

ARTICLES

The EC Nitrates Directive and the control of nitrate pollution in the United Kingdom

The nitrate problem – scheme of the Directive

Introduction: the Nitrate Problem

The problem of pollution of watercourses by nitrate originating from fertiliser and manure applied to agricultural land is an especially serious one both in the United Kingdom and in other parts of the European Community. As a consequence of surface water run-off and percolation through the soil gradual leaching of nitrate takes place over a period of time causing nutrient enrichment of watercourses, termed "eutrophication", and ultimately the contamination of surface and underground sources of water supply. Because of the general dependence of the farming industry upon nitrate fertilisers, alongside the vital need to prevent contamination of potable supplies, the practical difficulties involved are especially serious and formidable (see Department of the Environment *The Nitrate Issue* (1988), and House of Lords Select Committee on the European Communities 16th Report, *Nitrate in Water* (1989)). In legal terms, nitrate contamination is also an urgent problem given the prospect of proceedings being brought against the United Kingdom by the European Commission (see [1990] 1 *Water Law* 5) for failure to meet the requirements of Community Directives relating to drinking water quality in respect of nitrate content exceeding the limit value of 50 mg/l in some areas (see Directive on the quality of water intended for human consumption 80/778/EEC and also Directives 75/440/EEC and 79/869/EEC).

From a European Community perspective, the nitrate problem

has been a continuing preoccupation over a number of years. The agreement in principle of the Environment Council, on 14 June 1991, on the *Directive concerning the protection of fresh, coastal and marine water against pollution caused by nitrated from diffuse sources* represents the culmination of over two years of negotiations in the Council (see, COM(88) 708 final OJ C 54). However, alongside the recently adopted Directive on urban waste water treatment (OJ 1991 L 135/40), the nitrates Directive is the Community's most important weapon in the fight against nitrate contamination from land based sources. Moreover, the new Directive provides clear evidence of the commitment, stated in the Single European Act, that environmental protection requirements are to be a component of the Community's other policies and, in particular, the Directive will have profound consequences for the Community's Common Agricultural Policy.

For the Member States, the nitrates Directive will require a speedy reappraisal of national schemes to control diffuse inputs of nitrate into the environment. New national measures which are needed to implement the Directive will be likely to have a direct economic impact upon a large part of the farming industry in the Community and major financial decisions will need to be taken as to the extent to which the cost of stricter nitrogen controls will have to be borne by the agricultural sector.

The purpose of this article is to review the main requirements of

the nitrates Directive and to consider these alongside recent developments in the law of England and Wales allowing for the control of agricultural land use with a view to reducing the contamination of watercourses by nitrate.

Rationales for a Community Directive

Although the situation in respect of nitrate concentrations in Community waters differs widely between Member States, from a comparative study in 1984, it appears that without exception nitrate levels in both surface and ground waters are steadily increasing throughout the Community, (for data see: *The Problem of Nitrate Pollution*, EUREAU, 1984 published in COM(88) 708 final). This Community-wide trend was perceived to warrant action at Community level for various reasons;

- 1) High levels of nitrates in surface and ground waters used for human consumption may constitute a health risk, in particular by increasing the risk of methaemoglobinemia (the so-called blue baby syndrome). Although Directive 80/778, on the quality of water intended for human consumption, already contains a limit value for nitrate, a number of Member States, including Britain, have been unable to adhere to this value. Apart from health considerations, rising nitrate levels in drinking water resources also increase the cost of water treatment. In order to counter some of the problems related to nitrate polluted drinking water, chlorination is widely used, a process which impairs the quality

of the water and may even be carcinogenic.

2) Eutrophication of marine waters in the Mediterranean, the Baltic and the North and Adriatic Seas with, the associated problem of algal blooms, is generally attributed to nitrate pollution. This process of "enrichment" has led to serious damage to tourism, the fishery industry and marine biota. In response, the Third International Conference on the protection of the North Sea paid ample attention to the problem. It agreed, in respect of agriculture, "to aim at achieving an environmentally acceptable relationship between crop uptake and the amount of nutrients applied in manure and fertilizer." More specifically it pledged to "establish regulations for the handling and application of manure and fertilizers. (See points 10-13 of the Declaration, reproduced in Freestone, and Ijlstra, *The North Sea: Basic Legal Documents on Regional Environmental Co-operation*, Graham & Trotman, London, 1991.) The Directive implements this commitment for the EC countries.

