



Report
of the
Select Committee
upon
Lead Pollution

Volume 1

December 1994

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Chairman's Foreword

I am pleased to table the Report of the Select Committee upon Lead Pollution.

The problem of lead pollution in New South Wales is no longer a peripheral issue. As stated in this Report, "lead is ubiquitous and persistent in industrial societies". The deleterious effects of low doses of lead on preschool and young children are a major concern for all parents and public health agencies.

The Select Committee examined fresh evidence and submissions from experts and other interested parties, plus it re-examined the content and conclusions of previous lead reports instigated by the Government. These reports are: the *NSW Government Lead Issues Paper*; the nine Reports of the Interdepartmental Lead Taskforce Working Groups; and the *Report of the New South Wales Interdepartmental Lead Taskforce. New South Wales Lead Management Action Plan 1994*.

This Report moves all the above to the stage of practical implementation.

A handwritten signature in black ink, appearing to read 'Paul Zammit', written in a cursive style.

Paul Zammit MP
Chairman

Executive Summary

The Select Committee upon Lead Pollution inspected and was briefed on the management and remediation of the point sources of lead pollution, emissions from smelters, at Boolaroo, Port Kembla and at Port Pirie, South Australia. The documentation and management of lead pollution at Port Pirie is a reference point for all point source communities.

The Select Committee inspected and was extensively briefed on the management of the unique lead pollution problem at Broken Hill. Finally, the Select Committee inspected a lead-acid battery factory, to view the operations and procedures for handling lead to produce lead-based products.

The Select Committee also received submissions and evidence on the above, plus on the "linear" source of lead emissions from motor vehicles, and all other major sources and pathways of lead pollution.

Two major issues arising from the deliberations and recommendations of the Select Committee are the lack of awareness in the community of the deleterious effects of :

- leaded paint in housing. Leaded paint, when disturbed, releases lead particles or vapour (if heat is used in paint removal) endangering not only the person performing the work and the occupants, but occupants of nearby housing
- the persistence of lead in domestic plumbing, resulting in the contamination of drinking water, controverting the widespread belief that lead is "no longer a problem in plumbing"

Other major issues included:

- the intractability of lead contamination in waterway sediments. This contamination of sediments can be the result of lead contaminated urban runoff (Sydney Harbour) or proximity to a point source (Cockle Creek, near Boolaroo)
- the problems, financial, technical and legal, confronting the program for the remediation/decontamination of housing in Broken Hill
- the lack of a buffer zone between the Southern Copper Ltd smelter and surrounding housing at Port Kembla
- the disquiet expressed by many parties on the EPA protocols for ambient air sampling at point and linear sources.
- the lack of data on lead contamination of soil. Elevated soil lead levels reported in the *Glebe Heavy Metal Study* indicate that older inner suburbs may be dotted with lead "hotspots", from current and/or historical sources

- the increase in the number of individuals engaged in diverse professions, occupations and hobbies that are "at risk" from exposure to lead.

The Select Committee noted the following positive developments:

- the downward trend for lead in ambient air in Sydney, Newcastle and Wollongong, the result of joint action by Government agencies and the refiners to reduce the lead content of leaded petrol, and the increasing consumption of unleaded petrol
- the positive impact of remediation strategies upon children's blood lead levels in the two point source communities of north Lake Macquarie and Port Kembla, and in Broken Hill.

The Select Committee supports the Reports and Recommendations of the nine Interdepartmental Lead Taskforce Working Groups. (See Section 6)

The Select Committee also supports the Government's initiatives and programs detailed in the *Report of the New South Wales Interdepartmental Lead Taskforce, New South Wales Lead Management Action Plan 1994*, released after the Select Committee commenced its investigations.

The Select Committee undertook a comparison of the recommendations contained in the *Report of the NSW Interdepartmental Lead Taskforce NSW Lead Management Action Plan 1994* and the reports of the nine Interdepartmental Lead Taskforce Working Groups. The comparison found a number of additions in the *NSW Management Action Plan 1994* but also many omissions and some alterations.

The Select Committee therefore supports the implementation of the great majority of the Working Groups' recommendations along with any additional and altered recommendations contained in the *NSW Lead Management Action Plan 1994* which do not detract from the strong Working Group recommendations.

Recommendations have been made by the Select Committee to clarify whether the Committee supports the recommendations of the *NSW Lead Management Action Plan 1994* or the Working Groups' recommendations, or a variation on any one issue. (These appear in a separate list in Section 5).

Furthermore, in order to thoroughly combat the problem of lead pollution we have made additional recommendations which should be implemented.

Recommendations

In this section the Terms of Reference are reproduced in full and the relevant recommendations of the Select Committee follow each Term of Reference.

- (a) the extent of lead pollution past and present in New South Wales;
- 1. that more research is required to identify and assess historical lead contamination.**
-
- (b) the impact of lead pollution on the health of people in the community, especially infants and school children, in particular the emissions from:
- (i) the Pasmenco Metals-Sulphide smelter at Boolaroo;
- 2. that the Select Committee supports the implementation of the North Lake Macquarie Interim Action Plan as recommended in the Report of the NSW Interdepartmental Taskforce Report *Lead Management Action Plan 1994*.**
 - 3. that the draft North Lake Macquarie Lead Plan of Management (as at October 1994) be implemented upon completion and submission to the State Government. (See recommendations in 4.4.3 for funding options).**
 - 4. that recommendations 74 and 75 under Lead in Air in Subsection 4.3.3 (lower standard to 1 microgram per cubic metre) be applied as a standard in the Pasmenco Metals-Sulphide EPA licence agreement to ensure the control of fugitive emissions. (See recommendations 78 and 79 in Subsection 4.5.5).**
 - 5. that daily monitoring be undertaken from existing monitoring stations in north Lake Macquarie instead of the current cycle of monitoring every sixth day.**
 - 6. that there are regular cross checks on Pasmenco Metals-Sulphide's pollution monitoring tests and the results be publicly available within four months of the test being completed.**
 - 7. that the EPA examine direct discharge of lead in effluent from point source facilities into bodies of water with the view to establishing a goal of continual reduction until such time as the practice can practicably be ceased. Any timetable for the establishment of this goal should take into consideration the site specific sensitivities of the environment and ecosystems and the possible synergistic effects of other pollutants contained in the industrial effluent.**

8. that the EPA adopt a policy of community participation in the formulation of licence conditions of lead emitting industrial complexes.
 9. that the EPA adopt recommendation 79 in Subsection 4.5.5 on licensing fugitive and stack emissions from point sources.
 10. that there be a re-evaluation of the Pasminco upgrade by the EPA to determine whether the current ISF technology can meet the proposed changes to the ambient air lead level, and the recommended annual reductions in total emissions.
 11. that community concerns about Boolaroo's buffer zone be investigated by an Ethics Committee including representation from the community, Lake Macquarie City Council, Pasminco Metals-Sulphide and the Health Department.
 12. that the buffer zone boundary be based on proper scientific evidence including ambient lead in air monitoring.
 13. that a standardised cleaning protocol be developed and implemented to prevent lead from escaping from lead processing and mining sites as a result of transportation. This should include the cleaning of all vehicles moving off site by road and rail.
 14. that the original 42 Point Environmental Action Plan for the Boolaroo smelter and the revised plan of more than 50 points be made available to the public as soon as possible. The EPA is to provide the associated time frame and expected impact of the improvements on environmental lead.
 15. (a) that the Department of Local Government and the EPA jointly investigate the issuing of 149 Certificates with soil lead warnings by Lake Macquarie City Council.
(b) that the Department of Local Government investigate the statewide implications of the outcome of the above investigation.
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- (b) the impact of lead pollution on the health of people in the community, especially infants and school children, in particular the emissions from:
 - (ii) the Southern Copper smelter at Port Kembla;
 16. that the Select Committee supports the implementation of the Port Kembla Interim Action Plan as recommended in the Interdepartmental Lead Taskforce Report *NSW Lead Management Action Plan 1994*.
 17. further, the Select Committee recommends that a lead management plan similar to the lead management plan for north Lake Macquarie be prepared and that the

recommendations of this plan be implemented. (See recommendation 77 in Subsection 4.4.3 for further funding options.)

18. that the extent of environmental contamination of air, soil, water and sediments, in and around the Southern Copper smelter be determined in conjunction with the proposed management plan in recommendation 17 above.
19. that the EPA adopt a policy of community participation in the formulation of licence conditions of lead emitting industrial complexes. (This repeats recommendation 8 in Subsection 3.1.4)
20. that recommendations 74 and 75 under Lead in Air in Subsection 4.3.3 (lower standard to 1 microgram per cubic metre) be applied as a standard in the Southern Copper EPA licence agreement to ensure the control of fugitive emissions. (See recommendations 78 and 79 in Subsection 4.5.5).
21. that daily monitoring be undertaken from existing monitoring stations close to Southern Copper smelter instead of the current cycle of monitoring every sixth day.
22. that there be regular cross checks on Southern Copper pollution monitoring tests and the results be publicly available within four months of the test being completed.
23. that in relation to Southern Copper the EPA adopt recommendation 7 in Subsection 3.1.4 on heavy metals in effluent discharged from point source.
24. that the EPA adopt the recommendation 79 in Subsection 4.5.5 on licensing fugitive and stack emissions from point sources.
25. that there be an EPA re-evaluation of the Southern Copper upgrade, or any proposal to recommence smelting, to examine whether the current technology can meet the proposed changes to the ambient air lead level, and the recommended annual reductions in total emissions.
26. that the question of a Southern Copper buffer zone (including issues such as a child-free zone) be investigated by an Ethics Committee.
27. that a standardised cleaning protocol be developed and implemented to prevent lead from escaping from lead processing and mining sites as a result of transportation. This should include the cleaning of all vehicles moving off site by road and rail. (This repeats recommendation 13 in Subsection 3.1.4).
28. (a) that in the event of smelting recommencing, more ambient air monitors be installed at appropriate locations at Port Kembla.
(b) that whether or not smelting recommences, ambient air monitors to be placed in school grounds in proximity to smelter.

29. **during the care and maintenance phase following cessation of production that Southern Copper be requested to undertake appropriate remediation of the site with particular attention to reducing fugitive emissions (*ie* presumably stack emissions will cease).**
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- (b) the impact of lead pollution on the health of people in the community, especially infants and school children, in particular the emissions from:
- (iii) mining, processing and smelter operations at Broken Hill;
30. **that a long-term lead management strategy be devised and that the Government now commit long-term funding for the Broken Hill Environmental Centre, to facilitate ongoing work plus longer term research.**
31. **that all Government departments and agencies be fully and regularly briefed on the developments in the management and remediation of lead in Broken Hill, to ensure that all possible avenues for further input are identified and explored.**
32. **the "greening" or revegetating of Broken Hill to be a part of the long-term strategy.**
33. **that consideration be given to assisting Broken Hill City Council to organise greater controls over the use of lead contaminated materials for**
- a) concrete
 - b) roadways
 - c) driveways
 - d) residential fill.
34. **that Pasmaico Mining take further action to prevent the carrying of dust off their lease. Such action should include the provision of on-site laundering of workclothes.**
35. **that all schools, pre-schools, kindergartens and child care centres under Government control in Broken Hill undergo an intensive program of lead hazard identification, and risk remediation and control, as a matter of urgency.**
36. **that all schools, pre-schools, kindergartens and child care centres under private control in Broken Hill be informed of the lead hazard program, and that they be made aware of their obligations to provide safe facilities under duty of care.**
37. **that the blood testing program in Broken Hill be expanded to test for children aged five to 13 years.**

38. that compensation be provided for people who have paid for the remediation of their own homes since 1991 and prior to the establishment of the Broken Hill Environmental Lead Centre.
 39. that the Department of Housing offer immediate transfer to alternate housing in other areas for families with children suffering from blood lead levels above 15 micrograms per decilitre. This assistance should be offered in order from the highest blood lead levels to the lowest.
 40. that the EPA adopt a policy of community participation in the formulation of licence conditions of large lead emitting industrial complexes. (This repeats recommendation 8 in Subsection 3.1.4).
 41. that a standardised cleaning protocol be developed and implemented to prevent lead from escaping from lead processing and mining sites as a result of transportation. This should include the cleaning of all vehicles moving off site by road and rail. (This repeats recommendation 13 in Subsection 3.1.4).
 42. that employers in the lead mining industry in Broken Hill comply with the provisions of the Worksafe Australia National Standard to Control Inorganic Lead at Work.
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(b) the impact of lead pollution on the health of people in the community, especially infants and school children, in particular the emissions from:

(iv) other mining operations in New South Wales;

43. that all employers in mines where lead ores are found comply with the provisions of the Worksafe Australia National Standard to Control Inorganic Lead at Work.
44. (a) that it is advisable that targeted blood lead screening of children under the age of 5 be carried out in all lead mining communities in NSW. If lead poisoning rates in this sensitive age group are found to be high then older children and at risk adults should also be blood lead screened.
(b) that an appropriate Lead Management Action Plan be prepared for each community that is found to have more than 10% of children with blood lead levels above 10 micrograms per decilitre.
45. that where the risk of contamination is significant a standardised cleaning protocol be developed and implemented to prevent lead from escaping from lead processing and mining sites as a result of transportation. This should include the cleaning of all vehicles moving off site by road and rail. (This repeats recommendation 13 in Subsection 3.1.4).

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- (b) the impact of lead pollution on the health of people in the community, especially infants and school children, in particular the emissions from:
- (v) other lead based industries in New South Wales including lead-acid battery manufacture; and
46. that a register be compiled of all sites where lead-based industries are currently operating or have operated in the past.
47. that lead usage be strictly monitored and registered: lead smelters/producers to compulsorily register precise amounts sold to processor/end-user, who in turn must log the precise amounts used in their product and the precise amounts "lost"/wasted during subsequent processing.
48. that all employers in lead processing industries comply with the provisions of the Worksafe Australia National Standard to Control Inorganic Lead at Work.
49. (a) that it is advisable that targeted blood lead screening of children under the age of 5 be carried out in all lead point source communities in NSW. If lead poisoning rates in this sensitive age group are found to be high then older children and at risk adults should also be blood lead screened.
(b) that an appropriate Lead Management Action Plan be prepared for each community that is found to have more than 10% of children with blood lead levels above 10 micrograms per decilitre. (This repeats recommendation 44 in Subsection 3.4.4)
50. that the EPA adopt a policy of community participation in the formulation of licence conditions of large lead emitting industrial complexes. (This repeats recommendation 8 in Subsection 3.1.4)
51. (a) that daily monitoring of lead in ambient air be undertaken at the Apollo site at Maryong.
(b) that the EPA review licence and Development Application conditions to ensure that all are being complied with, and that particular emphasis be placed on possible fugitive emissions *eg* open doors and windows, vents and ceiling exhaust fans.
52. that where the risk of contamination is significant a standardised cleaning protocol be developed and implemented to prevent lead from escaping from lead processing and mining sites as a result of transportation. This should include the cleaning of all vehicles moving off site by road and rail. (This repeats recommendation 13 in Subsection 3.1.4).
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(b) the impact of lead pollution on the health of people in the community, especially infants and school children, in particular the emissions from:

(vi) motor vehicles with particular emphasis on inner city areas and known locations of traffic congestion.

