Environmental Guidelines **No. 6** 2000

Guidelines to Statutory Order on the Licensing of Waste Water Discharges

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Contents

Schedules

Schedule 1 Statutory Order No. 501 of 21 June 1999 on the Licensing of Waste Water Discharges Pursuant to Parts 3 and 4 of the Danish Environmental Protection Act.

Foreword

The rules governing Danish administrative practices in matters pertaining to waste water management are embodied in the Environmental Protection (Consolidation) Act (Consolidated Act No. 698 of 22 September 1998 as amended).

Part 3 of the Environmental Protection Act deals with the protection of soil and ground water, while Part 4 addresses the protection of surface waters.

These two parts of the Environmental Protection Act establish the main legal framework for Statutory Order No. 501 of 21 June 1999 on the licensing of waste water discharges pursuant to Parts 3 and 4 of the Environmental Protection Act, which lays down specific rules for the administrative procedures to be followed by regional and local authorities in these matters.

Statutory Order No. 501 of 21 June 1999 supersedes Statutory Order No. 310 of 25 April 1994 on the licensing of waste water discharges pursuant to Parts 3 and 4 of the Environmental Protection Act ('the Waste Water Management Order').

The new Waste Water Management Order of 21 June 1999 is largely a rewritten version of the previous Order.

However, it also introduces several new provisions to follow up on Act No. 325 of 14 May 1997 to amend the Environmental Protection Act and the Act on payment rules for waste water installations etc. (waste water treatment in rural areas etc.).

Like its predecessor, the new Waste Water Management Order contains provisions to implement Council Directive 91/271 concerning urban waste water treatment ("the Urban Waste Water Directive") as amended (Commission Directive 98/15/EC) and Council Directive 80/68 on the protection of ground water against pollution by certain dangerous substances.

Based on the new Waste Water Management Order and Parts 3 and 4 of the Environmental Protection Act, the Guidelines describe current practice in this area.

In addition, Chap. 16 of the Guidelines describe the application of Statutory Order No. 921 of 8 October 1996 on quality standards for surface waters and emission standards for certain dangerous substances discharged to watercourses, lakes or the sea to provide a background for the provisions of Statutory Order No. 501 on the setting of quality standards for water bodies and emission standards for waste water effluents containing such substances.

Thus, the objective of these Guidelines is to provide a full review of the legislative basis for administrative practice in the area of waste water management.

These Guidelines supersede:

- Circular No. 92 of 17 April 1994 on waste water.
- Circular No. 73 of 21 April 1980 on the discharge of waste water into the ground.
- Circular No. 58 of 30 May 1986 on the discharge of waste water into watercourses, lakes and the sea.
- Guidelines No. 42 of 11 January 1988 on emission limit values for certain substances discharged from municipal waste water systems into watercourses, lakes or the sea.

1. Area of application of the Statutory Order

1.1 Scope

Section 1 of the Waste Water Management Order defines the scope of the provisions of the Order. The provisions apply to all waste water systems - public as well as private.

Like its predecessor, the new Statutory Order on waste water management also governs the direct discharge of substances into the ground water. The provisions relating to this subject implement Council Directive 80/68/EC. See Chap. 10 of these Guidelines.

The Statutory Order does not establish provisions for the licensing of the discharge and spraying of waste water useful for agricultural purposes, cf. section 3 of the Statutory Order. The discharge and spraying of waste water and sludge for agricultural purposes are governed by Statutory Order No. 823 of 16 September 1996 concerning the use of waste products for agricultural purposes (the Sludge Order), issued by the Ministry of Environment and Energy. See to Chap. 13 of these Guidelines.

1.2 Application of the Statutory Order to existing waste water systems

Substantial changes to an existing waste water system or the conditions under which it operates, including relocation or restructuring, require the issuing of a renewed discharge licence pursuant to section 2 of the Statutory Order. This also applies in cases where the quantity or composition of the incoming waste water is changed, especially if the intake is increased.

Decisions of whether a change to a waste water system requires a renewed discharge licence are made on a case-by-case basis.

The licensing authority decides whether a change is substantial and therefore subject to a new discharge licence.

Thus, in cases where a waste water system discharging into an infiltration plant for domestic waste water is changed such that the load from the system is increased, for example, if the plumbing of a property is modified by the installation of an extra bathroom, it may be necessary to apply for a new discharge licence. This applies, in particular, to systems that include an old infiltration plant and a small settling tank. In determining whether a new discharge licence must be issued, the licensing authority shall consider both the organics load on the installation and the hydraulic peak load. Usually, merely rearranging systems without changing the number of installations is not subject to relicensing.

This also applies to changes made to a municipal waste water treatment plant that involves altering the plant, for example, by installing new tanks, modifying the aeration equipment etc., whereas changes affecting the capacity of the plant, including increased hydraulic load, are subject to relicensing.

2. Definitions

2.1 Terminology

Section 4 defines the terminology used in the Statutory Order and in the Environmental Protection Act.

2.1.1 Waste water

Definition of 'waste water'

Basically, the term 'waste water' as defined in section 4(1) of the Statutory Order covers water discharged from residential, commercial, industrial or other buildings and surface run-off, i.e. domestic waste water, effluent from industrial and commercial enterprises, including cooling water and filter backwash as well as surface run-off from roofs and other areas impervious to water.

'Areas impervious to water'

'Areas impervious to water' are areas that, due to their use as, for example, roads, parts of buildings, etc., are wholly or partly impervious to water. This may include gravel areas and grass areas. Generally, water from perimeter drains around sewered buildings is also classified as waste water, as is dstorm water from cemeteries and landfill percolate, whereas other types of dstorm water are not normally covered by this definition.

'Water comparable to waste water'

The competent authority pursuant to section 28 of the Environmental Protection Act can also license the discharge of water not covered by the definition of waste water. Such water is comparable to waste water for the purposes of the Statutory Order, provided that its composition does not deviate significantly from that of water covered by the definition of waste water.

When dealing with applications for a licence to discharge water in this category, the competent authority must proceed on a case-by-case basis, and if it decides to grant a given application, the necessary terms and conditions, e.g. in respect of treatment measures and point of discharge, must be stipulated in the licence.

'Water from "emergency pumping" operations'

Water from "emergency pumping" operations is comparable to waste water, provided that its content of the pollutant(s) concerned is not highly concentrated or has been intentionally diluted, but has ended up in the ground water by diffusion. If the pumped water is highly contaminated, it may be necessary to collect the water or treat it *in situ*. This may be the case, for example, in connection with pumping out water from an oil-contaminated site.

'Water deriving from a lowering of the ground water table'

Basically, water from a lowering of the ground water table brought about by building and civil engineering works is not comparable to waste water, but must be disposed of in accordance with the provisions laid down in the Water Supply Act ("Vandforsyningsloven"). In the exceptional cases where such water has to be discharged to a waste water treatment plant, a separate connection licence must be issued.

Prohibition of the discharge of liquid and semi-liquid manure and silage effluent

Section 27 of the Environmental Protection Act contains a general prohibition on the discharge of pollutants into watercourses, lakes or the sea. This prohibition applies to liquid and semi-liquid manure, silage and manure effluent, since such substances do not come within the definition of waste water.

2.1.2 Domestic waste water

Definition of 'domestic waste water'

According to section 4(2) of the Statutory Order, domestic waste water is waste water discharged from households, including from water closets. Sanitary sewage from commercial and industrial enterprises, i.e. waste water from bathrooms, toilets and kitchens, is also included in this definition.

These Guidelines also use the concepts 'black' and 'grey' waste water. Black waste water means waste water from water closets exclusively, while grey waste water is waste water from bathrooms, kitchens, cleaning and laundering and sanitary sewage other than black waste water.

2.1.3 Surface run-off

Definition of 'surface run-off'

According to section 4(3) of the Statutory Order, surface run-off is understood as storm water from roofs, paved and other wholly or partly impervious areas, including railways. Surface run-off must not contain substances other than those usually added to storm water running off roads, parking spaces, etc., or have a materially different composition.

Thus water from washing and cleaning plants, storage sites and the like does not come within the definition, since substances other than those present in run-off from roads and parking grounds are added to the water. Nor does storm water run-off from storage sites for materials containing heavy metals fall under the definition, since the concentration of heavy metals may be higher than in road run-off.

2.1.4 Human waste

According to section 4(4) of the Statutory Order, 'human waste' comprises urine and faecal matter. Human waste is discharged from waterless or low-water sanitary systems. Examples are humus toilets or urine separation toilets, i.e. appliances in which urine and faecal matter are collected in one container, as well as appliances for separate collection of urine and/or faecal matter.

2.1.5 Population equivalent

Definition of '1 p.e'

According to section 4(5) of the Statutory Order, 1 p.e. (population equivalent) is the waste water load having a five-day biochemical oxygen demand (BOD_5) of 21.9 kilograms oxygen per year, 4.4 kilograms total nitrogen per year or 1.0 kilograms total phosphorus per year.

Waste water effluents of up to 30 p.e.

Any determination of whether a waste water effluent corresponds to 30 p.e. or less must be based on an assessment of all three parameters used in the definition of one population equivalent: organic substances, nitrogen and phosphorus. The load capacity of a waste water effluent may be determined as 30 p.e. or less, provided that the level of all three parameters corresponds to 30 p.e. or less.

In terms of the delimitation of powers to license waste water effluents defined in section 28 of the Environmental Protection Act, waste water must not contain substances other than those usually present in domestic waste water, nor have a significantly different composition, cf. section 11 and section 4 of the Statutory Order. This also applies to the discharge of waste water into the ground by percolation under section 28(1) of the Statutory Order.

Waste water effluents containing substances other than those usually present in domestic waste water or having a significantly different composition are thus never comparable to domestic waste water effluents representing 30 p.e. or less, not even in cases where the value of all three parameters may be below the level corresponding to 30 p.e.

Nor is waste water of increased temperature, such as cooling water, comparable to domestic waste water.

In determining the capacity in p.e., cf. section 2.1.8 below, for a given waste water effluent, no load distribution may be made. This means that effluent loads expressed in, say, kilograms/day discharged only for a certain number of days per year may not be distributed over the entire year.

2.1.6 Holding tank

Definition of 'holding tank'

As defined in section 4(6) of the Statutory Order, a holding tank is a watertight container that is either type-approved according to the Statutory Order on supervision of oil-storage facilities**,** or may be approved for the storage of waste water by the licensing authority under the rules set out in Part 14 of the Statutory Order.

2.1.7 Waste water system

Definition of 'waste water system'

According to section 4(7) of the Statutory Order, waste water systems comprise both open and closed conduits and other installations for draining off and/or treat waste water before it is discharged into watercourses, lakes, the sea, the ground or disposed of by other means. Thus, the processes taking place in a waste water system do not necessarily comprise both drainage and treatment of waste water.

Boundary line between waste water systems and watercourses

The boundary line between waste water systems and watercourses depends on the point of discharge, which should be specified in the discharge licence. The possibility cannot be excluded, therefore, that a few sections of a minor tributary may be classified as part of a waste water system. In cases where no discharge licence has been granted, and therefore no point of discharge has been defined, this point must be defined by the licensing authority. However, all waste water systems located in a municipality must be listed in the municipal waste water plan, cf. section 32 of the Environmental Protection Act and section 5 of the Statutory Order.

The local council is empowered to define a section of a watercourse as a waste water system in the waste water plan. Watercourses reclassified as waste water systems are no longer governed by the Watercourse Act ("Vandløbsloven"), but by the provisions on waste water laid down in the Environmental Protection Act.

Pursuant to the Watercourse Act, the opinion of the regional council shall be obtained in connection with plans to reclassify a watercourse, in cases where the said watercourse is comprised by the water quality objectives set in the regional plan. This is to ensure that site owners are not unintentionally deprived of their right under the Watercourse Act to discharge dstorm water from their land.

Drain pipes

For administrative purposes, drain pipes are regarded as watercourses as defined in the Watercourse Act, unless they are specifically classified as part of the waste water system.

2.1.8 Capacity

Definition of 'capacity'

As defined in section 4(8) of the Statutory Order, the capacity or approved capacity of a waste water system is the amount of waste water with its content of pollutants expressed in population equivalents (p.e.) that may be discharged under a licence issued under Parts 3, 4 or 5 of the Environmental Protection Act from one or more properties within the catchment area identified for the waste water system concerned. When issuing a discharge licence for a municipal waste water treatment plant, the regional council must therefore determine the plant's capacity in p.e., cf. section 17 of the Statutory Order, and define its catchment area.

Capacity as an administrative concept

The concept of capacity is used particularly in distinguishing between the licensing competence of the regional council and the local council, respectively, cf. section 28 of the Environmental Protection Act (see section 2.1.5 above), and in identifying the municipal waste water systems that are encompassed by the national emission standards, cf. section 19 of the Statutory Order. Thus, the approved capacity is not necessarily equal to the plant's design capacity and is, basically, not a measurable, but an administrative quantity, which may differ from the physical capacity of the installation.

2.1.9 Public waste water system

Definition of 'public waste water system'

As defined in section 4(9) of the Statutory Order, a public collecting system is one whose operation and/or maintenance is the responsibility of one or more local councils. However, this definition does not include installations established under section 7a of the Act on payment rules for waste water installations etc. Such installations continue to be private, although they are established, operated and maintained by the local council.

Outsourcing

Although a local council may have outsourced the operation of a public waste water treatment plant, it continues to be responsible for its operation, and thus for ensuring compliance with the discharge licence. Legal action may therefore be brought against the local council, for example, in the event of non-compliance with the discharge licence applying to the waste water treatment plant.

2.1.10 Private waste water system

Definition of 'private waste water system'

According to the definition in section 4(10), a private waste water system is one that is not defined as a public waste water system. Waste

water systems that come within the central government's scope of responsibility therefore have status as private installations.

Distinction between public and private waste water systems

It is not clear from the definition of a public waste water system in which cases the local council is responsible for maintaining and operating the installation, but this should be indicated in the waste water plan, cf. section 5(1)(ii) of the Statutory Order. Thus, the definition should be interpreted in terms of the boundaries of the sewage catchment areas identified in the waste water plan and other information regarding systems established, operated and maintained by the local council in its capacity as sewage service provider.

According to section 28(4) of the Environmental Protection Act, landowners are required to connect their waste water systems to a public collecting system if a service sewer is available at the site boundary. The local council must lay a service sewer up to the boundary of the individual property or to the boundary of the catchment area of a private waste water system that is under an obligation to connect to a public waste water system.

Waste water conduits laid across private properties

A waste water conduit laid across one property in order to serve another in the same a public sewage catchment area must therefore be assumed to be a public conduit, unless the title register or other documents shows it to be private, or else the local council cannot be said to have fulfilled its obligation as service provider.

Unless it appears from the title register or other documents that the waste water system concerned is private, a conduit that runs across another landowner's land forms part of the public waste water system. This means that the local council is responsible for maintaining and operating the installation.

The local council cannot without the prior consent of the owner establish a waste water conduit on a private property for the purpose of serving one or more properties located behind the said property. If the owner refuses to give his consent, the local council will have to obtain the necessary land by compulsory acquisition, cf. section 58 of the Environmental Protection Act.

Alternatively, the local council must lay a new service sewer up to the site boundary of the property/properties located behind the property in question and order these properties to connect to the new service sewer pursuant to section 30 of the Environmental Protection Act.

2.1.11 Best available techniques

Definition of 'best available techniques'

According to section 4(11) of the Statutory Order, the 'best available techniques' (BAT) means the most effective and advanced stage in the development of activities and their methods of operation that allows implementation in the relevant industrial sector. It includes the technology used and the way in which the installations are designed, built, maintained, operated and decommissioned, and that the techniques can be used in the relevant sector under economically and technically viable conditions, and that they provide the highest possible protection level. This calls for a comparative assessment of the order of priority in which

environmental considerations, the principle of pollution control and the proportionality principle should be ranked.

Compliance with the BAT principle should not be stipulated as a requirement to use any specific technique, but as a requirement with regard to the pollution level (emission limit values or similar parameters, supplemented by appropriate pollution control measures) that can be achieved using the best available means. In principle, it is up to the enterprise to decide how to meet the requirements.

Prevention or treatment?

The two different approaches to pollution control, viz. by preventive measures, using resources to reduce unnecessary waste, and by treating the waste at a later stage, are not mutually exclusive: The BAT principle cannot replace treatment, and treatment supplements prevention.

However, preventive measures should be given higher priority than conventional treatment. This means that measures at source should be used as the first step. If this does not provide a sufficiently high degree of environmental protection, the pollution level should subsequently be reduced by measures of treatment.

Information sources

The following information material may be useful to enterprises examining their possibilities of using the best available techniques:

- Information from Danish EPA to trade & industry (”Miljøstyrelsens brancheorienteringer”)
- The computer-based information system operated by The Danish Council for Recycling and Cleaner Technology (“Rådet for genanvendelse og mindre forurenende teknlogi”)
- Information from the Danish Environmental Protection Agency (“Orientering fra Miljøstyrelsen”**)** No. 3, 1994 - List of references.

3. Content of the waste water plan

Objectives

The municipal waste water plans aim to provide an overall survey of existing and planned procedures for waste water management within municipalities. In addition, the plans must highlight the environmental impact of these procedures and the financial consequences for the public waste water service. Finally, the waste water plans form the legal basis for connecting existing and new properties to the public collecting system.

3.1 Background

Under the first Environmental Protection Act, which was adopted in 1973, local authorities were required to prepare an overall plan for the disposal of waste water within the individual municipalities. The main idea was that these plans would serve as guidelines for organising waste water disposal within municipalities.

Today, all Danish municipalities have adopted a waste water plan. All that will be needed in future is therefore basically updating the existing plan for municipal disposal of waste water, including updating catchment area boundaries and preparing timetables.

With the adoption of Act No. 325 of 14 May 1997 to amend the Environmental Protection Act and the Act on payment rules for waste water installations etc. (treatment of waste water in rural areas) a number of changes were introduced in the form of requirements regarding the future content of municipal waste water plans. The amendments relating to waste water disposal in rural areas are to be incorporated in the municipal waste water plans 1½ years after the regional council's adoption of a regional plan that will affect waste water disposal in rural areas, however, not earlier than 1 July 2000.

The Act as amended establishes special rules for waste water disposal in rural areas. In addition to the description given in this chapter, these rules will be dealt with in more detail in Chap. 12, below.

3.2 The provisions of the Environmental Protection Act concerning waste water planning

3.2.1 General

Pursuant to section 32 of the Environmental Protection Act, municipal waste water plans must provide information on the following:

- Existing and planned sewered areas and treatment measures
- Existing areas outside sewered areas where waste water is being discharged into the ground by percolation, and areas outside sewage catchment areas where waste water is planned to be discharged through infiltration plants

- Installations to be established on municipal or private initiative, respectively.

Act No. 325 of 14 May 1997 on treatment in rural areas of waste water etc. to amend the Environmental Protection Act includes a provision for municipal waste water plans to provide information on the following:

- Areas for which the local council is prepared to revoke, in full or in part, the right and duty of landowners to connect waste water systems to the public waste water system
- Existing state of repair of sewers and plans for their rehabilitation
- Existing areas outside sewage catchment areas in which waste water is treated according to a specific level of treatment, and plans for identifying similar areas outside sewage catchment areas, in which waste water is to be treated according to a specific level of treatment
- Indicative timetable for completion of the design and implementation of the construction projects.

The following sections deal with the provisions of the Environmental Protection Act, and to the extent that these provisions are supplemented by any of the rules specified in section 5 of the Waste Water Management Order, such rules are also mentioned and explained.

3.2.2 Existing and planned sewage catchment areas. Ownership

This section gives a more detailed description of the requirements set out in section 32(1)(i) of the Environmental Protection Act and section 5(1)(ii) of the Statutory Order.

The waste water plan must enumerate existing and planned common waste water systems in the municipality, with indication of the sewage catchment areas of each system. In addition, the max. load discharged from specified catchment areas of residential and commercial properties must be stated.

The properties located within the individual catchment area boundaries must be clearly indicated on maps appended to the waste water plan. Owners of properties situated within the boundary of the catchment area of a public waste water system have both a duty and a right to connect their waste water discharge to the system, provided that a service sewer is available at the site boundary.

It is recommended to use both a survey map, scale 1:25,000 or 1:50,000, and more detailed maps (cadastral maps), scale 1:10,000, that show the individual sewage catchment areas and the routing of the main sewer pipes.

It should be specified whether the waste water systems are under private or public ownership. However, this does not apply to ordinary private sewer pipes etc. on private land.

In respect of ownership of sewer pipes, existing as well as planned, it will usually be assumed in a waste water plan that all pipes, except service sewers etc. on private land, are owned by the municipality concerned.

It is therefore important to make a special note of any departures from this assumption.

The local authority's obligations as service provider towards landowners whose properties are connected after the time limit fixed by the local council, cf. section 28(4) of the Environmental Protection Act, are limited as described in the waste water plan. Thus, it may be indicated in the plan that roof run-off from newly-sewered properties is to be discharged into the ground through infiltration plants established by the owner and at his expense. In such cases, the local council's only obligation is to lay a separate service sewer to the site boundary to allow connection of domestic waste water etc. when the property is linked to the public waste water system.

Unless it is specifically mentioned that surface run-off is to be disposed of at the instance of the landowner, it is, basically, the responsibility of the local authorities to provide for the disposal of both waste water and surface run-off (but see section 3.2.3 below).

3.2.3 Areas for which the duty to connect to the public waste water system may be revoked

Under Act No. 325 of 14 May 1997 to amend the Environmental Protection Act, the local authority must now, cf. section 32(1)(ii) of the Environmental Protection Act, identify in the waste water plan the sewage catchment areas for which the local authority is prepared to revoke the right and duty to connect to the public waste water system. This applies to landowners who discharge waste water into the public collecting system and want to disconnect all or part of their waste water system from the public collecting system. Properties may be disconnected in full or in part, as described in more detail in Chap. 6.

The local council cannot compel a landowners to disconnect all or part of his waste water system from the public collecting system, as this is subject to agreement between the landowner and the local council, cf. Chap. 6 below and section 12(1)(ii) of the Statutory Order.

Private installations for the discharge of surface run-off are typically disconnected from the public waste water system when local discharge facilities for storm water, for example, to an infiltration pit, are established. A large number of properties may be involved, and their full or partial disconnection must be well organised. In respect of process waste water from industrial enterprises, however, decision will have to be made on a case-by-case basis; the waste water plan must be updated and a licence for alternative disposal issued before the enterprise concerned is allowed to disconnect from the public waste water system.

The following sections deal with the procedure for disconnecting installations for the disposal of surface run-off and industrial effluents.

Disconnection of surface run-off

To allow local authorities the necessary scope for the technical and financial planning of their waste water management, the municipal waste water plans should identify areas where, from an environmental and financial point of view, the disposal of surface run-off may advan-

tageously be left to the individual site owners, and where the local authority is therefore prepared to revoke the right and duty of landowners to connect their waste water systems to the public waste water system.

In order to make the planning process more flexible, the local council may follow up on the identification of such areas by offering the landowners in the area the possibility to disconnect from the public common waste water system (where possible, with reimbursement of the connection fee). The offer shall be limited in time. Such time-limited offers to disconnect, for example, with regard to surface run-off, will make it easier for the local council to plan future capital investments in establishing and dimensioning stabilisation ponds in the catchment area.

The following procedure has been established for the disconnection of installations discharging surface run-off:

1) Identification of areas in which the local authority is prepared to allow disconnection of installations (typically for roof run-off)
2) Stipulation of a certain time limit (e.g. 1 year) within which the site owners in the area must decide whether they are prepared to disconnect their installations as described in the waste water plan (e.g. by establishing an infiltration pit at their own cost)
3) Adjustment of calculations for the catchment areas concerned to allow for the amount of surface run-off that will be disconnected.

Adjustment of catchment area calculations according to item 3) above does not call for a revision of the waste water plan, but the changes must be incorporated in the next revised version of the plan.

This procedure applies, in particular, to local discharges of surface run-off in areas where site owners at their own cost establish percolation ponds for the disposal of roof run-off and, where appropriate, other types of surface run-off as well. Accepting local percolation in areas with a common waste water system and a need to reduce overflow incidents allows the local council to reduce the necessary stabilisation pond capacity. Furthermore, the infiltration pits will also help reduce the hydraulic load on the treatment plant and increase ground water resources.

Disconnection of industrial effluents

Disconnection of industrial effluents is subject to the following conditions:

- Revision of the waste water plan for the relevant enterprise, including adjustment of load calculations for the treatment plant
- Issuance of the necessary licences for alternative disposal of the process waste water.

In the case of industrial effluents, it is important that the local council obtains the enterprise's definitive acceptance of the disconnection before planning other uses for the resulting surplus capacity of the municipal waste water system.

Landowners who have terminated their connection to the public common waste water system, but want to be reconnected, may apply for reconnection on the same conditions as applicants for new connections. This means that landowners are not automatically entitled to be reconnected.

3.2.4 State of repair and rehabilitation of sewer systems

The waste water plan must describe the current state of repair of sewer systems and any planned rehabilitation, cf. section 32(1)(iii) of the Environmental Protection Act.

As used in this section, the term 'sewer systems' applies in particular to separate and combined sewer networks.

The new provisions have been introduced because the local authorities have failed to keep up-to-date with respect to the general condition of the sewer systems; they aim to provide an overview of the state of repair of the systems and their need for rehabilitation.

