 11.2), was that:

With regards the classing of our concentrate as dangerous goods, it is the managements opinion following review of the Australian Dangerous Goods Regulations and current practice within Australia that to be classed as such the concentrate must have the potential to cause immediate harm to people, property or environment due to the possibility of a fire,

⁴⁴² Letter from Chief Executive Officer, Esperance Port Authority to CONTAM Manager, DoCEP, 2 February 2006.

⁴⁴³ Esperance Port Authority, 'Basic Lead Awareness Induction'.

⁴⁴⁴ Esperance Port Authority, *Addendum to Transcript of Evidence*, Answers to Questions, Hearing 6 June 2007, p5.

explosion, release of flammable, or corrosive materials during a storage or handling incident... There is no explosive or fire risk associated with the product. Any harm is related to longer term exposures, hence its Hazardous Substance categorisation.

It should be noted that although the Committee does not accept this assessment of the dangerous goods status of the Magellan concentrate, the notion that the only issue of concern was longer-term exposure to lead is not altogether unsupported. For example, Mr Kim Taylor, Acting Director General, Environment of DEC highlighted the limitations of the current National Environmental Protection Measure for lead in ambient air as follows:

there is still an issue with utilising the national environment protection measure standard for lead in that the 0.5 micrograms per cubic metre is an average over an annual period, so it is over 365 days. What the health department provided there was some guideline values, so they were not national standards for a 24-hour event and also a three-month event. We have subsequently checked those against dust monitoring which occurred in February this year while lead was still being shipped, and none of the high-volume samplers during that time exceeded the guideline limits that the health department provided. So while they provide a useful tool in themselves, they may have in fact provided a false sense of belief that appropriate guidelines were being met. So it is a combination of both the high volume and the depositions. We really should have been looking at a zero target off-site; that is the bottom line. There just should have been at the time of the approval zero lead dust off-site; as soon as it is detected stop. Whether it is a high vol or whether it is a deposition, we should have done both, but there should have been a zero tolerance off-site.⁴⁴⁵

In the same way, because the standard for the National Environmental Protection Measure can be met by averaging readings over a year, it tolerates acute short-term exposures to lead pollution. This standard is based on the premise that increases in blood lead is associated with long-term exposures; that it is a chronic impact not one associated with discrete acute short-term exposures (refer to Appendix 6).

The Committee believes that this standard is unacceptable and notes the review is underway which includes an assessment of the National Environmental Protection Measure for lead in ambient air. The current standard may be replaced by a measure which is more directed towards the specific risks associated with various industries or processes with a potential to produce lead pollution (refer to Appendix 6).⁴⁴⁶

⁴⁴⁵ Mr Kim Taylor, A/Deputy Director General, Environment, DEC, *Transcript of Evidence*, 5 June 2007, p20.

⁴⁴⁶ Email from Ms Lyn Denison, Principal Scientist - Air Quality, Environmental Protection Authority, Victoria, 3 August 2007.

Finding 123

The apparent tolerance of the Esperance Port Authority and Magellan Metals Pty Ltd for the potential of short-term exposure to lead pollution is consistent with the National Environmental Protection Measure standard for lead in ambient air, which provided for samples to be taken every six days and averaged over a year.

The Committee believes that the current National Environmental Protection Measure for lead in ambient air is inadequate and notes that a review is underway which includes an assessment of this measure.

9.7 The Board**(a) Knowledge of emissions from the Port**

Mr Dick Nulsen, former Chairman of the Board, gave evidence to the Committee that:

In reading reporting in the last week or two, I can see that there was some high nickel levels recorded in rainwater tanks, but I certainly would not have said that the board was aware of it at that time [when it was considering exporting lead]... .

Not to my memory; no [it was never brought to the board's attention that nickel dust was escaping into the town]. I am sure that we probably knew there was some in that harbour testing, and I think at the time of putting in berth 3 that that area was all cleaned up and tested.

My belief was that it [the nickel] had escaped off the return belt on that CV3... The board did nothing because we were not - it was not brought to our attention that that was an important issue. I do think there was probably engineering investigations going on as to how that could be improved.

Mr Ian Mickel, Director of the Esperance Port Authority Board, stated in his submission to this Committee:

I could only say that I am dumbfounded at the current situation of lead and nickel being so wide spread across the residential areas of Esperance. Other than one air monitoring report of a higher than usual reading, no indication of materials escaping from the handling or freight operations came to me from EPA [Esperance Port Authority] staff or members of the public.⁴⁴⁷

There is ample evidence available to the Committee which contradicts the above recollections.

⁴⁴⁷ Submission No. 64 from Mr Ian Mickel, Director, Esperance Port Authority, 24 May 2007, p2.

For example, the minutes of the Board meeting on 27 January 2004 record that the Port's CEO advised that there had been a subdued response from the community in relation to the detection of nickel in rainwater tanks and that further monitoring would be undertaken. The minutes of the Board meeting on 23 February 2004 record that the CEO reported the response from a meeting with residents about nickel in rainwater tanks to the Board.

Finding 124

The Esperance Port Authority Board was aware of the detection of nickel in rainwater tanks near the Port in early 2004.

Shortly after the issue of nickel in rainwater tanks was reported, on 25 May 2004, the Board resolved that the CEO should identify various environmental issues and the risk exposure associated with these and report to the Board.⁴⁴⁸ At the meeting of 2 July 2004, the Board resolved that a Status Report on Environmental Issues be prepared on a quarterly basis for the Board's consideration.

Finding 125

The Esperance Port Authority Board, shortly after the detection of nickel in rainwater tanks, resolved that the Chief Executive Officer should identify various environmental issues and the risk exposure associated with these and report on a quarterly basis to the Board.

Magellan's proposal to export lead concentrate through Esperance Port was tabled for the Board's consideration at the meeting, on 18 August 2004. The Environmental Status Report for November 2004 confirmed that an amended licence had been issued by the then Department of Environment to allow for Magellan's lead carbonate and that it required the preparation and submission of a dust management plan for lead.

⁴⁴⁸ Submission No. 88 from Ms Megan Anwyl, Director, Esperance Port Authority, 1 June 2007, paragraph 14; and Submission No. 87 from Ms Toni Hawkins, Director, Esperance Port Authority, 1 June 2007, paragraph 17.

Finding 126

The proposal of Magellan Metals Pty Ltd to export lead concentrate through Esperance Port was tabled for the first time for the Board's consideration at the meeting on 18 August 2004. The Board's Environmental Status Report for November 2004 confirmed that an amended licence had been issued by the then Department of Environment to allow for the Port to handle Magellan's lead carbonate and that it required the preparation and submission of a dust management plan for lead.

Subsequent Environment Status Reports in Board meeting papers⁴⁴⁹ included:

- in November 2005, advice that the Annual Environmental Monitoring Report and the Interim rainwater tank monitoring report were submitted to DoE (November 2005);
- in May 2006, advice that DoE had approved sediment monitoring on an annual rather than six-monthly basis (May 2006);
- in August 2006, advice that
 - the rainwater tank monitoring program was completed, and had detected nickel and lead in tanks close to the Port at low levels although some are above drinking guidelines;
 - that annual sediment testing would take place in September (2006), and highlighting that lead and nickel had been detected in all berths including berth 1, near the nickel and lead washdown sump, and raising the requirement that new Contaminated Sites legislation will likely require the berth pockets to be reported as a contaminated site;
- in September 2006, advice that
 - additional monitoring sites would be added to the marine monitoring program to more easily ascertain increased nickel/lead levels in sediment;

⁴⁴⁹

It was only after a specific request for all Environment Status Reports in June 2007 that many of these Reports were made available to the Committee. The legal representatives for the Esperance Port Authority in an email to the Committee of 12 July 2007 advised that this was because these were:

located (in electronic form) outside the Esperance Port Authority usual database in the area of hard drive not anticipated by us, or the Port Authority, to be likely to yield relevant materials. ...we and the Port Authority remain alive to the possibility that further relevant materials may yet be discovered ...

The Port's Environmental Consultant confirmed in an email to the Committee, dated 6 July 2007, that the Environment Status Reports were included in the Boards agendas for the meetings occurring on the months included in the document titles (other than July 2006, which was included in the August meeting agenda).

- the two year rainwater tank monitoring report had been completed and that nickel and lead can be detected in rainwater tanks in close proximity to Port, with some above guidelines, and that ongoing monitoring would continue predominately at Port owned residences;
- in November 2006, advice that
 - there had been dust during lead shipments on 10 and 29 October 2006, and that a chute extension had been installed on the loading chute at berth 2, however '*dust is still an issue*'. The original telescopic chute was to be manufactured in house; and
- in December 2006, advice that
 - nickel had been detected at the new monitoring site within the basin and the new shipping channel, was in all berth pockets as it had been since monitoring commenced in 2002, and exceeded environmental guidelines in the harbour. Lead had also been detected in all berth pockets and the basin and shipping channel, and was exceeding guidelines in the latter;
 - there had been dust while loading a lead ship on 11 December 2006.

Although the Board had been instrumental in implementing the regular reporting by Port personnel on environmental issues, it appears that many of the items raised were not discussed at the Board meetings.

Finding 127

Although the Esperance Port Authority Board had been instrumental in implementing the regular reporting by Port personnel on environmental issues, it appears that the Board did not consistently pay due regard to the meeting papers, including the Environment Status Reports.

Finding 128

Contrary to some of the evidence provided to the Committee, the Esperance Port Authority Board had information available to it indicating that heavy metals were polluting the environment beyond the Port's boundaries, both before and during the period that the Port was handling lead concentrate.

(b) The Board's approach to handling lead concentrate

The Port's Board was cautious initially in relation to the proposal to handle the lead concentrate. In December 2004 it raised concerns '*in relation to Magellan metals lack of progress on health, safety, and environmental issues pertaining to Lead handling*'. In January 2005 the minutes of the Board's meeting noted a discussion of the Board's concerns in relation to lead handling and that the Port reaffirmed its position that a product would not be shipped that provided a health and environmental risk to employees and stakeholders.

In March 2005 a delegation from the Port, including the Port's Chairman, visited the Magellan mine site. As a result of this visit the Board had tabled for its consideration the detailed report of infrastructure deficiencies from the Port's OH&S representatives, which was reproduced previously, at Chapter 3.5. The report specifically placed the workforce concerns within the context that '*significantly measurable amounts of [nickel dust] are apparent in seabed sediments and reported beyond the boundaries of the port*'. This contradicted the advice from the Port that the detection of elevated benthic nickel levels since 2002 had, at that time, most recently been brought to the Board's attention at the Board meeting in May 2004,⁴⁵⁰ the evidence of Mr Nulsen, referred to previously, and Mr Mickel's view that '*no indication of materials escaping from the freight operations came to me from EPA [Esperance Port Authority] staff*'.

Finding 129

Contrary to some of the evidence provided to the Committee, the issue of elevated benthic nickel levels and the escape of nickel dust beyond the Port's boundaries was specifically raised by the Esperance Port's Occupational Health and Safety Representatives in a memorandum tabled for the Board in March 2005 outlining their concerns about the proposal for the bulk handling of lead concentrate.

At the meeting in March 2005, the Board agreed to accept a trial parcel of the concentrate, to test and assess handling procedures and protocols, in order to establish safe handling practices and ensure staff are happy with handling the product. At its next meeting, in May 2005, the Board made it clear that accepting the trial shipment of lead would impose no obligation on the Port, or its Directors, to accept continuing shipments of the product.

However, at the Board meeting on 15 June 2005, the minutes recorded that:

Operating and OH&S recommendations pertaining to handling of this product [lead concentrate] were presented and endorsed by the Board as an effective way to handle the product.

⁴⁵⁰ Esperance Port Authority, *Addendum to Transcript of Evidence*, Answers to Questions, Hearing 6 June 2007, pp11,12.

The memo for the Board Directors prepared by Mr Colin Stewart, CEO, on this item ('Heavy Metals OH&S and Operating Recommendations'), listed a number of recommendations which were relevant to the issue of potential lead pollution including:

A dirty water treatment plant is being investigated...

New transfer chutes are being fabricated and fitted to the shipping circuit.

Design work has been commissioned for CV belly plates and a spill tray for the shiploader.

The memo reflected the workforce's five priority issues identified in the email of 12 May 2005 to the CEO, previously referred to in Chapter 8.4, although none of the items were given any apparent weighting.

The Board agreed at that same meeting to endorse the Magellan Lease and Handling Agreement and the first shipment of lead occurred, less than three weeks later, on 4 July 2005.

Finding 130

The investigation of a dirty water treatment plant, the fabrication of new transfer chutes and the commissioning of design work on conveyor belly plates and a spill tray for the ship loader were included in a list of 'Heavy Metals - OH&S and Operating Recommendations' prepared by the Esperance Port Authority's Chief Executive Officer for the Port's Board at its meeting on 15 June 2005.

Finding 131

The minutes of the Esperance Port Authority's Board meeting of 15 June 2005 recorded that:

Operating and OH&S recommendations pertaining to handling of this product [lead concentrate] were presented and endorsed by the Board as an effective way to handle the product.

The minutes also recorded that the Board endorsed the Magellan Lease and Handling Agreement.

Finding 132

With the Agreement between Magellan Metals and the Esperance Port Authority in place, the first shipment of Magellan's lead concentrate took place less than three weeks later on 4 July 2005.

In an individual submission, Board Director Ms Megan Anwyl stated that she supported the execution of the Agreement because she was satisfied, amongst other things:

that the memo entitled 'Heavy Metals - OH&S and Operating Recommendations' (Item 5.5.1) tabled at that meeting by CEO Colin Stewart set out a comprehensive and widely consulted upon set of measures that would be implemented by the EPA [Esperance Port Authority] to ensure the health and safety of EPA [Port] employees and the wider Esperance community and the local environment would be adequately protected...⁴⁵¹

Another Board Director, Ms Toni Hawkins, in her individual submission to the Committee advised that she supported the resolution to enter into the contract with Magellan Metals because she also was satisfied:

that the memo entitled 'Heavy Metals - OH&S and Operating Recommendations' (Item 5.5.1) tabled at that meeting by CEO Colin Stewart set out a comprehensive and widely consulted upon set of measures that would be implemented by the EPA [Esperance Port Authority] to ensure the health and safety of EPA [Port] employees and the wider Esperance community and the local environment would be adequately protected...⁴⁵²

A third Board Director, Mr Ian Mickel stated in his individual submission to the Committee that:

The concern of the management and the board was staff occupational health and safety... The Board committed to a new protection policy, facilities and equipment upgrade. We recognised that these improvements would also benefit the employees handling nickel also.⁴⁵³

In evidence before the Committee, the then Board Chairman Mr Dick Nulsen, stated:

The board was very careful during the assessment phase of this project to try to get expert opinion. We had people go to the mine site itself. I went up on that trip... We also sent - as you have no doubt heard - people to Port Pirie to look at the exporting over there and the problems with it. We also employed a gentleman called Kim Riseborough to give our

⁴⁵¹ Submission No. 88 from Ms Megan Anwyl, Director, Esperance Port Authority, 1 June 2007, paragraph 25.

⁴⁵² Submission No. 87 from Ms Toni Hawkins, Director, Esperance Port Authority, 1 June 2007, paragraph 32(c).

⁴⁵³ Submission No. 64 from Mr Ian Mickel, Director, Esperance Port Authority, 24 May 2007, p2.

*employees expert advice... We were certainly concerned, but I do not think we ever had any advice that that report [from Kim Riseborough] had been complied with.*⁴⁵⁴

The Committee put the following question to the Esperance Port Authority:

On 15 June 2005 the Board entered into the agreement to export lead. On the same date advice was tabled from the CEO that a number of policy and infrastructure changes needed to be made for the safe handling of lead (Attachment to Board Meeting Minutes 15/6/05 Item 5.5.1). Why did the Board approve the agreement before the policies and infrastructure were in place?

The Esperance Port Authority responded:

The Board evaluated the procedure and was assured that all the policies and infrastructure improvements, that were not yet complete, were underway and would be in place before the first shipment was expected in July.

Finding 133

The Esperance Port Authority Board's advice to the Committee was that it:

was assured that all the policies and infrastructure improvements [for handling lead concentrate], that were not yet complete, were underway and would be in place before the first shipment was expected in July [2005].

The minutes for the Board's meeting of 25 September 2006, over a year later, recorded that there was an item of business arising/action sheet concerning 'Rainwater Tank Monitoring' and that the:

*CEO is to provide a report on actions to improve heavy metals handling including trends to reveal improvements achieved.*⁴⁵⁵

When the Port's Board met on 9 November 2006, it appeared to be the first time the Board formally reviewed the implementation of policy and infrastructure improvements, since it entered into the agreement with Magellan Metals in June 2005.⁴⁵⁶ The minutes recorded the CEO, Mr Stewart, as providing a summary of progress achieved in heavy metal handling since lead shipments commenced, in July 2005. The CEO's report tabled for the Board at that meeting listed a number of significant items that had not yet been implemented including:

- the spill tray;

⁴⁵⁴ Mr Dick Nulsen, former Chairmen, Esperance Port Authority, *Transcript of Evidence*, 28 June 2007, p2.

⁴⁵⁵ The issue of rainwater tank monitoring by the Port is considered in Chapter 9.

⁴⁵⁶ Esperance Port Authority, *Addendum to Transcript of Evidence*, Answers to Questions, Hearing 6 June 2007, p18.

- upgrade to CV2 out loading gallery;
- expanded water settlement sump at the receival site; and
- modified loading chute.

The report noted that the chute would be ready to be trialled 30 October 2006.

Finding 134

It was not until November 2006 that the Esperance Port Authority Board received a report on progress achieved in heavy metal handling since lead shipments commenced, in July 2005. The report indicated that many of the infrastructure improvements were not in place.

It is the Committee's view that the Port's Board did not exercise due care in ensuring that the infrastructure required for the safe handling of the lead concentrate was, or would be, in place before entering into a contract to handle Magellan's lead concentrate.

Finding 135

The Esperance Port Authority Board did not exercise due care in ensuring that the infrastructure required for the safe handling of the lead concentrate was, or would be, in place before entering into a contract to handle Magellan's lead concentrate.

When the Committee requested that the present Chairman of the Board give evidence before it in June 2007, Mr Matijasevich inquired whether he could put a question and then asked:

*The birds that died had lead in them, but did they die of lead poisoning?*⁴⁵⁷

When the Board resolved to suspend the Port's handling of Magellan lead concentrate on 12 March 2007, the information available was that the AHL Veterinary Pathologist had advised that there was evidence to suggest that the birds had died of lead poisoning, but the sample size was very small. Subsequently, further analysis was available as a result of the large number of additional bird deaths in early March 2007, and on 13 March 2007 the Veterinary Pathologist advised that lead poisoning was the likely cause of death. On 15 March 2007, DEC issued a Prevention Notice on lead carbonate handling at the Port. A number of public days were subsequently held at Esperance in relation to the lead contamination, and Fact Sheets were

⁴⁵⁷ Mr Jim Matijasevich, Chairman, Esperance Port Authority, *Transcript of Evidence*, 6 June 2007, p28.

produced and distributed by DEC which stated that lead was the most probable cause of the bird deaths.

It is not known whether Mr Matijasevich was sceptical of this information or simply unaware of it. Mr Matijasevich is, of course, entitled to his views. It concerns the Committee, however, that scepticism about, or a lack of awareness of, the risks associated with the lead concentrate it was handling, characterised so much of the Port's exercise of its responsibilities in relation to potential lead pollution.

9.8 Conclusion

Multiple factors had the potential to contribute to the failure by the Esperance Port Authority generally, and its Board specifically, to respond with due care to the risk of lead pollution.

As indicated in Chapter 3.5, the Port was expanding rapidly and there were multiple and significant projects being implemented simultaneously. In particular, the constraints that this would place on the capacity of a part-time Board, supported by a minimal management structure, to properly consider the material available to it has been considered in more detail in Chapter 4.2(b).

The absence of a clear regulatory framework which would have assisted the Port and its Board to clearly identify the potential risks is also a significant factor, and how this came about is considered further next, in Chapter 10.

Nevertheless, the Committee believes that, from the outset, there was ample evidence available to the Port, including its Board, to alert it to the potential for lead pollution to occur if the Port's existing infrastructure and systems were utilised for the bulk handling of lead concentrate. The Port, including its Board, did not respond to ensure that all critical changes were in place prior to contracting to bulk handle the lead concentrate.

Finding 136

The Committee believes that, from the outset, there was ample evidence available to the Esperance Port Authority, including its Board, to alert it to the potential for lead pollution to occur if the Port's existing infrastructure and systems were utilised for the bulk handling of lead concentrate. The Port, including its Board, did not respond to ensure that all critical changes were in place prior to contracting to bulk handle the lead concentrate.

After agreeing to handle the concentrate, and as the evidence of lead pollution accumulated, neither the Port nor its Board specifically responded adequately to manage the risks highlighted.