53. that the NSW Government and NSW petrol refiners negotiate with the Federal Government to reduce Federal tax on leaded petrol to compensate for expected increased costs to refineries as lead is removed from leaded petrol. (Currently, there is a two cent price differential between leaded petrol and unleaded petrol).

54. that the Government investigate the use of ethanol and other additives to replace lead as an octane enhancer.

55. (a) that, as an interim measure, while lead content of leaded petrol is being reduced, service stations be required to distribute lead education information to all purchasers of leaded petrol for an intensive three-month period.

(b) that the RTA produce and circulate this information to encourage car owners, wherever possible, to switch to unleaded petrol.

56. that the EPA will release to the public the results of ambient lead in air monitoring as soon as they are known or within four months of the end of the monitoring period.

57. that the EPA investigate the effectiveness of physical barriers in protecting children in child care centres from lead contamination caused by vehicular emissions.

(c) To recommend:

(i) strategies, measures and priorities for remediation of contaminated areas, properties, buildings and waterways;

Lead in paint

58. (a) that a Lead Management Plan be developed for inner Sydney.

(b) that the plan include the establishment of an Environmental Lead Centre, which would carry out targeted blood lead screening and environmental lead surveillance in order to target appropriate remediation strategies, *eg* lead paint abatement in public housing, child care centres and lower socio-economic housing. The Environmental Lead Centre could be incorporated into the Government's proposed Lead Reference Centre in Sydney.

59. that the following initiatives be implemented:

- (a) all householders and people responsible for young children be provided with information on identifying lead hazards and general advice on minimising lead risks.
 - (b) local councils establish mechanisms for the distribution of lead poisoning prevention material to everyone making building or development applications.
 - (c) the NSW Department of Housing compile a register of buildings and facilities under its jurisdiction built before 1970 or at risk of lead contamination, inspect and abate lead-based paint in public housing, including opportunistic abatement (*ie* when housing units are vacant between tenants).
 - (d) the Department of School Education and TAFE compile a register of school buildings and facilities under their jurisdiction built before 1970 or at risk of lead contamination. That the level of risk be determined by "Risk Assessment Questionnaire" included in The Lead in Soil and Dust Working Group Report. That the risks of high levels of hand to mouth activity, pica, iron deficiency and the age of the children be taken into account in determining priority. That abatement be opportunistic (*ie* during holidays).
- 60. that training, accreditation and licensing of key groups, such as consultants offering lead assessment services and commercial remediators, be established. That training programs include the identification of hazards, the hazards of lead remediation, and the means for the control of lead risks, including methods for disposal of wood and other materials painted with lead-based paint.
 - 61. that lead poisoning prevention and lead abatement training be included in community training for the unemployed and others eligible for retraining under various State and Federal schemes in high risk lead contamination areas, *eg* Skillshare, Workers Education Association courses, TAFE.
 - 62. that the Government support in principle and consider the US EPA's proposed lead abatement training institute in Sydney, which will train professional lead assessors and lead abatement contractors for NSW and the Pacific region.
 - 63. that standards be developed and implemented for lead in soil and dust, lead in domestic paint surfaces and lead in household dust above which specified remedial action is required to be taken.
 - 64. that the NSW Department of Health or the Lead Reference Centre provide a service of lead assessment for householders.
 - 65. that effective lead remediation techniques and products should be evaluated by the EPA, both in terms of their effectiveness in removing lead risks and their effectiveness in preventing recontamination.
 - 66. that lead contaminated waterways and harbours be identified and remediation plans be prepared.

67. that the NSW Government request the Federal Government to establish clear guidelines for lead based paint hazard evaluation and control in all federally-assisted, -owned, and -insured housing.
68. a) that the EPA assess the results of the testing of soils in *Glebe Heavy Metal Survey*.
b) that the Public Health Unit for Central Sydney immediately advise Glebe residents of the significance of the soil lead results and their recommended responses to the results, to ensure that the soil lead contamination does not impact on children in the area.
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- (c) To recommend:
- (ii) strategies, measures and priorities for monitoring the health of persons at risk in the community;
69. that targeted blood lead screening be undertaken for children attending primary schools and child care centres determined to be lead contaminated.
70. that the Royal College of General Practitioners consider providing training and information about contemporary lead issues.
71. that the NSW Health Department undertake voluntary blood lead screening of children aged 9-48 months, in Glebe, followed by screening of older children if the prevalence of blood lead levels above 10 micrograms per decilitre is higher than the state average.
72. that the Lead Reference Centre or NSW Health Department carry out a voluntary blood lead survey of adults (including pregnant women) and children older than five years. A corresponding desk study be undertaken on the health effects of lead on adults and children older than five.
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- (c) To recommend:
- (iii) a timetable for enforcement of lower national and international goals, guidelines and standards for lead in blood and ambient air quality;
73. that all State governments and other interested parties lobby the Federal Government to maintain the integrity and competence of the NH&MRC, and thus maintain the NH&MRC's input into the lead problem.

Lead in Air

74. that the NSW Government lower the current lead in ambient air standard of 1.5 micrograms per cubic metre to 1 microgram per cubic metre. This would be an interim measure awaiting any further lowering of the standard at a national level.

Lead from Point Sources

75. that the goal of 1.0 microgram per cubic metre for lead in ambient air become a standard by the end of 1996 and be enforced in industry licensing.

(c) To recommend:

- (iv) the extent of financial responsibility of the polluting industries for the cost of remediation and monitoring;

76. that all parties with an interest in lead site contamination and its remediation should examine the following two publications:

Financial Liability for Contaminated Site Remediation

A discussion paper prepared by the Australian and New Zealand Environment and Conservation Council

June 1993

Financial Liability for Contaminated Site Remediation

A position paper by the Australian and New Zealand Environment and Conservation Council

April 1994

77. that the Government immediately establish a "Ways and Means" Committee with representatives of all stakeholders (Federal, State and Local Government, industry, community etc) to establish an agreement whereby Government and industry would share the costs of remediation and monitoring of contaminated areas.

(c) To recommend:

- (v) guidelines for action by the Environment Protection Authority on emission and discharge limits in industry operating licences; and

78. that the lead in ambient air goal proposed in recommendation 74 in Subsection 4.3.3 become a standard in EPA licensing agreements by the end of 1996.
 79. that wherever possible, EPA operating licences contain conditions for the reduction of lead emissions (including fugitive emissions) from any lead point source and be based on quantitative annual reductions in lead emissions, and that reductions beyond the minimum in any one year count towards following years.
 80. that the EPA adopt recommendation 6 in Subsection 3.1.4 on heavy metals in effluent discharged from point sources under EPA licence.
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(c) To recommend:

- (vi) any other action deemed necessary to address the lead problem.

81. that tank water in rural communities and on individual rural properties to be randomly tested for lead content by an appropriate authority.
82. that the NSW Government undertake a program to rationalise the many and varied regulations covering lead use in products. That the program focus on regulations that are now out-of-date because of the revision of the NH&MRC lead in blood guidelines.

Lead in Paint

83. that there be an extensive education campaign to distribute lead poisoning prevention leaflets with the sale to the public of paint and the sale and hire of paint removal and dust abatement equipment.
84. that a warning label about all risks of lead poisoning and lead contamination be placed on all paint cans.

Lead in Plumbing Products

85. due to the differing views given in evidence, the Select Committee recommends that further testing for lead in first flush drinking water, rainwater tanks and drinking fountains ("bubblers") in schools, high rise buildings and older urban areas be undertaken.
86. that the NSW Government conduct an education program to inform home handypersons of the dangers of using lead solder in plumbing.

Recycling Lead

87. that the NSW Government examine the extent of current recycling programs for products containing lead, such as batteries, television sets, electronic devices, light bulbs and others. That the Government identify barriers and opportunities for recycling and where appropriate develop programs for greater recycling of these products.
88. (a) that the NSW Government implement a lead acid battery recycling program to ensure that the rate of recycling exceeds 100% *ie* that there be incentives to ensure more disused batteries are collected and recycled than the number of new batteries sold (as occurs in some states of the USA).
(b) that the NSW Government enter into negotiations with the Service Stations Association to request that its members act as collection points for disused batteries.
(c) that the dumping of lead acid batteries in municipal waste, for either landfill or incineration, be banned.

Nutrition Programs and Lead in Food

89. that the NSW Health Department investigate nutrition programs that will help eliminate iron deficiencies among young children and promote these programs throughout the health sector.
90. that the NSW Government approach the Federal Government for a national policy to ban the manufacture and importation of lead soldered food cans.

Lead in sewerage/sludge

91. that the NSW Government consider as a standard the current guideline for a maximum concentration of lead in sewerage sludge of 300 milligrams per kilogram.

Lead in Fertilisers

92. that the NSW Government seek Federal cooperation to examine the prohibition of the sale of fertilisers containing more than 0.05% lead or lead compounds.

Lead in Other Species

93. that a desk study be undertaken of available data on lead levels and its effects on species other than human.

Other Lead Exposures

94. (a) that the NSW Government consider the prohibition of the sale and use of lead in children's toys, paints and crayons and other products in which lead can readily be replaced.
(b) that the dangers of lead shot, lead fishing weights, lead crystal ware and ceramic ware, hobbies involving lead and other products in which lead can be

readily replaced be subjected to public awareness campaigns and alternatives promoted.

Additional Recommendations from Section 5 A Comparison of the Recommendations of the Interdepartmental Lead Taskforce Working Group Reports and the Recommendations of the *Report of the New South Wales Interdepartmental Lead Taskforce. New South Wales Lead Management Action Plan 1994.*

95. **that the Lead Reference Centre program coordinate issues related to health, education, monitoring, research and abatement. That the program coordinator report annually to Parliament and be reviewed after 2 years.**
 96. **that the Select Committee supports the implementation of the remaining Recommendations of the *New South Wales Lead Management Action Plan 1994***
 97. **that the Select Committee supports the implementation of the Recommendations of the nine Interdepartmental Working Groups Reports.**
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Section 1

Introduction

1.1 Terms of Reference

A Select Committee has been appointed by Parliament to report on :

- (a) the extent of lead pollution past and present in New South Wales;
- (b) the impact of lead pollution on the health of people in the community, especially infants and school children, in particular the emissions from:
 - (i) the Pasmaenco Metals-Sulphide smelter at Boolaroo;
 - (ii) the Southern Copper smelter at Port Kembla;
 - (iii) mining, processing and smelter operations at Broken Hill;
 - (iv) other mining operations in New South Wales;
 - (v) other lead based industries in New South Wales including lead-acid battery manufacture; and
 - (vi) motor vehicles with particular emphasis on inner city areas and known locations of traffic congestion.
- (c) To recommend:
 - (i) strategies, measures and priorities for remediation of contaminated areas, properties, buildings and waterways;
 - (ii) strategies, measures and priorities for monitoring the health of persons at risk in the community;
 - (iii) a timetable for enforcement of lower national and international goals, guidelines and standards for lead in blood and ambient air quality;
 - (iv) the extent of financial responsibility of the polluting industries for the cost of remediation and monitoring;
 - (v) guidelines for action by the Environment Protection Authority on emission and discharge limits in industry operating licences; and
 - (vi) any other action deemed necessary to address the lead problem.

1.2 Select Committee Members

The members of the Select Committee upon Lead Pollution are:

Chairman	Mr Paul Zammit MP
Deputy Chairman	Mr Jeff Hunter MP
	Mr Bill Beckroge MP
	Mr Jeremy Kinross MP
	Ms Sandra Nori MP
	Mr Bill Rixon MP
	Ms Clover Moore MP

The Select Committee secretariat:

Project Officer	Ms Catherine Watson
Clerk	
to the Committee	Mr Mervyn Sheather
Research Officer	Mr Warwick Grundy
Assistant	
Committee Officer	Ms Nathalie Szekely

1.3 Preamble

This *Report of the Select Committee upon Lead Pollution* is organised to closely follow the Terms of Reference:

Section 2 corresponds to part (a)

Section 3 corresponds to parts (b)(i) to (b)(vi)

Section 4 corresponds to parts (c)(i) to (c)(vi).

The headings and subheadings used in sections 2, 3 and 4 are abbreviations of the relevant full term of reference. At the commencement of each subsection the relevant submissions and evidence and other pertinent information are listed. Submissions are identified as "S" plus a number, *eg* S8, when cited in the text.

The organisation of this Report differs from that of the *NSW Government Lead Issues Paper* and the *Report of the New South Wales Interdepartmental Lead Taskforce, New South Wales Lead Management Action Plan 1994*. The Select Committee Report does not subdivide the lead problem into the nine subdivisions of the *Issues Paper* and *Taskforce Report*, lead in air, lead in food, lead in paint, *etc.* The Select Committee specifically examined the two communities (Boolaroo and Port Kembla) affected by "point source" emissions plus the mining community of Broken Hill, and the "linear source" of lead in petrol. The other lead issues not explicitly defined in the Terms of Reference are individually and collectively examined under the remaining Terms of Reference. This approach acknowledges that many sources of lead and its pathways overlap and interact.

Following from the above, some submissions and evidence address a single term of reference; others address elements of both (b) and (c) *ie* discussion of a specific lead problem combined with recommendations for strategies of remediation.

The recommendations of the Select Committee are listed at the end of each section; where applicable, these recommendations are categorised under the subdivisions, lead in air, lead in soil, *etc.*

It is the intention of the Select Committee that its recommendations be read in conjunction with the recommendations and conclusions of the *Report of the New South Wales Interdepartmental Lead Taskforce, New South Wales Lead Management Action Plan 1994* and the nine Interdepartmental Lead Taskforce Working Group Reports. Accordingly both sets of recommendations are incorporated into this Report (See Sections 6 and 7). A comparison and analysis of these recommendations is included in Section 5.

The recommendations of the Select Committee upon Motor Vehicle Emissions are reproduced in subsection 3.6.5.

Evidence given under oath during public hearings held at Parliament House tended to cover many terms of reference. Evidence given during public hearings at specific locations of lead contamination *eg* Broken Hill, tended to be focussed on that local problem.

Prior to inspecting Broken Hill, Boolaroo, Port Kembla and other sites of lead pollution in New South Wales, the Select Committee travelled to Port Pirie, South Australia, to inspect and be briefed on the operations of the Broken Hill Associated Smelters (BHAS) lead smelter and on the operations of the Port Pirie Environmental Health Service and the Lead Decontamination Unit. The lead problem at Port Pirie, its management and remediation, is a reference point for all current studies and policy responses.

Section 2

Lead Pollution in New South Wales

2.1 Lead Pollution in NSW - Past and Present

Lead has been mined, smeltered and used since ancient times, and is now ubiquitous and persistent in industrial societies.

The deleterious effects of lead on the human body, lead poisoning or frank plumbism, have been known since ancient times.