Status reports on the condition of the sewer piping should be based on inspection, for example, using TV equipment. If no status report was available for the sewer systems when the waste water plan was drawn up, a timetable for the completion of such a report must be included in the plan.

Objectives and priorities

In continuation of section 32(1)(iii) of the Environmental Protection Act, section 5(1)(v) of the Waste Water Management Order requires the local council to work out a rehabilitation plan for the municipal collecting systems, with objectives and priorities. The objectives should include the quality of the collecting systems, the frequency of overloading during rain events, etc. The order in which the collecting systems are to be rehabilitated should be established from an analysis of where rehabilitation is most urgently needed, taking into consideration such factors as the degree of deterioration of the piping, how critical the lack of maintenance is to the population in the individual areas, the aquatic environment, etc.

In addition to the description given in the text, the condition of the collecting system and the plan for its rehabilitation should be clearly illustrated on maps.

3.2.5 Waste water planning for rural areas

According to the Explanatory Notes to Act No. 325 of 14 May 1997 to amend the Environmental Protection Act (Waste water treatment in rural areas etc.), the local council is responsible for planning, for each sewage catchment area within the municipality, the combination of sewerage, percolation and specified type of local treatment, etc. that is to apply to properties located in rural areas. Such planning should be based on the environmentally sensitive areas identified in the regional plans.

Areas in which no common waste water treatment plants capable of serving 30 p.e. or more exist or are planned must be divided into subareas in the waste water plan or an addendum thereto with indication of

the minimum environmentally acceptable measures for percolation and/or treatment required in each subarea, according to the classes of treatment described in Schedule 1 to the Statutory Order, but see section 11.3 below.

The waste water plan must further indicate whether the improved treatment measures should be realised in the form of single-property facilities or small common plants, and how these measures are to be implemented.

The indication of percolation or/and treatment facilities for subareas/catchment areas within the municipality should be based on the identification in the regional plan of environmentally sensitive areas in which there is a need for improved treatment of waste water from properties in rural areas.

When revising an existing waste water plan, and before making the proposed plan available to the public, the local council must submit the draft to the regional council to ensure that there is no conflict between the objectives defined in the regional plan for the waters concerned and the subareas identified in the proposal. In this connection, the environmentally acceptable minimum of percolation and/or treatment facilities to be established in these subareas should be indicated.

3.2.6 Areas where waste water disposal is effected by percolation

Pursuant to section 32(1)(iv) of the Environmental Protection Act, the municipal waste water plan shall, on an area-by-area basis, identify all the properties located in areas outside municipal catchment areas in which waste water disposal takes place by percolation. The properties concerned should be clearly indicated on the maps appended to the waste water plan. This information will be used to provide an overview of the conditions of disposal in rural areas and to determine the load discharged from non-sewered properties into watercourses, lakes and coastal waters.

The waste water plan must further indicate the individual properties on which infiltration plants are to be established.

In the final analysis, the decision of whether percolation is an appropriate method of waste water disposal for a given site must in each case be based on an assessment pursuant to Part 12 of the Statutory Order. The waste water plan must specify the required degree of treatment (class of treatment) for each site, to prepare for the eventuality that a subsequent examination may show the existing conditions on a particular site to be unsuitable for percolation purposes.

According to section 5(2) of the Statutory Order, the local council must establish that the areas assigned in the waste water plan for disposal of waste water by percolation are suitable for this purpose. In this connection, the local council must render it probable that percolation will not conflict with the prevailing geological and/or hydrogeological conditions, nor with the rules set out in section 28 of the Statutory Order. The Statutory Order does not detail the kind of information to be provided by the local council in such cases, as the need to prove on a balance of

probabilities that percolation is possible will vary widely from area to area.

However, the local council should realise that if the overall identification of percolation areas is not made on a sufficiently detailed basis and with relative certainty that this disposal method can be used in the areas concerned, problems may arise later if the local council requires a site owner to establish facilities for direct percolation under the new provision on enforcement notices in section 30(5) of the Environmental Protection Act. An alternative waste water solution may result in extra costs and may make the solution foreseen in the waste water plan less appropriate, given the changed assumptions.

The best way to ensure that, in all probability, percolation is a feasible solution is by providing documentation similar to that required in connection with an enforcement notice to establish percolation facilities:

The local authorities must carry out an examination to establish the probability that percolation is a viable solution, with special emphasis on the following:

- Hydrogeological conditions
- Suitability of the soil for this purpose
- Clearance distance from the ground water table
- Exclusion zones around water abstraction plants.

The local authorities must further identify a suitable location on the site that meets the requirements set out in section 28, alternatively section 16, of the Statutory Order.

The possibility of making a combined assessment of the water supply system and the disposal system for waste water should be considered already at the planning stage. From an overall point of view, it is sometimes appropriate to connect single properties having their own water abstraction facilities to the common water supply, as this makes it possible to establish infiltration plants on such properties.

3.2.7 Dispersed settlements subject to requirements regarding waste water treatment

Pursuant to section 32(1)(v) of the Environmental Protection Act, the waste water plan for areas located outside sewage catchment areas must identify the following:

- Existing areas where treatment is carried out to a specific level of treatment
- Areas for which treatment to a specific level has been planned.

The term ‘level of treatment’ means treatment according to one of the four classes of treatment defined in Schedule 2 to the Statutory Order and section 11.3 of these Guidelines.

The areas identified should be clearly indicated on maps appended to the waste water plan.

The area identification made in the waste water plan forms part of the basis for issuing enforcement notices for improved waste water treatment pursuant to section 30 of the Environmental Protection Act.

Applications for new discharge licences must, as a minimum, meet the levels of treatment specified for the areas identified in the waste water plan.

If the necessary mapping of the discharge facilities in these areas is carried out in connection with the drafting of the waste water plan, this is sufficient documentation for the purposes of any subsequent enforcement notices, see section 11.3 below. Provided that the information on which the plan is based is adequate, enforcement notices may subsequently be issued without making individual assessments of the load discharged into the receiving water body from each of the properties in the area.

3.2.8 Municipal/private systems

A distinction must be made in the waste water plan between systems established at the instance of the local authority and by private site owners, cf. section 32(1)(vi) of the Environmental Protection Act. Reference should also be made here to section 5(1)(ii) of the Statutory Order, according to which it must be stated for existing as well as planned common waste water systems, whether they are under public or private ownership (see also section 3.2.2, above).

The boundaries of the individual sewage catchment areas must be clearly shown on maps appended to the waste water plan.

3.2.9 Timetable and financial plan

According to section 32(1)(vii) of the Environmental Protection Act, the waste water plan must indicate the timetable according to which the projects are assumed to be designed and implemented. This applies to municipal systems, private systems, rehabilitation of pipes and installations subject to enforcement notices pursuant to section 30 of the Environmental Protection Act and section 7a of the Act on payment rules for waste water installations.

It is recommended that this timetable include a specification of the costs incurred by the public waste water service due to the provisions of the waste water plan. This applies, in particular, to the costs of improving facilities for waste water treatment in rural areas, cf. section 5(1)(vi) of the Statutory Order. See also section 3.3.4 below.

3.3 Supplementary requirements to be met by waste water plans

Section 32(4) of the Environmental Protection Act empowers the Minister to establish specific rules for waste water planning. Such rules are set out in section 5 of the Statutory Order.

Section 5(1) contains a list of eight supplementary requirements, two of which have already been described, viz. section 5(1)(ii) (in section 3.2.2

above), and section 5(1)(v), (in section 3.2.4). The other six paragraphs are discussed below.

3.3.1 Compatibility of the waste water plan with other planning

This section reviews the requirements in section 5(1)(i) of the Statutory Order.

The waste water plan must be consistent with all other planning, local as well as regional.

Compatibility with regional planning

The term 'regional planning' refers to the regional plan in particular. The most important part of the regional plan relative to the waste water plan is the quality objectives set for the regional waters. Thus, disposal of waste water pursuant to the waste water plan must not impede the achievement of the quality objectives established in the regional plan.

The waste water plan should therefore formulate quality objectives for the waters located within the municipality, especially freshwater bodies. To the extent that discharges of waste water encompassed by the waste water plan prevent achievement of these objectives, strategies should be formulated with a view to meeting the objectives. New discharge facilities must not impede the achievement of objectives set for watercourses, lakes and coastal waters.

Compatibility with municipal and local plans

The waste water plan must also be consistent with the municipal plan, which contains a general land-use survey for the municipality. Finally, compatibility must be ensured with the provisions of any local plans, especially such that relate to or affect the disposal of waste water. Local plans typically impose restrictions with regard to the character of the buildings (including facilities for waste water disposal) and the type of paving that may be used within the area, and it is the responsibility of the local council to ensure that the catchment area loads specified in the waste water plan are consistent with those specified in the local plans.

Timing

The establishment of municipal waste water systems should be timed so as to avoid conflict with the physical planning (development etc.).

Physical condition of watercourses

The local council must ensure that the discharge into watercourses of effluents, in particular surface run-off, is arranged in such a manner that no nuisance will be created to adjacent properties further downstream, i.e. with due respect to the hydraulic capacity of the watercourse. This requires compliance with the assumptions in the rules and regulations applying to the watercourse in question. Any maximum limits fixed in these rules and regulations for effluents from the individual subareas must be respected. If this is not possible, the surface water load will have to be delayed/distributed, or any increase in the volume of the effluents to be discharged into the watercourse will have to await the outcome of administrative watercourse regulation proceedings.

If no rules and regulations have been issued for the watercourse, or if no maximum limit for the discharge of effluents has been fixed in the existing regulations, it will have to be determined in each case whether the hydraulic capacity of the watercourse allows a load increase. As a main rule, such cases call for either delay or distribution of the surface

water load, or, alternatively, rules must be established for the watercourse.

The final assessment of the effect of the effluents on the physical condition of the watercourses may take place in connection with the regional or local council's issuing of a discharge licence for surface runoff. The licensing authority shall ensure that discharge takes place with due regard being paid to the physical condition of the watercourse.

3.3.2 Other types of waste water disposal within the municipality

Under section 5(1)(iii) of the Statutory Order, the waste water plan shall indicate how waste water disposal takes place in areas that are located outside sewage catchment areas and not included among the identified areas, cf. section 32(1)(iv) and (v)of the Environmental Protection Act. Such means of disposal may include spraying, separate pipes, private shared waste water systems, road installations, etc.

These methods of waste water disposal must also be shown not to impede the achievement of the objectives set for the receiving water bodies, watercourses, lakes and coastal waters. If there is a need for improved treatment of waste water discharged through separate pipes or by spraying, the necessary substance reductions for such discharges should be specified in the waste water plan.

3.3.3 Planned and existing discharge facilities

According to section 5(1)(iv) of the Statutory Order, the waste water plan must indicate the water bodies to which the waste water from the individual sewage catchment areas (cf. section 32(1)(i) of the Environmental Protection Act) is or is required to be discharged, together with the location of outfalls and the expected volume to be discharged. The location of outfalls should be indicated on maps appended to the waste water plan.

In order to provide a basis for an overall assessment in connection with defining the objectives and corresponding quality standards to be set out in the regional plan, the municipal waste water plan should also include information concerning discharges outside public sewage catchment areas, existing as well as planned.

3.3.4 Economy

According to section 5(1)(vi), the waste water plan must further indicate the estimated cost of establishing and operating the public waste water systems and installations established by the local council under section 7a of the Act on payment rules for waste water installations etc., cf. Statutory Order No. 923 of 5 December 1997.

The plan should indicate the time of payment of such expenses, and their distribution on sewer networks, treatment facilities, etc. It is especially important to itemise the costs incurred by the public waste water service in connection with improvement of waste water treatment in rural areas, installation of new sewers and tenders/contracts under section 7a of the Act on payment rules for waste water installations etc.

3.3.5 Compulsory acquisition of land and registration of a covenant

According to section 5(1)(vii) of the Statutory Order, the plan must identify the landowners that may have to give up land by compulsory sale or upon whose property a covenant will have to be registered if projects are implemented as stipulated in the waste water plan.

3.3.6 Establishment of a private shared waste water system

As an alternative to a municipal collecting system, the disposal of waste water may be effected by establishing a private shared waste water system. Such installations must be included in the waste water plan for the relevant catchment area(s), cf. section 5(1)(ii) of the Statutory Order.

This provision addresses the situation where a group of home and site owners agree to take steps to establish and operate a private shared waste water system, and submits a proposal to this effect to the local council. The reasons given in support of such proposal may be that a common system is a cheaper and environmentally sounder solution than establishing a separate installation on each site.

On the other hand, the provision does not empower the local council to make it mandatory on all landowners in a given area to join a private shared waste water system.

Prior to or in connection with the drafting of the waste water plan, the home and site owners affected must establish a waste water association, cf. section 5(3) of the Statutory Order, which will be responsible for establishing and operating the system.

A draft of the association's by-laws must be made available in connection with the publishing of the draft plan. The finalised by-laws will be registered on the properties affected when the common waste water system has been included in the waste water plan.

Alternatively, the private shared waste water system may be connected to the public waste water system upon the request of the participating site and home owners. In this case, the area will be classified as a private shared waste water system located within the boundary of the public waste water system's catchment area.

Before connecting the private installation to the public waste water system, the waste water association must obtain a connection licence from the local council, cf. section 28(3) of the Environmental Protection Act.

3.3.7 Revision of the waste water plan

Pursuant to section 5(4) of the Statutory Order, the local council must update the plan for disposal of waste water within the municipality. In this connection, catchment area boundaries and timetables should also be updated.

The Statutory Order and the Environmental Protection Act do not contain any provisions regarding the intervals at which the plan should be

subjected to a general revision. However, the plan must be currently revised in order to ensure that it remains consistent with the regional plan.

With regard to waste water discharges from dispersed settlements, the plan must be revised, cf. section 8 of the Statutory Order, no later than 18 months after the adoption of a regional plan that introduces changes relating to the disposal of waste water from dispersed settlements (see also Chap. 11).

4. Consideration and adoption of the proposed waste water plan

4.1 Background

The procedure for drawing up and adopting waste water plans was made significantly less formal with the amendment of the Environmental Protection Act (Act No. 358 of 6 June, 1991), which entered into force on 1 January, 1992.

Originally, waste water plans were subject to final approval by the regional council, but under the Environmental Protection Act as amended in 1991, the regional councils are no longer responsible for ensuring compatibility between municipal waste water planning and overall water quality planning.

Today, the local council has the authority to draw up and adopt waste water plans, as well as the duty to ensure that the plans are consistent with the water quality objectives set in the regional plan (see also section 3.3.1 above).

4.2 Public hearing

The local council's proposed waste water plan must be published in local papers, accompanied by an invitation for the public to submit objections and comments to the plan within a time limit of at least eight weeks from the publishing date.

The local council decides whether it is necessary to hold public meetings to discuss the proposed waste water plan.

If public meetings are held, the local council must allow reasonable time after the meeting(s) for the public to submit objections/suggested amendments to the proposed waste water plan.

4.3 The regional council's role in waste water planning

Simultaneously with the publication of the proposed waste water plan, it is sent to the regional council for comment, cf. section 6(2) of the Statutory Order.

Before the local council announces the adoption of a waste water plan pursuant to section 7 of the Statutory Order, it must obtain the regional council's comments regarding any conflicts between the quality objectives set in the regional plan for the region's receiving waters and the future minimum measures stipulated in the proposed waste water plan for percolation and/or waste water treatment to be established in the subareas identified in the regional plan, cf. section 32(1)(iv) and (v) of the Environmental Protection Act.

The regional council and the local council do not necessarily have to agree on every detail of the waste water plan, but they are expected to discuss the content of the plan before its publication and subsequent adoption, in order to reach agreement on such matters as the measures to be taken to ensure that the plan complies with the guidelines laid down in the regional plan for the use and quality of the waters concerned.

4.4 The local council's adoption of the proposed plan

As mentioned under 4.1 above, the power to decide the final content of the plan on the basis of comments received is vested in the local council.

When the proposed plan has been finally adopted by the local council, it is published in the local papers and at the same time sent to the regional council, cf. section 7 of the Statutory Order.

4.5 Legal effects of the waste water plan

After adoption, the waste water plan is the legally binding basis for the local authority's administration of the waste water sector and establishes the framework for waste water management in the municipality.

The local council is responsible for establishing or modifying the municipal systems included in the waste water plan in accordance with the timetable provided in the plan. Similarly, the local council is expected to issue the licences and enforcement notices, etc. necessary to ensure, to the extent that it is within the powers vested in it by legislation, that other installations included in the plan are established in accordance with the timetable fixed in the waste water plan.

Thus, the waste water plan as such does not place the citizens of a municipality under an obligation to implement specific measures. The waste water plan merely serves as an "advance notice" that the local authority will shortly be taking steps to change the existing arrangement for waste water disposal in a number of catchment areas.

In the event that a local authority wants to postpone the implementation of measures adopted under the waste water plan, or change the plan in any other respects, including changing the boundaries of sewage catchment areas or the conditions relating to the discharge of waste water within a specific catchment area, the local council will have to revise the existing waste water plan.

4.6 Right of appeal

Under section 32(3) of the Environmental Protection Act, there is no appeal to other administrative authorities against a local council's adoption of a waste water plan.

According to the general rules on judicial review, a municipal waste water plan can be brought before a court within the special time limit applying to the filing of actions in environmental matters, cf. section 101 of the Environmental Protection Act.

5. Connection of waste water to waste water systems

5.1 The general provisions of the Environmental Protection Act

Section 28(3 and 4) of the Environmental Protection Act establishes requirements for the connection of waste water to private and public waste water systems.

The overall purpose of regulating connections to waste water systems are:

- to ensure appropriate disposal into waste water treatment plants of all waste water discharged from properties
- to ensure that the inflow of waste water takes place with due consideration being paid to:
  - the drainage system
  - the waste water treatment plant, including compliance with the requirements stipulated in the discharge licence
  - the quality of the sludge produced in the waste water treatment plant
  - the water quality in the receiving water body
  - health risks, especially the health and safety of staff working with waste water systems.

Section 29 of the Environmental Protection Act empowers the Minister to lay down rules for the local councils' processing of cases under section 28 of the Environmental Protection Act. Such rules are established in Part 5, sections 9-11 of the Statutory Order.

5.2 Right and duty to connect to public waste water systems

Properties must connect to public waste water systems if the required service sewer is available at the property boundary, cf. section 28(4) of the Environmental Protection Act. The local council can demand connection of a property and decide the time for implementing the actual connection. The properties affected must be located within the boundaries of the sewage catchment area approved in the waste water plan and have both the right and the duty to discharge waste water into the system.

The eight-year period of legal protection granted to enterprises subject to approval, cf. section 41 of the Environmental Protection Act, does not apply to the duty of connection described pursuant to section 28(4) of the said Act. Thus, in the case of both listed and unlisted enterprises,

it is the local council that decides, through its waste water planning and subsequent follow-up activities, which properties must establish a connection and from which date. When making such decisions, the local council is not bound by the legal protection granted to enterprises subject to approval under section 41 of the Environmental Protection Act.

If a service sewer is available at the property boundary, the landowner must establish a connection to the public waste water system at his own account. Sanitary waste water, industrial process waste water, etc. must be discharged in closed conduits, cf. section 9 of the Statutory Order, while surface run-off may be conveyed in open conduits, provided that the method used is technically and environmentally sound. The local council fixes the time limit for implementing the actual connection, cf. section 28(4) of the Environmental Protection Act.

The local council's decisions under section 28(4) of the Environmental Protection Act cannot be brought before another administrative authority.

For termination of connections, see Chap. 6 below.

5.3 Authority to issue connection licences

5.3.1 Connection to public waste water systems

Pursuant to section 28(3) of the Environmental Protection Act, the local council licenses the connection of waste water discharges to public waste water systems. The local council is furthermore empowered to license the connection of waste water to the outfall of waste water systems subject to compliance with discharge licences issued by the regional council under section 28(1) of the Environmental Protection Act.

5.3.2 Connection to private waste water systems

Pursuant to section 10(1) of the Statutory Order, the local council licenses the connection of waste water discharges to private waste water systems, provided that the waste water is subsequently discharged into a public waste water system. The inflowing load must not exceed the capacity of the receiving private waste water system, including the capacity of the waste water pipes and/or any treatment facilities incorporated in the system.

Connection is subject to the prior written consent of the party in charge of the receiving private waste water system, cf. section 10(2) of the Statutory Order.

This provision typically applies to the discharge of waste water from harbours and airports where several enterprises carry on business from leased premises within a common site boundary and discharge waste water to the public waste water system via a private installation.

Figure 5.1 shows two examples of connection, one to a private, the other to a public waste water system.

5.4 Licensing procedure

The local council may request the submission of any information deemed necessary to the processing of an application for a connection licence.

Any connection of waste water to a municipal or private waste water system is subject to licensing under section 28 of the Environmental Protection Act. Applications for licensing must provide adequate information in respect of the volume of waste water to be discharged and the content of pollutants.

The Danish Environmental Protection Agency (Danish EPA) has established general guidelines for the connection of industrial effluents to municipal waste water systems (see Danish EPA's Environmental Guidelines No. 6, 1994: Guidelines for licensing the connection of industrial effluents to municipal waste water collecting systems).

The local council should keep the regional council informed about any significant changes in the content of the waste water discharged into the waste water treatment plants with regard to heavy metals and environmentally incompatible substances, as it may be necessary to review the discharge licence granted to the treatment plant in respect of such substances. In cases where water quality standards have been established for the receiving water bodies, it may be necessary to stipulate emission standards for the discharge of certain substances.

5.4.1 Connection of ordinary domestic waste water from households to the public waste water system

Section 28(4) requires landowners to connect the discharge of waste water from their property to the public waste water system if a service sewer is available at the property boundary. Normally, a specific licence is not required for connection of ordinary domestic waste water. Since waste water from public institutions, especially hospitals, is not classified as ordinary domestic waste water, special conditions must be stipulated in connection licences issued to such institutions.

Establishment of waste water pipes on private land

Pursuant to the Danish Building Regulations and the Building Regulations for detached or semi-detached houses, waste water drainage facilities must be established in compliance with DS 439, Code of Practice for drainage installations. According to DS 439, the laying of underground waste water pipes and wells must not cause any weakening of building foundations. All waste water pipes must be routed such that any risk of contaminating drinking water supplies is prevented.

The rules for the routing of pipes near building foundations are set out in DS 415, Dansk Ingeniørforening's (Danish Society of Engineers') Code of Practice for foundation engineering.

The rules for the routing of waste water pipes close to water supply lines are set out in Dansk Ingeniørforening's Code of Practice for domestic water-supply installations and in the legislation governing water supply.

Rules governing the minimum underground clearance distance between gas and waste water pipes are set out in Part 3 of the Danish Gas Regulations.

[**Figurtekster**

Fig. 5.1:

udløbsledning	outfall
kontrol, kommunal tilladelse	monitoring, local council licence
kontrol, amts tilladelse	monitoring, regional council licence
offentligt spildevandsanlæg	public waste water system
privat spildevandsanlæg	private waste water system
offentligt renseanlæg	public waste water treatment plant

Fig. 5.2:

som 5.1

virksomhed enterprise]

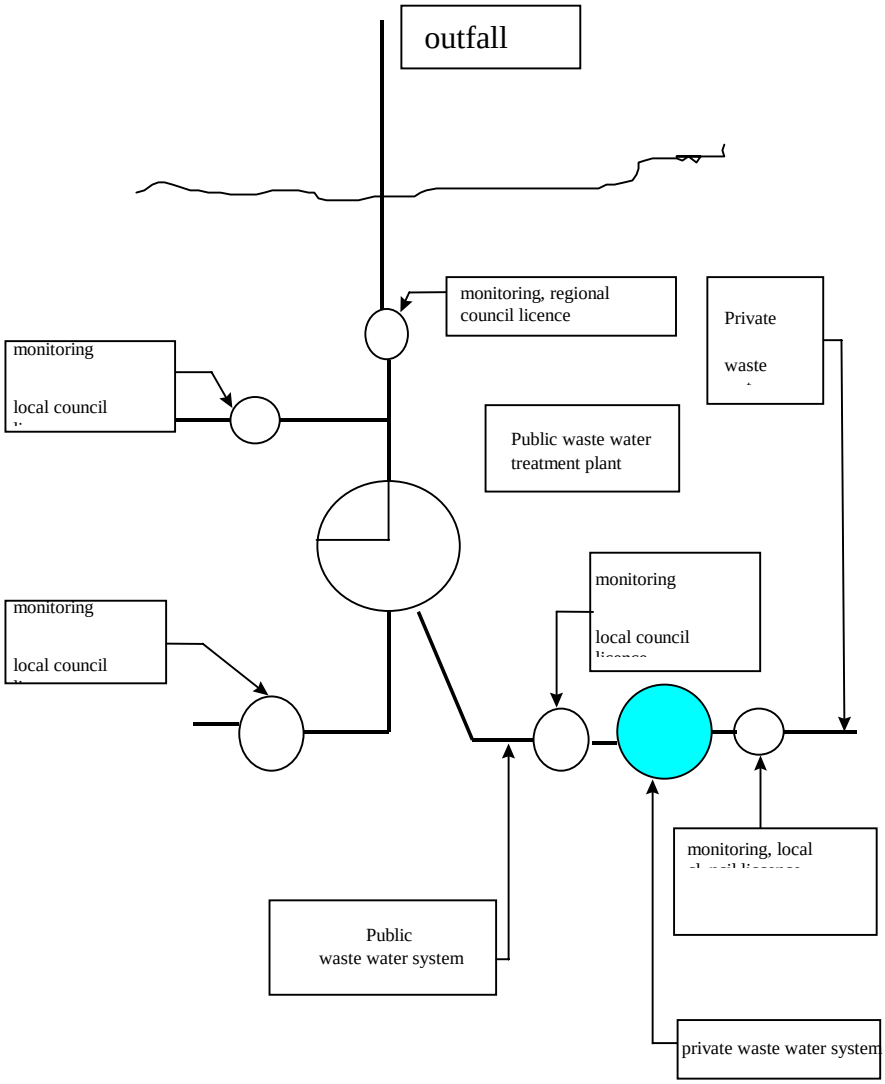

Figure 5.1
Schematic diagram of connections and discharges.

