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Section 9: Annual reporting of monitoring results and other information to the EPA

Summary of Section 9

- ◆ Describes the requirements on the Environment Protection Agency (the EPA) to report on drinking water quality in Ireland, to keep a register of public water supplies and to verify the monitoring data produced by Water Services Authorities (WSAs).
- ◆ Sets out the requirement on WSAs to report the check and audit monitoring compliance results to the EPA.
- ◆ Describes the Environmental Data Exchange Network (EDEN) which WSAs use to up-load monitoring data and specific supply details (source, treatment, supply etc.) to the EPA.
- ◆ Sets out the monitoring data (sampling and analysis information) to be up-loaded to EDEN and describes how pesticides results are handled.
- ◆ Describes how the data is up-loaded to EDEN.
- ◆ Sets out how the EPA assesses the monitoring results.
- ◆ Sets out the timing for submission of returns by WSAs to the EPA.

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1. Introduction

1.1 | Section 58 of The Environmental Protection Agency Act, 1992 to 2007 (the Act) requires the Environmental Protection Agency (the EPA) to prepare and submit to the Minister (at the Department of Environment, Heritage and Local Government (DoEHLG)) a report on the quality of drinking water in Ireland. This report is to be based on the results of monitoring carried out in accordance with the requirements of the Regulations. In accordance with section 58(1) of the Act, the EPA may require a Water Services Authority (WSA) to submit to it the results of monitoring (sampling and analysis) carried out under the Regulations in such a manner and at such times as it may specify.

1.2 | The Regulations establish the EPA as the supervisory authority in relation to public water supplies. The EPA is obliged under regulation 7 to verify compliance of drinking water supplied by a WSA with the standards and indicator parameter values in part 1 of the schedule to the Regulations and to supervise the performance of each WSA of its monitoring functions under the Regulations. The latter includes an assessment of whether the minimum monitoring frequencies for each water supply have been complied with. The EPA is also required to enforce the regulatory requirements in respect of public water supplies provided by WSAs.

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1.3 | The EPA is also required in accordance with regulation 8(3) to keep a register of water supplies for which it is the supervisory authority. The EPA will need collect this information as part of the annual reporting of monitoring results to the EPA as outlined in this section of the handbook.

1.4 | This section of the handbook provides comprehensive guidance to WSAs on the information to be reported to the EPA in the annual report and on the format of that information in respect of public water supplies. A similar 'Handbook on the Implementation for Private Water Suppliers' contains guidance on the information to be reported to the EPA in respect of private water supplies.

2. Monitoring results and information on supplies to be reported to the EPA

2.1 | Each WSA must report all its **check and audit compliance monitoring results for all its public water supplies** as part of the annual reporting to the EPA. The following monitoring results must not be included:

- ◆ monitoring carried out in response to complaints about drinking water quality from consumers;
- ◆ operational monitoring carried out to assist in the management of the water supply;
- ◆ investigative monitoring carried out in response to a failure to meet a standard or indicator parameter value;
- ◆ investigative monitoring carried out in response to a potential problem with the water supply (e.g. breakdown of equipment); and,
- ◆ additional monitoring carried out in response to a direction issued by the EPA.

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3. Format for the submission of monitoring results and information on supplies

3.1 Introduction

3.1.1 | The EPA has developed the Environmental Data Exchange Network (EDEN) to assist local authorities (WSAs) in the sharing of water related environmental data with other relevant stakeholders. Monitoring data entered into the WSA's laboratory information system can be directly up-loaded into EDEN. This data can then be collected by the EPA through EDEN. This will enable the WSAs to fulfil their obligations regarding reporting under the Regulations by up-loading their monitoring data to EDEN. From this year on, WSAs need to supply the drinking water supply scheme data direct to EDEN. Thus WSAs no longer have to send drinking water supply scheme data to the EPA via the EPA excel template that was used to collate this data in previous years. Through EDEN the EPA will collect and collate the same drinking water supply scheme data as was previously contained in the excel templates. WSAs should include the contact details of their approver when submitting their annual monitoring results and supply scheme details to the EPA.