Finding 137

After agreeing to handle the concentrate, and as the evidence of lead pollution accumulated, the Esperance Port Authority, including its Board, did not respond adequately to manage the risks highlighted.

Recommendation 33

The Committee recommends that the Department of Environment and Conservation review the Committee's findings relating to whether the Esperance Port Authority exercised its responsibilities in relation to the potential lead pollution and conduct an investigation with a view to determining if the Port has potentially breached its obligations under the *Environmental Protection Act 1986* and the conditions of its environmental licence.

CHAPTER 10 THE ROLE OF THE DEPARTMENT OF ENVIRONMENT AND CONSERVATION

10.1 The issue

The Committee has been requested to inquire into whether the Department of Environment and Conservation's (DEC's) responsibilities in relation to the Esperance Port Authority processes, practices and procedures, including the legal and regulatory framework, were adequately and properly exercised.

Much of the material already canvassed in this report, in particular Chapters 4.3(a), 5.2, 6.2(b), 7.3, 8.2(d), 9.2 and 9.3 has highlighted deficiencies in DEC's exercise of its responsibilities in relation to the Esperance Port Authority processes, practices and procedures including the legal and regulatory framework.

Finding 138

The Department of Environment and Conservation's responsibilities in relation to the Esperance Port Authority processes, practices and procedures, including the legal and regulatory framework, were not adequate or properly exercised (refer to Findings 17, 18, 21, 23, 41, 42, 47, 52, 53, 61, 90, 93, 95, 98, 142, 143, 144, 149, 150 and 152).

What the Committee intends to examine in this chapter is why this was the case. It is important to first understand the Department's presence in the Esperance region, before undertaking a closer examination of the events.

10.2 South Coast Region Environmental Officers

The issue of DEC's resourcing was examined in some detail in Chapter 4.3. In order to understand how the regulatory function of the Department was conducted in Esperance, however, it is important to set out its specific resource capabilities in the Esperance area. As indicated below, DEC's Environmental Officer role (a combined State Public Sector position covering levels 2 to 4) is critical to its regulatory function.

The Civil Service Association submission to this inquiry pointed out that:

The role of the DEC EO [Environmental Officer] includes but is not limited to, assessing and investigating license applications, drafting licenses, monitoring to ensure licence compliance, investigating complaints, and preparing prosecution briefs. Contrary to

*popular belief, they do not just undertake an inspection role to monitor / audit licence compliance.*⁴⁵⁸

On the evidence available to the Committee it appears that the industry regulation role of the Esperance Port Authority was conducted by an Environmental Officer based at Albany. The function was initially managed from the Department's Goldfields office but that changed in 2003, when the management of industry regulation for Esperance/Ravensthorpe was reallocated to the Department's Albany office.

In August 2005, the then Minister for the Environment, Hon Dr Judy Edwards, MLA, announced that a district office would be established for the Department of Environment in Esperance, which would open early the next year. Dr Edwards stated:

The office will service areas covered by the Shires of Ravensthorpe and Esperance and will provide regulatory approvals and support for work associated with the protection of rivers, estuaries and wetlands.

*... Previously, the Esperance area was serviced by the Albany office, which has involved travelling long distances for staff and only an occasional presence in town.*⁴⁵⁹

At that time, the Department of Environment and the Water and Rivers Commission had been working towards becoming a 'single entity' over some years following the machinery of government reforms. It should be noted, however, that evidence available to this Committee indicates that staff did not regard themselves as working for a 'single entity'. There were complex management structures in place as a result of the continuing division of functions. This resulted in some instances of staff answering to a line manager who was not familiar with the detail of, or responsible for, managing specific areas of that staff member's responsibilities, such as industry regulation.⁴⁶⁰ These arrangements continued after the creation of a separate Department of Water in October 2005, because certain functions continued to be delegated to the Water and Rivers Commission/Department of Water by the Department of Environment.

In relation to the Esperance Environmental Officer position, it appears that an Esperance based Water and Rivers Commission position was used to partially fill that role from February 2006. The position had combined functions relating to industry regulation and water licensing as outlined in Dr Edwards' media statement.

However, with the amalgamation of the Department of Environment and Conservation and Land Management on 1 October 2006, the incumbent officer was withdrawn to the Department of Water in late September 2006 and the Esperance Environmental Officer position has subsequently not been filled. As a result DEC's industry regulation function has reverted to its Albany office.

The Civil Service Association advised:

⁴⁵⁸ Submission No. 58 from Civil Service Association, 25 May 2007, p4.

⁴⁵⁹ Minister for the Environment, Media Statement 'Esperance environment a high priority', 1 August 2005.

⁴⁶⁰ Closed evidence.

*The EO unit at Albany currently consists of a manager and two (2) EOs. They cover an area east to the South Australian border and west to Walpole. The workload demands are too great for the small number of officers. In addition for significant periods over the last 12 months DEC Albany was functioning with one EO, the other position being vacant.*⁴⁶¹

At the time this inquiry was underway, in June 2007, the Esperance Environmental Officer position remained unfilled.⁴⁶²

10.3 Port Upgrade 2000-2002

In 2002, Esperance Port was bulk handling both nickel and iron ore. Significantly, in that year, the Port's upgrade was just being completed. This upgrade included the dredging and other changes to the marine environment of the Esperance harbour referred to in Chapter 8.2(b), but significantly also included what the Port described as *'the new iron ore conveying and storage systems [which are] fully enclosed for maximum dust control'*.

It was this upgrade which was to result in the Port being the recipient of a long list of awards and nominations including:

- the Premier's Award for Excellence in Public Sector Management in the Economic Development category;
- the then Department of Minerals and Energy's (DME's) Golden Geko Award for *'Innovative environmental controls ... implemented to meet the high expectations for the community and to protect the natural environment'*;
- the WA chapter of the Chartered Institute of Logistics and Transport's 'Transport Achievement of 2001-2002';
- the dual winner in the State and National 2002 Case Earthworks awards for best practice and innovation in environmental management of civil construction;
- the joint winner for the Environment category; and
- Kerman Contracting winning the Australian Steel Institute's award for the new iron ore shed and 2.6 kilometres of associated conveyor systems.

In 2003, the Port was awarded 'Australian Port of the Year'. The Port's publication, the *Esperance Report* stated:

⁴⁶¹ Submission No. 58 from Civil Service Association, 25 May 2007, p5.

⁴⁶² Mr Keiran McNamara, Director General, DEC, advised:

we have recently advertised to create a position and appoint a position to carry out environmental protection functions in Esperance in fulfilment of that promise that was made, because the staff who have carried out that function over the period since, during the bulk of 2006 and perhaps a bit earlier, are Water and Rivers or Department of Water staff (Transcript of Evidence, 5 June 2007, p4).

The award was granted for “excellence in environmental achievement”, recognising the Port Authority’s outstanding approach to the environmental issues and concerns relating to the export of iron ore and other commodities through Esperance.

Finding 139

During 2002 and 2003 the Esperance Port Authority received numerous awards for its ‘Port Upgrade 2000-2002’, including ‘*Australian Port of the Year*’ for ‘*excellence in environmental achievement*’.

10.4 Bulk handling of nickel

Despite the accolades for the Esperance Port’s upgrade of its bulk handling facilities for iron ore, there were continuing concerns about the Port’s bulk handling of nickel.

(a) Complaints

As referred to in Chapter 9.3(b), complaints about the odour associated with nickel had resulted in the publication of a *Final Report on Esperance Port Nickel Odour Study* in March 2002. Shortly afterwards, on 1 May 2002, there was a complaint received by the then Department of Environmental Protection (DEP) about iron ore dust on walls and in the garden of a residential property in Bostock Street. DEP arranged for the Port to take samples of dust. The results from the laboratory, dated 7 June 2002, indicated that Haematite/Martite and Goethite made up approximately one-quarter of the sample. Correspondence from the Port to the complainant, copied to DEP and dated 13 August 2002, stated that ‘*the majority of the sample could not be attributed to iron ore*’, but presumably this meant iron ore was present in the sample. A further letter of 15 August 2002 to the complainant stated, however, that:

caution should be used when interpreting these results, as this is just one result from one sample... [and that it] can provide no evidence as to whether the iron identified ... is from recent dust deposition or due to build up over a number of years.

DEP internal emails from that time noted that according to the Chemistry Centre analysis of sample dust taken by the complainants the ‘*Fe [Iron] content is reasonably high*’ and that there was also ‘*elevated levels of Ni [Nickel]*’.

The DEP employee responsible for the Port’s licensing compliance at that time stated that it appeared that the Port ‘*could be in breach of section 49 of the Environmental Protection Act*’ and a handwritten note stated ‘*interference with amenity*’.

In seeking further advice on this issue, there were additional internal DEP emails referring to the ‘*trailing of new dust monitoring equipment and methods*’ including the suggestion that the Port install an Osiris dust monitor and high volume monitor at the complainant’s premises. The emails

explained that Osiris would allow data to be accessed at any time, checking dust levels with the corresponding wind directions. The high volume monitor would determine quantitatively the dust concentration in the air over 24 hours, and it was noted that the complainants must select which 24 hours, *'as industries can set them up to run when the wind blows favourably'*.

There was further internal DEP email correspondence on the issue agreeing with the proposal to trial new dust monitoring equipment at the Port that pointed out that the high volume monitors could determine metal concentrations and *'fingerprint'* the source. The email went on to state that there may not only be an amenity issue with visible dust but also *'a health issue, especially if metals are contained in the dust'*. The email continued with reference to a *'health based standard for PM10 (particles with a diameter less than 10 microns - i.e. respirable particles)'* established in the Ambient Air Quality National Environmental Protection Measure:

the standard is 50 ug/m3 over 24 hours, but note that this relates only to particle mass and that the applicable standard may be different (lower) if significant amounts of heavy metals are involved - occupational standards exist for some metals in Australia.

On 16 September 2002, further advice from the DEP's Audit Branch was received which indicated that there was a Ministerial Condition attached to the Port's operations, as follows:

9.1 In the event that dust from iron ore operations is affecting or likely to affect surrounding landuses, the proponent shall cease iron ore handling operations to the Requirement of the Department of Environmental Protection.

Finding 140

In response to complaints by Esperance residents in 2002, the Department of Environmental Protection staff identified *'new dust monitoring equipment and methods'* which it proposed to trial at the Esperance Port Authority. The staff were aware that the release of dust from the Port may have gone beyond an issue of amenity to become *'a health issue, especially if metals are contained in the dust'*.

In the midst of the inquiries about trialling new monitoring equipment at the Port, in approximately August 2002, management files for the Esperance Port Authority were transferred from Kalgoorlie to the Albany Regional Office of DEP.

On 10 September 2002, DEP received another complaint, from a residence in Vivien Street, that dust and odour from the Esperance Port Authority *'has been going on too long'*; that there was *'Dust over the windows of the house but finds nickel odour worse.'* The complaint recorded that the complainant was:

*sick of complaining to the Port... does not think the Port should be there, it should be shifted, but new because of upgrade, they are stuck with it. Upgrade approved by people in Perth that do not have to live with it in Esperance.*⁴⁶³

On 17 October 2002, there was a meeting by DEP staff from the Audit Branch, Licensing Branch and South Coast Region, concerning 'dust complaints emanating from Esperance Port'. The notes of the meeting indicated that the Port was currently seeking increased tonnage of exports and there was also discussion regarding the potential to have the Port do additional dust monitoring to establish ambient dust conditions closer to the complainant's house than the existing monitoring. The notes referred to the difficulty of establishing what was accumulated dust, presumably due to the potential cited by the Port, that there was 'no evidence as to whether the iron identified ... is from recent dust deposition or due to build up over a number of years'. It was agreed to set up a meeting of the parties to find a mutual resolution to the issue. Later that day, DEP received another complaint from a different residence in Bostock Street about dust from the Port, and DEP continued with the proposal to set up a meeting with the Port and the complainants.

On 8 November 2002, a Ribbons of Blue and Rivercare officer who was working with the Water and Rivers Commission⁴⁶⁴ reviewed the Port's Dust Monitoring Report January - June 2002. The Port's dust monitoring report was reviewed in November 2002, almost four months after it had been received by DEP's Albany office. The 'Note to File' recorded that there had been an increase in nickel dust between February and May 2002 across all monitoring sites and that there was 'less tonnage being handled at the Port'. The note stated that there were 'no maximum dust levels given to the Port Authority in their licence', although it went on to note that the Port should be asked to explain the increase in nickel dust and to discuss changing the sampling methods to bring these 'into alignment with international standards'. The officer, however, did not appear to have had any other formal dealing with the Port's licensing conditions until she was appointed to the position of Environmental Officer for Esperance and Ravensthorpe in 2003.⁴⁶⁵

On 5 November 2002, the Port's then environmental consultant Environmental Risk Solutions (ERS) wrote to DEP advising of the Port's numerous awards and included a copy of the *Esperance Report* which highlighted that most awards recognised the Port's environmental credentials as a result of the Port's upgrade.

(b) The Outcome

On 13 November 2002, the meeting between representatives of the Port, DEP and the complainants was convened. During the meeting the Port indicated that it was interested in its

⁴⁶³ Unfortunately when this complaint is formally responded to by DEP on 20 March 2003, the letter advises that the Port did not have any nickel shipments on 17 October 2002 [in fact the complainant referred to odours and dust on 10 September 2002, 17 October 2002 was the date that the incident was followed up by a DEC officer]. The letter further advises that the Port is working on dust monitoring and other dust complaints, has implemented a dust observation diary for concerned residents, and that a trial odour scrubber to reduce nickel odour was commencing.

⁴⁶⁴ Ms Catherine MacCallum, Senior Environmental Officer, DEC, *Transcript of Evidence*, 6 June 2007, p1.

⁴⁶⁵ Ms Catherine MacCallum, Senior Environmental Officer, DEC, *Transcript of Evidence*, 6 June 2007, p1.

environmental consultants, ERS, determining the methods to monitor the area. The ERS representative was recorded as pointing out that:

- *existing dust monitoring methods [are] for gross dust fallout;*
- *[there is a] need to determine if there are methods for monitoring fine dust levels apparently evident in this situation.*

The outcome of the meeting included the agreement that ERS would research and draft options for dust monitoring, would provide a diary to record dust observations to complaints, and that the complainant's wall would be cleaned and monitored for any return of staining.

On 19 November 2002, the Port wrote to DEP advising that a decision to change to deposition gauges from the original high volume sampling undertaken by the Port in conjunction with DEP in 1995 was due to 'a lack of correlation in the data' and that this was the last time the dust monitoring program had been extensively reviewed. This advice was not correct, and the 1995 Esperance Port Authority Air Monitoring Programme actually stated:

It is certain that TSP is not an indicator of Port Authority operations in that highs and lows have no correlation with Port activities with any consistency whatsoever... Some lower iron levels with no hematite during shipping have been associated with SW winds which generally is away from the main monitors. It is evident SE and NE winds give rise to higher haematite levels particularly when wind changes direction around this aspect. ... The results correlate extremely well to activities and weather conditions [underlining added].

In its letter to DEP, the Port also highlighted that because haematite concentration varied considerably between iron ore fines and iron ore lump, changes in haematite concentration could not be used to accurately infer changes to the total iron ore dust load. It also stated that current deposition results could not be directly compared to any known criteria, as the criteria corresponded to total dust deposition and were not chemical or species specific. The Port also highlighted that there should be control samples taken as an assurance on the sample handling and analysis process and that there was no data available on total dust loads and combustible matter (which would include dust from grain handling and inland sources). The Port proposed that the depositional dust monitors be tested for total dust and that two control sites be established, one to ensure the quality of sampling and analysis procedures and one as a control site away from the Port.

Finding 141

When the Esperance Port Authority was given the opportunity to develop new options for dust monitoring as a result of complaints from Esperance residents in 2002, it incorrectly advised the Department of Environmental Protection that a decision to change to deposition gauges from the original high volume sampling undertaken by the Port in conjunction with the Department in 1995 was due to '*a lack of correlation in the data*'. In fact, high volume sampling results were found to '*correlate extremely well to activities and weather conditions*'.

The Port only proposed modifications to its dust depositional gauge sampling and analysis, which in the Committee's view was an inadequate dust monitoring program.

This issue was not progressed by DEP and, after a reminder letter from the Port on 20 May 2003, a note stated that the Environmental Officer '*tried to chase this up ... before the license review*' and another handwritten note on 30 September 2003 stated:

Port has decided not to change monitoring. They will conduct 1 year of data analysing Fe content differently whether comparable.

There was no reference to the complaints that prompted the review or the internal advice that had recommended high volume and Osiris dust monitoring. In fact, rather than having a more rigorous dust monitoring regime, it was at about this time that the Port's reporting requirements were changed from six-monthly to annually.

The Environmental Officer, Ms Catherine MacCallum appeared before the Committee and also provided a submission which advised that:

Initially when I started in my role of Environmental Officer for Esperance and Ravensthorpe, Esperance Port were required to submit 6-monthly reports which included their dust gauge monitoring results. In 2003 the Program Manager and I decided to change the reporting requirements to being annual. This change was implemented when the licence was re-issued. The reason for doing so was to manage a high work load. There were limited staff (1.5 FTE) working on Industry Regulation for the South Coast Region, and there was insufficient time to review and respond to reports. The majority of licensed premises on the South Coast were required to submit annual reports, so the changes to the Port's licence allowed for consistency across the region and reports would be responded to in a more timely manner. DEC normally requires annual reporting unless specific circumstances justify a shorter period i.e. 1, 3, 6 monthly.⁴⁶⁶

⁴⁶⁶ Submission No. 97(b) from Ms Catherine MacCallum, former Environmental Officer, South Cost Region, DEC, 5 July 2007.

Finding 142

When management of the Department of Environmental Protection's industry regulation function for Esperance premises was transferred from its Goldfields to its Albany Office, the Esperance Port Authority's environmental reporting conditions were varied so that it needed only to provide dust monitoring results on an annual rather than a six-monthly basis. This was due to the Department's resourcing issues and was standard practice for the region.

As examined in more detail in Chapter 10.5, it appears that by this time all relevant DEP staff involved in the industry regulation of the Esperance Port were under a misapprehension that the Port Upgrade included an upgrade to the nickel (later to become the heavy metal) bulk handling systems. Information was also provided to DEP earlier in 2003 about the marine sediment testing results in the berth pockets, but these were not part of any licensing requirements and may not have been seen as significant. The Port's ongoing dust monitoring reports, which reported increasing detection of nickel outside the Port's boundaries in 2003, were interpreted by the Port with reference to earlier correspondence from DEP about UK standards regarding '*deposited nuisance dust*' and the Port concluded that '*Deposition rates for Esperance are far below these guideline values, including the guideline value for black coal dust*', which according to the UK standard was lower because '*the nature of the deposit can influence strongly the perception of nuisance*'.

10.5 More complaints

On 30 September 2003, there was another complaint to DEP, this one from the Shire of Esperance referring to dust at a residence in The Esplanade on 9 September 2003. The DEP officer noted that the results of a rainwater tank sample from the laboratory suggested high nickel content, but that the samples were not taken according to the correct standard. The Chemistry Centre had advised that the nickel content was double the health limit and that the roof deposit was most likely a combination of iron ore, nickel and fertiliser dust.

On 3 October 2003, a copy of the *Esperance Report* was sent to DEP reporting 'Australian Port of the Year another Honour for Esperance'.

As detailed in Chapter 9.3(d), on 7 October 2003, the Port responded to the DEP complaint of dust from 30 September 2003, advising DEP that additional water samples were taken from the rainwater tank and the dust on the exterior of the house. On 12 December 2003, the Port advised DEP the analysis of the dust samples following the complaint confirmed that the majority of the matter was consistent with pollen. The rainwater tank samples, however, showed elevated levels of nickel above national drinking water guidelines. The Port then initiated its own investigation and the results of other rainwater tanks sampled showed the presence of elevated nickel. The Port indicated that, as the tanks had not been cleaned regularly, this would be done by the Port at the end of summer and nickel levels would then be monitored.

On 29 December 2003, DEP sought advice from the Department of Health on the issue of nickel in rainwater tanks. The email to the Department of Health stated:

There has been substantial upgrades to the Port's facilities in 2002 and the nickel loading system is now all enclosed. There has been little dust generated this year. It seems likely that the dust has been accumulating prior to the upgrade, however the Port will continue to monitor the rainwater tanks.

The Department of Health responded: *'If dust is no longer an ongoing problem then I concur that people should be advised to flush their rainwater tanks.'*

On 6 January 2004, an internal DEP memorandum about 'Nickel in Private Rainwater Tanks, Esperance' identified that sampling and analysis undertaken by the Port had found nickel levels twice the recommended level in the Australian Drinking Water Quality Guidelines. Amongst other things, the memorandum stated:

The Esperance Port Authority completed an upgrade to the nickel and iron ore loading facilities in 2002. The upgrade involves the enclosure of all transfer points and conveyor belts, new iron ore ship loader and new storage sheds that maintain negative pressure when loading is occurring... The control of dust and the iron ore and nickel dust monitoring program are covered under conditions in the DEP operating licence (5099/8) the Esperance Port Authority holds. The results of dust monitoring are well below the guideline given by the UK Department of the Environment, Transport and Regions, Mineral Planning Guidance Note 11.

