REPORT OF THE

LEAD IN SOIL AND DUST

WORKING GROUP

Prepared for the

NSW GOVERNMENT LEAD TASKFORCE

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REPORT BY THE SUB-COMMITTEE ON

BIOPHYSICAL ENVIRONMENT

LEAD IN SOIL AND DUST WORKING GROUP

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SOURCES OF LEAD IN SOIL AND DUSTS

Soil, sediment and surface dusts are the ultimate receptacles for all forms of lead in the environment. Lead in soil and dust can come from atmospheric fallout from the combustion of leaded petrol and industrial emissions, weathering and chipping of lead-based paint, scraping and sanding of lead-based paint in preparation for refinishing, renovations that break surfaces painted with lead-based paint, industrial solid waste, and dust or soil that is carried into the home on shoes and clothing (especially from factories or construction sites) or by pets.

The concentration of lead in soils near highways is related to traffic density, local meteorological conditions, vegetation and topography. In general, deposition drops off abruptly with increasing distance from the road. This is demonstrated in several studies that show that surface soil lead decreases exponentially from the edge of the road, with the danger zone being less than 50 m.

The physical processes of mining, transporting crushing and grinding of lead containing ores result in the production of large quantities of fugitive emissions, ie, emissions that essentially escape rather than being discharged in a controlled stream. Most of the particles from these early stages of lead production are relatively large in size and settle out close to the point of emission.

Near primary and secondary smelters, lead in soil decreases within a 10 km zone around the smelter complex. Lead contamination, around the Pasminco Metals-Sulphide smelter (Boolaroo, Newcastle), decreased rapidly with distance from the smelter taking into account directional plumes.

Lead-based paints are one of the major sources of lead in soil and dust. The intake of lead from surface dust is increased markedly by the presence of flaking paint, paint chips or weathered powdered paint. Exterior lead-based paint, especially defective paint, is an important source of lead in soil and household dust. Interior lead-based paint was also

found to be a source of interior dust on floors. The chance of a dwelling having excessive dust lead is about four times greater if it has some lead-based paint. Neighbouring buildings with deteriorating lead-based paint may also be a lead source. The problem can be aggravated in high density urban areas where lead-based paints may be removed from large surface areas and concentrated in small backyards/courtyards.

Lead containing building materials (flashing, PVC stabilisers, bronze and brass alloys in plumbing, old water pipes, leadlighting, etc.), lead shot, lead oxide used in glassmaking, radiation shields, fishing and diving weights, etc., may all contribute to hot spots of soil lead contamination. Many work and hobby activities (furniture refinishing, stained glass, pottery) may also result in localised contamination of soil and dust.

Lead industry workers may bring scrap material home or lead dust in their work clothes. Burning wood painted with lead-based paint generates leaded fumes and produces ash that may result in contamination of soil and dust. Municipal, industrial, medical waste and crematorium incinerators may be significant sources of airborne and solid waste lead.

Air borne lead contamination contributes significantly to household surface dust concentrations. This dust is generally mobile and will decrease with reductions in air lead emissions. Household leaded dust which is derived from lead contaminated soil presents a long term exposure potential to children. This source of lead contaminated dust will not decrease with reductions in lead emissions to air.

Required management strategies include:

i) reduce lead sources when and where ever possible, but focus where the impact of the lead source on elevated blood lead levels is high;

ii) control lead closest to its source

iii) undertake extensive education programs to improve understanding of and for encouragement of risk reduction activities.

LEAD IN SOIL

All soils contain lead in varying concentrations depending on their geological source.

The Australian and New Zealand Environment and Conservation Council (ANZECC) and the National Health and Medical Research Council (NHMRC) guidelines call for further investigation of soils where lead in soil exceeds 300 mg/kg (Refer later part of this report).

Generally the background concentrations of lead in soils is less than 50 mg/kg (NSW Agriculture and NSW EPA studies). However, background concentration of naturally

occurring lead in soils may be much higher in close proximity to lead-bearing ore deposits. In these areas, concentrations around 1,000 mg/kg can be detected. Broken Hill is an example of this situation.

Tiller has estimated background concentrations of lead in urban Sydney surface soils, from non-industrialised sites, range from 2.7 - 170 mg/kg (n=70). He also estimates that in Australian rural soils the range of background lead concentration to be 2 - 160 mg/kg (n=160).

