



# Drinking Water Audit Report

<b>Local Authority:</b>	Galway County Council	<b>Date of Audit:</b>	8 February 2012
<b>Plant(s) visited:</b>	Rosmuc Water Treatment Plant	<b>Date of issue of Audit Report:</b>	10 February 2012
		<b>File Reference:</b>	DW2008/506
		<b>Auditors:</b>	Mr. Darragh Page Mr. Patrick McLoughlin
<b>Audit Criteria:</b>	<ul style="list-style-type: none"> <li>• The <i>European Communities (Drinking Water) (No. 2) Regulations, 2007</i>.</li> <li>• The EPA Handbook on the Implementation of the Regulations for Water Services Authorities for Public Water Supplies (ISBN: 978-1-84095-349-7)</li> <li>• The recommendations specified in the EPA Report on <i>The Provision and Quality of Drinking Water in Ireland</i>.</li> <li>• The recommendations in any previous audit reports.</li> </ul>		

## MAIN FINDINGS

- i. **The upgrade of the Rosmuc water treatment plant was complete on 3 November 2011 and the plant is now in the commissioning phase. However, the precautionary boil water notice is still in place on the supply.**
- ii. **To enable the supply to be removed from the EPA Galway County Council should consult with the HSE regarding the conditions that must be in place to lift the boil water notice and should arrange for three THM samples to be taken in the network. Following the completion of these actions Galway County Council should submit the relevant information to the EPA.**

## 1. INTRODUCTION

Under the *European Communities (Drinking Water) (No. 2) Regulations 2007* the Environmental Protection Agency is the supervisory authority in relation to the local authorities and their role in the provision of public water supplies. This audit was carried to verify that the action programme submitted by Galway County Council on 6 November 2009 has been implemented and that there is an adequate treatment barrier to prevent entry of *Cryptosporidium* into the supply.

The source for the Rosmuc water supply scheme is Lough Araolagh. Treatment at the plant consists of raw water pH correction, dissolved air flotation (DAF), rapid gravity filtration, UV treatment and chlorination. The Council reported that the throughput in the plant is approx. 17 m<sup>3</sup>/hr but the WSA indicated that this should reduce with leakage reduction measures currently underway. The plant was complete on 3 November 2011 but has yet to be handed over to Galway County Council.

The opening meeting commenced at 10:15 am at the Rosmuc 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

following were in attendance during the audit. The audits observations and recommendations are listed in Section 2 and 4 of this report.

<p>Representing Local Authority: (* indicates that person was also present for the closing meeting)</p> <p>Mr. Martin Lavelle – Senior Engineer*</p> <p>Mr. Jim O’Connell – Water Services Supervisor*</p> <p>Mr. Jimmy Callan – Caretaker*</p> <p>Mr. Martin Hunt – EPS*</p> <p>Mr. Adrian Raferty – Executive Engineer*</p> <p>Representing the Environmental Protection Agency:</p> <p>Mr. Darragh Page – Inspector</p> <p>Mr. Patrick McLoughlin - Inspector</p>
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## 2. AUDIT OBSERVATIONS

<p><i>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.</i></p>
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<b>1.</b>	<p><b>Source Protection</b></p> <ul style="list-style-type: none"> <li>a. The source of the supply for Rosmuc is Lough Araolagh. There were several individual dwellings on the edge of the lake. The WSA reported that there is no sewer in the area and all dwellings in the area had on-site waste water treatment systems.</li> <li>b. The WSA reported that the quality of the lake appears to be relatively stable in terms of pH, colour and turbidity.</li> </ul>
<b>2.</b>	<p><b>Dissolved Air Flotation</b></p> <ul style="list-style-type: none"> <li>a. The pH of the raw water is automatically corrected to ensure that the coagulation pH is 6.2.</li> <li>b. Alum is dosed at approximately 80 mg/l. The WSA reported that the dose does not change much as the raw water is relatively stable with colour normally in the range of 40-50 Hz.</li> </ul>
<b>3.</b>	<p><b>Filtration</b></p> <ul style="list-style-type: none"> <li>a. There is a rapid gravity filter built into the DAF which is monitored for turbidity.</li> <li>b. The filters are backwashed routinely every 24 hours but also backwash based on the level of water in the filter. Alternatively, the backwashing can be manually initiated if required.</li> <li>c. The consultant (Tobins) stated that the turbidity on the plant is alarmed at 0.2 NTU which initiates a plant shut off. However, it was stated that levels above 0.2 NTU occur after the filter is brought back into service following backwashing.</li> <li>d. The consultant reported that the filter is not run to waste nor is there a slow start on the filter but stated that facility was in place to run the filter to waste if required.</li> <li>e. The level of turbidity at the time of the audit was 0.051 NTU.</li> </ul>
<b>4.</b>	<p><b>Disinfection</b></p> <ul style="list-style-type: none"> <li>a. The filtered water is disinfected using UV treatment followed by chlorination.</li> </ul>