On 21 January 2004, DEP issued a media statement, 'Nickel found in rain water tanks near Esperance Port'. In letters sent by DEP to individuals whose residences had a nickel content above guidelines, DEP advised that:

The Port operates a closed materials handling system for all iron ore and nickel loading, minimising the potential for any dust emissions from the Port... The nickel level in your rainwater is still very low, and the guideline relates to other more harmful forms of nickel than nickel sulphide... Therefore, the nickel in your rain water tank does not pose a serious health risk.

The Media Statement concluded that:

Current loading practices at the port are effective in controlling dust emissions and results of dust monitoring by the Esperance Port Authority have shown very low levels of dust in areas near the Port. It is therefore unlikely that this problem will recur.

It should be noted that the apparent misconception by relevant DEP officers about the supposed enclosure of the nickel handling system continued for a considerable time and when Cabinet met in Esperance for a regional briefing in July 2005, the notes prepared by the Department, titled *'The management of dust emissions from Esperance Port'* stated that:

Although the Esperance Port operates an enclosed handling system for iron ore, nickel and lead carbonate there have been dust issues believed to be associated with nickel dust.

Finding 143

When management of the Department of Environmental Protection's industry regulation function for Esperance premises was transferred from its Goldfields to its Albany office, the mistaken assumption was made by relevant Departmental operational staff and managers that the Esperance Port Authority's 'Upgrade 2000-2002', which applied to its iron ore handling facilities, also applied to the nickel outloading facilities.

10.6 Ongoing nickel contamination

On 3 September 2004, the Port wrote to what has become the Department of Environment (DoE) advising of the rainwater tank monitoring results from sampling conducted on 10 August 2004. Of the 13 results reported, eight were equal to or above the recommended guideline value for nickel. The Port stated that these results were the:

first round of sampling in our two year monitoring program... At this stage we are reluctant to make any conclusions about these initial results.

On 10 September 2004, an article appeared in the *Kalgoorlie Miner* on 'Port water nickel findings'. The Port provided DoE with a copy of an article which stated:

The absence of first flush systems in three Esperance rainwater tanks caused high nickel levels in the town's drinking water according to test results.

On 20 September 2004, a media release 'Rainwater Tank Monitoring' issued by the Esperance Port stated that follow-up testing was conducted on seven tanks 'after low levels of nickel were found during monitoring earlier this year'. It also stated that 'The level in four tanks was below the acceptable level', and continued that the three tanks with elevated nickel levels did not have a 'first flush system'. It went on to refer to:

Five other tanks tested following requests from local residents were found to have their nickel level below the drinking water guidelines.

The media release did not refer to the sixth resident whose rainwater tank had three times the recommended value of nickel in the guidelines.

On 28 September 2004, the Port applied to vary its environmental licence so that it could bulk handle lead carbonate. On 16 November 2004, the DoE 'Licensing memo' on the issue of the Port's amended licence was completed. The memo identified that the only concern in relation to the Part IV approvals for the Magellan project under Statement 559 was the background sampling and 'rainwater tank issue'. The memo continued: 'Port has found potential Ni source (truck unloading in sheds, Port undergoing further investigations).' Other issues identified related to the then current investigation of the Port for breaching Part IV conditions applying to the reclamation area (concerning the Port upgrade); an application to increase its iron ore loading to 8 million

tonnes p.a.; issues regarding train noise; and a works approval that was to be issued shortly to construct a sulphur upgrade.

On the same date the DoE Environmental Officer emailed the Port's Environmental Consultant about the lead licence amendment. The email referred to concerns about the Ministerial conditions imposed on Magellan as part of the Part IV process relating to the original approval of the project. The email stated that the '*major concern*' related to the rainwater tank issue and that it would be '*a significant health issue*' if it were likely for lead to end up in the rainwater tanks. The DoE Environmental Officer indicated that the Audit Section of DoE had been advised that the likely nickel source had been identified at the last visit, being the truck unloading. The DoE Environmental Officer further advised DoE's Audit Section that the Port was going to add lead to its rainwater tank monitoring program.

It appears that the assumption that the likely nickel source had been identified as truck unloading may have been based at least in part on the mistaken belief that the remainder of the Port's bulk handling system for nickel was a modern, award-winning, fully enclosed system.

Finding 144

It appears that, because of the mistaken assumption by relevant Department of Environment staff that the Esperance Port Authority 'Upgrade 2000-2002' included the nickel outloading facilities, it was concluded that the continuing release of nickel dust into the Esperance environment was only associated with the truck unloading facilities.

The variation to the Port's environmental licence to allow it to bulk handle lead concentrate was issued on 17 November 2004. Significantly, however, the conditions were varied so that the Port was also required to submit a dust management plan by 1 April 2005, before it commenced shipping the lead concentrate.

When the plan was provided to DEP it was an extract from the Port's existing Environmental Management Plan and principally dealt with dust control measures for iron ore (refer to Chapter 9.3(e)).

Finding 145

The variation to the Esperance Port Authority's environmental licence to allow it to handle bulk lead concentrate was issued by the Department of Environment on 17 November 2004. Significantly, however, the conditions were varied so that the Port was required to submit a dust management plan by 1 April 2005, before it commenced shipping the lead concentrate.

When the plan was provided it was an extract from the Port's existing Environmental Management Plan and principally dealt with dust control measures for iron ore.

On 1 April 2005, there was another complaint to DoE about possible health effects of nickel handling by Esperance Port. The complaint related to two children suffering nose bleeds the previous week and concerns that this may be caused by nickel. The children lived in the same street behind the Port, and there was nickel on the roof of their homes. The DoE Environmental Officer contacted the Department of Health and recorded the advice that nickel could affect people who have nickel skin sensitivity, allergic contact dermatitis, and that eyes and nose affects could be exacerbated. In susceptible people it could cause nose bleeds but this would need to be determined by a medical examination.

The Department of Health also indicated that nickel was not easily absorbed by the body, and although not recorded in the original hand-written notes of the conversation, the incident report went on to state that lead carbonate was similar in that it was '*insoluble*' [in fact lead carbonate appears to have low water solubility but is soluble in mild acid]. The advice as noted continued: '*Port could do some continuous monitoring, or some dust tracks to pick up elevated levels to help to determine whether loading needs to cease.*' The report also indicated that the Port received two complaints on the previous Wednesday and Thursday and that loading had ceased for 2½ hours on Wednesday.

The Port was asked to let DoE know of any particular incident and also to put the improvements to nickel handling procedures in writing to DoE. It was noted that lead was being unloaded on Monday and that the Port advised it was '*monitoring the dust coming from the rail dumper and the ship loader to see what impact there was on the quality of the dust*' and would put it in writing when it was completed.

10.7 The first inspection

On 26 May 2005, DoE staff inspected the Port. The internal DoE *pro forma* for the inspection Report had a table against which items were checked, titled 'Audit of Regulations', and these related to the numbered conditions of the licence. It did not encompass an inspection of matters raised in the preamble to the licence (such as auditing whether the '*pelleted lead carbonate*' referred to in the preamble was pelleted as indicated in Chapter 6.2(b)). The handwritten notes of the inspection referring to the moistening of stockpiles stated that '*Port to deal with lead. (Contractors don't want to handle).*'

According to the subsequent DoE letter formally notifying the Port of the inspection outcome, of 25 November 2005, the Port was found to be *'in full compliance'* with its current licence conditions. However, it also noted that changes to the licence were recommended during the inspection and the attached report stated that:

Licence is very focussed towards the management of iron ore, need to ensure comparable measures are taken for lead and nickel. Discussed the possibility for further dust monitoring to capture extreme dust conditions that may attribute to some dust complaints and the high levels of nickel in rainwater tanks.

The report stated that this needed to be done in conjunction with CBH, Shire of Esperance and the Department of Health.

Finding 146

When the new Albany-based Environmental Officer from the Department of Environment had the opportunity to inspect the Esperance Port Authority in May 2005 she noted that the Port's:

Licence is very focussed towards the management of iron ore, need to ensure comparable measures are taken for lead and nickel. Discussed the possibility for further dust monitoring to capture extreme dust conditions that may attribute to some dust complaints and the high levels of nickel in rainwater tanks.

On 1 June 2005, the results of rainwater tank testing by the Port from April 2005 were provided to DoE. The results indicated that of the seven tanks tested only one, at 0.01 mg/L, was below the guideline and the others ranged from 0.03 to 0.17 mg/L (the guideline is 0.02 mg/L).

On 25 August 2005, the DoE Environmental Officer wrote to the Department of Health seeking advice on the health impacts of dust issues at Esperance Port. The memo, which was copied to two other DoE officers and the Port's Environmental Consultant, highlighted the elevated nickel levels in rainwater tanks surrounding the Port. It also stated that:

Although the Esperance Port operates an enclosed handling system for iron ore, nickel and lead carbonate, there have been dust issues believed to be associated with nickel handling.

Reference was made to earlier contact between DoE and the Department of Health in April 2005, concerning complaints about nose bleeds, when the offer was made to review the Port's Dust Management Plan. This plan and other materials relating to elevated nickel issues and related reports and documents were provided to the Department of Health.

Finding 147

On 25 August 2005, the Albany-based Environmental Officer from the Department of Environment and Conservation wrote to the Department of Health seeking advice on the health impacts of dust issues at Esperance Port. The memo, which was copied to two other Department of Environment and Conservation officers and the Esperance Port Authority's Environmental Consultant, highlighted the elevated nickel levels in rainwater tanks surrounding the Port.

On 21 September 2005, the Department of Health's acting Toxicologist responded to the DoE letter and advised that lead carbonate was *'highly soluble and the contamination of rainwater tanks by fugitive dust emissions may therefore cause a serious health concern'*. The persistent nickel in rainwater tanks, in spite of Port dust management measures, was also noted along with the proposal to use the identical measures for the management of the lead.

The DoE recommended dust risk assessment was supported and a number of issues highlighted which did not appear in the existing dust management plan including: restricting the duration of dust generating activities, minimising handling; restricting on-site vehicle speeds, reducing drop-heights wherever practicable; considering guideline values and monitoring methods for PM10 under NEPM guidelines; specifying conditions and contingency triggers for use of water sprays on stockpiles and conveyors; and on-site dust monitoring facilities and assessment methods such as *'dust-trak monitoring'*. An assessment of dust generation associated with the transport of ore to the Port was also recommended. The letter highlighted that the Port's licensing conditions were not *'sufficient to ensure adequate protection of public health'*. Monitoring and reporting were *'environmentally focussed and do not provide useful information for health risk assessment'*.

The letter continued that the conditions in the licence had been set in the absence of suitable health guidelines and new standards had not been considered during the recent licence amendment. It also stated that the licence used outdated dust monitoring requirements based on UK *'nuisance'* regulation (since replaced), instead of monitoring with a public health focus. This was possible and readily assessable through high volume sampling, dichotomous sampling, and TEOM (Tapered Element Oscillating Microbalance) sampling which allowed for *'real time'* measurement of dust concentrations, in addition to the existing dust gauge monitoring.

Finding 148

On 21 September 2005, the Department of Health's acting Toxicologist responded by letter to the Department of Environment and Conservation's memo of 25 August 2005 and advised that lead carbonate was *'highly soluble and the contamination of rainwater tanks by fugitive dust emissions may therefore cause a serious health concern'*. The persistent nickel in rainwater tanks, in spite of Esperance Port Authority's dust management measures, was also noted as was the proposal to use the identical measures for the management of the lead.

The letter supported the Department of Environment and Conservation's recommendation of a dust risk assessment and highlighted a number of issues which did not appear in the Port's existing dust management plan including:

- restricting the duration of dust generating activities;
- minimising handling;
- restricting on-site vehicle speeds;
- reducing drop-heights wherever practicable;
- considering guideline values and monitoring methods for respirable particles;
- specifying conditions and contingency triggers for use of water sprays on stockpiles and conveyors; and
- on-site dust monitoring facilities and assessment methods such as *'dust-trak monitoring'*.

The letter also highlighted that the Port's licensing conditions were not *'sufficient to ensure adequate protection of public health'*. Monitoring and reporting were *'environmentally focussed and do not provide useful information for health risk assessment'*.

10.8 The Department's response

Almost a year later, in August 2006, some action was taken by Departmental officers (at the time DEC) to investigate the Port's licensing conditions, but DEC's evidence was that the actual recommendations of the Department of Health were not pursued until February 2007.

The Committee spent considerable time trying to understand how such significant advice was not acted upon by the Department. The Department's original advice, based on file records, was that:

Ms MacCallum wrote to DoH on 25 August 2005 requesting advice on appropriate controls and monitoring methods for dust generated from the Esperance port. DoH responded on 21 September 2005. Ms McCallum left the licensing officer position in October 2005 and was replaced by a junior officer (Mr Bart Downe) located in Esperance on a part-time shared arrangement with the Department of Water.

In August 2006 Mr Downe telephoned the Licensing Policy Unit at the central office (Perth) for advice on revising the Esperance Port Authority's licence. Mr Byrnes (unit manager) advised that DEC was reviewing the policy approach to licensing all ports in the state and that the Esperance licence should be renewed without change until the review of ports was completed. Mr Byrnes and another Policy Unit officer have no recollection of Mr Downe mentioning concerns about lead dust management or the letter from DoH, and therefore Mr Byrnes was unaware of these concerns.

Consequently as stated in the DEC submission, the DoH advice was not acted upon. Dust management issues did not arise again until DEC started receiving complaints in early 2007. Mr Downe's employment with DEC concluded in October 2006.

As far as DEC is aware only Ms McCallum and Mr Downe of the Albany office received or saw the letter sent by the Department of Health on 21 September 2005. No record has been discovered to indicate that any other officer received or saw the letter.⁴⁶⁷

Other evidence available to the Committee, including a submission from Ms Caron Goodbourn, Regional Leader - Pollution & Industry Regulation, South West Region, corroborated the Department's evidence that the Department of Health's advice was not pursued until February 2007.⁴⁶⁸ However, it is of note that two other officers working with Ms MacCallum had been copied into her memo to the Department of Health in August 2005, including Ms Goodbourn.

On the evidence available to the Committee, including Ms MacCallum's,⁴⁶⁹ it appears that shortly after the Department of Health's response was received in late September 2005, Ms MacCallum left the South Coast Region Office position as Environmental Officer. It is of note that this was the same month, October 2005, that the Department of Water was established. The DoE operated as a separate agency to 30 June 2006, although the Committee was told certain functions continued to be delegated to the Water and Rivers Commission/Department of Water until September 2006.

Ms MacCallum's evidence was that no-one was appointed to fill or act in her position before she left the South Coast Region position, although she did have a 'performance discussion' with her then manager one week before leaving, after she had accepted the new position. Ms MacCallum's evidence was also that she did a handover of her South Coast work on 9 November 2005 with three other officers, in which she highlighted the outstanding items that needed to be actioned in the short-term, including the Port's inspection report letter for the May 2005 inspection, review of the Port's Annual Environmental Report, and an amendment to a works approval for the lead shed. It is of note that the letter formally advising of the outcome of the May inspection was only sent to the Port in November 2005, after Ms MacCallum had left the South Coast Region position.

⁴⁶⁷ DEC, *Addendum to Transcript of Evidence*, Answers to Questions, Hearing 30 April 2007, pp4,5.

⁴⁶⁸ Submission No. 95 from Ms Caron Goodbourn, Regional Leader - Pollution & Industry Regulation, South West Region, DEC, 30 June 2006.

⁴⁶⁹ Ms Catherine MacCallum, Senior Environmental Officer, Department of Environment and Conservation, *Transcript of Evidence*, 6 June 2007.

From the evidence available to the Committee, it is accepted that Ms MacCallum did a separate handover with Mr Downe, on 9 November 2005, about all Esperance and Ravensthorpe issues, particularly environmental regulation under Part V of the *Environmental Protection Act 1986*, of which the Esperance Port review was one aspect of a high workload at the time. The Committee understands that the workload included oversight of the Ravensthorpe Nickel project; the Tectonic Resources Nickel operations; the new project Phillips River Gold operation; the Shark Lake Meat works – Sheep and Cattle abattoir, with wastewater re-use; the Water Corporation waste water treatment plant in Esperance; and the Shire of Esperance irrigation of treated waste water supplied from the Water Corporation.

Mr Downe did not commence working in the Esperance office, undertaking both Environmental Protection and Water Licensing programs, until February 2006. Ms Goodbourn, who was located in the DoE Albany, assumed that Mr Downe was aware of the Department of Health letter and would be following this up, although she did not attend the handover.

Available documentation indicated that Mr Downe did contact the Licensing Policy Unit of DEC in August 2006, but may not have specifically referred to the Department of Health's advice. This is consistent with DEC's evidence. Ms Goodbourn advised that:

The CALM/Environment merger occurred in October 2006 and Mr Downe was withdrawn to Department of Water on the 29 September 2006 and not replaced. [Another officer] also left industry regulation at about this time to take on an acting position in Native Vegetation Protection leaving only 2 licensing officers for the region. As far as I am aware, and on examining the Port file, nothing further on the matter occurred until dust and odour complaints started to be received in January 2007 and the complete Esperance Port Annual Environmental Monitoring Report (for periods October 2005 –September 2006) was received and reviewed by DEC noting elevated sulphur deposition levels and elevated lead readings from all stations.

Finding 149

Critical advice about the Esperance Port Authority's environmental licence and dust monitoring regime received from the Department of Health in September 2005 was not followed up by the Department of Environment until February 2007.

10.9 More recent events

As discussed in Chapter 7.3(c), the Port applied on 5 October 2006 for an extension of time to submit its Annual Environmental Monitoring Report '*Due to the delay we have experienced this past year in receiving the monitoring results from our dust gauge monitoring program.*' The application was not allowed by what has now become DEC.

On 26 October 2006, the Port submitted an incomplete 'Annual Environmental Monitoring Report October 2005 - September 2006'. All results for dust gauge sample testing for lead in February 2006 were missing as was the result for Dust Gauge (DG) 5 in November 2005. The available results showed general increases in lead levels except for the most recent results for August 2006. On 22 December 2006, DEC responded to the Port's incomplete Annual Environmental Report, stating that the report was incomplete and that data was missing on dust monitoring for February and some of November's for 2006. The Port was given until 31 January 2007 to provide a complete final report, with an explanation as to why the results were not available and evidence that samples had been collected and sent to the laboratory by the due date.

During December 2006, DEC's Esperance office received more than 20 reports of bird deaths. At the time, however, DEC had no information about any particular spills of lead concentrate and the most recent dust gauge monitoring data available to it, from August 2006, did not indicate increasing lead contamination.

The first advice DEC received about any mishandling of the lead concentrate by the Port was on 15 December 2006. The complaint concerned an allegation, said to be from a Port worker, that while other workers were cleaning the conveyor belts following the loading of a ship with lead concentrate, they dislodged the material '*directly into the harbour beyond the immediate berth wharf*'. On 18 December 2006, the information was passed on to the Port, but DEC's Environmental Officer stated:

We are not treating this as a formal complaint as yet, due to it being hearsay. If we do receive something more concrete we will definitely be following up.

On 17 January 2007, DEC passed on a series of questions relating to another anonymous complaint alleging two lead spills at the Port and to the internal investigations relating to the previous complaint. The next day the DEC Environmental Officer sent another email as follows to the Port's Environmental Consultant:

I received an anonymous phone call from a local Esperance resident who said that he had it on good authority that there were two large lead oxide spills in the Esperance Port late last year. He stated that a friend of his who worked at the port told him that there was a spill of 1-2 tonnes in about October/November and that there was another 'huge' spill between 7 and 10 December 2006. When I asked how big is 'huge' he said much bigger in comparison to the previous spill and that it resulted in the closing of the access road to the port. He also said that lead oxide continually spills off the side of a conveyor belt used to move the lead oxide... Unfortunately, that is all the information I can offer at this stage. I requested him to speak to his friend from who he received the information to attempt to encourage him to contact me direct with further information.

The Port was obliged under section 72 of the *Environmental Protection Act 1986* to notify DEC of 'a discharge of waste [which] occurs as a result of an emergency, accident or malfunction; occurs otherwise than in accordance with a works approval or licence' and 'has caused or is likely to cause pollution, material environmental harm or serious environmental harm'. Yet the Port's view was that none of the three major incidents involving lead concentrate which occurred between October and December 2006 (detailed in Chapters 8.4(c) and 9.5(e)), constituted

environmental spills. In an internal Port email, the Port's Environmental Consultant described her response to DEC as follows:

I have asked DEC to get the original complainant to make the complaint anonymously to DEC so that DEC can make a formal complaint through their formal system and we can have accurate details rather than hearsay from a 3rd party.