Issues

- While it is argued that generic action levels should not be set and that each individual site should be considered site specifically, this is largely unacceptable to the community and will result in the adoption of the 300 mg/kg guideline as an across the board defacto action level. Therefore, soil lead action guidelines should be established to guide individuals in decision making processes.

- A significant area of both public and private land may be over the ANZECC and NHMRC guidelines (1992).

- The prevalence of soils exceeding ANZECC/NHMRC guidelines will depend on:

  a) the age and building materials used in constructing the house (e.g. paints)

  b) proximity to emissions (e.g. roads, smelters)

  c) background concentrations (ore bodies)

  d) waste repositories.

- Little information is available on the number of properties affected by leaded paints in NSW, an issue for consideration of the Lead is Paint Working Group.

- Few definitive studies have been undertaken in Sydney to identify the number of properties effected by vehicle emissions and the limiting distance away from roads where this effect might be observable. However, studies have been done overseas which may be used as a guide.

- The distribution of high lead contamination should be considered during planning processes. The unnecessary placing of high risk populations (children) in these areas should be avoided (eg. preschools). Where unavoidable, information on risk minimising practices should be made available.

- A comprehensive education programme is paramount to the management of lead in soils. This programme should include risk identification, risk minimisation actions and the testing and analysis of residential soils where warranted.

. Government assistance with the sampling and analytical processes should be considered.

. Sources of information should be well circulated and readily accessible

LEAD IN DUST IN THE HOME ENVIRONMENT

Dust is a totally different media from soil. Whilst sampling protocols for soil are comparatively standardised and accepted internationally, those for dust are totally inadequate but are being subjected to extensive evaluation in the USA.

Lead in dust is a complex mixture of fine particles of soil, flaked paint, and airborne lead from industrial, automotive or natural origin. Dust particles accumulate on exposed surfaces and become trapped in clothing fibres and carpets making dusts a persistent on-going source of lead and a ready pathway of exposure.

There are three general categories of lead dusts:

i) household (air borne lead contaminants deposited in the house)

ii) external (air borne lead contaminants deposited on outside surfaces, including ground surfaces)

iii) re-entrained (usually external dusts becoming internal dust through dirt entering on the feet of occupants or pets, or through wind action).

Dust has been described in both concentration and abundance. The concentration of lead in street dust may be the same in a rural and urban environment, but the amount of dust may differ by a wide margin. Additionally, dusts may be contaminated with lead from a different combination of sources. Household dusts may contain atmospheric lead, paint lead, and soil lead. Street dusts may contain atmospheric, soil and occasionally paint lead.

Dust is a normal component of the home environment. Generally, dust is removed for reasons of aesthetic appearance, hygiene and respiratory health. In many instances, lead bearing dusts are very persistent and will remain a continued source of lead exposure. Lead contamination in dusts will remain high when:

a) the rate of deposition is high. This occurs when

* lead concentrations in air are high
* lead concentrations in soils are high and unstabilised (resulting in a high rate of mechanical transfer from soils to house dust)
* workers exposed occupationally to lead dusts may carry dust home in amounts too small for efficient removal but with lead concentrations much higher than normal baseline values; or

b) the particle size is small and lead bearing dusts may

* be entrenched in carpets, furniture or curtains
* not be removed effectively by normal cleaning methods such as sweeping
* pass through the filter systems of domestic vacuum cleaner.

Issues

. Depletion of lead in petrol is a step in the right direction to reducing sources of lead but the lead already in household dusts must be addressed separately.

. The amount of lead in urban dust can be very high, particularly near busy roads and in the vicinity of houses with lead-based paint. Dust in smelter and mining communities also contain high levels of lead. More than 90% of the additional exposure received from living in an urban area or near a smelter is attributable to lead in the dusts in those environments. Consequently, dust sampling, management and prevention methods should be identified for areas of high risk.

. The relationship between soil lead and dust levels should be fully explored particularly in mining and smelter communities.

. Because of the possibility that some common remediation or cleaning methods may be adding to a child's blood lead burden, the effectiveness of these methods, such as vacuum cleaning, should be fully investigated and validated.

. Techniques for removing lead-bearing dust in and around domestic dwellings, and on interior and exterior household surfaces and objects need to be researched.

. Guideline criteria for acceptable levels of dust are not comparable to soil guidelines owing to the higher concentration of smaller particles in dust.