3.1.2 | The EPA will collect each WSA's check and audit compliance monitoring results through EDEN. It is essential each WSA ensures that the information inputted to its laboratory information system and up-loaded to EDEN is accurate and does not contain errors.

3.2 General details of the WSA

3.2.1 | The contact details of the person uploading drinking water monitoring and supply scheme details should be included to enable the EPA to contact the WSA in the event of any queries arising from the submission of the results. The WSA contact person is responsible for the sign off of all supply scheme data and monitoring results before uploading to EDEN.

3.3 Drinking water (DW) schemes

3.3.1 | This is a complete list of all public water supplies covered by the Regulations. WSAs must ensure that all scheme details uploaded to EDEN are correct. If a supply is no longer operational then the date that the supply ceased to operate should be entered. WSAs should review this list. All schemes submitted to the EPA as part of the

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2009 drinking water returns have been designated a scheme start date of 01/01/2009 in EDEN. WSAs have the option of amending these scheme start dates in EDEN. WSAs can also add new schemes to EDEN. **Please note that once the supply scheme data has been approved by the WSA, the information is then locked and cannot be amended without the prior approval of the EPA.**

3.3.2 | The EPA uses the information inputted into the DW Schemes sheet to form the basis of its register of public water supplies as required under regulation 8(3). This regulation requires the EPA to include the following information in the register:

- ◆ the name and address of the water supplier;
- ◆ the volume of water supplied per day;
- ◆ the population served by the water supply;
- ◆ the type of treatment in place;
- ◆ the source of the water supply; and
- ◆ the supply zone code.

Further information is collected by the EPA to assist in the collation of statistics for enforcement and reporting purposes.

3.3.3 | Further guidance on what is required in relation to the last three items is given below.

The type of treatment

3.3.4 | The WSA should specify the type of treatment (each of the treatment processes) at each treatment plant including the use of coagulants, pH adjusting chemicals, disinfectants and other chemicals. A treatment plant that might be described as 'conventional coagulation, clarification, filtration and disinfection' should be more fully described as for example "Coagulation using aluminium sulphate, clarification, rapid gravity sand filtration followed by disinfection using sodium hypochlorite and pH correction using sodium carbonate (soda ash)". Details on whether the supply has:

- ◆ continuous residual chlorine monitor and alarm:
- ◆ duty/assist chlorine dosing

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- ◆ duty/assist UV dosing
- ◆ flow proportional/residual chlorine based dosing
- ◆ details of the chlorine contact time to the first consumer on the supply.
- ◆ whether turbidity monitors are installed and where (after each filter, on the combined filtrate etc.) must be included.

The source of the water supply

3.3.5 | The template contains a drop down menu from which one of the following should be selected:

- ◆ groundwater, include details of the aquifer;
- ◆ surface water, include details of the river, lake etc;
- ◆ spring water, include details of the spring; or
- ◆ mixed, include details of the mixed sources.

The supply zone code

3.3.6 | The Drinking Water National Monitoring Programme (referred to in the Department of Environment, Heritage and Local Government circular letter, WSP11/04, dated 17 December 2004) assigned supply zone codes to all water supply zones in Ireland at the time. The database provided to each WSA with that circular contained a mechanism for assigning new supply zone codes for new water supply zones which came into operation after that date. Each WSA should ensure that each supply zone is assigned a supply zone code of the format xxxxPUByyyy where xxxx is the four digit WSA code and yyyy is the four digit unique supply code.

Cryptosporidium risk screening score

3.3.7 | WSAs must include the *Cryptosporidium* risk screening scores for the catchment, the treatment works and the overall score. WSAs should use the risk screening methodology set out in appendix 1 of section 10 of this handbook to obtain these risk screening scores.

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Other information

3.3.8 | WSAs should enter information on whether a WSP or DWIRP is in place for each supply. If there is no WSP in place for a particular supply the WSA should indicate if they have commenced the preparation phase of the WSP.