In a subsequent internal Port note, the Environmental Consultant stated:

The port indicated it would prefer to answer these questions in person, rather than through email to an officer who had never visited the port. It was evident that the DEC was trying to make a link between the lead loading and the recent bird deaths.

These allegations of spills led to the DEC wanting to conduct an inspection of our facilities.⁴⁷⁰

The note continued that the inspection was to be combined with the inspection for compliance with the environmental licence conditions.

On 31 January 2007, the Port's final Annual Environmental Monitoring Report was provided to DEC. The Port noted that some data on haematite and DG5 was still missing and was not confident that these results would ever be received. The additional data for February 2006 showed an increased level of lead for one gauge (DG4) of 42 mg/m²/month. Subsequent reported levels were lower. The Port stated that as it had only recently commenced shipping lead and that:

results above previously recorded levels are to be expected. In addition, lead exported from the port is about 70% lead, compared to the nickel concentrate which is about 14% nickel. Therefore lead results higher than the nickel results would be expected.

On the same day, the Port's Environmental Consultant sent an email giving notice to key Port and BIS personnel of DEC inspection on 1 February 2006. The email advised that DEC and the Shire would be undertaking an inspection:

Please prep the product and make sure its not dusty!! Also, we will need to have shed doors closed during outloading.

The Port's CEO's evidence was that:

We would be notified that they [DEC] were coming. We certainly did not have an adversarial relationship with the DEC. It told us it was coming and we reinforced with our employees the importance of doing everything that we expected them to do - to do it correctly. That was just letting people know that there would be people on site to inspect the operations on the following day... Reinforcement is the word that I would use [to describe the email]. It was to make sure that people were doing it correctly. You are talking about people who are working on the site. All we were trying to do was to

⁴⁷⁰ Environmental Consultant, Esperance Port Authority, Note - Lead Spillage Allegations Annual Port Inspection, prepared for the Esperance Port Authority Board meeting on 6 February 2007.

*encourage them to adopt best practice at all times. You can read into that what you like, but I would expect my employees to be on top of the process at all times. This is just saying that they have to do it properly.*⁴⁷¹

On 1 February 2007, DEC and Esperance Shire officers inspected the Port. As occurred on previous inspections, the DEC inspector did not enter the lead shed or observe the product.⁴⁷² The Port was advised at the time that it was found to be compliant with all conditions of its licence, subject to non-compliance with lodgement of annual environmental report. The Port's Environmental Consultant noted that the DEC Environmental Officer commented: *'I didn't think it was going to be such an unevent.'*⁴⁷³

On 14 February 2007, DEC wrote to the Port with additional issues concerning its license. The letter advised that there were small gaps in the lead carbonate shed which should be filled; that there was a strong odour from the nickel storage shed and that DEC had received several recent complaints on this issue; and that DEC was reviewing the Port's current dust monitoring requirements.

On 27 February 2007, DEC wrote to the Port about the Annual Environmental Report. It advised that some data was missing in relation to dust gauge monitoring for haematite; that the results in relation to sulphur were higher than the guidelines adopted in the Port's Environmental Management Plan. It referred to the dust monitoring for lead as being *'well above the historic trends'*, with one reading in February *'well above all historical results from all stations since lead monitoring commenced'*, as well as highlighting two elevated results in May 2006.

It also noted that the Port's application to amend its licence stated that the lead *'would be exported in its current pellet form for two years'* and the two years had now elapsed. DEC stated that it considered the Port's current dust monitoring program needed to be urgently updated, and referred to NEPM limits for lead and attached the letter from the Department of Health of 25 September 2005. DEC requested written advice by 14 March 2007 of the Port's timeframes for upgrading of air quality monitoring. It also recommended that the Port continue its trial of high volume sampling.

On 15 March 2007 DEC issued a prevention notice on the Port requiring it:

1. *To cease unloading of lead carbonate from rail-cars at the Port.*
2. *To cease the export of lead carbonate at the Port.*

⁴⁷¹ Mr Colin Stewart, Chief Executive Officer, Esperance Port Authority, *Transcript of Evidence*, 6 June 2007, p24.

⁴⁷² As indicated at Chapters 6.2(b) and 10.7, the DoE *pro forma* for inspections related only to the numbered conditions of the environmental licence; it did not encompass matters raised in the preamble, such as the form of the lead concentrate.

⁴⁷³ Environmental Consultant, Esperance Port Authority, Note - Lead Spillage Allegations Annual Port Inspection, prepared for the Esperance Port Authority Board meeting on 6 February 2007.

10.10 Conclusion

As demonstrated from the evidence analysed in this chapter, DEC officers received a number of complaints from members of the public in the Esperance area expressing concerns about the conduct of the Esperance Port. In each of the instances analysed, there appeared to be a genuine response by individual officers to those concerns and various strategies to address these complaints were pursued. However, responses to complaints were often delayed and overall were ineffective in managing the risks highlighted by those complaints.

Finding 150

The evidence available to the Committee indicates that individual officers of the Department of Environment and Conservation responded genuinely to public complaints concerning the operations of the Esperance Port Authority, and pursued various strategies to address these.

However, these responses were often delayed and overall were ineffective in managing the risks highlighted by the complaints.

The examination of DEC files and related evidence indicates that there were significant shortcomings in the capacity of the Department to adequately undertake its industry regulation function.

The major impediment to effective industry regulation by the Department was constant restructuring which, combined with insufficient resources, resulted in ongoing staffing changes and a loss of corporate knowledge. This led to a lack of experience and capability in monitoring the complex and diverse operations subject to the Department's regulatory powers.

Finding 151

The major impediment to effective industry regulation by the Department of Environment and Conservation was constant restructuring which, combined with insufficient resources, resulted in ongoing staffing changes and a loss of corporate knowledge. This led to a lack of experience and capability in monitoring the complex and diverse operations subject to the Department's regulatory powers.

It also appears to the Committee that there is another, critical factor resulting in deficiencies in DEC meeting its regulatory responsibilities in relation to the Esperance Port Authority that goes beyond the issues of restructuring, inadequate resourcing and staff turnover, and that relates to the culture of the Department, as foreshadowed in Chapter 4.3(a)(i).

In his evidence to the Committee, Mr Kim Taylor, Acting Deputy Director General of Environment, DEC, stated:

*In hindsight we clearly had too much trust in both the mining company and the port to abide by the legislation and to notify us of any changes in the situation.*⁴⁷⁴

Later, Mr Taylor reiterated:

*perhaps we were in some ways lulled into a false sense of view that the port was a responsible operator and that if any problems were detected we would be notified. We accept as a regulator that we cannot afford to rely on anybody now to inform us when issues arise and that we just have to be far more diligent and basically not trust or rely on other people. We have to see things, identify things and investigate things first-hand ourselves rather than rely on other parties.*⁴⁷⁵

The issue of reliance upon self-regulation and self-reporting by State regulatory agencies was an ongoing concern to the Committee in this inquiry.

As examined in more detail in Chapter 11.2, the Resources Safety Division of DoCEP relies upon manufacturers of goods to ensure that these are correctly classified under the dangerous goods legislation. However, when it was put to the Managing Director of Magellan Metals Pty Ltd that a Magellan employee incorrectly advised a Resources Safety officer that its lead concentrate was not a dangerous good, Mr Scott stated:

*I would be surprised if the response that was received was accepted by DOCEP.*⁴⁷⁶

When Mr Colin Murray, Acting Director, Environmental Impact Assessment, on behalf of the Environmental Protection Authority, was asked about any investigation of the information provided to it by Magellan Metals in its application to vary the Ministerial Statement to allow the export of the concentrate through Esperance, he stated that:

*It was desktop. We did not send anyone down there to specifically review the Esperance port. As indicated before, we had some familiarity with the Esperance port but we did not do a specific inspection.*⁴⁷⁷

When asked if he would like to comment on Magellan Metals' surprise that a government regulatory department accepted its advice without checking further, Mr Murray responded 'No.'⁴⁷⁸

⁴⁷⁴ Mr Kim Taylor, A/Deputy Director General, Environment, DEC, *Transcript of Evidence*, 30 April 2007, p19.

⁴⁷⁵ Mr Kim Taylor, A/Deputy Director General, Environment, DEC, *Transcript of Evidence*, 5 June 2007, pp5,6.

⁴⁷⁶ Mr Patrick Scott, Managing Director, Magellan Metals Pty Ltd, *Transcript of Evidence*, 7 June 200, p10.

⁴⁷⁷ Mr Colin Murray, Acting Director, Environmental Impact Assessment, Department of Environment and Conservation, *Transcript of Evidence*, 7 June 2007, p15.

⁴⁷⁸ *ibid.*

The issue of resourcing will clearly limit regulatory agencies' capacity to do anything other than rely upon self-regulation, what Mr Taylor described as the capacity to *'see things, identify things and investigate things first-hand ourselves rather than rely on other parties'*. However, as outlined in Chapter 4.3(a)(i), there is also a concern that DEC's approach traditionally has not simply been a result of resourcing, but is rather an issue of the Department's *'culture'*. Throughout this chapter, the lack of a compliance culture can be detected in decisions such as those allowing the Port to itself develop a new dust monitoring plan instead of being subjected to such a plan as part of its licensing conditions.

The Robinson review of the then Department of Environment's enforcement and prosecution guidelines broadly supports other evidence available to the Committee on this issue. Dr Robinson found that:

"Speak softly and carry a big stick" is an appropriate aphorism for today's environmental regulator, but to be effective there must be certainty that the big stick can and will be used and the how, why and where of its use. It is anticipation of enforcement action that confers the ability to deter.

...

The 'Enforcement and Prosecution Guidelines' ... [in] the tone of the document and language used appears to strongly discourage prosecution except when all other avenues have been exhausted...

The "last resort" policy has been commonly adopted by environment agencies elsewhere in the past. This reflected resource constraints, inadequate training, discomfort with using the 'stick' and a lack of organization self-confidence leading to a reticence about offending those who wield power and influence...

The main argument against the "last resort" policy is that it is self-defeating. If a party knows that prosecution is a last resort it can buy time with little cost (and probably considerable savings) before the "last resort" is reached.⁴⁷⁹

The Robinson review led to a number of significant changes within the DoE, in particular the establishment of the Environmental Enforcement Unit. There are indications in the most recent Departmental data that a broader culture change in relation to the regulatory role may be in place. Full details of DEC's enforcement data are reproduced in Appendix 10. These indicate that environmental enforcement actions, such as site inspections, environmental field notices and infringement notices, in addition to the number of phone calls, letters and emails relating to enforcement activity, have increased over the last three years.

This Committee does not have the capacity to undertake a full investigation of this issue, and for the reasons outlined in Chapter 4.3 does not believe it would be useful at this time for DEC to be subjected to further inquiry and restructuring. However, the Committee notes that Departmental

⁴⁷⁹ Robinson, B, *Review of the Enforcement and Prosecution Guidelines of the Department of Environmental Protection of Western Australia*, February 2003.

data indicates that DEC's implementation of the 'Robinson Review' recommendations may be contributing to the adoption of a more robust regulatory approach within the Department.

Finding 152

Inadequate resourcing limited the capacity of the Department of Environment and Conservation and the Environmental Protection Authority to do anything other than rely upon self-regulation. However, the Committee has concerns that the commonly adopted approach of the Department of Environment and Conservation was one which was characterised by the lack of a compliance culture.

Finding 153

The Committee notes that recent Department of Environment and Conservation data on enforcement activities indicates that the Department's implementation of the 'Robinson Review' recommendations could be contributing to the adoption of a more robust regulatory approach within the Department (refer to Appendix 10).

Recommendation 34

The Committee agrees with the Esperance community that it has been seriously let down by the Department of Environment and Conservation. It recommends that the Department's efforts to implement a more robust regulatory approach be given critical priority so that its officers will be effective in ensuring that the public is adequately protected from pollution and environmental harm.

CHAPTER 11 OTHER ISSUES

11.1 Lobbyists and consultants

In recent times, there have been significant and well-publicised inquiries conducted by the Corruption and Crime Commission into lobbying and alleged public sector misconduct. The inquiries included investigation of the activities of two former State politicians, Mr Brian Burke and Mr Julian Grill, and former Commonwealth politician Mr Noel Crichton-Brown; who were involved in the provision of lobbying and consultancy services for developers navigating the State bureaucratic processes.

A number of submissions raised concerns about the potential involvement of these consultants in the government approval processes associated with the mining and export of Magellan's lead concentrate. Concerns related to whether environmental approval processes had been circumvented by Magellan Metals Pty Ltd and the Esperance Port Authority, specifically as a result of the reported relationship between the former Chairman of the Environmental Protection Authority, Mr Wally Cox, and Mr Julian Grill, or the relationship between the CEO of the Esperance Port Authority, Mr Colin Stewart, and Mr Julian Grill, who appointed Mr Stewart to that position some 20 years previously when he was Minister for Transport.⁴⁸⁰

Magellan Metals Pty Ltd was asked by this Committee if it, or any of its officers, sought support from, employed or subcontracted the exercise of seeking approval for the variation of the Ministerial Statement to allow the export of lead carbonate through Esperance Port to any political lobbyist, and whether it had used the services of Mr Grill or Mr Burke in any of its dealings. The answer given by Magellan in all instances was '*quite categorically*', no.⁴⁸¹

The Esperance Port Authority was also asked by this Committee whether it or any members sought support from or had any contact with any political lobbyist in relation to the approval process through the DEC to change its environmental licence. Esperance Port responded:

(a) The only correspondence relating to this matter during the application process was between the DEC staff and the employees of the Authority.

*(b) At no time was anyone else consulted or spoken to.*⁴⁸²

Mr Dick Nulsen, Chairman of the Esperance Port Authority at the time the Magellan lead concentrate proposal to export through Esperance Port was approved, agreed that he knew Mr

⁴⁸⁰ Submission No. 26 from Mr Chris Siemer, 27 April 2007, p1.

⁴⁸¹ Mr Patrick Scott, Managing Director, Magellan Metals Pty Ltd, *Transcript of Evidence*, 3 May 2007, p17.

⁴⁸² Esperance Port Authority, *Addendum to Transcript of Evidence*, Answers to Questions, Hearing 3 May 2007, p9. The Port also provided a list of all consultants it employed over the last three financial years (Esperance Port Authority, *Addendum to Transcript of Evidence*, Answers to Questions, Hearing 6 June 2007, p12).

Grill and that they had met in the past, but indicated that there was ‘*certainly not*’ any discussion of the Magellan proposal.⁴⁸³

The representatives of the Environmental Protection Authority were asked by this Committee whether it had any dealings in the process of the variation of the Magellan proposal with any other political lobbyist or consultant. Mr Murray, Acting Director, Environmental Impact Assessment, responded ‘*I am not aware of any; I do not know.*’⁴⁸⁴ As a result, the former Chairman of the Environmental Protection Authority, who was overseas at the time, was contacted and asked to respond to this allegation. Mr Wally Cox responded by way of a public submission, ‘*The answer is a categorical no.*’⁴⁸⁵

As a matter of public record, relevant representatives of Magellan Metals Pty Ltd, the Esperance Port Authority and the Environmental Protection Authority have all categorically denied that there was any lobbying involved in the implementation of the Magellan proposal to transport and export its lead carbonate through Esperance.

Finding 154

The Committee is satisfied that, based on the evidence available to it, there was no political lobbying involved in the approvals process for the export of Magellan lead concentrate from the Esperance Port.

11.2 Hazardous and Dangerous Substances

(a) Definitions

There are two categories of substance relevant to this inquiry, hazardous and dangerous, which apply to substances posing a risk to human health. These are defined in the submission from the Resources Safety Division of the Department of Consumer and Employment Protection (DoCEP) as follows:

Hazardous substances

3. *A generic definition of a hazardous substance is provided by the Australian Safety and Compensation Council (SAC) (formerly NOHSC) as “a substance which has the*

⁴⁸³ Mr Dick Nulsen, former Chairman, Esperance Port Authority, *Transcript of Evidence*, 28 June 2007, p8.

⁴⁸⁴ Mr Colin Murray, Acting Director, Environmental Impact Assessment, Department of Environment and Conservation, *Transcript of Evidence*, 7 June 2007, p12.

⁴⁸⁵ Submission No. 17(b) from Mr Wally Cox, former Chairman of the Environmental Protection Authority, 20 June 2007.

potential, through being used at work, to harm the health or safety of persons in the workplace”.

...

5. *“Use[d]” in this definition means, in relation to a hazardous substance at a workplace, to produce, handle, store, transport or dispose of the substance at the workplace.*

6. *Hazardous Substances are:*

- *harmful/toxic - causing transient or permanent damage to body functions;*
- *corrosive - causing damage to living tissue;*
- *irritant - causing local irritation to living tissue;*
- *sensitising - causing an allergic reaction;*
- *carcinogenic - causing cancer;*
- *mutagenic - causing genetic damage;*
- *a substance toxic to human reproduction.*

7. *Hazardous substances are mainly industrial chemicals. They are a small subset of all industrial chemicals. Types of substances which may be hazardous include solvents, pesticides, paints, adhesives, petroleum products, heavy metals and other industrial chemicals.*

Dangerous Goods, on the other hand, are defined as:

1. *Dangerous goods are substances or articles that pose a risk to people, property or the environment, due to their chemical or physical properties. Dangerous goods are divided into nine classes based on their hazardous properties. They may be, for example, corrosive, flammable, explosive, toxic, oxidizing or reactive with water. Whatever their properties and their potential for injury and destruction, great care is needed in their handling, storage and transport.*

...

9. *The legislation applies in addition to occupational safety and health legislation and at present, is not concerned with offsite impact such as pollution except as it prescribes particular requirements for the storage of dangerous goods and for the transport of dangerous goods. Protection of the environment from hazards associated with dangerous goods is largely the responsibility of the Department of Environment and Conservation.*

(b) Original proposal

In its original 1998 proposal Magellan Metals Pty Ltd described its project as a lead oxide mine and concentrator, and stated that lead oxide was not classified as a hazardous material. The Senior Chemical Engineer of the then Department of Minerals and Energy noted that the proposal was incorrectly identified as a lead oxide mine and that the mineral to be mined was suspected to be cerussite, a type of lead carbonate. The Senior Chemical Engineer pointed out that cerussite may have significantly higher bioactivity than galena (lead sulphide) concentrates that are produced in other areas of the State. (It is of note that lead oxide is generally associated with the processing of galena.) The Senior Chemical Engineer emphasised that the exact nature of the concentrate similarly needed to be recognised and stated even at that early stage, as the ramifications for hazardous substance and dangerous goods management at the mine, the port storage facility and during transport could then be better understood.

(c) Environmental Protection Authority assessment

In 2000, when the correctly identified Magellan lead carbonate mining proposal was assessed by the Environmental Protection Authority (EPA), the EPA acknowledged the issues associated with the transport and storage of the lead carbonate, but referred to the *Explosives and Dangerous Goods Act 1961* administered by the then Department of Minerals and Energy as the applicable regulatory mechanism. In its evidence to the Committee on this point, Mr Colin Murray, Acting Director, Environmental Impact Assessment, Department of Environment and Conservation on behalf of the Environmental Protection Authority (EPA) stated:

During the assessment, the EPA received varying advice as to whether lead carbonate was a dangerous good. Some earlier advice we received from the Department of Minerals and Energy of Western Australia in 1999 indicated that depending on whether it was termed "lead dioxide" or lead as a soluble compound, it would not be classified as a dangerous good. Right through to the assessment by the EPA the company [Magellan] had previously indicated that it was not a dangerous good. ...

By the time of the EPA's assessment, it was still not clear to the EPA whether it was classified as a dangerous good. When the EPA reported, it pointed out that one of the possibilities was that the product - the lead concentrate - could be a dangerous good in which case it would need to be regulated under the explosives and dangerous goods regulations...

That was the responsibility of the then Department of Minerals and Energy. The EPA was receiving advice and comment from the DME, but the EPA's responsibility was not related to ensuring that the DME met its statutory obligations.

...We had advice from the Department of Minerals and Energy that it might be a dangerous good, depending on the classification. As I said, by the time the EPA had finished its assessment, that was the only advice that we had had apart from Magellan's advice that it was not a dangerous good. At no point did Magellan point out to us that it was a dangerous good, but the issue remained a concern to the EPA to make sure that all the regulatory requirements related to the project were met. One of the things the EPA did

in its public bulletin 996 was to point out that the explosives and dangerous goods regulations may be relevant to the product.