Knowledge of the deleterious effects of low doses of lead, especially in preschool children, dates from the mid-1960s, and is the catalyst for all current public health and public policy initiatives in this area. The Environment Protection Authority (EPA) submission states:

A national and international conference convened by the Commonwealth Department of Community Services and Health in October 1992 concluded unequivocally that a deficit of 2-3 IQ points for each 10 micrograms per decilitre increase in blood lead is the magnitude of the effect on young children. (EPA S6, p1)

New South Wales, being the oldest, most populous and most industrialised state in Australia, suffers from every aspect and permutation of lead pollution

A common thread connecting the majority of submissions and evidence was a prefatory statement acknowledging this *status quo*. One example, given in evidence:

"We need to keep a perspective on lead... the problems of lead and its use have been around for a very long time and they will not go away overnight. We need a logical strategy in order to deal with all of the aspects of lead pollution". (Dr Neil Shepherd, Director-General, EPA, evidence 17 October 1994)

However, the Select Committee has reason to believe that the extent of lead pollution is widespread, and the full ramifications have to be fully determined.

2.1.1 Recommendations

1. **that more research is required to identify and assess historical lead contamination**
-

Section 3
Health Impact
of
Lead Emissions

3.1 Pasminco Smelter at Boolaroo

3.1.1 Submissions, Evidence and Inspections

Submissions wholly or predominantly addressing this term of reference were received from:

Dr Brian Gulson (S1)
EPA (NSW) (S6)
Hunter Area Health Service (S8)
Pasminco Metals-Sulphide Pty Ltd (S13)
Lake Macquarie City Council (S28)
Pollution Research Ltd (S18)
The No-Lead Group (S35)

In the north Lake Macquarie district the Committee:

- held a public hearing at Lake Macquarie City Council
- inspected the smelter at Boolaroo and was briefed by Pasminco Metals-Sulphide Pty Ltd on its operations
- inspected public schools at Boolaroo and Argenton.
- inspected the Lake Macquarie Environmental Health Centre

At the Lake Macquarie public hearing the following parties and individuals gave evidence under oath:

Mr Jeffrey Jansson, Manager Environment, Lake Macquarie City Council
Dr John Stephenson, Director, Public Health Unit
Dr John Wlodarczyk, Newcastle Environmental Toxicology Research Unit
Dr Rosemary Aldrich, Newcastle Environmental Toxicology Research Unit
Ms Sharon Howes and Mr Jeff Orrock, Pasminco Metal-Sulphides Pty Ltd, and Mr David Sinclair, Pasminco Ltd.
Mr George Dodds, Regional Manager, EPA
Ms Theresa Gordon, No Lead Group
Mr Stephen Gorton, Mrs Patricia Smith and Mrs Kathleen McPhillips, No LEAD
Mr Mark Stoker, Industrial Officer, AWU/FIME
Mr Jack Shield, United Residents Group for the Environment of Lake Macquarie (URGE)
Ms Fran Timbs, Environmental Health Centre, Boolaroo.
Mr Donald Whiteman, local resident
Ms Karen Phillip, local resident

3.1.2 Lead Sources and Pathways

The smelter operated by Pasminco Metals-Sulphide Pty Ltd at Boolaroo is a point source of lead pollution.

Four pieces of data confirm the correlation of proximity to the smelter and non-occupational lead contamination:

- children in north Lake Macquarie and adjacent suburbs generally have elevated blood lead levels in comparison with other children in the region
- children living in north Lake Macquarie but attending school elsewhere have lower blood lead levels
- when smelter operations were temporarily shut down for a short period in late 1993 blood lead levels declined; conversely, when smelter operations were recommenced blood lead levels rose
- lead content of soils generally is high close to the smelter, and decreases further from the smelter.

The Public Health Unit (PHU) of the Hunter Area Health Service (S8) submits that remediation procedures performed by families *eg* damp dusting, frequent hand washing *etc* can no further improve blood lead level results. Remediation at the point source is essential for future reductions in blood lead levels.

The results of blood lead monitoring of children in north Lake Macquarie, performed for the PHU by the Newcastle Environmental Toxicology Research Unit (NETRU), are reproduced below in Table 1.

Table 1 - Hunter Area Health Service, Public Health Unit, S8

	Phase 1 1991	Phase 2 1992	Phase 3 May 93	Phase 4 Nov 93	Phase 5 May 94
n	313	357	452	272	270
mean	13.6	11.1	11	9.7	10.4
std	5.5	5.7	5.1	4.9	4.6
%≥15µg/dl	38	21	19	14	11
%≥10µg/dl	75	50	55	35	43

n = number of children

std = standard deviation

NETRU designed and implemented an opportunistic survey of paediatric in-patients at the John Hunter Hospital, the Paediatric In-Patient Lead Level Survey (PILLS). Preliminary comparisons with community-collected lead levels show that this rapid and low cost approach

may enable widespread and long-term monitoring the blood lead levels of children. Early results (Letter to Select Committee, 2 December) are as follows:

- 350 urban children have been tested
- 12.3% had levels of 10 or more micrograms per decilitre

When extrapolated to cover the entire Hunter region, using 1991 census data, 12.3% of 36,790 children aged 0-60 months is approximately 4,500 children with blood lead levels above the NH&MRC's national goal of 10 micrograms per decilitre.

3.1.3 Matters of Concern

The operators at two point source locations, Pasminco Metals-Sulphide at Boolaroo and Southern Copper at Port Kembla, are implementing plans to upgrade plant and equipment with the twin goals of increasing production and reducing emissions. The planned increases for production are not incremental; increases in the order of 25% to 50% are envisaged. There are (arguably) two considerations linking output of saleable product and output of emissions. Hypothetically, Smelter A currently produces 1000 units of product and 50 units of emissions. At stage one upgrading 1200 units of product and 40 units of emission are produced. When stage two upgrading is complete, production will be 1600 units with 50 units of emission. The ratio of unit saleable product to emissions output continues to improve (from 1:0.05 down to 1:0.03) but the total amount of emissions has returned to the level prior to the upgrading. The EPA advised the Select Committee that increased production and reduced emissions are attainable only with the application of new technology. Any upgrading that involves an increase in production and a corresponding increase in emission, by expanding current plant and technology, generally would not be accepted.

Pasminco at Boolaroo, between 1985/86 and 1991/1992, has greatly reduced the amount of controlled ("stack") emissions from its plant by 32%, and fugitive emissions by 76%. In this period the fugitive component (*ie* the uncontrolled component) of total emissions increased from 18% to 32%. The Select Committee is unsure that the trend of increased production combined with reduced total emissions to air can be sustained. Similarly, the Select Committee acknowledges the current reductions water effluent discharge but is unsure if this trend can be sustained without resort to very advanced technology which eliminates any contamination from the discharge. Steps by the company to reduce both fugitive emissions and water effluent should be ongoing.

The Environmental Impact Statement (EIS) for Pasminco's smelter upgrading at Boolaroo is included in their submission (S13). The data for controlled ("stack") *versus* fugitive emissions is presented in Table 5.7 of the EIS. During informal briefings at the Port Pirie smelter and at Pasminco Mining Broken Hill the Select Committee requested similar data for those operations. In each case the response was that the data was not available.

Subsequent to the Select Committee being briefed on the above two Pasminco operations at Port Pirie and Broken Hill the following information was communicated to the Select Committee by Mr David Sinclair, Manager-Occupational Health, Pasminco Ltd:

Because of their diffuse and unpredictable occurrence fugitive emissions cannot be **measured**. The term measured implies that an instrument or sampling and analytical process can be used to quantify an emission.

To measure an emission two factors are required, the volume of gas escaping and the concentration of lead in that gas. These factors can only be measured on a controlled i.e. non fugitive emission

It is however possible to **estimate** fugitive emissions. The US EPA have developed a number of generic emission factors which when combined with site specific data can be used to **calculate** fugitive emissions. This technique was used to obtain the fugitive emissions data in the Pasminco Metals-Sulphide EIS. (Letter to Select Committee, 24 November 1994. Emphasis in original)

3.1.4 Recommendations

2. that the Select Committee supports the implementation of the North Lake Macquarie Interim Action Plan as recommended in the Report of the NSW Interdepartmental Taskforce Report *Lead Management Action Plan 1994*.
3. that the draft North Lake Macquarie Lead Plan of Management (as at October 1994) be implemented upon completion and submission to the State Government. (See recommendations in 4.4.3 for funding options).
4. that recommendations 74 and 75 under Lead in Air in Subsection 4.3.3 (lower standard to 1 microgram per cubic metre) be applied as a standard in the Pasminco Metals-Sulphide EPA licence agreement to ensure the control of fugitive emissions. (See recommendations 78 and 79 in Subsection 4.5.5).
5. that daily monitoring be undertaken from existing monitoring stations in north Lake Macquarie instead of the current cycle of monitoring every sixth day.
6. that there are regular cross checks on Pasminco Metals-Sulphide's pollution monitoring tests and the results be publicly available within four months of the test being completed.
7. that the EPA examine direct discharge of lead in effluent from point source facilities into bodies of water with the view to establishing a goal of continual reduction until such time as the practice can practicably be ceased. Any time frame for the establishment of this goal should take into consideration the site specific sensitivities of the environment and ecosystems and the possible synergistic effects of other pollutants contained in the industrial effluent.
8. that the EPA adopt a policy of community participation in the formulation of licence conditions of lead emitting industrial complexes.

9. that the EPA adopt recommendation 79 in Subsection 4.5.5 on licensing fugitive and stack emissions from point sources.
 10. that there be a re-evaluation of the Pasminco upgrade by the EPA to determine whether the current ISF technology can meet the proposed changes to the ambient air lead level, and the recommended annual reductions in total emissions.
 11. that community concerns about Boolaroo's buffer zone be investigated by an Ethics Committee including representation from the community, Lake Macquarie City Council, Pasminco Metals-Sulphide and the Health Department.
 12. that the buffer zone boundary be based on proper scientific evidence including ambient lead in air monitoring.
 13. that a standardised cleaning protocol be developed and implemented to prevent lead from escaping from lead processing and mining sites as a result of transportation. This should include the cleaning of all vehicles moving off site by road and rail.
 14. that the original 42 Point Environmental Action Plan for the Boolaroo smelter and the revised plan of more than 50 points be made available to the public as soon as possible. The EPA is to provide the associated time frame and expected impact of the improvements on environmental lead.
 15. (a) that the Department of Local Government and the EPA jointly investigate the issuing of 149 Certificates with soil lead warnings by Lake Macquarie City Council.
(b) that the Department of Local Government investigate the statewide implications of the outcome of the above investigation.
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3.2 Southern Copper Smelter at Port Kembla

3.2.1 Submissions, Evidence and Inspections

Submissions wholly or predominantly addressing this term of reference were received from:

Southern Copper Limited (S14)
Council of the City of Wollongong (S17)
Mr Michael Organ (S4)

At Port Kembla the Select Committee:

- held a public hearing
- was briefed by the management of Southern Copper Limited on smelter operations

At the Port Kembla public hearing the following parties and individuals gave evidence under oath:

Mr Alfred Hales, Assistant Manager Environment, Wollongong City Council
Dr Victoria Westley-Wise, Acting Director, Public Health Unit, Illawarra Area Health Service
Mr David Gilmour, Port Kembla Pollution Control Committee
Mr Michael Organ, Illawarra Historical Society
Mrs Olive Rodwell, local resident

3.2.2 Lead Sources and Pathways

Mr Hales, Assistant Manager Environment, Wollongong City Council, in his evidence to the Select Committee, states that the major environmental problem,

"...as the Council understands it, is the escape of fugitive emissions from the smelting operation near ground level. These fugitive emissions are understood to contain lead particulates and impact on the properties in the immediate vicinity of the smelter operation, specially within the 500 metre radius from the source". (evidence 8 November 1994)

The Select Committee is unsure on this emphasis on fugitive emissions and the relative unimportance of controlled (stack) emissions. The lead emissions data in the EIS (S14) for upgrading the smelter states that currently controlled (stack) emissions are 21 tonnes per annum and fugitive 5 tonnes per annum. Port Kembla is a heavy industry community, with stacks, noise and visual pollution being a part of its everyday existence. There has been a smelter on the current Southern Copper Ltd (SCL) site since 1908. Arguably, in this context, stack emissions are more readily tolerated but fugitive emissions, having an obvious and direct pathway from source to point of household contamination, are less tolerable.

Southern Copper Ltd expressed disappointment with the economic and environmental performance of their smelter:

Approximately \$155 million capital was spent in upgrading the plant in 1989-1991. New smelting technology was introduced to replace the old sinter plant and blast furnace. These measures and in particular the installation of an acid plant, resulted in improvements to environmental performance of the plant.

Difficulties were however encountered in commissioning the new plant and copper production has only slowly approached the design capacity. The environmental performance of the new plant, although improved compared with pre-redevelopment, has not met the expectations of either SCL or the local community (p2 of covering letter of S14)

In 1993 the EPA issued five Pollution Reduction Program (PRP) notices to SCL to rectify the environmental shortcomings.

3.2.3 Matters of Concern

The quantity and quality of data for blood lead levels in children in the Port Kembla community lags behind that of Broken Hill and Boolaroo. The Select Committee heard evidence that earlier blood testing in Port Kembla was compromised by poor response rate, problems with the methodology and problems at the laboratory. The Illawarra Public Health Unit, in conjunction with the Illawarra Health Unit (part of the University of Wollongong) have received funding of \$50,000 from the NSW Department of Health to perform another survey of children's blood lead levels in Port Kembla. This survey began in July this year, and will rectify the shortcomings of previous surveys. (Dr Westley-Wise, evidence 8 November).

On 30 November 1994 Southern Copper Ltd announced the cessation of production at the smelter and the retrenchment of nearly all employees. The plant will be placed on a care and maintenance regime in early 1995. The EPA advises that the current operating licence remains in force, but that the continuation of air monitoring beyond early 1995 is subject to negotiation.

The Select Committee regrets the loss of employment and the hardship to individuals, families and the community that may ensue.

But the Select Committee acknowledges the opportunity now for public health professionals to analyse the environmental toxicology and epidemiology of the cessation of a point source of lead in a point source community: what happens "when the tap is turned off?". The continuation of air monitoring would be an essential element of such a case study.

The following recommendations are relevant to the care and maintenance phase and/or to any recommencement of smelting by Southern Copper Ltd or any other entity.

