



Drinking Water Audit Report

Local Authority:	Laois County Council	Date of Audit:	30 November 2012
Plant(s) visited:	Portlaoise PWS	Date of issue of Audit Report:	12 December 2012
		File Reference:	DW2009/315
		Auditors:	Ms Yvonne Doris Ms Ruth Barrington Ms Doireann Nicholls (observer)
Audit Criteria:	<ul style="list-style-type: none"> • The <i>European Communities (Drinking Water) (No. 2) Regulations, 2007</i>. • The <i>EPA Handbook on the Implementation of the Regulations for Water Services Authorities for Public Water Supplies (ISBN: 978-1-84095-349-7)</i> • The recommendations specified in the EPA Report on <i>The Provision and Quality of Drinking Water in Ireland</i>. • The recommendations in any previous audit reports. 		

MAIN FINDINGS

- i. Laois County Council should address the requirements of the GAP regulations in relation to the Portlaoise PWS. Wellheads should be covered to prevent ingress.
- ii. Reservoirs should be inspected, integrity tested and cleaned if required.

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 out to assess the performance of the local authority in providing clean and wholesome drinking water.

The Portlaoise PWS is sourced from 7 boreholes: 2 at Sraboe, 2 at Ballydavis, 2 at Derrygarran and 1 at Meelick. High Manganese are recorded at all of the wells. The supply produces 22,500m³/day and serves approximately 9,400 persons in Portlaoise via the Pallas reservoir. Treatment at the Kilminchy consists of Rapid Gravity Sand Filtration (for the removal of Manganese), gas chlorination and fluoridation.

Photographs taken by Yvonne Doris during the audit are attached to this report and are referred to in the text where relevant.

The opening meeting commenced at 11.00 am at the Kilminchy 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 audits observations and recommendations are listed in Section 2 and 4 of this report. The following were in attendance during the audit.

Representing Local Authority: (* indicates that person was also present for the closing meeting)

Name – Job Title

Wes Wilkinson, Executive Engineer,

Owen Reynolds, Executive Engineer

Larry Gittens, Area Supervisor

Tommy Finn, Area Supervisor

Brendan Garry, Sanitary Services Supervisor and Plant Manager at Kilminchy treatment plant

Mark Chalke, Acting Lab Manager

Representing the Environmental Protection Agency:

Name – Job Title

Yvonne Doris, Inspector

Ruth Barrington, Inspector

Doireann Nicholls, (observer)

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.	Source Protection <ul style="list-style-type: none">a. The Derrygarran boreholes were selected to visit. The wellheads were covered and locked.b. The wellheads were unsealed (photo 2) and below ground level. Standing water was observed in both wellhead chambers (photo 1) and the top of borehole 1 was only 2-3 inches above the base of the wellhead chamber. It was not known whether overflow pipes in the wellhead chambers were sealed to prevent ingress of surface water or to prevent animal access (photo 3).c. There is some work ongoing in relation to implementation of the GAP regulations, setback distances, communicating with landowners and farmers and monitoring of activities in the 200m buffer zone but details could not be confirmed at the time of the audit.d. Raw water Manganese results are approximately 0.07mg/l and treated Manganese results are approximately 0.04mg/l.
2.	Filtration <ul style="list-style-type: none">a. Dosing with chlorine to remove manganese is done on raw water from the Derrygarran, Ballydavis and Straboe boreholes as it enters the plant. Three rapid gravity filters (0.9m of manganese dioxide sand) operate to reduce manganese levels in about 70% of the water going into supply. Water from the Meelick borehole is chlorinated and enters the network at Meelick, mixing with water from the Kilminchy plant. The remaining 30% of the water entering the plant goes into the first chamber of the reservoir at the plant. The filtered water mixes with the unfiltered water in the second chamber of the reservoir.b. The filters are washed based on headloss (automated). The three filters are backwashed twice a fortnight. The backwash of filter No. 1 was observed. The air scour (rate was unknown) for 5 minutes was followed by a water wash at 22.2m³/m²/hour for 10 minutes. Some small amounts of brown scum was observed during the air scour (photo 4), which was not entirely cleared during the water wash. The water wash appeared uneven with little flow at the rear of the filter compared to at the front of the filter.c. Raw water turbidity was 0.11 NTU, Filter 1 turbidity (being backwashed) was 0.053 NTU, Filter 2 turbidity was 0.024 NTU, Filter 3 turbidity was 0.034 NTU and final water turbidity was 0.051NTU.

3.	<p>Chlorination</p> <p>a. Chlorination is with gas with a duty and standby chlorinator. 5 cylinders in use and 5 on standby with automatic switchover. A manual switchover is done each week. Dosing is at 0.55mg/l. Chlorine residual at the time of the audit was 0.34mg/l. The chlorine meter was calibrated on 21/11/12. The chlorine alarm dials out to the plant manager and is reset to the area supervisor when the plant manager is on leave. The alarm response time is 20-45 minutes 24 hours a day, 7 days a week. The alarm response procedure displayed on the wall of the chlorine room is out of date and contains contact details of personnel no longer responsible and needs to be updated.</p> <p>b. Residual chlorine readings in the network are between 0.22 and 0.52mg/l.</p>
4.	<p>Treated Water Storage</p> <p>a. There were two reservoirs at the plant and a further reservoir at Pallas.</p> <p>b. The plant reservoirs had 8 locked hatches and 4 covered vents. The reservoirs had not been inspected or cleaned. A pipe from an access hatch on reservoir 1 was observed (photo 5).</p>
5.	<p>Chemical storage and bunds</p> <p>a. The fill points at the bulk fluoride tank extend beyond the walls of the bund. A spill tray is in place. Chemical deliveries are supervised by Council staff.</p>
6.	<p>Management and Control</p> <p>a. Flushing and scouring of the network is being carried out by the Council</p> <p>b. The <i>Cryptosporidium</i> risk assessment score has not been revised for the Portlaoise supply since the removal of the Darkin's Well (very high Crypto risk) as a source for the supply.</p>