(d) Mining operations commence

On 23 March 2004, what is now the Department of Industry and Resources (previously DME) received the 'Magellan Lead Project Management Plan'. Under the *Mines Safety and Inspection Act 1994*, the District Inspector must be given notice before mining operations commence at a mine. The *Mines Safety and Inspection Regulations 1995* required that the notice include a Project Management Plan. The Plan received from Magellan had a Material Safety Data Sheet attached for 'Lead Carbonate Basic', dated May 2002, identifying it as being classified as hazardous according to the NOHSC (National Occupational Health and Safety Commission), soluble in acetic acid or dilute HNO₃ (nitric acid), a dangerous good class 6.1 (toxic substance), having a proper shipping name of 'Lead Compound, Soluble, N.O.S.', and a UN Number of 2291.

The Department's Manager, Occupational Health, reviewed the draft Plan on 21 May 2004 and identified the:

key issue associated with the project is that the lead deposit is cerussite (lead carbonate), which is potentially more biologically active than the usually encountered galena (lead sulphide). From an occupational health and safety perspective exposure to lead must be kept to a minimum during mining, processing, transport and storage... Ore processing is relatively simple... the General Manager ... has indicated process plant design plans are almost completed. Consequently, meetings to address issues such as noise, radiation, dangerous goods licensing, reagent handling and monitoring programs can be held prior to commencement of mining.

On 11 August 2004, Magellan Metals wrote a letter to the then Department of Environment; copied to the CEO of the Esperance Port Authority, outlining the possible change in the proposal to export lead concentrate via Esperance instead of Geraldton. Attached to the letter, and the courtesy copy, was a Material Safety Data Sheet for 'Lead (II) Carbonate' identifying it as hazardous under WorkSafe standards and as a dangerous good class 6.1 (Toxic good).

The evidence available to this Committee from various Ivernia reports is that Magellan Metals Pty Ltd commenced mining in November 2004. It was given clearance for productive mining and completed its processing plant in December 2004, and started to commission its mine in January 2005. However, there is no evidence that Magellan had obtained a MSDS specific to its product at that time.

Finding 155

The evidence available to this Committee from various Ivernia reports is that Magellan Metals Pty Ltd commenced mining in November 2004. It was given clearance for productive mining and completed its processing plant in December 2004, and started to commission its mine in January 2005.

There is no evidence that Magellan had obtained a Material Safety Data Sheet specific to its product at the time mining commenced.

(e) Legislative requirements - Workplace safety

Under the *Mines Safety and Inspection Regulations 1995*, Magellan was required to meet a number of legislative provisions at the mine site that should have facilitated the correct dangerous good classification for lead carbonate. Part 7, Division 3 Regulation 7.25 required that:

Each responsible person at the mine is [to] ensure that a register of all hazardous substances used or produced at the mine is kept and maintained. The register must set out-

- (a) *details of all hazardous substances to which an employee may potentially be at risk of being exposed at each workplace at the mine; and*
- (b) *in respect of each hazardous substance -*
 - i. *the MSDS [Material Safety Data Sheet] for that substance; and*
 - ii. *details of any assessment and report under regulation 7.27.*

*Regulation 7.27 requires a risk assessment to be carried out in respect of the consequences to the health of any person exposed to hazardous substance at the mine and, if a significant risk is found, a written report must be prepared outlining the means by which that risk maybe reduced. Regulation 7.29 requires the monitoring of atmospheric contaminants at a mine and regulation 7.30 mandates health surveillance, including biological monitoring, for all employees at a mine.*⁴⁸⁶

Magellan pointed out in a submission to this Committee that an MSDS is '*primarily directed to occupational health and safety issues. It is not a document which is directed to the transport of the product.*⁴⁸⁷ The Committee agrees with Magellan's view, but notes that MSDS generally appear to include the dangerous goods classification for transport purposes. In any event, it is clear that, consistent with Magellan's view of the purpose of an MSDS, under the *Mines Safety*

⁴⁸⁶ Submission No. 93(a) from Resources Safety Division, Department of Consumer and Employment Protection, 19 June 2007, p5.

⁴⁸⁷ Submission No. 33(b) from Magellan Metal Pty Ltd, 7 June 2007, p1.

and Inspection Regulations 1995 Magellan had a responsibility to have an accurate MSDS for its product available at the mine site once it was producing lead carbonate product.

Magellan's evidence to this Committee was that:

During the early stages of the project, Magellan decided that it needed an MSDS for the lead carbonate product given that it was going to send it to various locations initially as samples and later as export product. It had received a copy of a generic MSDS for some lead carbonate precipitate (which is a purified and concentrated form of the product). Magellan believes this MSDS would have originally been produced by the manufacturers of a precipitate. The MSDS classified that product as a class 6.1 dangerous good. Magellan had also obtained an "off the shelf" MSDS from the internet which classified the proposed product as a class 6.1 dangerous good.

Magellan decided, however, to produce its own MSDS for its own product. It sought a recommendation for an expert to prepare that MSDS from its sales and shipping agent (Ocean Partners) who recommended Chemical Associates Inc., a United States company. Magellan engaged Chemical Associates Inc. and that company produced an MSDS classifying the product as a class 9 dangerous good.

Magellan's principal concern at that time was to ensure that its MSDS described the most stringent standards for handling its product so as to avoid any health or environmental risks. Accordingly, it also engaged an Australian expert on occupational health and safety, Dr Galton-Fenzi, to review the MSDS and provide input to the handling instructions.

The Committee notes Magellan's advice that it was aware that the purpose of an MSDS was primarily directed towards occupational health and safety but that it initially 'needed' two 'generic' MSDS for the purposes of sending its product to various locations 'as samples and later as export product'.

Finding 156

The evidence of Magellan Metals Pty Ltd was that it initially 'needed' two 'generic' Material Safety Data Sheets for the purposes of sending its product to various locations 'as samples and later as export product'.

Finding 157

On the evidence available to the Committee it appears that, although Magellan Metals Pty Ltd was aware of Material Safety Data Sheets as being primarily directed toward occupational health and safety, it did not obtain a Material Safety Data Sheet specific to its product for the purpose of protecting the occupational health and safety of those working at the Magellan mine site.

The specific MSDS produced by Chemical Associates Inc. was dated 12 April 2005, and classified the Magellan lead carbonate as hazardous and as a dangerous good class 9.

The email sent to Dr Galton-Fenzi by Magellan's General Manager, Mr Trevor Watters, when he was seeking comments on the Chemical Associates' MSDS on 19 April 2005, stated that the 'EPA [Esperance Port Authority] *are not going to tip any more concentrate until they get the MSDS.*' As a result, Dr Galton-Fenzi's comments on the Magellan Lead were sent to the company that prepared the MSDS first and the unamended MSDS was circulated to the Port and BIS Industrial Logistics.⁴⁸⁸

Finding 158

Magellan Metals Pty Ltd only obtained a Material Safety Data Sheet specific to its lead carbonate product in April 2005.

Finding 159

At the time that Magellan Metals Pty Ltd obtained the Material Safety Data Sheet specific to its lead carbonate product in April 2005, which classified it as hazardous and as a dangerous good class 9, the Esperance Port Authority workforce had refused '*to tip any more concentrate until they get the MSDS*'.

⁴⁸⁸

Dr Galton Fenzi's comments include that the MSDS is '*clearly*' generic and not specific to the Magellan product; it is inappropriate as the product is not odourless and smells of xanthates; that it does not refer to actual salts in the product; that the personal precautions are a '*bit over the top!! as written*'; and that '*Overall I feel that this MSDS is too complex and too generic*'. The evidence of Magellan Metals was that the laboratory which classified the lead carbonate was '*not provided with a sample. They were told the material was lead carbonate and they were given a list of the ingredients that went into it*' (Mr Patrick Scott, Managing Director, Magellan Metals Pty Ltd, *Transcript of Evidence*, 7 June 2007, pp8,9).

Recommendation 35

The Committee recommends that the Resources Safety Division of the Department of Consumer and Employment Protection review the Committee's findings in relation to Magellan Metals Pty Ltd with a view to determining if it potentially breached its legal obligations under the *Mines Safety and Inspection Regulations 1995*.

(f) Legislative requirements - Dangerous Goods

The advice of the Dangerous Goods Branch of Resources Safety Division of DoCEP on the dangerous goods legislation relevant to this Inquiry is as follows:

10. *Dangerous goods legislation relevant to the Inquiry consists of the following Acts and regulations:*

- *Explosives and Dangerous Goods Act 1961;*
- *Explosives and Dangerous Goods (Dangerous Goods Handling and Storage) Regulations 1992;*
- *Dangerous Goods (Transport) Act 1998;*
- *Dangerous Goods (Transport) (Road and Rail) Regulations 1999;*
- *Dangerous Goods (Transport) (Dangerous Goods in Ports) Regulations 2001.*

11. *The legislation prescribes certain requirements in respect of activities associated with dangerous goods and imposes duties on persons involved in those activities.*

Explosives and Dangerous Goods Act 1961 (EDG Act)

12. *Section 43 of the Explosives and Dangerous Goods Act 1961 provides that where the legislation prescribes a manner for storage, or limits the quantity of dangerous goods which may be stored, any person who stores dangerous goods must do so in the manner and within the limits prescribed.*

13. *Section 44 provides that where a type of package or container is prescribed for dangerous goods, or a form of labelling, branding or marking a package or container is laid down, then a person must not store, sell or offer dangerous goods for sale except in accordance with those prescriptions.*

14. *The Explosives and Dangerous Goods (Dangerous Goods Handling and Storage) Regulations 1992 prescribe the methods for storage and packaging of dangerous goods. Regulation 1.5 defines the meaning of "dangerous goods" for the purpose of the*

legislation. This will be dealt with in more detail in the section on the classification of dangerous goods.

15. Section 45 of the EDG Act provides that a person intending to store dangerous goods above quantities prescribed in the regulations must apply for and obtain a licence to store the particular dangerous goods before storage commences. Licences are only valid and effective for the purpose for which they are granted. The Chief Inspector may impose conditions, restrictions and prohibitions on a licence in the interests of the safety of life and property.

...

18. The onus in the legislation is on the person intending to store or carry out other activities involving dangerous goods to ensure that they are compliant with the relevant legislative requirements. To assist operators or prospective operators with both compliance issues and technical information, the Resources Safety website contains detailed information on storing, handling and transporting dangerous goods, including guidelines, forms, legislation and publications. In addition, contact details are included to enable individuals who may have specific questions about either practical or technical matters associated with dangerous goods, or about particular requirements under the legislation, to obtain advice directly from dangerous goods officers.

19. Contravention of any of the provisions in the EDG Act is an offence under the Act. A person convicted of an offence against the EDG Act is liable for a fine of up to \$50,000 with an additional fine for continuing offences of \$5,000 per day for each day that the offence continues.

...

Dangerous Goods (Transport) Act 1998

21. The Dangerous Goods (Transport) (Road and Rail) Regulations 1999 (Transport Regulations) and the Dangerous Goods (Transport) (Dangerous Goods in Ports) Regulations 2001 (Ports Regulations) support the Dangerous Goods (Transport) Act 1998 (DG Transport Act). The DG Transport Act and regulations are based on national model legislation designed to implement the Australian Dangerous Goods Code (ADG Code) across all Australian jurisdictions.

22. The classification of substances as dangerous goods is generally based on the provisions of the Australian Dangerous Goods Code (ADG Code). The ADG Code refers specifically to the transport of dangerous goods, but has wider application across all activities involving dangerous goods.

23. Regulation 2.2 of the DG Transport Regulations defines dangerous goods as:

2.2. Dangerous goods

(1) For the purposes of these regulations, goods are dangerous goods if they -

- (a) are named in a specific entry in column 2 in Appendix 2 to the ADG Code, but not in a generic entry or in an entry where the letters "N.O.S" are shown as part of the proper shipping name for the goods;
- (b) satisfy the criteria in column 2 or 9 in the Appendix;
- (c) satisfy the criteria in a Special Provision of the ADG Code that is applied by column 7 in the Appendix;
- (d) are determined under regulation 1.18(a) to be dangerous goods;
or
- (e) satisfy the UN dangerous goods tests and criteria for determining whether goods are dangerous goods.

24. Where the particular dangerous good cannot be clearly identified under the provisions of regulation 2.2 and the person responsible for producing the dangerous goods suspects that they may be dangerous goods, then the person must carry out the appropriate tests to determine whether the goods are dangerous goods.

25. Regulation 1.29(2) prohibits the consignment or transport of such goods unless the person establishes whether or not the goods are dangerous goods.

1.29. Duty to find out whether goods are dangerous goods

(1) This regulation applies if -

- (a) a person manufactures goods in Australia or imports goods into Australia;
- (b) the goods are not dangerous goods under regulation 2.2(1)(a), (b), (c) or (d); and
- (c) the goods are not goods to which a determination under regulation 1.18(b) applies; but
- (d) the person suspects, or reasonably ought to suspect, that the goods satisfy the UN dangerous goods tests and criteria for determining whether goods are dangerous goods.

(2) The person must not consign or transport the goods by road or rail unless the person finds out whether the goods satisfy the tests and criteria.

Penalty: \$3 000.

26. The Transport regulations impose special duties on persons involved in the transport of dangerous goods, including consignors. 'Consignor' is defined in regulation 2.19 as, *inter alia*.

(2) ... a person who, with the person's authority, is named or otherwise identified as the consignor of the goods in shipping documentation for the transport of the goods by road or rail.

(3) ... a person who —

(a) engages a prime contractor or rail operator, either directly or through an agent or other intermediary, to transport the goods by road or rail;

(b) has possession of, or control over, the goods immediately before the goods are transported by road or rail;

27. Both the driver of a vehicle transporting dangerous goods and the vehicle must be licensed under Part 18 of the DG Transport regulations. Regulation 18.5 provides that a 'person must not consign dangerous goods in bulk for transport by road on a vehicle if the person knows, or reasonably ought to know, that the vehicle is not licensed... to transport the goods.' Regulation 4.1 requires a person who consigns dangerous goods for transport by road or rail in bulk to comply with Chapter 4 of the ADG Code in respect of the type of containers which can be used for the transport of the dangerous goods.

28. The Dangerous Goods (Transport) (Dangerous Goods in Ports) Regulations 2001 provide for the legislative application of Australian Standard 3846: The handling and transport of dangerous cargoes in port areas (AS 3846). AS 3846 outlines specific responsibilities for different parties such as the berth operator, the vessel owner and the port authority. The key elements of this Standard include:

- Notifying port authorities of dangerous cargo shipments;
- General requirements and procedures for the safe handling of Dangerous Cargoes;
- Segregating incompatible products;
- Time constraints for products sitting on the wharf. The higher the hazard the shorter the time the product may be kept on the wharf;
- Emergency response procedures, including fire fighting resources;
- Management systems to cover aspects such as training and communication.

29. The berth operator (who is usually the stevedore) has an obligation under the regulations to have in place a safety management system to control the risks associated with the handling and transport of dangerous cargoes in the port area. For land transport to or from the port area, the DG Transport Regulations apply until the product reaches its destination.

30. *Regulation 16 provides that a consignor of a dangerous cargo in a vessel must give the harbour master notification in accordance with Section 3 of AS 3846. A Consignor is defined in regulation 11 to be:*

(2) ... a person who, with the person's authority, is named or otherwise identified as the consignor of the dangerous cargo in shipping documentation for the transport of the cargo in a vessel. or

(3) ... a person who —

(a) engages a person, either directly or through an agent or other intermediary, to transport the dangerous cargo in a vessel; or

(b) has possession of, or control over, the dangerous cargo immediately before it is transported in a vessel.

31. *A person involved in the transport of dangerous goods who fails to comply with a provision of the Act is guilty of an offence and liable to a penalty of up to \$500,000 for a corporation where death or serious injury result from the breach, and for up to \$250,000 otherwise.⁴⁸⁹*

The dangerous goods legislation appears to have imposed obligations on a number of the witnesses who appeared before this inquiry. The person responsible for producing the good was responsible to have the appropriate tests conducted to determine whether it was dangerous. Other relevant obligations included restrictions on the:

- storage of dangerous goods;
- type of packaging of dangerous goods;
- labelling of dangerous goods;
- transport of dangerous goods; and
- handling of dangerous goods through ports.

Persons intending to store or carry out activities involving dangerous goods are obliged to be compliant with these legislative requirements.

Significantly for this inquiry, the dangerous goods legislation appears to have imposed obligations on Magellan Metals Pty Ltd in relation to testing, storing and consigning a dangerous good; on BIS Industrial Logistics in relation to transporting a dangerous good, and on the Esperance Port Authority as a Port handling a dangerous good, and storing a dangerous good.

⁴⁸⁹ Submission No. 93(a) from Resources Safety Division, DoCEP, 19 June 2007, pp9-12.

(g) BIS Industrial logistics

BIS Industrial Logistics (formerly Brambles) was Magellan Metals' cartage contractor. It was involved in carting the Magellan lead concentrate to the Port, where its employees unloaded the concentrate, from April 2005.

Main Roads Western Australia is responsible for issuing relevant cartage permits and advised that BIS had 11 concessional loading permits for triple road trains (53.5 metre), allowing them to cart at concessional loads (23.5 tonnes on tri groups) as far south as Kambalda. It is understood that while BIS normally carted to the railhead at Leonora, cartage to the railhead at Kalgoorlie could be utilised, particularly when rail north of Kalgoorlie experienced serviceability issues associated with poor weather such as cyclonic activity. These permits were issued in August 2005, although the Committee notes that BIS was carting the concentrate since April 2005.⁴⁹⁰

Finding 160

On 4 August 2005, Main Roads Western Australia issued BIS Industrial Logistics with concessional loading permits to cart the Magellan product, although BIS had commenced carting the Magellan product in April 2005.

BIS could also cart directly from Wiluna into Esperance. These permits were not product specific and thirty-nine temporary permits were issued for only a two month period. No evidence was provided that BIS had transported lead concentrate to Esperance by truck, although information available to the Committee supports the view that trucks may have taken the lead carbonate directly into Kalgoorlie from Wiluna.

Main Roads Western Australia indicated that it would expect to be advised if the product being transported at concessional loads was a dangerous good, and stated that Concessional Loading Permits were product specific so the proponent's application must specify the commodity. Main Roads further advised that the BIS applications specified '*lead*' as the product to be carted and there was no mention of '*lead carbonate*'. Because the product was specified to be '*lead*' in BIS' applications it was not identified as a dangerous good when Main Roads assessed the application.

Finding 161

When BIS Industrial Logistics applied for cartage permits from Main Roads Western Australia it incorrectly specified that the product to be carted was '*lead*' and not lead carbonate.

⁴⁹⁰

Submission No. 98 from Main Roads Western Australia, 3 July 2007, pp1,2.

Main Roads also noted that:

*To date Main Roads has not received any formal advice that lead has been reclassified as a dangerous good for transportation purposes.*⁴⁹¹

The issue is not whether lead had been reclassified as a dangerous good; it is that BIS incorrectly advised Main Roads of the nature of the product being carted.

Recommendation 36

The Committee recommends that Main Roads Western Australia review the Committee's findings in relation to the conduct of BIS Industrial Logistics with a view to determining whether further action in relation to BIS Industrial Logistics' cartage permits is warranted.

A sworn statement from Mr Neil David, currently General Manager of BIS Industrial Logistics but at that time Business Unit Manager, stated that he was involved in negotiations regarding a logistics and transportation contract with Magellan and ARG. Mr David stated that he attended a meeting at Magellan's offices in Welshpool in October 2004 and was shown the Magellan lead product which was in a pelletised form. Mr David's statement continued:

Mr Watters advised me that the product to be produced by Magellan and transported by BIS would be consistent with the pelletised samples.

*During my conversation with Mr Watters, he said words to the effect that "the product was currently classified as a dangerous good and was in the process of being re-classified as non-dangerous".*⁴⁹²

Mr David denied that he was aware that the Magellan lead carbonate was a dangerous good class 9 until March 2007.⁴⁹³

However, the evidence of the current Managing Director of BIS Industrial Logistics, Mr Ian Lynass, was that BIS was in possession of a Material Safety Data Sheet for Magellan's lead carbonate identifying it as a class 9 dangerous good prior to March 2007. Mr Lynass also stated:

No we were not [aware that it was a class 9 dangerous good from the outset]. Our original information was that the product was yet to be assessed, and that it would

⁴⁹¹ Submission No. 98 from Main Roads Western Australia, 3 July 2007, p3.

⁴⁹² Submission No. 94 from BIS Industrial Logistics, 27 June 2007, Attachment 1.

⁴⁹³ *ibid.*

*be assessed as a non-dangerous good. That was the information we were provided with directly through the process.*⁴⁹⁴

Mr Lynass agreed that the MSDS was a requirement for the protection of BIS employees and that BIS was aware from the outset that the product was a dangerous good. However, he also stated that although:

Part of the contract [between BIS and Magellan] ... requests Magellan to provide a copy of that [a material safety data sheet]. We received a copy of a material safety data sheet on 22 May this year. Up until that point, one had not been provided [by Magellan], is my understanding.

