



Drinking Water Audit Report

County:	Co. Galway	Date of Audit:	31 st July 2015
Plant(s) visited:	Mid Galway Water Treatment Plant, Scheme Code 1200PUB1038	Date of issue of Audit Report:	18 th August 2015
		File Reference:	DW2009/400
		Auditors:	Mr Darragh Page Ms Ruth Barrington
Audit Criteria:	<ul style="list-style-type: none"> • The <i>European Union (Drinking Water) Regulations 2014 (S.I. 122 of 2014)</i>. • The <i>EPA Handbook on the Implementation of the Regulations for Water Services Authorities for Public Water Supplies (ISBN: 978-1-84095-349-7)</i> • The recommendations specified in the <i>EPA Drinking Water Report</i>. • The recommendations in the previous EPA audit report dated 23/05/2014. 		

MAIN FINDINGS

- i. **The supply was removed from the Remedial Action List on the basis of the current audit, following the work on carried out on source protection and the resultant improvements in raw water quality.**
- ii. **Irish Water shall cover the spring source as planned to maintain levels of source protection.**

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 verify the information provided by Irish Water to request the removal of the supply from the Remedial Action List (RAL).

The Mid Galway PWS is supplied by water abstracted from springs and a recently constructed borehole. Approximately 2,000 people are supplied and the plant produces over 3,000 m³/day. The supply is on the RAL due to *E. coli* detected during 2009 and EPA concerns in relation to the disinfection system and treatment provided. Recent works by Irish Water have included the connection of a borehole for abstraction of a proportion of raw water, intake facilities at the spring source with a piped connection to the plant and servicing of the UV system.

Photographs taken by the audit team during the audit are attached to this report and are referred to in the text where relevant.

The opening meeting commenced at 14.50 hours at the Mid Galway Water Treatment Plant. The scope and purpose of the audit were outlined at the opening meeting. The audit process consisted of interviews with staff, review of records and observations made during an inspection of the treatment plant. The audit observations and recommendations are listed in Section 2 and 4 of this report.

The following were in attendance during the audit.

Representing Irish Water: (* indicates that person was also present for the closing meeting)

Mr Adrian Raftery – Area Engineer, Galway County Council*

Mr Diarmuid Croghan – Divisional Engineer, Galway County Council*

Ms Tara Meehan – Division Technician, Galway County Council*

Mr Pat O’Sullivan – Compliance, Irish Water*

Mr Shay Walsh – Engineer, Irish Water*

Mr Martin Lavelle- Senior Engineer, Galway County Council*

Representing the Environmental Protection Agency:

Mr Darragh Page – Senior Inspector*

Ms Ruth Barrington – Inspector*

2. AUDIT OBSERVATIONS

The audit process is a random sample on a particular day of a facility's operation. 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.	<p>Source Protection</p> <ol style="list-style-type: none"> a. Water abstracted from the borehole now forms 10-15% of the raw water abstraction. b. The remaining abstraction is taken from the series of springs at the pond at the head of the Daingeanbeg River, and is piped to the treatment plant. The pond is currently open but there are plans to cover this source. c. Previously water from the spring flowed into the Daingeanbeg River for a distance of 500 m and was abstracted from the river at the Mid Galway plant. Since the previous audit Irish Water has cleared the vegetation around the spring (refer to photograph nos. 1 and 2) and now pumps the water directly via pipework from the spring to the treatment plant. This has eliminated surface water entering the raw water resulting in an improvement in raw water quality (improved UVT, reduced colour and turbidity). d. The immediate surroundings of the abstraction points are within the control of Galway County Council. Adjoining land is Coillte forestry. e. A Water Safety Plan is being developed for the supply by Irish Water, and will cover risk mitigation for catchment hazards such as contamination from pesticide use and siltation potentially arising from the forestry areas.
2.	<p>Ozonation and GAC Filtration</p> <ol style="list-style-type: none"> a. Improvements in raw water quality as outlined above have led to the operation of the ozonation system as duty/ standby units. Previously it had been necessary to run both units simultaneously. b. The GAC filtration media has not been replaced within the lifetime of the filters. c. The development of the procedure for GAC assessment and maintenance is noted by the audit team.
3.	<p>Chlorination and Disinfection</p> <ol style="list-style-type: none"> a. Primary disinfection is via a UV system incorporating duty and standby units. An alarm and automatic shutdown of the plant is triggered at a UVT set point of 68%.

	<ul style="list-style-type: none"> b. The plant has been operating within the validated range for the UV system. In addition, due to the improvements in raw water quality it is now possible to run the UV system as duty/standby units. Previously it had been necessary to run both units simultaneously. c. There is no automatic switchover between the duty and standby UV units. The system requires a manual restart following trigger level generated shutdown. These shutdowns are programmed individually on UVT, chlorine and turbidity trigger levels. d. Secondary disinfection in the network is achieved through chlorination using sodium hypochlorite. e. At the time of the audit, chlorine residual concentrations measured in the network were not being recorded. A system was in the process of being set up to record these readings for sampling points in the network located at kiosks with sampling taps. f. It was not possible during the audit to verify whether an acceptable chlorine residual of at least 0.1 mg/l was present throughout the network to ensure adequate secondary disinfection.
	<p>Management and Control</p> <ul style="list-style-type: none"> a. The caretaker at the Mid-Galway water treatment plant does not have access to the SCADA on-site to assist in the management of the plant and the investigation of alarms. b. IW provided 6 weeks' SCADA trends from the connection of the piped source on 24/02/2015. These show UVT values for the blended raw water have been in the region of 90%, with a turbidity of less than 0.2 NTU. The previous EPA audit report quoted a UVT of 80% prior to the source protection works.

3. AUDITORS' COMMENTS

The audit team welcomes the improvements in the treatment and raw water quality provided at the plant, and the potential for these improvements to be maintained through the active use of a Drinking Water Safety Plan for the supply which is in preparation. The supply was approved by the EPA for removal from the RAL on 07/08/2015, following this audit and on the basis of the source protection works and the consequent improvements in raw water quality and consistency.

4. RECOMMENDATIONS

Source Protection

1. Irish Water shall complete the physical source protection work of covering the spring source as planned.

Filtration (General)

2. Irish Water should ensure that the GAC operations procedure is sufficient to maintain the GAC filter in the adsorption phase rather than the biological phase, if it is intended to function for the removal of THM precursors.

Disinfection

3. Irish Water shall record the network residual free chlorine concentrations in a system of monitoring to demonstrate whether effective secondary disinfection is available throughout the network.

Management and Control

4. Irish Water should ensure that caretakers and/or plant operators have full access to the data pertaining to the performance of the plant. Specifically, access should be provided to raw and treated water quality trends.

FOLLOW-UP ACTIONS REQUIRED BY IRISH WATER

During the audit Irish Water representatives were advised of the audit findings and that action must be taken as a priority by Irish Water to address the issues raised. This report has been reviewed and approved by Mr Darragh Page, Senior Inspector.

Irish Water is recommended to put such measures in place as are necessary to implement the recommendations listed in this report. The actions by Irish Water to address the recommendations taken will be verified by the Agency during any future audits.

The EPA also advises that the findings and recommendations from this audit report should, where relevant, be addressed at all other treatment plants operated and managed by Irish Water.

Please quote the File Reference Number in any future correspondence in relation to this Report.

Report prepared by:



Date:

18th August 2015

Ruth Barrington

Inspector

Photograph No. 1 Cleared vegetation around spring source and river



Photograph No. 2 Cleared vegetation around spring source