3) The adoption by certain Member States of legislation on intensive stock farming has required the Community to propose harmonising action so as to avoid distortions of competition. However, despite the fact that the Directive also meets trade objectives, it is based on Article 130S (on the Court's jurisprudence regarding the legal basis for environmental Directives.

Together with discharges of municipal waste water, agriculture is the main diffuse source of nitrates. Urban waste water discharges are subject to Directive 91/271 on urban waste water treatment (which, it is recalled, provides for rules in respect of discharges of nitrogen into sensitive areas like estuaries and coastal waters, OJ 1991 L 135/40)) so the present Directive will therefore complement the Community's regime on pollution of the aquatic environment by nitrate.

The scheme of the Directive

The official text of the Directive is still to be formally approved and therefore a detailed examination of its provisions is not yet possible.

Therefore this discussion is restricted to an outline of the general scheme of the Directive as emerging from various official documents.

The stated objective of the Directive is to avoid "the concentration of nitrate in freshwaters, both surface and ground, reaching a level at which it could interfere with the legitimate uses of these waters" and "the eutrophication of surface, estuarial, coastal and marine waters".

The main instrument for the attainment of this objective is the obligation on the part of Member States to designate, within a period of two years following the notification of the Directive, all *zones vulnerable to water pollution from nitrogen compounds*. These vulnerable zones are those areas of land which drain directly or indirectly into one or more of the following waters:

- surface freshwaters intended for the abstraction of drinking water which could contain more than 50 mg/l nitrate if protective action is not taken.
- groundwaters intended for the abstraction of drinking water which contain more than 50 mg/l nitrate if protective action is not taken.
- natural freshwater lakes, other natural freshwater bodies, estuaries, coastal waters and sea which are found to be eutrophic or which in a short time may become eutrophic if protective action is not taken.

The first two categories are clearly inter-linked with Directive 80/778 on drinking water intended for human consumption. The third category, if maintained in the final version of text, would potentially cover a large proportion of the Community's territory and thus will be of considerable practical importance. However, it appears that the United Kingdom has been able to argue successfully for the removal of this category. In any event, the term eutrophication has been defined in Article 2 in such a way that it only relates to waters which are nitrogen-limited so that waters which are phosphorus-limited are not covered by the Directive. Within two years, Member States must draw up action plans to reduce nitrate leaching.

An interesting element of the Directive is that it contains an unusually strong obligation for Member States to co-operate in the event of waters flowing into vulnerable zones of a neighbouring Member State. In such cases, the Member States of origin *shall* take action to designate the relevant area of land in its territory as vulnerable zones. Designations of vulnerable zones must be reviewed at least every three years and information must be sent to the Commission regarding any revisions.

In these vulnerable zones, two years after their designation, a maximum 170 kg/ha/year of nitrate compound fertiliser applies. As from 1999, applications to the Commission to exceed the limit of 170 kg/ha can be based only on one of the following four grounds: the amount of rainfall in a given sensitive area, soil types, type of cultivation and season. The Directive should therefore stimulate the search for alternative methods to dispose of manure. The draft Directive also provides that municipal sewage, for a permanent population of 5000 or more, discharging directly or indirectly into vulnerable zones must be treated in such a way as to ensure that the total nitrogen content of the resulting effluent is 10 mg/l or less.

In addition to the designation of vulnerable areas, Member States are required to establish Codes of Good Agricultural Practice applying throughout their territories. Codes of Good Agricultural Practice are to contain rules concerning, amongst others, ways and amounts of manure and chemical fertilizers to be applied.

Member States must monitor, in accordance with Directive 77/535, on the methods of sampling and analysis for fertilizers (OJ 1977 L 213/1), the nitrate concentrations in freshwaters (both surface and ground). The programme must be carried out over the period of one year, at least monthly, and is to be repeated at intervals of at least four years. The eutrophic state of surface, estuarial and coastal waters must be reviewed every four years.

Also in intervals of four years, Member States must submit

reports to the Commission containing specified information on the application of the Directive.