Although Mr Lynass' evidence was that the contract with BIS and Magellan commenced in August 2005, the earliest Material Data Safety Sheet for the Magellan lead product that BIS could provide to the Committee was dated 2006.⁴⁹⁵

Magellan Metals' evidence to the Committee was that it provided the Chemical Associates Inc. MSDS to BIS Industrial Logistics at the same time that it provided it to the Port (an email to the Port which was copied to the then Brambles on 19 April 2005).⁴⁹⁶ The Committee was provided with copies of the relevant email by both the Port and Magellan.

Finding 162

On the evidence available to it, the Committee is satisfied that, contrary to the evidence of BIS Industrial Logistics, Magellan Metals Pty Ltd provided a copy of a Material Safety Data Sheet for its lead carbonate to BIS Industrial Logistics on 19 April 2005 and that the Material Safety Data Sheet identified the product as hazardous and as a dangerous good class 9.

Finding 163

BIS Industrial Logistics either was aware, or should have been aware, from 19 April 2005 that Magellan's Material Safety Data Sheet for its lead concentrate classified it as hazardous and as a dangerous good class 9, and BIS should have treated the concentrate accordingly.

⁴⁹⁴ Mr Ian Lynass, Managing Director, BIS Industrial Logistics, *Transcript of Evidence*, 5 June 2007, pp1,2.

⁴⁹⁵ *ibid*, p3; Submission No. 94 from Mr Ian Lynass, Managing Director, BIS Industrial Logistics, 27 June 2007, p1.

⁴⁹⁶ Submission No. 33(b) from Magellan Metal Pty Ltd, 7 June 2007, p2.

The evidence of BIS Industrial Logistics was that it believed that it had always treated the Magellan lead concentrate as hazardous and as a dangerous good.⁴⁹⁷ The Committee is not satisfied that the handling processes adopted by BIS, both in relation to its employees' work practices and to transporting the good,⁴⁹⁸ satisfied these obligations. The evidence available to the Committee concerning BIS' handling and transporting practices was that these did not meet the workplace requirements as specified in the relevant MSDS, nor the signage requirements for a class 9 dangerous good. For example, allegations included that there was a lack of adequate induction for workers handling such a hazardous concentrate; a lack of available PPE; fogging up of P2 respirators making these unusable, and which in any event were not appropriate to the nature of the exposure (the MSDS indicated that for high dust levels, Air-line respirators or Powered Air Purifying Respirators were to be worn).

Finding 164

Despite the evidence of BIS Industrial Logistics that it believed it had always treated the Magellan lead concentrate as hazardous and as a dangerous good, the Committee is not satisfied that it did so.

Recommendation 37

The Committee recommends that WorkSafe and the Resources Safety Division of the Department of Consumer and Employment Protection review the Committee's findings concerning the workplace and transport practices adopted by BIS Industrial Logistics to determine if there were potential breaches of relevant legislative obligations.

(h) Esperance Port Authority

The Esperance Port Authority did not deny that it received the specific MSDS for Magellan's lead carbonate on 19 April 2005 which identified the lead carbonate as hazardous and as a dangerous good class 9.

⁴⁹⁷ Mr Ian Lynass, Managing Director, BIS Industrial Logistics, *Transcript of Evidence*, 5 June 2007, p3,4; Submission No. 94 from Mr Ian Lynass, Managing Director, BIS Industrial Logistics, 27 June 2007, pp6,7.

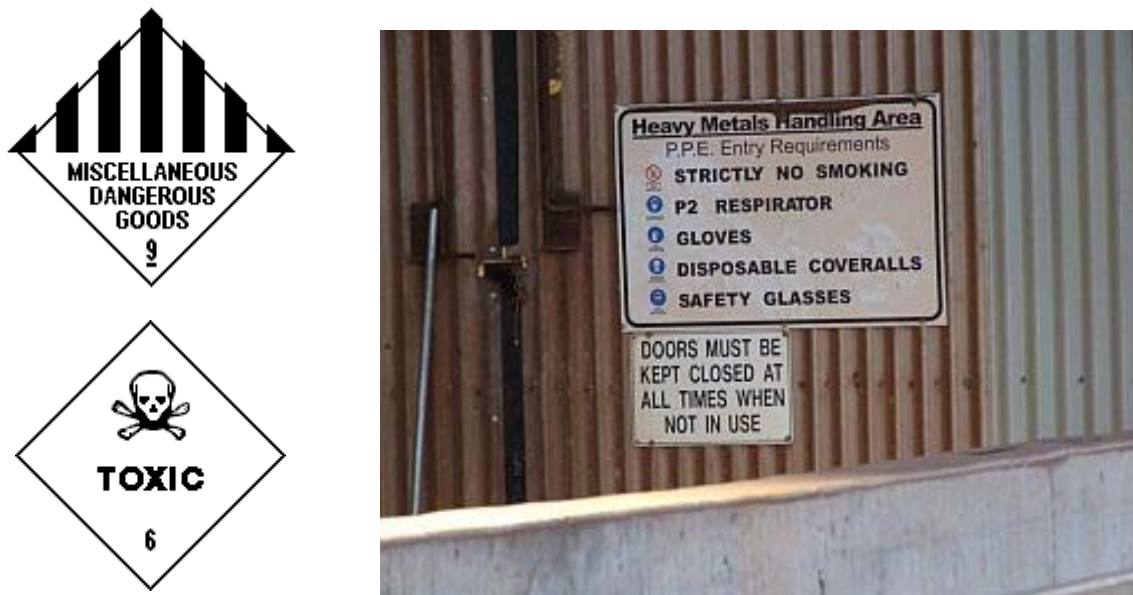
⁴⁹⁸ Closed evidence. Also see Chapter 9.5(a)(ii).

Finding 165

Magellan Metals Pty Ltd provided a copy of a Material Safety Data Sheet for its lead carbonate to the Esperance Port Authority on 19 April 2005 and that Material Safety Data Sheet identified the product as hazardous and as a dangerous good class 9.

It appears that in many respects the Esperance Port Authority had not complied with the appropriate dangerous goods legislative obligations.

Figure 11.1 Main entrance to the lead shed at the Port of Esperance and relevant dangerous goods labels



Note no dangerous (miscellaneous or toxic) goods warning displayed. A Class 9 dangerous good requires the striped sign while Class 6.1 requires the toxic, skull and crossbones to be displayed. It should be noted that P2 respirator is not appropriate for toxic classification under Class 6.1 in dusty areas.

Photograph taken 27 June 2007

The Esperance Port Authority's evidence was that:

The Port did handle the lead concentrate product appropriately.

The Material Safety Data Sheet's classification of lead carbonate as a Class 9 dangerous good does not impose any legal obligation to handle the product in accordance with dangerous goods legislation and regulations, unless it was classified as such by the

Department of Consumer and Employment Protection's Resources Safety Division, as is required by the Australian Dangerous Goods Code.

The Material Safety Data Sheet includes guidelines on how the product should be safely handled. The guidelines require personal protective equipment to be worn by personnel handling the product, spills [to] be promptly cleaned up using a method that minimises dust generation, personnel to wash thoroughly after handling the product, the product be stored in a roofed enclosure, and staff be trained in safe handling practices. The Port handled the product in accordance with all these guidelines.⁴⁹⁹

It also stated that:

The Port was not aware that Magellan had obtained a Material Safety Data Sheet which classified their product as a class 6.1 dangerous good.

If the Port had been aware that lead carbonate had this classification, the Port's handling of the product would have been different because it would have been required to act in accordance with dangerous goods legislation and regulations. For example, DOCEP's Resources Safety Division would have been required to approve the Port's storage of lead carbonate. The Port would have placed a placard on the storage shed with a Class Label, which states the dangerous good class, and an Emergency Information Panel, which includes the proper shipping name of the product, the UN identification number, any Hazchem Code assigned to the dangerous good and the expression "IN EMERGENCY DIAL 000, POLICE OR FIRE BRIGADE". Also, Port personnel would have been trained in the handling of Class 6.1 dangerous goods.⁵⁰⁰

The Committee has evidence available to it which indicates that Mr Colin Stewart, CEO, Esperance Port Authority, received generic Material Safety Data Sheets for lead carbonate on 11 June 2004 and 11 August 2004, both of which classified it as a dangerous good class 6.1, and one of which related to pure lead carbonate. While this may have alerted the Port to the potential danger of the product it was to handle, the Committee accepts the advice of the Resources Safety Division that:

It is not disputed that an examination of the dangerous goods assignment/classification must be made on the actual product and not on pure lead carbonate. Low concentrations of active ingredients may lead to a non-dangerous good classification.⁵⁰¹

The Committee also accepts the Port's submission that a Material Safety Data Sheet's classification of lead carbonate as a Class 9 dangerous good does not, in itself, impose any legal obligation to handle the product in accordance with dangerous goods legislation and regulations.

⁴⁹⁹ Esperance Port Authority, *Addendum to Transcript of Evidence*, Answers to Questions, Hearing 6 June 2007, p16.

⁵⁰⁰ *ibid.*

⁵⁰¹ Submission No. 93(a) from Resources Safety Division, DoCEP, 19 June 2007, p15.

Finding 166

The Committee accepts the Esperance Port's proposition that a Material Safety Data Sheet's classification of material as a dangerous good does not, in itself, impose any legal obligation to handle the product in accordance with dangerous goods legislation and regulations.

If the Port had reason to doubt the validity of the dangerous good classification of the Magellan product, as provided to it by Magellan by way of the MSDS dated 12 April 2005, it was under a duty of care to have the product correctly classified. There is no evidence before the Committee that the Port took any action to establish the veracity or otherwise of the Magellan classification of the lead concentrate provided to it on 19 April 2005 by way of the MSDS.

Finding 167

If the Esperance Port Authority did not accept the classification of the Magellan product as a dangerous good class 9, as Magellan Metals Pty Ltd specified by way of the Material Safety Data Sheet dated 12 April 2005, the Port was under a duty of care to have the product correctly classified.

There is no evidence before the Committee that the Port took any action to establish the veracity or otherwise of the Magellan classification of the lead concentrate provided to it on 19 April 2005 by way of the Magellan Material Safety Data Sheet.

Finding 168

The Esperance Port Authority either was aware, or should have been aware, from 19 April 2005 that Magellan's Material Safety Data Sheet for its lead concentrate classified it as hazardous and a dangerous good class 9, and the Esperance Port Authority should have treated the concentrate accordingly.

The Committee does not understand the view of the Port that it would only need '*to act in accordance with dangerous goods legislation and regulations*' if the lead carbonate was classified as a dangerous good class 6.1 but not if it was a dangerous good class 9.

Finding 169

The Committee does not accept the proposition put forward by the Esperance Port Authority that it would only need ‘*to act in accordance with dangerous goods legislation and regulations*’ if the lead carbonate was classified as a dangerous good class 6.1 but not if it were a dangerous good class 9.

Recommendation 38

The Committee recommends that the Resources Safety Division of the Department of Consumer and Employment Protection review the Committee’s findings concerning workplace, storage and related practices adopted by the Esperance Port Authority to determine if there were potential breaches of relevant legislative obligations.

(i) Magellan Metals Pty Ltd**(i) History**

As indicated earlier in this Chapter, at 11.2(b) and (c), Magellan had a history of claiming that its product was not a hazardous one.

Shortly after a delegation from the Port had visited the Magellan mine site, because of concerns about the safe handling of the product, Mr Trevor Watters the General Manager, Magellan Metals, emailed Mr Colin Stewart, CEO, Esperance Port Authority, on 19 March 2005, and advised:

I am a little surprised that some of the people are more concerned about the lead concentrate than they are with the nickel concentrate given its known carcinogenic properties. The current practices are acceptable for that product, so they are more than adequate for the lead material.

Mr Watters was not the only one who found concerns about the product surprising. On 6 April 2005, the Port’s OH&S Consultant, Mr Kim Riseborough, sent an email to the Port Pirie lead smelter about a proposed visit by delegates from Esperance Port. The email stated:

The issues are not big and can be addressed quite easily... The proposed visit [to Port Pirie] would be a number of safety reps, some senior managers and perhaps myself ... with my experience at Pirie I may be able to take some of the emotion out of the debate... I think that ignorance of the product is generating some unfounded concerns with the workforce.

On 19 January 2006, there was an email exchange between Magellan Metals and the Mining Safety, Division of DoCEP. The original email from Magellan’s Occupational Health Safety and

Environment (OHSE) Coordinator stated that the lead carbonate was not deemed to be a dangerous good and so no licence to transport it was required. When this was queried by the Senior Scientific Officer, Occupational Hygiene, Magellan's OHSE Coordinator responded, copying the email to the registered Mine Manager:

With regards the classing of our concentrate as dangerous goods, it is the management's opinion following review of the Australian Dangerous Goods Regulations and current practice within Australia that to be classed as such the concentrate must have the potential to cause immediate harm to people, property or environment due to the possibility of a fire, explosion, release of flammable, or corrosive materials during a storage or handling incident... There is no explosive or fire risk associated with the product. Any harm is related to longer term exposures, hence its Hazardous Substance categorisation.

When this was queried further, the OHSE Coordinator stated the assumption that the Magellan concentrate was not a dangerous good:

is based on industry practice, other organisations in Australia transporting lead concentrate without a DG class designated include:

- *BHP Minerals Ltd*
- *Kagara Zinc Ltd*
- *Mount Isa Mines Ltd*
- *Normandy Ltd.*

It is of note that none of these companies mine cerussite or handle lead carbonate concentrate.

It may be that working with lead concentrates and products, as both Mr Watters and Mr Riseborough had, caused a degree of scepticism and a sense of superiority in relation to others' knowledge and concerns about potential lead exposure. Significantly what did not appear to have been appreciated was that the *'mining of the lead ore, cerussite, producing a high concentration lead carbonate (77%), is unique in the developed world'*.⁵⁰² The Magellan product was also identified as having potentially *'significantly higher bioactivity than [the] galena (lead sulphide) concentrates that are produced in other areas of the state'*⁵⁰³ (refer to Appendices 6 and 7 also).

⁵⁰² Submission No. 93(a) from Resources Safety Division, DoCEP, 19 June 2007, p14.

⁵⁰³ Facsimile from Senior Chemical Engineer, DME to DEP, 4 May 1999; refer also to Manager, Occupational Health, DoIR, (Internal) Memorandum re 'Magellan Metals Pty Ltd - Wiluna Lead Project Draft PMP', 24 May 2004.

Finding 170

Magellan Metals Pty Ltd's 'mining of the lead ore, cerussite, producing a high concentration lead carbonate (77%), is unique in the developed world', and the concentrate potentially has 'significantly higher bioactivity than [the] galena (lead sulphide) concentrates that are produced in other areas of the state'.

(ii) Workplace practices

Magellan stated that 'There is no evidence before the Committee that suggests the operations of the mine ... caused any escape of lead concentrate into the environment.'⁵⁰⁴ Its evidence was also that it always knew that its product was a dangerous good and treated it accordingly:

*We have always recognised that what we are shipping is lead carbonate. We have always known that it is a dangerous good and that it is poisonous and toxic. Whether it is a dangerous good class 9 or class 6 is the only thing that has been moved in terms of the information the company requires.*⁵⁰⁵

Magellan further stated:

*...it is important to recognise that it is one thing for the Committee to inquire as to whether there is confusion or inaccuracy in determining whether lead carbonate is a "Dangerous Good" for the purposes of the applicable legislation. It is entirely another thing to assert that any of the parties, particularly Magellan, were under any misapprehensions that lead carbonate is **dangerous** in the ordinary sense of the word with the potential to have serious effects on the environment if not handled correctly. There is abundant evidence demonstrating Magellan's acute and ongoing awareness of the **dangerous** qualities of its lead carbonate.*⁵⁰⁶

Two ways of managing the risk of substances in the workplace which are known to be dangerous - in either sense of the word - are adequate biological monitoring of the workforce and appropriate engineering controls as a means of reducing exposure.

Biological monitoring

On 7 December 2005, five DoIR Improvement Notices were issued on Magellan Metals under the *Mines Safety and Inspection Act 1994*. One Notice related to atmospheric contaminants and stated that 'the levels of exposure to atmospheric contaminants has not been adequately assessed to ensure that levels are below exposure standards' due to a lack of atmospheric contaminant sampling between April and November 2005.

⁵⁰⁴ Submission No. 33(c) from Magellan Metals Pty Ltd, 1 August 2007, p2.

⁵⁰⁵ Mr Patrick Scott, Managing Director, Magellan Metals Pty Ltd, *Transcript of Evidence*, 7 June 2007, p2.

⁵⁰⁶ Submission No. 33(c) from Magellan Metals Pty Ltd, 1 August 2007, p4.

Two other Notices identified that no ventilation officer had been appointed and that there was no ventilation log book at the site.

Another Notice identified that there was no suitable risk assessment on employee exposure to hazardous substances and the Register of Hazardous Solutions contained no entries and did not comply with the regulations.

The Copy of the Record Book entry by the Special Inspector of Mines (Occupational Health) noted that:

During the inspection employees and contractors were observed wearing and storing respiratory protection equipment incorrectly. Wearing respirators so that the nose is uncovered and temporary storage of respirators on the chest and neck are practices that significantly reduce the effectiveness of this equipment.

The implementation of the Health, Hygiene and Environment Management Plan (HHEMP) was also described as 'inadequate':

This plan clearly lists procedures and plans for biological monitoring and atmospheric containment monitoring that have not been implemented.

On 16 February 2006, another inspection of the Magellan mine site was conducted under the *Mines Safety and Inspection Act 1994*. The entry from the Record Book by the Senior Occupational Health Inspector noted that:

I have today visited the site to discuss elevated blood levels exhibited by many members of the workforce. I note that the most recent results... indicate a trend towards blood levels decreasing. However, several workers are still returning blood lead levels measuring units in double figures... A possible source of elevated lead exposure, on site is windborne dust, emanating from the solar drying pad. It is therefore satisfying to hear management's plans to further contain dust in this area, by enclosing the loadout portion of the drying pad, and increasing water sprays and bunding barricades, on the other three boundaries.

Storage

A key aspect of dangerous goods legislation concerns the storage of such products. The Resources Safety Division of DoCEP advised:

Magellan Metals held two dangerous goods storage licences for diesel fuel, LP Gas, flammable liquids and corrosive substances and corrosive liquids for the Wiluna mine site. The personnel responsible for obtaining these licences were therefore familiar, or should have been familiar, with dangerous goods legislation in WA.

Magellan started mining at Wiluna in late 2004 and should have treated the concentrate as a dangerous good at that stage...

*... Magellan Metals knew the cerussite was very toxic since they had problems reducing blood lead levels in their workforce to acceptable levels...*⁵⁰⁷

Quite apart from the legislative provisions, if a substance is recognised as dangerous in the ordinary sense of the word, as *'poisonous and toxic'*, it is reasonable to expect that systems would be developed to prevent *'the escape of lead concentrate into the environment'*.

As indicated previously, Magellan's original proposal had been to store its lead concentrate in a shed. Later the concentrate was also stored on an open drying pad, to reduce its moisture content. To gain an indication of how effectively Magellan managed its product as a hazardous substance and dangerous good, particularly in light of the comments from the Senior Occupational Health Inspector, reference can be made to the Magellan Mines Annual Environmental Report, completed in March 2007.

In that document, Magellan reported that there were events impacting on the results of its static dust monitoring licensing conditions, and as a result one of the four 'sampling events' was reported in the wrong form and another was impacted by a severe storm event which lost the results of two of the 12 monitoring sites. The highest reading was recorded between the administration building and the plant, at 240,500 mg of lead per kilogram of dust. The report stated that this was *'not unexpected'* as there had been the removal of a section of the concentrate shed that faced the administration building for installation of a high pressure filter. It is of note that the concentrate shed not only faced the administration building, but also directly faced the crib room.⁵⁰⁸

High levels were also recorded one kilometre from the site (up to 838,200 mg of lead per kilogram of dust), and the report stated: *'Again this result is not unexpected due to its proximity to the operations lead concentrate drying pad.'*

(iii) Classification as a toxic substance

The evidence of the Resources Safety Division of DoCEP was that it directed Magellan to conduct specific solubility tests on its product in line with provisions under the UN Recommendations for the Transport of Dangerous Goods, upon which the Australian Dangerous Goods Code is based and which is adopted into Western Australian law through dangerous goods legislation.⁵⁰⁹ The outcome of this was that on 21 May 2007, Magellan supplied the Resources Safety Division with a new MSDS classifying Magellan's lead carbonate as a dangerous good class 6.1, with a UN No. 2291 (Lead compound soluble N.O.S.).

The Committee, with its limited knowledge of the technicalities of dangerous goods legislation, agrees with Magellan's view that:

⁵⁰⁷ Submission No. 93(a) from Resources Safety Division, DoCEP, 11 June 2007, pp14,15.

