



Private Drinking Water Monitoring Programme Audit Report

County:	Carlow	Date of Audit:	21 st August 2018
Location visited:	Carlow County Council Offices	Date of issue of Audit Report:	29 th November 2018
		Auditors:	Ms. Derval Devaney (EPA) Dr. John Gray (Consultant)
Audit Criteria:	<ul style="list-style-type: none"> • The <i>European Union (Drinking Water) Regulations 2014 (S.I. No. 122/2014)</i>, as amended. • The <i>EPA Handbook on the Implementation of the Regulations for Water Services Authorities for Private Water Supplies (ISBN: 978-1-84095-349-7)</i>. 		

MAIN FINDINGS

- While Group Water Schemes were monitored at the required frequency during 2017, many small private supplies were not monitored in Co. Carlow at all to ensure the water supply is safe to drink.
- Carlow County Council had not accurately reported its list of regulated private water supplies to the EPA for 2017 and is working on collating an up-to-date and complete register of regulated private water supplies operating in the County.
- A number of weaknesses in records and procedures were identified, such as the lack of a procedure for responding to failures and the recording of actions taken to investigate exceedances and advice provided.

1. INTRODUCTION

Under the *European Union (Drinking Water) Regulations 2017, as amended* the Environmental Protection Agency has a supervisory role in relation to the establishment and implementation of monitoring programmes prepared by Local Authorities. This audit was carried out to assess the performance of Carlow County Council in carrying out effective monitoring of private drinking water supplies in County Carlow to ensure the provision of clean and wholesome drinking water.

An audit of the 2017 monitoring programme implemented by Carlow County Council was carried out at the Carlow County Council Offices on 21st August 2018. Using a questionnaire as a guide¹, Carlow County Council staff were interviewed to ascertain the principles and methodology for establishing monitoring programmes, sample point selection, sample classification, integrity of data reporting and notification procedures.

The audit observations and recommendations are listed in Section 2 and 4 of this report. The following were in attendance during the audit.

Representing Carlow County Council: (*indicates that person was also present for the closing meeting)

Mr. Kieran Cullinane – Senior Engineer Water Services*

Mr. Dermot Leonard – Executive Engineer Water Services*

Ms Sharon Malone – Environmental Technician*

¹ The questionnaire was based on those used by the Drinking Water Inspectorate, London, and modified by Dr John Gray for the purpose of this audit.

Mr. James Byrne – Environmental Technician*

Mr. Brian O'Donovan – Rural Supplies*

Ms Catherine Buggy – Environmental Technician (for part)

Representing the Environmental Protection Agency:

Ms. Derval Devaney – Inspector, EPA*

Dr. John Gray – Consultant*

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.	<p>Compliance Monitoring Programme</p> <ol style="list-style-type: none"> The 2017 compliance monitoring programme for private water supplies was prepared by Carlow County Council (Co. Co.). The programme did not provide for the monitoring of all regulated small private supplies. All four group water schemes in Co. Carlow were monitored for compliance purposes during 2017 by Carlow Co. Co. at the required frequency. However, not all small private supplies (SPS) were monitored for compliance by Carlow Co. Co. during 2017, with just 20 SPS monitored during 2017. Schools and crèches were prioritised by the Council for monitoring. Carlow Co. Co.'s 2017 register of private water supplies submitted via EDEN to the EPA identified 10 private water schemes; four were private group water schemes and six were listed as SPS. The group water schemes had the largest populations of the private water supplies, two of which served populations of in excess of 800 persons. The six SPSs listed in EDEN all had populations of 12 and a volume of 5 m³/day which was not reflective of the actual populations and volumes being served by these supplies, some of which are schools. Carlow Co. Co. stated the populations for small private supplies were assumed, to provide for at least two samples per year. Carlow Co. Co. stated this approach is to be reviewed. The HSE ceased monitoring private supplies in early 2017 and its list of sampling locations was merged with the original list that Carlow Co. Co. held. When both lists were merged approximately 100 regulated private water schemes were identified. This list was provided during the audit and identifies the name and type of premises (e.g. B&B, crèche, pub etc.), address, contact, EDEN Reference if already on this database, and a commentary on status (e.g. in operation). Schemes no longer operating are also identified on this list. This list contradicts the list submitted to the EPA via EDEN which listed just 10 private water supplies (six SPSs and four group water schemes) and its associated "monitoring stations". Carlow Co. Co. listed 20 SPSs monitoring stations in EDEN for 2017, however these were incorrectly referenced as monitoring stations and instead should have been listed as a supply scheme. The list of SPS supplies is currently under review by Carlow Co. Co. and the status of a further 17 schemes is to be established in addition to the other SPSs identified by the HSE and Carlow Co. Co. as being in operation. Rather than providing the individual SPSs with a scheme name in EDEN, as is required, these supplies were grouped in EDEN into 6 SPS categories; listed as SPS - Bars/Public Houses, SPS - Cafes/Restaurants, SPS - Schools, SPS - Shop/Deli, SPS - B&Bs, SPS - Schools and SPS - Commercial Premises. The individual SPSs were listed as monitoring stations rather than schemes and were associated with the supply type they were categorised under. Therefore, rather than having a greater number of SPS schemes evident in the EPAs database EDEN, Carlow Co. Co.'s register had just six SPS listed. For example, in EDEN the SPS scheme called "SPS – B&B" has a scheme code 0100PRI4000 and so is listed as one water supply. But, nine B&Bs are listed on EDEN as monitoring stations under this "SPS – B&B" scheme code, rather than each of the nine B&Bs having their own water supply
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	<p>scheme code and their own monitoring stations. This is misleading for the EPA in calculating the number of SPS in Co. Carlow and in determining if these supplies are monitored as required. Carlow Co. Co. during the audit presented a list of 82 monitoring stations listed in LabWorks which are in fact individual SPS. This figure is lot greater than the six SPS scheme codes that are listed in EDEN for Co. Carlow.</p> <ul style="list-style-type: none"> g. Other errors in data entry to EDEN were also observed such as Ballyloughan Private Group Water Supply being identified as having no treatment whereas the Council stated UV and ion exchange treatment are present. h. Carlow Co. Co. has in 2018 tendered for a contractor to carry out the compliance sampling of private water supplies and delivery to the testing laboratory. It was noted that some SPS were not included on the list of supplies to be tendered to be monitored in 2018 and 2019 (e.g. Tynock and Rathmore School). Carlow Co. Co. stated that the contract includes scope to increase the number of samples to be taken if required. i. Carlow Co. Co. is to carry out a risk assessment and monitor for those parameters considered to be at risk. Check and audit samples will be taken for each scheme. j. In order for the analytical data to be most relevant, samples are taken from schools in September when they open and from crèches in summer when they operate. k. No compliance samples were taken from water treatment plants or reservoirs and no recordings from continuous monitors were used for compliance monitoring. l. A number of shortfalls in sampling were identified in the EPA annual summary for Ballinbrannagh, Ballyellen and Glynn/St Mullins Group Water Schemes. Seven were for colour and may reflect different nomenclature when submitting data. Other shortfalls related to taste, boron and copper. Laboratory monitoring reports from Southern Scientific Services Ltd examined on site confirmed that there were no shortfalls in sampling of these Group Water Schemes during 2017. However, the analyses for some parameters (e.g. Boron) was not accredited as is required for compliance monitoring. Observation Point 6(h) below has more detail on EDEN data entry. m. A critical review of the temporal and spatial distribution of sampling, to ensure sampling represents the supply as accurately as possible, has not been carried out for County Carlow. Reliance is placed on the predetermined sampling plan for group water schemes.
2.	<p>Operational Monitoring Programme</p> <ul style="list-style-type: none"> a. Carlow Council do not undertake operational monitoring of the private water supplies but it does carry out investigative sampling as the need arises.
3.	<p>Monitoring Programmes for Specific Parameters</p> <ul style="list-style-type: none"> a. No specific monitoring programme was in place for audit parameters such as some metals, trihalomethanes and pesticides. It was not evident if a risk assessment was carried out to determine that these parameters were not required as part of the audit compliance monitoring requirements. b. The 2018 tender for sampling of regulated private water supplies did include all audit parameters (such as metals, pesticides and THMs) for the monitoring of group water schemes but this specification did not apply to small regulated private supplies.
4.	<p>Sampling Procedures</p> <ul style="list-style-type: none"> a. Carlow Co. Co. has a sampling manual which, although not a fully controlled document, is held by the Environmental Technician. It was originally developed in conjunction with the HSE. b. The single sampler in Carlow Co. Co maintains sampling records and transfers relevant information regarding samples and any failure to collect samples to a diary on a monthly basis. c. Samples are labelled locally on site at the time of sampling. Audit and Check samples are usually taken on different days so that mis-labelling can be avoided. Samples are taken by courier to the contract laboratories. Chains of custody are maintained by the Environmental Technician.

