

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	
Name of Installation	Carrick-On-Suir (Crottys Lake)
Organisation	Irish Water
Scheme Code	2900PUB0107
County	Tipperary
Site Visit Reference No.	SV25602

Report Detail	
Issue Date	27/05/2022
Prepared By	Criona Doyle

Site Visit Detail			
Date Of Inspection	17/05/2022	Announced	No
Time In	12:55	Time Out	13:25
EPA Inspector(s)	Criona Doyle		
Additional Visitors			
Company Personnel	Irish Water: Samantha Keane. Tipperary County Council (acting under service level agreement to Irish Water): Brid O'Hehir; Eoin Lawson; John Fogarty; Fintan Collins.		

> Summary of Key Findings

- (1) A boil water notice was placed on the Carrick On Suir (Crotty's Lake) PWS on 13/05/22 following the reintroduction of the Coolnamuck Borehole due to concerns in relation to the elevated turbidity and the potential impact on the chlorination disinfection system. The BWN remained in place on the day of the audit.
- (2) The installation of a run to waste facility has been completed but the installation of automatic plant shutdown in response to high turbidity and high chlorine alarms has not been completed to date at the borehole treatment plant. There is automatic plant shutdown linked to the low chlorine alarm setpoint.
- (3) Irish Water have not determined the protozoal log treatment requirement for the borehole source yet.

> Introduction

The Carrick On Suir (Crotty's Lake) Public Water Supply (PWS) is composed of a surface water abstraction from Crotty's Lake which is augmented by a groundwater abstraction from the Coolnamuck Borehole. Treated water from both sources is mixed in the Seskin Reservoir. The Carrick On Suir (Crotty's Lake) PWS produces approximately 671m³/day (EDEN) and serves a population of 2,322.

The supply is currently on a BWN imposed on 13/05/22 as adequate disinfection could not be guaranteed due to elevated turbidity in the Coolnamuck Borehole. Treatment at the Coolnamuck Borehole consists of chlorination. The chlorinated water is pumped to the Seskin Reservoir where it is mixed with treated water from the Carrick On Suir (Crotty's Lake) Water Treatment Plant. The Coolnamuck Borehole was brought back into operation on the 13/05/22 to augment the supply in response to low water levels in the lake.

The purpose of the audit was to investigate the reintroduction of the groundwater source under a boil water notice and this audit deals with the borehole source for the supply only.

> Supply Zones Areas Inspected

The auditor examined the borehole and the disinfection treatment at the Coolnamuck Borehole.



1. Incident Management

1.1

	Answer
Was the incident suitably alerted to the plant operators, escalated and managed in order to maintain water quality and protect public health?	Yes
Comment	
<p>The Carrick On Suir (Crotty's Lake) PWS is composed of a surface water abstraction from Crotty's Lake which is augmented by a groundwater abstraction from the Coolnamuck Borehole. Treated water from both sources is mixed in the Seskin Reservoir. The Coolnamuck Borehole was taken out of service in February 2022 due to elevated turbidity and a programme of remedial works commenced including the installation of a run to waste facility and automatic plant shutdown linked to elevated turbidity and chlorine alarms.</p> <p>Low water levels at the intake at Crotty's Lake resulted in the WTP at Crotty's Lake being unable to supply sufficient water to all of the supply area. The Coolnamuck Borehole was brought back into service on 13/05/22 to augment the supply from Crotty's Lake prior to the completion of all of the planned remedial works at the borehole plant. Coolnamuck Borehole provides 17% of the total supply volume in Winter and up to 37% of the supply in Summer.</p> <p>Tipperary County Council outlined that the Coolnamuck Borehole was initially scoured and run to waste to assess the turbidity on 13/05/22. The turbidity trend data indicated that turbidity could not be maintained below the 1 NTU parametric value and therefore adequate disinfection could not be guaranteed. Irish Water and Tipperary County Council consulted with the HSE on 13/05/22 and it was agreed to reintroduce the Coolnamuck Borehole into supply under a boil water notice (BWN) as adequate disinfection could not be guaranteed due to the elevated turbidity. The EPA was notified of the placing of the BWN on 13/05/22 affecting a population of 2,322.</p> <p>The remedial measures to address elevated turbidity in the borehole had been underway prior to the BWN and the recommissioning of the borehole. The installation of the run to waste facility is completed but the installation of automatic plant shutdown is not completed. The expected completion date could not be confirmed at the audit. Tipperary County Council outlined that this information was expected to be available by the end of the week following confirmation of the delivery date for the equipment. The turbidity was 0.031 NTU at the time of the audit.</p> <p>Irish Water outlined at the audit that the criteria agreed with the HSE for the lifting of the BWN were 3 days compliant results for chlorine, turbidity and microbiological parameters and 1 no. clear <i>Cryptosporidium</i> sample. A sample was being taken for monitoring of <i>Cryptosporidium</i> on the day of the audit.</p> <p>The audit found that the incident had been appropriately escalated and public health was protected by the placing of a BWN on the supply. On the day of the audit the BWN remained in place.</p>	