⁵⁰⁸ During the briefing at the Magellan mine site on 1 May 2007, the Committee was told that an employee had raised this and Magellan had sealed the area.

⁵⁰⁹ Submission No. 93(a) from Resources Safety Division, DoCEP, 19 June 2007, pp8,10,16.

*The legislation and regulations covering this area are complex and confusing both as regards their application by operators and interpretation by regulators.*⁵¹⁰

The Committee also notes the examples cited by Magellan, of BIS Industrial Logistics and DEC employees incorrectly assessing whether Magellan's product was a dangerous good by going through the ADG Code.⁵¹¹ Magellan's submission acknowledged elsewhere, however, that there were areas requiring '*expertise beyond that of Magellan*' and it did not appear reasonable to expect that such expertise would necessarily reside with DEC or BIS employees either.

Magellan also argued that its product was insoluble in water and therefore did not meet the description in the code for UN Code 2291. The Committee notes that this appears to be contradicted by Magellan's Consultative Environmental Review when it reported that its '*lead solubility indicated highly variable water-extractable Pb*' and the testwork results included '*low solubility*', '*elevated Pb solubility*', and '*consistently characterised by elevated Pb solubility*'.⁵¹² Not having expertise on this issue, the Committee does not propose to comment further, other than to note that when the product was tested by experts on behalf of Magellan the special provision 1999 was used, which requires the solubility of lead compounds to be determined by mixing with hydrochloric acid,⁵¹³ it was found to be 52 to 53 per cent soluble (compounds exhibiting a solubility of five per cent or less are considered insoluble). Those experts concluded that:

For the purposes of DG classification, the "Lead Concentrate" is therefore appropriately considered to be a soluble lead compound...

*... given the solubility result (using the appropriate standard) of 52-53% Magellan Lead Concentrate, it clearly meets the criteria for classification as Class 6.1 (Toxic substances).*⁵¹⁴

The Committee is also of the view that Magellan Metals Pty Ltd failed to ensure that appropriate testing of its lead concentrate was conducted at the outset. If it had ensured that such testing was conducted, the Magellan concentrate would have been identified as a dangerous good class 6.1 since April 2005.

⁵¹⁰ Submission No. 33(c) from Magellan Metals Pty Ltd, 1 August 2007, p4.

⁵¹¹ *ibid*, p5.

⁵¹² Magellan Metals Pty Ltd, *Consultative Environmental Review - Magellan Lead Carbonate Project*, September 1999, p13.

⁵¹³ Submission No. 93(a) from Resources Safety Division, DoCEP, 19 June 2007, p14.

⁵¹⁴ Toxikos document TC010507-RJF, *Dangerous Goods Classification of Magellan Lead Carbonate*, 2 May 2007.

Finding 171

Based on testing conducted in May 2007, the Committee finds that Magellan's lead concentrate is appropriately considered to be a soluble lead compound, in accordance with special provision 199 of the Australian Dangerous Goods Code, and it clearly meets the criteria for classification as a dangerous good class 6.1 (Toxic Substances).

The Committee is also of the view that Magellan Metals Pty Ltd failed to ensure that appropriate testing of its lead concentrate was conducted when the Magellan concentrate was first analysed in April 2005.

Finding 172

On the evidence available to it, the Committee does not accept the submission of Magellan Metals Pty Ltd that it recognised the danger of its product, either in the general sense of the word, or within the meaning of the dangerous goods legislation.

Recommendation 39

The Committee recommends that the Resources Safety Division of the Department of Consumer and Employment Protection review the Committee's findings concerning workplace, storage and related practices adopted by Magellan Metals Pty Ltd to determine if there were potential breaches of relevant legislative obligations.

(iv) The different transport requirements for class 6.1 and class 9 substances

Magellan Metals argued that whether the lead carbonate was classified as either a dangerous good 6.1 or 9, this would not have impacted on its transportation, and stated:

Whether the lead carbonate is classified 6.1 or 9:

- (a) it can legally and safely be transported under the Regulations in bulk;*
- (b) it can legally and safely be transported under the Regulations in sheeted kibbles;*
- (c) the Regulations do not require for any approval of the kibbles by any authority;*
- (d) the Regulations do not specify any particular method of transporting the product.*

*The major difference between the two classifications is the signage to be placed on the packaging or kibbles. Class 6.1 requires the signage to include the word "Toxic" and show a skull and cross bones. Class 9 requires the signage to be a yellow and black bar design with the words "Miscellaneous Dangerous Goods".*⁵¹⁵

It is true that both Class 6.1 and 9 packaging requirements were the same - being 'Packaging Group III'. It is also true that there is little detail of what this entails in the relevant codes and legislation, although the differences in labelling and placarding could have assisted in ensuring a higher level of care with a product identified as toxic.

It appears that more recent versions of the United Nations Recommendations on the Transport of Dangerous Goods include more rigorous and detailed requirements in relation to packaging. However in WA, and across Australia, the current Australian Dangerous Goods (ADG) Code (the 6th Edition) continues to be based on the 9th Edition of the UN Recommendations. The Code was approved by the Ministerial Council for Road Transport and was endorsed by the Australian Transport Council (ATC) and is implemented by State and Territory legislation such as WA's dangerous goods legislation. Ministers MacTiernan and Kobelke currently represent Western Australia on the ATC.

In 2002, the ATC requested a review of the ADG Code 6th Edition and its supporting legislation. A 7th Edition of the Code was developed with revised model legislation, an Information Guide and a Regulatory Impact Statement. The technical requirements of ADG Code 7th Edition are based on provisions of the United Nations Recommendations on the Transport of Dangerous Goods, Model Regulations, 14th Revised Edition, and on Australian-specific content taken from the ADG 6th Edition. Consistency with the UN Recommendations means the ADG Code 7th Edition will now be aligned with Australia's maritime and aviation dangerous goods requirements.

Ministers on the ATC voted unanimously in February 2007 to approve the ADG Code 7th Edition with a proposed date of 1 January 2008 for implementation. DoCEP would like to see this implemented earlier in WA and believe early implementation will not adversely impact on industry.⁵¹⁶

Finding 173

The Australian Dangerous Goods Code and related legislation has not maintained currency with revisions of the United Nations Recommendations on the Transport of Dangerous Goods on which the Code is based.

⁵¹⁵ Submission No. 33(b) from Magellan Metals Pty Ltd, 1 August 2007, "MSDS", p1.

⁵¹⁶ Email from Ms Louise Jones, Department of Planning and Infrastructure, 7 August 2007.

Recommendation 40

The Committee recommends that the Ministers representing Western Australia on the Australian Transport Council give consideration to initiating a review of the Council's processes to determine whether a more streamlined approach could be implemented to adopt revisions of the United Nations Recommendations on the Transport of Dangerous Goods into the Australian Dangerous Goods Code.

(v) Magellan Metals now

When the Committee conducted a site visit of the Magellan mine site on 1 May 2007 (although the mine was not operational), it appeared that Magellan had put considerable emphasis on improving its workplace management of the hazards associated with its product, compared to its approach in late 2005, early 2006. For example, Magellan applied more stringent blood lead level standards than are required under the National Standard for the Control of Inorganic Lead at Work.⁵¹⁷ The number of its employees and contractors exhibiting blood lead levels over 25 µg/dl had declined consistently and markedly between January 2006 and March 2007 (while the mine was operational).⁵¹⁸

Magellan advised in its recent submission that DoCEP '*strongly supports*' its current proposal for '*sealed and containerised product transport*' and described it as '*a very good containment system offering good public safety and a low risk of loss containment*'.

However, it is also the case that in Magellan's most recent submission to the Committee there appears to be a continuing failure to adequately appreciate the uniqueness and the associated health and environmental risks of the particular material it was producing and handling. It stated:

The overall system that was developed to mine, transport and export Magellan's concentrate product was typical of that in place for similar mining operations. Whilst Magellan's product is a carbonate, the systems adopted by the lead industry generally with respect to sulphide product are appropriate and applicable. The issue of the special characteristics of lead carbonate is a "red herring". If Magellan's product was a sulphide, what has happened in Esperance would still be unacceptable.

...

⁵¹⁷ NOHSC:1012(1994).

⁵¹⁸ Smith, E, Health Advisor OHS&E Department, Magellan Metals Pty Ltd, 'Occupational Health Blood Lead Levels - 2007'.

*It is Magellan's submission that the systems put in place, and approved by the relevant Government Authorities are the industry standard for the mining, transport and export of products such as Magellan's.*⁵¹⁹

The industry standards referred to by Magellan apply to products other than to the toxic substance that was Magellan's lead carbonate. For a detailed example of how that 'industry standard' can consist of practices and infrastructure that are very different to the Magellan operations, refer to Appendix 7.

Finding 174

Despite significant improvement in the management of its workforce's exposure to lead and the proposed methods for transporting its lead concentrate, the submission of Magellan Metals Pty Ltd to this Committee dated 1 August 2007 failed to adequately appreciate the uniqueness and the associated health and environmental risks of the particular material it proposes to mine, process, transport and export (refer to Finding 183).

(j) Conclusion

This chapter has raised serious concerns about the identification and handling of hazardous and dangerous goods.

Some concern was expressed by the Committee when evidence was taken from the Resources Safety Division that it had accepted the advice of the manufacturer in relation to the classification of their product. Dr Peter Drygala, Director, Dangerous Goods Safety, responded:

*You must appreciate that there are many thousands of consigners and many thousands of dangerous goods and we cannot check something that we do not know about.*⁵²⁰

In its subsequent submission, the Resources Safety Division of the Department further advised:

There are currently 6,700 licensed dangerous goods storage sites in WA. Licensed sites range across a broad spectrum, from the local service station storing petrol and other flammable liquids, schools and hospitals in country areas storing LPG for heating, chlorine storage for water treatment at reservoirs and public swimming pools, to large chlorine manufacturing plants, oil refineries and petrochemical plants. At present Resources Safety has 16 dangerous goods inspectors (including four management positions). Of these 16 inspectors, four are specialist explosives inspectors, five work as safety assessors for the twenty five very large dangerous goods sites which are classified

⁵¹⁹ Submission No. 33(c) from Magellan Metals Pty Ltd, 1 August 2007, p2.

⁵²⁰ Dr Peter Drygala, Director, Dangerous Goods Safety, DoCEP, *Transcript of Evidence*, 5 June 2007, p5.

*as Major Hazard Facilities, and the remainder are responsible for regulation of the balance of the licensed sites, other dangerous goods sites and dangerous goods transport.*⁵²¹

The Committee notes the Department's evidence about the large number of licensed dangerous goods storage sites and the relatively small number of dangerous goods inspectors. It also notes the range of activities relating to dangerous goods that fall within its regulatory functions, as set out in Chapter 11.2(f). The Committee accepts that it is often not feasible for the Department to do anything other than to rely upon those persons intending to store or carry out other activities involving dangerous goods to ensure that they are compliant with the relevant legislative requirements.

Finding 175

There are a large number of licensed dangerous goods storage sites and a broad range of activities relating to dangerous goods that fall within the regulatory functions of the Resources Safety Division.

There are a relatively small number of dangerous goods inspectors.

The Committee accepts that it is often not feasible for the Department of Consumer and Employment Protection to do other than rely upon those persons intending to store or carry out other activities involving dangerous goods to ensure that they are compliant with the relevant legislative requirements.

The Committee expressed some concerns during the hearing about the adequacy of available penalties to encourage compliance with dangerous goods legislation, particularly in relation to the maximum \$3,000 fine for a manufacturer who failed to properly undertake the dangerous goods classification process.⁵²²

However, the Committee noted the advice of Mr Brian Bradley, the Director General of DoCEP, that:

*We are looking to update the dangerous goods legislation, and there will be fresh penalties, substantially increased on that figure, and that particular penalty that you referred to is in the regulations, so that will have the ability of lifting those regulation penalties.*⁵²³

⁵²¹ Submission No. 93(a) from Resources Safety Division, DoCEP, 19 June 2007, p10.

⁵²² Refer to Hon Dr Kim Hames MLA, Chairman, Education and Health Standing Committee, *Transcript of Evidence*, 5 June 2007, p6.

⁵²³ Mr Brian Bradley, Director General, DoCEP, *Transcript of Evidence*, 5 June 2007, p6.

The Committee was also satisfied on the subsequent information provided by the Department that at least some of the current penalties are more substantial, particularly those:

- for persons convicted of an offence against the *Explosives and Dangerous Goods Act 1961* (\$50,000), with an additional daily fine (\$5,000) for continuing offences; and
- for persons failing to comply with the provisions of the *Dangerous Goods (Transport) Act 1998* resulting in death or serious injury (\$600,000); or otherwise (\$250,000).

Finding 176

Given that compliance with dangerous goods legislation is largely self-regulatory, the Committee welcomes the advice of the Department of Consumer and Employment Protection that this legislation is being updated, with substantially increased penalties being considered.

The Committee is also satisfied that, on the information provided by the Department subsequent to the Committee's hearings, at least some of the maximum penalties under relevant dangerous goods legislation are substantial, particularly those:

- for persons convicted of an offence against the *Explosives and Dangerous Goods Act 1961* (\$50,000), with an additional daily fine (\$5,000) for continuing offences; and
- for persons failing to comply with the provisions of the *Dangerous Goods (Transport) Act 1998* causing death or serious injury (\$600,000); or otherwise (\$250,000).

This inquiry has highlighted some of the problems with the current emphasis on self-regulation as a means for ensuring adequate protection of public health and the environment. The Minister for Planning and Infrastructure was asked if she believed that the present legislative framework which imposes commercial constraints on ports, would impact on their capacity to take into account issues such as public health in the absence of strict legal requirements and an effective enforcement regime. Her response was:

*Absolutely not. ...There is absolutely nothing, I believe, in conflict about being required to endeavour to make a profit and to discharge all the legal responsibilities, including the responsibilities in relation to the environment.*⁵²⁴

The Committee accepts that ultimately it will not be possible to ensure compliance with a regime such as dangerous goods regulations through direct monitoring and inspection, even if that were desirable. Nevertheless the Committee noted the advice from DoCEP that, in conjunction with the

⁵²⁴ Hon Alannah MacTiernan, Minister for Planning and Infrastructure, *Transcript of Evidence*, 7 June 2007, p12.

current review of heavy metals handling in State ports by the Department of Environment and Conservation:⁵²⁵

as a result of this particular issue, DoCEP is implementing a procedure which will in future systematically review the dangerous goods classifications of all heavy metals concentrates that are being exported from WA ports to make sure that, regardless of the mining companies' responsibility to provide the correct dangerous goods classification, any potentially toxic heavy metal concentrates have been properly classified as a dangerous good of class 6.1 (toxic substance).⁵²⁶

Finding 177

The Committee noted the advice from the Department of Consumer and Employment Protection that it is implementing a procedure which will in future systematically review the dangerous goods classifications of all heavy metals concentrates that are being exported from Western Australian ports. This is intended to make sure that, regardless of the mining companies' responsibility to provide the correct dangerous goods classification, any potentially toxic heavy metal concentrates are properly classified as dangerous goods class 6.1 (Toxic Substances).

11.3 Nickel

The Committee remains alert to its terms of reference and the fact that its inquiry was into lead, and not nickel, pollution in the Esperance area.

Nevertheless there was a great deal of evidence provided to the Committee, in particular from members of the Esperance community, about the impacts of the movement of nickel concentrate through the town and the Port. Much of the evidence available to this Committee in relation to lead pollution in the Esperance area included detail of nickel contamination (refer to Chapter 2).

It is also the case that nickel contamination of the marine sediment, rainwater tanks and the ambient air near the Port was a significant factor considered by the Committee in assessing the adequacy of the Port's response when it agreed to bulk handle the Magellan lead concentrate.

The Committee was particularly conscious of the Director General of the Department of Health, Dr Neale Fong's initial response to the decision by the Department of Environment and

⁵²⁵ DEC, Media Statement, 'DEC carries out ports assessment', 12 July 2007.

⁵²⁶ Submission No. 93(b) from Resources Safety Division, DoCEP, 11 July 2007, p2.

Conservation to prohibit the handling of lead concentrate through Esperance Port. Dr Fong questioned why the prohibition had not also extended to the bulk handling of nickel.⁵²⁷

The Committee therefore welcomed the appointment of Mr Michael Jackson, *'a health consultant and formerly a senior Department of Health officer'*, by the Minister for Planning and Infrastructure, to assist in the coordination of the Government response in relation to both lead and nickel contamination at Esperance.⁵²⁸

Finding 178

The Committee was pleased that the coordinator appointed by the Minister for Planning and Infrastructure to assist in the government response in Esperance had responsibilities for both lead and nickel contamination.

The Committee itself has not undertaken the inquiries, research or analysis that could justify it making recommendations of the nature called for in many of the submissions to this inquiry suggesting that bulk handling of nickel concentrate through Esperance Port cease and be replaced by containerisation of the product. Nonetheless the Committee feels under a duty of care to recommend that there should be a study of the health effects of nickel exposure, as it believes this would be of great assistance to members of the Esperance community, and more broadly, by establishing a basis upon which the adequacy of current industry handling practices could be assessed.

Recommendation 41

The Committee recommends that there be a study of the health effects of nickel exposure, upon which an assessment of the adequacy of current nickel mining, transport and handling practices can be made.

⁵²⁷ Letter from Dr Neale Fong, Director General, Department of Health, to Mr Keiran McNamara, Director General, Department of Environment and Conservation, 23 March 2007, p2. Dr Fong's evidence was that he subsequently revised this position when he was assured that nickel outloading would only take place under rigorous monitoring to ensure that there was no escape of contaminants into the environment and results would be reported to the Department of Health (Dr Neale Fong, Director General, Department of Health, *Transcript of Evidence*, 5 June 2007, p4).

⁵²⁸ Minister for Planning and Infrastructure, Media Release, 'More action to ensure Esperance response is effective', 16 May 2007.

11.4 Response to the lead pollution

Dr Donald Howarth, currently a general practitioner in Esperance, but with many years experience of working with the lead pollution in Broken Hill, made the following comparison:

In fairness to the Department of Health in Western Australia, initially they seemed a bit stunned and not quite certain of what directions to take, but I must commend them on something: in Broken Hill the local paediatrician and I ended up with a series of, I think, 52 children that had among them some very high lead levels and the overall average was fairly worrying, and certainly about a quarter of them had really quite high lead levels. It took us and the local vets and a few other people around town about eight to nine months, as I recall, before we managed to crank the department into action and for them to then do a testing of children's lead levels in Broken Hill. I would say the learning curve was followed very quickly here compared with Broken Hill, really quite magnificently so compared with Broken Hill.⁵²⁹

There was, nonetheless, a great deal of concern expressed by members of the Esperance community, particularly initially, over the government response to the lead pollution in the Esperance area, and in the Committee's view this response has not consistently been based on best-practice. For example, the Committee was concerned by:

- the proposal to empty contaminated rainwater tanks onto residents gardens;⁵³⁰
- the lack of support and information for parents whose children had elevated lead levels;⁵³¹
- the lack of early and specific advice to expectant and nursing mothers;⁵³² and
- the provision of free HEPA vacuum cleaners without any assistance in terms of the difficult and extensive work involved in cleaning entire houses, including ceilings.⁵³³

⁵²⁹ Dr Donald Howarth, *Transcript of Evidence*, 3 May 2007, p9.

⁵³⁰ Mr Jack Woodhouse, *Transcript of Evidence*, 3 May 2007, p6.

⁵³¹ Submission No. 21(e) from Ms Natasha Woodhouse, 24 May 2007, p2. Refer also to the comments of the LED group extracted at pp329,330.

⁵³² When asked what advice was given to expectant mothers, the Dr Robertson of the Department of Health responded: *'Our advice is obviously to try to decrease the exposure'* (Dr Andrew Robertson, Chief Health Officer, Department of Health, 30 April 20007, p.7). Dr Fong responded to subsequent questioning about what specific advice was made available for expectant and young mothers by stating that information had been circulated but that:

*It was not specific advice for pregnant mothers, but was general advice that is the same as would be given for anyone else. When Professor Alison Jones visited Esperance a couple of weeks ago, independent of us, she held a meeting in the Esperance hospital conference room for pregnant ladies, and so there was an opportunity for women who are pregnant to receive some consultation and advice from an independent person. (Dr Neale Fong, Director General, Department of Health, *Transcript of Evidence*, 5 June 2007, p11).*

Finding 179

Although the response to the lead pollution in the Esperance area was relatively rapid, the Committee has concerns about aspects of that response; specifically:

- the initial proposal to empty contaminated rainwater tanks onto residents gardens;
- the lack of support and information for parents whose children had elevated lead levels;
- the lack of early and specific advice to expectant and nursing mothers; and
- the provision of free HEPA vacuum cleaners without any assistance in terms of the difficult and extensive work involved in cleaning entire houses, including ceilings.

(Refer to Findings 10, 11, 180, 184, 187, 188 and Recommendations 2 and 42 also.)

