



**DRINKING WATER REGULATIONS GUIDANCE  
BOOKLET NO 1**

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**Guidance for local authorities on Regulation 9 and  
Regulation 10 of the European Communities  
(Drinking Water)(No. 2) Regulations 2007 (S.I. No.  
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## **GUIDANCE FOR LOCAL AUTHORITIES ON NOTIFICATIONS UNDER THE EUROPEAN COMMUNITIES (DRINKING WATER)(NO.2) REGULATIONS 2007**

### **1.1. Introduction**

The European Communities (Drinking Water)(No. 2) Regulations 2007 which came into force on the 12 June 2007 has significantly changed the role of the Environmental Protection Agency (Agency) in relation to the enforcement of drinking water quality. The Agency has been assigned specific new powers in relation to the supervision of local authorities and their role in the provision of public drinking water supplies. It is important to note here that the local authorities themselves have a similar role in relation to the supervision of group water and private water supplies. The Regulations authorise the Agency to prepare binding guidance for local authorities in several specific areas.

This **EPA Drinking Water Regulations Guidance Booklet No 1**(*Guidance Booklet No 1*) provides guidance for local authorities on the new notification requirements under Regulations 9 and 10 of the European Communities (Drinking Water)(No. 2) Regulations 2007.

The **Circular letter WSP 7/07** issued to all local authorities by the Department of the Environment, Heritage and Local Government on the 30<sup>th</sup> July 2007 provides a summary of the new drinking water Regulations. The Agency endorses the guidance provided in the Department Circular letter WSP 7/07 and advises all local authorities to put in place such measures, as are necessary, to ensure full compliance with the Regulations. For the purposes of the enforcement of the Regulations the Agency also considers the guidance in the Circular letter WSP 7/07 to be formal guidance as if issued directly by the Agency.

The Agency has previously published detailed guidance for local authorities to assist in the implementation of the provisions of the now revoked 2000 Drinking Water Regulations. Much of operational and technical guidance in the existing guidance document entitled **The European Communities (Drinking Water) Regulations, 2000: A Handbook on Implementation for Sanitary Authorities (*the Handbook*)** is still relevant. The Agency advises that, unless guidance to the contrary is provided by the Agency, the guidance contained in the *Handbook* still applies and this guidance should now be regarded as formal guidance published by the Agency in accordance with the European Communities (Drinking Water)(No. 2) Regulations 2007. The Agency intends in due course to revise the *Handbook* to incorporate the requirements of the new Regulations.

The Agency advises that in the interests of consistency the guidelines referred in this *Guidance Booklet No 1* and in the EPA Drinking Water Handbook should in turn be applied by each local authority in the course of its own supervision of all other water supplies over which they have supervisory authority.

Further separate guidance booklets will be issued by the Agency covering other parts of the Regulations including for example guidance on monitoring, record keeping, audits and *Cryptosporidium*.

## 1.2. Offences under Regulations

With the introduction of the new drinking water legislation it is now an offence for a water supplier to fail to comply with specific aspects of the Regulations. In accordance with Regulations 9 and 10 it is now an offence for a water supplier to:

- ❑ fail to comply with a direction to prevent, limit, eliminate or abate a non-compliance or take appropriate measures to deal with the presence of a substance or micro-organism for which no quality standard has been prescribed, where there is a risk to human health - Regulation 9(6);
- ❑ fail to notify the Agency promptly that a water supply constitutes a potential danger to human health - Regulation 9(7);
- ❑ fail to notify the Agency of a failure to meet the parametric values of Part 1 of the Schedule in accordance with Agency guidelines as outlined in this Guidance Booklet – Regulation 10(3);
- ❑ fail to comply with a direction to submit an action programme within 60 days of being directed to do so by the Agency and implement such action programme, as amended by the Agency, for the improvement of the quality of water so as to secure compliance as soon as possible and no later than one year from the date of approval in the case of a non-compliance which presents a risk to human health and two years in the case of other non-compliances - Regulation 10(12)(a);
- ❑ fail to inform consumers of the remedial action taken in accordance with the action programme - Regulation 10(12)(b);
- ❑ fail to maintain records of an incident as outlined in Regulation 10(12)(c); and
- ❑ fail to make a record available to the supervisory authority on request - Regulation 10(12)(d).

