



Drinking Water Monitoring Programme Audit Report

County:	Clare	Date of Audit:	10 th and 11 th November 2015
Location visited:	Clare County Council Offices	Date of issue of Audit Report:	9 th February 2016
		Auditors:	Ms. Michelle Roche (EPA) Dr. John Gray (Consultant)
Audit Criteria:	<ul style="list-style-type: none"> • <i>The European Union (Drinking Water) Regulations 2014 (S.I. 122 of 2014).</i> • <i>The 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

- i. **Clare County Council should update its records in relation to the delineation and mapping of private water supplies and population served, to facilitate the implementation of more effective monitoring programmes and allow for better regulation of the private water supply sector.**
- ii. **Clare County Council should undertake a review of the temporal and spatial distribution of sampling for compliance monitoring. A formal and structured method of assessment should be developed and implemented to ensure that sampling represents the private water supply zone as accurately as possible. The distribution of sample days, times and locations within a monitoring programme should be as wide as possible.**

1. INTRODUCTION

Under the *European Union (Drinking Water) Regulations 2014* the Environmental Protection Agency has a supervisory role in relation to the establishment and implementation of monitoring programmes both by Irish Water and Local Authorities. This audit was carried out to assess the performance of Clare County Council in carrying out effective monitoring of private drinking water supplies to ensure the provision of clean and wholesome drinking water.

An audit of the 2014 monitoring programmes implemented in County Clare was carried out at the Clare County Council Offices on 10th and 11th November 2015. Using a questionnaire as a guide¹, appropriate Clare County Council staff were interviewed to ascertain their principles and methodology for establishing monitoring programmes, sample point selection, sample classification, integrity of data reporting and notification procedures.

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

¹ The questionnaire was based on those used by the Drinking Water Inspectorate, London, and modified for the purpose.

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

Ms. Maura McNulty – Executive Scientist, Clare County Council*

Ms. Carmel Greene – Senior Executive Engineer, Clare County Council*

Mr. Brendan Flynn – Executive Engineer, Clare County Council*

Ms. Maeve Lait – Senior Executive Technician, Clare County Council*

Ms. Jane Fitzgerald – Laboratory Technician, Water Services, Clare County Council*

Ms. Sheila Murphy – Laboratory Technician, Clare County Council*

Representing the Environmental Protection Agency:

Ms. Michelle Roche – Inspector, EPA*

Dr. John Gray – Consultant, John Gray Consultancy*

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.	Compliance Monitoring Programme <ul style="list-style-type: none">a. The 2014 compliance monitoring programme for private water supplies was prepared by Clare County Council.b. The compliance monitoring programme for 2014 included a list of 95 public group water schemes, 10 private group water schemes and 27 private commercial activities. The number of check and audit samples required for each supply and predetermined sample locations were also included in the monitoring programme.c. A number of sample locations have been identified and mapped with GPS co-ordinates. As information is limited on some supplies some sample locations may be re-used for every sampling event.d. Population data for private water supplies is only recorded for northern Clare.e. Work is progressing to address the gaps in data related to private water supplies.f. Alternative sample locations were not predetermined but decided upon in consultation with the group water scheme chairperson to ensure the location chosen was supplied by the group water scheme.g. Sample dates were not predetermined although samples were generally taken on Mondays.h. No private water supply was sampled on reduced number or frequency of samples.i. The sampling and analysis of compliance samples was largely carried out by Clare County Council staff with some pesticide and metal analysis subcontracted out to ELS Laboratories.j. Three design, build, operate (DBO) schemes in County Clare were monitored independently from Clare County Council as part of the DBO contract. Independent monitoring results were reported to Clare County Council on a monthly basis.k. One private water supply scheme serving approximately 2000 people was monitored by the scheme owners and monthly monitoring results submitted to Clare County Council.l. 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 Clare. Reliance is placed on the predetermined sampling plan.
2.	Operational Monitoring Programme <ul style="list-style-type: none">a. Operational sampling for private water supplies in 2014 was carried out for investigative reasons only. No operational monitoring programme was prepared for 2014.