Figure 5.1, left, illustrates connections of waste water to the public waste water system established upstream as well as downstream of a municipal waste water treatment plant. Such connections are to be licensed by the local authorities. The total effluent is monitored at the point of entry into the outfall of the plant.

Figure 5.1, right, illustrates connection to a private waste water system in cases where the system is subsequently connected to the public waste water system. Such connections are to be licensed by the local council.

Figure 5.2 illustrates the special situation where an enterprise is connected to the public outfall downstream of the municipal treatment plant. In exceptional cases, such enterprises may obtain a separate discharge licence from the regional council.

This applies to certain enterprises that are in other respects encompassed by Part 9 of the Statutory Order (The Aquatic Environment Plan).

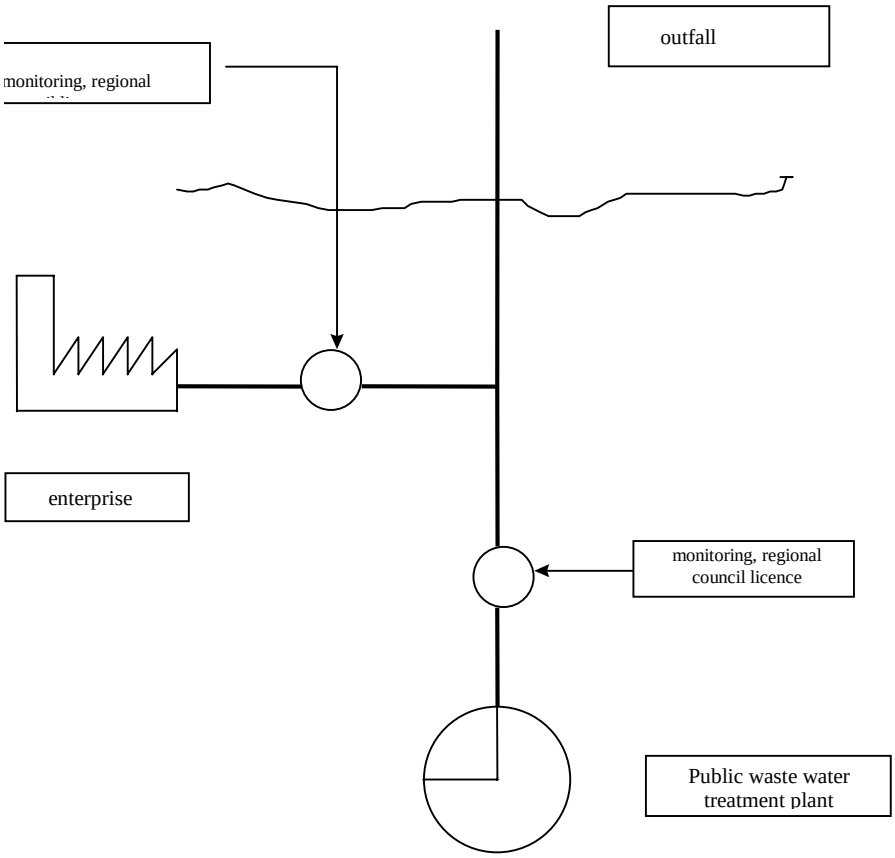

Figure 5.2
Schematic diagram of the direct discharge of waste water from enterprises via a public outfall.

It is important to define monitoring points for connections/discharges in order to obtain unambiguous monitoring results. In the case of enforcement action against a violation of a discharge licence, it is also important to be able to identify the connection/discharge that causes the violation.

5.4.2 Environmental impact assessment of waste water connections

As needed, industrial waste water being discharged into the public collecting system may be subjected to pre-treatment in order to:

- Protect the health of the staff working at the collecting system and the treatment plants
- Protect the collecting system, treatment plants and the associated materials from damage
- Facilitate the operation of the treatment plants and the processing of sludge
- Prevent that discharges from the treatment plants affect the aquatic environment to an unacceptable degree and impede the achievement of the objectives set for the receiving water bodies
- Ensure the safe and environmentally acceptable disposal of sludge from treatment plants.

5.4.3 Information to be provided in applications for connection

Applications for connection of waste water must contain information concerning the waste water load, including:

- Maximum (typically hourly) load
- 24-hour load of the effluent discharged
- Composition of effluent, stating content of nutrients, organic substances, environmentally incompatible substances and heavy metals.

Domestic waste water

Where the application submitted concerns connection of domestic waste water, or waste water comparable to domestic waste water, it is generally sufficient to provide information about the estimated effluent volume and/or load expressed in population equivalents.

Other waste water

Applications concerning the connection of waste water other than domestic waste water must also contain any documentation available on matters pertaining to the waste water production that may be needed by the authorities in their processing of the application. Where relevant, the issuing of a connection licence should therefore be coordinated with the approval of the enterprise pursuant to Part 5 of the Environmental Protection Act to allow an overall assessment of the enterprise's environmental condition.

In addition, the enterprise may be required to describe the organisation and operation of its activities, with information on raw materials, microorganisms and auxiliary materials used (type and consumption) and a description of the process. According to section 3 of the Environmental Protection Act, the enterprise must further document that the activity concerned is based on the principle of the best available techniques. This should imply cleaner technology, possibly incorporating treatment facilities. Information must also be provided in the application on the enterprise's use of pollution control measures, cf. section 3 of the Environmental Protection Act.

Finally, the enterprise should suggest internal control measures for the waste water connection to which the application relates.

Change of ownership

A discharge licence is issued for a given production activity at a given location. This means that if an enterprise is transferred to a new owner, but the activity continues unchanged in all other respects, the terms and conditions stipulated in the current discharge licence will continue to apply.

Production changes

However, if an enterprise changes the way its production activity is organised, the current discharge licence no longer applies to the activity and the new type of waste water produced. In this situation, the enterprise must apply for a revised discharge licence for the new production activity.

With regard to more detailed guidelines for the processing of applications for connection to public waste water systems, including the stipulation of conditions for the discharge of pollutants into such installations, reference is made to Danish EPA's Environmental Guidelines No. 6, 1994, Guidelines for licensing the connection of industrial effluents to municipal waste water treatment plants.

5.4.4 Capacity of waste water system and catchment area

The connection of waste water from an enterprise must respect the capacity defined in the waste water plan for the relevant catchment area.

The discharge licence and the waste water plan must indicate the maximum processing capacity fixed for the treatment plant to which the waste water is to be discharged, i.e. the maximum load that may be discharged to the treatment plant from a catchment area defined in the waste water plan.

If the entire capacity of the waste water system is already fully utilised, or if the waste water system to be connected to the treatment plant is located outside the boundary of the plant's catchment area, the local council's licensing of the connection of waste water to the plant is subject to the issuing of a revised discharge licence for the treatment plant and revision of the waste water plan.

5.4.5 Stipulation of conditions in the connection licence

The local council fixes terms and conditions for the connection of waste water on the basis of the application submitted by the enterprise.

A distinction must be made between technical requirements and requirements concerning the composition and volume of the effluent.

Technical requirements

Requirements concerning simple treatment measures, e.g. installation of grease separators on drains from commercial kitchens (e.g. restaurants, institutions, hospitals), food-processing industries, etc., are stipulated if greasy waste water is discharged from sinks, dishwashers and other installations.

Oil and petrol separators are to be used when connecting waste water that may contain oil and grease, e.g. discharges from oil tank installations/petrol stations, garages, parking houses, car wash plants and paved areas used for washing operations etc. that generate oily waste

water. Reference is made to SBI Direction 185 Drainage installations ("Afløbsinstallationer") issued in 1997 by the Danish Building Research Institute.

For further information, reference is made to Danish EPA's Environmental Guidelines No. 6, 1994, Guidelines for licensing the connection of industrial effluents to municipal waste water collecting systems.

Requirements regarding effluent volume and composition

On the basis of the documentation submitted with the application, the local council will stipulate the final conditions regarding the permissible volume and substance load of the effluent. At the same time, the local council should also stipulate conditions concerning the enterprise's internal control measures for the connection.

Sample-taking and analytical methods

The discharge licence must also include conditions for sample-taking and analytical methods. In this connection, reference is made to Statutory Order No. 637 of 30 June 1997 on quality standards for environmental measurements by accredited laboratories, and Environmental Guidelines No. 6, 1994: Guidelines for licensing the connection of industrial effluents to municipal waste water collecting systems.

Operational requirements

Operational requirements may be stipulated in discharge licences, for example, with respect to emptying frequency for drainage installations and replacement frequency for filters, etc.

5.4.6 Act on the environmental impact of gene technology ("Lov om miljø og genteknologi")

Special conditions apply to the licensing of connections for waste water from production lines using genetically modified organisms. The release of genetically modified organisms is governed by Act No. 356 of 6 June 1991 on the environmental impact of gene technology.

Regulatory competence

Under this Act, the authority to stipulate conditions for the discharge into municipal waste water treatment plants of industrial effluent containing genetically modified organisms lies with the regional council.

However, for the time being, cases concerning production activities that involve gene technology are referred to the Ministry of Environment and Energy for decision by the central government. The conditions regarding the level of genetically modified organisms that may be released with a particular effluent are therefore defined by the National Forest and Nature Agency. However, the local council concerned must be heard in the matter, since it is responsible for the municipal waste water treatment plant and for the treated effluents from the plant.

Notwithstanding the above, the authority to issue connection licences under the Environmental Protection Act lies with the local council, also in cases involving production based on genetically modified organisms.

5.5 Changing a waste water connection

Section 30 of the Environmental Protection Act empowers the local council to issue enforcement notices for the improvement or rehabilitation of conditions of operation that are deemed insufficient or inappropriate, or for changes to be made to connected waste water systems.

Pursuant to section 75 of the said Act, enforcement notices under section 30 of the Act must always be notified in advance. The party to whom the notice is addressed should be invited to submit information within a given time limit on the cost, advantages and disadvantages associated with the local council's decision. In connection with such advance notification, the local council should obtain the same information, for example, regarding the waste water produced by the relevant enterprise, as that needed in the processing of an application for a connection licence. This information may be obtained by asking the enterprise to submit the data needed for an assessment of the enterprise's waste water conditions, or, if necessary, by ordering the enterprise to make information available under the provisions of section 72 of the Environmental Protection Act.

5.5.1 Changing the conditions stipulated in a connection licence

If the local council finds the terms and conditions that govern a given connection to be inadequate, it may vary the conditions stipulated in the connection licence by issuing an enforcement notice. This is typically the case where a current connection licence has become outdated after an upgrading of the treatment plant in accordance with the Aquatic Environment Plan, the introduction of new measures for final disposal of sludge etc., developments in the field of cleaner technology or new knowledge about dangerous substances. The knowledge available today on the effect of industrial effluents on a waste water system and its biological processes as well as on the aquatic environment makes it necessary to stipulate conditions with regard to the content of, for example, environmentally incompatible substances, including measures for inflow monitoring.

Connection licences may not be varied for the purpose of creating extra capacity in undersized waste water treatment plants. In such cases, the enterprise is entitled to discharge waste water within the capacity assigned to the relevant catchment area in the waste water plan.

In order to meet the quality standards for receiving water bodies fixed in Statutory Order No. 929 of 8 October 1996 on quality standards for water bodies and emission standards for certain dangerous substances discharged into watercourses, lakes or the sea, it may be necessary to revise some of the conditions stipulated in connection licences. See also Chap. 16, below.

5.5.2 Changing the layout and organisation of waste water systems

Separate waste water pipes etc.

When a municipal combined waste water system is changed into a separate system, for example, in connection with a rehabilitation project, the local council may, pursuant to section 30 of the Environmental Protection Act, order the necessary alterations of the connected instal-

lations or vary the conditions applying to the connection. The local council may further order landowners to carry out the civil engineering works associated with relocating the service sewer through which the property is connected to the municipal collecting system if this will improve the conditions for waste water disposal in the area.

5.6 The Danish Building Act for Enterprises ("Byggeloven for virksomheder")

Despite the above limitations in the powers of local councils to license waste water connections as opposed to their authority to issue enforcement notices to vary the conditions stipulated in connection licences, experience shows that there is a need to clarify administrative practices in relation to new building projects and the connection of waste water from such buildings.

This problem relates especially to existing enterprises to which the local authority issued a planning permission several years ago without realising that the enterprise had failed to submit an application for a waste water connection licence.

Under the Building Regulations ("BR") of 1 April 1995 and the Building Regulations for detached or semi-detached houses of 25 June 1998, cf. section16(3) of the Danish Building Act, the local council must ensure compliance with any other legislation relevant to a building project before issuing a planning permission. (See also the National Building and Housing Agency's Guidelines No. 130 of 31 July 1997 on local council review of legislation in connection with granting planning permissions).

According to the note on section 16(3) of the Building Act in Karnov's Statutes (Karnovs Lovsamling) 1998, page 2770 "...it is deemed adequate for the purpose of law enforcement that the duty of the local authority to refuse an application for planning permission shall apply only in cases where a decision made under other legislation may prevent implementation of the building project at the site to which the application relates, or require substantial alteration of the project. Thus, factors that need not be clarified before the commencement of the building works, e.g. requirements concerning the layout and fitting up of the building, are not encompassed by the provisions laid down in the BR."

However, normal legal practice in this area shows that, even where the applicant is basically responsible for complying with applicable legislation and for obtaining, for example, a connection licence before establishing the actual connection for the discharge of waste water, the local council sometimes finds it difficult to enforce this requirement in its supervisory capacity.

It is therefore recommended that, when processing an application for planning permission, the municipal authorities should draw the applicant's attention to the fact that any discharge of waste water from a new

building is subject to a discharge licence issued by the local authority under the Environmental Protection Act.

Old unlicensed connections

In situations where an enterprise has therefore been discharging waste water to the municipal waste water treatment plant for several years without having obtained a discharge licence pursuant to the Environmental Protection Act, but merely on the basis of a planning permission, the local authority will know that such inflow takes place. If the local authority finds that there is a factual basis for stipulating special conditions for connection in such cases, it can do so by administrative measures, cf. section 30 of the Environmental Protection Act.

The best way of ensuring that all conditions affecting the connection of waste water from the enterprise are up-to-date is for the enterprise itself to apply for a new discharge licence.

New unlicensed connections

However, in the case of enterprises that have been connected only for a short period to the municipal waste water treatment plant, with or without planning permission, and without having obtained a connection licence under the Environmental Protection Act, it is the duty of the local authority as supervisory authority under section 65 of the Environmental Protection Act to take appropriate steps to legalise the connection as soon as it becomes aware of the violation, cf. section 68 and section 69 of the said Act. For the procedure to be used in such cases, see Danish EPA's Environmental Guidelines No. 12 1992: Enforcement of the Environmental Protection Act.

5.7 Supervision and enforcement

Under sections 53-54 of the Statutory Order, the local council is responsible for supervising the following:

- Waste water systems connected to a public waste water system and the associated outfalls, except industrial connections (for which the regional council is the supervisory authority), cf. section 20(2) of the Statutory Order
- Waste water systems connected to private waste water systems discharging waste water into public waste water systems.

If the local council detects a violation of a connection licence, it must take appropriate enforcement action against the unlawful conduct pursuant to Part 9 of the Environmental Protection Act.

The local council issues licences to discharge waste water into the public collecting system to enterprises subject to approval under Part 5 of the Environmental Protection Act, in cases where the regional council is the approval authority, cf. section 28(3) of the said Act.

The regional council is responsible for the general supervision of the enterprise, while the local council supervises the waste water installations, including installations located at the enterprise's own premises. Thus, if surface water has been incorrectly connected to the waste water

system, the local council is empowered to order the enterprise to rectify all faulty connections.

5.8 Summary of the allocation of authority etc.

The table below shows the allocation of the licensing and supervisory powers in matters pertaining to waste water connections. It is also indicated whether it is possible to appeal against decisions made by the relevant authorities.

Table 5.1.
Survey of the licensing and supervisory authorities in cases involving connection of waste water

Owner/ Producer	Capacity	Licensing	Statutory authority	Supervision	Statutory authority	Right of appeal	Statutory authority
Private	≤30p.e.	LC	EPA s. 28(3)	LC	EPA s. 65	No	SO s. 11, EPA s. 28(5)
Private	>30p.e.	LC	EPA s. 28(3)	LC	EPA s. 65	Yes	EPA s. 91
LC	≤30p.e.	LC	EPA s. 28(3)	LC	SO s. 53	No	SO s. 11, EPA s. 28(5)
LC	>30p.e.	LC	EPA s. 28(3)	LC	SO s. 53	Yes	EPA s. 91
Enterprises subject to approval under Part 5 of the Environmental Protection Act:							
Private +LC	≤30p.e.	LC	EPA s. 28(3)	LC	EPA s. 65	No	SO s. 11, EPA s. 28(5)
Private + LC	> 30p.e.	LC	EPA s. 28(3)	LC	EPA s. 65	Yes	EPA s. 91
Private*)	≥22 t N or ≥7.5 t P	RC	EPA s. 28(3)	RC	SO s. 53(2)	Yes	EPA s. 91

LC: Local council
RC: Regional council
EPA: The Environmental Protection Act
SO: The Waste Water Management Order
Municipal systems are supervised by the local authority, although they are municipal corporations. This means that section 66(4) of the Environmental Protection Act is revoked under section 53(1) of the Statutory Order, cf. section 67 of the Environmental Protection Act.
**): Enterprises connected to the outfall of the public waste water treatment plant*

5.9 Right of appeal

Local council decisions under section 28(3) of the Environmental Protection Act may be brought before the Environmental Protection Agency, cf. section 91 of the said Act. However, according to section 11 of the Statutory Order, there is no right of appeal against the following decisions made by local councils:

1) Decisions concerning the connection of domestic waste water from household installations representing a load of 30 p.e. or less, including surface run-off.
2) Decisions concerning the connection of process waste water from installations at industrial enterprises representing a load of 30 p.e. or less, including surface run-off, if the pollutants present in the waste water can be expressed in p.e. and it does not contain substances other than those usually found in domestic waste water.

3) Decisions concerning the connection of other types of surface run-off, except from areas used for parking more than 20 cars and from roads.

It is implied in item 2) above that the composition of such waste water must not vary significantly from that of ordinary domestic waste water.

One p.e. means 21.9 kg organic matter expressed as BOD_5 per year, 4.4 kg nitrogen per year and 1 kg phosphorus per year. All three parameters must be included in an assessment of the composition of the waste water, which means that no one parameter may exceed the level corresponding to 30 p.e.

The waste water resulting from a summer or campaign production may not be distributed evenly over the entire year. If waste water from such activities is discharged for one month only, this should be stated in the appeal, and the load admitted to the installation during this particular month should be specified.

Similarly, waste water of increased temperature, e.g. cooling water, is not comparable to domestic waste water, and appeals may therefore be lodged against decisions concerning such waste water.

Decisions made by the Environmental Protection Agency concerning connection licences issued to commercial and industrial enterprises may be brought before the Environmental Appeal Board, provided that the matter is of major or general public importance, cf. section 103(1)(ii) of the Environmental Protection Act. The Environmental Appeal Board decides whether the cases referred to the Board come within its scope of authority, cf. section 103(2) of the Environmental Protection Act.

6. Revocation of the duty to connect to public waste water systems

6.1 Background

Before the Environmental Appeal Board decision of 12 August 1994, section 28(4) of the Environmental Protection Act was for administrative purposes interpreted to the effect that a property that was connected to a public collecting system was subject to an ultimate right and duty to connect to the system.

In its decision of 12 August 1994, the Environmental Appeal Board found, however, that according to the *prima facie* meaning of section 28(4) of the Environmental Protection Act, landowners have not only a duty, but also a right to connect to a public waste water system.

However, the provision does not establish which properties are to be subject to the right and duty to connect. This is determined by the local council when it identifies sewage catchment areas in connection with municipal waste water planning.

Against this background, the Environmental Appeal Board found that the final decision as to whether the owner of a property already connected to a public waste water system may be granted exemption from the duty to connect, and whether this will require formal amendment of the waste water plan also lies with the local council as part of its administration of the waste water plan.

The issue of exemption from the duty to connect was included in the terms of reference of the Waste Water Committee ("Spildevandsudvalget") that was established to follow up on the Waste Water Report 1995 issued by the Environmental Protection Agency.

The Waste Water Committee found it appropriate to maintain the Environmental Appeal Board's construction of section 28(4) of the Environmental Protection Act. However, the Committee recommended that rules should be fixed for withdrawal from the common public waste water service partnership - including the necessary measures to be taken before a decision to revoke the duty to connect is made. The Committee also recommended that rules be set out for the financial consequences of such withdrawal.

With Act No. 325 of 14 May 1997 to amend the Environmental Protection Act and in accordance with the Waste Water Committee's recommendation, a provision was inserted in section 29 of the said Act to empower the Minster of Environment and Energy to lay down detailed rules for full or partial revocation of the right and duty to connect to public waste water systems. In addition, an amendment of the Act on payment rules for waste water installations etc. was adopted to clarify

the financial consequences of withdrawing from a common public waste water service partnership.

Rules governing withdrawal from the common public waste water service partnership

Section 12 of the Statutory Order lays down rules for withdrawing from the common public waste water service partnership. Withdrawal takes place according to the procedure recommended by the Waste Water Committee for full or partial termination of membership of the common public waste water service partnership.

Thus, permission for full or partial withdrawal from the common public waste water service partnership may be granted, provided that due regard is paid to the following main considerations: the aquatic environment, the technical requirements and economy of the waste water service. In addition, withdrawal from the common public waste water service partnership is subject to compliance with the requirements reviewed in section 6.3 below.

6.2 Connections that may be terminated

Reasons justifying termination

Neither the Environmental Protection Act nor the Statutory Order contains restrictions with respect to the types of property that may terminate their membership of the common public waste water service partnership.

Thus, both enterprises and private households may withdraw subject to the conditions stipulated. Similarly, it is possible to withdraw in full or in part – i.e. with regard to certain types of waste water only.

The Environmental Protection Agency's position on this issue is that permission for termination should only be granted in cases where withdrawal is associated with environmental and socio-economic advantages.

For certain enterprises discharging waste water with a high content of pollutants it may be beneficial to both the enterprise and the waste water service if the level of pollutants can be reduced before the waste water leaves the enterprise. In this way, the process of substance reduction will, where possible, be integrated into the enterprise's handling of residual products and into its overall environmental management system. In such situations, it may be an environmentally and socio-economically sound solution to let the enterprise withdraw from the waste water service partnership with regard to process waste water, provided it can obtain a discharge licence.

For private households, withdrawal will typically be relevant with regard to surface run-off.

6.3 Conditions for withdrawal

6.3.1 Conditions related to municipal waste water planning

Compliance with the municipal waste water plan

In order to facilitate municipal authorities' technical and financial planning in the field of waste water management, section 32(1)(ii) of the

Environmental Protection Act requires local authorities to identify in future municipal plans any areas where it will be advantageous from an environmental and financial point of view to let the landowners themselves be responsible for handling waste water disposal - and where the local council is consequently prepared to revoke the landowners' right and duty to connect to the public waste water system, in full or in part.

In other words, disconnection from the public waste water system is only possible if it is in accordance with municipal waste water planning.

The requirement set out in section 12(1)(i) of the Statutory Order for compliance with municipal waste water planning should also be viewed against the background that possible exemption from the duty to connect may result in a reorganisation of the public waste water management system from a centrally managed service to a hybrid solution, which would involve establishing individual discharge facilities and/or infiltration plants for some industries and private households. Municipal authorities must allow for this in their waste water planning, in order to prevent withdrawal from the public waste water service partnership leading to environmentally less acceptable solutions, cf. the remarks below on the requirement for licensing of alternative discharge methods and compliance with the requirements stipulated in the Aquatic Environment Plan.

6.3.2 Agreement between the local authority and the landowner

The local authority and the landowner must agree on withdrawal

A property within a sewage catchment area to whose site boundary the local authority has laid a service sewer and ordered the owner to establish connection to the public collecting system is, basically, subject to both a right and a duty to discharge the waste water to which the connection licence applies.

In view of the heavy costs that may be imposed on withdrawing landowners in order to safeguard the economy and adequate functioning of the waste water service, it has been considered appropriate to stipulate that withdrawal from the waste water service partnership is subject to the mutual consent of the local authority and the landowner.