The UK approach: nitrate sensitive areas

The pressing need to combat nitrate pollution of watercourses in the United Kingdom has been such that a range of legal and policy measures have been introduced to tackle the problem. Although it is possible that the provision for the designation of *water protection zones* under the Water Act 1989 (s.111) could be used as a means of controlling land use to prevent nitrate pollution under non-agricultural circumstances, direct provision is made under section 112 of the Act for the designation of *nitrate sensitive areas* where nitrate enters controlled waters as a result of anything done in connection with the use of land for agricultural purposes (see s.111(5)). It is this power that has been used as the legal basis for initial controls upon nitrates that have been introduced in England.

Powers provided under section 112 and Schedule 11 to the Water Act 1989 enable the designation of a nitrate sensitive area where the "relevant Minister" considers it appropriate to do so to prevent or control the entry of nitrate into controlled waters as a result of, or anything done in connection with, the use of any land for agricultural purposes. The "relevant Minister" for these purposes is the Secretary of State for Wales in relation to an area which is wholly in Wales. In relation to land which is wholly in England, or partly in England and partly in Wales, designation is by the Minister of Agriculture, Fisheries and Food and the Secretary of State for the Environment acting jointly (s.112(9)(a) and (b)). Where designation of a nitrate sensitive area is brought about, and the Minister considers it appropriate to do so to prevent or control the entry of nitrate into controlled waters, he is provided with various powers either to enter into voluntary agreements with farmers in the area concerned, or to impose mandatory orders upon farmers within the area either with or without the payment of compensation.

Compensation agreements and mandatory orders

The Ministerial power enables him to enter into agreements with the owner of the freehold interest in the land, or any person having an interest in the land where the consent of the freeholder has been given. The essence of agreements of this kind is that, in consideration of compensatory payments to be made by the Minister, the farmer accepts obligations with respect to the management of the land imposed under the agreement (s.112(2)). An agreement of this kind will bind all persons deriving title to the land from the person entering into the agreement with the Minister (s.112(3)). In addition to compensation agreements with landholders, the Minister is empowered to make a mandatory order in respect of a nitrate sensitive area for the imposition of requirements, prohibitions or restrictions to prevent the entry of nitrate into controlled waters in relation to the carrying on of specified activities on agricultural land. Where this is done the order may provide for specified or determined amounts of compensation to be paid, if any, in respect of the obligations imposed under the order (s.112(4)).

A mandatory order in relation to a nitrate sensitive area may confer powers upon the appropriate Minister to determine the circumstances in which the carrying on of any activity is required, prohibited or restricted. In addition, the order may apply a prohibition or restriction in respect of activities which may only be carried on subject to Ministerial consent and in accordance with conditions subject to which the consent is given. Contravention of a requirement, prohibition or restriction in an order of this kind, or of a condition of a consent, is an offence which is punishable subject to penalties which are not to exceed those provided for in respect of the principal water pollution offence (s.112(5)). That is, a person will be liable on summary conviction, to imprisonment for a term not exceeding three months and a fine not exceeding £20,000 or both, and on conviction on indictment to imprisonment for a term not exceeding two years or to a fine of un-

limited amount or both (s.107(6), as amended by s.145(1) Environmental Protection Act 1990).

The Pilot Nitrate Scheme

The legal powers to create nitrate sensitive areas provided for under the Water Act 1989 have been exercised by the Minister of Agriculture, Fisheries and Food under the "Pilot Nitrate Scheme" brought about, in part, by the Nitrate Sensitive Areas (Designation) Order 1990 (SI 1990/1013, as amended by Nitrate Sensitive Areas (Designation) (Amendment) Order SI 1990/1187). The objective of the Scheme has been to select specific areas where nitrate concentrations in water sources exceed, or are at risk of exceeding, the limit of 50 mg/l specified in the European Community drinking water Directive, and to control the entry of nitrate from agricultural land into water sources in the area in order to ascertain the effect of such controls upon water quality (generally see, Ministry of Agriculture, Fisheries and Food consultation document, *Nitrate Sensitive Areas Scheme* (1989)). The particular locations within the Scheme have been selected on that basis that they will serve as *pilot* areas which will provide a means of evaluating the effectiveness of limiting nitrate use as a prelude to the general introduction of such schemes. For that reason the areas chosen represent a broad range of agricultural practices and hydrological conditions, but it is envisaged that these will provide a reasonably rapid response to nitrate controls so that the effectiveness of the measure involved can be assessed in a relatively short period of time.

