Nitrate and private water supplies

This guidance covers the actions to be taken by local authorities in relation to a private supply which does not comply with the nitrate standard.

Background

Monitoring under the 1991 Regulations identified how many private supplies breach the nitrate standard (50mg/l as NO_3). These Regulations transposed into national law the 1980 EU Drinking Water Directive. The 2009 Regulations (2010 in Wales), which were superseded by the 2016 Private Water Supplies Regulations in England transposed into national law the 1998 EU Drinking Water Directive. The revision of the Drinking Water Directive did not change the nitrate standard, however it removed the mechanism of granting a relaxation of a standard therefore local authorities can no longer grant relaxations.

In granting these open ended relaxations in the past local authorities relied on health advice provided by local health professionals. The Health Protection Agency (now Public Health England) has reviewed and reaffirmed its health risk assessment in relation to nitrate in drinking water. This health advice has not changed and remains as follows: *there is no concern for adult human health from consumption of drinking water with nitrates up to a level of 100 mg/l. However, bottle-fed infants are considered to be more susceptible to the effects of nitrates. Therefore there may be concern for the health of bottle fed infants consuming water failing the nitrate standard of 50 mg/l in certain circumstances (see footnote on page 4).* The relevance of this health advice to the historic granting of a relaxation by a local authority was that users of the supply were to be made aware of the risk and for there to be reliable arrangements in place to make sure low nitrate bottled water was available for making up infant feeds, which contained sodium less than 200 mg/l.

In relation to those supplies subject to a previous relaxation under the 1991 Regulations, and any other supply newly identified as failing the nitrate standard, local authorities must make a decision as to whether the failures are either “trivial and unlikely to recur” or “ongoing and a potential danger to health”. In the latter case, the local authority is under a duty to serve a Regulation 18 Notice. The decision as to whether or not nitrate failures are either trivial or ongoing must be underpinned by the following evidence and considerations:

- does the nitrate concentration in the water exceed the standard on more than one occasion?
- what is the maximum recorded level of nitrate in the water supply historically?
- what is the likely maximum concentration of nitrate in the water supply in the future (if not mitigated by measures such as blending with another low water source or installation of treatment)?
- what is the current and likely future use of the water supply e.g. domestic purposes only, commercial use only, mixed commercial/domestic purposes, does the water supply a public building?

- is it likely that the supply is or could in the future be used by infants or any other potentially vulnerable sub population in the locality (identified by consultation with the relevant local health professional drawing on knowledge of the particular community, as opposed to regionally or nationally)?

The above considerations are likely to give rise to a number of typical scenarios for action by local authorities each of which is set out below:

Water used for domestic purposes only by owner/occupiers

For levels of nitrate above the standard but below 100 mg/l as NO_3 and no likelihood of water consumption by resident infants, there is no requirement to serve a Regulation 18 Notice but there is a requirement to give advice to owner/occupiers that warns them of the need to prevent the water from being used by any visitors for bottle feeding of infants. There must be a record held by the local authority to show that such advice has been given and received.

For levels of nitrate above the standard but below 100mg/l as NO_3 where the occupants include infants, there is no requirement to serve a notice but there is a requirement to give advice and for the local authority to be satisfied that the steps that the owner or occupier chooses to take to mitigate the risk are appropriate. Appropriate mitigation measures might comprise (a) installing a point of use device capable of removing nitrates at a tap in the kitchen to be used for making infant feeds (b) purchase and use of ready-diluted liquid formulae or low nitrate bottled water for making up infant feeding. (c) blending or treatment of the whole water supply is not required but if chosen and technically effective then this would also be appropriate mitigation. There must be a record to show the advice was given by the local authority and received by the owner or occupier. The mitigation approach adopted by the owner/occupiers must also be recorded. The local authorities should consider informing their HPU of these cases. The HPU will be able to advise if there are other potentially vulnerable sub populations in the locality, who could be affected by nitrates at this level and should be taken into consideration.