. Ingestion rates for soils and dusts should be determined. Behaviour patterns and exposure pathways indoors, may not be comparable to the out door, soil lead contaminated, situation.

ROUTES AND PATHWAYS OF EXPOSURE

Lead contaminated soil and dust from any source acts as a significant but variable exposure pathway to children. Lead deposited into the dust and soil is a long-term potential exposure risk.

The effects of lead are the same regardless of the route of entry into the body. For the general population exposure to lead occurs primarily via the oral route (hands, food and utensils) with some contribution from inhalation (of airborne particles such as lead from vehicle exhausts).

The effects of lead contaminated soil and dust are best measured by blood lead sampling. However, in order to determine effective management strategies, it is important to consider the pathways in which the lead in soil or dust is taken in by the child and, through uptake, how it increases blood lead levels.

In general, preschool children (especially 1-2 year olds) are at highest risk from lead in soils and dusts due to:

a) high intakes of soil and dust through normal hand-to-mouth and play activities; and

b) children absorb a higher proportion of lead than adults.

Ingestion of dust and soil during meals and playtime activity appears to be a more significant pathway than inhalation for young children. This exposure pathway will dominate other pathways when the child's surroundings, especially soil and dust, are significantly contaminated with lead (US EPA, 1986d). For dietary lead, absorption in children is approximately 50% compared with 15% for adults. Almost all 9-12 month old children, if placed in exposed soil, will consume hand fulls of dirt during normal exploratory behaviour.

Exposure to lead can originate with contaminated soil/dust carried into the home. In both urban and mining communities, researchers have shown that the indirect pathway for ingestion of lead by children to be lead in soil --> lead on floors --> lead on hands --> lead in blood. Therefore, the need for a child to come into direct contact with soil outside the home does not appear to be a necessary precondition for soil lead to have an impact on children's blood lead. Household dust has been shown to be more important source of lead exposure than garden soil.

Issues

- Lead in aerosol sized particles deposited on rigid surfaces (such as footpaths, verandahs, paved backyards, etc) does not undergo dilution compared to lead transferred by deposition onto soils. Children who live and play in these environments can be exposed to high concentrations of lead.

- Vacuum cleaning will remove dust from some surfaces but it may merely disperse dust on hard surfaces and may concentrate the smallest particles in the dust by trapping large particles and emitting the smaller particles in the exhaust. A child that follows a suction vacuum cleaner around the house whilst in operation may be at risk of exposure by inhalation and ingestion to highly bioavailable concentrations of lead.

- From consideration of the above, child behaviour, parental actions and domestic circumstances are significant variables impacting on blood lead levels.

- Remediation of lead contaminated dusts need to be considered in concert with the remediation of soils.

- Future investigations need to place more emphasis on the effect of lead contaminated dusts on elevating blood lead levels.

EFFECTS OF SOIL AND DUST LEAD ON THE ENVIRONMENT

Although lead occurs naturally it plays no known beneficial role in biological processes. Lead is a natural toxicant which affects a broad spectrum of species and persists in the environment. Elevated ambient lead levels can seriously disrupt population and ecosystem dynamics. Lead is considered as a hazardous ecotoxicant (OECD, 1991).

Plants tend to absorb lead from the soil and retain most of it in their roots. Plant foliage may also intake lead and transfer it to other parts of the plant. The effect of lead exposure on plants include inhibited plant growth, reduced photosynthesis and reduced water absorption. All of these effects may result in plant death or reproductive failure. Some evidence suggests that the lead can affect population genetics.

As with soils, lead on vegetation surfaces decreases significantly with distance away from roadsides or smelters. For many years, plant surfaces have been used as indicators of lead pollution. These studies show that lead on the surface of leaves and bark is proportional to traffic density and distance from the highway, or more specifically, to air concentrations and particle size distributions. The data show that lead in internal plant tissues is directly, although not always linearly, related to lead in soil.

High soil lead also affects populations of micro-organisms which may either be destroyed or be made less effective in decomposing matter. Collective damage to organisms disrupts the cycling of nutrients through an ecosystem, resulting either in detrimental displacement of lead-intolerant species with lead-tolerant species, or in the loss of energy and nutrients from a system and the subsequent decrease in productivity.

Grazing animals are directly affected by the consumption of lead which is in or on the plant or in the soil attached to the plant roots. Toxin exchange and accumulation may occur between predator and invertebrates.