<p>3.</p>	<p>Monitoring Programmes for Specific Parameters</p> <ul style="list-style-type: none"> a. A specific pesticide monitoring programme has been established for the purpose of investigative sampling and is linked to the pesticide monitoring programme for public water supplies; however the programme does not include a specified list of individual pesticides. b. All private water supplies were monitored quarterly for trihalomethanes as part of audit monitoring. c. Clare County Council does not have a specific sampling programme for tankers. Tankers are deployed in response to incidents and all have “Boil Water Advice” notices permanently fixed as well as additional notices on the tanker taps.
<p>4.</p>	<p>Sampling Procedures</p> <ul style="list-style-type: none"> a. Clare County Council has a sampling procedure in place which is produced and maintained by the Clare County Council Laboratory Technical Manager and Quality Manager and available to all Clare County Council staff involved in the monitoring programmes. A hardcopy of the sampling procedure is not carried with all samplers when conducting sampling. b. No compliance samples were taken from water treatment plants or service reservoirs and no data from continuous monitors was used for compliance purposes. c. Sampler’s daily worksheets are prepared and provided to the samplers prior to sampling. Completed worksheets are then filed in the Sample Receipt Logbook in the Clare County Council laboratory. d. Free and total chlorine concentrations were required to be taken with each sample collected for bacteriological analysis. e. Sample ID numbers are generated sequentially in the laboratory prior to sampling. f. Sample bottle labels with adhesive backing were fixed securely to the sample container and appropriate information recorded.
<p>5.</p>	<p>Data Handling</p> <ul style="list-style-type: none"> a. Monitoring data for 2014 was recorded on the Clare County Council LIMS system, which runs the LabWorks programme from Microworks. b. Relevant information from sampling worksheets including: sample ID, sample date, sample time, preservative used and samplers name are recorded on LIMS. Sample results are also inputted to LIMS when available. c. Samples sent to ELS for analysis are also marked in LIMS and sample results inputted manually. d. Any changes made to data on LIMS were automatically recorded and an audit trail of entries can be produced at any time. Once data has been validated on LIMS no changes can be made. e. Sample results were uploaded to the EPA via EDEN at the beginning of 2015. f. Clare County Council provides a hardcopy of all sample results to the group water scheme chairperson and to the relevant householders as soon as they become available. Results are also posted on the Clare County Council website.
<p>6.</p>	<p>Exceedances of Parametric Values</p> <ul style="list-style-type: none"> a. A documented procedure is in place identifying the actions to be taken where a sample result shows an exceedance of the microbiological or chemical parametric values outlined in the drinking water regulations (S.I. no 122 of 2014). This procedure has been reviewed and approved by the HSE. b. The procedure includes details of when and how to contact the HSE, water service engineers and relevant private water supply owners regarding sample results and further actions that may be required. All communication is overseen by the Laboratory Quality Manager.

7.	<p>Review of Sampling Data</p> <ol style="list-style-type: none"> a. Sample times recorded on the Clare County Council LIMS showed a good distribution of sample collection times ranging from 8am to 2.30pm. b. Samples were primarily collected on Mondays. c. Where schemes require two or more samples per annum sample collection is evenly distributed throughout the year.
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3. AUDITORS COMMENTS

The monitoring programmes drawn up and implemented by Clare County Council in 2014 were generally found to be satisfactory in assessing the quality of water in private water supplies. Written procedures were available and well maintained for all aspects of the monitoring programmes in County Clare. Weaknesses were highlighted in relation to the information available to Clare County Council in respect of private water supplies, such as population numbers and individual households served by the supplies. The amount of randomness attributed to the selection of consumers' properties and the temporal distribution of sampling across the week should also be examined. A review of all 2014 data submitted to the EPA by Clare County Council determined that all sample results were accurately reported to the EPA.

4. RECOMMENDATIONS

Compliance Monitoring Programme

1. Clare County Council should update its records on the population and mapping of households served in relation to private water supplies as soon as possible to facilitate the implementation of more effective monitoring programmes and allow for better regulation of the private water supply sector.
2. Clare County Council should ensure that all private water supply scheme information is updated on EDEN.
3. Clare County Council should develop a more robust system for the selection of random sampling locations for compliance monitoring.
4. Clare County Council should undertake a review of the temporal and spatial distribution of sampling for compliance monitoring. A formal and structured method of assessment should be developed and implemented to ensure that sampling is representing the 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.

Monitoring Programmes for Specific Parameters

5. Clare County Council should ensure that Section 4, Paragraph 5 of the EPA Handbook is adhered to in relation to sampling required for water tankers. Sampling may be required on the water used to fill a tanker, depending on the length of time water is stored in the tanker and the source of the water used for filling.

Sampling Procedures

6. Clare County Council should ensure that all samplers have the sampling procedure with them during all sampling events.

Data Handling

7. Clare County Council should investigate if sample results from the ELS laboratory can be automatically transferred to the Clare County Council LIMS.

FOLLOW-UP ACTIONS REQUIRED BY CLARE COUNTY COUNCIL

This report has been reviewed and approved by Ms Yvonne Doris, Drinking Water Team Leader.

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

Report prepared by:



Date:

9th February 2016

Inspector