6.4 Effect on the economy of the waste water service

Withdrawal must not significantly impact the economy of the waste water service

The public waste water service is a joint, 100% user-financed scheme. A withdrawal from the partnership may have financial consequences, not only to the withdrawing user, but to the other users as well.

From a socio-economic point of view, it is desirable to keep the cost of waste water treatment as low as possible.

As it is always dependent upon the withdrawing user's share in the overall costs, the waste water service may both benefit and suffer financially when connected properties are granted permission to withdraw from the partnership.

However, it is important that the operation of the waste water service continues to be financially viable, including that its economy does not deteriorate to a degree where either the costs to be shared among the remaining users will be prohibitive, or where withdrawal takes place to the detriment of the necessary rehabilitation and replacement of the pipes and waste water treatment plants operated by the service.

6.5 Effect on the technical performance of the waste water service

The waste water service must be able to operate in a technically appropriate manner

Modern waste water treatment plants are generally designed and equipped with the necessary biological and technical features for treating inflowing waste water from the connected industries etc. Permitting certain industries to terminate their connection therefore involves a risk that the waste water treatment plant may subsequently find it difficult to comply with current emission standards.

Before any agreement is made for the withdrawal of, say, an enterprise, the positive and negative effects of the withdrawal on the overall waste water management process will have to be weighed up, in order to ensure that the total volume of waste water will not be treated less effectively than if withdrawal were to be refused, cf. section 12(2)(iii) of the Statutory Order, and that the current emission standards can still be met, cf. section 12(2)(ii) of the Statutory Order.

6.6 Licensing of alternative disposal

Withdrawal is subject to a licence for alternative disposal

Under section 12(2) of the Statutory Order, landowners wanting to withdraw from the common public waste water service partnership must first obtain a licence for alternative disposal.

Thus, enterprises wanting to terminate their membership of the common public waste water service partnership must typically obtain a licence from the regional council for direct discharge into the aquatic environment in accordance with the objectives set for the area concerned, whereas withdrawing home owners must obtain a licence for alternative disposal of waste water or surface run-off.

6.6.1 Effect on the objectives of the regional plan

The regional plan's objectives for ground water resources as well as for watercourses, lakes and the sea must be respected

Before granting a licence for alternative waste water disposal, the local authority must ensure that such licensing does not conflict with the objectives set out in the regional plan for water bodies and ground water resources under regional administration, and that the licensing of alternative disposal will not prevent achievement of the objectives set in the regional plan for a particular water body, cf. section 12(2)(i), of the Statutory Order.

6.7 Effect on the requirements established in the Aquatic Environment Plan

The requirements established in the Aquatic Environment Plan must not be disregarded or circumvented

In deciding whether to grant a licence for alternative disposal, the local council must ensure compliance with the requirements in the Aquatic Environment Plan regarding emission limit values for certain substances discharged from public waste water treatment plants, cf. Part 8 of the Statutory Order.

According to section 12(2)(ii) of the Statutory Order, the emission standards for waste water treatment plants defined in Part 8 are to be met, notwithstanding any reduction in the approved capacity. This means that regardless of whether the capacity of the waste water treatment plant falls below one of the limits defined in section 18, the emission standards that applied before permission to withdraw was granted still apply. Furthermore, enterprise owners whose facility is connected to a waste water treatment plant operating under the emission standards set out in Part 9, but who want to withdraw from the common public waste water service partnership will be subject to the same emission standards after disconnection as those applying to the waste water treatment plant, cf. section 12(2)(ii) and (iii) of the Statutory Order.

It must furthermore be ensured that the combined discharge of pollutants from the enterprise(s) to be disconnected and from the waste water treatment plant will not exceed the total load discharged from the waste water treatment plant before the enterprise(s) are disconnected.

6.8 Right of appeal

Under the general rules set out in the Environmental Protection Act, local council decisions on permission to withdraw from the common public waste water service partnership pursuant to section 12 of the Statutory Order can be brought before the Environmental Protection Agency, cf. section 91 of the Environmental Protection Act.

Similarly, appeals can be lodged in accordance with the applicable rules against the licences for alternative waste water disposal obtained in connection with withdrawal from the partnership.

The Environmental Protection Agency’s decisions of appeals brought against local council decisions may be referred to the Environmental Appeal Board, cf. section 103 of the Environmental Protection Act, subject to certain conditions.

7. Discharge of waste water into watercourses, lakes or the sea

7.1 General provisions of the Environmental Protection Act

Section 27 and section 28 of the Environmental Protection Act

Section 27(1) of the Environmental Protection Act is a general ban on introducing pollutants into the aquatic environment. However, waste water may be discharged into watercourses, lakes or the sea subject to licensing. The allocation of competence between regional and local authorities is defined in section 28(1) and (2) of the Environmental Protection Act and further specified in Part 7 of the Statutory Order.

When issuing licences for the discharge of waste water, it is important to ensure that the discharge does not impede the achievement of the objectives set for the receiving water body. The water quality objectives are set out in the regional plans worked out by the regional authorities.

In addition to a discharge licence, establishing an outfall for the discharge of waste water into the sea also requires permission to install a pipeline in the seabed. This permission is granted by the Danish Coastal Authority ("Kystinspektoratet"), in accordance with the sovereignty exercised by the government over the marine territory and pursuant to Statutory Order No. 352 of 6 May 1994 from the Ministry of Transport on the powers vested in the Danish Coastal Authority.

7.2 Application procedure

Submission of application

The application for a licence to discharge waste water must be submitted to the local council, cf. section 13(1) of the Statutory Order. In cases where the regional council is the competent authority, cf. section 28 of the Environmental Protection Act, the local council must transfer the application to the regional council in accordance with section 13(2) of the Statutory Order.

Duties of the local council

In connection with transferring an application to the regional council, the local council should comment on the application's compliance with municipal, local and waste water plans, etc. In this connection, the local council should pay attention to whether the application concerns a licence for discharging waste water to waters located in an area set out for sewering or an area for which percolation of waste water is planned. The property to which the application relates may be located within the catchment area of a public waste water system, in which case the local council should ensure that the area in question is identified in the waste water plan as one in which the local authority is prepared to revoke the duty to connect waste water to the public waste water system, cf. section 32(1)(ii) of the Environmental Protection Act.

Necessary information

The competent authority decides the kind of information that must be made available in connection with the application, cf. section 13(3) of

the Statutory Order. Generally, the information required includes data on the total quantities of water and substances discharged and on substance concentrations, as well as information concerning the treatment measures to be implemented in order to respect the objectives set for the water body concerned.

Privated shared waste water systems

In respect of private shared waste water systems, the local council must take particular care to ensure that the project does not conflict with the requirements for sound and appropriate urban development, cf. section 13(4)(i) of the Statutory Order, and that the project can be implemented in compliance with the waste water plan and the guidelines concerning water quality and ground water protection established in the regional plan, cf. section 13(4)(ii) of the Statutory Order.

Competence disputes

If there is any doubt as to which of the two authorities is the competent authority in any given case, the regional council decides which is the competent authority.

Discharge of heavy metals and other environmentally incompatible substances

Applications for permission to discharge waste water containing heavy metals and other environmentally incompatible substances must be considered on the basis of Statutory Order No. 921 of 8 October 1996 on quality standards for water bodies and emission standards for certain dangerous substances discharged into watercourses, lakes and the sea, see Chap. 16 below.

7.3 Competence of the local council

7.3.1 Domestic waste water

Pursuant to section 14(1)(i) of the Statutory Order, the local council has competence to issue waste water discharge licences for installations capable of serving 30 person equivalents or less, including surface run-off. Such licences typically apply to the discharge of domestic waste water from single properties outside sewered areas, but may also govern the discharge from several properties of a total load corresponding to max. 30 p.e. via a private shared waste water system.

The local council is also the licensing authority for discharges from public waste water systems having a capacity corresponding to max. 30 p.e.

In addition, the local council is generally empowered to license the discharge of sanitary waste water from commercial enterprises representing a load corresponding to max. 30 p.e., since this type of waste water is also covered by the definition of domestic waste water.

However, the following is an exception from this principal rule:
The regional council is the licensing authority in cases involving the discharge of sanitary waste water corresponding to max. 30 p.e from enterprises subject to approval by the regional council.
The regional council is also the licensing authority for listed enterprises operated by the local authority and discharging sanitary waste water corresponding to 30 p.e. or less, since the regional council is always the approval authority for listed enterprises run by local authorities.

7.3.2 Process waste water representing max. 30 p.e.

The local council is also the issuing authority in the case of installations having a capacity of max. 30 p.e., including surface run-off, established at commercial or industrial enterprises that discharge waste water whose content of pollutants can be expressed in p.e. in accordance with the definition given in section 2.1.4 above, cf. section 14(1)(ii) of the Statutory Order.

However, the exception described in section 7.3.1 above also applies in such cases.

7.3.3 Surface run-off

According to section 14(1)(iii) of the Statutory Order, the local council is empowered to issue licences for separate discharge of surface run-off, including from parking grounds accommodating max. 20 cars. Run-off from parking grounds for more than 20 cars, roads and railways is outside the local council's competence and thus within that of the regional council. For a definition of surface run-off, see section 2.1.3 above.

7.3.4 Copy to the regional council

A copy of the decisions made by the local council should be sent to the regional council for information and to assist the regional council in its supervision of the waters located in the region and its planning of objectives for their use and quality.

7.4 Competence of the regional council

Under section 15 of the Statutory Order, the regional council has the authority to issue waste water discharge licences in cases where this authority is not vested in the local council, i.e. in all cases not expressly mentioned in section 14 of the Statutory Order.

7.4.1 Major public waste water systems

The competence to issue discharge licences for public waste water systems having a capacity of more than 30 p.e. lies with the regional council. When a local council wants to obtain a licence to establish a new installation for waste water disposal or increase the volume discharged from an existing waste water system, it must submit an application to the regional council, cf. section 15 of the Statutory Order and section 28(1) of the Environmental Protection Act. The application must be based on the waste water plan adopted by the local authority.

7.4.2 Enterprises

Licences for the discharge of waste water from enterprises not subject to approval under Part 5 of the Environmental Protection Act are also issued by the regional council under section 15 of the Statutory Order, provided that the capacity of the waste water system concerned exceeds 30 p.e.

Licences for the discharge of waste water from enterprises subject to approval are issued in accordance with the provisions of Part 5 of the

Environmental Protection Act and are described separately in section 7.5 below.

7.4.3 Surface run-off from roads and railways

The competence to issue licences for the discharge of surface run-off from roads and railway areas is always vested in the regional council. With respect to parking grounds, the regional council is the licensing authority in cases involving run-off from paved areas for the parking of more than 20 cars.

7.4.4 Overflow from combined sewer systems

Licences for the discharge from areas with a combined sewer system of diluted waste water (a mixture of surface water and waste water) resulting from rain events are issued by the regional council. Overflows may be discharged either directly via a weir installed in a discharge pipe, or via basins connected to the discharge pipe.

Overfalls installed at waste water treatment plants, for example to receive overflows of partially treated waste water, are either subject to special conditions stipulated in the plant's general discharge licence or to a separate discharge licence issued specifically for the overflow facility. Overflows may, for example, be installed after the physical treatment stage of a physico-biological treatment facility.

Generally, collecting and storing the first four to six millimetres of the inflow in detention basins will be sufficient to ensure that sediments present in the collecting system is discharged into the treatment plant. The capacity of the individual basins must be calculated from an assessment of the rate of overflow and the sensitivity of the receiving water body.

7.5 Discharge from enterprises subject to approval

As a principal rule, the authority to issue licences for the discharge of waste water from enterprises included on the list of enterprises subject to approval, cf. section 34(3) of the Environmental Protection Act, lies with the regional council.

In the case of listed, a-labelled enterprises discharging waste water directly into watercourses, lakes or the sea from waste water systems with a capacity in excess of 30 p.e., the full authority to issue approvals and carry out supervision is transferred to the regional council, cf. section 3(2) of Statutory Order No. 794 of 9 December 1991 on the approval of listed activities as amended ("the Approval Order"). The authority is also transferred to the regional authority if the waste water discharged by listed, but non-a-labelled enterprises is not comparable to domestic waste water.

Part 5 of the Environmental Protection Act

In the case of enterprises subject to approval by the regional authority, discharge licences are issued by the regional council under Part 5 of the Environmental Protection Act, cf. section 34(3) of the said Act, whereby the discharge licence becomes part of the overall approval granted to the enterprise. Consequently, this type of approval is subject to an eight-year period of legal protection, cf. section 41(4) of the Envi-

ronmental Protection Act. However, this does not apply to requirements stipulated as a result of new or revised quality standards for substance loads encompassed by Statutory Order No. 921 of 8 October 1996. However, licences for the discharge of waste water equal to or less than 30 p.e. from enterprises that are subject to approval and are operated by the regional council are issued by the local council.

The local council is the approving authority for enterprises subject to approval that discharge more than 30 p.e. of waste water and are operated by the regional council. Nevertheless, the regional council retains the licensing authority, see the Guidelines to the Approval Order.

7.6 Conditions stipulated in discharge licences

7.6.1 Emission standards

Quality objectives for the receiving water body

When issuing a licence for waste water discharge, the competent authority must define the emission standards to be met by the licensee, in order to ensure that the discharge does not impede the achievement of the quality objectives established by the regional council for the water body concerned, cf. section 13(4)(ii) of the Statutory Order.

The purpose of fixing emission standards is to ensure that the waste water discharged meets the biological or chemical water quality standards that apply below a certain dilution zone to be defined by the approval authority.

The effects of a continuous discharge of waste water into, say, a watercourse will typically have to be assessed on the basis of the average minimum flow in the watercourse, calculated at full mixing level and taking into account the existing background concentration of the substances to be discharged. When assessing discharges that take place only in connection with rain events, allowance should be made for the fact that in such circumstances the flow will exceed the average minimum value.

With regard to stipulating emission standards for discharges from single properties in rural areas, see section 11.5 below.

Maps

Each discharge licence issued should be accompanied by a map drawn up in a suitable scale, for example 1:1,500), that shows the siting of the enterprise on the property, and, if appropriate, a survey map showing the location of the property, for example, in scale 1:4,000.

Permissible volumes etc.

The discharge licence must specify the permissible volume of the discharge and the permissible concentration and/or quantities of pollutants, and any variations likely to occur on an hourly, diurnal or weekly basis. In this connection, the issuing authority must ensure that the watercourse has sufficient capacity to receive the discharge, cf. section 3(3) of Statutory Order no. 424 of 7 September 1983 on watercourse regulation etc., including rehabilitation of watercourses; see also section 3.3.1 above. Thus, a discharge may not cause more frequent or heavier flooding than that likely to be caused by run-off from the natural catchment area of the watercourse.

Monitoring

In addition, conditions for monitoring should be stipulated in the discharge licence, including internal control measures, in accordance with the guidelines described in section 7.6.2 below. The format in which monitoring data are to be made available to the supervisory authority and others should also be indicated in the licence.

Time limit

The conditions stipulated in the discharge licence should include a time limit within which the licence must be used. When licences are changed and new or revised conditions stipulated, a transition period is often defined to allow some time before the new conditions become effective. This also applies where existing conditions are changed in connection with an enforcement notice.

Fixed-term licences

In special circumstances, a discharge licence may be issued for a limited period, after which it must be reconsidered, cf. section 50(2) of the Statutory Order. Fixed-term licences may be issued, for example, where the quality objectives for the water body in question have not been finally decided, or where an existing licence has to be reconsidered for some other reason.

Special training may be required for operations managers working at private shared installations > 1,000 p.e.

When issuing discharge licences for private shared waste water systems having an approved capacity of more than 1,000 p.e., the regional county may stipulate that the operations manager must have completed the special training pursuant to the provisions of Statutory Order No. 533 of 20 June 1992 concerning training for operational staff employed at waste water treatment plants.

In any case, this training is mandatory on all operations managers employed at municipal waste water treatment plants.

7.6.2 Sample-taking and analytical methods

The discharge licence must stipulate terms and conditions for sample collection and analytical methods. For details, see Statutory Order No. 637 of 30 June 1997 concerning quality control of environmental measurements by accredited laboratories, certified individuals, etc.

7.6.3 Effluent monitoring

Monitoring method

Pursuant to Part 19(2) of the Statutory Order, discharges from treatment plants that are subject to national emission standards (see Part 8 of the Statutory Order) must be monitored in accordance with the Danish Standard (DS) in force at any given time.

It is also recommended to monitor discharges from other treatment plants in accordance with the current Danish Standard, although this may not be required under the Statutory Order. Small plants generally take too few samples to be able to use the Danish Standard, according to which at least six samples must be collected. In such cases, monitoring may be carried out, for example, by calculating a simple average, supplemented, if necessary, with an absolute max. emission standard equal to, say, twice the statutory value.

For industrial enterprises with separate outfalls, it is also recommended to base discharge monitoring on the applicable Danish Standard.

For industrial enterprises whose waste water discharge is subject to large variations of flow, monitoring may alternatively be carried out according to the method described in Danish EPA's Environmental Guidelines No. 1/1981 on the monitoring of separately discharged industrial effluents.

Flow-proportional sampling

Where possible, samples should be taken by flow-proportional methods. However, since this method is not always suitable under conditions of low, and perhaps widely varying, rates of flow, time-based sampling may be used in such circumstances. In exceptional cases, the inspection may be based on grab sampling.

Number of samples

The number of samples to be collected is generally determined according to the volume of the discharge and its impact on the receiving water body. The sensitivity of the type of plant concerned is also taken into account. The national standards for the minimum acceptable number of samples are stated in Chap. 8.3 below.

Method of analysis

The samples are analysed according to the methods described in Statutory Order No. 637 of 30 June 1997. If this Statutory Order does not include the relevant parameters, international standards should be used instead. In the absence of standards for the substances in question, analysis must be based on the best available rules and regulations.

Today, there is no approved method for analysing discharges whose anticipated BOD_5 load is too low to be determined using EN 1899-1:95. An ongoing study is trying to establish whether EN 1899-2:1995, which may be applied to receiving waters, may also be used for determining BOD_5 in waste water samples with a biological oxygen demand between 0.5 mg/l and 6 mg/l.

7.7 Infiltration plants established in the proximity of watercourses, lakes and the sea

Less than 25 meters

The rules for waste water discharge described in this chapter also govern the establishment of infiltration plants with a clearance distance of less than 25 metres from watercourses, lakes or the sea, cf. section 16(1) of the Statutory Order. This is because the purifying effect of systems located close to a water body is assumed to be lower than that of other infiltration plants.

Thus, nothing prevents the establishment of infiltration plant close to, for example, a watercourse, but from an administrative point of view, an application to this effect is equated with an application for a discharge licence, not with an application for the discharge of waste water into the ground under Part 12 of the Statutory Order.

Nevertheless, the degree of treatment that can be achieved in an infiltration plant sited close to a watercourse will generally be significantly higher than by direct discharge via a settling tank.

Water abstraction

In addition to general concern for the quality objectives set for the receiving water body, the processing of such applications must also include examination/assessment of the prevailing hydrogeological conditions to ensure that the percolation of waste water will not expose water abstraction plants to any pollution risk, cf. section 16(2)(i) of the Statutory Order.

Thus, where possible, a minimum acceptable clearance distance between the infiltration plant and abstraction plants for drinking water should be stipulated. In the case of abstraction plants not required to produce water of drinking water quality, the minimum clearance distance should preferably be 150 metres.

Ground water resources

Similarly, in considering an application for a licence to discharge waste water by percolation close to a watercourse, it is important to ensure that the discharge will not cause pollution of ground water resources that may be used for water abstraction.

7.8 Determination of capacity

Conditions to be stipulated in the licence

When issuing a discharge licence for a waste water system, the licensing authority, cf. section 17(1) of the Statutory Order, must define the capacity of the system in p.e., cf. the definition given in Chap. 2.1.7 above. Once the capacity of a system has been determined by the licensing authority, it is referred to as the 'approved capacity' of the system.

For certain types of process waste water it is not possible to determine a capacity expressed in p.e., since such waste water is not comparable to domestic waste water. Nor is it is possible to determine the capacity of certain types of waste water systems, for example, installations handling separate and combined stormwater run-off.

The capacity of a given waste water system is determined on the basis of the current municipal waste water plan, which shows both existing and planned catchment areas. However, the capacity fixed in the discharge licence is an administrative, not a measurable quantity, and may thus differ from the actual physical capacity of the system.

Revision of licences

Whenever new catchment areas are connected to a waste water system as the result of a revision of the municipal waste water plan, the discharge licence for the waste water system concerned must also be revised. This includes adjusting the capacity of the system.

Disagreement about capacity

In cases where the local council and the regional council disagree with regard to the capacity to be determined for a given waste water system, the final decision is made by the regional council, cf. section 17(2) of the Statutory Order. The decision made by the regional council is final and conclusive, cf. section 17(3).

7.9 Supervision and enforcement

The regional council is the supervisory authority for public waste water systems discharging directly into watercourses, lakes and the sea, cf. section 55 of the Statutory Order. The regional council is also responsible for ensuring that operations managers of waste water systems are qualified under the provisions of Statutory Order No. 533 of 20 June 1992 concerning training for operations managers.

Generally, the local council is the supervisory authority for private waste water systems, cf. section 55 of the Statutory Order. However, the regional council is the supervisory authority for enterprises subject to approval by the regional council, cf. section 55(2)(i) of the Statutory Order.

Notwithstanding the above, the local council is the supervisory authority for enterprises operated by the regional council, cf. section 55(4) of the Statutory Order.

The local council is the supervisory authority for enterprises that are subject to approval by the local council and discharge a waste water load of max. 30 p.e.

The local council is the supervisory authority for enterprises that are subject to approval by the local council and are operated by the regional council. This applies regardless of the volume of the discharge.

In cases where the licensing and the supervisory powers are vested in different bodies, the supervisory authority must refer any cases involving a violation of a licence to the licensing authority, which will then decide on the enforcement action to be taken.

7.10 Allocation of competence

The table below shows the allocation of competence to issue discharge licences and supervise their enforcement. The table further indicates whether appeals may be lodged against the decisions made by these authorities. As a principal rule, the local council is competent to issue licences for the discharge of waste water from systems having a capacity of up to 30 population equivalents, whereas the regional council is the licensing authority for waste water systems with a capacity in excess of 30 p.e. Exceptions from this principal rule are indicated in the table. Correspondingly, the principal rule is that the local council supervises private waste water discharges. Any departures from this principal rule are indicated in the table.

Table 7.1.
Allocation of licensing and supervisory competence.

Producer	Waste water discharge (p.e.)	Approval authority under Part 5 of the Act	Licensing authority	Supervisory authority	Right of appeal
Enterprise not subject to approval					

P/RC	≤ 30	-	LC	LC	No
LC	≤ 30	-	LC	RC	No
P/RC	> 30	-	RC	LC	Yes
LC	> 30	-	RC	RC	Yes
Enterprise subject to approval					
P	≤ 30	LC RC	LC RC*	LC RC*	Yes yes
RC	≤ 30	LC	LC	LC	Yes
LC	≤ 30	RC	RC*	RC	Yes
P	> 30	RC	RC	RC*	Yes
RC	> 30	LC	RC	LC	Yes
LC	> 30	RC	RC	RC	Yes

LC: Local council
RC: Regional council
P: Private
**: Being the approval authority, the regional council is also the licensing authority.*

7.11 Variation of discharge licences

Enforcement notice under section 30 of the said Act

The competent authority, i.e. the body empowered to license waste water discharges, may issue enforcement notices ordering an operator to introduce measures for improved treatment quality pursuant to section 30 of the Environmental Protection Act. It is a condition for issuing an enforcement notice that the performance of the existing system is not environmentally sound, including that the effluent from the system is one of the factors that prevent fulfilment of the objectives set for the receiving water body.

This means that, in order for the authority to issue an enforcement notice under section 30 of the Environmental Protection Act, the water body that receives the effluent from the system must be polluted to such a degree that the quality objectives set for the particular water body cannot be met. However, an enforcement notice may, in certain circumstances, be issued also where the water quality objectives are met. An example of such circumstances could be unsanitary conditions. In such cases, the enforcement notice is to be issued on grounds other than non-fulfilment of the quality objectives for the receiving water body.

Variation of conditions under section 30 of the said Act

Enforcement notices under section 30 of the Environmental Protection Act may also be issued to vary the conditions laid down in a licence granted under section 28 of the Environmental Protection Act, in cases where the previously stipulated conditions are deemed outdated, insufficient or inappropriate.

Variation of conditions under section 72(2) of the said Act

Pursuant to section 72(2) of the Environmental Protection Act, the supervisory authority may revise the conditions of a licence in order to improve both the enterprise's internal control measures and the external supervision process. The aim of this provision is to make the supervision of polluting enterprises more effective. Thus, the supervisory authority is responsible for ensuring, on a current basis and in step with technological progress, that the individual licences contain the necessary requirements with regard to sampling, analyses and measurements,

and that the data produced in the course of the enterprises' internal control process are available to the supervisory authority at any time and in the most appropriate format.

Section 72(2) also applies in cases where no conditions for internal control are stipulated in the licence under review. It is sufficient that technological progress has made it necessary to specify conditions for internal control in licences that do not already contain such requirements. However, section 72(2) does not authorise the stipulation of more stringent requirements in respect of emission limit values for chemical substances.

