

	<h1 style="margin: 0;">Drinking Water Audit Report</h1>
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County:	Cork County	Date of Audit:	10/06/2014
Plant visited:	Mallow PWS (0500PUB1313) Distribution Network only.	Date of issue of Audit Report:	14/07/2014
		File Reference:	DW2008/439
		Auditors:	Cliona Ní Eidhin
Audit Criteria:	<ul style="list-style-type: none"> • The European Union (Drinking Water) Regulations 2014 (S.I. 122 of 2014). • The EPA Handbook on the Implementation of the Regulations for Water Services Authorities for Public Water Supplies (ISBN: 978-1-84095-349-7) • The recommendations specified in the EPA Report on <i>The Provision and Quality of Drinking Water in Ireland</i>. • The recommendations in any previous audit reports. 		

MAIN FINDINGS

- i. *An EPA Direction issued to the Water Services Authority (WSA) in September 2011 required the replacement of lead mains in the ownership of the WSA by 25 December 2013. A contractor was not engaged until the beginning of 2014.*
- ii. *On the date of the audit, works for the replacement of lead pipework were found to have commenced and were advancing in accordance with the work programme being executed by the WSA's contractors. Works being undertaken extend to addressing the occurrence of lead pipework for which the WSA is responsible (lead mains and lead communication pipes) and to privately owned lead service connections to kitchen taps. Work to replace privately owned lead pipework was assisted by a significant financial contribution from Mallow Urban District Council.*
- iii. *All lead mains subject of the EPA Direction dated 28/09/2011 were still in use. Cessation of the use of lead mains depends on full uptake by consumers of the newly installed WSA and private pipework.*

1. INTRODUCTION

Under the *European Union (Drinking Water) Regulations 2014* the Environmental Protection Agency is the supervisory authority in relation to Irish Water and its role in the provision of public water supplies. This audit was carried out to assess Irish Water's progress in the replacement of lead pipework in the Mallow Water Supply Zone, Co. Cork. Replacement of lead mains was required by an EPA Direction issued on 28th September 2011.

The Mallow PWS serves a population of approximately 9,000 people in the town and environs of Mallow town, Co. Cork. The supply uses water from a surface water source which undergoes full treatment prior to distribution. Of relevance to the lead issue, the subject of this audit, pH correction (Sodium hydroxide dosing) for plumbosolvency control has been in place at the Mallow treatment plant since October 2008. This treatment was installed following the detection of lead exceedances in the supply in September 2008.

Where the text of this report makes reference to the Water Service Authority this refers to Irish Water in accordance with Section 7 of the Water Services (No. 2) Act 2013.

The opening meeting commenced at 14.30 at the site office in the outskirts of Mallow town. The scope and purpose of the audit were outlined at the opening meeting. The audit process consisted of interviews with WSA staff and contractors, a review of work programmes with associated maps and observations made during an inspection of work on site.

The audit observations and recommendations are listed in Section 2 and 4 of this report. Photographs taken by Cliona Ní Eidhin during the audit are attached to this report and are referred to in the text where relevant.

The following were in attendance during the audit and closing meeting.

Representing Irish Water:
Mr. Ian O'Mahony – Irish Water, Water Infrastructure Below Ground Lead
Mr. Eoghan O'Brien – Executive Engineer (Cork Co. Co. WSIP Office)
Mr. Shane Shanahan – Resident Engineer (Mott MacDonald)
Representing the Environmental Protection Agency:
Ms. Cliona Ní Eidhin - Inspector

2. AUDIT OBSERVATIONS

The audit process examined the distribution network only. Where an observation or recommendation against a particular issue has not been reported, this should not be construed to mean that this issue is fully addressed.

