The Environmental Protection Agency

EPA DRINKING WATER ADVICE NOTE
Advice Note No. 2:
Action programmes to restore the quality of drinking water impacted by lead pipes and lead plumbing

epa
Office of
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Enforcement

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Version 1

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1 INTRODUCTION

THE current limit for lead in drinking water is 25ug/l and this value reduces to 10ug/l from the 25th December 2013[1]. Lead in drinking water is picked up in the distribution network from contact between the water and any old lead pipes in the network. Water leaving drinking water treatment plants does not generally contain lead.

According to the World Health Organisation[2], *"lead is, amongst the heavy metals, an exceptional element in that most lead in drinking water arises from plumbing, and the remedy consists principally in removing plumbing and fittings containing lead"*. The World Health Organisation also recognises that not all water will meet the guideline immediately.

Arising from the focus during late 2008 on lead in drinking water in Ireland, the Environmental Protection Agency (EPA) has decided to issue guidance to provide greater clarity to local authorities and others with responsibilities in this area. The purpose of this guidance circular is to provide information to local authorities on action programmes to restore the quality of drinking water that is impacted by lead pipes and plumbing. A separate guidance circular has been issued covering lead compliance monitoring and surveys (EPA Drinking Water Advice Note No. 1).

2 LEAD PIPES IN DRINKING WATER DISTRIBUTION SYSTEMS

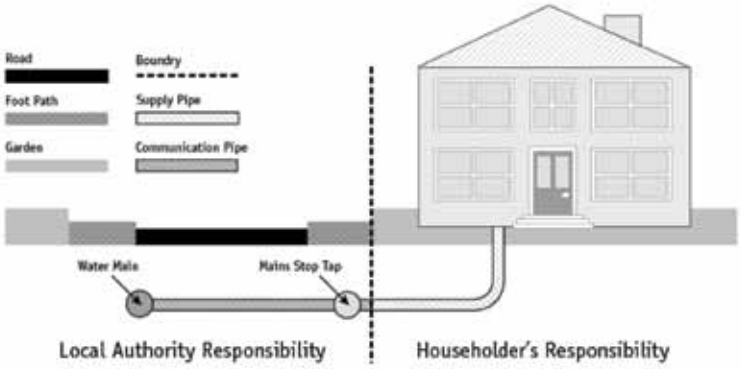
LEAD pipe work was used in some distribution systems prior to around the 1970's. Guidance on the identification of lead pipes is provided in a separate guidance document from the EPA. Lead piping may be present in the network itself, but is more commonly found in connection pipes that join the mains pipe to the individual property (see figure 1). Lead exceedances may also be attributed to internal lead plumbing or fitting such as taps that contain lead. Lead joints in water mains and soldered joints containing lead in internal plumbing can also contribute to the problem.

In some instances lead drinking water mains and communication pipes have been replaced as part of mains rehabilitation schemes. However, the EPA is aware that there remain a significant number of lead communication pipes in use in various drinking water distribution systems across the country. The connection linking the mains to the stopcock is often called the communication pipe. In addition, many properties may have lead plumbing connected to the kitchen tap and for the purposes of this guidance this pipe is referred to as the service connection pipe (it could also be called the supply pipe).

The 2007 Drinking Water Regulations stipulate that the local authority is primarily responsible for pipes under its control and ownership. This responsibility normally extends to the drinking water mains and communication pipes linking the mains to stopcocks on individual properties or to the boundary with private property.

Another item to consider is the potential use of lead solder for connecting drinking water pipes and plumbing, while this should not be used for drinking water pipes, it may be still available and could be inappropriately used when joining connections in the internal drinking water plumbing of dwelling.

Figure 1: Types of Water Distribution Pipes



(Note that the supply pipe can also be called the Service Connection Pipe)

The part of the connection pipe leading from the stopcock outside a property to the point where it enters a property, is the responsibility of the house owner. This length of pipe is often referred to as the service connection pipe or supply pipe. Where a Local Authority owns a building it is responsible for the service connection pipe and internal plumbing. Similarly any plumbing within private premises is a matter for the homeowner.

