

# Site Visit Report

Under the European Union (Drinking Water) Regulations 2014 as amended, 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 the performance of Irish Water in providing clean and wholesome water to the visited public supply.

The audit process is a sample on a given date of the facility's operation. Where a finding against a particular issue has been reported this should not be construed to mean that this issue is fully addressed.

## Water Supply Zone

<b>Name of Installation</b>	Touraneena
<b>Organisation</b>	Irish Water
<b>Scheme Code</b>	3100PUB1098
<b>County</b>	Waterford
<b>Site Visit Reference No.</b>	SV25989

## Report Detail

<b>Issue Date</b>	17/10/2022
<b>Prepared By</b>	Regina Campbell

## Site Visit Detail

<b>Date Of Inspection</b>	04/10/2022	<b>Announced</b>	Yes
<b>Time In</b>	11:00	<b>Time Out</b>	12:00
<b>EPA Inspector(s)</b>	Regina Campbell		
<b>Additional Visitors</b>			
<b>Company Personnel</b>	Irish Water: Pat Duggan, Ronan Walsh Waterford City and County Council (acting under service level agreement to Irish Water): Maura Phelan, David Hourigan		

## > Summary of Key Findings

1. A Boil Water Notice (BWN) was placed on the Tooraneena Public Water Supply (PWS) on 07/09/22 due to elevated turbidity in the supply caused by excessive draw from the well due to a burst in the network. It was lifted on the 22/09/22.
2. The audit found that the plant shutdown based on turbidity > 1 NTU did not work as intended and this resulted in inadequately treated water entering the supply for approximately two hours. Waterford City and County Council (WCCC) said that the borehole shutdown and turbidity shutdown were enabled on the PLC at the time of the incident but a hidden setting in the background was disabled.
3. At the audit the correct turbidity alarms and shutdowns were in place and the borehole turbidity was low and stable. It was found that the incident was escalated appropriately once operational staff became aware of the issue.
4. Touraneena PWS is on the Irish Water National pH file as it has persistent low pH (< 6.5 pH). At present there is no timeframe for remedial measures to address the issue.

## > Introduction

The Touraneena Public Water Supply (PWS) serves a population of 354 and produces 69 m3/day (EDEN figures). The source is a borehole located in the planthouse.

The audit was undertaken to assess Irish Water's performance in producing clean and wholesome water following the imposition of a Boil Water Notice (BWN) on the supply from 07/09/22 to 22/09/22.

## > Supply Zones Areas Inspected

The borehole, chlorination and UV treatment systems were inspected.



## 1. Incident Management

### Answer

1.1	Was the incident suitably alerted to the plant operators, escalated and managed in order to maintain water quality and protect public health?	No
<b>Comment</b>		
<p>1. A BWN was placed on the Touraneena PWS on 07/09/22 due to elevated turbidity in the supply caused by a low borehole level due to excessive draw caused by a burst in the network. It was lifted on the 22/09/22.</p> <p>2. The audit found that the plant shutdown based on turbidity &gt; 1 NTU did not work as intended and this resulted in inadequately treated water entering the supply for approximately two hours (between 6pm and 8pm). Turbidity increased to approximately 10 NTU during that time period.</p> <p>3. Operational staff became aware of the issue when higher than normal turbidity and flow were noticed during routine checking of turbidity and flow trends. The supply was then immediately shut down and the network was scoured.</p> <p>4. The HSE and EPA were notified of the incident and a BWN was issued to protect public health.</p> <p>5. Waterford City and County Council (WCCC) said that the borehole shutdown and turbidity shutdown were enabled on the PLC at the time of the incident but a hidden setting in the background was incorrect which meant that the shut down did not operate as intended. Neither WCCC nor Irish Water could explain why there was an incorrect hidden setting in the background.</p> <p>6. It was found that the incident was escalated appropriately once operational staff became aware of the issue.</p> <p>7. WCCC said that there were subsequently a few bursts and repairs required on the network that delayed the lifting of the BWN.</p> <p>8. At the audit the correct turbidity alarms and shutdowns were in place and the borehole turbidity was low and stable.</p>		



## 2. Source Protection

	<b>Answer</b>
<b>2.1</b>	Is the abstraction source(s) adequately protected against contamination?
	<b>Comment</b>  The wellhead did not appear to be sealed adequately at the audit. WCCC said that recent works had taken place on installing a new shutdown based on low groundwater level. There were no borehole log details available at the audit.  The planthouse is bounded by agricultural land on one side. WCCC could not confirm when landowners had last been written to in relation to the requirements of the European Union (Good Agricultural Practice for the Protection of Waters) Regulations 2014 (SI No.31 of 2014).  There is a turbidity monitor with alarm setpoint of 0.8 NTU (after 15 minutes) and shutdown of 1 NTU (after 3 minutes). Turbidity was 0.037 NTU at the audit.  There is a pH monitor which was reading 6.2 at the audit. There is persistent low pH in the raw water source and the supply is included in the Irish Water National pH file for supplies with persistently low pH issues.