5.	<p>Data Handling</p> <ul style="list-style-type: none"> a. Monitoring data for 2017 was recorded by the Environmental Technician in an XL file. Data from ALS was received as a pdf document and relevant information transcribed. There is no independent data validation or authorisation process. b. No information was available regarding data handling procedures within the HSE and the contract laboratories. c. Carlow Co. Co. provides all sample results to the relevant private water suppliers, by hardcopy, as soon as they become available.
6.	<p>Exceedances of Parametric Values</p> <ul style="list-style-type: none"> a. There is no written procedure for responding to bacteriological or chemical exceedances in samples taken from private schemes. Similarly, there is no written procedure to guide the identification for non-compliant results and remedial actions required although appropriate action has been demonstrated in response to the exceedances reported. b. Exceedances are notified by Carlow Co. Co. by email to the HSE who would be consulted on the appropriate action to be taken. Bacteriological exceedances would be notified to the HSE as soon as possible by telephone prior to contacting the Water Supplier. c. Should a bacteriological exceedance occur, the scheme owners would receive a telephone call and a letter of advice would be issued via post. d. Carlow Co. Co. strives to maintain an in-house record of all sample exceedances, the actions taken in response to those exceedances and the outcome of the actions. e. 16 exceedances were reported to the EPA for 2017 via the EPA's database EDEN's for a number of parameters for sites referred to as "SPS-Schools". It is apparent that the exceedances were not all from one site and that a number of separate schools had been "bundled together" in the reporting of the data. This issue is referred to in Point 1(f) above. f. Coliform bacteria were detected in July 2017 at a delicatessen. Remedial action was taken and a resample taken in August was compliant. g. Eight <i>E. coli</i> together with 34 coliform bacteria were identified in a water sample taken on 25 September 2017 from a school. The school was contacted by telephone when the result became known and the supply suspended with a "Do Not Use" notice issued. Parents were informed and taps labelled appropriately. The UV system was changed and the system restarted. A sample taken in October was compliant. h. A sample taken in August from a playgroup was found to contain high numbers of coliform bacteria (> 201 no. / 100 mls. on 21/08/17). Investigations by Carlow Co. Co. revealed that the UV system had been taken off-line. The system was re-installed and a sample taken in September was compliant. This exceedance was not /identified on the EDEN system even though during the audit Carlow Co. Co. produced the MDS sample report that showed the result was entered into LabWorks. The EPA believes the issue relates to data entry rules for Carlow Co. Co. This may also be the reason why the EPAs system showed shortfalls in monitoring for some group water schemes however the Council had produced monitoring reports during the audit to show these were monitored and results entered into LabWorks. The rules of data entry vary from Local Authority to Local Authority and the EPA is investigating the matter on a national basis to ensure rules are consistent and adhered to upon data entry. i. A sample taken for lead from Ballyloughan Group Water Scheme in August 2017 was non-compliant. There was no record of any remedial action being taken. Carlow Co. Co. stated that the sample result would have been sent to the scheme but it could not recall if a letter of advice was issued to the water supplier. j. No advice to boil water was issued to regulated private water supplies in Co. Carlow during 2017. One notice of "Do not use" notice was issued in 2017 to a National School SPS as outlined in Point 6(g) above.
7.	<p>Review of Sampling Data</p> <ul style="list-style-type: none"> a. Sample collection was generally distributed throughout the year although significantly more were taken in June and July when audit samples were grouped together. b. The first samples in 2017 were taken on 26 January and the last on 12 December 2017.