PREVALENCE OF CONTAMINATED LAND IN NSW

Under the Environmentally Hazardous Chemicals Act (1985) and the Unhealthy Building Land Act (1990), the EPA controls the assessment and remediation of contaminated sites through direction placed on the Title holder of a property. More than 2000 sites have been investigated by the EPA. However, less than 10 would be specifically listed as contaminated with lead. Most of these sites would have been identified as a consequence

of their previous industrial or commercial use. These sites generally present minimal lead exposure potential to children. No lead affected residential properties have been managed by these Acts.

There is little information on the extent of lead contamination of residential properties in NSW, apart from several studies in the vicinity of significant point sources (Boolaroo and Broken Hill), and also some work undertaken in Sydney adjacent to high density traffic routes. Recent Sydney studies found high levels of lead in blood of children who live in places with high levels of lead in house dust and backyard soils.

Issues

- It is not possible to reliably estimate the number of properties in NSW that pose a health hazard. This will not be possible until more soil survey data are available. The cost of providing this data at the necessary level of detail would be substantial.

OVERVIEW OF LEGISLATION AND GOVERNMENT RESPONSIBILITIES TO MANAGE LEAD IN SOIL AND DUST

In reviewing the current status of legislative and management responsibility for lead contaminated soil and dust, the following need to be considered:

a) Sources (management of emissions);

b) Sinks (management of contaminated environments eg soils and household dusts);

c) Pathways (lead is a health/environmental problem when a pathway(s) exists from the sink/source to the individual.

Environmental legislation (largely administered by the EPA) contains various provisions relating to the emission and/or generation of contaminating dust and sediments and to the assessment, control and notification of contaminated sites.

Sources

Legislation to Control Emissions to Atmosphere

The legislation is sufficiently flexible to accommodate the EPA policy of requiring Best Available Technology, Economically Available (BATEA). This ensures that where practicable, emissions are lower than the maximum allowable by the Regulations of the Clean Air Act 1969. At current emission rates from major sources, deposition and therefore re-contamination are much lower than in the past and will continue to decrease as more effective control strategies are implemented.

Legislation to Control Discharges to Waters

Lead contamination of sediments may be accounted for under the Clean Waters Act (1970) and Regulations which limit the discharge of lead to waters (and therefore to sediments). Both the EPA and authorised officers of other agencies can enforce prosecutions under this Act, but only the EPA administers the approval and licensing provisions.

Sinks (contaminated sites)

In NSW contaminated sites are managed by the Environmentally Hazardous Chemicals Act (1985) (EHCA) and the Unhealthy Building Land Act (1990) (UBLA) (administered by the EPA), and Section 149 of the Environment Planning & Assessment Act (EP&AA) (administered by councils).

The EHCA and UBLA empower the EPA, where it suspects a site to be contaminated, to

a) assess (or order assessment of) the site
b) order remediation and/or other appropriate management
c) limit subsequent uses of the site, and
d) include the property on a register to ensure that all subsequent users are advised of the condition of, and restrictions on the use of, the site.

Section 149 of the EP&AA empowers councils to attach a "notification of (possible or actual) contamination of a site". This ensures that subsequent users are informed of the condition of the site whenever the title changes hands. Councils also have power to demand assessment and remediation of properties when granting Development Consent to developers. The responsibilities of Councils with respect to Section 149 certificates will need serious debate by relevant authorities. A State-wide position should be considered.

A current NSW Department of Planning Circular C-20, on contaminated sites, has been distributed to all Councils. However, the effectiveness of this Circular and the capacity of Councils to respond is unknown. Therefore, a review should be conducted.

Clarification is also needed of the stages in the planning process at which issues of potential contamination of sites should be considered.

Pathways

Lead is a health concern where there are pathways that allow increase of individual blood lead levels so that the lead in blood becomes detrimental to health. For soils and dusts the main pathway (to humans and animals) is ingestion, with inhalation a minor pathway. However as the aims of the ANZECC and NHMRC to reduce lead in blood levels are realised, inhalation will become increasingly important. It should also be noted that the sources of lead for an individual are likely to be numerous and removal of a single source may not have the desired effect in reducing blood lead levels.

Individual behaviour is a major variable affecting the rates and sources of ingestion of soil and dust. Education would be the only viable strategy to modify behaviour when children may be exposed to a health hazard such as lead in soil or dust. Legislation to regulate individual behaviour to block soil/dust pathways is not practicable.