### 3. Disinfection

3.1

Is the disinfection system verified using monitors and alarms, with trended data recorded and accessible?

Answer

Yes

#### Comment

The site was upgraded and commissioned under the Irish Water Disinfection system in 2017.

#### Primary Disinfection

Primary disinfection is provided by UV. There are duty and standby UV units (Wedeco Spektron 50) with automatic switchover in operation.

Units are certified to the European Standard and provide a minimum dose of 40 mJ/cm<sup>2</sup> at a maximum flow rate of 12.5 m<sup>3</sup>/hr and minimum UVT of 80%. Flow was 1.7 m<sup>3</sup>/hr during the audit and UVT was 99%. There are operational alarms and shutdowns based on UVT and UVI.

#### Secondary Disinfection

10% sodium hypochlorite is dosed flow proportionally to maintain secondary disinfection in the network. There are duty/standby pumps with automatic switchover. The chlorine monitor was reading 0.65 mg/l at the audit. High and low chlorine alarms and shutdowns are operational.

Trends viewed showed stable chlorine, UV and turbidity trends for the plant.

3.2

Is there a suitable monitoring frequency for residual chlorine in the network with records available?

Answer

No

#### Comment

A review of records showed that at times there are gaps of up to one week between monitoring of residual chlorine in the network.

Records showed that chlorine residual was  $\geq 0.1$  mg/l in the network which is satisfactory.



## 4. Management and Control

### Answer

4.1	Are suitable plant shutdowns/inhibits in place to prevent the entry of inadequately treated water entering the distribution network?	No
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### Comment

The UVT shutdown setpoint is currently at 70% and this should be raised to 80% to align with the validated operating range criteria outlined on the UV plate.

The low chlorine alarm (0.25 mg/l) and low chlorine shutdown (0.2 mg/l) should also be reviewed to ensure that they provide adequate warning of any malfunction of the chlorine dosing system.

## Recommendations

Subject	Touraneena Audit Recommendations	Due Date	17/11/2022
Action Text	<b>Recommendations</b>  <b>Irish Water is responsible for ensuring a safe and secure supply of drinking water. To address these issues Irish Water should implement the following recommendations without delay.</b>  <ol style="list-style-type: none"><li>1. Irish Water should confirm why the alarm and shutdown settings were disabled at Touraneena WTP and undertake a review of all water treatment plants in Co. Waterford to ensure that all alarms and shutdown settings (including hidden settings) are correct.</li><li>2. Irish Water should submit a programme of works with timeframes to address the persistent low pH issue in the supply.</li><li>3. Irish Water a) review the low chlorine alarm and shutdown setpoint to ensure that it provides appropriate warning of any low chlorine levels in the network and b) should ensure that residual chlorine monitoring is undertaken in the network several times a week.</li><li>4. Irish Water should raise the UVT shutdown setpoint in line with the UV unit validated operating range.</li><li>5. Irish Water should ensure that all borehole linings and seals are maintained in accordance with <i>EPA Advice Note No. 14: Borehole Construction and Wellhead Protection</i></li><li>6. Irish Water should liaise with Waterford City and County Council and confirm that relevant landowners have been written to in relation to setback distances in accordance with the European Union (Good Agriculture Practice for the Protection of Waters) Regulations 2014 (SI No. 31 of 2014) for the source of the supply.</li><li>7. Irish Water should update Eden with the correct treatment types for the supply.</li></ol>		
<b>Follow-Up Actions required by Irish Water</b>  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 Dr. Michelle Minihan, Senior Inspector, Drinking Water Team.  Irish Water should submit a report to the Agency on or before 17/11/22 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 time frame 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 Irish Water.  Please quote Compliance Plan DW20220125 in any future correspondence in relation to this Report.			