A single supply pipe can sometimes provide water to two or more premises, particularly in the case of older properties, and in this case responsibility for the supply pipe is shared between the property owners concerned. Local authorities should also be mindful that in certain circumstances water can return to the public distribution system from a private supply pipe, for example where a supply pipe loops back into a watermain through a second connection, or in the case of back-siphonage events.

If members of the public are in any doubt about whether a property or service connection pipe contains lead they should contact a plumber or their local authority for further advice.

3 DUTIES IN RELATION TO WATER ON PREMISES

The Drinking Water Regulations 2007[1] and in particular Regulation 6 contain some important provisions in relation to lead in buildings or properties. These are:

- A local authority is not in breach of its obligations where non-compliance with the lead standard is caused by the domestic system in premises, provided that the distribution system is not in their control as the water supplier.
- Owners of commercial or public premises are obliged to maintain the domestic distribution system so that they do not cause a lead exceedance or a risk thereof. It is an offence not to maintain the distribution system in such condition under Regulation 6(7).
- In the case of commercial or public premises the local authority must ensure, where either a lead exceedance is detected or such a risk exists, that appropriate action is taken promptly to prevent or restrict the further supply of water and to restore the distribution system to the necessary standard. The local authority can issue such directions as it considers necessary for this purpose and failure to comply with such a direction is an offence.
- If the local authority owns the premises itself the EPA has to be informed. In this case the EPA would also have to receive confirmation from the local authority that the lead problem had been fixed.
- In the case of **private properties**, where there is an exceedance (or the risk of one), the local authority must ensure that appropriate measures are taken to deal with the exceedance, including advising the householder of any actions they can take to resolve the issue (e.g. removal of inappropriate plumbing materials). In certain circumstances the local authority itself might take wider treatment measures to address the exceedance (e.g. treatment at the plant). In any case the consumers should be advised.

4 LEAD SURVEYS

Successive EPA reports on the Quality of Drinking Water in Ireland[3] have recommended that local authorities carry out a lead survey to determine the extent of lead piping in the distribution network and in the population served. The EPA has prepared a separate guidance on lead compliance monitoring and surveys and this is available from our website[4]. The preparation of any plan should be done in consultation with the Health Service Executive (HSE).

5 OPTIONS FOR DEALING WITH LEAD PIPING

The 2007 Drinking Water Regulations state that all appropriate measures shall be taken to reduce the concentration of lead in water intended for human consumption. When implementing any measures priority should be given to areas where lead concentrations in drinking water are highest.

The long term solution for dealing with lead exceedances in drinking water is to replace any lead pipes with a suitable alternative. The EPA recommends a phased approach to dealing with lead piping giving priority to areas where lead concentrations in water intended for human consumption are highest, while availing of any opportunities such as leak detection programmes or pavement improvement works to replace lead piping.

5.1 RECOMMENDED PHASING FOR REMOVAL OF LEAD PIPES TO ELIMINATE LEAD IN DRINKING WATER

- Local authorities should identify and remove as a matter of priority any remaining lead distribution mains.
- Any individual lead communication connection under the control of the local authority and whose removal is likely to bring excessive levels of lead below the current acceptable limit should be replaced as soon as practicable.
- Each local authority should develop and implement a planned annual programme for the replacement of lead communication and service pipes causing or likely to cause exceedances in the 2013 lead limit. As well as covering lead communication and service pipes causing or likely to cause exceedances of the 2013 lead limit, the annual programme should have the long term aim of progressively phasing out the use of lead communication pipes in the distribution network. This programme should recognise the limitations on a Local Authority with respect to private households but include a commitment in such cases to replace the communication pipe in every case where a householder replaces a lead service pipe.
- The local authority should develop a lead communication pipe and service pipe removal programme using a risk based approach and should progressively deal with connections in areas where there are vulnerable populations (e.g. crèches, schools, hospitals etc), the longer length connections and those in supplies that have aggressive water that could increase lead levels in the supply. In relation to local authority housing stock the local authority should develop a planned programme for the replacement of both the communication pipe and the service pipe, both of which are the responsibility of the local authority.
- As a priority local authorities should implement measures to remove as a priority any lead service connections and lead plumbing in their own buildings, this programme should start with buildings where the 2013 lead limit is being exceeded or is likely to be exceeded.