3.4 Monitoring results

Introduction

3.4.1 | WSAs must up-load to EDEN the results of the analysis for all of the check and audit compliance monitoring samples for each public water supply monitored during the year. A brief description of the sample information and analysis information required to be up-loaded outlined below.

Sample information

3.4.2 | The following information is required in respect of public water supplies:

Scheme Name/Name of Water Supply – the name of the water supply should be inserted here. Where a supply has multiple colloquial names, only one of these names should be used.

Scheme Code – the complete scheme code should be used. This will be xxxxPUByyyy for public water supplies. Locally used codes (i.e. county specific) should not be reported to the EPA.

Public/Private/Group – enter public water supply.

Location – the sample location should be provided here. The purpose of this is to confirm that the sample was taken at the “point of compliance” as defined in regulation 5 and therefore the information provided here should be sufficient to enable the EPA to confirm this fact.

Sample Type – the type of sample analysed should be provided here. The WSA will select either ‘Check Monitoring Public’ or ‘Audit Monitoring Public’ from the four options as the other options refer to private water supplies

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Inv/Op/Surv – the surveillance option should be selected for all samples as investigative and complaint samples are no longer required to be submitted as part of the annual returns to the EPA.

Sample Code – the unique sample or laboratory code should be inserted here.

Analysis information

3.4.3 | The WSA should ensure all results of analysis are included and not in separate attachments (with the exception of pesticides – see paragraph 3.4.4). The WSA should flag any failures that it demonstrated were due to the domestic distribution system (condition of the tap or pipe work) within premises that were not under the ownership of the WSA. When completing the analysis results section the WSA must ensure the following:

- ◆ **Results are reported in the correct units** – monitoring results reported to the EPA must be of the units specified in the Regulations. If the WSA obtains results from a laboratory in different units the results must be converted to the correct units prior to submission to the EPA. An error message will appear in EDEN if the results are in the incorrect units. In particular WSAs should ensure that nitrate, nitrite and ammonium results are reported as NO_3 , NO_2 and NH_4 respectively and not as N. A full list of the parametric values and associated units is included in section 2 of this handbook
- ◆ **Methods of analysis are adequate** – section 2 of part 3 of the schedule to the Regulations specifies the performance characteristics that must be achieved by laboratories carrying out analysis of drinking water. The WSAs must ensure that these characteristics are being met by laboratories carrying out analysis. The EPA recognises that results will be obtained and reported using methods that do not achieve these performance characteristics at present. **The EPA recommends that laboratories carrying out analysis for determining compliance with the water quality standards should aim to be accredited by the end of 2012 and that all analysis must be carried out in accredited laboratories by the end of 2015.** The EPA will not accept monitoring results from unaccredited laboratories after the end of 2015. In the meantime, the EPA will accept results from WSAs where the laboratories used do not meet these requirements except in cases where the method used fails to meet the requirement by a large margin. For example where results are reported as less than the limit of detection and the

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limit of detection is either the same as or greater than the parametric value then the results should not be submitted to the EPA (for example if PAH results are reported as <0.10 µg/l when the parametric value is 0.10 µg/l). Where such results are submitted by the WSA an error message will appear in EDEN and the WSA will be required to amend the results as it is not possible to determine compliance with the parametric value on the basis of such results.

Reporting of pesticides

3.4.4 | The Regulations set two standards for pesticides. For each individual pesticide the standard is 0.1 µg/l with the exception of aldrin, dieldrin, heptachlor and heptachlor epoxide for which the standard is 0.03 µg/l. For total pesticides the standard is 0.5 µg/l. In the return the EPA requires that a figure be inserted for total pesticides. This result should be calculated by summing the individual pesticides detected and reporting this result in the template. In calculating total pesticides, all individual pesticides present in concentrations less than the limit of detection should be assumed for the purposes of these calculations as being absent (0.0 µg/l). Where all pesticides monitored are reported as less than the limit of detection, the total pesticides figure should be reported on the template as <0.5 µg/l.