3. AUDITORS COMMENTS

Source protection measures including implementation of the GAP regulations and wellhead protection, and reservoir inspection should be addressed by Laois County Council.

4. RECOMMENDATIONS

Source Protection

1. The Water Services Authority should ensure that the source protection and catchment risk assessment score for the *Cryptosporidium* risk assessment is reviewed in detail and appropriate measures implemented to reduce the risk.
2. The Water Services Authority should implement the requirements of the *European Communities (Good Agricultural Practice for the Protection of Waters) Regulations 2009 (SI No.101 of 2009)* to ensure, unless an alternative setback distance has been set as per Article 17 that:
 - i. Organic fertiliser or soiled water is not applied to land within 200 m of the abstraction point; and
 - ii. Farmyard manure held in a field prior to landspreading is not placed within 250 m of the abstraction point.
3. The Water Services Authority should examine the appropriateness of the setback distances in the *European Communities (Good Agricultural Practice for the Protection of Waters) Regulations 2006 (SI No. 378 of 2006)* for the source of the supply. The Water Services Authority should have regard to the EPA guidance on alternative setback distances.

4. The Water Services Authority should ensure that all borehole linings and seals are maintained.
5. The Water Services Authority should ensure that all wellheads are covered to prevent ingress of surface water.
6. The Water Services Authority should ensure that any pipework leading into wellhead chambers are sealed to prevent entry of surface water or animal access.

Filtration (General)

7. The Water Services Authority should ensure that the water backwash is even across the filter.

Disinfection

8. The Water Services Authority should review chlorine residual alarm response procedures to ensure that all details are up-to-date.

Treated Water Storage

9. The Water Services Authority should carry out an integrity assessment of the reservoirs at the Kilminchy plant to ensure that there is no ingress into the reservoir. The reservoirs should be inspected and cleaned if required. The WSA should have regard to EPA Advice Note No. 10 when carrying out any inspections or cleaning.
10. The Water Services Authority should ensure that any pipework leading into access hatches are sealed to prevent entry of surface water or animals to the reservoir.

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. This report has been reviewed and approved by Mr Darragh Page, Drinking Water Team Leader.

The Water Services Authority is recommended to put such measures in place as are necessary to implement the recommendations listed in this report. The actions by the local authority to address the recommendations taken will be verified by the Agency during any future audits.

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 Laois County Council.

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

Report prepared

by:

Yvonne Doran

Inspector

Date:

12th December 2012



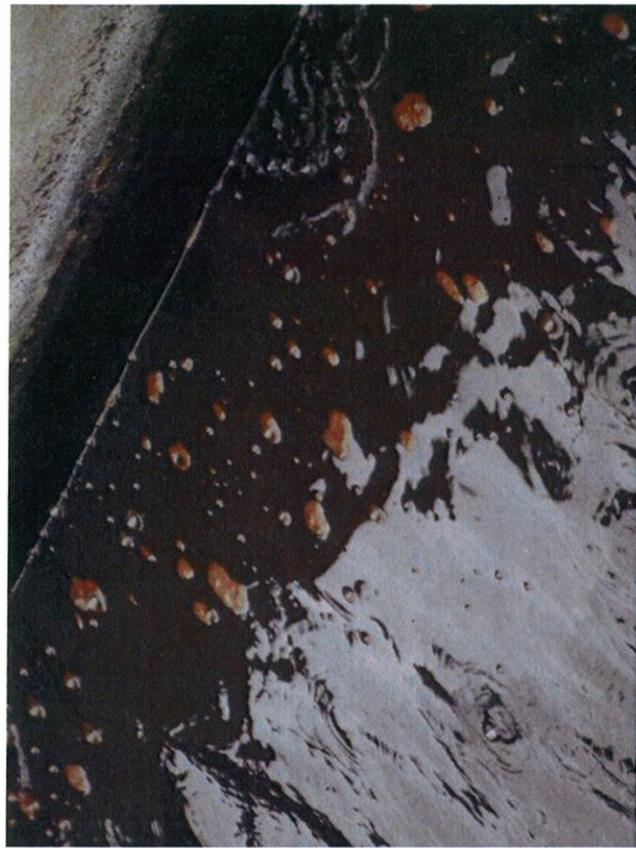
Photograph 1: Standing water in Borehole 2, Derrygarran



Photograph 2: Unsealed wellhead, Borehole 2, Derrygarran



Photograph 3: Overflow pipe in wellhead chamber, Borehole 1, Derrygarran



Photograph 4: Brown scum on filter No. 1 at end of backwash sequence



Photograph 5: Pipe from access hatch on reservoir 1 at Kilminchy plant