

Lead Advisory Service Australia

Submission No. 1

Aims to eliminate lead poisoning, protect the environment from lead and to strengthen networks of stakeholders to solve lead problems.

ABN 25 819 463 114

Secretary: 

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9 JUL 2002

SUBMISSION FROM THE LEAD ADVISORY SERVICE REPRESENTATIVES
AUSTRALIA to the STANDING COMMITTEE ON
Inquiry into future water supplies for Australia's rural AGRICULTURE, FISHERIES
industries and communities RESTRY

RE: the Term of Reference - Commonwealth policies and programs that could address and balance the competing demands on water resources.

Currently in relation to drinking water from private water supplies such as rainwater tanks and bore or river water, due to lack of regulation at any government level, the owner of the supply is responsible for managing the quality of the drinking water. In managing many of the roof and gutter-sourced contaminants in rainwater for drinking water, it is recommended that the initial downpour of water be diverted from the tank. This and related losses of water for drinking is the cross-over point with your Committee's above mentioned Term of Reference. One important competing demand on water resources is the increasing demand for acceptable water quality for drinking. Poor quality water should not be used for drinking yet tank owners are generally so unaware of their responsibility to manage the quality of their tank's drinking water that much sub-standard drinking water is consumed in rural Australia.

The "Investigation of Microbiological and Chemical Water Quality in Rainwater Tanks in Victoria, Report No. 139/97" dated June 1997, prepared by Bannister, R; Westwood J; McNeill, A; Water Ecoscience Pty Ltd, found that **one in four rainwater tanks in rural Victoria had equal to or higher than the acceptable lead level in the water.** The National Health and Medical Research Council (NHMRC) guideline level for lead in drinking water is that it should be a maximum of 10 micrograms per litre (which is also written as 0.01 milligrams per litre or 0.01 mg/L).

My initial investigations have uncovered a complete lack of regulation requiring roofing or guttering manufacturers to ensure that their products comply with Australian Standard AS4020 *Products For Use In Contact With Drinking Water*. Even though tap and piping manufacturers etc are required by various water authorities to ensure their products comply with AS4020, the products are tested one at a time. It is little wonder that a quarter of the Victorian tanks exceed the

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lead level for drinking water when you consider the range of products that could contribute lead to the water, none of which is required to be assessed in conjunction with the others and some of which are not required to be assessed at all, including:-

- ceramic tiles
- sheet metal roofing materials such as galvanized iron
- leaded PVC roofing materials
- galvanized guttering
- leaded PVC guttering
- copper pipes potentially lead soldered
- leaded PVC pipes
- fittings with lead solder or leaded brass or leaded bronze components
- galvanized tanks and tanks with lead solder
- taps with lead solder or leaded brass or leaded bronze components

Leaded paint exists in some 3.7 million Australian homes and there is a high chance that quite a few rainwater tanks collect drinking water off lead painted roofs. In 1993, Louise Gee reported in a "*Pilot survey of the microbiological and chemical aspects of water stored in domestic rainwater tanks*" that tanks for which the suspected source of lead was **lead paint**, contained 0.1 mg/L to 0.5 mg/L of lead, that is **10 to 50 times the guideline**.

Some very old houses still have lead guttering feeding their rainwater tanks and some heritage architects insist on fitting lead guttering and lead roofing even today.

Then there is the problem that the Building Code of Australia (BCA) only banned the use of lead flashings on potable water collection areas of roofs in mid-1996 and the ban was not retrospective. The use of lead flashings on roofs for drinking water collection is arguably sufficient cause for exceedence of the guideline for the lead level in the water, on its own, let alone in conjunction with any of the above mentioned lead sources. The Gee report mentioned above noted results for rainwater tanks from houses that had **lead flashing** on the roof (including around

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a slow-combustion wood burner flue) ranged from 0.50 mg/L to 0.75 mg/L, that is **50 to 75 times the guideline for lead in drinking water.**

A fourth problem is the common misinterpretation of Clause 3.5.1.2 Roof Tiling of the BCA, which does not specifically ban lead flashing from tiled roofs for drinking water collection. The reader is supposed to realize that he/she has to apply the lead flashing ban listed in Clause 3.5.1.3 Metal sheet roofing, to tiled roofs. There are many Council building inspectors today, 6 years after lead flashing was banned on roofs for drinking water collection, who **still allow lead flashing on new buildings if the roof is tiled.** The problem of too much lead in tank-water looks set to be with us for some time to come.