	<ul style="list-style-type: none"> <li>b. There is no standby UV unit at the plant, however the consultant reported that there is an auto shut off if the UV unit goes outside its validated range or is being repaired. At present there is 24 hour response to the alarm and spares are kept in Clifden.</li> <li>c. The UVI at the time of the audit was 35.7 W/m<sup>2</sup> and the UVT on the monitor next the UV lamp was reading 90.3%. The lamp is validated to 85%. However, the UVT on the panel inside the plant was alternating rapidly between 85.68% and 85.71% and the historical trend for the past month indicated that the UVT was a straight line reading at these values. Therefore, the UVT reading on the panel did not match that on the UVT monitor. No explanation for this inconsistency was presented at the time of the audit and the consultant agreed to investigate this matter.</li> <li>d. Sodium hypochlorite is dosed at the plant to give a residual leaving the plant of approx. 1.2 mg/l. The chlorine monitor is alarmed at 2.0 and 0.6 mg/l at which stage the plant will go into auto shutdown and a text is sent to the plant operators.</li> <li>e. The chlorinated water then passes into a clear water tank on site which has approx. 1 hours storage after which time it is pumped to the reservoir. The reservoir was not inspected on the day of the audit. The WSA advised they had secured the reservoir with fencing but would look into meshing of vents.</li> </ul>
<b>5.</b>	<p><b>Monitoring and Sampling Programme for treated water</b></p> <ul style="list-style-type: none"> <li>a. There is an ammonium monitor on the raw water though this was not operational at the time of the audit.</li> <li>b. Daily log sheets are kept for monitoring on site. The log sheets also contain the expected range of the parameters monitored. The expected range of chlorine leaving the plant was listed as between 0.2 and 0.5 mg/l. It was reported that this was actually the expected range at the end of the network and not the value expected at the plant (which was &gt;0.5 mg/l).</li> </ul>
<b>6.</b>	<p><b>Exceedances of the Parametric Values</b></p> <ul style="list-style-type: none"> <li>a. THM exceedances have been previously reported in this supply and the supply is also on a boil water notice due to the detection of <i>Cryptosporidium</i> previously.</li> <li>b. THM sampling to verify the effectiveness of the remedial measures has not yet been undertaken and the WSA indicated that this will take place once the mains have been flushed.</li> <li>c. The boil water notice is still in place as the plant was in the commissioning phase. The WSA indicated that unidirectional flushing was planned prior to consulting with the HSE to enable the boil water notice to be lifted.</li> </ul>
<b>7.</b>	<p><b>Hygiene and Housekeeping</b></p> <ul style="list-style-type: none"> <li>a. The vent on the clear water tank did not have a vermin proof mesh.</li> </ul>

### 3. AUDITORS COMMENTS

The Rosmuc water treatment plant appears to be capable of providing an adequate barrier to *Cryptosporidium* and therefore the EPA considers that the Direction issued on 6 November 2009 has been complied with. Some minor monitoring and reporting issues were identified which should be resolved prior to the completion of the commissioning phase. The implementation of the flushing programme to enable the consideration of the lifting of the boil water notice should be implemented as soon as possible. Subject to the lifting of the boil water notice and the submission of three consecutive compliant THM results the EPA will be in a position to remove the Rosmuc supply from the Remedial Action List.

## **4. RECOMMENDATIONS**

### **Filtration (General)**

1. The Water Services Authority should investigate the feasibility of running the filters to waste for an appropriate period of time or that there is a slow start when the filter is brought back into use following backwashing.

### **Disinfection**

2. The Water Services Authority should investigate the discrepancy between the UVT monitor next to the UV lamps and the readings on the control panel in the plant and should take the necessary action to ensure that the readings are correct on both.

### **Treated Water Storage**

3. The Water Services Authority should ensure that all vents on the clear water tank and reservoir are secured against ingress of animals or deliberate introduction of any contaminant or acts of vandalism.

### **Distribution System**

4. The Water Services Authority should implement the flushing and scouring programme in the mains.

### **Exceedences of the Parametric Values**

5. The Water Services Authority should carry out at least three sampling rounds for THMs in the distribution network and should submit the results of this monitoring to the EPA to enable the EPA to determine whether the supply can be removed from the RAL.
6. The Water Services Authority should consult with the HSE to determine the criteria that must be in place to enable the boil water notice to be lifted and should take such action as soon as possible.

### **Monitoring and Sampling Programmes for Treated Water**

7. The Water Services Authority should review and amend the daily monitoring sheet to ensure that correct expected ranges of values is inserted on the daily log sheets.

## **FOLLOW-UP ACTIONS REQUIRED BY THE LOCAL AUTHORITY**

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 date of this audit report detailing how it has dealt with the issues of concern identified during this audit. The report should include details on the action taken and planned to address the various recommendations, including timeframe for commencement and completion of any planned work. 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 Galway County Council.

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

**Report prepared by:**

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Inspector

**Date:**