

Site Visit Report

Under the *European Union (Drinking Water) Regulations 2023*, the Environmental Protection Agency (EPA) is the supervisory authority in relation to Uisce Éireann and its role in the provision of public drinking water supplies. This audit was carried out to assess the performance of Uisce Éireann in providing clean and wholesome water to the public water supply named below.

The audit process is a sample of the performance of a water treatment plant and public water supply on a given date.

Water Supply Zone	
Name of Installation	Knock Airport
Organisation	Uisce Éireann
Scheme Code	2200PUB1036
County	Mayo
Site Visit Reference No.	SV28382

Report Detail	
Issue Date	11/12/2023
Prepared By	Derval Devaney

Site Visit Detail			
Date Of Inspection	13/11/2023	Announced	Yes
Time In	11:45	Time Out	13:30
EPA Inspector(s)	Derval Devaney Veronica Boland		
Additional Visitors			
Company Personnel	Uisce Éireann: Vinny McGrath Mayo County Council (in partnership with Uisce Éireann): Brian Conmy, Niall McHale, Declan Shannon.		

> Summary of Key Findings

1. The Knock Airport Public Water Supply (PWS) alarm and shutdown/inhibits settings and procedures were well documented and there was good knowledge and oversight of the plant's processes and operations.
2. The chlorine monitors CL001 and CL002 were tagging each other on SCADA and not reading independent of one another. The plant shutdown settings based on flow needs to be revised and amended.
3. The population of Knock Airport PWS was incorrectly represented on the EPA's EDEN database.

> Introduction

Knock Airport PWS has a production rate of approximately 40 - 45 m³ of treated water per day. The supply serves some houses close to the water treatment plant (WTP) and has taken over the supply of water to customers of the Cloonlyon Group Water Scheme. It also supplies a reservoir which serves Knock Airport.

Raw water is abstracted from a 3m deep casing located in a disused gravel pit in the vicinity of the WTP which is fed by groundwater and rainwater. Treatment includes filtration (cartridge filters) and disinfection via UV treatment and chlorination. Approximately 20 m³/day of treated water serves customers outside the airport boundary and 20 m³/day is fed to an off-site reservoir which supplies the airport directly.

The audit of Knock Airport PWS was carried out to assess the performance of Uisce Éireann in providing clean and wholesome drinking water, with a focus on the alarms and inhibits in place at the treatment plant and the procedures in place to ensure appropriate oversight of treatment process.

> Supply Zones Areas Inspected

All treatment processes on site were inspected as part of the audit. The off site reservoir was not inspected during the audit.



		Answer
1.1	Are suitable plant shutdowns/inhibits in place to prevent the entry of inadequately treated water entering the distribution network?	No
Comment		
<p>1. A sanitary survey has been completed and a 3 log treatment requirement has been assigned for the water treatment plant. The UV unit is validated to the USEPA standard based on the calculated dose approach to achieve a dose of 40 mJ/cm². The PLC that is linked to the UV unit is set to alarm if the dose is < 44 mJ/cm² and shutdown the plant if the dose is < 40 mJ/cm². The PLC linked to the plant will alarm if the UVT monitor is < 75% UVT and shutdown the plant if UVT < 70 %. These operating conditions ensure a 4 log treatment is achieved with <i>Cryptosporidium</i> being the target pathogen.</p> <p>2. Chlorination using 10% sodium hypochlorite is dosed post UV treatment and upon entry to the on-site clearwater tank. The target contact time (Ct) to ensure adequate disinfection is 28.08 mg.min/l. In order to achieve a contact time of 30 mg.min/l; a minimum free chlorine residual of 0.5 mg/l is needed post Ct and a flow no greater than 15 m³/hour. The high and low chlorine alarm and shutdown set points were satisfactory to ensure adequate disinfection. However, while an alarm is raised when flow is > 15 m³/hour, the plant was set to shutdown when the flow is > 35 m³/hour, which is outside the calculated requirements provided for adequate contact time.</p>		

		Answer
1.2	Are plant performance trends accessible by operational staff at the water treatment plant?	Yes
Comment		
<p>1. Trends are accessible to operational staff at the WTP and were reviewed on-site during the audit.</p> <p>2. The chlorine monitor CL001 samples at the inlet to the on-site contact tank and a reading is taken after the sample goes through a 15 minute contact coil. The chlorine monitor CL002 samples on the exit of the on-site clear water tank once contact time has elapsed. Both chlorine monitors were displaying the same reading on SCADA, which showed they were incorrectly tagging each other on the system.</p>		



2. Site Specific Issues

	Answer
2.1 Is the population served by this supply accurately reported to the EPA?	No
Comment	
<p>1. The EPA's online portal, EDEN, states that the population served by this supply is two persons. It was acknowledged during the audit that this figure is incorrect. In addition, the supply now serves the area previously served by the Cloonlyon Group Water Scheme (GWS) and this scheme is still logged as being an active GWS on EDEN serving a population of 50 persons.</p> <p>2. The volume served by the Knock Airport PWS is documented as 64 m³ /day on EDEN. This figure is incorrect as during the audit it was stated that the average volume supplied is 40m³/ day and can range from 40 - 45 m³/day.</p>	

Recommendations

Subject	Knock Airport PWS Recommendations	Due Date	11/01/2024
Action Text	<p>Uisce Éireann is responsible for ensuring a clean and wholesome supply of drinking water and should implement the following recommendations without delay.</p> <ol style="list-style-type: none">1. Update EDEN to (a) reflect the correct population served and volume supplied by the Knock Airport PWS; (b) ensure the Cloonlyon Group Water Scheme is documented as being an inactive supply.2. Make necessary changes to the plant shutdown criteria based on flow, to ensure water entering the network is adequately disinfected based on the chlorine contact time calculation.3. Ensure that monitoring data from chlorine monitors CL001 and CL002 are reading correctly on SCADA. <p>Actions required by Uisce Éireann</p> <p>During the audit, Uisce Éireann representatives were advised of the audit findings and that action must be taken by Uisce Éireann to address the issues raised.</p> <p>Uisce Éireann should submit a report to the EPA on or before the above due date detailing the actions taken and planned, with timescales, to close out the above recommendations.</p> <p>The EPA advises that the findings and recommendations from this audit report should, where relevant, be addressed at other public water supplies.</p>		