I submit that the *Inquiry into future water supplies for Australia's rural industries and communities* must take into account that to make tank-water safe to drink, will take a lot of education by government, and could potentially impact significantly on water stores as tank owners recognise the need to empty and clean their contaminated tanks and to divert the first rain (especially after periods of drought) away from the drinking water supply in order to avoid re-contaminating their tanks. New tanks are also recommended to be flushed due to the use of toxic lubricants in the form for metal or PVC extruded products. For example, BHP Steel commissioned a toxicologist to write "*Water Catchment - A Toxicological Response*" (1994) which notes:

The sheet steel products frequently require roll forming, pressing or shearing during a product's manufacture. The lubricant's used in these processes may adhere to the surface of the finished product. It is for this reason that BHP recommends that all products used in the collection and storage of potable water should be either thoroughly washed down prior to use, or the first water catchment should be allowed to freely drain from the surface or water tank. The amount of catchment water required to clean the surface of the fabricated article will be dependent upon the type of rainfall, extent of surface contamination and the elapsed time from manufacture of the article.

After long periods of drought the first catchment water should be disposed of, thus cleaning animal faeces and general detritus from the catchment system. Automatic diverters are available commercially in Australia for this purpose.

It is therefore recommended that the first thirty millimetres of rainwater should always be discarded, whatever the catchment situation.

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Once the following advice catches on, many tanks would need to be emptied and the water not used for drinking, to gain a benefit from the cost of replacing lead flashing:-

"In the case of an existing roof, lead flashing should be replaced if possible."

Page 5, Guidance On The Use Of Rainwater Tanks - National Environmental Health Forum Monographs - Water series No. 3 by South Australian Health Commission, June 1998.

The Water Unit of the NSW Health Dept has already advised NSW Councils in 1999 of the need for them to maintain (in conjunction with the Public Health Units) a database of annual chemical analysis results on drinking water in Council-controlled premises (including Council-run premises such as caravan parks, community halls, pre-schools, libraries etc) where private drinking water supplies are provided to the public such as in tourist destinations like National Parks and Wildlife Service sites.

Other state health departments are now making efforts to educate tank owners of their management responsibilities so the impact on supplies of drinking water in rural Australia could be quite significant.

I suggest that in order to address and balance this particular demand on water resources, the demand for drinking water of adequate quality, there needs to be Commonwealth policies and programs which demonstrate the Commonwealth as a role model for others to emulate. This would involve the Commonwealth in annual chemical analysis including lead analysis and appropriate follow-up management of lead in tank-water under the Commonwealth's control.

A good policy would also pro-actively encourage tank owners to do the same. For instance, the Commonwealth could offer free lead testing of water in order to get a decent data-set on this issue, as long as tank-owners also fill in a questionnaire designed to attempt to determine the sources of lead and appropriate abatement of those sources, if the lead result should happen to be the one in four that is excessive.