### 1.2.1. *Regulations 9 and 10- Protection of public health and remedial action*

Regulations 9 and 10 of the European Communities (Drinking Water)(No.2) Regulations 2007 concern the issue of the protection of public health and remedial action if the water constitutes a potential danger to public health or fails to meet the parametric values specified in the Regulations. These sections apply to circumstances where there is either:

- ❑ a non-compliance with a parametric value as specified in Part 1 of the Schedule or other water quality standard; or
- ❑ the presence of any other micro-organisms or substances for which no water quality standard exists but may present a risk to public health.

### 1.2.2. *Overview of Regulation 9- Protection of Public Health*

Regulation 9 deals with circumstances where there may be a potential danger to human health due to the failure to meet a parametric value as specified in Part 1 of the Schedule or due to the presence of some other substance or micro-organism. Regulation 9 requires the local authority to:

- ❑ firstly, consult with the Health Service Executive to determine whether there is a potential danger to human health;
- ❑ restrict or prohibit use of water or take other action to protect consumers, if such a potential danger to human health exists;

- ❑ ensure consumers are informed of the above actions; and
- ❑ ensure the Agency is promptly notified.

In considering the action to be taken the local authority must have regard to the risk to human health that would be caused by the interruption of supply or restriction of use.

The Agency's role, as outlined in Regulation 9, is to ensure that where there is a risk to human health, that where necessary it directs a local authority (in consultation with the Health Service Executive) to take the appropriate action to prevent, limit, abate or eliminate the risk to human health. This guidance is issued pursuant to Regulation 9(5) to assist local authorities to fulfil their obligations under Regulation 9.

### *1.2.3. Overview of Regulation 10- Remedial Action*

Regulation 10 of the European Communities (Drinking Water)(No.2) Regulations, 2007 sets out the actions that the local authority must take in the event of a failure to meet a parametric value as specified in Table A, B or C of the Schedule of the Regulations. Regulation 10 places a number of specific legal obligations on the water supplier and the supervisory authority when a non-compliance with the parametric value has been detected as a result of routine compliance monitoring, operational monitoring or monitoring following a customer complaint. These include the requirement by the water supplier to:

- ❑ immediately investigate the cause of the failure;
- ❑ carry out remedial action as soon as possible;
- ❑ notify the supervisory authority in accordance with guidelines issued by the Agency;
- ❑ prepare an action programme for the improvement of the quality of water so as to secure compliance with the Regulations within 60 days of being directed to do so by the supervisory authority;
- ❑ implement the action programme within at least one year of the approval of the action programme if the non-compliance presents a risk to human health or in at least two years if the non-compliance does not present a risk to human health; and
- ❑ ensure that consumers are informed of the corrective action where the non-compliance is non-trivial.

The role of the supervisory authority is also outlined in Regulation 10. In summary, the supervisory authority is required to:

- ❑ ensure that the water supplier takes remedial action as soon as possible;
- ❑ give priority to enforcement action having regard to the extent of the non-compliance;
- ❑ direct the water supplier to prepare an action programme within 14 days of being notified of the non-compliance;
- ❑ review and amend as necessary the action programme prepared by the water supplier; and
- ❑ issue guidelines in relation to the nature and timing of remedial, enforcement or other relevant action.

This section of the guidance is issued pursuant to Regulation 10(8) and this section should be considered as the Agency guidelines in relation to the nature and timing of remedial, enforcement or other relevant action.

### 1.3. Investigations into Non-Compliances

Each local authority is required by Regulation 10(1) to ensure that any failure to meet the parametric values specified in Part 1 of the Schedule in its water supply is immediately investigated to determine the cause of such failure. The local authority should develop and implement a system to investigate non-compliances. Such a system will include procedures and protocols to investigate the following;