One key issue in the early stages for the government response was coordination. For example, Ms Natasha Woodhouse informed the Committee that:

at the meeting at the civic centre held by the government departments...we asked the department of environment and conservation "Why were there no signs on the beach near the port telling tourists not to go on the beach or in the water or signs in the playground - not to play there for locals and tourists. Children are always eating the dirt and playing at ground level where the lead dust would have settled. The DEC told us that's not our department - go ask the department of health. The health department representatives told us that's not our department ask the DEC."⁵³⁴

Mr Ben Curtis, on behalf of the LED group, also highlighted the initial difficulties confronting community members in accessing relevant information and a lack of coordination:

LED has serious concerns however about the coordination of the lead contamination saga. We believe it is very important that a coordinated approach between all departments is taken considering the levels of lead coming in from swab samples at the moment.

I understand Alannah MacTiernan made a commitment for immediate coordination some time ago but this is simply not happening. I will provide you with some examples of this.

- *I had an email from Brian Gulson (lead expert) asking if I thought LED could help find children with high blood lead levels for the DEC because the Health*

⁵³³ Department of Health, Media Release, 'Esperance residents urged to clean dust from homes', 6 June 2007

⁵³⁴ Submission No. 21(c) from Ms Natasha Woodhouse, 3 May 2007, p1.

Department wouldn't help them due to confidentiality. The Health Department could surely have written to parents on behalf of DEC asking them to participate?

- *Swab test results taken 3 weeks ago are just coming back because residents are phoning Martin Madison (Health toxicology) to get their results. Swab test data is alarmingly high with results over 1000 times safe limits. These should be sent down with a lightening bolt so people can ensure they are not re contaminating their children (as in my case) Apparently they were going to write me a letter next week! This is TOO slow. I only found out because I phoned.*
- *Port Authority is just implementing a rain water tank cleaning program this week. Coincidentally a roof swab was taken in town central with astronomically high lead levels and the owner was warned not to drink water that came off this roof. The Port Authority are telling me that Health and DEC are not communicating with them.*
- *Health Department currently have an advice sheet out saying to put your rainwater on the garden so the sludge can be cleaned out and taken away. We do not believe this is sound advice. Martin Madison tells me that it depends on what your tank lead levels are, which part of the garden you put it on, if there is vegetation etc. This is not mentioned in their advice sheet. Some residents may have already removed the water into their gardens.*

I personally feel like we are being let down by a slow and poorly coordinated response to this. It is so important that we are helped to avoid any possible further recontamination from the existing lead in our homes and gardens. I simply don't think this is happening.⁵³⁵

The LED submission reflected similar concerns raised in numerous other submissions from Esperance community members.

Finding 180

The initial government response to lead pollution in the Esperance area lacked coordination; in particular there was a lack of clear delineation of the various agencies' responsibilities, extended delays in providing information and results to community members, and unnecessary impediments to the sharing of relevant information.

The appointment of Mr Michael Jackson, on 16 May 2007, by the Minister for Planning and Infrastructure to assist in the coordination of the Government response appears to have been a very positive initiative in addressing at least some of these issues.⁵³⁶

⁵³⁵ Submission No. 15(e) from Locals for Esperance Development, 8 May 2007.

⁵³⁶ Minister for Planning and Infrastructure, Media Release, 'More action to ensure Esperance response is effective', 16 May 2007.

The Committee also welcomed the news that subsequently an advisory group had been formed in Esperance to create a conduit for information about lead and nickel contamination between the Government and the local community. The Esperance Community Reference Group (ECRG) includes members from community groups LED and LEAF, the Shire of Esperance, State Government agencies and the Esperance Port Authority.⁵³⁷

Finding 181

The Committee welcomed the appointment of Mr Michael Jackson, *'a health consultant and formerly a senior Department of Health officer'*, on 16 May 2007, by the Minister for Planning and Infrastructure, to assist in the coordination of the government response. It also welcomed the subsequent establishment of an advisory group, which included a number of local community groups, to create a conduit for information about contamination between the government and the local community.

(a) Ongoing contamination

An ongoing issue of concern for the Committee remains the affect on the children contaminated by the lead pollution. As indicated, in Appendix 8, the priority issue in responding to the contamination of children is that the contamination cease. Stopping the contamination of the Esperance environment should also address other concerns highlighted in submissions to the Committee, such as the potential impact on local property values and loss of income incurred through the potential downturn in tourism related industries.

The risk of any further lead contamination in the Esperance area should be addressed by:

- the decision that Magellan's lead concentrate will no longer be bulk handled by Esperance Port; and
- the community's role in overseeing the removal of the remaining concentrate stored at the Port.⁵³⁸

⁵³⁷ DEC, Lead Issue Update, Issue No. 2, June 2007.

⁵³⁸ Ivernia, Media Release, 'Ivernia's Magellan Metals briefs Esperance Community Consultative Group on proposed lead concentrate removal plan', 27 April 2007.

Finding 182

The risk of any further lead contamination in the Esperance area should be addressed by:

- the decision that Magellan's lead concentrate will no longer be bulk handled by Esperance Port; and
- the community's role in overseeing the removal of the remaining concentrate stored at the Port.

The issue of further lead contamination may be addressed for Esperance; but the question remains of what is to happen to any future export of Magellan's lead concentrate. The Committee notes that the Environmental Protection Authority has recently announced that it has received an amended proposal from Magellan Metals Pty Ltd which is available for public comment for two months.

After the Environmental Protection Authority reports its assessment to the Minister, the Minister will take further submissions directly from the public for a further two weeks. The proposal involves transporting the lead concentrate in sealed bags, inside sea containers, to Fremantle for export.⁵³⁹

The decision by Magellan Metals Pty Ltd to containerise its lead concentrate at the mine site for future transport and export, if effectively implemented and monitored, may minimise the risk of lead pollution occurring off-site anywhere else.⁵⁴⁰

Finding 183

The decision by Magellan Metals Pty Ltd to containerise its lead concentrate at the mine site for future transport and export, if effectively implemented and monitored, may minimise the risk of lead pollution occurring off-site.

The other factor in ongoing contamination is to remove any existing lead pollution from the Esperance environment. As indicated, the Department of Health announced:

*free use of specialised vacuum cleaners to encourage Esperance residents to remove any sources of lead or nickel dust from in and around their homes.*⁵⁴¹

⁵³⁹ Environmental Protection Authority, Media Statement, 'Environmental Protection Authority to assess lead export through Fremantle', 13 August 2007.

⁵⁴⁰ Magellan Metals Pty Ltd, 'Plan to transport lead concentrate through the Port of Fremantle', July 2007.

It appears to the Committee that the offer of free access to specialised vacuum cleaners, although positive, is not sufficient to ensure that residential properties are adequately decontaminated (refer to Appendix 8).

Finding 184

The Committee views the offer of free access to specialised vacuum cleaners to assist Esperance residents to remove the sources of lead dust in and around their houses as positive, but as an inadequate response to ensuring the decontamination of the Esperance area (refer to Appendix 8).

The oral route is the most common route of absorption for the general public and is particularly a concern for children where eating soil or 'pica' accounts for a large proportion of high lead levels in children. Dust is considered a major source of lead intake in children under the age of two.⁵⁴²

Finding 185

Dust is considered a major source of lead intake in children under two years of age.

Further efforts need to be made to ensure that household dust is no longer a source of ongoing contamination. For all children with blood lead levels above five micrograms per decilitre the Department of Health should test household dust for lead contamination and, if present, fund the professional cleaning of the dwelling.

The Committee also notes (refer to Chapter 2.2(d)) that household testing for dust contamination appears to have been limited and, for example, did not include ceiling spaces. As Dr Howarth advised the Committee:

They certainly did a lot of decontamination work in Broken Hill. There was a lot of looking at the most dangerous sources, such as ceiling dust, and sealing up the joints. Houses in Broken Hill tend to expand and contract a fair bit with the temperatures, and so houses would leak between the ceiling and the wall. You always put cots on the wall in children's bedrooms in a house, do you not? You always push the cot up against the wall. I am not sure why, but we all do it. You get ceiling dust creeping down the wall and, of

⁵⁴¹ Department of Health, Media Release, 'Esperance residents urged to clean dust from homes', 6 June 2007.

⁵⁴² Koller, Brown, Spurgeon and Levy *Recent Developments in Low-Level Lead Exposure and Intellectual Impairment in Children*, Environmental Health Perspectives, Volume 112, No 9, June 2004, p988.

*course, ceiling dust is at its highest level just inside the eave, because it comes in under the corrugated iron.*⁵⁴³

The Committee believes that the ceiling space is a potential source of household recontamination if not cleaned.

Finding 186

The Committee believes that the ceiling space is a potential source of household recontamination if not cleaned.

Recommendation 42

The Committee recommends that for all children with blood lead levels above five micrograms per decilitre, the Department of Health should test household dust for lead contamination and, if present, fund the professional cleaning of the dwelling.

The Committee notes the advice of DEC that it would be commissioning a Health and Ecological Risk Assessment for the Esperance townsite area and transport route and *'identify whether any further remediation actions are necessary in this area'*.⁵⁴⁴ The Committee wishes to draw its concerns about the adequacy of the government response to the lead pollution to the agency conducting this assessment. The Committee also recommends that government commit to funding the full cost of any additional remediation actions that are identified and is also of the view that government should pursue responsible parties to recoup the costs associated with any remedial action, as appropriate.

Recommendation 43

The Committee recommends that its concerns about the adequacy of the government response to the lead pollution be drawn to the attention of the agency contracted, by the Department of Environment and Conservation, to conduct a Health and Ecological Risk Assessment for the Esperance townsite area and transport route.

⁵⁴³ Dr Donald Howarth, Medical Practitioner, *Transcript of Evidence*, 3 May 2007, p5.

⁵⁴⁴ Submission No. 27(d) from DEC, 5 June 2007.

Recommendation 44

The Committee recommends that government commit to funding the full cost of any additional remediation actions that are identified as a result of the Department of Environment and Conservation Health and Ecological Risk Assessment for the Esperance townsite area and the transport route.

The Committee is also of the view that government should pursue responsible parties to recoup the costs associated with any remedial action, as appropriate.

(b) Is it working?

The Committee was pleased to note the recent press reporting of comments by the Goldfields public health physician, Dr Charles Douglas, indicating that 45 of the 83 children who had been identified as having elevated blood lead levels had been retested and 42 had shown a drop in levels between one and eight micrograms per decilitre.⁵⁴⁵ However, as the Department of Health has not provided a detailed breakdown of the results, either publicly or to the Committee, the Committee is not in a position to endorse the reported comments of Mr Michael Jackson, the coordinator for the government response to the lead pollution of Esperance, that '*the drop indicated that a wide-spread clean-up of contaminated areas was working*'.⁵⁴⁶

Only some one third of the children under the age of five years in the Esperance area⁵⁴⁷ were included in the original blood testing; approximately half of those identified as having elevated blood levels participated in the follow-up testing. The Committee has concerns that although very reliable, the invasive nature of the Department of Health's preferred venous blood testing may have hindered, and possibly continues to hinder, the broader participation of children in the blood lead monitoring program.⁵⁴⁸ (Alternative methods are discussed in Appendix 8.)

⁵⁴⁵ Thompson, J, 'Children's lead levels drop after band, clean-up', *The West Australian*, 1 August 2007, p17.

⁵⁴⁶ *ibid.*

⁵⁴⁷ Based on the ABS estimate of 929 children under the age of five in Esperance Local Government Area (ABS, *2006 Census of Population and Housing Esperance (S) (Local Government Area) - WA*, (Cat. No. 2068.0).

⁵⁴⁸ Mrs Lisa Helenius, *Transcript of Evidence*, 3 May 2007, p11.

Finding 187

Only approximately one-third of children under the age of five years in the Esperance area were included in the original blood testing; approximately half of those identified as having elevated blood lead levels participated in follow-up testing. The Committee has concerns that although very reliable, the invasive nature of the Department of Health's preferred venous blood testing may have hindered, and possibly continues to hinder, the broader participation of children in the blood lead monitoring program.

The initial testing results available to the Committee indicate that:

- eighty-nine per cent of the original group of children tested who had elevated blood lead levels (79 of 83) had elevated blood lead levels of between five and nine micrograms per decilitre;⁵⁴⁹
- approximately half of the children with elevated blood lead levels were retested (45 out of 83); and
- only sixty four per cent of the children retested (29 of 45) three months later had blood lead levels that declined to under five micrograms per decilitre.

With a half life of lead in blood of approximately one month, it might have been expected that a greater proportion of children would have reduced blood lead content to under five micrograms per decilitre.⁵⁵⁰ While the Committee has insufficient information to draw any conclusions, the results therefore do not appear altogether positive. This data is consistent with some ongoing exposure, or with longer-term exposures.⁵⁵¹

⁵⁴⁹ The remaining four children tested had blood lead levels of 10 micrograms per decilitre and higher.

⁵⁵⁰ The original results for the 45 children retested are not available. It is possible that of the 45 children retested, between 45 and 41 were children whose original levels were between 5µg/dl and 9µg/dl (depending on how many of the four children whose levels were 10µg/dl and higher were retested). Therefore, if the blood lead half life was after the initial exposure, it would be reasonable to expect that between 100 and 91 per cent of blood lead levels would have declined to under 5µg/dl.

⁵⁵¹ If there has been a longer term exposure, blood lead content may increase because of lead leaching from bones into the blood stream.

Finding 188

The initial results for the retesting of children with elevated blood lead levels available to the Committee indicate that:

- eighty-nine per cent of the original group of children tested with elevated blood lead levels (79 of 83) had elevated blood lead levels of between five and nine micrograms per decilitre;⁵⁵²
- approximately half of the children with elevated blood lead levels were retested (45 out of 83); and
- only sixty four per cent of the children retested (29 of 45) three months later had blood lead levels that declined to under five micrograms per decilitre.

With a half life for lead in blood of approximately one month, it might have been expected that a greater proportion of children would have reduced blood lead content to under five micrograms per decilitre.

While the Committee has insufficient information to draw any conclusions about the results these do not appear altogether positive. This data is consistent with some ongoing exposure, or with longer-term exposures.

(c) Managing the potential affects of lead pollution

As detailed in Appendix 8, there is evidence that prolonged exposure to lead can result in intellectual impairment for children with blood lead levels of under 10µg/dl. There have been no equivalent studies of children exposed for shorter periods, such as occurred in Esperance, with a potential maximum exposure of approximately two years.

Finding 189

There is evidence that prolonged exposure to lead can result in health impacts, particularly cognitive deficits, for children with blood lead levels of under 10 micrograms per decilitre.

There have been no equivalent studies of children exposed for shorter periods, such as occurred in Esperance, with a potential maximum exposure of approximately two years (refer to Appendix 8).

⁵⁵²

The remaining four children tested had blood lead levels of 10 micrograms per decilitre and higher.

While it is the case that no studies are available which demonstrate the affects of exposure to lead pollution, such as occurred in Esperance, on children it is equally the case that there are no studies which can reassure members of the Esperance community that there will be no long-term impact on them and their children as a result of the exposure.

Finding 190

While it is the case that no studies are available which demonstrate the affects of exposure to lead pollution, such as occurred in Esperance, it is equally the case that there are no studies which can reassure members of the Esperance community that there will be no long-term impact as a result of the exposure.

However, factors such as family circumstance and educational opportunities are potentially far more important to a child's cognitive ability. Indeed Koller et al report in their research review in 2004 that:

*Current lead (US) exposure accounts for a very small amount of variance in cognitive ability (1-4%) whereas social and parenting factors account for 40% or more.*⁵⁵³

Finding 191

Factors such as family circumstance and educational opportunities are potentially far more important to a child's cognitive ability than exposure to lead.

Given the uncertainties around the potential health impacts associated with the lead pollution, the Committee is also of the view that it would be useful for those potentially adversely impacted, if there was a voluntary register established along the lines proposed in the Bellevue Hazardous Waste Fire Inquiry.⁵⁵⁴

⁵⁵³ Koller, Brown, Spurgeon and Levy *Recent Developments in Low-Level Lead Exposure and Intellectual Impairment in Children*, Environmental Health Perspectives, Volume 112, No 9 June 2004, p993.

⁵⁵⁴ Legislative Assembly, Economics and Industry Standing Committee, *Bellevue Hazardous Waste Fire Inquiry - Report No. 1*, 2001, Recommendation 1.

Recommendation 45

The Committee recommends that the Department of Health develop, implement and maintain a voluntary medical register of individuals who were exposed to the effects of the lead pollution. The register needs to:

- contain evidence of exposure to the effects of the lead pollution; and
- include any pre and post-incident exposure to potentially hazardous material.

In this context, the undertaking by the Minister for Planning and Infrastructure, who was nominated by the Premier to coordinate the government response to lead pollution in the Esperance area, was most welcome. In her evidence to the Committee, the Hon Alannah MacTiernan stated:

There has been some ambulance-chasing going on and perhaps this is panicking parents into thinking that if they do not put a claim in now, they will lose their entitlements. I have made it very clear that we will not rely on the statute of limitations or the Crown Suits Act...

We will be waiving certain of the limitation periods so that they will have an opportunity to claim in the future should there be a demonstrable loss. There has been some concern put about which agency will take the responsibility in the sense of who will we sue - and we will be looking at putting in place a legal framework so that it will be very clear that there will be one agency or it will be the state itself and there will not be the legal argy-bargy, there will not be any process from government that would put people through the paces of: is it the port I have got to sue, is it DEC or is it someone else? So we have clarified that really, so that parents can be assured that if there is a problem that does emerge into the future, their legal rights have not been jeopardised.⁵⁵⁵

The Committee believes that these important undertakings by the Minister, on behalf of government, should greatly reduce the pressure on Esperance community members to pursue legal remedies and the difficulty in doing so, while preserving their entitlements to take legal action in the future should adverse effects become more apparent over time. The Committee assumes that these undertakings are not only confined to potential action on behalf of contaminated children, but apply more broadly.

⁵⁵⁵ Hon Alannah MacTiernan, Minister for Planning and Infrastructure, *Transcript of Evidence*, 7 June 2007, pp5,6.

Finding 192

The Committee supports the undertakings made by the Minister for Planning and Infrastructure, on behalf of government, that government will:

- not rely upon the statute of limitations in relation to legal actions arising as a result of potentially adverse consequences from exposure to lead pollution; and
- not rely upon legalities relating to the identification of the responsible government agency.

The Committee takes it that these undertakings are not confined only to potential legal action pursued on behalf of the children who were contaminated by the Magellan lead concentrate, but extend to all those potentially affected by lead pollution.

The Committee believes that it has amassed very substantial evidence of systemic failure of government agencies and other parties, as documented in this Report. This has contributed significantly to any potentially adverse outcomes for individuals impacted by lead pollution in the Esperance area.

While the Committee is conscious of the significance of the undertakings by the Minister for Planning and Infrastructure in relation to potential legal proceedings, however, it is also conscious of the adverse consequences for individuals involved in potential litigation, both financial and psychological, in particular as a result of the adversarial approach to establishing '*demonstrable loss*'.

Recommendation 46

The Committee recommends that government consider establishing an alternative for individuals who are adversely affected by lead pollution in the Esperance area rather than requiring them to pursue compensation for demonstrable loss through adversarial legal proceedings in the courts.

CHAPTER 12 CONCLUSION

*If it had not been for the dead birds and vigilant and persistent people like Michelle Crisp and others, we would still have lead and nickel dust blown all over our community with no checks and balances.*⁵⁵⁶

The Committee agrees with the view expressed above. There were major failings in DEC's industry regulation function and shortcomings in other regulatory agencies. These regulatory failures, combined with the irresponsible and possibly unlawful conduct of the Esperance Port Authority, Magellan Metals Pty Ltd, and BIS Industrial Logistics, exposed workers and the community to unacceptable and avoidable health and environmental risks.

Sadly, without the death of the birds, this exposure could have continued unabated.

The scope of this inquiry was vast and, within the timeframe set, was always a challenge. The time constraints were necessary to allow for timely recommendations to help address the cause and extent of lead pollution in the Esperance area.

Contrary to original expectations, this inquiry has had to deal with a great many issues, regulatory regimes, parties and a massive amount of evidence. The focus of the Committee has been to make findings and recommendations relating to systemic failures and appropriate remediation responses. In addition, the Committee decided that the most useful approach would be to document as much as possible; to allow a better understanding of the complexities of the issues involved.

The findings of this inquiry warn us against any complacency about the transport and handling of dangerous goods such as lead concentrate in Western Australia.

If there is a positive side to all of this, it is to be found in the '*vigilant and persistent people*' of the Esperance community and elsewhere who have contributed so much to the protection of their communities and environments, and to this inquiry. The Committee hopes that this Report stands in affirmation of what such people can achieve.

⁵⁵⁶ Submission No. 49 from Mr Chris Boland, 16 May 2007, p6.