3.2.4 Recommendations

16. that the Select Committee supports the implementation of the Port Kembla Interim Action Plan as recommended in the Interdepartmental Lead Taskforce Report *NSW Lead Management Action Plan 1994*.
17. further, the Select Committee recommends that a lead management plan similar to the lead Plan of Management for north Lake Macquarie be prepared and that the recommendations of this plan be implemented. (See recommendation 77 in Subsection 4.4.3 for further funding options.)
18. that the extent of environmental contamination of air, soil, water and sediments, in and around the Southern Copper smelter be determined in conjunction with the proposed management plan in recommendation 16 above.
19. that the EPA adopt a policy of community participation in the formulation of licence conditions of lead emitting industrial complexes. (This repeats recommendation 8 in Subsection 3.1.4)
20. that recommendations 74 and 75 under Lead in Air in Subsection 4.3.3 (lower standard to 1 microgram per cubic metre) be applied as a standard in the Southern Copper EPA licence agreement to ensure the control of fugitive emissions. (See recommendations 78 and 79 in Subsection 4.5.5).
21. that daily monitoring be undertaken from existing monitoring stations close to Southern Copper smelter instead of the current cycle of monitoring every sixth day.
22. that there be regular cross checks on Southern Copper pollution monitoring tests and the results be publicly available within four months of the test being completed.
23. that in relation to Southern Copper the EPA adopt recommendation 7 in Subsection 3.1.4 on heavy metals in effluent discharged from point source.
24. that the EPA adopt the recommendation 79 in Subsection 4.5.5 on licensing fugitive and stack emissions from point sources.
25. that there be an EPA re-evaluation of the Southern Copper upgrade, or any proposal to recommence smelting, to examine whether the current technology can meet the proposed changes to the ambient air lead level, and the recommended annual reductions in total emissions.
26. that the question of a Southern Copper buffer zone (including issues such as a child-free zone) be investigated by an Ethics Committee.

27. that a standardised cleaning protocol be developed and implemented to prevent lead from escaping from lead processing and mining sites as a result of transportation. This should include the cleaning of all vehicles moving off site by road and rail. (This repeats recommendation 13 in Subsection 3.1.4).
 28. (a) that in the event of smelting recommencing, more ambient air monitors be installed at appropriate locations at Port Kembla.
(b) that whether or not smelting recommences, ambient air monitors to be placed in school grounds in proximity to smelter.
 29. during the care and maintenance phase following cessation of production that Southern Copper be requested to undertake appropriate remediation of the site with particular attention to reducing fugitive emissions (*ie* presumably stack emissions will cease).
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3.3 Mining, Processing and Smelting at Broken Hill

3.3.1 Submissions, Evidence and Inspections

Submissions wholly or predominantly addressing this term of reference were received from:

Dr Brian Gulson (S1)
EPA (NSW) (S6)
Mr Mike van Alphen (S16)

At Broken Hill the Select Committee:

- held a public hearing at Broken Hill City Council
- inspected the operations of Pasmaenco Mining and was briefed by Pasmaenco senior management
- inspected the Environmental Lead Health Centre and was briefed by Centre management and scientific officers, and
- toured the city, inspecting lead contaminated properties and public areas undergoing remediation.

At the Broken Hill public hearing the following parties and individuals gave evidence under oath:

Mr William O'Neill, President, Barrier Industrial Council
Mr Phillip Bottrell, parent of child being monitored for high levels of blood lead
Mr Michael McGuinness, local businessman
Ms Joanne Boog, President, Back to Basics
Ms Shareen Johnson, occupant of house situated near to proposed open cut mine
Ms Dianne Locke, parent of child being monitored for high levels of blood lead
Mr George Kolsky, Project Manager, Broken Hill Environmental Lead Centre
Mr John Dini, General Manager, and Mr Robert McNamara, Senior Environmental Scientist, Pasmaenco Mining, Broken Hill

3.3.2 Lead Sources and Pathways

Pasmaenco Mining submits (evidence, 4 November 1994, and informal briefing, 3 November 1994) that the major source for lead contamination in Broken Hill is the weathered exposed ore body. The entire region is "mineralised". From a geological perspective, the high levels of lead in soil and dust confirm the proximity of the massive ore lode underneath (see Woodward-Clyde, *Evaluation of Environmental Lead at Broken Hill*, p4-8). The major pathway for lead contamination is lead in soil and household dust being ingested. The combination of arid climate and winds ensures high mobility for dust, entering every "nook and cranny" in houses and yards. Pasmaenco further contends that low blood lead levels of its mineworkers (comparable to levels in the general populace) confirms the thesis that the non-

oxidised lead ore has a negligible bioavailability. Pasminco concludes that their underground mine is not a source nor a pathway for elevated blood lead.

Smelting operations at Broken Hill spanned about four decades from the 1890s. The emissions and fumes from these operations would have contributed to the lead burden in soils and would have invaded buildings. It is not possible to differentiate lead emitted from previous smelting and other sources of lead, but this pathway to contamination would be minor when compared to the overwhelming availability of other, continuing sources.

Dr Brian Gulson (S1) has analysed the isotopic composition of samples of lead in soil and dust at Broken Hill and compared it with that of lead in blood in adults and children in Broken Hill. Lead has a "fingerprint"; lead comprises of a combination of lead isotopes *ie* varieties resulting from slight variations in atomic structure. Accordingly, a lead contamination pathway can be traced to its source by analysing ("fingerprinting") and comparing the isotopic compositions. Dr Gulson concluded that:

- adult males have blood lead levels and isotopic compositions related to their occupations and exposures
- adult females have low blood lead levels and variable isotopic compositions; the main source of lead is not from lead in house dust but probably a mixture of lead in petrol, food and perhaps water
- in children there is a moderate correlation of blood lead and isotopic composition indicating that the higher blood lead levels reflects a larger component of mine lead, or greater exposure to dust from mine dumps
- isotopic "fingerprinting" cannot differentiate lead contamination derived from the weathered ore body from that derived from lead mining or smelting operations.

The community at large, local organisations, mine operators, the scientists and other specialists in Broken Hill may differ on the precise definitions of sources and pathways for the elevated blood lead in children living in Broken Hill, but the problem is immediate, is now indisputably documented and all parties are now contributing to its resolution. The State Government instructed the Lead in Broken Hill Taskforce Working Group to report urgently. In response to the Working Group recommendations the State Government has provided \$3.37 million to establish and fund for two years an Environmental Lead Centre (ELC) at Broken Hill.

The Select Committee inspected the ELC, was briefed on its operations by senior staff, and subsequently heard evidence from the ELC's Project Manager, Mr George Kolsky (evidence 4 November 1994). The ELC became fully operational in late October 1994. The ELC is now implementing its first major program, door knocking every residence in Broken Hill to locate all children in the target group (ages 0-5) and subsequently to inform parents of the need for blood lead testing and of the facilities now available at the ELC. Preliminary data gathered by the door knockers indicates that about 1400 children have been identified. This program, combined with concurrent TV and newspaper lead awareness campaigns, has resulted in the number of children being tested rising to 120 per day. The ELC anticipates that about 90% of the target group will soon be tested in this program, providing the ELC with the test result database essential for the all further remedial activity and research.

Mr Kolsky stated that the ELC has a very close and fruitful relationship with the Port Pirie Environmental Health Centre (EHC). Staff from the ELC have travelled to Port Pirie and been briefed by Port Pirie EHC personnel.

The ELC is negotiating with the NSW Department of Housing to purchase three "alternate" houses to accommodate families requiring urgent relocation away from severe household contamination. The Department will also donate three houses to the ELC. Mr Kolsky stated that the term "safe" house, used in other places and contexts, is inappropriate for Broken Hill:

"A safe house implies that if a person goes from a house that has a problem that they will be automatically safe. Nobody can guarantee that anywhere in Broken Hill because it is a widespread problem... We will do everything in our power to make sure that they move to a house with as limited lead contamination as possible".

3.3.3 Matters of Concern

"Greening" or revegetating, as a remediation strategy, stabilises dust and top soil thereby immobilising the lead contamination or making it relatively inaccessible.

Two factors that militate against the "greening" or revegetating remediation strategy in semi-arid Broken Hill are the limited water resources and the high cost of water. The cost effectiveness of expensive water strategy *versus* the ongoing costs of managing Broken Hill's lead in dust problem should be re-evaluated. Rebates from the water authority, targeted to specific houses or sites suitable for remediation by revegetating, could defray the cost of remediation for the owner/householder.

Recommendation 11 of the Lead in Broken Hill Working Group Report states "that funds be provided to remediate approximately 100 houses in each year ... of the short term action plan". George Kolsky, Project Manager, ELC, indicated that remediation on this scale would consume the ELC's current budget quickly and entirely. In many cases, the cost of structural remediation would exceed half the value of the house and simply could not be justified. Land and housing economics in Broken Hill are peculiar, not conforming to the Australian norm. Anecdotal evidence suggests that miners did not invest in improving their housing. Low standard, even substandard, houses can be purchased for as little as \$12,000. Annual rents for houses, expressed as a fraction of market value of the house, are extremely high (20-30%; in Sydney 5-7% is the norm)

Further difficulties arise when builders/contractors performing remediation modifications to contaminated dwellings uncover irregularities (or worse) which compromise the structural integrity of the dwelling, or contravene building codes, and could invalidate the dwelling's legal status *eg* void insurance. Further, the contractors would require certain exemptions to perform remedial work which might otherwise be deemed irregular. Mr Kolsky indicated that these matters are being negotiated with Council and the other competent authorities.

Pasminco Mining plans to open cut mine at Potosi, about 5-6 kilometres from the centre of Broken Hill, commencing June 1996. In addition to complying with all the statutory

requirements for this new mining operation, Pasminco Mining must also deal with and satisfy all the misgivings and fears engendered by the greatly increased public awareness of lead pollution. Other potential problems are that the proposed mine is located in the catchment area of the Stephens Creek Reservoir, and there is at least one house located close to the mine perimeter.

3.3.4 Recommendations

- 30. that a long-term lead management strategy be devised and that the Government now commit long-term funding for the Broken Hill Environmental Centre, to facilitate ongoing work plus longer term research.**
- 31. that all Government departments and agencies be fully and regularly briefed on the developments in the management and remediation of lead in Broken Hill, to ensure that all possible avenues for further input are identified and explored.**
- 32. the "greening" or revegetating of Broken Hill to be a part of the long-term strategy.**
- 33. that consideration be given to assisting Broken Hill City Council to organise greater controls over the use of lead contaminated materials for**
 - a) concrete**
 - b) roadways**
 - c) driveways**
 - d) residential fill.**
- 34. that Pasminco Mining take further action to prevent the carrying of dust off their lease. Such action should include the provision of on-site laundering of workclothes.**
- 35. that all schools, pre-schools, kindergartens and child care centres under Government control in Broken Hill undergo an intensive program of lead hazard identification, and risk remediation and control, as a matter of urgency.**
- 36. that all schools, pre-schools, kindergartens and child care centres under private control in Broken Hill be informed of the lead hazard program, and that they be made aware of their obligations to provide safe facilities under duty of care.**
- 37. that the blood testing program in Broken Hill be expanded to test for children aged five to 13 years.**
- 38. that compensation be provided for people who have paid for the remediation of their own homes since 1991 and prior to the establishment of the Broken Hill Environmental Lead Centre.**

39. that the Department of Housing offer immediate transfer to alternate housing in other areas for families with children suffering from blood lead levels above 15 micrograms per decilitre. This assistance should be offered in order from the highest blood lead levels to the lowest.
 40. that the EPA adopt a policy of community participation in the formulation of licence conditions of large lead emitting industrial complexes. (This repeats recommendation 8 in Subsection 3.1.4).
 41. that a standardised cleaning protocol be developed and implemented to prevent lead from escaping from lead processing and mining sites as a result of transportation. This should include the cleaning of all vehicles moving off site by road and rail. (This repeats recommendation 13 in Subsection 3.1.4).
 42. that employers in the lead mining industry in Broken Hill comply with the provisions of the Worksafe Australia National Standard to Control Inorganic Lead at Work.
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3.4 Other Mining Operations in NSW

3.4.1 Submissions, Evidence and Inspections

Submissions wholly or predominantly addressing this term of reference were received from:
nil submissions.

The Select Committee received data on other mines that may be point sources and be implicated in pathways for lead contamination in adjoining communities in the voluminous material submitted to Parliament by the EPA in response to the Standing Order Number 54. This material has been catalogued but indepth analysis was incomplete at the time of writing of this report.

3.4.2 Lead Sources and Pathways

The Select Committee noted that some ore concentrate with significant lead content is supplied to smelters from mines in NSW other than Pasmaico Broken Hill.

3.4.3 Matters of Concern

The Select Committee acknowledges the uniqueness of the lead problem at Broken Hill, but is unsure whether elements of it are detectable in other mining communities, particularly those located in semi-arid regions.

3.4.4 Recommendations

- 43. that all employers in mines where lead ores are found comply with the provisions of the Worksafe Australia National Standard to Control Inorganic Lead at Work.**
- 44. (a) that it is advisable that targeted blood lead screening of children under the age of 5 be carried out in all lead mining communities in NSW. If lead poisoning rates in this sensitive age group are found to be high then older children and at risk adults should also be blood lead screened.**
(b) that an appropriate Lead Management Action Plan be prepared for each community that is found to have more than 10% of children with blood lead levels above 10 micrograms per decilitre.
- 45. that where the risk of contamination is significant a standardised cleaning protocol be developed and implemented to prevent lead from escaping from lead processing and mining sites as a result of transportation. This should include the**

cleaning of all vehicles moving off site by road and rail. (This repeats recommendation 13 in Subsection 3.1.4).

3.5 Other Lead-based Industries in NSW

3.5.1 Submissions, Evidence and Inspections

Submissions wholly or predominantly addressing this term of reference were received from:

Chamber of Mines, Metals and Extractive Industries (S11)
Marayong Residents Action Group
Australian Refined Alloys Pty Ltd

The Select Committee inspected the operations of Apollo Batteries Limited at Marayong and was briefed by management on the procedures for safe handling of industrial lead. The Select Committee also anticipates receiving a submission from the other significant lead acid battery producer, GNB Batteries Pty Ltd at Padstow.

At a public hearing at Parliament House the following parties and individuals gave evidence under oath:

Mr Ken Lane, General Manager, Australian Refined Alloys Pty Ltd
Mr Robert Schussler and Ms Jenny Cummins, Marayong Action Group
Ms Elizabeth O'Brien, The LEAD Group
Mr Ken Charteris, CEO, and Mr Tom Walsh, Production Manager, Apollo Batteries Ltd

3.5.2 Lead Sources and Pathways

The senior managers of Apollo Batteries gave evidence that their operations conform to all the conditions and standards of their EPA operating licence. The only sources of fugitive lead emissions would be in the event of a breakdown in the emissions control equipment or a major breakdown in the production process. Such an incident occurred in October 1994, soon after Apollo commenced operations at the Marayong site.

Australian Refined Alloys Pty Ltd (ARA) a joint venture of Pasminco Ltd and Simsmetal Ltd, is the sole battery recycling operation in NSW. Mr Ken Lane, General Manager of ARA, presented the following evidence to the Select Committee:

- a strong scrap metal merchant network in Australia ensures a very high capture of lead materials
- the lead acid battery recycling rate in Australia is 93-97%.

The relevant data for battery scrapping and recycling are:

- 100,000 tonnes of lead is encased in automotive batteries on Australian roads
- 3.8 million batteries are scrapped every year
- 3 million batteries are recycled annually by ARA

Further evidence indicates that many batteries are "missing" from the recycling process. ARA reported that surveys (commissioned by Pasminco Ltd) reveal that 19% of households store batteries; 8% have two or three batteries, 2% have six or more.