- a review of previous results for that parameter at the same or similar sampling points in the affected water supply;
- a review of any results for that parameter at associated sampling points (for example at the treatment works for a failure within a supply zone);
- a review of the operation of the treatment works, service reservoir or distribution system associated with the failure;
- where the failure is with microbiological parametric value then a review of the effectiveness and robustness of the disinfection and other treatment processes should be carried out to include a review of results and residual chlorine levels for the supply three days either side of the date the non-compliant sample was taken, review of the chlorine dosing systems and procedures, review of the maintenance of residual chlorine at the plant and in the distribution system and review of the integrity of the distribution network including service reservoirs. Where UV treatment forms part of the disinfection process the operation of this process should be thoroughly reviewed;
- a procedure to determine whether there has been any event in the catchment that might be responsible for the failure;
- a procedure for taking further samples from the same point and if necessary from associated points;
- when the failure is suspected to be due to the condition of the consumer's tap, further samples should be taken from such points as will help to assess whether the failure was caused by the condition of the pipe work and fittings in the consumer's premises. Inspection of the consumer's pipe work and fittings may be necessary. In addition samples should be taken of the treated water leaving the drinking water treatment plant;
- when the failure is due to the presence of *E. coli* or coliform bacteria in a sample taken from a consumer's tap, a sample shall be taken before and after disinfection of the tap and a swab sample from the surfaces of the tap that come into contact with water; and,
- when the failure is lead or copper or nickel in respect of a sample taken from a consumer's tap, the local authority should consider wider sampling from other premises in the zone to establish whether the failure is restricted to one premises or whether there is a risk of failures at taps in many premises in the supply zone.

One of the matters that the investigation has to establish is whether the cause of the failure of the standard or exceedance of an indicator parameter value is due to the condition of the pipe work and fittings in the premises (i.e. the domestic distribution system) or other factors. The Agency will only consider failures to be attributable to

pipe work and fittings where the local authority demonstrates comprehensively that they have carried out a detailed investigation with supporting evidence to show that consumer plumbing is most likely to be the cause of the exceedance.

Microbiological parameters, such as *E. coli* or coliform bacteria, may be influenced by the condition of the pipe work and fittings and particularly the design and hygienic status of the consumer's tap. The outcome of the further analysis described above provides important information on the likelihood that the non-compliance or exceedance is attributable to the condition of the pipe work and fittings. There is a strong indication that the non-compliance or exceedance is attributable to the pipe work and fittings when:

- the non-compliance or exceedance recurs in the further sample from the original consumer's tap but all other samples in the supply zone meet the relevant standards or indicator parameter values; or
- the non-compliance or exceedance recurs in a sample taken from the original consumer's tap before disinfection, but does not occur in a sample taken following disinfection.

Non-compliances with the standards for copper, lead and nickel at the consumer's tap may be associated with the consumer's pipe work and fittings or the local authority's pipe work as the water interacts with copper or lead pipes (or solders) and brass fittings and plated taps that contain nickel. The local authority's investigation should establish whether these metals are present in its pipe work (unlikely to be the case for nickel) and whether they are present in the consumer's pipe work and fittings. It should also establish whether non-compliances also occur in similar premises in the supply zone.

If these metals are present **only in the local authority pipe work**, then the local authority is required to take action to comply either by providing additional water treatment or by replacing its pipe work.

If they are present **only in the consumer's pipe work and fittings**, then the local authority should provide advice to consumers on the action they can take to reduce their exposure to these metals.

If these metals are present in **both the local authority's and the consumer's pipe work**, then the local authority should consider additional treatment (particularly if other premises in the supply zone also show non-compliance), replacement of its pipe work if treatment is not effective in securing compliance and provision of advice to consumers on the action they can take to reduce their exposure to these metals.

This advice particularly applies to lead which has been widely used in the past and most water supplies are plumbosolvent unless adequately treated.

#### **1.4. Consultation with the Health Service Executive**

Where a water sample has failed to meet the parametric value for any of the parameters in Part 1 of the Schedule the local authority must determine whether the non-compliance presents a risk/potential danger to human health. Consequently, each local authority should have in place documented procedures for consultation with the



Health Service Executive when a non-compliance is detected. These procedures should include, as a minimum:

- contact details of the relevant personnel in the Health Service Executive;
- details of what additional information should be sent to the Health Service Executive in the event of a non-compliance; and
- details of agreed actions to be taken in the event of specific failures (e.g. *E. coli*, detection of *Cryptosporidium* or the issue of a boil notice).

The information to be supplied to the Health Service Executive will depend on the requirements of the Health Service Executive but should include information referred to in the following section dealing with notification to the Agency.

### **1.5. Notification of Non-Compliances to the Agency**

Regulation 10(2) places an obligation on each local authority to notify the Agency as soon as it becomes aware of a failure to meet the parametric values in Part 1 of the Schedule of the Regulations and this notification must be as set out in Appendix A.

