

## **Relevant EC environmental Directives**

### **Introduction**

1. Many of the environmental standards which SWWS has to meet in its capacity as a water and sewerage undertaker derive from EC Directives. The two most important from the point of view of SWWS are the UWWTD and the BWD. The former is concerned with the quality of waste water discharged from STWs by setting compulsory minimum standards of treatment, based upon population thresholds. The latter sets minimum quality standards which have to be met at each identified bathing water; compliance is based on tests carried out at fixed points where the number of bathers is highest, to measure the quality of the water at that point. These Directives are described in more detail below. Other relevant EC Directives are then briefly described.

### **Directive on the Quality of Bathing Water 1976 (76/160/EEC)**

2. This Directive addresses the required water quality standards for bathing waters.

3. The Directive was adopted on 8 December 1975. The objectives of the BWD are to protect the environment and public health. For the purposes of the Directive, a bathing water can be either a freshwater or a marine site, although no freshwater sites have been identified as being within the scope of the Directive in the UK.

4. The BWD was formally enacted into English and Welsh domestic legislation through the Bathing Waters (Classification) Regulations 1991. Prior to this, the Directive was implemented by administrative means. The Regulations prescribe a system of classifying the quality of bathing waters reflecting the mandatory standards in the BWD. The standards have formally been applied to identified estuarine and coastal waters, as statutory Water Quality Objectives, by means of a notice served on the NRA by the Secretary of State in accordance with section 83 of the Water Resources Act 1991.

5. The standards prescribed by the Regulations include a range of microbiological and physical-chemical parameters. The microbiological standards establish concentrations for certain micro-organisms in bathing waters which must not be exceeded according to the compliance rules in the Directive. The prime parameters in assessing compliance with the Directive are the total and faecal coliforms. The presence of these organisms, particularly the presence of faecal organisms, provides a strong indication of pollution derived from sewage discharges.

6. In the UK, bathing waters were originally designated on the basis of the density of bathers in a given area. This led to only 27 being identified following an exercise in 1979. The Government subsequently announced in 1987 that it had identified an additional 362 bathing waters. The total number of designated bathing waters in England and Wales in 1994 was 419.

7. Historically, the principal means of alleviating localized inshore pollution to meet BWD requirements has been to add long sea outfalls, usually at, or near to, existing sewage discharge points. These long sea outfalls are designed with the aid of mathematical models of the dispersion and diffusion characteristics of the receiving waters. The point of discharge can, in this way, be located to ensure that BWD standards are unlikely to be breached at designated bathing waters in the area. The use of long sea outfalls can be combined with various levels of onshore treatment of sewage either to reduce the impact upon the receiving waters further or to allow the necessary water quality to be achieved with a reduced length of outfall. The later legislation based upon effluent quality (for example, the UWWTD) has led to the provision of treatment prior to discharge.

8. The BWD originally required member states to ensure that bathing waters met the required stan-

dards by December 1985. In 1989, at the time of privatization, a large capital investment programme was announced to improve UK bathing waters over the next ten years. The programme was later revised to ensure that virtually all schemes would be complete by the end of 1995.

## **EC Urban Waste Water Treatment Directive (91/271/EEC)**

9. The UWWTD was agreed by member states in May 1991. It requires that all communities, above specified population thresholds, in member states shall be provided with sewerage systems and that the discharges from these communities shall typically be subject to secondary treatment prior to discharge to the environment. This necessitates expenditure to improve the quality of both continuous and intermittent discharges from STWs and sewerage networks to estuarial, coastal and freshwaters by 2005.

10. The Urban Waste Water Treatment (England and Wales) Regulations 1994 (the 1994 Regulations) implement the UWWTD in England and Wales. They address the collection, treatment and discharge of urban waste water (sewage), and the treatment of discharge of waste waters from certain industrial activities. The 1994 Regulations also set out specific requirements for the authorization and monitoring of the discharge of such effluents and establish different levels of sewage treatment necessary (primary, secondary or tertiary) based upon the characteristics or sensitivity of the receiving waters to pollution. The 1994 Regulations will result in secondary treatment being required for most urban sewage effluents, with primary treatment being acceptable in specified less sensitive coastal estuarine areas. Crude sewage discharges from populations above a certain size will be eliminated.

11. Under the 1994 Regulations the Secretary of State must identify rivers, estuaries and coastal waters as sensitive waters, if certain conditions are met; and may identify estuaries and coastal waters as less sensitive waters (or, as they have been termed in the UK, HNDAs) if other conditions are met.

12. A body of water is defined as sensitive if it is found to be eutrophic (or likely to become eutrophic if not protected). Eutrophication is the enrichment of water by nutrients, especially compounds of nitrogen and/or phosphorus, causing accelerated growth of algae and disturbing the balance of life present in the water environment. The identification of sensitive and less sensitive areas has been carried out by the Secretary of State on advice from the NRA.

13. Under the 1994 Regulations, qualifying discharges into inland waters must receive secondary treatment (usually biological treatment with secondary settlement) before discharge to the receiving watercourse.

14. The timetable for implementation of the UWWTD may be summarized as follows:

- sewage from areas with a population greater than 15,000 must receive treatment by 31 December 2000; and
- any area with a population between 10,000 and 15,000, and areas with a population between 2,000 and 10,000 discharging into freshwaters and estuaries, must receive treatment by 31 December 2005.