A caller to the Lead Advisory Service Australia reported a case of a woman who's builder noticed she had lead flashings in the gullies on her roof and a rainwater tank. This provoked a blood lead test by her kidney specialist with the finding that she had a highly excessive blood lead level. Though she would normally have been chelated in hospital with the blood lead level that she had, her kidney damage precluded her from the chelation treatment. The tank-water was found to contain **50 times the acceptable lead level.**

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The resident who reported the case proposed to his Council, Hawkesbury City Council just west of Sydney, that they organise at least 20 resident's tank-water samples be sent by Council to a lab for lead analysis as a pilot study by the Council. Council, like the State and Federal governments is not responsible for tank-water quality of residents. So instead, the Council paid for advertisements in the local paper over 4 weeks which publicised the availability of our free information kit on drinking water (including a sample container for water, instructions on collection of a tank-water sample and a list of labs able to carry out the lead analysis). The kits were only available free from the Lead Advisory Service Australia at the time because of the generosity of volunteer staff in manning the phone and posting the items and a small grant from Environment Australia which paid the phone and postage bill up to 1st July 2002, when the grant was terminated.

The aim of the exercise was to work in conjunction with Hawkesbury City Council to get some lead analysis results from drinking water tank-owners to determine the extent of the problem in this area as well as inform individual owners who might have a problem. Although dozens of residents responded by ordering the information kit, and although Lead Advisory Service phone staff asked each caller to phone back once they received the results, unfortunately, none of them did. So although we helped individuals know whether they had a problem, we are none the wiser about lead levels in drinking water from rainwater in this area. The person who pays for a lead analysis owns the results and can decide whether the results can be collated and published etc. For this reason, my suggestion is that the Commonwealth offers to pay for the lead analysis OR offers a reduced rate for the testing provided that the tank-owner agrees to release the result to the Commonwealth or the Public Health Unit or state health department or the Council. **Until some more data is collected, one can only assume that one quarter of Australia's 650,000 people or so who are dependent on rainwater for drinking, are being lead poisoned.**

As you probably know, some people pump bore water or river water into their tanks. People who depend on bore water for drinking purposes are also not justified in not testing their water for lead. Again, there is precious little data on this but one tank-water cleaning and water (laboratory) analysis contractor, Steve Humphreys of Water Care at Grose Vale in NSW, wrote to us in a letter to say that "of the 44 bores measured for lead, 4 were >0.01mg/L (up to 0.07mg/L)". That is, one in eleven bores exceeded the lead guideline and the highest result was 7 times the guideline for lead.

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Graham Lancaster, Manager, Environmental Analysis Laboratory, Southern Cross University reported to the Lead Advisory Service in 1998 that a level of 108 times the NHMRC water lead standard that he had found in a drinking water sample, could be explained by acid sulfate soils & bore water leaching lead from copper pipes, lead solder, PVC and brass fittings.

Humans are not the only species affected by excess lead and other heavy metals in drinking water. One farmer from Broken Hill told the Lead Advisory Service that 19 of his cattle had died. Two autopsies showed lead intoxication and the water analysis showed their water has 9 times the cadmium guideline. He said the government spent \$300,000 putting a dam in at his farm and spent \$500,000 decontaminating his property but afterwards it was still contaminated. Another farmer reported that Departmental bridge sand-blasting left many dead heifers and a child who did very poorly at school, due to lead contamination of a creek used for drinking water.

Drinking water is not the only water of concern that can be significantly impacted by lead contamination. Trudy Green of Sydney Water advised the Lead Advisory Service in March 2002 that some contamination occurred in renovation of Sydney Water infrastructure and the Contaminated Land Act was used to clean up several sites eg along the Cooks River. It is not conceivable that only Sydney Water infrastructure renovation causes river water lead contamination. Rural infrastructure has also been regularly re-painted with lead paint.

In April 2001, Renee Taylor of the Dept of Environmental Protection in Western Australia reported to the Lead Advisory Service that the Waters and Rivers Commission have just been given the go ahead and funding for a long-term study of lead in water in the Northampton area. The Gold Corporation is actually funding the study because the contamination results from Gold Corp activities.

In August 2000, Zara Savidis of the Asbestos Diseases Foundation of Australia (ADFA) reported to the Lead Advisory Service that Woronora riverbank was contaminated by asbestos and lead from 300 houses demolished by the Council in 1992. The demolition debris was dumped on the riverbank.