Regulation 9(1) requires local authorities to liaise with the Health Service Executive to determine whether the supply of water intended for human consumption constitutes a potential danger to human health and to notify consumers and the Agency, in the case of a public water supply, where such a potential danger exists. This potential danger may arise as a result of the failure to meet a parametric value in Part 1 of the Schedule of the Regulations or may also result from a problem with the water supply unrelated to non-compliance with a parametric value. This may include contamination of the supply with substances or microorganisms for which there is no parametric value (e.g. *Cryptosporidium*).

Where a potential danger to human health exists the local authority should immediately consult with the Health Service Executive to ascertain whether there is a potential danger to human health. If the Health Service Executive considers that there is a potential danger to human health the local authority must ensure consumers are informed and given appropriate advice at the earliest opportunity. The local authority must also inform the Agency promptly. In this regard, the Agency should be informed using the form in Appendix A.

#### **1.5.1. Non-Compliance with Microbiological or Chemical Parametric Values**

A non-compliance with the parametric value for the Microbiological or Chemical parameters as specified on Table A and B of the Schedule of the Regulations or a notification under Regulation 9(1)(c) must be promptly notified to the Agency, in accordance with Regulation 9(5) and 10(2) no later than 11.00 a.m. on the next working day. In advance of notifying the Agency, the local authority should, in all such cases, have notified and consulted with the Health Service Executive to establish the level of risk to human health and any actions that need to be taken pursuant to these consultations, as required by Regulation 9(1).

**Notification of the Agency must be done by email ([drinkingwater@epa.ie](mailto:drinkingwater@epa.ie)) and also by fax to Drinking Water, Office of Environmental Enforcement, Johnstown Castle Estate, Co. Wexford on 053 9160699. Notification by email and fax should**

**be in the format as specified in Appendix A and must contain all of the information requested.**

Where the EPA considers the information provided by the local authority as insufficient further specific information may be requested.

The only exception to the requirement for prompt notification of a failure to meet the parametric values on Table A and B of the Schedule of the Regulations relates to fluoride where the supply is artificially fluoridated. The Department of Health and Children have published a Code of Practice on Fluoridation of Water Supplies 2007 ([http://www.dohc.ie/publications/fluoridation\\_2007.html](http://www.dohc.ie/publications/fluoridation_2007.html)) and this code of practice includes a protocol for dealing with exceedances of the 0.8 mg/l parametric value. The Agency advises that the protocol outlined in this code of practice should be adhered to. In the event of a one-off non-compliance with the fluoride parametric value of 0.8 mg/l, the local authority are not required to immediately notify the Agency except where the result exceeds the EU Directive 98/83/EC parametric value of 1.5 mg/l. However, in all such cases the local authority should take immediate action to return the supply to compliance and should immediately retest the supply. Where the follow up sample fails to meet the parametric value of 0.8 mg/l then the Agency should be notified in accordance with the procedures outlined in the previous paragraph. Furthermore, if there is a pattern of intermittent non-compliance with the fluoride parametric value of 0.8 mg/l the Agency should also be notified of the non-compliance.

Also in accordance with Regulation 10(10) each water supplier shall maintain a record of any incidence of failure to meet the parametric values specified in Part 1 of the Schedule. This record shall be kept for inspection by the Agency.

#### **1.5.2. *Non-Compliance with the Indicator Parametric Values***

Immediate notification of the failure of a single sample in a water supply to comply with the Indicator Parametric Values as specified on Table C of the Schedule of the Regulations is **not** required except where the non-compliance could be a potential danger to human health or is non-trivial. Some examples of the circumstances requiring notification to the Agency are listed below;

- persistent non-compliances with an indicator parameter in the same supply that has not been rectified for example repeated coliform bacteria or aluminium failures;
- elevated turbidity in the treated water especially in cases where the plant has a high *Cryptosporidium* risk assessment score;
- indicator exceedances caused by incidents or not adhering to operational practise or procedures at the treatment plant.

To determine whether the non-compliance is a potential danger to human health the local authority must consult with the Health Services Executive. Where it is decided (in consultation with the Health Service Executive) that the non-compliance is a potential danger to human health the local authority must notify the Agency in accordance with the procedure as outlined in Section 1.5.



Where the failure is not trivial the local authority must also notify the Agency. A trivial non-compliance can be defined as a marginal exceedance of the parametric values in Table C of the Schedule of the Regulations or where an exceedance is a one off linked to a specific event that was quickly rectified. However, if there is a relatively frequent reoccurrence of marginal exceedances or intermittent one off exceedances then the Agency must be notified in accordance with the procedures in this Guidance Booklet.