3.5.3 Matters of Concern

Under what conditions can industrial lead become a point source of lead contamination and be implicated in pathways? Can occupational exposure to lead be totally isolated, contained?

Pasminco Mining Broken Hill and BHAS smelter at Port Pirie require all vehicles exposed to lead ore and other contaminant dust pass through a water jet washing facility before driving off the site. Should this requirement be extended to vehicles, commercial and private, leaving lead-based industrial sites?

The Select Committee also heard evidence that the quoted rate of battery recycling, 93-97%, is very optimistic. The LEAD Group contends that a rate of 60-80% is more accurate (evidence 24 November). If this is correct then the number of "missing" batteries becomes a major concern.

3.5.4 Recommendations

- 46. that a register be compiled of all sites where lead-based industries are currently operating or have operated in the past.**
- 47. that lead usage be strictly monitored and registered: lead smelters/producers to compulsorily register precise amounts sold to processor/end-user, who in turn must log the precise amounts used in their product and the precise amounts "lost"/wasted during subsequent processing.**
- 48. that all employers in lead processing industries comply with the provisions of the Worksafe Australia National Standard to Control Inorganic Lead at Work.**
- 49. (a) that it is advisable that targeted blood lead screening of children under the age of 5 be carried out in all lead point source communities in NSW. If lead poisoning rates in this sensitive age group are found to be high then older children and at risk adults should also be blood lead screened.
(b) that an appropriate Lead Management Action Plan be prepared for each community that is found to have more than 10% of children with blood lead levels above 10 micrograms per decilitre. (This repeats recommendation 44 in Subsection 3.4.4)**
- 50. that the EPA adopt a policy of community participation in the formulation of licence conditions of large lead emitting industrial complexes. (This repeats recommendation 8 in Subsection 3.1.4)**

51. (a) that daily monitoring of lead in ambient air be undertaken at the Apollo site at Marayong.
- (b) that the EPA review licence and Development Application conditions to ensure that all are being complied with, and that particular emphasis be placed on possible fugitive emissions *eg* open doors and windows, vents and ceiling exhaust fans.
52. that where the risk of contamination is significant a standardised cleaning protocol be developed and implemented to prevent lead from escaping from lead processing and mining sites as a result of transportation. This should include the cleaning of all vehicles moving off site by road and rail. (This repeats recommendation 13 in Subsection 3.1.4).
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3.6 Lead Emissions from Motor Vehicles

3.6.1 Submissions, Evidence and Inspections

Submissions wholly or predominantly addressing this term of reference were received from:

Dr Brian Gulson (S1)
Australian Car-Pooling Agency (S3)
EPA (Vic) (S5)
EPA (NSW) (S6)
Eddie Ford Publications Pty Ltd (*Restored Cars*) (S9)
The Shell Company of Australia Ltd (S19)
Messrs Child, Brent and Dawson (S20)
Bus and Coach Association (NSW) (S20)
Strathfield Council (S26)
Australian Institute of Petroleum (S27)
Associated Octel (S29)
Caltex Refining Co Pty Ltd (S30)
Department of Environment, Sport and Territories (S32)
The LEAD Group (S34)

3.6.2 Lead Sources and Pathways

In urban areas, particularly older inner areas, the major source of lead in ambient air is motor vehicle emissions. The major pathway is not inhalation but ingestion of the airborne lead after it has settled on the ground and other surfaces.

All submissions listed above except two (S9 and S29) propose and promote the reduction of the lead content of leaded petrol, and the switch to unleaded petrol (ULP), eliminating entirely the use of leaded petrol. Two mechanisms are currently acting to achieve this:

- the staged reduction of the lead content of leaded petrol and the move to make uniform the States' regulations of lower lead content
- the increase in ULP consumption resulting from switching pre-1986 vehicles to ULP, and the replacement of pre-1986 vehicles with post-1986 vehicles equipped with catalytic converters

The levels of lead pollution in ambient air in Sydney have decreased markedly since the recent upsurge in ULP consumption. This upsurge has been generated by the introduction of differential pricing for ULP and leaded petrol and the public awareness campaign to inform motorists on switching selected pre-1986 vehicles to ULP.

Shell Australia (S19) submits that the current timetable for the reduction and ultimate elimination of lead in petrol is wholly defensible on scientific and cost-benefit grounds:

"It is important that any further moves to accelerate this phase-out are based on rigorous analysis of the environmental, health, and cost data... In the case of lead, costs could be analysed in terms of dollar cost per individual reduction of blood lead to a level below the accepted standard".

Caltex (S30) submits that the three-year lead-time for major investment in refinery modifications precludes any acceleration of the phase-out of leaded petrol:

"... (the) investments are already in place for 100% ULP (91 and 95 RON grades) by 2000".

3.6.3 Matters of Concern

Some parties in their submissions (S9, S20 and S29) expressed concern on the possibility of "collateral damage" *ie* the reduction and elimination of lead, a toxin, to be replaced by "aromatics", including benzene, a known carcinogen. The Australian Institute of Petroleum (S27) submits that leaded petrol and ULP currently have the same benzene component, that this component has been decreasing in recent years, and there are no plans to increase it..

The EPA gave evidence on the processes that have produced the reduction in lead content of leaded petrol. This is discussed in Subsection 4.3.2.

The Select Committee supports the recommendations of the Report of the Select Committee upon Motor Vehicle Emissions, tabled in November 1994. The recommendations of this Report are reproduced and included here as Subsection 3.6.5.

3.6.4 Recommendations

- 53. that the NSW Government and NSW petrol refiners negotiate with the Federal Government to reduce Federal tax on leaded petrol to compensate for expected increased costs to refineries as lead is removed from leaded petrol. (Currently, there is a two cent price differential between leaded petrol and unleaded petrol).**
- 54. that the Government investigate the use of ethanol and other additives to replace lead as an octane enhancer.**
- 55. (a) that, as an interim measure, while lead content of leaded petrol is being reduced, service stations be required to distribute lead education information to all purchasers of leaded petrol for an intensive three-month period.**
(b) that the RTA produce and circulate this information to encourage car owners, wherever possible, to switch to unleaded petrol.

56. that the EPA will release to the public the results of ambient lead in air monitoring as soon as they are known or within four months of the end of the monitoring period.
57. that the EPA investigate the effectiveness of physical barriers in protecting children in child care centres from lead contamination caused by vehicular emissions.

3.6.5 The Recommendations of the Select Committee upon Motor Vehicle Emissions

- 1 *That NSW adopt goals for all major motor vehicle-related pollutants that are in line with international best practice.*
- 2 *That the NSW government review the levels of lead currently allowed in petrol in New South Wales with a view to eliminating lead in petrol altogether by 1996.*
- 3 *That a review be undertaken of aromatics such as benzene with a view to goals being established for these in line with international best practice.*
- 4 *That NSW adopt an inspection and maintenance program to diagnose and repair all in-service vehicles which do not meet required levels of emission performance.*
- 5 *That the New South Wales Government express its concern to the Commonwealth Government that Australian Design Rules for emission controls in new vehicles are currently well behind, and are not anticipated to meet, international best practice.*
- 6 *That the New South Wales Government request that the Commonwealth Government review the present Australian Design Rule setting process with a view to expediting it.*
- 7 *That emission standards or goals be set as soon as possible for all in-service vehicles either at a State or National level.*
- 8 *That greater enforcement of the Smoky Vehicle enforcement program be undertaken by the EPA with the assistance of local council rangers.*
- 9 *That standards be reviewed for light commercial diesel engines with a view to bringing them into line with international best practice.*
- 10 *That the following key characteristics should form the basis of any emissions testing program which is introduced into NSW:*
 - (i) *testing outcomes for motorists should be reliable and guard against false results;*

- (ii) *any test implemented should provide convenience of access for motorists;*
 - (iii) *such a test should also equitably distribute costs on government and consumers;*
 - (iv) *any test implemented will be equally accessible to repair industry to ensure that vehicles are properly repaired.*
 - (v) *any testing regime introduced is subjected to regular and effective auditing.*
 - (vi) *all standards of equipment should be specified subject to the FORS/EPA testing program currently being undertaken.*
 - (vii) *mechanics operating within any emission testing scheme are suitably qualified and trained.*
 - (viii) *equipment is regularly calibrated and independently checked.*
- 11 *That a proportion of the 3 x 3 fuel levy be hypothecated toward rail infrastructure.*
- 12 *That the means of reducing hydrocarbon emissions in warmer months by reducing the vapour pressure of petrol be explored.*
- 13 *That strategies be developed which create increased incentives to phase older vehicles into retirement more quickly.*
- 14 *That planning agencies, including local councils, adopt policies which ensure*
- (i) *employment opportunities are centred around a public transport network;*
 - (ii) *car parking and access to rail/bus/ferry interchanges is optimised; and*
 - (iii) *multiple destinations, such as shopping centres, child care, schools and recreation facilities, are developed in close proximity.*
- 15 *That Sydney-wide strategies be formulated which:*
- (i) *reduce vehicle kilometres travelled (VKTs); and*
 - (ii) *trial ride sharing/car pooling relying on 'park and ride' facilities, employer-based schemes and other incentives.*

Section 4

Recommendations for Strategies, Priorities and Guidelines

4.1 Strategies and Priorities for Site Remediation

4.1.1 Submissions, Evidence and Inspections

Submissions wholly or predominantly addressing this term of reference were received from:

Dr Brian Gulson (S1)
Mr Roger Alsop (S2)
Mr Michael Organ (S4)
Environment Protection Authority (S6)
Mr Stephen Brown (S10)
Chamber of Mines, Metals and Extractive Industries (S11)
Mr C M Owens (S12)
Pasminco Metals-Sulphide (S13)
Southern Copper Ltd (S14)
Mr Mike van Alphen (S16)
Council of the City of Wollongong (S17)
Pollution Research (S18)
Lake Macquarie City Council (S28)
Ms Elizabeth O'Brien *et al* (S31)
Dr Chris Winder (S33)

4.1.2 The Thrust of Submissions and Evidence

All strategies, measures and priorities for site remediation fundamentally proceed from the identification of the lead contamination and the delineation of the site. The strategies for site remediation must include consideration for further action to preclude or limit recontamination.

The seminal document on this topic for Australian consumers is *Australian and New Zealand Guidelines for the Assessment and Management of Contaminated Sites*, produced jointly by the Australian and New Zealand Environment and Conservation Council and the National Health and Medical Research Council.

The major points of the submissions and evidence included:

- there are high levels of lead contamination in soil and sediment in waterways adjoining current point sources of emissions. High levels are also present in the sediments very large bodies of water *eg* Sydney Harbour, the legacy of contaminated urban runoff and industrial effluent.
- a detailed history of previous landuse/operations is essential for the identification of potential sites and the confirmation of existing contaminated sites.

- leaded paint in housing is a point source of lead contamination for the occupants. Leaded paint in housing, when disturbed in renovating *etc*, is also a point source of lead contamination for occupants of adjoining houses. Submissions and evidence on this aspect of lead pollution was a very strong and useful corrective to the popular notion lead in paint is "no longer a problem".
- following from the above point, decontaminated houses are rapidly and easily recontaminated by careless or non-professional removal of leaded paint in nearby housing

The Lead Contamination in Houses Project, a fee-for-service project of the Chemical Safety and Applied Toxicology Unit within the Department of Safety Science, University of New South Wales, has examined 13 houses for lead contamination. The houses were referred to the Project by concerned owners. All houses bar one are located in older Sydney suburbs adjoining Parramatta River: Of the 13, 11 were found to have significant lead paint contamination. Obviously, this sample is extremely small but the high "hit" rate (11/13 or 85%) and the high levels of contamination indicate that further research into identifying contaminated housing is essential

4.1.3 Recommendations

Lead in paint

58. (a) that a Lead Management Plan be developed for inner Sydney.
 (b) that the plan include the establishment of an Environmental Lead Centre, which would carry out targeted blood lead screening and environmental lead surveillance in order to target appropriate remediation strategies, *eg* lead paint abatement in public housing, child care centres and lower socio-economic housing. The Environmental Lead Centre could be incorporated into the Government's proposed Lead Reference Centre in Sydney.
59. that the following initiatives be implemented:
 (a) all householders and people responsible for young children be provided with information on identifying lead hazards and general advice on minimising lead risks.
 (b) local councils establish mechanisms for the distribution of lead poisoning prevention material to everyone making building or development applications.
 (c) the NSW Department of Housing inspect and abate lead-based paint in public housing, including opportunistic abatement (*ie* when housing units are vacant between tenants).
 (d) the Department of School Education and TAFE compile a register of school buildings and facilities under their jurisdiction built before 1970 or at risk of lead contamination. That the level of risk be determined by "Risk Assessment Questionnaire" included in The Lead in Soil and Dust Working Group Report. That the risks of high levels of hand to mouth activity, pica, iron deficiency and

the age of the children be taken into account in determining priority. That abatement be opportunistic (*ie* during holdiays).

60. that training, accreditation and licensing of key groups, such as consultants offering lead assessment services and commercial remediators, be established. That training programs include the identification of hazards, the hazards of lead remediation, and the means for the control of lead risks, including methods for disposal of wood and other materials painted with lead-based paint.
 61. that lead poisoning prevention and lead abatement training be included in community training for the unemployed and others eligible for retraining under various State and Federal schemes in high risk lead contamination areas, *eg* Skillshare, Workers Education Association courses, TAFE.
 62. that the Government support in principle and consider the US EPA's proposed lead abatement training institute in Sydney, which will train professional lead assessors and lead abatement contractors for NSW and the Pacific region.
 63. that standards be developed and implemented for lead in soil and dust, lead in domestic paint surfaces and lead in household dust above which specified remedial action is required to be taken.
 64. that the NSW Department of Health or the Lead Reference Centre provide a service of lead assessment for householders.
 65. that effective lead remediation techniques and products should be evaluated by the EPA, both in terms of their effectiveness in removing lead risks and their effectiveness in preventing recontamination.
 66. that lead contaminated waterways and harbours be identified and remediation plans be prepared.
 67. that the NSW Government request the Federal Government to establish clear guidelines for lead based paint hazard evaluation and control in all federally-assisted, -owned, and -insured housing.
 68. (a) that the EPA assess the results of the testing of soils in *Glebe Heavy Metal Survey*.
(b) that the Public Health Unit for Central Sydney immediately advise Glebe residents of the significance of the soil lead results and their recommended responses to the results, to ensure that the soil lead contamination does not impact on children in the area.
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4.2 Strategies and Priorities for Monitoring At Risk Persons

4.2.1 Submissions, Evidence and Inspections

Submissions wholly or predominantly addressing this term of reference were received from:

Hunter Area Health Service (S8)

The strategies and priorities for the monitoring of at risk persons was a major concern in evidence given to the Select Committee in hearings at Parliament House, at the point source communities and at Broken Hill.