1.	Distribution Network	
	The contract for the replacement of lead mains in Mallow was discussed. The contract divides the target area into 4 localities. Progress in each of the 4 areas was discussed in turn and is summarised as below. Area 2 was visited during the audit.	
	Area 1: Connolly Avenue & Thomas Davis Terrace	
	This is the northern-most locality subject to lead replacement work. No work was underway at this location on the date of the audit and it was not visited. The WSA summarised progress as follows:	
	<u>Connolly Avenue:</u>	
	Complete	Outstanding
	<ul style="list-style-type: none"> - The installation of a new distribution main on the public road is complete. The new main has been connected to the existing public distribution network. - Moling of a new communication pipe up to the individual service connections to the front of each property is complete. 	<ul style="list-style-type: none"> - Outstanding is the completion of so-called 'plumbing work' to install replacement service connections up along the external wall of each property, protected within ducting, to tie in to the properties' existing water pipework in their attics.
	<u>Thomas Davis Terrace:</u>	
	Complete	Outstanding
	<ul style="list-style-type: none"> - The installation of a new distribution main in the shared laneway to the rear of the properties is complete. The new main has been connected to the existing public distribution network. - Moling of a new communication pipe to the existing stopcock to the rear of each property is complete. 	<ul style="list-style-type: none"> - Outstanding is the completion of plumbing work to link the consumers' existing service connections to the new communication pipework at the stopcocks. A section of the old communication pipe will be removed to avoid future reconnection to the old lead pipe.

<p>Area 2: Plunkett Terrace, Lisheen Row, Glenanaar Row and Rockmount Terrace This is the locality with most work outstanding. As the only area with contractors working on site during the audit this was the only locality visited by the auditor.</p>	
<p><u>Plunkett Terrace</u> Complete</p> <ul style="list-style-type: none"> - The installation of a new distribution main in the public laneway to the rear of the properties is complete. (Photograph 1) The new main has been connected to the existing public distribution network. - Moling of a new communication pipe to the existing stopcock to the rear of each property is complete. 	<p>Outstanding</p> <ul style="list-style-type: none"> - Outstanding is the completion of plumbing work to link the consumers' existing service connections to the new communication pipework at the stopcocks. A section of the old communication pipe will be removed to avoid future reconnection to the old lead pipe.
<p><u>Lisheen Row and Glenananaar Row:</u> Complete</p> <ul style="list-style-type: none"> - The installation of a new distribution main on the street is complete except for a 7 metre length up a cul-de-sac at Glenanaar Row (Photograph 2). Evidence of works to install the new main on the street was noted by the auditor. (Photograph 3) 	<p>Outstanding</p> <ul style="list-style-type: none"> - Moling of new communication pipes up to the individual service connections to the front of each property was progressing on the day of the audit. Irish Water advised that this would be complete by the end of the week. - The completion of plumbing work to install replacement service connections up along the external wall of each property, protected within ducting, to tie in to the properties' existing water pipework in their attics was outstanding. - Outstanding, also, is the installation of a 7m length of new main up the cul-de-sac at Glenanaar Row, moling of a new communication pipe up to the individual service connections to the front of each property and plumbing work to install replacement service connections up along the external wall of each property.
<p><u>Rockmount Terrace (just at western end of Glenanaar Row)</u> Complete</p> <ul style="list-style-type: none"> - The installation of a new distribution main on the street was completed a number of years ago but the houses of Rockmount Terrace have continued to be served by a lead main to the rear. 	<p>Outstanding</p> <ul style="list-style-type: none"> - Outstanding is the moling of new communication pipes up to the individual service connections to the front external wall of each property and completion of plumbing work to install replacement service connections up along the external wall of each property, protected within ducting, to tie in to the properties' existing water pipework in their attics.
<p>Area 3: St. Patrick's Place <u>St Patrick's Place No.s 1-9 and 11-15</u> Complete</p> <ul style="list-style-type: none"> - The installation of a new distribution main on the public road to the front of the properties is complete. The new main has been connected to the existing public distribution network. - Moling of a new communication pipe up to the individual service connections to the front of each property is complete in the case of houses numbered 1-9 and up to the existing stopcock for houses 11-15. 	<p>Outstanding</p> <ul style="list-style-type: none"> - Outstanding is the completion of plumbing work to install replacement service connections up along the external wall of each property, protected within ducting, to tie in to the properties' existing water pipework in their attics in the case of houses 1-9 and to link the consumers' existing service connections to the new communication pipework at the stopcocks for houses 11-15.