Prohibition notice

Prohibition notices may only be issued against a licence granted under section 28 of the Environmental Protection Act in cases where pollution cannot be remedied, cf. section 30(2) of the Environmental Protection Act, or where pollution causes an imminent health risk, cf. section 20(3) of the said Act.

7.12 Right of appeal

Local council decisions

Decisions made by the local council under section 14(1) of the Statutory Order cannot be brought before another administrative authority, cf. section 14(2) of the Order.

It should be noted that appeals may be lodged against licences authorising the discharge of waste water from systems capable of serving up to 30 population equivalents from listed enterprises for which the local authority is the approval authority, as such licences are issued pursuant to Part 5 of the Environmental Protection Act, cf. section 34(3) of the said Act.

Regional council decisions

Decisions made by the regional council may be brought before the Environmental Protection Agency in accordance with the general provisions of section 91 of the said Act.

Danish Danish-EPA decisions

In certain circumstances, decisions made by the Environmental Protection Agency may be brought before the Environmental Appeal Board under Part 12 of the said Act.

This applies to decisions in matters of major or general public importance relating to discharges from municipal waste water systems or waste water systems owned by commercial or industrial enterprises, cf. section 103(1)(ii) of the Environmental Protection Act. The Environmental Appeal Board decides whether it has jurisdiction in any given case, cf. section 103(2)(i) of the said Act.

Decisions made by the Environmental Protection Agency relating to discharges from private shared waste water systems capable of serving more than 30 p.e. cannot be brought before the Environmental Appeal Board, cf. section 103(2)(i).

Decisions made by the Environmental Protection Agency in cases involving an enforcement notice pursuant to section 72(2) of the Envi-

ronmental Protection Act may be brought before the Environmental Appeal Board, provided that the decisions are integrated in a licence encompassed by section 103(1)(ii) of the said Act.

Decisions made by the Environmental Protection Agency in the form of an enforcement notice on internal control measures pursuant to section 72(2) of the Environmental Protection Act cannot be brought before the Environmental Appeal Board, since the Board does not have jurisdiction in matters governed by section 72 of the said Act.

8. Emission limit values for certain substances discharged from public waste water systems

8.1 Background

Part 8 of the Statutory Order establishes the national emission standards that apply to municipal water treatment plants. The national standards follow up on the Aquatic Environment Plan 1987 and implement the EU Directive on urban waste water treatment from 1991.

The Aquatic Environment Plan

To implement the Aquatic Environment Plan adopted by the Danish Folketing in 1987, emission limit values were fixed for the load of aerobic organic substances, total nitrogen and total phosphorus that may be discharged with effluent from public waste water systems.

The limit values were first implemented for waste water systems representing more than 5,000 p.e., which had to complete the modifications necessary to improve their treatment quality by the end of 1992. However, a few systems were granted exemption from this time limit. Today, all waste water systems covered by the Aquatic Environment Plan have been modified to comply with the emission standards established in the Plan.

The Urban Waste Water Treatment Directive

The EU Directive on urban waste water treatment was implemented in Danish legislation by the previous statutory order on waste water management (Statutory Order no. 310 of 25 April 1994). In addition to the fixed emission standards established in the Aquatic Environment Plan, the Urban Waste Water Treatment Directive introduces the parameter 'chemical oxygen demand (COD)', in terms of which it defines a fixed emission standard for the load of aerobic organic substances discharged.

This implies that it is not possible to stipulate higher limit values for aerobic organic substances measured as BOD_5 (modified) and for COD, total nitrogen and total phosphorus in discharge licences, whereas lower limit values may be stipulated, always provided that this is in compliance with the quality objectives set in the regional plan for the receiving water body.

These rules also apply to the revision of existing discharge licences, provided that it is estimated that the total load of the system whose licence is to be revised has increased to a level exceeding the capacity limits fixed in section 18 of the Statutory Order.

8.1.1 Determining the capacity of a municipal waste water system

How to determine capacity

Whether the rules regarding fixed emission standards are directly applicable to a given system depends on its capacity. The capacity is determined in terms of the volume of waste water that may be discharged from the catchment area of the waste water system concerned under a

licence issued by the regional council. Pursuant to section 17 of the Statutory Order, the regional council must define the capacity of the system in the discharge licence.

In determining the capacity of a given public waste water system, allowance should be made for the load represented by properties connected to the discharge pipe of the system and located within its catchment area, cf. section 28(3) of the Environmental Protection Act.

To the extent that no capacity (expressed in p.e.) is specified for the catchment area identified in the current waste water plans, the capacity must be determined in accordance with section 17 of the Statutory Order on the basis of the definition of one p.e. given in section 4(5) of the Statutory Order, cf. Chap. 2 on definitions.

8.2 Waste water treatment plants subject to national emission standards

Types of plant subject to emission standards

In implementation of the EEC Urban Waste Water Treatment Directive, section 18(1) of the Statutory Order establishes a requirement for a reduction of the load of organic substances measured as BOD_5 (modified) and COD in the effluent from waste water treatment plants having a minimum capacity of 2000 p.e. and discharging into fresh waters, watercourses and lakes.

In continuation of the Aquatic Environment Plan, section 18(2) of the Statutory Order establishes requirements for a reduction of the total phosphorus load emitted by plants having an approved capacity of at least 5,000 p.e. In addition, plants in this category are required to reduce their effluent loads of BOD_5 (mod.) and COD as from 1 January 1999 in accordance with the EEC Urban Waste Water Treatment Directive.

Further in continuation of the Aquatic Environment Plan, section 18(3) of the Statutory Order provides that plants having a capacity of 15,000 p.e. or more are subject to certain requirements regarding a reduction of BOD_5 (mod.), total nitrogen and total phosphorus. As from 1 January, 1999, this type of plant is also subject to requirements in respect of reduced COD levels in accordance with the Urban Waste Water Treatment Directive.

Table 8.1 summarises the types of municipal treatment plant that are subject to the national emission standards.

Table 8.1.
National emission standards for municipal waste water treatment plants.

Capacity	BOD_5 (mod.)	COD	Total-N	Total-P	Notes
< 2,000 p.e.	-	-	-	-	
2,000-4,999 p.e.	2006	2006	-	-	Discharge to fresh waters
2,000-4,999 p.e.	-	-	-	-	Discharge to marine waters
5,000-14,999 p.e.	+	+	-	+	Existing plants
5,000-14,999 p.e.	+	+	+	+	New plants
≥15,000 p.e.	+	+	+	+	Existing plants

≥15,000 p.e.	+	+	+	+	New plants

- : Not subject to emission standards
+ : Subject to emission standards
2006: Year from which emission standards are to apply
Limit values : BOD_5(mod.) < 15 mg/l, COD < 75 mg/l, Total-N < 8 mg/l and Total-P < 1.5 mg/l
'New plants' refers to plants licensed after 1988.

Emission standards are fixed according to capacity

The approved capacity is the criterion that determines the emission standards to be met by a municipal waste water treatment plant. The capacity of a given plant is to be understood as the approved capacity defined in the discharge licence, cf. section 4(8) of the Statutory Order.

In connection with the licensing of discharges from waste water treatment plants having a capacity of at least 5,000 p.e. in cases involving either the establishment of a new treatment plant or an increase of the approved capacity of an existing plant, compliance with the limit values applying to BOD_5 (mod.), COD, total nitrogen and total phosphorus must be ensured, cf. section 18(4) of the Statutory Order.

This provision does not apply to variations of discharge licences effected to update emission standards, or to minor adjustments of emission standards that do not entail major modification of the plant concerned. Similarly, variation of a discharge licence merely to stipulate a new monitoring method according to the current Danish Standard is not subject to the provisions of section 18(4).

8.3 National emission standards

Section 19(1) of the Statutory Order lists the limit values for substances discharged from treatment plants subject to national emission standards. These limit values are shown in table 8.2 below.

Effluent monitoring should be based on flow-weighted 24-hour samples. The samples are to be analysed according to current Danish standards and codes of practice:

Table 8.2
National emission standards.

Parameter	Limit value	Method of analysis
COD	75 mg/l	DS 217
BOD_5(modified)	15 mg/l	EN 1899-1:95
Total nitrogen	8 mg/l	DS 221
Total phosphorus	1.5 mg/l	DS 292

The procedures for collecting and analysing effluent samples must conform with the rules laid down in Statutory Order No. 637 of 30 July 1997 on quality standards for environmental measurements by accredited laboratories, certified individuals, etc.

8.3.1 Monitoring procedure for treated effluent

Under the provisions on municipal treatment plants laid down in the previous version of the Statutory Order, effluent monitoring was subject to Danish EPA's Environmental Guidelines No. 42 of 11 January 1988

on national standards for discharges from municipal treatment plants into watercourses, lakes or the sea. These guidelines stipulate the use of the modified, more stringent procedure for control of the daily average discharge of waste water laid down in Dansk Ingeniørforening's Code of Practice for water pollution control, 1st edition, May 1971.

This has now been changed, cf. section 19(2) of the Statutory Order, to the Danish standard for effluent monitoring and statistical computation of effluent data from time to time in force. The current standard is DS 2399: Effluence control – Control computation of effluence data. This standard entered into force in April 1999, with effect from 1 January 2000, cf. section 19(2) of the Statutory Order.

Monitoring should be based on measurement of daily discharge volumes. For this purpose, at least 12 samples should be collected at regular intervals throughout the inspection period (one year), cf. section 19(3) of the Statutory Order.

According to section 19(4) of the Statutory Order, monitoring of treatment plants having an approved capacity of at least 50,000 p.e. must be based on a 12-month inspection period and a minimum of 24 24-hour samples taken at regular intervals throughout the year.

For the purpose of monitoring ordinary waste water, it is recommended not to increase the number of samples significantly beyond one weekly sample without considering inspection based on random sampling.

To verify whether the standard stipulated in the licence applying to the waste water treatment plant is met, the recorded, flow-weighted mean load should be less than or equal to the maximum concentration specified in the licence.

8.3.2 Minimum number of effluent samples

Minimum number of samples for effluent monitoring

Section 19(3 and 4) of the Statutory Order establishes the minimum number of samples to be taken for the purpose of monitoring effluent compliance with the parameters defined in section 18 of the Statutory Order and the corresponding limit values fixed in section 19(1) of the Statutory Order.

Section 19(3) of the Statutory Order was inserted in connection with the adoption of the Aquatic Environment Plan, according to which it is the responsibility of the local council, in cooperation with the regional council, to provide the requisite data and plan a timetable for sample collection. Any similar measurements requested by the regional council in its capacity of supervisory authority will be used for monitoring purposes on a par with measurements made by the local council.

Under the national monitoring program, most recently revised in 1998, the regional authorities have agreed to take responsibility for ensuring that a minimum number of samples, depending on the size of the plant, are collected.

Section 19(4) of the Statutory Order implements requirements laid down in the EEC Urban Waste Water Directive. Local councils respon-

sible for municipal treatment plants whose capacity equals or exceeds 15,000 p.e. must ensure that a total of 24 samples are taken. Any similar measurements requested by the regional council in its capacity of supervisory authority will be used for monitoring purposes on a par with measurements made by the local council.

The national requirements applying to sampling of municipal treatment plant effluents are summarised in table 8.3.

Table 8.3
Sampling of effluents for COD, BOD_5, total-N and total-P at municipal treatment plants – annual number of samples.

Plant capacity	Local council	Regional council
30 - 199 p.e.	Internal control	Extra samples needed to provide min. 2 samples
200 – 1,999 p.e.	Internal control	Extra samples needed to provide min. 4 samples
2,000- 49,999 p.e.	Internal control	Extra samples needed to provide min. 12 samples
≥ 50,000 p.e.	Internal control, plus the number needed to provide a total of 24 samples, including any samples taken by the regional council	Extra samples needed in addition to internal control samples to provide min. 12 samples

Internal control: Sampling as stipulated in the discharge licence issued for the plant.

The table summarises the requirements set out in section 19(3 and 4) of the Statutory Order and in the agreement on the effluent sampling to be carried out by the regional council as part of the monitoring programme adopted under the Aquatic Environment Plan, revised most recently in 1998 and at the same time renamed NOVA 2003.

8.4 Administrative provisions

Generally, the provisions laid down in sections 18-19 of the Statutory Order do not imply a requirement to apply for a new discharge licence. However, in the case of any other changes to a waste water system, such as the establishment of a new outfall, or the stipulation of additional requirements in order to ensure appropriate verification of compliance with the Statutory Order, a new discharge licence will have to be obtained under section 28 of the Environmental Protection Act.

8.5 Supervision and enforcement

According to section 52 of the Statutory Order, the regional council is responsible for supervising all municipal waste water effluents de-

scribed in this chapter. The regional council must ensure that the treatment plants meet the national emission standards.

In the case of non-compliance with the emission standards, the regional council must take enforcement action against such unlawful conduct under Part 9 of the Environmental Protection Act.

9. Reduction in nitrogen and phosphorus loads discharged from major industrial enterprises

9.1 The enterprises

Enterprises subject to load reduction

Part 9 of the Statutory Order sets out the measures to be implemented in connection with the licensing of the direct discharge of nitrogen and phosphorus to watercourses, lakes or the sea by major industrial enterprises. The provisions of this Part apply to the licensing of discharges from individual industrial enterprises or waste water systems, including shared industrial waste water systems, whose total annual post-treatment load exceeds 22 tonnes nitrogen or 7.5 tonnes phosphorus.

Enterprises connected to a public outfall downstream of the treatment plant

As a principal rule, enterprises connected to a public outfall downstream of a municipal treatment plant and located within the plant's catchment area are subject to the conditions stipulated in a licence to connect to the public waste water system, cf. section 28(3) of the Environmental Protection Act. However, this rule does not apply to enterprises connected to the outfall from a municipal treatment plant, cf. section 20(2) of the Statutory Order, whose total annual discharge of waste water exceeds either 22 tonnes nitrogen or 7.5 tonnes phosphorus. Pursuant to section 20(2) of the Statutory Order, such enterprises are governed by the provisions of Part 9, i.e. are subject to the same rules as enterprises discharging directly into watercourses, lakes or the sea.

The regional council's issuing of a licence for such enterprises to connect its effluent to the municipal outfall is subject to the prior approval of the local council.

Discharge of effluent from different enterprises via the same discharge pipe

As a principal rule, two or more industrial enterprises discharging through the same pipe must obtain separate discharge licences.

Other industrial effluents

Industrial effluents representing a total annual load of less than 22 tonnes of nitrogen and 7.5 tonnes of phosphorus or containing only heavy metals and/or environmentally incompatible substances are not governed by the provisions of Part 9 of the Statutory Order, but by the general rules set out in Part 7.

Fish farms discharging higher loads of nitrogen and phosphorus are not governed by the provisions of Part 9, but are regulated either under Statutory Order No. 204 of 31 March 1998 on freshwater fish farming or Statutory Order No. 640 of 17 September 1990 on salt water fish farming.

9.2 Definitions

For the purposes of this Statutory Order, an 'industrial waste water system' means a waste water system (as defined in section 4(7) of the Statutory Order) that handles waste water from one industrial enterprise only. However, the system may also handle waste water effluent or parts of waste water effluents from other industrial enterprises, provided that it is for the sole purpose of optimising the performance of the system.

'Industrial effluent' means the total volume of waste water discharged into watercourses, lakes or the sea by a single industrial enterprise.

'Shared industrial waste water systems' are waste water systems that handle waste water from different industrial enterprises. In cases where such waste water systems also handle waste water from sources other than industrial enterprises, the effluent is subject to the provisions of Part 7 of the Statutory Order.

For the purpose of calculating the total annual volume of an industrial effluent to determine whether it is subject to the provisions of Part 7 of the Statutory Order, the calendar year is normally used as reference period. Where appropriate, however, a different 12-month period may serve as reference, for example, where the production activities are subject to recurring seasonal variations. The reference period should be defined in the discharge licence, possibly in response to a motivated request included in the application.

9.3 Treatment standards

Level of treatment

According to section 21(1) and (2), the treatment effected in industrial waste water systems governed by Part 9 of the Statutory Order must, as a minimum, be based on the best available techniques.

More stringent requirements may be introduced if the regional plan defines higher quality standards for the waters of the particular region. In such cases, enterprises may be required to reduce the substance load of their effluents to a level that does not prevent achievement of the quality objectives set for the receiving waters. This means that additional requirements for treatment/reduction may only be imposed on an enterprise if its effluent is one of the factors that prevent the quality target being met or maintained.

9.4 Substance reduction

What constitutes the 'best available techniques'?

According to section 21 of the Statutory Order, emissions of nitrogen and phosphorus encompassed by Part 9 of the Statutory Order must be reduced to the lowest possible level using the best available techniques (BAT). According to the definition of this concept given in section 4(11) of the Statutory Order, this means the technology that is technically and financially achievable for the type of enterprise concerned. The BAT principle applies to both production and treatment activities.

The ‘type of enterprise’ is determined by an overall assessment of the enterprise concerned. However, it may be difficult to classify large, complex enterprises and production activities as belonging to just any one type of enterprise. In such cases, each of the facilities that deliver waste water to the enterprise’s total effluent should be required to use what is deemed the best available techniques for the type of enterprise that is the closest equivalent to the particular facility.

This is the minimum requirement to be met by enterprises applying for a discharge licence under the Statutory Order.

As mentioned in section 9.3 above, further requirements may be stipulated in the licence, if this is necessary to achieve the quality targets set in the regional plans for the waters concerned.

The minimum requirement of using the best available techniques in handling industrial effluents was established in connection with the adoption of the Aquatic Environment Plan in 1987. It was estimated that the large variations in type and ability to reduce the nitrogen and phosphorus loads in their effluents would make it difficult for several enterprises encompassed by the Plan (cf. section 20 of the Statutory Order) to meet the emission limit values fixed in the Plan for waste water discharged into municipal treatment plants (8 mg/l for nitrogen and 1.5 mg/l for phosphorus).

As part of the efforts to reduce the nutrient loads discharged by major enterprises, such enterprises are therefore subject to more stringent requirements with regard to documenting reductions in their discharge of nitrogen and phosphorus by using the best available techniques. Section 22(1) of the Statutory Order contains a detailed description of the type of documentation/basic information to be submitted with applications for discharge licences. In addition, the regional council may require the applicant to provide further information, cf. section 22(3) of the Statutory Order, which, together with the basic information described above, will enable the regional council to decide whether to grant the application.

In its capacity as licensing authority, the regional council must evaluate the individual enterprise’s use of the best available techniques by weighing the data submitted in each case against the aim of the Aquatic Environment Plan (which underlies Part 9 of the Statutory Order), viz. to reduce the quantities of nitrogen and phosphorus discharged with industrial effluents to the lowest possible level by means of the best available techniques.

The regional council should base its evaluation, partly on the information submitted with the application, partly on the council’s own assessment of how this information compares with the results of studies conducted by public authorities and existing knowledge in the field.

Sections 3 and 4 of the Environmental Protection Act

The principle of an “integrated approach” is also implied in sections 3 and 4 of the Environmental Protection Act. It is not limited to listed (or IPPC) enterprises, but applies to pollution control in general. It is

therefore also relevant to the public authorities' conception of what, in broader terms, constitutes the best available techniques.

Fixed-term licences to ensure compliance with the BAT principle

A number of existing enterprises, which since 1987 have been encompassed by the Aquatic Environment Plan, have not yet fully implemented the Plan's requirement with regard to using the best available techniques. Several of these enterprises are in the middle of an ongoing process initiated with the long-term goal of gradually, over a number of years, reducing the permissible effluent loads using the BAT principle established in the Aquatic Environment Plan. As part of this process, most of the participating enterprises have been granted a number of successive, fixed-term discharge licences.

This option is generally available to the authorities in cases where a given enterprise is not immediately able to meet the requirements for using the best available techniques.

9.5 Effluent monitoring

The supervisory authority is responsible for general monitoring of industrial effluents, including the annual quantities of nitrogen and phosphorus discharged with the waste water. Conditions for effluent monitoring must be stipulated in the discharge licence, cf. section 51(1) of the Statutory Order. Monitoring may be organised in compliance with the rules laid down in the Danish Standard for statistical effluent monitoring or any other monitoring method to be specified in the discharge licence. Effluents may, alternatively, be monitored under Danish EPA's Environmental Guidelines No. 1/1981 on the monitoring of separately discharged industrial effluents.

In this connection, it should be noted that, according to the monitoring programme described in the Aquatic Environment Plan, the effluents to be monitored are to be classified according to size into different sampling classes and a required minimum number of samples per year to be fixed for each class.

9.6 Transfer of competence

With regard to transfer of competence, reference is made to section 7.5 on discharge from enterprises subject to approval and to section 7.10 on allocation of competence.

9.7 Legal protection

Reference is made to section 7.5 on discharge from enterprises subject to approval.

9.8 Supervision and enforcement

Reference is made to section 7.6 on supervision and enforcement.

However, in cases where an enterprise not included on the list of enterprises subject to approval is encompassed by the provisions of this Part of the Statutory Order, the local council is the authority responsible for supervising the enterprise, including its compliance with the conditions stipulated in the discharge licence.

9.9 Right of appeal

With respect to right of appeal, see section 7.12.

10. Prohibition of the direct discharge of certain substances to the ground water

10.1 Prohibition of the direct discharge of certain substances

Section 24 of the Statutory Order prohibits the discharge of certain substances directly into the ground water, except by percolation through the ground surface or subsoil.

The substances covered by this prohibition are specified in Schedule 1 to the Statutory Order.

This provision is an implementation of Council Directive 80/68/EC on the protection of groundwater against pollution caused by certain dangerous substances. The list of substances provided in Schedule 1 to the Statutory Order is identical with the list provided in Council Directive 76/464/EEC of 4 May 1976 on pollution caused by certain dangerous substances discharged into the aquatic environment of the Community ("the Aquatic Environment Directive").

10.2 Exemption

Section 24(2) of the Statutory Order empowers the regional council to licence the discharge of the substances listed in Schedule 1 in certain circumstances. Exemption may only be granted for scientific purposes related to the characterisation, protection or rehabilitation of waters, and provided that the quantities in which these substances are discharged are strictly limited to those necessary to the scientific purposes concerned and are too small to affect the quality of the receiving ground water.

Thus, such licences may only be issued after an examination of the overall aquatic environment into which the substances are to be discharged, including an assessment of the polluting effect of the discharge on the ground water resource.

10.3 Supervision

It is a condition for exemption that the regional authorities check that the conditions stipulated in the licence are complied with. In addition, the regional authorities should monitor the effects of the discharge on the ground water on a regular basis.

10.4 Right of appeal

Refusal by the regional authority to grant a discharge licence or an exemption therefrom may be brought before the Environmental Protection Agency in accordance with the general rules set out in the Environmental Protection Act, cf. section 91 of the said Act.

11. Disposal of waste water from dispersed settlements

11.1 Background

Part 11 of the Statutory Order is incorporated in the administrative follow-up on Act No. 325 of 14 May 1997 to amend the Environmental Protection Act and the Act on payment rules for waste water installations etc. (Waste water treatment in rural areas etc.).

The prime objective of Act No. 325 of 14 May 1997 is to strengthen efforts to improve the treatment of waste water from properties situated in rural areas, and thereby promote achievement of the quality objectives set in the regional plans for watercourses and lakes.

Such efforts are targeted, more particularly, at non-sewered properties representing a waste water load of less than 30 p.e. and located outside municipal sewage catchment areas.

To harmonise these efforts with the identification in regional and waste water plans of areas subject to requirements regarding level of treatment, and to simplify the procedures for issuing discharge licences under section 28 of the Environmental Protection Act and enforcement notices under section 30 of the said Act for improved treatment of waste water from dispersed settlements, Part 11 of the Statutory Order establishes rules for the level of treatment to be stipulated in licences or enforcement notices and for the documentation required in connection with enforcement notices.

It should be emphasised that Part 11 of the Statutory Order does not imply that effluents other than those specified therein are not subject to regulatory requirements, where needed. Such effluents continue to be subject to the ordinary provisions of the Environmental Protection Act and of the Statutory Order.

11.2 Definition of ‘dispersed settlements’

For the purposes of this Statutory Order, ‘discharges from dispersed settlements’ means individual or collective discharges from properties with a total waste water load of 30 p.e. or less, cf. section 25 of the Statutory Order.

Enterprises approved under Part 5 of the Environmental Protection Act are not covered by Part 11 of the Statutory Order, with the exception of enterprises discharging only domestic waste water and surface run-off representing a total waste water load of 30 p.e. or less, cf. section 25(3) of the Statutory Order.

In contrast, Part 11 of the Statutory Order applies to discharges of waste water from enterprises not subject to approval, provided that the total

volume discharged corresponds to a total waste water load of 30 p.e. or less, and provided that the contents of the effluent can be expressed in p.e. Moreover, the waste water in such effluents must not contain substances other than those normally found in domestic waste water, nor have a significantly different composition.

Thus, minor enterprises, such as bakeries, offices, or the like, discharging only sanitary waste water or waste water whose content of pollutants may be expressed in p.e. are subject to the provisions of Part 11 of the Statutory Order.

Other properties subject to the provisions of Part 11 include agricultural properties discharging domestic waste water from the farm house exclusively and commercial enterprises, such as machine pools, whose only discharge of domestic waste water comes from a residential building located on the site.