Note: this scenario may be applied also to long term leasing (greater than one year) or other grace and favour occupation arrangements but it cannot be followed for holiday lets and other short term renting arrangements, which are covered in the next scenario.

Water for domestic purposes only but used in holiday lets and some rented properties

In situations where the occupiers are not responsible for the water supply and, the owner is not routinely on site, there is no reliable way of being satisfied that the supply will not be used for making up infant feeds either by the occupants or their visitors. For these reasons, where the level of nitrate is above the standard but below 100 mg/l as NO_3, a Regulation 18 Notice is required to improve the supply. If the proposed remediation is a point of use device at every kitchen tap (rather than by improving the water supply) then this could be deemed appropriate mitigation only if accompanied by an appropriate regime of maintenance, testing, certification or record keeping (akin to that required of landlords in relation to gas supplies). Low nitrate bottled water provision is not appropriate as a permanent solution, but can be used as a short term measure as part of a Regulation 18 Notice restricting the supply (Regulation 18 (2)(c)), until permanent treatment is installed. Note: the situation differs for public buildings and commercial uses of water (see below).

Public buildings and commercial uses of water (part of a commercial activity)

For public buildings including cafes and restaurants there is always a potential for the water to be used for making up infant feeds by persons who are unaware of the risk and not responsible for the water supply. However such premises will have employers, employees and other business occupants present over whom the Relevant Person can exert control. For these reasons where the level of nitrate exceeds the standard but is below 100 mg/l as NO_3, whilst a Regulation 18 Notice is required, appropriate mitigation would not necessarily involve treatment of the whole supply; it could be the provision of designated drinking water taps with appropriate point of use treatment devices and a regime of maintenance, testing, certification or record keeping, together with clear permanent signage directing users or employees how to access safe water for making up infant feeds.

If the owner of a business, such as a café, proposed mitigation by means of providing low nitrate bottled water for making up infant feeds, the local authority would need to impose requirements about the quality of the bottled water. Certain types of natural or mineral waters for sale are exempt from the requirements of the EU Drinking Water Directive and may not be compliant with the nitrate standard. Furthermore they may be unsuitable for infants by virtue of the presence and levels of other constituents which may or may not be declared on the label. Whenever bottled water is used as an alternative to a public supply it must comply with the Water Supply (Water Quality) Regulations. If remediation is the use of bottled water, this could be deemed acceptable if the local authority is supplied with the records confirming this. Note: all water companies have arrangements in place for supplying suitable bottled water when there are interruptions in the public water supply and advice can be obtained from them.

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Summary

Relaxations granted previously are no longer valid. Local authorities must take action under Regulation 18 in relation to all supplies failing the nitrate standard. For the majority of supplies the action required does not need to involve either the local authority or the owner in detailed and costly investigations, testing or improvements. DWI expects local authorities to give advice to owners in a manner that encourages owners to take responsibility for providing access to a safe water supply for users in a cost effective way, having regard to the identified at risk user group and the need for appropriate record keeping. Local authorities may wish to discuss the provision of advice for owners or occupiers with Public Health England.

Footnote to page 1
Public Health England advice note on nitrate is that:
Bottle-fed infants up to the age of 6 months, and in particular those under 3 months, are considered to be most susceptible to infantile methaemoglobinaemia (blue baby syndrome) caused by high nitrate level. Therefore, when nitrate concentrations exceed 50 mg/l as NO_3, it may be necessary for bottle fed infants up to the age of 6 months to be given ready-made liquid formulae or feeds made from an alternative low nitrate water supply. On the basis of WHO advice these precautions are recommended when the high nitrate water supply is also of uncertain microbiological quality or it is known to be microbiologically contaminated. The general population should not consume water when nitrate concentrations exceed 100 mg/l as NO_3or nitrite concentrations exceed 3 mg/l as NO_3- in the short term.

Drinking Water Inspectorate
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