	<p>Area 4: Pierce Terrace and Pierce Avenue <u>Pierce Terrace and Pierce Avenue</u></p> <p>Complete</p> <ul style="list-style-type: none"> - The installation of a new distribution main to on the public road has been completed. The new main has been connected to the existing public distribution network. - Moling work to is complete except for No. 2. 	<p>Outstanding</p> <ul style="list-style-type: none"> - Moling to house No. 2 is yet to be undertaken. - The completion of plumbing work to link the consumers' existing service connections to the new communication pipework at the stopcocks is outstanding.
<p>2.</p>	<p>Summary of Work Outstanding & Associated Timeframes</p> <p>Outstanding work in order to permit Irish Water to cease the use of lead mains in Mallow is as follows:</p> <p>Mains installation</p> <ul style="list-style-type: none"> - The installation of a replacement water main in the cul-de-sac at Glenanaar is outstanding. This is the only remaining section of distribution mains required to be installed as part of the current contract. Irish Water indicated that this would be complete before the end of June. <p>Plumbing Work – privately owned pipework</p> <ul style="list-style-type: none"> - The completion of plumbing work at all 197 properties across the 4 areas to connect consumers to the new non-lead pipework is outstanding. Some delay to the commencement of plumbing work has occurred due to the identification of an earthing issue at some of the properties. The WSA advised that plumbing work is to commence on Monday June 16th and to progress at a rate of approximately 6 houses per day with completion expected by the end of July. <p>Switch-over to non-lead pipework and decommissioning of lead pipework</p> <ul style="list-style-type: none"> - Switchover from the old lead pipes to the new non-lead pipes and decommissioning of the lead mains and pipework is outstanding. Existing communal lead mains can only be decommissioned if all properties connect to the new mains. As switchover and decommissioning is dependent on up-take by property owners, a timeframe has not been identified for completion. - NOTE: The scope of works of the current contract does not currently include for the decommissioning of the existing lead mains in the four locations in Mallow. These works will require an agreed change order between the WSA and the contractor. 	

3. AUDITORS COMMENTS

The Water Services Authority failed to comply with the EPA Direction issued on 28 September 2011 to complete the replacement of lead main pipework in its ownership in Mallow no later than 25 December 2013. Since the passing of the Direction deadline for completion of works, progress updates were communicated to the EPA by the WSA on foot of EPA requests on 27 January, 8 April and 4 June. Expected completion dates of 31 May, 23 June and end July were provided in these updates. Explanation for some of the slippage in these timeframes was provided during the audit and further explanation was furnished in a progress report submitted in the weeks that followed. The contractor was allowed entitlement to some extension of time due to the presence of unanticipated rock in two areas and due to the connecting of some additional properties to the new distribution mains.

During the audit the current status of works was discussed in detail and maps of the areas subject to works were reviewed. It was confirmed by an inspection of one of the four areas that works to achieve the replacement of lead mains have been progressed on site in accordance with the updates provided to the EPA. The EPA notes a gap between the scope of works of the current contract and the desired outcome of ceasing the use of all lead mains in the ownership of the Water Services Authority.

It is noted that the Water Services Authority availed of the opportunity to install boundary boxes at each property which will yield an efficiency in the future installation of water meters in the affected

areas. The contribution by Mallow Urban District Council of €150, 000 to the cost of works is acknowledged by the EPA.

4. RECOMMENDATIONS

Distribution Network

1. **Distribution Network:** The Water Services Authority should complete the installation of the final length of new main at the cul-de-sac at Glenanaar in Area 2.
2. **Distribution Network:** the Water Services Authority should complete plumbing work at all 197 properties across the 4 areas to connect consumers to the new non-lead pipework.