Thus, Part 11 of the Statutory Order does not govern discharges of process waste water, e.g. effluent from washing/cleaning plants at machine pools, which contains only negligible amounts of aerobic organic substances, NH_3/NH_4-N or phosphorus, since this type of waste water is not encompassed by section 25(2) or (3) of the Statutory Order.

11.3 Requirements regarding level of treatment to be stipulated in discharge licences or enforcement notices

Efforts to improve conditions of waste water discharge from properties in rural areas are organised into the following three stages:

Stage one is regional planning. The regional plan or an addendum to the plan must identify the subareas in which the treatment of waste water from properties located in rural areas must be improved in order to achieve the quality targets fixed in the regional plan for watercourses, lakes and coastal waters. In this stage, the regional council, in cooperation with the local authorities of the region, establishes targets for each of the region's receiving water bodies, either in an addendum to the regional plan or in connection with the next revision of the regional plans in 2001. In the plan or the addendum, the regional council must identify the sensitive watercourses and lakes of the region and fix individual max. permissible pollution levels on the basis of existing knowledge about the general state of pollution of the waters and of the pollution load to which each of them is subjected.

In this context, the following waters are defined as 'sensitive':

- Water bodies, especially watercourses or lakes, for which the quality objectives set in the regional plan have not been fulfilled
- Water bodies whose poor water quality is due to a substantial degree (though not exclusively) to discharges from single properties or properties located in dispersed settlements.

Since the regional councils' identification of sensitive waters will form the basis of future waste water plans and subsequent enforcement notices, the necessary documentation must be obtained by taking meas-

urements in watercourses and lakes. Without this documentation, it would be difficult for the local authorities to follow up on enforcement notices related to specific discharges and to check their implementation.

In connection with the publication of a revised regional plan or an addendum to the plan that will affect waste water discharge in rural areas, the local council must, within 18 months of the adoption of the regional plan, complete a revision of the municipal waste water plan, cf. section 8 of the Statutory Order.

In the second stage, the local authority must identify the areas in which there is a need for improved waste water treatment. Environmentally appropriate minimum measures of percolation and/or treatment in terms of class of treatment must be indicated for each catchment area. In determining the treatment measures to be implemented in the catchment areas, the local authorities must respect the regional plan's identification of sensitive waters.

With regard to areas designated for percolation, it may also be appropriate to specify a class of treatment to which the waste water must be processed if, contrary to expectations, it turns out that the area is not suitable for percolation.

Thus, the local council must base its waste water planning on the regional plan or the addendum to the plan to determine the combination of connection to sewers, percolation and local treatment, etc. to be applied to discharges from dispersed settlements in rural areas.

Stage three is the actual implementation of the waste water plans.

When issuing licences under sections 19 and 28 of the Environmental Protection Act or enforcement notices under section 30 of the said Act for improved treatment of waste water discharges from properties located in rural areas outside the municipal sewage catchment areas, cf. section 26 of the Statutory Order, the local authority must stipulate compliance with the requirements regarding level of treatment that have been fixed in the waste water plan for such areas.

Pursuant to section 26 of the Statutory Order, the level of treatment to be fixed by the local council in such cases must, as a minimum, be equal to that established in the waste water plan. According to section 26(3) of the Statutory Order, the level of treatment is to be fixed with reference to the four classes of treatment defined in Schedule 2 to the Statutory Order.

The four classes of treatment are defined as follows in Schedule 2 to the Statutory Order:

Table 11.1
Substance reduction requirements according to class of treatment.

Class of treatment	*BOD_5*	*Total phosphorus*	*Nitrification*
SOP	*95%*	*90%*	*90%*

SO	*95%*		*90%*
OP	*90%*	*90%*	
O	*90%*		

O: Reduction of organic substances, P: Reduction of total phosphorus, and SO: More stringent requirements for reduction of organic substances and nitrification.

Stipulating a class (degree) of treatment for small effluents instead of requirements with regard to the substance concentration of the treated waste water (emission limit values) makes it possible to include facilities discharging only part of the waste water generated. Such facilities may include arrangements for collecting all black waste water, or part of the black waste water after separation, or arrangements for partial percolation, etc.

11.4 Waste water systems that meet the criteria of the four classes of treatment

The Environmental Protection Agency has established guidelines and administrative rules for a number of waste water systems that meet the criteria of the four classes of treatment.

They include guidelines on how to design infiltration plants, small biological sand filtration systems and reed-bed plants.

In addition, the Environmental Protection Agency has issued a Statutory Order and Guidelines on the design and type approval of small waste water treatment installations (Statutory Order No. 500 of 21 June 1999 on type approval scheme for small waste water plants).

For the purpose of licences issued under section 28(2) of the Environmental Protection Act and enforcement notices issued under section 30 on improved waste water treatment for properties subject to section 26 of the Statutory Order, such waste water systems meet the criteria of the following classes of treatment:

- Reed-bed plants: Class O
- Biological sand filtration systems: Class O and Class SO
- Type-approved small biological treatment plants: Comply with the requirements defined for the class(es) in which the plant has been approved (O, OP, SO, SOP)
- Infiltration plants: All classes

Alternative waste water disposal

As yet, no guidelines have been issued for the establishment of waste water systems for alternative disposal of waste water.

Nevertheless, this does not prevent the licensing of waste water systems based on alternative methods of disposal. However, before granting a licence in such cases, the local council should require the applicant to submit a detailed project, documenting the design, treatment performance, etc. of the system to which the application relates.

In addition, it is recommended that the local council stipulate a requirement for an internal control programme for effluents from installations for whose design no national guidelines have been drawn up, and whose treatment performance is insufficiently documented.

Properties outside areas for which treatment standards are specified

Licences or enforcement notices issued to properties located outside areas for which a certain level of treatment is specified in the waste water plan are not subject to the statutory requirement for stipulation of a specific class of treatment.

This means that, in general, no regulatory requirements apply to:

- Areas located outside the catchments areas of waters for which quality objectives have been formulated
- Areas within the catchment areas of waters whose quality objectives are met
- Areas within the catchment areas of waters whose quality objectives are not met, but where discharges from dispersed settlements do not affect achievement of the quality standards.

It is important to stipulate requirements in new discharge licences to safeguard against any future, unacceptable deterioration of the water quality of a given water body.

11.5 Criterion for issuing enforcement notices for improved waste water treatment

General

The criterion for issuing an enforcement notice under section 30 of the Environmental Protection Act is that the performance of the existing waste water system is not environmentally sound. The precise meaning of the term ‘environmentally sound’ has been established on the basis of administrative practices and legal precedents.

However, despite the declared administrative practice etc. in these matters, there has been some uncertainty among local authorities as to the conditions that have to be documented before an enforcement notice can be issued pursuant to section 30 of the Environmental Protection Act. It was therefore considered appropriate to clarify this in the Statutory Order, section 27 of which now specifies the conditions that must be documented in order to justify the issuing of an enforcement notice under section 30 of the Environmental Protection Act.

Dispersed settlements

Discharges from dispersed settlements differ in characteristic respects from larger waste water effluents. Thus, it is generally possible to detect the impact of major effluents at the exact point of discharge into a water body, if, for example, the water quality is measured up- and downstream of the outfall. Usually, this is not possible with discharges from a single property. In such cases, pollution of watercourses or lakes is caused by the combined impact of several small effluents.

11.5.1 Specific requirements for documentation in connection with enforcement notices

Description of the property's drainage facilities and identification of the receiving water body

It is a precondition for issuing an enforcement notice that the local council has established with absolute certainty that the property concerned actually increases the pollution of a given water body, and that the quality objectives established for the said water body are not satisfied. The receiving water body must therefore be identified before the enforcement notice can be issued.

A description of the property's drainage facilities should already be available in the municipal records, but in the absence of such information, the local council is empowered under section 72 of the Environmental Protection Act to obtain the necessary information from the landowner.

If the property discharges waste water to a drainage system through which the water is conveyed to the polluted water body, enforcement notices may be based on information already available to the local authority, i.e. the Building and Housing Register ("Bygge- og Boligregistret – BBR"), existing maps and data on hydrological catchment areas, including watersheds.

However, it is important that the local council identifies the correct water body in enforcement notices for improved waste water treatment. If not, the enforcement notice is issued on false premisses, and thus invalid.

If there is any doubt about the correctness of information obtained by the local council, including maps of sewer system, drainage system, etc., it should be submitted to the landowner for confirmation.

If this documentation process leaves any doubt as to whether the effluent to be discharged, for example, via a drainage system, is actually connected to the polluted water body, it may be necessary to map the route of the effluent. In this connection, trace analysis may be a useful tool in identifying the receiving water body.

Effluent from the property must be shown to increase the pollution level of the recipient

The only condition for issuing an enforcement notice is that effluent from the property concerned contributes to the actual pollution of a water body located downstream of the outfall. It should be noted that it is immaterial whether the effluent pollutes the primary or the final recipient. Thus, for example, the primary recipient may be a watercourse that meets the quality targets set, but flows into a lake which is polluted to a degree that prevents achievement of the quality objectives established for the lake.

The size of the individual property's contribution to the pollution of the recipient concerned is irrelevant to the issuing of an enforcement notice, since no landowner can claim a right to cause pollution on a certain scale. Thus, it is also irrelevant whether it can be documented that a given property discharges a waste water load that is evenly distributed over the year, or only for certain periods of the year.

A landowner who receives an enforcement notice therefore cannot demand documentation of the property's pollution contribution through specific measurements or analyses. A general requirement for waste water treatment of a certain minimum efficiency is considered objectively justified and is, according to court practice, deemed to be authorised by statute without any detailed analysis of the waste water; see, i.a., the decision of the western division of the Danish High Court dated 18 May, 1995 and Danish EPA Recommendation No. 3, issued in 1996.

The recipient must be shown to be polluted to a degree that prevents achievement of the quality objectives

The recipient's pollution status must be documented by comparing its environmental quality with the current quality objectives for the water body.

In connection with this requirement, the local authorities have raised the issue of how to enforce notices providing for landowners to improve the treatment standard for their waste water in order to comply with the level of treatment stipulated in the waste water plan for their catchment area, in cases where the quality objectives set for the recipient are achieved before the expiry of the time limit fixed for complying with the enforcement notice because the other landowners in the catchment area have met the requirements stipulated by the local authority.

It is the Environmental Protection Agency's position in such cases that it is sufficient that the pollution of the recipient was documented at the time when the waste water plan was adopted, since it is the combined effect of several small influents that causes pollution of the receiving water body. Of course, there are cases in which certain circumstances may have changed the conditions of the water body significantly, and which are so important to the achievement of the quality objectives defined for the recipient that it is relevant to maintain that the basis on which a given enforcement notice was issued has changed. However, as already mentioned, the basic principle is that no one is entitled to cause pollution. Consequently, the enforcement notice remains valid and must be enforced.

It also follows from the common principle of equality before the law that equal effluent producers must basically be given equal treatment. Therefore, failure to comply with an enforcement notice should not place the offender in a "preferential position" compared with similar landowners in the same area who have complied with enforcement notices issued by the local authority.

The Environmental Protection Agency recommends that local authorities try to avoid this problem and follow-up on their waste water planning by, where possible, issuing enforcement notices to all landowners in a given (catchment) area simultaneously. The Environmental Protection Agency further recommends that, upon expiry of the time limit fixed for complying with such enforcement notices, local authorities take prompt and appropriate legal action against any landowner that fails to comply with the enforcement notice. For further information on the means of enforcement available in such cases, reference is made to Danish EPA's Environmental Guidelines No. 12 1992, "Enforcement of the Environmental Protection Act".

11.6 Supervision

The local authority is responsible for supervising all waste water systems

The local authority supervises waste water effluents from systems representing a load of up to 30 p.e. Supervision of private waste water systems established in accordance with section 7a of the Act on payment rules for waste water installations etc. is also the responsibility of the local authority.

11.7 Right of appeal etc.

As mentioned in Chap. 4 above, appeals against municipal waste water plans cannot be brought before other administrative authorities. This also applies to any mapping/documentation of the property's discharge facilities that may be carried out or provided by local authorities, since this constitutes an administrative act to establish the basis of an administrative decision, i.e. an enforcement notice.

There is no appeal to other administrative authorities against enforcement notices for improved waste water treatment pursuant to section 30(4) of the Environmental Protection Act or enforcement notices for percolation pursuant to section 30(5) of the Environmental Protection Act, provided that they apply to systems capable of serving up to 30 p.e., cf. section 30(4) of the Environmental Protection Act.

According to the general provisions of the Environmental Protection Act concerning judicial review, decisions relating to municipal mapping, waste water planning and enforcement notices for improved treatment issued to owners of systems of up to 30 p.e. may be brought before an ordinary court of law, cf. section 101 of the Environmental Protection Act.

12. Discharge of waste water into the ground (percolation)

The provisions of Part 12 of the Statutory Order aim to ensure that the discharge of waste water into the ground, typically by percolation, takes place in an environmentally sound manner. This implies, among other things, that the process of discharge must not involve any pollution risk to surface water or ground water, nor may it cause any sanitary risks.

12.1 General provisions of the Environmental Protection Act

Section 19 of the Environmental Protection Act prescribes rules for the licensing of waste water disposal by percolation into the ground, and section 20 of the said Act establishes procedures for varying or revoking existing percolation licences.

Pursuant to section 19(4) of the Environmental Protection Act, percolation licences are granted by the regional council, unless other rules have been fixed by the Minister. Such rules are laid down in section 28, section 29 and section 31 of the Statutory Order, according to which the licensing competence is, in certain circumstances, transferred to the local council.

The activities that are subject to licensing are described in Chap. 1 of these Guidelines.

12.2 Application procedure

Pursuant to section 32 of the Statutory Order, all applications for a percolation licence must be submitted to the local council. The local council decides whether it has competence to issue a licence in any given case. If not, the local council must refer the matter to the regional council accompanied by the local council's comments. The local council should provide information on local conditions, including pending municipal and local plans, waste water plans, etc. that are considered important to the relevant application.

The local council must ensure that the conditions described in the application are in compliance with the waste water plan. In this connection, the council must make sure that no other means for waste water disposal, typically sewers, have been or are to be established in the catchment area to which the application refers. If so, the local council may refuse the application.

If there is any doubt as to which of the two councils has authority to deal with the matter, the regional council decides which is the competent authority.

12.3 Local council licensing of percolation of domestic waste water etc.

12.3.1 General

Under section 28(1) of the Statutory Order, the local council has competence to license the establishment of infiltration plants for waste water with a max. load of 30 p.e. This typically corresponds to the discharge from ten households, regardless of the physical location of the property.

The following conditions must be clarified before the local council can issue a percolation licence under section 28 of the Statutory Order:

- Volume and character of waste water
- Considerations to be paid to exclusion zones for water abstraction plants pursuant to section 22 of the Environmental Protection Act
- Clearance distance from the infiltration plant to water abstraction plants
- Clearance distance from watercourses, lakes or the sea
- Suitability of the soil for percolation
- Design of the infiltration plant
- Clearance distance from the highest ground water table
- Indicative clearance distance requirements (clearance distance from other infiltration plants, buildings, site boundaries, etc.)

When planning intensive percolation in relatively large areas, the local authorities should generally take the quality of the area's ground water resources into account, including their water supply potential. Thus, it would be inappropriate to establish intensive percolation of domestic waste water, for example, in a large holiday-house development located in an area where unprotected ground water is used as a source of drinking water.

12.3.2 Volume and character of waste water

Type of domestic waste water

According to section 28(1) of the Statutory Order, the local council is the licensing authority for waste water systems having a max. capacity of 30 p.e. and handling waste water that is comparable to domestic waste water. This means that it must not contain substances other than those usually present in domestic waste water, nor have a significantly different composition.

Waste water from milking parlours

Waste water from milking parlours should preferably be disposed of by methods other than percolation, for example by collection and spreading on farmland. However, waste water from milking parlours was previously defined as comparable to domestic waste water and percolation considered an acceptable method of disposal under section 28 of the Statutory Order. Existing infiltration plants for waste water from milking parlours are still legal.

Waste water from milking parlours may vary with regard to characteristics, depending on whether all the rinsing water is to be percolated and on the cleaning agents and disinfectants used. The local council must determine the character of the waste water in each given case.

The licensing competence of the local council also includes domestic waste water from toilet buildings, scout huts, commercial and industrial enterprises, etc., provided that the waste water's content of pollutants can be expressed in p.e., and that its volume does not exceed the equivalent of 30 p.e.

12.3.3 Exclusion zones for water abstraction plants established pursuant to section 22 of the Environmental Protection Act

According to section 28(2)(i) of the Statutory Order, infiltration plants must respect the exclusion zones established under section 22 of the Environmental Protection Act for certain water abstraction plants. Such exclusion zones are generally established around abstraction plants connected to common water supply plants that are subject to licensing under section 20 of the Water Supply Act.

Definition of 'common water supply plants'

'Common water supply plants' means plants that supply or are designed to supply at least ten properties.

Moreover, exclusion zones are generally established around abstraction plants for certain types of enterprise whose production depends on water of drinking water quality (e.g. food processing or pharmaceutical industries). It is usually prohibited to install infiltration plants inside exclusion zones. Usually, exclusion zones have a radius of 300 metres. However, in special cases larger zones may be required.

With regard to small urban communities, it may be appropriate to treat the supply of fresh water and the disposal of waste water together as one activity. Thus, it might be appropriate, in certain circumstances, to connect a single property that has its own water abstraction plant to the common water supply, in order to allow the establishment of an infiltration plant on the property.

12.3.4 Clearance distance between the infiltration plant and water abstraction plants

In addition to the protection of water abstraction plants afforded by the exclusion zones, section 28(2)(ii) of the Statutory Order establishes a clearance distance requirement, according to which the local council is only empowered to license the establishment of infiltration plants with a clearance distance of at least 300 metres from abstraction plants required to supply water of drinking water quality.

The requirement for drinking water quality must be met by all abstraction plants that supply water for consumption by private households and personnel in trade and industry, as well as for the use of enterprises that produce foods, pharmaceutical drugs or other products, and whose water supply is subject to special health requirements. As a main rule, market gardeners producing edible crops also require drinking-water quality for their watering and washing installations. Reference is made in this connection to Part 2 of Statutory Order No. 515 of 29 August 1998 from the Ministry of the Environment on water quality and supervision of water supply plants.

Field irrigation systems, on the other hand, do not need water of drinking water quality. Nor does cooling water or process water for the use of enterprises manufacturing non-edible products have to be of drinking water quality.

The clearance distance from other water abstraction plants, i.e. plants not subject to the drinking water criterion, must be at least 150 metres, cf. section 28(2)(iii) of the Statutory Order.

These clearance distance requirements apply regardless of whether the infiltration plant receives domestic waste water or other similar waste water.

12.3.5 Less stringent clearance distance requirements

Pursuant to section 28(3) of the Statutory Order, the local council may, in special circumstances, reduce the prescribed clearance distance between the infiltration plant and the nearest water abstraction plant to min. 75 metres.

The following requirements may be relaxed:

- The clearance distance from water abstraction plants not subject to the drinking water criterion
- The clearance distance from water abstraction plants supplying or designed to supply less than 10 properties and subject to the drinking water criterion.

A prescribed clearance distance may be reduced only provided that an assessment of the hydrogeological conditions shows that, in all probability, percolation of waste water will not pose any risk of pollution to water abstraction plants. Before granting a licence for the establishment of an infiltration plant subject to reduced clearance distance requirements, the local council must obtain the regional council's opinion in the matter.

It may be relevant to consider reducing the prescribed clearance distances, for example, in cases where a hydrogeological examination of the local conditions shows that, in all probability, the ground water does not flow in a direction away from the infiltration plant towards the water abstraction plant. However, it is important to note that establishing a water abstraction plant may change the ground water's natural direction of flow, and that the abstraction process creates a cone of depression around the plant. Depending on the rate of abstraction and other hydrogeological conditions, the ground water will always flow towards the water abstraction plant until it reaches a certain distance from the plant.

There is also a basis for reducing the prescribed clearance distances if, for example, the water abstraction plant is placed on one side of a watercourse, and the infiltration plant is to be established on the other side. However, it is a condition that the water level of the watercourse reflects the level of the ground water, and that it is not possible for polluted ground water to pass under the watercourse.

12.3.6 Clearance distance from watercourses, lakes or the sea

Section 28(2)(iv) of the Statutory Order establishes a requirement for a clearance distance of at least 25 metres between the infiltration plant and watercourses, lakes or the sea. In cases where the clearance distance between the infiltration plant and watercourses, lakes or the sea is less than 25 metres, applications for percolation licences must be submitted in accordance with the provisions applying to applications for a discharge licence, cf. section 16 of the Statutory Order.

12.3.7 Suitability of the soil for percolation

Pursuant to section 28(5)(i) of the Statutory Order, the local council must make sure that soil analyses have been carried out at the property concerned that demonstrate the suitability of the soil for percolation. Danish EPA's Environmental Guidelines No. 2 1999: "Infiltration plants up to 30 p.e." provides a description of the soil analyses recommended by the Environmental Protection Agency prior to establishing an infiltration plant on a property.

Percolation in contaminated soil

Establishing infiltration plants at locations where the soil is contaminated may cause leaching of pollutants into the ground water. Before licensing an infiltration plant at such locations, the local council must make individual assessments of the risk of leaching associated with establishing such a system.

12.3.8 Design of infiltration plants

Functional requirements

Pursuant to section 28(5)(ii) of the Statutory Order, infiltration plants must be executed and dimensioned such that, after commissioning, the system will not cause any accumulation of waste water on the surface of the ground, unsanitary surface conditions or any other nuisance.

Settling tank and drainage systems

Before percolation, the waste water must be passed through a settling tank. In the case of new systems, the settling tank and the associated drainage systems must be designed in accordance with current guidelines and codes of practice. Thus, new prefabricated tanks are subject to approval ('VA-godkendelse') under the approval scheme for water and drainage systems operated by the Ministry of Housing and Urban Affairs, and new tanks constructed *in situ* must be approved by the local authority.

Operational requirements

New and existing settling tanks must be operated in accordance with the relevant codes of practice and guidelines in force at any given time.

Seepage drains

In order to maintain a low waste water load in areas where infiltration plants are established, the systems must be designed according to the area-load principle (seepage drains/distribution pipes). Systems of the point-load type (e.g. seepage wells) must not be used.

Buildings for permanent residence must be provided with a seepage drain of at least 30 metres for each household, while it is normally sufficient to install 20 metres of seepage drain per household for holiday cottages.

For a description of the construction and dimensioning of infiltration plants, see Danish EPA's Environmental Guideline No. 2 1999, "Infiltration plants up to 30 p.e." and DS 440 "Dansk Ingeniørforening's Code of Practice for smaller drainage disposal systems for percolation into the ground".

12.3.9 Clearance distance from the highest ground water table

Pursuant to section 28(5)(vi) of the Statutory Order, the bottom of the infiltration plant must, where possible, be installed at least 2.5 m above the highest ground water level.

The purpose of this requirement is to ensure optimal conditions for the decomposition of pollutants in the waste water. However, for the system to function properly, the clearance distance from the highest ground water level must be at least 1 metre. This may be achieved either by elevating the system, or lowering the ground water table, see below.

Recommendations for measuring the max. ground water level are given in Danish EPA's Environmental Guidelines, "Infiltration plants up to 30 p.e.".

12.3.10 Indicative clearance distance requirements

In addition to the requirements listed in section 28(2)-(5) of the Statutory Order, the local council should, wherever possible, enforce the following clearance distance requirements:

- Infiltration plants are to be sited at least 50 metres from the nearest infiltration plant for domestic waste water. The object of this requirement is to ensure the best possible distribution of the waste water and avoid swamping (paludification) of the area. Exemption from this requirement may be granted in cases where the local conditions are deemed favourable to percolation. Reducing the prescribed clearance distance may also be appropriate if it improves the siting of the infiltration plant relative to water abstraction plants.

- Infiltration plants are to be sited at least 5 metres from buildings and site boundaries.

Reference is made to Danish EPA's Environmental Guidelines, "Infiltration plants up to 30 p.e."

12.4 Local council licensing of percolation of surface run-off

Pursuant to section 29 of the Statutory Order, the local council may, in certain specified cases, issue licences for percolation of surface run-off. The following conditions must be clarified before the local council can issue a percolation licence:

- Character and volume of surface run-off
- Clearance distance from water abstraction plants
- Design of the infiltration plant, including that actual percolation is to take place in a separate system

- Clearance distance from watercourses, lakes or the sea
- Other requirements regarding clearance distance

12.4.1 Character and volume of surface run-off

Percolation of ordinary surface run-off

Section 29 of the Statutory Order empowers the local council to issue licences for percolation of surface run-off, including run-off from private roads and parking grounds for max. 20 cars. The authority to license the discharge of surface run-off from public roads, railways and parking ground for more than 20 cars is vested in the regional council.

Storm water from roads drained off through pipes after percolating through grass verges has usually been purified to such a degree that it does not pollute the receiving water body. No licence is required in cases where water from minor roads drains into the verge of the road without entering an infiltration plant or water body.

Percolation of other surface run-off

If the water to be percolated contains substances other than those generally present in surface run-off or has a significantly different composition, the licensing competence is also vested in the regional council pursuant to section 30 of the Statutory Order.