The designated areas

In part, the Pilot Nitrate Scheme involves the selection of nine "advisory areas" which are to be subject to an intensive advisory campaign providing farmers with free advice on methods of reducing nitrate leaching. Beyond this, however, use has been made of the power under the Water Act 1989 to designate nitrate sensitive areas so that voluntary agreements can be entered into between farmers and the Minister. The Government has

expressed a strong preference for a voluntary approach to nitrate reduction as an initial measure, but it has conceded that this may be followed by compulsory measures if voluntary arrangements prove to be ineffective. The Nitrate Sensitive Areas (Designation) Order 1990 serves to designate ten pilot Nitrate Sensitive Areas in England. The 10 areas, which are identified precisely by maps attached to the Order, are the following; Sleaford (Lincolnshire); Branston Booths (Lincolnshire); Ogbourne St George (Wiltshire); Old Chalford (Oxfordshire); Egford (Somerset); Broughton (Nottinghamshire); Wildmoor (Hereford and Worcestershire); Wellings (Staffordshire); Tom Hill (Staffordshire and Shropshire); and Kilham (Humberside). The total area covered by the 10 sites is approximately 15,000 hectares.

Compensation schemes

Within the 10 designated nitrate sensitive areas farmers will get free advice on ways to reduce the risk of nitrate leaching into water. More significantly, on application, farmers may enter into an agreement with the Minister, subject to certain conditions, allowing for payment of compensation to the farmer in return for an assurance that farming practices will be adopted which involve the application of reduced amounts of nitrate to the land. The detailed provisions regarding payments under nitrate sensitive area agreements are rather intricate, but broadly two distinct schemes of payment are provided for under the Order, the "basic scheme" and the "premium scheme". These are distinguished according to the burden of the obligations involved. For example, the obligations arising

under a basic scheme agreement primarily concern limitations upon the maximum amounts of organic and inorganic nitrogen which may be added to the land and the times at which it may be added. By contrast, premium scheme agreements commit farmers to more fundamental changes in land use involving the conversion of arable land to low intensity grassland of various descriptions. Because of the greater extent of the duties involved, the rates of payment arising under the premium scheme are considerably higher, though under both schemes the rates of payment vary according to the particular nitrate sensitive area concerned.

Monitoring compliance

All nitrate sensitive area agreements will contain a provision allowing the Minister to monitor compliance with the agreement or to assess the effectiveness of the agreement in preventing the entry of nitrate into controlled waters. Accordingly monitoring provisions will allow entry upon the land in question, the taking of samples, the installation of equipment and the examination of records. Where a farmer fails, without reasonable excuse, to comply with the provisions of an agreement the Minister may terminate the agreement and withhold the whole or any part of the payment payable to the farmer, and recover any payment already made to him. Provision is made for questions arising under nitrate sensitive area agreements to be determined by arbitration in accordance with the Arbitration Acts 1950 to 1979.

Conclusions

The Pilot Nitrate Scheme is a first step, but a highly significant first

step, in a direction which will unavoidably need to be followed to greater lengths in the future. It is creditable that the legal machinery has been put in place to implement the Nitrates Directive in England and Wales some time before the need for compliance with the Directive. However, it is clear that the initial use of the legal powers in designating the pilot 15,000 hectares is small by comparison to the extent of the problem and the subsequent measures which will be required to achieve full compliance with the Directive. It has been suggested that about two million hectares, or one fifth of the agricultural land in England and Wales, could fall within the category of vulnerable areas requiring designation under the Directive (*The Independent* 15 June 1991, p.6).

Moreover, the likelihood is that the problem of nitrate pollution will be exacerbated by the increased use of nitrate fertilisers which has taken place over recent years. The findings of the pilot study will need to be urgently assessed with a view to achieving a considerable extension of the designated land in the manner which best meets the objective of nitrate reduction in accordance with the Directive. Although many farmers have been co-operative in entering voluntary agreements of the kind presently provided for, in the future it would appear unlikely that compliance with the Directive can be fully achieved without the introduction of a mandatory scheme for nitrate reduction.

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