3. AUDITORS' COMMENTS

The monitoring programme drawn up and implemented by Carlow County Council in 2017 for group water schemes was generally found to be satisfactory in assessing the quality of water for this supply type. However, many of the small private water supplies which serve hotels, cafés, restaurants and B&Bs in Co. Carlow were not listed on the EPA's system, EDEN, and were not monitored at all during 2017. This lack of monitoring and the fact that there may be additional small private supplies which fall under the remit of Carlow County Council that are not on its register and therefore also not being monitored is of great concern to the EPA.

Carlow County Council is advised to make it a priority to update its regulated private water supplies register as required under Regulation 8(3) and ensure its 2019 compliance monitoring programme meets the monitoring requirements of Regulation 7(5) of the *European Union (Drinking Water) Regulations 2014 (S.I. No. 122/2014), as amended*.

4. RECOMMENDATIONS

Compliance Monitoring Programme

1. Carlow Co. Co. should ensure all regulated private supplies are included on its register and compliance monitoring programme. All relevant information pertaining to each private water supply should be recorded for the purposes of the register and the compliance monitoring programme as required by Regulation 8(3) and Regulation 7(5) respectively of the *European Union (Drinking Water) Regulations 2014 (S.I. No. 122/2014), as amended*. For example, the source of the water supply, treatment in place, population, volume, the water supply zone code and number of check and audit samples and parameters to be monitored as per the risk assessment should be included in these documents that are to be compiled and held by the Local Authority. The private water supplies register and compliance monitoring programme should be held by Carlow Co. Co. and made available to the EPA, upon request, for inspection.
2. Carlow Co. Co. should ensure all private supplies that fall within its remit are monitored for compliance at their required frequencies. Carlow Co. Co., when completing its proposed risk assessment to identify those parameters requiring analysis, should be mindful of the requirements of the *European Union (Drinking Water) (Amendment) Regulations 2017 (S.I. 464 of 2017)*, and specifically Part C of these regulations in its determination of a derogation from sampling frequencies. It should also have regard to Section 3 Paragraph 2.6 of the EPA's Handbook for Private Supplies.
3. Carlow Co. Co. should ensure all regulated private water supplies are entered into the EPA's database, EDEN, and each water supply is given a scheme code as required under the Drinking Water National Monitoring Programme. Carlow Co. Co.'s list of regulated private water supplies should be updated annually on EDEN. The results of all check and audit compliance samples required to be taken should be uploaded to EDEN under the private water supply's scheme code and linked to the monitoring station code that the sampling relates to.
4. Carlow Co. Co. should ensure that the analysis for parameters for the purposes of compliance sampling is accredited.
5. Carlow Co. Co. should undertake a review of the temporal and spatial distribution of sampling for compliance monitoring for Group Water Schemes. A formal and structured method of assessment should be developed and implemented to ensure that sampling is representing the entire water supply zone as accurately as possible. The spread of sample days, times and locations within a monitoring programme should be as wide as possible.

Sampling Procedures

6. If Carlow County Council is to continue to carry out compliance sampling of the regulated private water supplies it should formalise its own sampling manual as a controlled document to include the taking, transport and labelling of samples. Carlow County Council should ensure anyone taking compliance samples on its behalf (e.g. the HSE, a contractor) does so in accordance with a sampling manual which is a controlled document.

Data Handling

7. Carlow Co. Co. should consider developing a more robust system of validating or authorising and recording analytical data. The current system is vulnerable to transcription errors.

Exceedances of Parametric Values

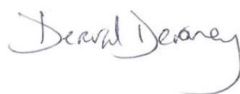
8. Carlow Co. Co. should formalise a written procedure for dealing with sample results that exceed the parametric values outlined in the *European Union (Drinking Water) Regulations 2014 (S.I. No. 122/2014), as amended*. The procedure should include actions to be taken to investigate the exceedance, such as how it communicates with the HSE for health advice, reporting results and advice to the water supplier, re-sampling, following-up on remedial action taken by the water supplier to rectify the matter and the recording of such investigations undertaken by the County Council.

FOLLOW-UP ACTIONS REQUIRED BY CARLOW CO. CO.

This report has been reviewed and approved by Emer Cooney, Inspector, EPA

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

Report prepared by:



Date:

29th November 2018

EPA Inspector

John Gray, Consultant