In December 1999, Pat Durman of GREAT (Georges River Environmental Action Team) reported that a gun club proposed that they shoot into an upland marsh at the headwaters of the Georges River. In August 2000, an occupational health and safety consultant, Greg Dodd of Safety Valve Consulting reported to us that the Western Australian Waters and Rivers Commission requested that a rifle range

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in Wanneroo Shire clean up lead shot due to the possibility of contaminating ground-water. He also stated that West Lakes suburb in South Australia was found to contain high levels of cadmium in soil due to past application of sewage sludge.

In a soon-to-be-published book called "Local Heroes, Australian Crusades from the Environmental Frontline", Richard Eddy of the Contaminated Sites Alliance in Western Australia reports that a soil blending and mulching company dumped 30,000 cubic metres of sewage sludge on the Jandakot Mound. The Jandakot Mound is one of the two main underground water resources which together provide more than 40% of Perth's drinking water supplies.

I can provide a copy of the Victorian and NSW tank-water studies and of the drinking water information kit put together by the Lead Advisory Service if the Inquiry requests them. You may also want to consider lead in water test kits which may reduce the cost per test and thus encourage more testing. For example, the US website of May Dooley - www.create-your-healthy-home.com - supplies LeadCheck Water Test kits comprising 5 tests for US \$40.95. The manufacturers of LeadCheck Aqua Kit, Hybrivet Systems Inc, charge US \$59.95 on their website - www.leadcheck.com/leadcheck%20aqua%20Frameset.html and they charge US \$19.95 for a Single-Test LeadCheck Aqua Kit. May Dooley told me that she waits for the special deals Hybrivet offer every December before she stocks up on their test kits. The problem with these LeadCheck on-the-spot tests is that they only detect 0.015 mg/L and would not therefore be of use in determining whether the Australian guideline of 0.010 mg/L was being exceeded. Another option that is available on US websites (for example, Professional Equipment's site at www.professionalequipment.com/xq/ASP/ProductID.659/id.6/subID.67/qx/default.htm) is a kit that includes a sample bottle and instructions but when you buy it you pay for the analysis cost and postage costs. You then have a quantitative result (unlike the on-the-spot test) within 48 hours. By comparison, one of the cheaper labs in Australia, Sydney Analytical Laboratories has set up a similar package for a do-it-yourself kit for home sampling of soil, paint and dust. If required, the Lead Advisory Service could negotiate with Sydney Analytical Laboratories to put together a package water lead test kit if the Commonwealth decides to go ahead with a program.

Sydney Analytical Laboratories are NATA (National Association of Testing Authorities) accredited to test the following elements in waters (including saline, sewage and trade wastes) [as well as soils, sediments and biota]: aluminium, antimony, arsenic, barium, bismuth, cadmium,

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calcium, chromium, cobalt, copper, iron, lead, lithium, magnesium, manganese, mercury, molybdenum, nickel, potassium, rubidium, selenium, silicon (waters only), silver, sodium, strontium, tellurium, tin, titanium, vanadium and zinc.

Bob Allen of the Western Sector (Sydney) Public Health Unit pointed out to the Lead Advisory Service that Councils are the body that approves rainwater tanks being fitted to a building, so Councils should advise owners to test the water. However, I have not found any regulation that could be construed as requiring councils to advise tank-owners of the need to test the quality of their tank-water. In Queensland, no state government agency has provided published advice to tank-owners about water quality management but one council, Kilkivan Shire Council, has published a pamphlet on the subject. The pamphlet unfortunately does not mention lead at all.

It is paramount that the Commonwealth put together education strategies to prevent future lead contamination of tank-water and ensure that the BCA requires roofing and guttering materials for potable water roof collection areas to comply with AS4020. The Commonwealth is the most appropriate regulator to create national regulations that require all plumbing systems (the total system, that is, all the components that will come into contact with potable water) to comply with AS4020 or some other regulation which ensures that the lead in drinking water guideline is not exceeded for rainwater collection systems.

To not do any of the above would be to **not** address and balance this competing demand on water resources.

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