This will typically be the case in connection with surface run-off from an enterprise operating outdoor facilities, such as washing plant, filling and emptying stations, etc. In each given case, the licensing authority must assess the effect of the waste water from the facility on the surface run-off. Thus, the composition of surface run-off from, say, washing plant installed at machine pools, which may be contaminated with machine oil, will typically be considered different from that of ordinary surface run-off. Such cases therefore come within the jurisdiction of the regional council.

12.4.2 Clearance distance from water abstraction plants etc.

Pursuant to section 29(1)(iv) of the Statutory Order, only percolation systems with a min. 25 metre clearance distance from water abstraction plants required to produce water for human consumption can be licensed by a local council. This is a relatively short clearance distance, but the reason is that in cases where the pollution load of the surface run-off is higher than usual, the licensing competence is transferred to the regional council, which must then decide, in each given case, which measures to stipulate in the licence in order to protect the ground water, cf. section 30(2) of the Statutory Order.

12.4.3 Design of the infiltration plant

According to section 29(1) of the Statutory Order, the local council is only competent to license the discharge of surface run-off into an infiltration plant if the system concerned receives neither domestic nor process waste water. This requirement was established in order to ensure the proper functioning of the system, as percolating surface water may cause other types of waste water to filter too quickly through the biologically active upper soil layers.

Furthermore, the infiltration plant must be dimensioned, sited and constructed in a manner that prevents accumulation of waste water on the surface of the ground or any other nuisance. This includes that the soil

must be capable of draining off the inflowing water. It should also be mentioned that sometimes applications are submitted for the establishment of an infiltration plant in areas where the soil is polluted. When considering such applications, the local council must assess the facts of each particular case, and ensure that the necessary precautions are taken to prevent any leaching of pollutants into the ground water before granting a licence.

No other specific requirements apply to the design of infiltration plants for surface run-off, but the infiltration plant should be constructed in accordance with Danish standard DS 440: "Minor drainage systems with percolation".

12.4.4 Clearance distance from watercourses, lakes or the sea

Section 29(1)(v) of the Statutory Order establishes a requirement for a clearance distance of at least 25 metres between the infiltration plant and watercourses, lakes or the sea. This means that if this requirement cannot be met, an application for a discharge licence must be submitted in accordance with the provisions set out in section 16 of the Statutory Order.

12.4.5 Other clearance distance requirements

Indicative clearance distance requirements

The local council should, where possible, stipulate a clearance distance of at least 20 metres between individual infiltration plants. This clearance distance requirement has been established in order to avoid swamping (paludification) of percolation areas, and may be departed from, provided that the area is deemed to be free from such risk due to good percolation conditions and a sufficiently low ground water level. The clearance distance from site boundaries and buildings should be at least 5 metres.

12.5 Regional council licensing of percolation

12.5.1 General

Under section 31(1) of the Statutory Order, the regional council is competent to issue licences to establish infiltration plants in cases where this competence is not vested in the local council under section 29 and section 30 of the Statutory Order. The scope of its competence includes waste water of a character significantly different from ordinary domestic waste water and waste water volumes exceeding the equivalent of 30 p.e.

Pursuant to section 31(2) of the Statutory Order, percolation licences issued by the regional council must stipulate conditions with regard to the following:

- Volume and character of the waste water
- Compatibility with municipal and regional planning for the area
- Protection of water abstraction plants
- Protection of ground water resources
- Consideration for the water quality of watercourses, lakes and the sea

Disposal of other types of waste water in the subsoil

The regional council is empowered to issue licences for the disposal of other types of waste water in the subsoil, cf. section 19 of the Environmental Protection Act. This includes, for example, the disposal/discharge of process water from the recovery of raw materials into a water-filled gravel pit.

12.5.2 Volume and character of waste water

Pursuant to section 30(1) of the Statutory Order the regional council is empowered to issue licences to establish percolation for all installations having a capacity of more than 30 p.e. and systems for the percolation of surface run-off from public roads and parking grounds for more than 20 cars.

The licensing authority must pay special attention to the risk of polluting ground water and water abstraction plants associated with the percolation of large volumes of waste water.

The regional council has also competence to issue percolation licences for waste water of a character different from that of ordinary domestic waste water.

This typically involves the following types of waste water:

- Process waste water from enterprises, including farms, workshops and machine pools
- Water/cleaning water from swimming pools, including hydro- and thermo-therapeutic tubs.

With a few exceptions, the regional council is always the licensing authority in cases involving percolation of process waste water. The type of process waste water considered suitable for percolation is readily decomposable and has a high content of nutrients.

Process waste water that contains a considerable amount of environmentally incompatible substances must be considered unsuitable for percolation due to the risk of polluting the ground water, unless it has been established with absolute certainty that the substances will decompose completely in the soil without involving any risk of pollution to the environment.

Waste water containing toxic (poisonous), bioaccumulative (liable to increase in amount over a period of time) or persistent (slowly decomposable) substances should not be discharged into infiltration plants.

Percolation of water from swimming pools etc.

Water containing chlorine or other disinfectants from swimming pools or hydro- and thermo-therapeutic tubs etc. is regarded indicatively by the Environmental Protection Agency as process waste water. Thus, the regional council is, basically, the licensing authority where such installations are used more intensively than in ordinary households, e.g. in rented holiday homes or in connection with hotel or training course activities. In all other cases, such waste water is classified as ordinary domestic waste water. The reason for this distinction is that the need to

discharge waste water from swimming pools for such purposes must be expected to be higher than from pools for ordinary private use.

Percolation of surface run-off from railways

The regional council is the licensing authority for systems for the percolation of surface run-off from railway areas.

12.5.3 Compliance with municipal and regional planning for the area

The percolation licences for domestic waste water, surface run-off or process waste water granted by the regional council must not conflict with the current water supply and waste water management plans for the area, nor with regional and local planning, cf. section 30(2) of the Statutory Order.

12.5.4 Protection of water abstraction plants and ground water resources

Pursuant to section 30(2)(i) of the Statutory Order, the regional council is responsible for ensuring, for example by carrying out hydrogeological surveys of the area, that percolation will not cause pollution of existing water abstraction plants or ground water resources that may be exploited for future water abstraction.

Hydrogeological survey

A hydrogeological survey may include one or more of the following elements:

- Determination of the flow direction of the ground water (if an infiltration plant is established within a short clearance distance from a water abstraction plant, the ground water should not flow towards the abstraction well)
- Soil analysis to establish whether water abstraction plants are protected from percolating waste water (for example, by an impermeable clay layer).

12.5.5 Compliance with quality objectives for watercourses, lakes and the sea

The regional council must further ensure that the infiltration plant does not impede the achievement of the quality objectives for watercourses, lakes and the sea established in the regional plan, cf. section 30(2)(iii) of the Statutory Order.

Clearance distance from watercourses, lakes or the sea

Under section 30(2)(iv) of the Statutory Order, the clearance distance from an infiltration plant to watercourses, lakes or the sea must be at least 25 metres. This means that applications for the licensing of an infiltration plant that is to be placed less than 25 metres from a water body must be considered in accordance with the rules on waste water discharge, rather than with the rules governing percolation, cf. section 16 of the Statutory Order. When issuing discharge licences in such cases, the licensing authority must pay due regard to any nearby water abstraction plants and the water quality of the receiving water body.

12.5.6 Design of systems for the percolation of chlorine-containing waste water

Systems for percolating chlorine-containing waste water from the installations mentioned in section 12.5.2 should be designed in accordance with the following guidelines:

- Waste water containing chlorine must be disposed of through a separate infiltration plant, which must be incorporated with seepage drains in accordance with the guidelines provided in DS 440. At least 10 metres of seepage drain must be used, and the clearance distance from infiltration plants for domestic waste water must be at least 10 metres.
- The settling tank must be designed as a single-compartment tank.
- Requirements laid down in section 28 of the Statutory Order concerning clearance distances from water abstraction plants, watercourses, lakes and the sea, and the prescribed clearance distance of min. 1 metre from the highest ground water table should be met.
- Installations for discharging chlorine-containing water must be operated manually, not automatically, for example via an overfall or the like. Before reaching the seepage drains, the waste water must pass through a balancing tank with a volumetric capacity of min. 1 m^3. The tank must be emptied of sludge, as necessary.

The capacity of infiltration plants for chlorine-containing waste water must be sufficient to handle water drained from hydro- and thermo-therapeutic tubs as well as excess water and filter backwash water from small swimming pools.

Certain hydro- and thermo-therapeutic tubs serve as ordinary bathtubs without chlorination. Waste water from such tubs may be discharged for percolation together with ordinary domestic waste water. However, it is important to note that if the tub is significantly larger than a normal bathtub (approx. 250 litres), emptying the contents into an ordinary settling tank may stir up the sludge at the bottom of the tank. In such cases, it may be necessary to consider installing a larger settling tank.

Infiltration plants cannot be designed with sufficient capacity to receive the emptied contents of swimming pools. The amount of water is much too large. It may be considered to empty swimming pools by spraying the water onto the surface of the ground, see Chap. 13 below. If this is done at a time when the pool has not been chlorinated for at least a month, the danger of scorching should be minimal.

12.6 Transfer of licensing competence from the regional council to the local council

12.6.1 General

In cases where the local council is not the licensing authority pursuant to section 28, the regional council is empowered under section 31(1) of the Statutory Order to transfer to the local council the competence to license the establishment, within a specified area, of infiltration plants for the discharge of waste water from waste water systems representing a load of up to 30 p.e.

However, before ceding licensing powers to the local council, the regional council must ensure that the provisions of section 30(2) of the Statutory Order are observed, viz. that:

- Percolation of waste water does not involve a risk of polluting water abstraction plants and ground water resources
- Establishing an infiltration plant does not impede the achievement of the quality objectives set for the watercourses in the area
- The clearance distance from watercourses, lakes and the sea must be at least 25 metres.

It is a further condition for transferring the licensing competence to the local council that the waste water does not contain substances other than those generally present in domestic waste water or has a significantly different composition.

Before transferring the competence, the regional council must also prescribe rules, cf. section 31(2) and (3) of the Statutory Order, for the local council's use of the competence transferred to it in the form of general requirements with respect to:

- Clearance distance from water abstraction plants
- Design of the infiltration plant
- Clearance distance from watercourses, lakes or the sea
- Clearance distance from the ground water

12.6.2 Clearance distance from water abstraction plants

The regional council must prescribe rules for the clearance distance from water abstraction plants based on the requirement that, where possible, the clearance distances prescribed in section 28(2) of the Statutory Order must be observed, unless a hydrogeological survey provides reasons for easing the clearance distance requirements.

12.6.3 Design of the infiltration plant

Rules must be prescribed for the design of the infiltration plant, including clearance distances between individual infiltration plants. With regard to design, reference is made to section 12.3.8 above and Danish EPA's "Environmental Guidelines on infiltration plants up to 30 p.e."

12.6.4 Clearance distance from watercourses, lakes and the sea

In addition, the regional council must prescribe rules concerning the clearance distance from the infiltration plant to lakes, watercourses, ditches, drain pipes and coast lines.

12.6.5 Clearance distance from the ground water etc.

Finally, the regional council must prescribe rules for the clearance distance from the infiltration plant to the ground water or other measures to ensure the proper functioning of the infiltration plant. Regarding the clearance distance from the ground water, reference is made to section 12.3 above. Thus, it is possible to achieve proper functioning of the infiltration plant by combining various measures, such as lowering the ground water table or filling up low-lying areas.

12.7 Percolation in areas where the prescribed clearance distance from the ground water table cannot be observed

Under section 30 of the Statutory Order, the regional council can license an infiltration plant for domestic waste water in areas where the clearance distance from the highest ground water level is less than 1 metre. Pursuant to section 31 of the Statutory Order, the regional council can furthermore empower the local council to license the establishment of such infiltration plants.

Lowering the ground water table

However, in connection with establishing infiltration plants in a limited area, it may sometimes be necessary to lower the ground water level because the infiltration plants may otherwise not be established with sufficient clearance distance from the ground water table.

Any lowering of the ground water table must be effected in compliance with the provisions of the Danish Watercourse Act. This means that the drain pipes installed obtain status as watercourses.

Under the Watercourse Act, the costs associated with lowering a ground water table are therefore allocated among the site owners that are assumed to benefit from the installation.

Infiltration plants to be established within a clearance distance of less than 25 metres from such drain pipes are subject to a discharge licence under section 16 of the Statutory Order. See also Chap. 7 below.

Elevated infiltration plants

In areas where the clearance distance from the ground water table is less than the 1 metre necessary to obtain a licence from the local council, cf. section 28 of the Statutory Order, the infiltration plant may be established as an elevated system. Such systems are constructed on a small mound of sand built on the ground to such a height that both the requirements concerning frost-free protection of the seepage drains and the minimum clearance distance from the highest ground water level are respected.

The competence to issue licences for infiltration plants in areas where the ground water table has been lowered and for elevated infiltration plants is defined in accordance with the principles described above for the general allocation of competence to license infiltration plants for waste water.

12.8 Establishment of infiltration plants

Infiltration plants must be established in accordance with applicable rules and regulations. The percolation of domestic waste water is governed by Danish EPA's Environmental Guidelines No. 2 1999, "Infiltration plants up to 30 p.e.". Furthermore, DS 440, "Dansk Ingeniørforening's Code of Practice for smaller drainage disposal systems for percolation into the ground", provides guidelines for the disposal of both domestic waste water and surface water by percolation.

12.9 Amendment or revocation of percolation licences

Under section 20 of the Environmental Protection Act, percolation licences issued in accordance with section 19 of the said Act may be varied or revoked at any time and without compensation being payable on the following grounds:

- Risk of pollution to water supply plants
- Implementation of a different method of waste water discharge in accordance with a waste water plan under section 32 of the Environmental Protection Act
- Environmental protection in general

In such cases, it may also be decided that activities - licensed as well as unlicensed - that were legal at the effective date of the Environmental Protection Act are to be changed or terminated.

Decisions to this effect are made by the licensing authority.

If a sewer system is established in an area as part of the implementation of a different method of waste water discharge in accordance with an approved waste water plan, the authorities are empowered under section 20 of the Environmental Protection Act to order the decommissioning of the infiltration plant without any compensation being payable. In such cases, revocation of the licence is deemed to become effective upon the commissioning of the new system, cf. section 20(4) of the Environmental Protection Act.

Section 20(4) of the Environmental Protection Act applies in cases where a new, full-scale sewer system is established and connected to the public collecting system.

12.10 Administrative procedures for issuing enforcement notices providing for percolation

After the amendment in 1997 of the Environmental Protection Act (Act No. 325 of 14 May 1997 to amend the Environmental Protection Act etc. (waster water treatment in rural areas etc.), section 30 of the Environmental Protection Act provides scope for issuing enforcement notices providing for percolation.

The local council may issue an enforcement notice providing directly for percolation pursuant to section 30(5), if the conditions for disposal of waste water by percolation are met, see section 12.3 above and sections 28, 29 and 31 of the Statutory Order.

Alternatively, the local council may issue an enforcement notice providing for treatment of the waste water concerned to a given level of treatment (in accordance with the four classes of treatment defined in section 11.3 above) and, at the same time, inform the landowner that he

may comply with the enforcement notice by establishing an infiltration plant.

For a more detailed description of the procedure for issuing enforcement notices under section 30 of Act, see Danish EPA's Environmental Guidelines No. 2, "Infiltration plants up to 30 p.e.", cf. section 2.3.

A standard form to be completed by applicants for a licence to establish an infiltration plant is inserted.

12.11 Liability in connection with issuing licences or enforcement notices for the establishment of infiltration plants

The licensing authority should pay special attention to the question of liability in connection with issuing enforcement notices providing for the establishment of infiltration plants. According to section 28 of the Statutory Order, the licensing authority must ensure compliance with a number of conditions and prerequisites, including that the soil must be suitable for percolation. The local council must therefore ensure that the necessary documentation is available, for example, in the form of data obtained from sieve testing of the subsoil, measurement of the ground water level, etc.

The local council should take special care when licensing percolation in areas where the soil is less suitable for this purpose. Danish EPA's Environmental Guidelines on infiltration plants recommend that the granting of licences for percolation of waste water be refused in such cases, as the risk that the infiltration plant will not function properly is higher. At any rate, the local council should make absolutely sure that it has been documented with sufficient certainty that the soil of the area concerned is suitable for percolation.

12.12 Supervision and enforcement

According to section 53(1) of the Statutory Order, the local council is responsible for supervising private infiltration plants for waste water. The local council is also responsible for supervising infiltration plants for run-off from railway areas in cases where the regional council is the licensing authority.

Under section 53(2) of the Statutory Order, the regional council is responsible for supervising public infiltration plants.

As supervisory authority, the regional council is responsible for ensuring compliance with:

- Conditions stipulated in connection with a licence
- Enforcement notices and prohibition notices

Usually, the licensing authority is also the enforcing authority.

The local council must refer cases of non-compliance with decisions made under section 30 of the Statutory Order to the regional council, which will then take enforcement action against the unlawful conduct in accordance with sections 68 - 70 of the Environmental Protection Act.

12.13 Allocation of competence etc. in matters concerning percolation

Table 12.1 below summarises the requirements to be met by applicants for percolation licences depending on the licensing authority, and table 12.2 is a survey of licensing and supervisory authorities.

Table 12.1
Requirements regarding infiltration plants set out in sections 28, 30 and 31 of the Statutory Order

Licensing for percolation is subject to the following requirements:	s. 28	ss. 30-31
1. Exclusion zones, s. 22 of the Environmental Protection Act	Yes	No *)
2. 300 m from water abstraction plants, drinking water quality. For small systems, the clearance distance may be reduced to 75 metres.	Yes	No *)
3. 150 m from water abstraction plants, not drinking water quality, the clearance distance may be reduced to 75 metres.	Yes	No *)
4. Min. 25 m clearance distance from watercourses, lakes or the sea	Yes	Yes
5. Settling tank	Yes	No
6. Seepage drains	Yes	No
7. Min. clearance distance from ground water 1 m	Yes	No

**) Requirements may only be eased in cases where the regional council estimates that this poses no pollution risk to ground water resources.*

Table 12.2
Survey of licensing/supervisory authorities and right of appeal in matters concerning percolation of waste water

Owner/ producer	Size	License	Authority	Super-vision	Authority	Ap-peal	Authority
private	≤30p.e.	LC	SO s.28	LC	EPA s.65	no	SO s.33
private	>30 p.e.	RC	SO s.30	LC	EPA s.65	yes	EPA s.91
LC	≤30 p.e.	LC	SO s.28	RC	EPA s.66(4)	no	SO s.33
LC	>30 p.e.	RC	SO s.30	RC	EPA s.66(4)	yes	EPA s.91

LC: Local council
RC: Regional council
EPA: Environmental Protection Act
SO: Waste Water Management Order
Central government and regional authority licences are included under private owners/producers

12.14 Right of appeal

Decisions made under section 28 of the Statutory Order regarding infiltration plants for domestic waste water with a capacity of 30 p.e. or less cannot be brought before other administrative authorities, cf. section 33 of the Statutory Order.

Nor can decisions regarding percolation of surface run-off under section 29 of the Statutory Order in cases where the local council is the licens-

ing authority be brought before other administrative authorities under section 33 of the Statutory Order.

Regional council decisions pursuant to sections 30 and 31 of the Statutory Order may be referred to the Environmental Protection Agency.

However, the following decisions, cf. section 33(2) of the Statutory Order, cannot be brought before other administrative authorities:

- The granting or refusal of applications for the establishment of an infiltration plant having a capacity of up to 30 p.e. for waste water not containing substances other than those usually present in domestic waste water
- The granting or refusal of applications for a licence to percolate surface run-off, except run-off from public roads or paved areas used for the parking of more than 20 cars
- The transfer of competence to the local council in accordance with section 31(1) of the Statutory Order, cf. section 31(5).

Licences issued by the local council on the basis of a licence issued by the regional council under section 31of the Statutory Order cannot be brought before other administrative authorities.

Finally, Environmental Protection Agency decisions concerning appeals filed against licences issued by a regional council under section 31 and section 32 of the Statutory Order may be brought before the Environmental Appeals Board, cf. section 103 of the Environmental Protection Act.

13. Discharge and spraying of waste water on the surface of the ground for non-agricultural purposes

The object of regulating the discharge and spraying of waste water on the surface of the ground for non-agricultural purposes is to protect surface water and ground water from any pollution risk, prevent health risks to humans and animals and protect neighbours from any environment- or health-related nuisance.

13.1 General provisions of the Environmental Protection Act

Section 19 of the Environmental Protection Act governs the granting of licences to discharge and spray waste water on the surface of the ground, and section 20 of the said Act governs the variation or revocation of such licences.

Pursuant to section 19(4) of the Environmental Protection Act, it is basically the regional council that has authority to license the discharge or application to the ground of substances, products and materials that may cause pollution of the ground water, soil and subsoil. However, the Minister may lay down other rules, including on licensing competence.

According to section 34 of the Statutory Order, only the regional council is empowered to issue licences to discharge or spray waste water on the ground for non-agricultural purposes.

Similarly, the regional council is generally the only authority with competence to vary or revoke licences of the type described above.

However, section 20(4) of the Environmental Protection Act empowers the local council to revoke such licences in connection with the implementation of a waste water plan pursuant to section 32 of the said Act.

Furthermore, the Minister can fix specific rules for this type of waste water disposal, cf. section 19(5), as exemplified by Part 13 of the Waste Water Management Order.

13.2 Scope of application

The Waste Water Management Order

Part 13 of the Statutory Order applies to situations where the waste water to be discharged or sprayed on the surface of the ground cannot be used in accordance with other applicable legislation, i.e. waste water not governed by Statutory Order No. 823 of 16 September 1997 on the application of waste products for agricultural purposes as amended ("The Sludge Order"), Statutory Order No. 550 of 24 July 1998 on commercial livestock management, livestock manure, silage effluent etc. ("The Livestock Manure Order"), and Statutory Order No. 366 of

10 May 1992 on non-commercial livestock management, unsanitary conditions, etc.

Waste water that may be discharged or sprayed on the ground under the Waste Water Management Order includes domestic waste water, grey waste water, surface run-off, pumped out, slightly polluted ground water, ground water from "emergency pumping" (pumping operation to remove polluted ground water from a catchment area for abstraction of drinking water), filter backwash from waterworks, cooling water and certain types of process waste water.

The above-mentioned types of waste water must not have any beneficial uses in agriculture, for example as fertilisers or soil improvement agents, as such waste water is subject to the Sludge Order, which governs the application of waste products for agricultural purposes. Examples of waste products with beneficial uses in agriculture are collected human waste (urine and faecal matter), cf. section 13.2.2 below.

However, it is a condition for using waste water etc. for agricultural purposes under the Sludge Order that the waste products do not have any significant content of environmentally deleterious substances.

The distinction made above between the Waste Water Management Order and the Sludge Order does not mean that all waste water that cannot be applied in accordance with the provisions of the Sludge Order may be applied under the Waste Water Management Order. When granting licences for the discharge or spraying of waste water on the surface of the ground pursuant to the Waste Water Management Order, the authorities must in each case evaluate the safety of this method of disposal from an environmental and health point of view.

13.2.1 Delimitation against other legislation

The Sludge Order

Waste water beneficial for agricultural purposes may be used in farming in accordance with the Sludge Order.

The Sludge Order governs waste produced by households, institutions and commercial and industrial enterprises, including biologically treated or biofermented waste, process waste water and waste water sludge, in so far as the waste has beneficial uses in agriculture and private gardening.

It is a condition for the application of waste products in farming and gardening that they are beneficial for such purposes. This means that they are able to change the condition of the soil in a particular area, either as fertilisers or soil-improving agents. A fertiliser is defined as an agent that promotes plant growth, and whose effect depends entirely or mainly on its content of plant nutrients.

A soil-improving agent is defined as an agent designed to change the physical, chemical or biological condition of a soil or growth medium, and whose effect does not depend, or depends to a limited extent only, on the agent's content of plant nutrients. Examples are lime, residue paper products, etc.

Private gardening is to be understood in the general sense of the word, but is defined in the Sludge Order as non-commercial production of plants and trees for the use of a single or a few households. Waste products for application in private gardening must also meet the requirement of being beneficial for agricultural purposes.

Reference is also made to the forthcoming Danish EPA Environmental Guidelines, "Beneficial uses of waste products in agriculture".

The Livestock Manure Order

Waste water from milking parlours and from the washing of livestock products, feeding appliances, etc. from ordinary farming activities is subject to the Livestock Manure Order (Statutory Order No. 550 of 24 July 1998).

Statutory Order on non-commercial livestock management and unsanitary conditions, etc.

Night soil is governed by Statutory Order No. 366 of 10 May 1992 on non-commercial livestock management, unsanitary conditions, etc. Night soil is defined as raw urine and faecal matter.

13.2.2 Use of waste products from alternative toilet systems

This section describes the use of waste products from four different waterless or low-water toilet systems

- Composting toilets/Humus toilets
- Composting/Humus toilets with urine separation
- Water flushing toilets with urine separation
- Vacuum toilets

Re 1) Composting toilets/Humus toilets

This type of toilet is designed to receive both faecal matter and urine, which are collected in the same compost bin. Basically, these toilets do not incorporate a flushing mechanism, but some types of composting toilet use water to carry the faecal matter to the bin. However, the water is not admitted to the compost bin, most of the water being removed from the faecal matter in a cyclotron or similar device mounted immediately before the bin. Naturally, this device also prevents urine from entering the bin. The water used to carry faecal matter to the cyclotron is polluted and is comparable to black waste water. Basically, it should therefore be discharged into a holding tank or treatment plant.