Existing legislation should be used where appropriate, to minimise current emissions (and therefore future contamination) and isolate the sources (sites that are currently contaminated) from existing pathways that cause significant uptake of lead by individuals.

Issues

- Current legislation was developed to deal with point sources from significant industrial activity. While it does this effectively, in many cases it is inappropriate and cumbersome when applied to non-industrial premises such as residential properties.

- Point source emissions can be controlled by existing legislation, the effectiveness of this control relies on enforcement.

- Effective control of point source emissions would be enhanced by ongoing, continuously repeated, education campaigns targeted at renovators and the community. Development of an effective education campaign is of paramount importance to modifying behaviour.

- The legislation was designed essentially to deal with properties that were contaminated by the current occupier, or properties for which the party responsible for the contamination can be clearly identified. For the majority of residential properties where contamination may be due to traffic, the widespread legal use of leaded paints or the historical (lawful) emission of contaminants, it is inequitable to use the EHCA to direct current occupiers to bear the full cost of site specific management of problems caused by accepted, lawful community and industry activities in the past.

- The roles of Federal, State and Local government in taking prevention strategies need to be clearly identified and appropriately resourced. Prevention strategies need to be developed in a comprehensive manner consistent with ecologically sustainable development.

GUIDELINE CRITERIA

Based on the principles of risk assessment, ANZECC and NHMRC have established a guideline soil lead concentration of 300 mg/kg as the level for further investigation. This level should not be interpreted rigidly. The proposed land use distribution of contaminants

and the frequency distribution of elevated levels will all be very important in interpreting the results for a site. These investigation level guidelines relate to specific sampling, extraction and analytical techniques. As such, they should not be compared with other tables of values, which do not use similar techniques. When soil lead concentrations of 300 mg/kg or more are encountered, an assessment of the probability of a child regularly coming into contact with this contamination is made. Essentially, this process considers landuse, accessibility to the contaminant, and contaminant concentration.

Using these concepts, appropriate action would be recommended where children regularly come into contact with bare soils containing soil lead concentration equal or greater than 300 mg/kg. However, if a barrier existed between this soil and the child, higher concentrations of lead could theoretically be permitted as the risk presented to the child would be essentially the same. Barriers range from grasscover and topsoil to clay caps and concrete. Naturally, the more inpenetratable the barrier, the higher the lead concentrations which can be tolerated.

If reductions in the intake of lead from other sources, such as food and water, continue, then higher concentrations of lead in soil may be tolerated on an individual basis. Exposure to soil lead contamination can not be considered in isolation from all other sources.

Establishment of Criteria

The establishment of criteria is a complex process which is continually evolving as more research is undertaken on contaminant toxicology and exposure pathways. As a consequence of the difficulty of incorporating behaviour patterns into criteria derivation, regulating authorities tend to rely on site specific risk assessment processes. This process is supported by the ANZECC and NHMRC document.

However, to assist the management of contamination issues, many regulatory bodies have developed broad guidelines to use as management tools. Largely, existing criteria have not been determined using risk assessment (recent amendments to determination of the Dutch criteria is a step towards risk-based criteria setting), they are generally based only on the best understandings of the time.

A key issue in the management of lead in soil and a key issue for the Taskforce is that there are no general action levels for lead contamination in soils.

It is therefore important to define a number of guideline action levels and designate appropriate actions for various soil lead concentrations. The process for defining these levels will require considerable discussion before an acceptable consensus is achieved. The following is offered as a starting point for those discussions only and should not be taken as an endorsement of any action guidelines.

Netherlands

Before 1985 a number of Environment Quality Objectives had been derived in the Netherlands such as the A, B and C values. These formed the basis fo the Dutch criteria. These values had been based more or less on expert judgement rather than on risk assessment. Between 1986 and 1990 this predetermined criteria basis for site assessment was rejected in favour of a risk-based approach to site assessment. Consequently the Dutch ABC criteria is no longer is use. The risk based approach attempts to arrive at a strategy which results in comparable levels of protection with respect to environmentally threatening activities.