4.2.2 The Thrust of Submissions and Evidence

At risk persons are predominantly pre-school and school children living, or exposed, in the following locations and/or situations:

- Broken Hill
- Port Kembla, near smelter
- north Lake Macquarie, near smelter
- in urban areas close to roads with very high traffic volumes and/or congestion
- in buildings painted with leaded paint
- in buildings with plumbing containing lead
- on contaminated sites, where contamination may be current or historical

The significant non-occupational at risk adult is the pregnant women with a history of early childhood exposure to lead. Current research suggests that the hormonal changes during pregnancy mobilise lead stored in skeletal tissue and transfer it to the foetus. The neonate of a woman with high blood lead levels during pregnancy, whether caused by the mother's current exposure to lead or the mobilisation of her existing body lead burden, will have blood lead levels similar to its mother.

The submission of Mr Mike van Alphen (S16) included an exhaustive list of lead sources and pathways (this list is reproduced in Appendix 5). Mr Herbert Beauchamp, of the Total Environment Centre, gave further evidence (8 November) of individuals "at risk" from occupational and non-occupational exposure. These included civilian and police shooters and shooting instructors in enclosed shooting ranges. In California police shooting instructors were found to have blood lead levels in the range of 50-100 micrograms per decilitre

These unusual or adventitious sources of lead exposure must be identified and assessed as contributors to lead pathways. These sources will become more prominent as broad remediation measures *eg* elimination of lead from petrol, produce a general reduction in blood lead levels in entire populations.

4.2.3 Recommendations

69. that targeted blood lead screening be undertaken for children attending primary schools and child care centres determined to be lead contaminated.
 70. that the Royal College of General Practitioners consider providing training and information about contemporary lead issues.
 71. that the NSW Health Department undertake voluntary blood lead screening of children aged 9-48 months, in Glebe, followed by screening of older children if the prevalence of blood lead levels above 10 micrograms per decilitre is higher than the state average.
 72. that the Lead Reference Centre or NSW Health Department carry out a voluntary blood lead survey of adults (including pregnant women) and children older than five years. A corresponding desk study be undertaken on the health effects of lead on adults and children older than five.
-

4.3 Timetable for Enforcement of Lower Standards

4.3.1 Submissions, Evidence and Inspections

Submissions wholly or predominantly addressing this term of reference were received from:

EPA (S6)
National Health and Medical Research Council (S24)
Shell Company of Australia Ltd (S19)
Australian Institute of Petroleum Ltd (S27)
Caltex Refining Company Ltd (S30)
The LEAD Group (S34)
The No Lead Group (S35)

4.3.2 The Thrust of Submissions and Evidence

Two timetables, or timeframes, were frequently cited and discussed in evidence and submissions:

- the mooted reduction in the standard for lead in ambient air
- the reduction and elimination of lead in petrol

The NH&MRC has indicated that the current standard for lead in ambient air in urban environments, 1.5 micrograms per cubic metre, may require review in order to be consistent with the national goal of all Australians to have blood lead concentrations below 10 micrograms per decilitre.

In the covering letter of its submission (S24) the NH&MRC states:

...with the restructuring of the NH&MRC's committee system, there has not been the opportunity for the relevant (lead in air) committee to meet to consider whether this is a priority matter which needs to be addressed.

The NH&MRC has since communicated to the Select Committee that the relevant NH&MRC committee convened in November 1994; no decisions were made on this matter, and the committee will reconvene in February 1995.

The goal of 10 micrograms per decilitre was a recommendation of the 115th session of the NH&MRC, June 1993, and its achievement (or lack of) is to be reviewed in 1995.

The EPA is now advising its operating licencees that the lead in ambient air "goalposts are moving", and therefore all current plans for upgrading of plant and equipment must accommodate this contingency. Dr Neil Shepherd, EPA, evidence (17 October):

"We (the EPA) are now looking with both Pasminco (at Boolaroo) and Southern Copper (at Port Kembla) ... to further reduce the amount of lead that is allowable in air. We are seeking to drop the level from 1.5 to 1 microgram per cubic metre and the reason that we are doing that is that the old standard of 1.5 was adequate, if you like, when the level of concern for blood lead was 25 micrograms per decilitre; now that we are looking at 15 micrograms per decilitre and then probably the current air emission standards will have to be lowered. At the moment the legal standard is 1.5 micrograms per cubic metre".

Four views on the current timetable for the reduction and elimination of lead in petrol are:

- the current timetable is currently producing marked decreases in lead in ambient air
- the current timetable is cost-effective
- national uniform lead content regulation may be ultimately desirable but currently is not essential
- because the current timetable is working and is producing tangible improvements it should be accelerated.

Repeating one of the conclusions of the Shell submission (S19) stated previously in section 3.6.2 of this Report: Shell submits that the current timetable for lead in petrol reduction and ultimate elimination is wholly defensible on scientific and cost-benefit grounds. In its subsequent evidence (16 November) to the Select Committee Shell stated that if an accelerated phase-out were to be mandated it could be more cost-effective for Shell and other refiners to buy up all non-ULP vehicles ("cash for clunkers") than to rapidly re-engineer refineries to produce the requisite ULP blend.

Dr Neil Shepherd, EPA, argued that movement towards a uniform national standard for lead content of leaded petrol may not be in the public interest:

"The problems are not uniform and environmental problems often need to be dealt with even on a catchment-by-catchment basis rather than just a statewide or nationwide basis. In some of those States, South Australia for example, ... the lead levels they currently have in petrol are not going to cause them a short-term problem. I know it will cause them a long-term problem... We (New South Wales) already have a problem and we need to deal with it quickly".
(evidence 17 October)

The movement to national standards involves much time-consuming consultation, emergence of consensus, *etc.* The EPA and the NSW refiners, Shell and Caltex, have negotiated reductions in lead content in advance of the regulations. The following exchange of question and answer between Mr Jeff Hunter, Deputy Chairman, and Dr Neil Shepherd, EPA, illustrates the *modus operandi* of the EPA and the refiners:

Mr Hunter: So we have got the Government announcing to the people that we are lowering the lead in petrol and we have not adjusted the appropriate government regulations which would enforce that lowering.

Dr Shepherd: There has not been a need to do that at the moment. Everybody is doing that voluntarily. We can do that if that is perceived by the Committee to be desirable and we would do that I would think once we got down to 0.2 (grams per litre) at the end of December 1994. That is the logical time to set the limit.

Mr Hunter: So at this stage we have petrol coming in from other States and being sold and it is not illegal for that to happen because the regulation has not been adjusted.

Dr Shepherd: It would not be illegal for that to happen but I think the understanding is very clear between the petrol suppliers or the refineries and the Government on what is and what is not required. **Often you put the regulation in place afterwards, once you get the program bedded down and that is a relatively normal practice with regulations.** (emphasis added)

The following questions asked by Ms Sandra Nori, Select Committee member, answered by Ms Elizabeth O'Brien, the LEAD Group, in evidence (8 November) state the case for an accelerated phase-out of leaded petrol:

Ms Nori: What are your feelings about the need to introduce legislation (or) regulation to totally eliminate lead from petrol as of now?

Ms O'Brien: Yes. It's absolutely essential and it was agreed with all of the stakeholders who were at the Working Group on Lead in Petrol that there should be zero lead in petrol by 1996 in New South Wales. It is achievable. Obviously it has been achieved overseas. You don't have to get all the old cars off the road; you don't have to add benzene; you in fact can do it at the same time as decreasing the benzene level if there is legislation for reformulated fuel in New South Wales. This is a possibility. You have the power.

Ms Nori: What would you see as a result in statistical terms; in terms of the inner city kids; in terms of the kids at Forest Lodge Public School; Rozelle Public School?

Ms O'Brien: Basically the expected result is that it would reduce ... approximately - the figures ... between 16% and 25% of children currently above the (blood lead) level of 10 (micrograms per decilitre). It would reduce that to 5% above the level of 10 (micrograms per decilitre). Those 5% remaining being those children affected by renovation basically. There is always the odd case of a child who eats a lead sinker. But basically you get down to 5% being above 10 (micrograms per decilitre) if you eliminate lead from petrol. Currently the level, depending on which are you are looking at, (is) 25% at least in inner Sydney and 16% of children in the whole of Sydney are affected.

Ms Nori: That's quite clear that inner city kids of Sydney are the ones who are most affected ... kids at point source communities like Port Pirie and Boolaroo and so on have got a different problem. But if we are looking at the sheer number of children in the metropolitan area and so on it is quite clear. It is unambiguous. The statistics show that it's the inner city kids that represent the greatest number of children at risk in terms of quantity?

Ms O'Brien: Yes

The Report of the Lead in Petrol Working Group recommended the target of zero lead by the end of 1996 (see Appendix 3.7.10 of the EPA submission, S6). Three members of that Working Group dissented. Associated Octel, the producer of the lead additive for petrol, disputes health risk of leaded petrol emissions based on the correlation of motor vehicle emissions and blood lead levels. The refiners, Shell and Caltex, did not support legislation for the continued reduction of lead in petrol. These three bodies repeated these views in their submissions and evidence to this Select Committee upon Lead Pollution.

The Report of the New South Wales Interdepartmental Lead Taskforce, New South Wales Lead Management Action Plan 1994 upholds the view of the refiners, preferring to recommend objectives for national standardisation of petrol and the continued switch to ULP.

The Select Committee upon Motor Vehicle Emissions Report, November 1994, recommends:

That the NSW government review the levels of lead currently allowed in petrol in New South Wales with a view to eliminating lead in petrol altogether by 1996 (see Chapter 1, p9).

4.3.3 Recommendations

73. that all State governments and other interested parties lobby the Federal Government to maintain the integrity and competence of the NH&MRC, and thus maintain the NH&MRC's input into the lead problem.

Lead in Air

74. that the NSW Government lower the current lead in ambient air standard of 1.5 micrograms per cubic metre to 1 microgram per cubic metre. This would be an interim measure awaiting any further lowering of the standard at a national level.

Lead from Point Sources

75. that the goal of 1.0 microgram per cubic metre for lead in ambient air become a standard by the end of 1996 and be enforced in industry licensing.
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4.4 Responsibility for Cost of Remediation and Monitoring

4.4.1 Submissions, Evidence and Inspections

Submissions wholly or predominantly addressing this term of reference were received from:

Council of the City of Wollongong (S17)
The LEAD Group (S34)
The No Lead Group (S35)

4.4.2 The Thrust of Submissions and Evidence

The Select Committee sought to rectify the low number of submissions by questioning individuals and parties giving evidence in public hearings.

Wollongong City Council in its submission (S17) appealed for financial assistance to be provided to householders and property owners to defray remediating costs. The submission did not stipulate the source(s) of this funding. When this was queried in the evidence (8 November 1994) of Mr Hales, representing Wollongong City Council, responded:

"... my personal view I think... that the broad community has enjoyed the benefits of the operations of the company (*ie* the Southern Copper smelter) whereas the local community has suffered the disbenefits, that perhaps the broader community needs to somehow devise some sort of formula (for assistance)".

Representatives of the Australian Paint Manufacturers' Federation and of the Chamber of Mines, Metals and Extractive Industries acknowledged the "legacy" of historical use/abuse of lead.

The Paint Manufacturers' representatives gave evidence of their cooperation with the Commonwealth EPA in producing and distributing 300,000 brochures advising safe procedures for the removal or management of leaded paints (evidence 24 October 1994). They stated that research to establish the prevalence of the problem of leaded paint in housing was lacking. On the costs of remediation

"... that question does need an answer because it presupposes that there are large numbers of houses out there which are in a highly dangerous state and need to be refurbished or cleansed of lead-based paint, and I think that that is certainly not the case".

The evidence of the Paint Manufacturers' representatives included considerable detail on the four major different forms of lead used, or in use, in paint. This differentiation of lead(s) in paint was not evident in other submissions and evidence. All discussion of remediation of lead

paint contamination in submissions and evidence was devoid of any discussion of which lead may be more or less dangerous, prevalent, *etc.* The Select Committee is unsure of the effects of the different lead(s), and the impact they may have on strategies for remediation and their costs.

The Chamber of Mines representatives stated in their evidence (24 October) that any response to the question of responsibility for the costs of site remediation was dependent upon the outcome of the ANZECC consultative process on financial liability (see the note at conclusion of this section).

4.4.3 Recommendations

76. **that all parties with an interest in lead site contamination and its remediation should examine the following two publications:**

Financial Liability for Contaminated Site Remediation

A discussion paper prepared by the Australian and New Zealand Environment and Conservation Council

June 1993

Financial Liability for Contaminated Site Remediation

A position paper by the Australian and New Zealand Environment and Conservation Council

April 1994

77. **that the Government immediately establish a "Ways and Means" Committee with representatives of all stakeholders (Federal, State and Local Government, industry, community *etc.*) to establish an agreement whereby Government and industry would share the costs of remediation and monitoring of contaminated areas.**
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4.5 Guidelines for Environment Protection Authority Operating Licences

4.5.1 Submissions, Evidence and Inspections

Submissions wholly or predominantly addressing this term of reference were received from:

nil submissions

4.5.2 The Thrust of Submissions and Evidence

Dr Neil Shepherd, Director-General, EPA, discussed some aspects of the EPA Operating Licences for Pasmaenco Metals-Sulphide at Boolaroo and Southern Copper at Port Kembla (evidence, 17 October 1994). The Operating Licences are public documents. The Select Committee requested and received copies of the Operating Licences for the Pasmaenco smelter at Boolaroo, the Southern Copper smelter at Port Kembla, Pasmaenco's south mine at Broken Hill and the Apollo Batteries factory at Marayong .

4.5.3 Monitoring Air Quality at Point and Linear Sources

Many submissions and much evidence were concerned with the efficacy of the EPA's protocols for monitoring emissions at point and linear sources.

The EPA supplied maps to the Select Committee precisely identifying the location of all ambient air monitors in use along linear sources (*ie* roads) in Sydney. The Select Committee acknowledges that not all of these monitors are configured to collect data on lead in ambient air. The network was established primarily to monitor other pollutants, especially the precursors to hydrocarbon smog.

Views on the monitoring of ambient air at point sources (*ie* smelters) in compliance with EPA Operating Licences can be broadly characterised as follows: the EPA and the companies operating under licence are generally satisfied with the stringency of current arrangements; residents close to the point source and the responsible public health agency express reservations.

Dr John Stephenson, Director of the Public Health Unit, Hunter Area Health Service, wrote to the Select Committee on the shortcomings of the current monitoring regime at Boolaroo:

It would be of considerable assistance to those of us involved in monitoring the environment in this area to have available daily lead in air measures to supplement the 90 day moving average figures which are currently provided to the EPA. In the past there have been significant "spikes" of high lead in air levels over short periods which however have the capacity to contribute to the overall environmental lead burden. We would submit that it is important to

have an ongoing appreciation of the frequency of these higher than average levels of emission as well as the extent by which they exceed the current standards. To retain the co-operation of the local community in the blood lead monitoring program as well as its goodwill in relation to the smelter, we believe that adequate and timely environmental data are essential in order to manage any remediation programs. (Letter to Select Committee, 28 November)

4.5.4 Monitoring Water Quality at Point Sources

The intractable lead contamination of sediments in waterways that receive licenced quantities of effluent is particularly difficult to justify to this and following generations.