The local authority should consult with the HSE and appropriate advice should be given to consumers pending the removal of any of the lead piping referred to above.

5.2 OPPORTUNISTIC REMOVAL OF LEAD PIPING

Local Authorities should avail of all opportunities to replace lead piping. As stated above these include leak detection programmes or pavement improvement works in addition to:

- Road works.
- Incident repairs to other services and ductwork.
- The replacement of the communication pipe in tandem with private household renovations where the householders service pipe is being replaced.

This would require coordination between planning, water infrastructure, roads divisions and environment services within the local authority. Consideration should be given to integrating the planning and other infrastructure programmes of the local authority to facilitate the identification and removal of lead pipes. These include Building services, Fire services, Planning services and Maintenance.

5.3 TREATMENT TO REDUCE LEAD CONCENTRATIONS IN DRINKING WATER

- Pending lead pipe replacement the local authority should ensure that the water supplied is not aggressive. In this regard the pH should be optimised in order to reduce the solubility of lead in the supply. In controlling the pH value at water works as part of treatment, local authorities must avoid any chemical alternation which might contribute to a disimprovement in the existing lead residual position.
- Where compliance with the lead limit in drinking water is not feasible in the short-term through lead pipe replacement, or where there might be overriding public health concerns, alternative treatment options should be examined. In assessing the treatment options, the long-term sustainability, reliability, operation, maintenance, management and any subsequent environmental issues should be considered. Environmental issues include the impact on waste water treatment, associated waste generation and the impact on groundwater from water leakage.

5.4 ADVICE FOR THE PUBLIC ON LEAD IN DRINKING WATER

Local authorities should prepare information on the steps the general public can take to reduce exposure to lead in drinking water in the home. It should have regard to advice from the HSE. This information should be available at the Council office and website.

6 LEAD AND HEALTH

The parametric levels for lead in drinking water are set as chemical standards that should not be exceeded in drinking water and therefore any health concerns about levels in excess of the required parametric value should be addressed to the HSE in the first instance. Local authorities are legally required to consult with the HSE if the lead standard is exeeded. If, following consultation with the HSE, it is deemed that there could be a risk associated with the exceedence then appropriate advice must be given to consumers by the local authority.

General health advice on lead is also available from the HSE at;

- *http://www.hse.ie/eng/Publications/Health_Protection/*
- HSE Statement on Lead in Drinking Water
  http://www.hse.ie/eng/Publications/Health_Protection/HSE_Statement_on_Lead_in_Drinking_Water.html
- Frequently Asked Questions on Lead in Drinking Water
  http://www.hse.ie/eng/Publications/Health_Protection/Frequently_Asked_Questions_on_Lead_in_Drinking_Water.html

7 EPA ROLE IN DEALING WITH LEAD IN DRINKING WATER

The EPA has a supervisory role in relation to local authorities. If lead concentrations above the drinking water standard are detected then the local authority is required to notify the EPA[5]. If the EPA is not satisfied that the local authority is proactively implementing measures to rectify the problem then it can issue a legally binding direction. Failure to comply with a direction is an offence and may result in prosecution by the EPA.

REFERENCES AND FURTHER INFORMATION

1. European Communities (Drinking Water) (No. 2) Regulations, 2007 (S.I. 278 of 2007).
2. Proposals for a European Water and Health Study Concerning Metals and Metalloids. Paper presented by Mr. Roger Aertgeerts, World Health Organisation at the 2nd International Conference on Meteau – Metals and Related Substances in Drinking Water, Lisbon, Portugal 29th-31st October 2008. Website: *www.meteau.org*.
3. Environmental Protection Agency 2008. The Provision and Quality of Drinking Water in Ireland. A Report for the Years 2006-2007.
4. EPA Drinking Water Guidance Note on Lead. Advice Note No.1: Lead Compliance Monitoring and Surveys.
5. EPA Booklet No. 1 Guidance for Local Authorities on Regulation 9 and 10 of the European Communities (Drinking Water) (No. 2) Regulations 2007 (S.I. No. 278 of 2007).
6. Environmental Protection Agency 2009. The Provision and Quality of Drinking Water in Ireland. A Report for the Years 2007-2008.

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