2. Source Protection

	Answer
2.1 Is the abstraction source(s) adequately protected against contamination?	No
Comment	
The borehole is located in an above ground pump house adjacent to the treatment plant building. The wellhead is adequately protected but there is no borehole log available to confirm the construction details below ground level to determine if the borehole is adequately protected against contamination.	



3. Disinfection

		Answer
3.1	Is the disinfection system verified using monitors and alarms, with trended data recorded and accessible?	Yes
Comment		
<p>The site has not been upgraded under the Irish Water National Disinfection Programme to date. The residual chlorine trend data cannot be viewed on site. The residual chlorine trend data can be viewed on the county wide SCADA.</p> <p>The high and low chlorine alarms could not be confirmed at the time of the audit. Information provided by Irish Water on 23/05/22 confirmed the low level chlorine alarm setpoint is 0.3 mg/l and the high chlorine alarm set point is 1.8mg/l. The low chlorine alarm setpoint triggers automatic shutdown of the borehole supply. There is no automatic plant shutdown linked to the high level chlorine alarm setpoint.</p>		

		Answer
3.2	Is the chlorine dosed appropriately?	Yes
Comment		
<p>Chlorine dosing is flow proportional and linked to the residual chlorine monitor. There are 2 no. dosing pumps on site that operate on a duty and assist basis. The duty pump operates on a continuous basis with the assist pump cutting in at 0.70mg/l. Tipperary County Council confirmed the assist pump can provide the full dose in the event of a failure of the duty pump.</p> <p>The target residual chlorine level at the WTP is 0.90mg/l and was observed to be 1.17 mg/l at the time of the audit. There are 2 no. residual chlorine monitors on the outlet from the Seskin reservoir reading 1.06mg/l and 1.08mg/l at the time of the audit.</p>		



4. Management and Control

		Answer
4.1	Has the protozoal compliance log treatment requirement been identified for the water treatment plant?	No
Comment		
Irish Water have not identified the protozoal log treatment requirement for the borehole source.		

		Answer
4.2	Are suitable plant shutdowns/inhibits in place to prevent the entry of inadequately treated water entering the distribution network?	No
Comment		
There is no automatic plant shutdown linked to the turbidity alarm setpoint of 0.81 NTU. There is no automatic shutdown linked to the high chlorine alarm setpoint of 1.8 mg/l.		



5. Site Specific Issues

	Answer
5.1 Could the chlorine contact time be verified on the day of the audit?	No
Comment	
The audit was unannounced. A copy of the contact time calculation not available at the WTP on the day of the audit to confirm if there is adequate contact time before the first connection.	

Recommendations

Subject	Carrick On Suir - Coolnamuck Borehole Audit	Due Date	27/06/2022
Action Text	<p>Recommendations</p> <p>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.</p> <ol style="list-style-type: none">1. Irish Water should keep the EPA informed of any changes to the HSE advice.2. Irish Water should complete the installation of the automatic shutdown linked to the chlorine (high & low alarm setpoints) and turbidity alarms.3. Irish Water should provide a copy of the contact time calculation for the supply from the Coolnamuck Borehole.4. Irish Water should (a) confirm the protozoal log treatment requirement for the Coolnamuck Borehole supply and (b) provide details on how the log deficit will be addressed.5. Irish Water should confirm the proposed <i>Cryptosporidium</i> monitoring frequency for the Coolnamuck Borehole. <p>Follow-Up Actions required by Irish Water</p> <p>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.</p> <p>This report has been reviewed and approved by Regina Campbell, Drinking Water Team Leader.</p> <p>Irish Water should submit a report to the Agency on or before 27/06/22 detailing how it has dealt with the issues of concern identified during this audit.</p> <p>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.</p> <p>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.</p> <p>Please quote Compliance Reference Number DW20220017 in any future correspondence in relation to this Report.</p>		