Whether the non-compliance is a potential danger to human health or not, the local authority must take immediate action to ensure that the cause of the non-compliance is investigated and that the appropriate corrective action is taken to ensure compliance with the relevant parametric value. The local authority shall in accordance with Regulation 10(10) maintain a record of any incidence of failure to meet the indicator parametric values. This record shall be kept for inspection by the Agency.

It is essential that local authorities review their current arrangements with laboratories carrying out analysis of drinking water on their behalf to ensure that the laboratory immediately makes the local authority aware of all non-compliances of the parametric values on Table A, B or C of Part 1 of the Schedule of the Regulations.

#### **1.6. Preparation of Action Programmes**

As previously stated, where the Agency has been notified of a failure to meet a parametric value as specified in Part 1 of the Schedule and the Agency directs a water supplier to prepare an action programme and to submit it for the approval of the Agency, the local authority must prepare this plan within such timeframe as is specified in the direction (and not exceeding 60 days). This section is intended to provide guidance to local authorities on the nature and timing of remedial, enforcement or other relevant action in accordance with Regulation 10(8) of the Regulations.

Action programmes should be prepared so as to ensure compliance with the Regulations. In summary, the action programme should contain as a minimum:

- actions taken/to be taken to identify the cause of the non-compliance;
- actions taken/to be taken to address the cause of the non-compliance including details of any enforcement action and source protection measures proposed/implemented;
- actions taken/to be taken to improve the treatment at the plant;
- a proposed increased monitoring programme for the parameter that failed to meet the standards for the duration of the action programme;
- interim measures taken/to be taken to prevent, limit, eliminate or abate the likelihood of a failure in the short term;
- proposed timescales and reporting frequencies for all of the actions to be taken above;
- details of the documented management and control system in place; and
- details of how consumers are to be informed of the actions taken/to be taken.

The action programme must be submitted to the Agency within the period specified in the direction issued by the Agency and should be emailed to [drinkingwater@epa.ie](mailto:drinkingwater@epa.ie). A signed copy of the action programme should also be posted to Drinking Water,

Office of Environmental Enforcement, Environmental Protection Agency, PO Box 3000, Johnstown Castle Estate, Co. Wexford.

Water suppliers should be aware that an action programme (as amended by the Agency) is a legally binding document and failure to submit and implement an action programme is an offence under Regulation 10(12)(a) of the Regulations. Therefore, water suppliers should consider carefully the information that is to be included as part of the action programme and should include actions it intends to carry out and should not contain unrealistic actions or timescales.

#### **1.6.1.            *Actions taken/to be Taken to Identify the Cause of the Non-Compliance***

If the source of the **failure is suspected to be contamination of the source of the water** then the action programme could include any or all of the following actions:

*Assessment of the geology and hydrogeology of the source* – this is to determine whether natural substances are likely to be present in significant concentrations. This may be relevant to naturally occurring metals and substances such as arsenic, fluoride, mercury, chloride, iron, manganese or sulphates. The investigations into the geology and hydrogeology should include, as a minimum, an examination of:

- ❑ borehole logs for the well;
- ❑ geological maps;
- ❑ any geochemical data for geological formations;
- ❑ hydrogeological flow regime; and
- ❑ source water quality trends.

*Identification of potentially polluting activities in the catchment or zone of contribution of the source* – Where it is suspected that there are potentially polluting activities in the catchment or zone of contribution, a catchment inspection should be carried out. The investigations into the source of the pollution should include the identification and assessment of the following activities in the zone of contribution or catchment:

- ❑ discharges from Urban Waste Water Treatment plants;
- ❑ storm water over flows;
- ❑ the location and effectiveness of septic tanks or other on-site treatment systems;
- ❑ discharges from Section 4 licences;
- ❑ discharges from EPA Licensed facilities;
- ❑ agricultural activities (in particular farm yard management and landspreading activities);
- ❑ forestry activities;
- ❑ other industrial activities such as waste management, mining, quarrying or other similar activities; and
- ❑ source water quality trends.

The local authority should liaise with the River Basin District team in carrying out the investigation and in developing measures to improve site specific source protection.