3.4.5 | In cases where individual pesticides have been detected, the WSA should complete a separate summary of the concentrations of all individual pesticides detected. It is not necessary to include individual pesticides that were monitored if they were reported as less than the limit of detection. The recommended format for reporting of individual pesticides and an example of a complete report is at Appendix 1.

3.5 Up-loading of data to EDEN

3.5.1 | WSAs can access the EDEN website at <https://www.edenireland.ie/>. WSAs need to register as a user of EDEN at [https://www.edenireland.ie/ Register.aspx](https://www.edenireland.ie/Register.aspx) (the register menu option in EDEN). If any WSAs need assistance to up-load data, there is a comprehensive help facility available at <https://www.edenireland.ie/Help/Index.html>. When logging onto EDEN, users will also need to request access to the MDS (monitoring data system) application.

3.5.2 | For WSAs using LabInfo, an upgraded version along with an application called LIXIE has been installed in those WSAs. Where the LabInfo PC has access to the Internet, LIXIE will allow automatic connection and transfer of drinking water data

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selected by the WSA staff to EDEN. If the PC isn't connected to the Internet, then the file can be created on the LabInfo PC and then manually uploaded to EDEN from a PC with an Internet connection.

3.5.3 | For WSAs using a LIMS other than LabInfo, a manual upload to EDEN should be carried out. Work has been completed by certain LIMS vendors so that monitoring data can be exported to the EDEN DET format required. This file will then have to be uploaded to EDEN following the instructions in the EDEN help file.

3.6 Assessment of monitoring results by the EPA

3.6.1 | The EPA will assess the monitoring results submitted and will do one of the following:

- ◆ accept the data as submitted without further queries and import the data into the EPA drinking water database;
- ◆ revert to the WSA with queries about the returns; or
- ◆ return the data to the WSA and request amendment of data and resubmission.

The EPA will return all data to the WSA where there are any errors or omissions from the returns to allow the WSA to correct the data and re-upload the data through EDEN.

3.6.2 | Once the EPA is satisfied that the results are accurate and correct, the data will be imported into the EPA database. The EPA will carry out an analysis of the data to generate statistics for its annual report on drinking water quality. When this analysis is complete the EPA will send out a copy of the analysis to the WSA for verification. The following files will be sent to the WSA:

- ◆ a list of all failures in all water supplies;
- ◆ a list of all water supplies in the WSA's area;
- ◆ a list of any supplies insufficiently monitored; and
- ◆ a summary of the statistics for the WSA including the calculations of overall compliance.

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3.6.3 | The WSA will be given a period of two weeks to comment on the accuracy of these files and the calculations. All valid comments or amendments will be incorporated into the statistics used for the preparation of the overall national summary and the WSA report.

3.7 Submission of returns

3.7.1 | WSAs should submit their drinking water quality compliance monitoring results and drinking water scheme details to EDEN by 28 February each year in respect of the previous calendar year.

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Appendix 1: Suggested reporting format for pesticides

Table 1: blank

Water Services Authority	Name of Water Supply	Scheme Code	Sample Code	Date	Pesticide	Result (µg/l)	Pesticide	Result (µg/l)	Pesticide	Result (µg/l)

Table 2: example of completed report

Water Services Authority	Name of Water Supply	Scheme Code	Sample Code	Date	Pesticide	Result (µg/l)	Pesticide	Result (µg/l)	Pesticide	Result (µg/l)
X County Council	Lake Regional WS	4000PUB1001	2007/1024	26/01/2007	Atrazine	0.05	Simazine	0.02	Aldrin	0.02
X County Council	Big Lake PWS	4000PUB1005	2007/251	12/08/2007	Heptachlor	0.01				
X County Council	Big Lake PWS	4000PUB1005	2007/358	12/12/2007	Heptachlor	0.01	MCPA	0.05		
X County Council	Small Well GWS	4000PRI2002	2007/301	20/09/2007	Methoxychlor	0.15				