USA

A court directive has required the US EPA to establish soil lead criteria to facilitate court actions on contaminated site issues. The US EPA are undertaking animal studies to assist in the determination of the criteria, however, because of the short timeframe set by the courts, an interim level of 500 mg/kg is likely to be established. The US EPA have indicated that soil and blood lead studies show that a statistical correlation between lead in blood and lead in soil does not exist below 800 mg/kg lead in soil. Although they have not set a level, it is understood that the US EPA believe there is little benefit in removing soils below 1,000 mg/kg. The establishment of these criteria is difficult due to the variable dose-response relations (Soil Pb - Blood Pb) from different studies. A lot more work needs to be done.

Australia

The ANZECC and NHMRC guidelines for the assessment and management of contaminated sites specifies a concentration of 300 mg/kg as being a level for further investigation. This is not a health engineering action level but a level where a detailed site investigation is deemed to be necessary. The ANZECC guideline does not specify action levels but advocates a flexible approach to assessment and management of contaminated sites. As contamination scenarios vary across the country, the ANZECC and NHMRC guidelines cannot specify a level which has acceptable risk for all residential communities.

Remediation

The object of a remediation strategy is to reduce or eliminate the exposure of the at risk population. The options for soil remediation include the following:

* Maintaining adequate vegetation cover over bare soil or cover bare soil with an impenetrable barrier
* Top dressing with new soil
* Replacement of soil
* Dilution by mixing
* Change present land use
* Treatment of soil

With the exception of soil treatment, where the effectiveness of various treatment methods has not been fully proven or is cost prohibitive, the alternative measures are effective in reducing the community's risk through exposure to lead in soil.

Remediation Strategy

The following remediation strategy could be used as a guideline for site specific/child specific residential property implementation provided there is reference to sampling and analytical techniques and an evaluation of analytical data to justify the action.

Soil lead (mg/kg)	Action
<300	No action
300 - 1,500	Grass cover or other appropriate barrier
1,500 - 5,000	Top dress with 50 mm clean soil and grass cover
>5,000	Soil replacement (top 200 mm)

Issues

- At present, it is not clearly understood what extent of soils exceed guidelines criteria.

- Consider the implications for applying various legal instrument certificates to manage soil lead contamination of residential properties. These instruments may create social inequity or may force the ANZECC and NHMRC guideline as a defacto clean up level.

DISCUSSION

In developing an effective management strategy it is important to recognise that there is a difference between contaminated lands that create a direct and immediate health risk and contaminated lands that do not pose a health risk (but should still be recognised as potential hazards).

To distinguish between demonstrated health risk and potential hazard it is necessary to identify "at risk" individuals, (ie those with elevated blood lead levels) and reduce the hazards to which they are exposed. This ensures that available resources are directed to reducing proven risks rather than being diluted by reducing potential hazards that are not having unacceptable effects. In the mid to long term, potential hazards can be reduced once the immediate risks have been reduced to acceptable levels.

It should be clear that lead contamination is ubiquitous in urban societies and largely, is due to lawful, widespread community and industry activities in the past. The management strategy should recognise this and spread the cost over the wider community that has benefited from the activities that caused the contamination.

Management strategies should focus on protecting human health at minimum environmental cost. Unjustified widespread remediation of urban properties that require large scale importation of clean soil from relatively untouched sustainable rural locations may result in real environmental damage to sustainable environments with very little benefit to human health outcomes and no environmental improvement. Remediation of contaminated urban soils should only be undertaken where there is either a high probability of a positive health outcome, or observed high blood lead levels. Identified sites affected by significant lead contamination such as Broken Hill and Boolaroo obviously require specific management plans to address remediation.

This report is directed specifically at health issues associated with lead contamination. However, it is crucial that the LEAD TASKFORCE address the parallel issue of contaminated land including:

* definition of contaminated land (different definitions exist depending on objectives-legal, health, EHC Act)

* guidelines for assessing contaminated sites

* policy for identifying contaminated sites (eg, auditing)

* legal (financial) liability issues.

The TASKFORCE may wish to refer this matter to the EPA to develop policy/guidelines, since the other non-health ramifications arising from the uncertainties involved with "contaminated lands" have high potential to cost the community in terms of health, costs, technical, environmental and legal resources and community anxiety.

EDUCATION

. Community awareness should have a predominant focus on children under seven years of age, including premises frequented by these children such as schools and day care centres.

. Needs to focus on continual household abatement programs.

. Needs to inform individuals, the community and local/state governments as target groups. That is, different programs for different audiences.

. Needs programs concentrating on house renovation.