If the source of the **failure is suspected to be a problem with the treatment of the source water or the water distribution system** then the action programme could include any or all of the following actions:

*Review of the operation of the water treatment plant* – An assessment of the operation of the water treatment plant should be carried out. This assessment should include a review of:

- ❑ recent daily monitoring results at the water treatment plant;
- ❑ recent check/audit monitoring results in the distribution network;
- ❑ treatment processes at the plant including chemical dosing regime, filter operation (backwashing arrangements and media adequacy), disinfection and monitoring frequency;
- ❑ recent operational changes made to the treatment plant including adjustment of chemical dosing, pumps, pipe work and filter media;
- ❑ recent operational problems (which should be recorded in the caretakers diary); and
- ❑ an assessment of the ability of the existing treatment plant to treat the water adequately in order to meet the standards in the Regulations.

*Review of the management of the distribution network* – the management of the distribution network should be examined including the identification of:

- ❑ flushing/scouring regime for the distribution system;
- ❑ possible contamination following recent pipe replacement;
- ❑ leakage; and
- ❑ dead ends, service reservoirs or vulnerable parts of the network.

The action programme should clearly state how the water supplier intends to identify the cause of the failure (if not already known) and should include details of how the investigation is to be carried out. Specific timeframes for the different aspects of the investigation must be included in the action programme.

#### ***1.6.2. Actions Taken/to be Taken to Address the Cause of the Non-Compliance Including Details of any Enforcement Actions and Source Protection***

Having identified the cause or suspected cause of the non-compliance the water supplier must outline what specific actions are to be taken to prevent, limit, eliminate or abate the cause of the non-compliance.

##### Action to improve source protection

Where the cause of the non-compliance has been identified as originating from pollution of the source of the supply the local authority must take action to prevent, limit, eliminate or abate the source of the pollution, it is not sufficient simply to improve treatment at the plant to compensate for poor raw water quality. The root cause of the problem must be addressed. Actions taken to address the cause of the non-compliance could include:

- ❑ implementation of sustainable planning policies to protect source water;
- ❑ improvements in waste water treatment plants;
- ❑ elimination or relocation of storm water overflows;
- ❑ fencing off of the source of the supply;

- ❑ restriction of landspreading within the zone of contribution or within the exclusion zones as per the European Communities (Good Agricultural Practice for Protection of Waters) Regulations, 2006;
- ❑ enforcement action under the Local Government (Water Pollution) Act 1977-1990 including enforcement of Section 4 licences;
- ❑ liaison with the EPA regarding discharges from licensed facilities; and
- ❑ working with the River Basin District teams to improve source protection measures.

#### Action to deal with exceedances caused by natural conditions

In some cases, such as where the source of the non-compliance is natural or persistent, it may not be possible to take actions to address the cause of the non-compliance within the short to medium term or it may not be possible at all (if the cause of the non-compliance is natural e.g. arsenic). In such cases, replacement of the source may be a necessary action or alternatively the treatment processes may need to be upgraded or optimised to ensure compliance. However, in all cases every effort must be made to eliminate or reduce the cause of the non-compliance from the source. In many cases this will be done in tandem with the provision of improved treatment.

#### Action to improve treatment and plant operations

Where every action has been taken to improve the quality of the source of the water so as to prevent, limit, eliminate or abate the likelihood of a non-compliance and these actions are not sufficient, additional actions to be taken to improve the treatment process should be detailed in the action programme. Thus in cases where the failure of the treatment plant has caused the non-compliance the local authority must outline in the action programme what actions are to be taken to improve the treatment process. These actions could include:

- ❑ adjustment of chemical dosing regime;
- ❑ adjustment of treatment practices and procedures (e.g. procedures, training, changing of filter backwashing frequency);
- ❑ replacement of filter media or addition of new treatment;
- ❑ provision of more advanced or modern treatment to deal with a specific issue (e.g. *Cryptosporidium*);
- ❑ installation of continuous monitoring and alarms for chlorine and turbidity;
- ❑ upgrade of the treatment plant;
- ❑ additional training to be given to plant operatives; and
- ❑ increased monitoring at water treatment plant.