15. Sewage discharged from areas with a population above 10,000 into sensitive waters will require more stringent treatment over and above the secondary treatment required for discharges to normal waters. In eutrophic sensitive areas the more stringent treatment will limit the discharge of nutrients (nitrogen and/or phosphorus). This treatment is required by 31 December 1998.

16. Discharges into less sensitive coastal waters, from areas with a population between 10,000 and 150,000, need only receive primary treatment, whilst those below 10,000 only require 'appropriate treatment' (as defined by the UWWTD). The 1994 Regulations define 'appropriate treatment' as 'a means of treatment of urban waste water by any process and/or disposal system which after discharge allows the receiving waters to meet the relevant quality objectives and the relevant provisions of the Directive and other Community Directives'. In practice, this is generally considered to constitute fine screening of the

discharge, although higher levels of treatment may be required, depending on the local environment.

17. The UWWTD includes provision for member states in certain circumstances to ask the EC for a longer period to comply with the Directive with respect to secondary treatment. It also includes a provision for member states to seek a derogation from the EC to allow the level of treatment for discharges greater than 150,000 PE into coastal waters to be limited to primary treatment.

18. The adoption of the UWWTD in 1991 necessitated increased levels of treatment for many larger sewage discharges into estuarial and coastal waters, even where there were projects in hand to meet the requirements of the BWD. Thus, although not directly targeted at bathing water quality, the beneficial effect of the UWWTD on all receiving waters should further improve bathing water quality.

19. The UWWTD also reinforced the UK's commitment to cease sludge disposal to sea by December 1998 and this requirement too has now been enacted into UK legislation through the 1994 Regulations. This will require the provision of new, and the upgrading of existing, sludge treatment and disposal facilities in order to meet the demands of the increased quantities of sludge which will result from the higher levels of treatment required.

### **EC Directive on Pollution caused by certain dangerous substances discharged into the aquatic environment of the Community 1976 (76/464/EEC)**

20. Under this framework Directive a series of further (daughter) Directives have been adopted addressing specific hazardous substances such as mercury, cadmium, chloroform etc. The requirements of these Directives are now enforced in national legislation through the Surface Waters (Dangerous Substances) (Classification) Regulations 1989 and 1992.

21. These Regulations define environmental quality standards for a range of dangerous substances. They have formally been applied to inland and coastal waters, as statutory Water Quality Objectives, by means of notices served by the Secretary of State in accordance with section 83 of the Water Resources Act 1991.

### **EC Directive on the Protection of Waters against Pollution Caused by Nitrates from Agricultural Sources 1991 (91/676/EEC)**

22. The Directive requires member states to identify 'polluted waters'. For freshwaters, such waters are those where the nitrate limit set has been or could be exceeded. Alternatively the waters may be either eutrophic or have the potential to become eutrophic. Land draining into these waters may need to be designated as vulnerable zones, within which action programmes must be established to reduce and further prevent the agricultural contribution to nitrate pollution. These measures will include rules on the application to land of chemical fertilizers and manure.

### **EC Directive on the Protection of Groundwater Against Pollution Caused by Certain Dangerous Substances 1980 (80/68/EEC)**

23. This Directive is aimed at eliminating or reducing hazardous substances in groundwater. Due to the inherent problems of monitoring groundwater quality, the emphasis of this Directive is on imposing control measures on the discharge rather than on setting a standard that the receiving water has to achieve.

### **EC Directive on the Quality of Fresh Waters Needing Protection or Improvement to Support Fish Life 1978 (78/659/EEC)**

24. This Directive was adopted in 1978 and has been implemented through DoE circulars and guid-

ance notes. It specifies the designation of areas which support fish life, quality parameters and monitoring requirements. The 'Freshwater Fish' Directive provides the baseline quality objectives for a number of parameters including pH, ammonia, dissolved oxygen and zinc in a substantial proportion of rivers, approximately 20,000 km of river length in England and Wales. The Directive is a particularly important consideration in determining discharge consents for sewage works.

### **EC Directive on the Quality Required of Shellfish Waters 1979 (79/923/EEC)**

25. This Directive was adopted in 1979 and has been implemented through DoE circulars and guidance notes. It sets quality standards for the protection of shellfish populations, and is aimed at safeguarding the shellfish populations themselves, rather than the health of consumers (this is covered by the 'Shellfish Health' Directive, 91/492/EEC, see paragraph 26). In England and Wales 18 areas have been designated.

### **EC Directive Laying Down the Health Conditions for the Production and Placing on the Market of Live Bivalve Molluscs (91/492/EEC)**

26. The 'Shellfish Health' Directive relates to the health of consumers. It specifies bacterial quality standards for classification of shellfish beds and levels of shellfish treatment required prior to marketing. It does not specify water quality criteria. The bacterial quality of shellfish may be affected by sewage discharges, and the location of classified shellfish beds should be taken into consideration when sewage improvements are being planned, and in particular the location of outfalls and long sea outfall discharges.

### **Directive on Quality Requirements for Surface Waters Intended for the Abstraction of Drinking Water 1975 (75/440/EEC)**

27. This Directive defines different categories of surface water for abstraction of drinking water and associated water quality requirements. These requirements necessarily impact upon discharges upstream of the point of abstraction and the conditions imposed in the consent, to limit the concentration or load of key determinants discharged in the effluent, take account of the assimilative capacity of the waters.