In the case of the smelter at Boolaroo the quantity of effluent discharged into Cockle Creek is now consistently less than the EPA operating licence stipulates. The smelter is licenced to discharge 500 kilograms of lead per annum into Cockle Creek, at the maximum rate of 1.0 milligram per litre of flow. Currently, the flow rate is 0.48 milligrams of lead per litre. If this flow rate is maintained for the full year the total discharge will be about 277 kilograms (this data communicated by Mr George Dodds, EPA, to Select Committee officer).

4.5.5 Recommendations

- 78. that the lead in ambient air goal proposed in recommendation 75 in Subsection 4.3.3 become a standard in EPA licensing agreements by the end of 1996.**
 - 79. that wherever possible, EPA operating licences contain conditions for the reduction of lead emissions (including fugitive emissions) from any lead point source and be based on quantitative annual reductions in lead emissions, and that reductions beyond the minimum in any one year count towards following years.**
 - 80. that the EPA adopt recommendation 6 in Subsection 3.1.4 on heavy metals in effluent discharged from point sources under EPA licence.**
-

4.6 Other Actions to Address Lead Problems

4.6.1 Submissions, Evidence and Inspections

Submissions wholly or predominantly addressing this term of reference were received from:

nil submissions

Many submissions and some evidence addressed some of the more unusual or less common instances of lead sources and pathways.

4.6.2 The Thrust of Submissions and Evidence

During an informal briefing at the Port Pirie Environmental Health Centre the subject of lead contamination of tank water was raised. In or near a point source community lead particulates could settle on the roof and then be washed into the tank. Other possible sources include the rainwater being in contact with leaded paint on the roof, lead solder in the guttering and the tank, lead in the joins and tap fittings.

4.6.3 Recommendations

81. that tank water in rural communities and on individual rural properties to be randomly tested for lead content by an appropriate authority.
82. that the NSW Government undertake a program to rationalise the many and varied regulations covering lead use in products. That the program focus on regulations that are now out-of-date because of the revision of the NH&MRC lead in blood guidelines.

Lead in Paint

83. that there be an extensive education campaign to distribute lead poisoning prevention leaflets with the sale to the public of paint and the sale and hire of paint removal and dust abatement equipment.
84. that a warning label about all risks of lead poisoning and lead contamination be placed on all paint cans.

Lead in Plumbing Products

85. due to the differing views given in evidence, the Select Committee recommends that further testing for lead in first flush drinking water, rainwater tanks and

drinking fountains ("bubblers") in schools, high rise buildings and older urban areas be undertaken.

86. that the NSW Government conduct an education program to inform home handypersons of the dangers of using lead solder in plumbing.

Recycling Lead

87. that the NSW Government examine the extent of current recycling programs for products containing lead, such as batteries, television sets, electronic devices, light bulbs and others. That the Government identify barriers and opportunities for recycling and where appropriate develop programs for greater recycling of these products.
88. (a) that the NSW Government implement a lead acid battery recycling program to ensure that the rate of recycling exceeds 100% *ie* that there be incentives to ensure more disused batteries are collected and recycled than the number of new batteries sold (as occurs in some states of the USA).
(b) that the NSW Government enter into negotiations with the Service Stations Association to request that its members act as collection points for disused batteries.
(c) that the dumping of lead acid batteries in municipal waste, for either landfill or incineration, be banned.

Nutrition Programs and Lead in Food

89. that the NSW Health Department investigate nutrition programs that will help eliminate iron deficiencies among young children and promote these programs throughout the health sector.
90. that the NSW Government approach the Federal Government for a national policy to ban the manufacture and importation of lead soldered food cans.

Lead in sewerage/sludge

91. that the NSW Government consider as a standard the current guideline for a maximum concentration of lead in sewerage sludge of 300 milligrams per kilogram.

Lead in Fertilisers

92. that the NSW Government seek Federal cooperation to examine the prohibition of the sale of fertilisers containing more than 0.05% lead or lead compounds.

Lead in Other Species

93. that a desk study be undertaken of available data on lead levels and its effects on species other than human.

Other Lead Exposures

94. (a) that the NSW Government prohibit the sale and use of lead in children's toys, paints and crayons and other products in which lead can readily be replaced.
- (b) that the dangers of lead shot, lead fishing weights, lead crystal ware and ceramic ware, hobbies involving lead and other products in which lead can be readily replaced be subjected to public awareness campaigns and alternatives promoted.
-

Section 5

**A comparison of the
Recommendations of the
Interdepartmental Lead Taskforce
Working Group Reports
and the
Recommendations of the
*Report of the New South Wales
Interdepartmental Lead Taskforce:
New South Wales Lead Management Action Plan 1994*
plus
additional Recommendations
arising from this comparison**

COMMENTS ON THE "REPORT OF THE NEW SOUTH WALES
INTERDEPARTMENTAL LEAD TASKFORCE: NEW SOUTH WALES LEAD
MANAGEMENT ACTION PLAN, 1994"

16 November 1994

The following review compares Section 3 ("Lead Management Action Plan") of Volume 1 of the "Report of the Interdepartmental Lead Taskforce" (November 1994) with the recommendations in the Reports of the various Working Groups, which were submitted to the Taskforce in late 1993 and early 1994. The Working Group Reports formed Appendix 3 of the EPA's "Submission to the NSW Parliamentary Select Committee Upon Lead Pollution". The Working Group Reports also form Appendix 3 of Volume 2 of the "Report of the Interdepartmental Lead Taskforce".

In order to compare the two documents, three questions were asked:

i) what's missing from the Lead Management Action Plan that was integral to the Working Group Recommendations? (listed in the following review under the heading Omissions)

ii) what has been added to the Lead Management Action Plan which was not integral to the Working Group Recommendations? (heading Additions)

iii) have there been any substantial alterations to the intent of the Working Group Recommendations? (heading Alterations)

This comparison does not address a fourth possible question:

iv) were the Working Group Recommendations sufficient to solve the various lead issues in NSW?

The review will deal with the sections of the Lead Management Action Plan of the Taskforce Report (TR) in order, listing omissions, alterations and additions as they occur.

Section 3.1 of the Taskforce Report: INTRODUCTION TO THE LEAD MANAGEMENT ACTION PLAN

Additions

TR 3.1.1 Overview of the Issues
TR 3.1.2 Discussion

This section develops and synthesises the recommendations of the working groups and is a definite improvement. Lists the responsibilities of the Lead Reference Centre, which have not been previously fully listed.

Alterations

TR 3.1.2 Discussion

Lists two points on the Lead Reference Centre's timeline:

- a) the Centre's lifespan will be 2 years;
- b) within 6 months of establishment, issues requiring research should have been identified. By comparison to a) above, the Lead in Soil and Dust Working Group Report recommends that:

"funding be provided to establish a dedicated lead program which incorporates all aspects of lead health problems and lead in the environment including responsibility for coordination of issues related to health, education, monitoring, research and abatement. The program should report annually to Parliament and be reviewed after 5 years."

Additions

TR 3.1.2 Discussion

Also lists the requirements of Environmental Lead Centres, if established, in point source communities, their minimum staffing and a note on joint industry and government funding.

Section 3.2 of the Taskforce Report: CORE STRATEGIES OF THE LEAD MANAGEMENT ACTION PLAN

Additions

TR 1. Establishment of a Lead Reference Centre

While the Lead in Education Working Group Report recommends the establishment of a "Lead Reference Centre to co-ordinate, develop and conduct education strategies recommended in this report", The Taskforce Report gives the Centre staff much wider responsibility than just education strategies, by saying:

"The Lead Reference Centre...should comprise a small group of dedicated professionals who facilitate the implementation of the Government's lead management strategies..."

Omissions

TR 1. Establishment of a Lead Reference Centre

It is perhaps pertinent to this strategy, which will of course require funding, to mention the Lead in Soil and Dust Working Group Report recommendation 12, that "the roles of Federal, State and Local Government in the lead strategy be clearly identified and appropriately resourced to undertake those roles." It is not stated how the Lead Reference Centre would be funded or whether Federal Funds have been sought.

Additions

TR 2. Establish Environmental Lead Centres in Point-source Communities

The Lead in Broken Hill Working Group Report recommends that, "in order to provide a focal point for the community to obtain information, blood testing or advice, and to centralise [short term remediation action] program activities, as well as providing accommodation for the work team, a Broken Hill Environmental Lead Centre should be established".

The Lead Education Working Group Report recommends that, "a Lead Management Plan needs to be developed urgently for North Lake Macquarie" and that, "an assessment of the lead risk in the Port Kembla area should be undertaken as soon as possible as a prelude to the development of a Lead Management Plan for the area..."

The Taskforce Report synthesises these three

recommendations into a more comprehensive strategy:- "The establishment of community Environmental Lead Centres in point source communities where a significant lead contamination problem has been found to exist...".

Omissions

TR 2. Establish Environmental Lead Centres in Point-source Communities

The comprehensive strategy referred to above does however possibly exclude multi-source communities where a significant lead contamination problem has been found to exist. No rationale is given as to why only point source communities should be considered for the establishment of Environmental Lead Centres. The Executive Summary of the "EPA's Submission to the Joint Select Committee upon Lead Pollution" states:

"In NSW during the early 1990's, concerns about lead contamination were also emerging from several sites around the State. These included Broken Hill, North Lake Macquarie, Port Kembla and the inner suburbs of Sydney where blood lead surveys revealed that a significant proportion of children had elevated blood lead levels."

The functions of the state's single Lead Reference Centre would be distinctly different to the functions of the Environmental Lead Centres, which include:

"to develop protocols and action plans to resolve local issues; and

"to provide an interface with the local community."

The Report of the Lead in Air Working Group makes clear the need to "provide for equitable consideration of all people likely to be affected by lead contamination."

Section 3.3 of the Taskforce Report: LEAD IN AIR

Additions

TR Goal

The goal is new: "To outline management structures which, when implemented, will ensure that the impact of lead in air on the elevation of blood lead levels is minimised."

Omissions

TR 1. Identification of Problem Areas

The two TR strategies listed under this heading are inadequate to cover the LAWGR recommendations number 5, 16, 26, 34, 35 or 38 which call for survey ambient monitoring able to be initiated by community request, determination of the amount of lead emitted from various Australian timbers during wood burning, establishment by EPA of a background level against which incremental point source contributions to lead in air can be assessed, studies of lead in air around linear (eg road) sources, including lead in air inside cars and houses and lead in air measured by personal monitors on children with high blood lead levels.

Alterations

TR 1. Identification of Problem Areas

Rather than recommending the "undertaking of blood lead sampling of high risk populations to determine if the lead exposure pathways are impacting on community health" as the TR Strategy (2) puts it, LAWGR recommendation 42 says:

"Ambient lead in air levels should be used to identify those areas where lead in blood surveys should be carried out. Investigations should then be undertaken to determine how reduced blood lead levels and lead in the environment could be achieved."

Additions

TR 2. Control of Fugitive and Point-source Emissions

(This heading should be **Control of Fugitive and Stack Emissions from Point Sources and Control of Emissions from Non-point Sources** given the content of this section.)

This section is poorly organised with Objectives relating to both point and linear (e.g. road) sources and Strategies relating to point sources and non-point sources (e.g. buildings). There are no strategies specifically relating to road sources. However the inclusion of linear (eg roads) in the TR Objective "To minimise and control the incidence of lead emissions to air from both point and linear (eg. roads) sources." constitutes an additional component to strategies to overcome the issue of lead from linear sources. The LAWGR recommendation 6.2.4 deals with major roads only by including them in an education strategy which "should include provisions to ensure that local councils, developers and residents are aware of the potential risks involved and are provided with appropriate advice to enable informed decision making".

The TR strategy specifically mentions fugitive emissions as an issue to be incorporated into the management strategy whereas fugitive emissions are not listed in LAWGR priority actions. Several LAWGR recommendations seek to control and monitor emissions but don't distinguish between stack and fugitive emissions. Singling out fugitive emissions is a necessary improvement over the LAWGR recommendations.

Omissions

TR 2. Control of Fugitive and Point-source Emissions

LAWGR recommendation 6.2.2 states:

"The Working Group is conscious that many of its recommendations on emission control and management from point sources relate to regulatory procedures. The Working Group commends to the Taskforce comprehensive programs based on industry initiative, incorporating "Community Right to Know" principles, in preference to regulation alone."

Regulatory procedures are not mentioned in the Objective Source strategies of TR 2. Control of Fugitive and Point Source Emissions.

Alterations

TR 3. Education

Whereas the education strategies include:

"Provide ready access to information and strategies to the community."

the LAWGR recommendation 6.2.1 says

"The Working Group is of the view that, particularly in relation to point source locations, comprehensive community consultation programs are crucial if that part of the community which is most at risk from point sources is to be represented adequately."

TR 4. Review of Standards

The TR strategies include:

"Request that the NHMRC in conjunction with ANZECC, establish a monitoring protocol for taking samples to determine compliance with the NHMRC goals and objectives."

Whereas the LAWGR recommendation 10 states:

"All monitoring regimes, including the location of monitoring stations should be introduced as a result of consultation among industry, the EPA and the community." Recommendations 27 and 28 of the LAWGR clearly state that "Modelling methods should be used to determine where monitors are located" and that "for point sources, monitors should be located generally where modelling predicts the highest...levels will occur". Passing the decision-making responsibility about placement of monitors onto another body would seem to be superfluous as the Lead in Air working Group has already determined the best policy.

LAWGR recommendation 31 gives responsibility for determining the frequency and technique for stack emissions to a community monitoring committee. In addition LAWGR recommendation 9 states that:

"If ambient air monitoring undertaken by the company establishes that the NHMRC goal is exceeded, and if an identifiable remedy is not available, daily monitoring should be required as an addition to EPA licensing conditions, to provide adequate data for an emissions control and management program to be devised. There should be a provision under the conditions of the licence for action against the company if it refuses to introduce daily monitoring."

Thus the TR strategy under 3. Review of Standards does not correlate with the LAWGR recommendations on who should make decisions on monitoring regimes. The TR strategy involves passing the responsibility on to an organisation of state, territory and federal levels of government, one in which no legislative powers yet exist. However in 2. Control of Fugitive and Point Source Emissions one of the issues to be incorporated into the management strategy is:

"Regular stack emissions testing for factories (testing rates should vary depending on emission rates)."

[NB While the comparison of TR Section 3.3 Lead in Air to Appendix 3.1 LAWGR in the EPA Submission to the Joint Select Committee has been thorough, due to time constraints the remaining sections of both documents will be compared in a more cursory manner.]

