

NRA Southern 97

CONSERVATION



ENVIRONMENT AGENCY

NATIONAL LIBRARY &
INFORMATION SERVICE

SOUTHERN REGION

Guildbourne House, Chatsworth Road,
Worthing, West Sussex BN11 1LD



NRA

*National Rivers Authority
Southern Region*

Headquarters

Guildbourne House Chatsworth Road
Worthing West Sussex BN11 1LD
(0903) 820692

ENVIRONMENT AGENCY



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INFORMATION SHEET

E D U C A T I O N S E R I E S 6

Industrial Pollution

Many industrial processes involve the use of water, a substantial proportion of which may be incorporated into the product. However there are processes which give rise to waste products, many of which are mixed with water. Additionally some industrial processes, more particularly power generation, involve the use of water for cooling and this may give rise to the need to dispose of large quantities of water at a higher temperature than that at which it was abstracted.

Where there are only small quantities of waste water or trade effluent, as it is often termed, it is usually practicable to discharge these into the foul sewerage system serving the local community. The effluents are then treated in admixture with domestic sewage at the sewage works prior to disposal to a watercourse. In other cases where an adequate sewage system is not available or if the volume of waste water is too great to be treated in a mixture with domestic sewage, a direct discharge from the industrial premises to a watercourse may be the only option available.

DISCHARGE TO RIVERS

Where direct discharges of industrial waste waters to rivers are permitted, they are controlled by the National Rivers Authority. This control is achieved by imposing restrictions known as consent conditions, which limit the volume and quality of the effluent. In order to comply with the quality conditions laid down in the consent, most dischargers pre-treat their effluents. This is not necessary with cooling water discharges which usually have little overall impact on a river, provided adequate dilution is available. With some industrial wastes primary treatment such as settlement may suffice, but most waste water from industry

requires secondary or biological treatment before being discharged to watercourses. Such treatment will normally comprise either bacteria beds (biological filters) or the activated sludge process in one of its many forms.

In the Southern Region, the main sources of industrial discharges to rivers is the paper industry, primarily in Kent, and the chemical industry in Kent and Hampshire. Many of these industrial discharges are made to estuaries and tidal waters where they can have a major impact on water quality. Cooling waters from power stations are also discharged to estuaries in Kent and Hampshire but generally have little effect on their quality.

OTHER INDUSTRIAL SOURCES OF POLLUTION

Most of the other industrial sources of pollution arise from accidental spillages and contamination of surface water by substances such as oil. At paper mills, spillages of various additives used in papermaking can occur from time to time. At chemical works accidental spillages of the raw materials or products are a threat. The most serious of such incidents involve the accidental leakage of chemicals toxic to aquatic life. Examples are metals such as lead, mercury, cadmium and copper, and trace organics particularly chlorinated hydrocarbons such as carbon tetrachloride and pesticides. If a discharge contains a mixture of chemicals, the toxic effect may be additive and the effect on aquatic life compounded.

FISH FARMING

One form of commercial activity which has grown substantially in recent years is the farming of fish for restocking and the table. In the

Southern Region, there are 16 large fish farms using a total of approximately 8 million litres of water per day. This is equivalent to the total water supply for a population of about a million people.

After passing through fish ponds and raceways, the water is normally of poorer quality than when it was abstracted from the river. To satisfy the conditions set by the NRA, fish farm effluents often require pre-treatment or settlement before they are returned to the river. In this way organic deterioration in water quality downstream is minimised. Furthermore, biologically active chemicals are used on fish farms to reduce disease and improve growth. The use of such chemicals is limited. Nonetheless, the NRA closely monitors the activities of fish farmers and the effects on river water in much the same way as other industrial discharges.



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