#### Actions to deal with microbiological exceedances

Where the non-compliance is due to a failure to meet the microbiological parametric value or one of the indicator parameters that is microbiological, the local authority should examine the operation of the disinfection system as a priority. Where chlorination is used as the means of disinfection, as a minimum, the Agency expects that all treatment plants should be operated in accordance with the following guidance:

- ❑ only drinking water that is appropriately disinfected should be distributed;
- ❑ treated water should contain residual chlorine at a concentration of 0.5 mg/l for at least 30 minutes contact time prior to supply to consumers to ensure that

the disinfection is complete. The local authority on a site-specific basis should review the contact time. An optimum contact time must be implemented for each treatment plant. Thus direct supply of treated water (i.e. where water is not stored in a contact tank prior to distribution) will not be permitted in most circumstances;

- the final water (prior to entry into the distribution network) should have a continuous residual chlorine monitor and this monitor shall be linked to a recording device and alarmed to ensure that a deviation in the levels of residual chlorine from predefined upper and lower limits are immediately detected. The alarm should be linked by telemetry to a call out to ensure that the relevant personnel in the local authority are immediately notified of a failure of the system and to allow immediate corrective action to be taken;
- where the source of the water is surface water (or groundwater influenced by surface water) the treated water should not consist solely of chlorination; and
- the residual chlorine at the extremities of the distribution network must be at a concentration of at least 0.1 mg/l.

#### Action to deal with turbidity exceedances

Elevated turbidity in the treated water indicates that the treatment process is not operating adequately. Turbidity is listed as an indicator parameter in the Regulations which states that the levels must be “Acceptable to consumers and no abnormal change”. There is a footnote in the Regulations that states in the case of surface water treatment a parametric value not exceeding 1.0 NTU in the water ex treatment must be strived for. The turbidity levels (and colour) should be as low as possible prior to chlorination to ensure that the formation of disinfection byproducts are kept to a minimum. Colour should be kept below 20 Hazen.

In practice the indicator parametric value of 1.0 NTU is an aesthetic standard. Monitoring for *Cryptosporidium* cannot be used for process control, as it cannot be measured in real time so an alternative surrogate parameter is required. Turbidity is the best available and in order to maximise the removal of *Cryptosporidium* oocysts treatment plants need to be designed and operated to achieve minimum turbidity values in the treated water. Low filtered water turbidity also enhances the performance of *Cryptosporidium* removal or deactivation treatment technology when fitted such as membrane filtration or Ultra Violet disinfection. While the 1.0 NTU level is an acceptable aesthetic standard so long as the source is not at risk from *Cryptosporidium* if there is a risk of *Cryptosporidium* in the source water then local authorities should strive to minimise treated water turbidity.

#### Action to deal with exceedances caused in the distribution system

When the cause of the failure may be due to contamination within the distribution network then the guidance on water distribution and related matter provided in the EPA Drinking Water Handbook should be followed. Where the distribution network has been identified as the cause of the non-compliance the water supplier corrective action may include:

- flushing/scouring the mains;
- installation of chlorine booster stations in the network;
- replacement/refurbishment of corroded/leaking pipework;
- maintenance of service reservoirs; and

- replacement of old pipework (e.g. lead service mains).

### **1.6.3.            *Monitoring Programme for non-compliant supplies***

The monitoring frequencies for the audit parameters are relatively low and in some cases under the requirements of the Regulations it may be necessary to take only one sample per year to comply with the Regulations. Thus, where a non-compliance has been detected for an audit parameter it will be necessary for the local authority to increase monitoring for that parameter in the affected water supply. The purpose of increasing the monitoring frequency is to assist in the determination of the cause of the problem (e.g. a THM or nitrate non-compliance may only occur in certain raw water or seasonal conditions). Furthermore, in order to be able to track and confirm the effectiveness of the corrective actions taken, the local authority will need to carry out additional monitoring. As part of the action programme to be submitted the local authority should propose an increased monitoring programme which will be assessed by the Agency and amended if necessary. In general, in the case of microbiological non-compliances, daily monitoring until the problem has been resolved would be appropriate while in most circumstances weekly monitoring of the chemical parameters would be considered appropriate. Consideration will also need to be given to the sampling locations and these in many cases will need to include sampling of the raw water, the treatment water leaving the plant and water from representative locations in the supply network.

### **1.6.4.            *Interim Measures Taken/to be Taken to Reduce/Eliminate the Likelihood of a Failure in the Short Term***

In the case of a non-compliance with the parametric values in Part 1 of the Schedule Regulation 10(7) requires water suppliers to include interim measures in the action programme. In most cases it will not be acceptable to permit the non-compliance to continue for the duration of the implementation of the action programme, which could be up to one year where there is a risk to human health. Thus the water supplier must include details of interim measures to ensure that in the short term the risk of non-compliance (and hence the risk to human health) is minimised. This may include:

- installation of temporary treatment;
- temporary use of an alternative water supply; and,
- placing of restrictions on the supply (both in terms of water conservation and restrictions/prohibitions on consumption) in consultation with the Health Service Executive.