Section 3.4 of the Taskforce Report: LEAD IN BROKEN HILL

Additions

Section 3.4 of the TR incorporates strategies for North Lake Macquarie and Port Kembla, whereas the Lead in Broken Hill Working Group Report (LBrokenHillWGR) only dealt with lead in Broken Hill and the issues of lead in North Lake Macquarie and in Port Kembla were not mentioned by name in the recommendations of the LAirWGR, though clearly the TR strategy for these locations draws mainly on the recommendations of the LBrokenHillWGR and the LAirWGR, as well as on recommendations 10 and 11 of the Lead Education Working Group Report.

Omissions

TR 1. Strategy Management

Though "short term strategy" and "interim" measures are mentioned throughout the TR Section 3.4, there is no mention of the Long Term Strategy, which should form a third strategy in this section (Strategy Management). The LBrokenHillWGR declares that "At a minimum, the Long Term Strategy will be submitted within twelve months of the initiation of the Short Term Strategy", ie by June 1995.

Further strategies for this section would be required to cover:

two components of the LBrokenHillWGR not mentioned elsewhere, ie a community based greening program and additional research into the dynamics of lead contamination in Broken Hill;

and recommendations 9 and 13 of the LBHWGR, which are designed to control the major sources of lead in Broken Hill (ie control sources in general, not just control sources for children who have already been lead poisoned) and to develop a staged action plan "correlating blood lead levels with the corresponding management actions."

Section 3.5 of the Taskforce Report: LEAD IN CHILDREN'S BLOOD

Omissions

TR Goal

Both the terms of reference and the recommendations of the Lead in Children's Blood Working Group Report (LCBloodWGR) cover proposals which will reduce children's blood lead levels, yet the Goal for Lead in Children's Blood only talks about measuring children's blood lead and evaluating interventions. This has allowed the TR the grave omission of any pledge to speed the reduction of lead from vehicle emissions. LCBloodWGR General recommendation 5.1.2 lists as the first "public health intervention most likely to have the greatest impact on blood lead levels in NSW: the removal of lead from petrol". The second intervention listed supports the LBrokenHillWGR recommendation 9 which was omitted from Section 3.4 of the TR, ie "reducing lead emissions and lead contamination around primary lead processing sites".

LCBloodWGR general Recommendation 5.1.3 says that the current ambient lead in air standard needs to be lowered because it is inconsistent with the stated goal of reducing blood lead levels to below 10 micrograms per decilitre. Revision of the lead in air standard is not mentioned in TR Section 3.5.

Although the TR says that the establishment of the Lead Reference Centre underpins the successful implementation of the objectives and strategies to achieve the goal for Lead in Children's Blood, in the subsections of the TR which follow, the Lead Reference Centre is not assigned a role in either surveillance or quality control, which raises the question of the need for environmental Lead Centres in non-point source areas of high incidence of elevated blood lead levels such as inner Sydney.

Omissions

TR 1. Surveillance

The three TR strategies totally ignore LCBloodWGR recommendation 5.2.3 which recommends targeted screening ie, blood testing for children at risk of elevated blood lead levels, including children with pica, young children in older housing, children living on or near main roads (if this is shown to be a risk factor in the blood lead survey), etc.

Omissions

TR 3. Education

LCBloodWGR recommendations 5.6.1 and 5.6.2 have been completely ignored. They are that personnel be suitably trained to investigate lead contamination in the domestic environment, and that resources be allocated to counselling services for parents or children with elevated blood lead levels. These recommendations may be carried out by the Lead Reference Centre or by Environmental Lead Centres if set up in point-source communities, but there would appear to be no provision for such services in non-point source areas.

Omissions

TR 4. Evaluation

The TR fails to mention evaluation of abatement programs conducted on an individual basis (from LCBloodWGR recommendation 5.5.1) and evaluation of abatement programs by monitoring the incidence of elevated lead levels discovered through targeted screening programs. (An Environmental Lead Centre would be well placed to carry out such monitoring).

Section 3.6 of the Taskforce report: LEAD EDUCATION

Omissions

TR 3. Development of Training and Education Programs

Recommendation 3 of the Lead Education Working Group Report (LEducationWGR) has been omitted. It says that a new TAFE course for those working in lead abatement and assessment is recommended.

Alterations

TR 4. Development of Specifically Targeted Community Education Material

TR Strategy (1), "Develop an information booklet for parents of children affected by high blood lead levels", complies with LEducationWGR recommendation 7, but the TR assigns responsibility for Strategy implementation to the Lead Reference Centre with the assistance of relevant authorities [EPA?, Health Department?]. This could only comply with the LEducationWGR recommendation if the Lead Reference Centre was operated by a Non Government Organisation (NGO) or out of a Public Health Unit. LEducationWGR recommendation 7 is very specific that the material for parents should be developed and distributed by General Practitioners (GP's), Public Health Units and NGO's. The TR does not mention a role for NGO's (apart from the Australian Institute of Environmental Health), Public Health Units or GP's at all in lead education, even though all three are obviously vital.

Additions

TR 4. Development of Specifically Targeted Community Education Material

The fifth TR strategy does not get a mention in the LEducationWGR recommendations, but is a logical inclusion:

(5) "Review the lead education program in the context of the needs of the Aboriginal community.

(Strategy Implementation: the Lead Reference Centre with the assistance of an appropriate liaison committee)"

Omissions

TR 5. Development, Co-ordination and Dissemination of Education Material

TR Strategy (3) is to "Review and assist the development of lead education material produced for local council implementation [sic]", yet Local Councils are not listed under Strategy Implementation. The whole strategy is not as forceful or definite as the LEducationWGR recommendation 18:

"That Local Government includes in all Building Applications, information on lead paint and plumbing issues. This issue should be developed by the institute of Environmental Health with input from the proposed Lead Reference Centre, Councils, Community, Industry and the EPA."

Section 3.7 of the Taskforce Report: LEAD IN FOOD

Omissions

TR 2. Surveillance

The Lead in Food Working Group Report (LFoodWGR) recommendation 9.2 states that food producing industries should be encouraged to take part in the forthcoming National Residue Survey. This is not mentioned in the TR so it is unclear as to which organisation might be responsible for doing the encouraging.

Similarly the part of LFoodWGR recommendation 9.4 which recommends testing for lead and other heavy metals in ceiling dust and air conditioning ducts of schools, especially pre-schools and long day care centres, and removal of dust where high lead poisoning risk occurs, is ignored in the Taskforce Report (TR).

Other omissions include:

LFoodWGR recommendation 9.5 - routine testing of imported and Australian fertilisers, sewage fertilisers and sewage composts, for lead;

LFoodWGR recommendation 9.6 - customer pays testing of garden soil lead levels and food lead levels to be provided by NSW Agriculture at a cost of \$25 per sample.

Section 3.8 of the Taskforce Report: LEAD IN PAINT

Omissions

TR 1. Information and Education Material

Lead in Paint Working Group Report (LPaintWGR) recommendation 16 recommends that the Lead Reference Centre should be required to keep:-

- i) a register of consultants and labs who can identify, sample and test paint suspected of containing lead;
- ii) a list of suppliers of do-it-yourself lead test kits.

LPaintWGR recommendation 17B, is that "the education campaign clearly set out that the lead risk in renovation of older homes is not limited to paint containing lead" [Recommendation 17B lists 20 other lead sources which may be disturbed during renovation in homes]. This recommendation has not been adhered to in either the goal of TR Section 3.8 or in any of the objectives and strategies.

LPaintWGR recommendation 17C, that "the removal of paint containing lead in houses is best carried out by trained professionals", has been overlooked.

Omissions

TR 2. Augmentation of Administrative and Regulatory Control

While the Lead in Soil and Dust Working Group Report recommends that "the Government provide regulations or guidelines on the...training, certifying and monitoring of lead abatement contractors and assessors", the LPaintWGR with its recommendation for a voluntary industry-run register of industry-trained lead paint abatement workers and assessors is supported by the TR:-

"Establish and maintain a register of tradespeople who work on residential buildings and who have completed relevant training courses on lead paint issues. (Strategy implementation: Master Painters, Decorators and Signwriters Association).

LPaintWGR recommendation 13 to study the costs and benefits of recycling lead paint waste, has also been ignored in deference to disposal of such waste.

Section 3.9 of the Taskforce Report: LEAD IN PETROL

Alterations

TR Goal

In consideration of the Long Term Proposal of the Lead in Petrol Working Group Report (LPetrolWGR), that a stepwise reduction to zero lead in petrol by the end of 1996 be legislated as soon as possible, the TR Goal is a huge change. Instead of the goal being to reduce the lead content of leaded petrol in NSW, the TR Goal is: "To reduce the impact of leaded petrol on the population of NSW."

Omissions

The TR Goal and all the objectives and strategies in Section 3.9 do however comply with the dissenting opinion of the Shell and Caltex refineries, who did not support the "long term proposal that legislative changes may be required to force the continued reduction of lead in petrol". As a result, each of the recommendations supporting the removal of lead from petrol, in both the LCBloodWGR and the LPetrolWGR is omitted from the TR. These are:

LPetrolWGR recommendations 7.3.1.1 (reduce lead in petrol to an average of 0.15 and a maximum of 0.2 g/L by the end of 1994), 7.3.1.2 (reduce lead to 0.05 g/L by the end of 1995), 7.3.1.3 (zero lead by the end of 1996) and 7.3.1.(a) to (d) (associated matters to be explored to determine the achievability of the above lead in petrol levels.

Omissions

TR 1. Information and Education

The LPetrolWGR's strong support for initiatives that aim to increase the modal share of public transport and reduce transport emissions (eg pricing mechanisms that reflect the advantages of public transport over private cars) are not evident in the TR.

The fourth recommendation of the LPetrolWGR Short Term Strategy gives some excellent examples of ways of raising community awareness about use of unleaded petrol (ULP). These could easily have formed a strategy each, but they were omitted. eg stickers identifying cars capable of using ULP to be applied during reregistration check, pamphlets sent to NRMA

members with Open Road, membership renewal and insurance renewal.

The sixth recommendation of the LPetrolWGR Short Term Strategy says "The NSW Government should make all possible efforts to have the Federal Government fund, in whole or part, required education and abatement programs in NSW from the increase in the Federal leaded petrol excise on the basis of litres sold." Funding an NGO to carry out community education would seem to be an obvious and acceptable way (acceptable to Australian EPA) to bring Federal funds to bear on the NSW lead issue.

Omissions

TR 2. Augmentation of Administrative and Regulatory Control

LPetrolWGR recommendation 7.3.4 recommends economic instruments (such as tradeable rights) in reducing the amount of lead from petrol. "These economic instruments should target refiners, distributors and consumers. No mention of economic instruments appears in the TR.

LPetrolWGR recommendation 7.3.5 expresses the need to review the total tonnage of lead used in petrol and set targets for the continued reduction of total lead used in petrol. These recommendations were to take place at the Lead Roundtable Review. According to the minutes of the Lead Roundtable Review (see attached), this did not occur. Neither did the NSW State representatives at the Review raise the question of the NSW Government assisting the Federal Government in "testing and implementing alternative octane enhancers and fuel additives to protect valves of leaded vehicles." (LPetrolWGR recommendation 7.3.6.) No strategy deals with this recommendation.

Similarly there is no strategy to deal with the third LPetrolWGR recommendation of the Short Term Strategy:-

"Data for NSW sales of leaded and unleaded fuel, figures of total tonnage of lead added to petrol, and ambient air data should be assessed by the relevant authorities on a quarterly basis to ascertain the short-term impact of the lead in petrol reduction strategy."

Section 3.10 of the Taskforce Report: LEAD IN SOIL AND DUST

Omissions

TR 1. Establishment of Lead Risk Status in NSW

A minor omission is the proviso that techniques for removing dust from interior and exterior surfaces should be "consistent with ecologically best practices". (Lead in Soil and Dust Working Group Report (LSoildWGR) recommendation 6c.)

Alterations

TR 2. Education

TR Strategy (1) - establishment of a Lead Reference Centre to develop and disseminate education materials - is to be implemented by the NSW Government alone. By contrast, recommendation 4 of the LSoildWGR calls for comprehensive education campaigns to be developed in consultation and coordination with National, State and Local Governments, and the community.

Omissions

TR 3. Standards and Protocols

Entirely missing from TR Section 3.10 is any acknowledgement of the important LSoildWGR recommendation 9, that:

"the Government provide regulations and/or guidelines on the abatement and safe removal of lead, and the training, certifying and monitoring of lead abatement contractors and assessors."

Section 3.11 of the Taskforce Report: LEAD IN WATER AND WASTEWATER

Additions

TR Note (on same page as the Goal)

Although the Lead in Water and Wastewater Working Group Report (LWaterWWGR) lists the complex of government authorities currently managing the water, wastewater and stormwater systems in NSW, the TR further notes that "consideration should be given to establishing a multi-authority forum to develop and implement the proposed strategies". This idea is not mentioned in any of the LWaterWWGR recommendations.

The TR Note lists the benefits of a multi-authority forum, including centralised information and pooled expertise.

Once noted, the multi-authority forum is not mentioned again throughout the remainder of TR Section 3.11, where only existing authorities are assigned tasks in Strategy Implementation.

Alterations

TR 1. Data Collection

Both the TR and the LWaterWWGR recommend a water sampling program but, whereas the TR gives as examples of areas to be sampled high rise buildings, schools and old urban areas, the LWaterWWGR gives high rise buildings, schools, bottled water and rainwater tanks.

Alterations

TR 2. Materials and Standards

In place of the sixth LWaterWWGR recommendation on Materials and Standards, ie:

"that water supply authorities and individuals take action to reduce the lead present in systems under their control whenever the opportunity arises"

there is a radically different sixth TR strategy on Materials and Standards, ie:

"Continue the campaign to reduce industrial discharges containing lead into the wastewater system."

Additions

TR 3. Education

The LWaterWWGR recommendations do not single out first draw water and consumption of hot water, but the TR Education strategy includes targeted education campaigns which:

"focus on problems associated with first draw water and the use of hot water systems used specifically for consumption purposes."

Omissions

TR 3. Education

The LWaterWWGR recommends that the education campaign should clearly describe the relative risks and importance of different lead sources and the interaction between the components.

TR 3. Education does not specifically mention this and nor do any of the strategies in TR 3.6 Lead Education, though it is clearly a contentious issue, especially amongst the various sectors of the lead producing/lead utilising industry.

Additions

TR 4. Water Supply and Water Treatment

The sixth strategy in this section of the TR is not mentioned in the LWaterWWGR recommendations. The TR strategy is to:

(b) "Develop effective and economic mitigation techniques.

(Strategy Implementation: Water Board/ Local Water Authorities)"

REVIEW COMPLETED 21 NOVEMBER 1994

5.1 Additional Recommendations

Refer to Subsection 4.6 of this Report and second page of the comparison in this Section.

95. **that the Lead Reference Centre program coordinate issues related to health, education, monitoring, research and abatement. That the program coordinator report annually to Parliament and be reviewed after 2 years.**
 96. **that the Select Committee supports the implementation of the remaining Recommendations of the *New South Wales Lead Management Action Plan 1994***
 97. **that the Select Committee supports the implementation of the Recommendations of the nine Interdepartmental Working Groups Reports.**
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