Management and Control

3. **Management and Control:** The Water Services Authority should finalise a change order with the contractor to incorporate decommissioning works into the current contract, or identify an alternative means for delivery of decommissioning.
4. **Management and Control:** The Water Services Authority should identify an estimated timeframe for completion of decommissioning of lead mains on the assumption that all properties will agree to connection to the new non-lead mains. Obstacles and any associated timeframe slippages can be identified thereafter.
5. **Management and Control:** The Water Services Authority should develop a monitoring programme for enactment at representative points of compliance following decommissioning of lead pipe work in each of the four areas. The aim of this programme should be to verify improvements in lead levels in drinking water resultant from the works. This monitoring programme should commence as decommissioning in the individual areas is achieved.

FOLLOW-UP ACTIONS REQUIRED BY IRISH WATER

During the audit the Water Services Authority representatives were advised of the audit findings and that action must be taken as a priority by the Water Services Authority to address the issues raised.

The Water Services Authority should submit a report to the Agency within one month of the issue date of this audit report providing details and progress on actions taken to address the above recommendations.

This report has been reviewed and approved by Ms Yvonne Doris, Drinking Water Team Leader. Please quote the File Reference Number **DW2008/439** in any future correspondence in relation to this Report.

**Report
prepared
by:**

Cliona Ni Eidhin

Cliona Ni Eidhin

Inspector

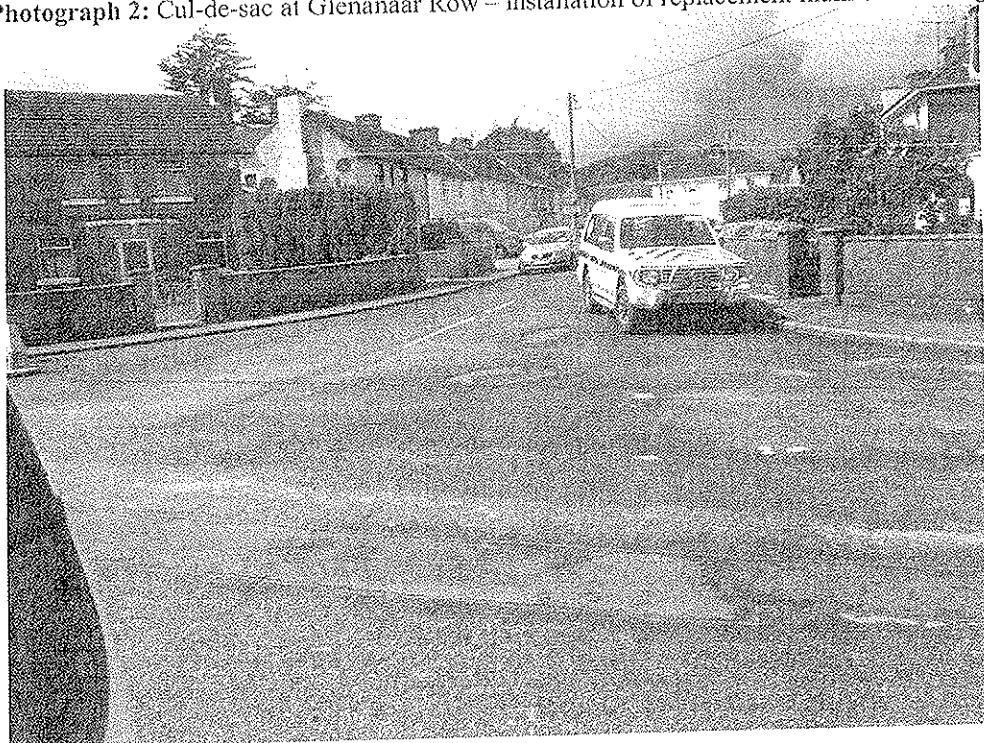
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Photograph No. 1: Public Laneway to the rear of Plunkett Terrace, Area 2.



Photograph 2: Cul-de-sac at Glenanaar Row – installation of replacement main outstanding.



Photograph 3: Evidence on street surface of work completed to install new main at Glenanaar Row
(looking East and West)