The water supplier should state which of these measures are to be used as part of the action programme. If none are to be used, it will be necessary to justify the reasons for non-inclusion of interim measures.

### **1.6.5.            *Proposed timescales and reporting frequencies for all of the actions to be taken above***

The water supplier should prepare a GANTT chart or equivalent timetable outlining when each of the actions proposed in the action programme are to commence and to be completed. The proposed completion dates should be clearly stated and the overall action programme must be completed as soon as possible and no later than one year from the date of approval by the Agency of the action programme where the non-



compliance present a risk to human health or two years where there is not a risk to human health. It is at the discretion of the Agency to require a shorter timeframe for the completion of actions proposed in the action programme and the decision to require a shorter timeframe will depend on the nature of the non-compliance and the speed with which it can realistically be resolved and on the risk to human health caused by the non-compliance.

#### **1.6.6. *Details of how consumers are to be informed of the actions taken/to be taken.***

Regulation 10(9) places an obligation on water suppliers to ensure that consumers are informed of any remedial action to be taken to improve the water supply so as to ensure compliance with the Regulations. When informing consumers of the remedial action the information provided should contain:

- a brief summary of the non-compliance and possible causes;
- details of actions consumers/members of the public can take to reduce the likelihood of further non-compliances (e.g. reporting of pollution of the source);
- a brief summary of actions to be taken by the local authority;
- an indication as to when the supply is likely to be returned to compliance; and
- details of where members of the public can get access to the full action programme (including any amendments by the Agency).

Consumers should be informed, as a minimum, via an advertisement in the local press and/or public notice on the website of the local authority. The water supplier should also consider informing consumers via leaflet drop, radio announcements, notices in prominent locations or other means as may be appropriate for the situation. Regular updates on the situation should also be provided. Local authorities should also inform and provide local elected representatives with information and updates on the water advisory.

### **1.7. Summary**

The European Communities (Drinking)(Water)(No.2) Regulations 2007 came into force on the 12<sup>th</sup> June 2007. Local authorities should commence notification of non-compliances for microbiological, chemical and indicator parameters in accordance with these guidelines with immediate effect. Local authorities are now required to follow the guidance below when carrying out their functions under Regulation 9 and 10 of the Regulations;

- EPA Drinking Water Regulations Guidance Booklet No 1 (November 2007).
- Circular Letter WSP 7/07. Department of Environment, Heritage and Local Government (July 2007).
- EPA Drinking Water Handbook – A handbook on implementation for Sanitary Authorities (2004).

In the interests of consistency the Agency also advises that local authorities in the course of its own supervision of other water supplies (i.e. group and private schemes) should in turn apply these guidelines.

END

Appendix A

**Notification of the Failure to Meet the Parametric Values in Part 1 of the Schedule of the European Communities (Drinking Water)(No. 2) Regulations, 2007 (S.I. No 278 of 2007) in Accordance with Regulation 9(1) or 10(2)**

<b>Local authority</b>	
<b>Name of Water Supply Zone</b>	
<b>Water Supply Zone Code</b>	
<b>Estimated Population Affected</b>	
<b>Parameter</b>	
<b>Result<sup>1</sup></b>	
<b>Date and Location of Failure</b>	
<b>Notification under Regulation (please tick)</b>	9(1)
	10(2)
<b>Have the Health Service Executive been consulted? Provide name &amp; contact details.</b>	
<b>What advice has been provided by the Health Service Executive</b>	
<b>Likely Cause and Duration of Failure</b>	
<b>Has this parameter exceeded the Parametric Value in this Supply in the past 12 months (if so give details)?</b>	
<b>Immediate Action Taken to Inform/Protect Consumers</b>	
<b>Immediate Corrective Action Taken</b>	

**Notified by:**

**Date:**

**Contact Phone Number:**

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<sup>1</sup> If the failure was a microbiological failure please indicate the residual chlorine levels at the time and whether the corrective actions as outlined in the EPA Drinking Water Guidance Booklet are being implemented. Also include the most recent details on raw water quality.