Drinking Water Audit Report

County:	Co. Longford	**Date of Audit:**	10/05/2016
Plant(s) visited:	Lough Kinale WTP	**Date of issue of Audit Report:**	17/05/2016
		File Reference:	DW2016/84
		Auditor:	Ms Ruth Barrington
Audit Criteria:	• The *European Union (Drinking Water) Regulations 2014 (S.I. 122 of 2014)*. • *The EPA Handbook on the Implementation of the Regulations for Water Services Authorities for Public Water Supplies (ISBN: 978-1-84095-349-7)* • The recommendations in the EPA audit report dated 25/06/2010.		

MAIN FINDINGS

i. **Longford County Council's response to the discovery of a high dose rate of the coagulant aluminium sulphate was a shutdown of the plant on the evening of 04/05/2016. This was an appropriate response and prevented the entry of high aluminium residual into consumers' water supply.**
ii. **The Irish Water/ Longford County Council follow up response to the incident was prompt and comprehensive, incorporating a comprehensive cleaning of plant infrastructure and sampling to determine the impact of the incident.**
iii. **The EPA recommends that Irish Water reviews manual dosing provided at this and similar plants, to ensure that changes to dose rates are verified.**

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 in response to the telephone notification by Irish Water on 05/05/2016 of a high aluminium dose at the Lough Kinale WTP resulting in high turbidity in final water, and plant shut down.

The Granard PWS is supplied by water treated at the Lough Kinale WTP, producing approx. 1300m^3/day to a population of around 2,730. The supply is on the EPA's Remedial Action List (RAL) due to trihalomethanes exceedances, however the scope of this reactive audit did not include the RAL action programme for connection of the Granard supply to Longford Central RWSS, which is due for completion by December 2019.

The opening meeting commenced at 11.00 a.m. at Lough Kinale 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:

Ms Gráinne Carey – Drinking Water Compliance
Mr Shane Tynan – Water Engineer
Mr Michael Cunniffe - Water Infrastructure Lead

Representing Longford County Council:

Mr Eugene Caherly – Caretaker
Mr Des Reynolds – Technician
Mr Keiran Gaffney – Clerk of Works
Mr David Coppinger – Senior Executive Engineer
Mr Noel Madden – A/ Executive Engineer

Representing the Environmental Protection Agency:

Ms Ruth Barrington – Inspector, Office of Environmental Enforcement

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.	**Incident Response** a. During the audit, the sequence of events during the incident response was discussed, from the response to the turbidity alarm and the manual shutdown of the plant, through to the clean-up actions, water/sludge removal and the sampling schedule. b. The root cause of the incident was determined to be an error in setting an amended dosing rate for the coagulant used at the plant, aluminium sulphate. The high dose rate led to a high turbidity result in the final treated water. Turbidity in the final water is alarmed at a setting of 1.0 NTU and the alarm dialled out to four nominated staff for response. c. There is no formal out of hours alarm response, however staff did attend the plant in the late evening of 04/05/2016 following the alarm dial out and having identified the high dose rate from the HMI screen, took the decision to manually shut down the plant in order to minimise the risk of high aluminium concentrations entering supply. d. The incident response then continued on the morning of 05/05/2016 with sampling of the clear water tank followed by sampling of the rising main and reservoir at intervals during the day, accompanied by drain down of the clearwater tank and rising main, and the desludging/cleaning of the clearwater tank, flocculation tank and DAF tank. e. While elevated aluminium results were obtained in the samples taken at the clearwater tank and rising main, aluminium levels at Rathcronan reservoir and in the network were compliant with the *European Union (Drinking Water) Regulations 2014* parametric value. f. Following the clean-up operation and the gradual refill (accompanied by sampling) of the clearwater tank, pumping to the rising main recommenced just before 21.00 on 05/05/2016. The plant had been shut down for approximately 23 hours. g. Consumers were not affected by either water quality or supply issues during the shutdown period, due to adequate levels in the Rathcronan Reservoir at the time the plant was shut down. h. The cleaning and desludging operation resulted in the removal of approximately 12 loads ($30m^3$ per load) of sludge/water to Longford Wastewater treatment plant.

2.	**Water Treatment** a. The contact time of the coagulant dose was not available during the audit. b. The design/ operational depth of sand in the filters was not known during the audit.

3. AUDITOR'S COMMENTS

The incident at the Granard WTP highlights one of the risks posed by manual control over chemical dosing. Notwithstanding this, the prompt and comprehensive response by staff meant that consumers were not affected by either quality or supply issues. The EPA recommends that corrective actions proposed for the Granard supply be considered at other plants using manual control over dosing facilities.

4. RECOMMENDATIONS

Incident Response

1. Irish Water shall prepare an action plan to implement the corrective actions discussed during the audit to minimise the risk of a dose rate error leading to a failure to comply with the relevant parametric values. The actions being considered included provision of an automatic shut down on high turbidity readings; the review of the HMI set up to restrict the range of available dose values and/or a two step approval process for the operator to double check the change in dose. The action plan shall include timescales for the implementation of the works.

Treatment

2. Irish Water shall forward details of the coagulant contact time and the design/ operational depth of filter sand to the EPA. These aspects should be considered in the context of THM compliance, which was not within the scope of this audit.

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 Ms Aoife Loughnane, Drinking Water Team Leader.

Irish Water 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 Irish Water.

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

Report prepared by:  **Date:** 17 May 2016

Ruth Barrington

Inspector