. Advantage is seen by the LSDWG in training building inspectors in lead issues to facilitate "identification" of potential lead problems at house sites. Guidelines and training for local councils are recommended to create greater awareness among building inspectors of the risks of possibly lead contaminated dust and soils on sites undergoing redevelopment, landscaping, swimming pool construction, demolition of buildings etc.

. The education campaign should maximise recycling of lead waste e.g. soil, dust or paint waste e.g. some companies accept greater than 20% lead concentration in waste.

- The education campaign including training of lead abatement workers should incorporate advice on measures which protect the environment from lead e.g. don't allow leaded waste to enter stormwater drains as it will increase the lead load of sediments etc.

OTHER ISSUES FOR CONSIDERATION

- Concerns were raised by members of the LSDWG that there is a lack of services and resources for parents with children with elevated blood lead levels. Current responses from Government Departments and Councils in Sydney are only educational related (e.g. posting a pamphlet). Similar services that are provided in Broken Hill and Port Pirie are required for Sydney as a matter of urgency. Soon to be released education programs and blood lead surveys will only exacerbate the urgency for such services.

  It was noted by the LSDWG that the EPA is probably the most appropriate agency to allocate resources for an environmental health centre in Sydney with staff who are trained to carry out assessment of household lead sources and pathways affecting children with elevated blood lead levels, and staff who are trained to counsel parents of such children.

- Lead in pets and pests are issues that need to be considered but beyond the timeframe of this Working Group. The education campaign could include advice on care and control of pets to prevent track-in etc of lead containing dust and soil.

- It was noted by the LSDWG that owners of property for tenancy should take no less responsibility for lead poisoning prevention than if they were the residents. The LSDWG therefore recommends that tenants be considered as a group with special needs in regard to policy and education programs in a NSW lead strategy.

- It was noted that modelling may assist with evaluating the lead issues identified by the LSDWG and other groups.

- Based on the available information to the LSDWG, it is apparent that fertiliser use will not result in a lead contaminated soil site. However it was accepted that information received to the contrary would need to be examined by the Taskforce.

- Responses to the NSW Government Lead Issues Paper in respect of lead in soil and dust were noted by the LSDWG to ensure that the points raised had been covered by the Working Group. The issues are covered in this report. [A list of the issues are included in the minutes of the meeting 17 November 1993.]

LEAD IN SOIL AND DUST WORKING GROUP REPRESENTATIVES

MEMBERS	REPRESENTATIVE	MEETINGS ATTENDED 11.06.93	5.8.93	8.9.93	21.10.93	17.11.93
Dept. of (CaLM) Conservation & Land Management	Mr Peter Houghton (Chair)	*	*	*	*	*
Environment Protection Authority	Mr Joe Kostiw Mr Bill Balding Dr Bruce Markey Ms Cathy Dyer	* * * *	* * * *	* * * *	* * * -	* * -
CSIRO (Adelaide) (North Ryde)	Dr Kevin Tiller Dr Brian Gulson	* *	* *	- -	* *	- -
Dept. of Health	Dr Ian Armstrong	*	*	*	*	-
Dept. of Housing	Mr Brian Manton Mr Cyrus Shakeri	- *	* -	* -	* -	* -
Independent Consultant	Dr Chloe Mason	*	*	*	-	-
Australian Lead Development Association (reps.) PASMINCO LTD (works for)	Dr Noel Clark	*	*	-	*	-
Dept. of Mineral Resources	Mr Kerry Brooks	*	*	*	*	*
SA Planning and Development	Mr Peter Body	*	*	*	*	*
Central and Southern Public Health Unit	Mr Jason Smith	*	*	*	*	*
Australian Institute of Environmental Health	Mr Jeff Jansson	*	*	*	*	*
Australian Fertilisers Manufacture Committee	Mr Brian Hunt	*	-	-	-	-
Incitec	Mr Garry Kuhn	*	*	-	-	-
Standards Australia	Mr Chris Stephens	*	*	*	*	-
No Lead Group	Ms Theresa Gordon	-	*	-	-	-
Lead Group	Ms Elizabeth O'Brien	-	*	*	*	*
Nature Conservation Council of NSW	Mr Ted Floyd	-	*	*	*	*
NSW Chamber of Mines and Metals	Mr David Sinclair	-	*	*	*	*
CEPA	Mr Bob Dunn	-	-	-	-	-

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