Waste product applications

The waste products from these types of toilet are basically comparable to night soil, and their application is governed by Statutory Order No. 366 of 10 May 1992 on non-commercial livestock management, unsanitary conditions, etc.

Provided that the final product from such toilets are subjected to further treatment by stabilisation, controlled composting or controlled hygienisation, and is thus no longer comparable to night soil, it may be used in agriculture and private gardening, as it is beneficial for agricultural purposes. Such application may be licensed under section 21 of the Sludge Order.

Application of waste product in agriculture and private gardening

After treatment, the final product is comparable to waste water sludge, and its use in agriculture and private gardening is therefore subject to the same hygiene restrictions. The regional council may license such use under section 21 of the Sludge Order.

Waste product which has only been treated by stabilisation must be incorporated into the soil within 12 hours of application, and with due consideration to the other restrictions imposed by the Sludge Order.

Waste product treated by controlled composting may be used in farming, except on edible crops, in parks and gardens (public or private).

Waste product treated by controlled hygienisation may be used without any hygiene restrictions. It may be applied to farmland and private gardens, including on edible crops.

For further information, reference is made to the Sludge Order and to the forthcoming Danish EPA Guidelines on beneficial uses of waste products in agriculture.

Re 2) Composting toilets with urine separation

In composting toilets with urine separation, the urine is conveyed to a separate holding tank for separate handling. The purpose of a toilet with urine separation is to allow collection of the urine, which has a larger nutrient content than faecal matter. In order to prevent clogging of the urine conveyance system, a small amount of water is used to flush down the urine bowl before the urine is conveyed to the holding tank.

As in an ordinary composting toilet, the faecal matter is conveyed to a composting bin, generally without the addition of water.

Application of waste product

The application of the urine and faecal matter collected is governed by the provisions specified under 1) Composting toilets.

Re 3) Water flushing toilets with urine separation

In water flushing toilets with urine separation, the urine is collected in a separate tank. A small amount of water may be used to flush down the urine.

The faecal matter is removed by the same method as in an ordinary flushing toilet and is therefore comparable to black waste water. Such black waste water may be disposed of by discharge into a treatment plant, such as a holding tank, infiltration plant, small treatment plant, etc.

Application of waste product in agriculture and private gardening

The accumulated urine may be used in agriculture, as it is beneficial for agricultural purposes.

The application of urine for agricultural or private gardening purposes is governed by the provisions specified under 1) Composting toilets.

Re 4) Vacuum toilets

In vacuum toilets, the toilet waste is collected and conveyed to a collection tank using a minimum of water. Owing to the limited amount of water used for flushing (typically 0.2 to 0.5 litre), only a small collection tank is needed. This type of toilet is therefore mostly used in cramped conditions, e.g. onboard ships. However, they may also be used in ordinary homes.

Basically, the waste product is comparable to domestic waste water and must be disposed of in accordance with the provisions of the Waste

Water Management Order. Methods of disposal include discharging into a waste water treatment plant, such as a holding tank, infiltration plant, small treatment plant, etc.

Application of waste product to farmland and private gardens

However, concentrated toilet waste (with a relatively low water content) may also be considered comparable to the waste product from a composting toilet, and may therefore be used in farming and private gardening, as it is beneficial for agricultural purposes. Regarding the provisions that govern the use of waste products from these types of toilet, reference is made to item 1) Composting toilets.

Table 13.1 summarises the authorities and legislation relevant to the licensing of the application to farmland or private gardens of waste products from the four types of toilet described above.

With respect to the collection, emptying out and transportation of the waste products, reference is made to Chap. 14 below.

Table 13.1
Application of waste products from waterless or low-water toilet systems

Toilet system	**Licensing authority and legal basis**
1. Composting toilets/Humus toilets	
The waste product is comparable to night soil	Local council, cf. Statutory Order No. 366 of 10 May 1992
Post-treatment final product (night soil*) may be applied to farmland and private gardens	Regional council, cf. s. 21 of the Sludge Order**
2. Composting toilets/humus toilets with urine separation	
Faecal matter is comparable to night soil	Local council, cf. Statutory Order No. 366 of 10 May 1992
Post-treatment final product (night soil and urine) may be applied to farmland and private gardens	Regional council, cf. s. 21 of the Sludge Order**
3. Water flushing toilets with urine separation	
Post-treatment final product (urine) may be applied to farmland and private gardens	Regional council, cf. s. 21 of the Sludge Order**
4. Vacuum toilets	
The raw waste product is comparable to ordinary domestic waste water, however,	Waste Water Management Order
The waste product may alternatively be considered comparable to night soil	Local council, cf. Statutory Order No. 366 of 10 May 1992
Post-treatment final product may be applied to farmland and private gardens	Regional council, cf. s. 21 of the Sludge Order**

Statutory Order No. 366 of 10 May 1992 on non-commercial livestock management, unsanitary conditions, etc.

Sludge Order: Statutory Order No. 823 of 16 September 1997 on the application of waste products for agricultural purposes.

**) Provided the final product has been subjected to further treatment by stabilisation, controlled composting or controlled hygienisation and thus is no longer comparable to night soil, it may be used in accordance with the Sludge Order.*
***) After treatment, the final product (night soil and urine) is comparable to waste water sludge, and the licensing of its use under the Sludge Order is therefore subject to the same hygiene restrictions. Reference is made to the provisions of the Sludge Order.*

13.3 Procedure for submitting applications under the Waste Water Management Order

Pursuant to section 34(3) of the Statutory Order, applications for a licence to discharge and spray waste water on the surface of the ground for non-agricultural purposes must be submitted to the local council, which then forwards the applications, with comments, to the regional council.

The local council's comments

Before passing an application on to the regional council, the local council should ascertain whether the purpose for which the licence is sought conforms to and is consistent with local planning, including the waste water plan. The local council should also disclose any information available to the council about local conditions, for example, with regard to the risk of pollution to water abstraction plants and ground water resources.

13.4 Regional council licences for spraying and discharging waste water on the surface of the ground for non-agricultural purposes

When licensing the spraying and discharging of waste water on the surface of the ground for non-agricultural purposes under section 34(1) of the Statutory Order, the regional council must make sure that this may not give rise to any of the following risks:

- Pollution of ground water
- Pollution of surface water
- Health hazards to humans or animals
- Nuisance to neighbours
- Surface run-off

The assessment of these factors is largely identical with the assessment to be made in connection with the issuing of percolation licences, supplemented with special health and hygiene considerations.

Domestic waste water

For health reasons, spraying or discharging domestic waste water on the surface of the ground should generally not be permitted, since domestic waste water normally contains infectious matter on a scale that involves a serious health risk to humans and animals.

Direct discharge of untreated domestic waste water on the ground is illegal, unless a special licence has been obtained. As part of the follow-up on the original Environmental Protection Act from 1973, the

first waste water circular provided scope for regional councils to grant licences to spray waste water on the ground. At the same time, it was emphasised that this provision did not extend to domestic waste water.

Post-treatment municipal waste water and industrial waste water

According to previous practice, the direct discharge and spraying on the ground of waste water comparable to post-treatment municipal waste water was not permitted due to the health and hygiene risks involved. In certain cases, however, this method of disposal was permitted for industrial waste water, provided that the waste water carried a relatively low load of pollutants and was not associated with any risk of infection.

13.4.1 Assessment by the Medical Officer of Health and the District Veterinary Officer

The Medical Officer of Health and the District Veterinary Officer

Before issuing a licence for the discharge or spraying of waste water on the surface of the ground, the regional council must obtain both the Medical Officer of Health's and the District Veterinary Officer's opinion in the matter, cf. section 34(1) of the Statutory Order.

The reason for seeking the opinion of the Medical Officer of Health and the District Veterinary Officer is to get an assessment of whether the discharge/spraying on the ground of, say, a given type of roof run-off will expose humans or animals to a health risk, and whether a restriction with regard to the contemplated use should be stipulated in the licence.

13.4.2 Protection of ground water and surface water

In considering applications for licences pursuant to section 34(2)(i) and (ii) of the Statutory Order, it must be ensured that the discharge or spraying of waste water does not pollute or involve a risk of polluting ground water or surface water.

Environmentally incompatible substances

As a basic precaution, necessary for the protection of both ground water and surface water, waste water containing environmentally incompatible substances should never be applied to the surface of the ground. The discharge or spraying on the ground of such substances should only be licensed in cases where it is known with absolute certainty that the substances will decompose without causing any risk of pollution to either soil, ground water or surface water.

Waste water containing toxic, bio-accumulating or persistent substances should not be applied to the surface of the ground.

Effect on ground water

Where the spraying of waste water on to the ground in an amount and/or of a composition that is found to represent a potential risk of polluting existing water abstraction plants or ground water resources that may be exploited in future water abstraction plants, the regional council may have to decide in each given case whether the hydrogeological conditions are such that, in all probability, the contemplated discharge or spraying involves no such risk.

Hydrogeological conditions

An examination of the hydrogeological conditions may include:

- Determining the directional flow of the ground water (in the case of small clearance distances to water abstraction plants, the flow direction should be away from the abstraction plant)
- Establishing whether water abstraction plants are protected from percolating waste water (e.g. by an impermeable layer of clay).

Effect on surface water

The regional council must make sure that the discharge or spraying of waste water on the surface of the ground does not impede the achievement of the water quality targets set in the regional plan for watercourses, lakes or the sea. In this connection, it must be ensured that no seasonal surface run-off can enter watercourses, lakes or the sea.

It is also important to ensure that where large waste water loads are applied to areas near the receiving water body, no surface run-off of non-decomposed substances can take place, either directly or via the upper layers of the soil.

13.4.3 Health risks and nuisance to neighbours

It is a precondition for regional council licensing of the discharge or spraying of waste water on the surface of the ground that the waste water does not contain chemical or infectious substances on a scale that may endanger human or animal health or cause nuisance to neighbours, cf. section 34(2)(iii), (iv) and (v) of the Statutory Order.

Hygiene

When issuing such licences, the utmost care must be taken to ensure compliance with the strict hygiene requirements that apply to this method of disposal.

Waste water from households, especially raw toilet waste water, may contain large amounts of microorganisms, including pathogenic bacteria, and should therefore, as a rule, not be applied to the surface of the ground.

Waste water from animal production, e.g. slaughterhouses, which also contains microorganisms, including pathogenic bacteria, is also a potential source of infection.

Even waste water that has been subjected to more advanced biological and chemical treatment, for example, to remove nitrogen or phosphorus, should not be discharged or sprayed onto the surface of the ground without taking special precautions, such as providing fencing and/or protective screening. This is because the waste water contains bacteria and viruses, etc. that may cause a health risk to humans and animals. People and animals should therefore be prevented from contact with waste water applied to the ground.

Previously, it was possible to obtain a licence for the disposal by spraying of dairy waste water and waste water from food processing industries.

The waste water must be spread/sprayed out in a manner preventing any formation of aerosols, since aerosols may contain pathogenic bacteria and thus represent a health risk to humans and animals.

In evaluating the basis for granting a licence for the discharge or spraying of waste water on the surface of the ground, and whether special conditions should be stipulated in the licence, e.g. with regard to fencing, the licensing authority must identify the source of the waste water and the location planned for its disposal.

It must also be decided whether the licence should stipulate some form of treatment for the waste water before it is sprayed on to the ground, or prohibit the application of the waste water to edible crops or at locations to which children have access. The licence may therefore contain conditions to the effect that the waste water may not contain hazardous substances or pathogenic microorganisms.

Offensive odours

At the same time, consideration must be given to the formation of offensive odours that may be associated with discharging or spraying the waste water on the surface of the ground.

Surface run-off

It is also important to ensure that there will be no run-off to adjacent properties at any time of the year, and that the area designated for the purpose is not located where the waste water may create nuisance to neighbours or public traffic. The volume of waste water sprayed on the ground should not significantly exceed 3,500 m3/ha/year, corresponding to a net precipitation of 350 mm. Licences for the discharge of larger amounts of waste water should only be granted after an evaluation of the soil and terrain conditions, including any run-off etc. It must furthermore be ensured that the waste water is distributed evenly over the area. No accumulation of waste water must occur at any time of the year.

Interruption of operations

Allowance must also be made in the licence for any interruption of operations, in which case alternative means for the safe, temporary collection or drainage of the waste water must be available.

13.4.4 Compatibility with local and regional authority planning for the area

Licences issued by the regional council pursuant to section 34(1) of the Statutory Order must not conflict with the water supply, waste water, regional and municipal planning for the area.

13.4.5 Contract for discharge/spraying

Liability for operation, maintenance and damage in connection with disposal of waste water on the property of others

When granting licences to discharge or spray waste water on the property of others, the regional council should make sure that a contract has been concluded by and between the waste water producer and the owner of the receiving area. The contract should contain provisions concerning the allocation of private law liability for the operation and maintenance of the installation, including liability for any nuisance that may arise from the activity. The contract should further specify for whose account any damage is to be remedied, and who is to be responsible for the general operation and maintenance of the plant. Conditions regarding the term and optional termination of the contract should also be stipulated in the contract.

Time limit

The licence should be subject to a time limit to be fixed with due consideration to the term of the contract, to allow time to decide whether the contract may be renewed, or whether an application for a licence for a different method of discharge will have to be submitted.

13.5 Supervision and enforcement

Supervision

Pursuant to section 65 of the Environmental Protection Act, the local council is generally responsible for supervising the discharge and spraying of waste water on the surface of the ground. This responsibility includes ensuring compliance with

- The terms and conditions stipulated in licences issued under section 34 of the Statutory Order
- Enforcement notices and prohibition notices.

However, the regional council is responsible for supervising licences issued to municipal corporations, cf. section 66(4) of the Environmental Protection Act.

Enforcement

The local council must refer cases of non-compliance with decisions made pursuant to section 34 of the Statutory Order to the regional council, which will subsequently take proper enforcement action pursuant to sections 68-70 of the Environmental Protection Act. Thus, the regional council is always the ultimate enforcement authority.

13.6 Variation or revocation of licences

Pursuant to section 20 of the Environmental Protection Act, the regional council may at any time and without paying any compensation vary or revoke licences granted under section 34 of the Statutory Order on the following grounds:

- Risk of pollution of water abstraction plants
- Change of method of waste water discharge to implement a waste water plan pursuant to section 32 of the Environmental Protection Act
- Environmental protection in general, including health considerations.

13.7 Right of appeal

Questions of doubt, s. 36

In case of doubt as to whether waste water intended for discharge or spraying on to the surface of the ground is beneficial for agricultural purposes, the issue must be submitted in writing to the Environmental Protection Agency and decided on a case-by-case basis. The Agency's decisions cannot be brought before any other administrative authority, cf. section 36 of the Statutory Order.

Refusal of licence applications

The regional council's refusal of an application for a licence to discharge or spray waste water on the surface of the ground for non-agricultural purposes cannot be brought before any other administrative authority, cf. section 35 of the Statutory Order.

Licence

Appeals against licences issued by the regional council under section 34 of the Statutory Order may be lodged with the Environmental Protection Agency in accordance with the general provisions set out in section 91 of the Environmental Protection Act.

The Environmental Protection Agency's decisions in appeal cases brought against licences granted by the regional council under section 34 of the Statutory Order are final and conclusive, cf. section 103 of the Environmental Protection Act.

14. Establishment of holding tanks for waste water - collection, emptying and transportation

14.1 General provisions of the Environmental Protection Act

Part 3, section 19 of the Environmental Protection Act lays down rules governing the licensing of underground tanks for storing any substances, products or materials likely to pollute the groundwater, soil and subsoil. The rules do not apply to licences for tanks for collecting waste water etc. established inside houses and other buildings, which are governed by rules and regulations laid down by the Ministry of Housing and Urban Affairs, including the Building Regulations.

Under section 19(4) of the said Act, licences for underground tanks are issued by the regional council, unless otherwise stipulated by the Minister.

Part 14 of the Statutory Order provides detailed rules on licences for the discharge of waste water into underground holding tanks and to holding tanks in general.

The said rules are contained in section 37 of the Statutory Order, the relevant authority in this respect having been conferred on the local council, subject to certain conditions.

Section 20 of the said Act lays down general provisions pertaining to the revocation or variation of the aforesaid licences.

14.2 Powers of the local council

Domestic waste water from one or two households

The local council is empowered to issue licences for the discharge of domestic waste water, including human waste and surface run-off from properties with one or two households, to holding tanks wholly or partly buried in the ground, cf. section 37(1) of the Statutory Order.

'Properties with two households' means, for example, a semi-detached house or a house containing two separate flats.

Separate discharges of domestic waste water

According to the definition of domestic waste water given in section 4(2) of the Statutory Order, the local council is also the licensing authority, for example, in the case of the discharge of black waste water (from water closets) to a holding tank. This may be the case

where only the grey waste water (other domestic waste water) is to be discharged by percolation. In this connection it is essential to ensure that any licensing for percolation conforms to Part 12 of the Statutory Order.

Waterless or low-water toilet systems

Licences for the collection, emptying out and transportation of waste from waterless or low-water toilets may be issued by the local council or the regional council depending on the volume and type of waste water concerned, cf. section 14.5 below.

For the final disposal and application of waste from waterless or low-water toilet systems, see Part 13 of these Guidelines.

Holding tank for storm water from roofs

The use of underground holding tanks for roof run-off for toilet flushing and washing of clothes in private households now requires licensing by the local council. In connection with a contemplated amendment of the Statutory Order on water quality and monitoring of water supply, this will be altered so that in future no separate licence will be necessary for the establishment of such tanks. Instead, such tanks and associated installations will be subject to general quality requirements.

14.2.1 Quality requirements for holding tanks

Prior to issuing a licence, the local council must verify that one of the following conditions concerning the quality of the holding tank has been satisfied, cf. section 37(1)(i-iv) of the Statutory Order.

Type approval by PUFO

- The type of holding tank must be approved by the Danish Approval Committee for testing oil tanks ("Prøveudvalget for Olietanke" - PUFO) under the Statutory Order on the monitoring of oil storage in force from time to time, cf. section 37(1)(i) of the Statutory Order.

Quality requirements deemed by licensing authority to be fulfilled

- The holding tank must be deemed by the licensing authority to fulfil similar quality standards for waste water storage, cf. section 37(1)(ii). These are standards which, under the Statutory Order on the monitoring of oil storage, may be relevant in connection with an assessment of the suitability of a holding tank for storing waste water. Alternatively, certain tanks may have been approved in other countries for storing waste water or may have been approved for collecting roof run-off.

Vacuum systems

- If a property has a toilet system whose operation requires the tank to be completely water-tight (vacuum system), the holding tank must satisfy the requirements for approval by the licensing authority for inclusion in such a system, cf. section 37(1)(iii)of the Statutory Order.

Concrete tank built by a qualified sewage contractor

- If the holding tank is to be constructed on site as a concrete structure, the work is to be carried out by a qualified sewage contractor, and the design must be approved by the licensing authority prior to the establishment of the structure/holding tank, cf. section 37(1)(iv) of the Statutory Order.

Use of existing tanks as holding tanks

An existing tank which has been used for another purpose may be approved by the licensing authority for use as a holding tank. However, it must be verified and be capable of proof that the quality of the tank is adequate for the purpose of waste water collection. This is consequently a matter of assessment on a case-by-case basis, and the general criterion should be for the tank in question to conform to the quality requirements for new holding tanks.

In respect of concrete tanks built *in situ*, the licensing authority must assess the quality of the concrete and the tightness of the tank, and must further verify that the tank does not contain any deposited solids. This may be done by inspecting and flushing the tank so as to remove any deposits. The tightness may be checked by visual inspection, e.g. for any cracks in the concrete, or by means of leak testing (the tank is filled with water, and after approx. 24 hours the tank is inspected for leaks).

For tanks made of materials other than concrete, e.g. plastic, fibre glass, etc., the same criteria apply to the assessment of suitability.

Disused liquid manure tanks etc.

Sometimes disused liquid manure tanks may serve as tanks for collecting waste water. In such cases, it is essential for the licensing authority to commission a detailed assessment of the suitability of the tanks to be used, as they may be old and leaky.

Should old oil tanks be reused for the collection of storm water?

The Environmental Protection Agency cannot recommend reusing old oil tanks, for example as storm water tanks, as it is difficult to clean them sufficiently of oil. Tanks will have to be cleaned before use, and the only effective way of cleaning an oil tank is by high-pressure cleaning. Only tanks exceeding 600 litres allow entry for inspection. Smaller tanks must therefore be dug up and cut open, so as to provide access for high-pressure cleaning.

14.2.2 Siting and size of holding tanks

In order for a holding tank to be licensed by the local authority, the tank must be completely or partly buried on the property, cf. section 37(1) and (2) of the Statutory Order, meaning that the holding tank must be referable to the title number(s) of the property in question.

Required clearance distance from roads and boundaries

In addition, under section 37(5) of the Statutory Order, the licensing authority must ensure that the clearance distance of the holding tank from roads and boundaries is not less than 2 metres.

Clearance distance from buildings

In respect of the clearance distance from buildings, see the Building Regulations dated 1 April 1995 and the Building Regulations for detached or semi-detached houses dated 25 June 1998. In the proximity of buildings, the tank is to be sited so as to fulfil the criteria of DS 415 Code of Practice for foundation engineering (buildings).

Siting of holding tank

In addition, under section 37(6) of the Statutory Order, the holding tank is to be sited and installed with easy access for emptying by vacuum tanker. The top cover of the holding tank must be easily accessible. It must be possible for one man to lift the cover, and it must not be concealed either by soil, grass or other materials.

Size of holding tank

The size of the holding tank must be adapted to the waste water intake and the required emptying frequency, cf. section 37(6) of the Statutory Order.

The appropriate size depends on the type of premises (for intermittent or permanent residence), the volume of the waste water intake (including both grey and black waste water or only part of the waste water discharged from the building), the planned emptying frequency and the capacity of the vacuum tanker.

According to the Guidelines for construction of sewage systems published by the Danish Technological Institute (DTI), the tank size for holiday cottages should be 2,500-3,000 litres, and for permanent residences 5,000-6,000 litres.

14.2.3 Clearance distance from abstraction plants

If a holding tank is to be completely or partly buried on a site that includes an abstraction plant for drinking water pursuant to the Act on Water Supply, the licensing authority is to ensure compliance with the clearance distance requirements set out in Table 14.1 prior to issuing the licence, cf. section 37(3) and (4) of the Statutory Order.

Table 14.1
Clearance distance between holding tank and water abstraction plant

Type of water abstraction plant	Minimum clearance distance between holding tank and water abstraction plant	Applicable provision of the Statutory Order
Plants supplying or designed to supply at least 10 properties	50 m	section 37(3)(i)
Plants supplying or designed to supply less than 10 properties	30 m	section 37(3)(ii)

Plants supplying or designed to supply a single property	15 m	section 37(3)(iii)
Other plants not subject to the drinking water criterion	15 m	section 37(4)

14.2.4 Health hazards and nuisance to neighbours

Section 37(7) of the Statutory Order provides that, prior to the issue of a licence for the establishment of a holding tank, precautions are to be taken to prevent any health hazards to humans or animals and any nuisance to neighbours.

14.2.5 Emptying and disposal

Prior to licensing the establishment of a holding tank, the licensing authority must generally provide for the appropriate emptying, transportation and final disposal of waste from holding tanks. This includes documentation of transportation, the issue of a licence for final disposal, including indication of the location for such final disposal, cf. section 37(8) and (9) of the Statutory Order.

Ordinary domestic waste water

As a general rule, ordinary domestic waste water will be transferred to a waste water treatment plant.

The use of any municipal collection scheme covering his property is mandatory on a landowner, cf. section 44 of the Statutory Order.

If a property is not covered by a municipal collection scheme, the local council must ensure, prior to licensing the establishment of the property in question:

- That the holding tank will be emptied by vacuum tanker in an appropriate manner, e.g. by contracting with a tank cleaner

- That a contract is entered into between the tank cleaner and the local council for the direct tanking of the waste water to the waste water treatment plant as directed by the local council, cf. section 37(8) of the Statutory Order.

The waste water must not necessarily be transported to a waste water treatment plant in the municipality in which the property in question is situated, but may be transferred to a treatment plant in another municipality if a contract to that effect has been entered into between the tank cleaner and the local council.

The mandatory collection scheme does not apply, however, where a licence for reusing the waste water has been issued, cf. section 37(8) of the Statutory Order.

Waterless or low-water toilet systems

Prior to licensing the establishment of a holding tank for human waste, the local council must provide for appropriate emptying, transportation and final disposal of the contents, and it must be documented that a licence for final disposal has been granted, cf. Part 13 of these Guidelines (on the application of waste products to the surface of the ground).

Reference is also made to section 15.2 below in respect of the collection of sludge from holding tanks containing human waste.

Part 15 of the Statutory Order deals with the detailed rules governing collection schemes. For holding tanks for human waste, the rules set out in Part 15 of the Statutory Order do not apply where a licence has been issued for alternative final disposal or reuse, cf. section 44(3) of the Statutory Order.

Surface run-off

In principle, collected surface run-off may be reused according to the general rules set out in Part 13 of these Guidelines.

14.3 Powers of regional councils

When are regional councils competent to issue licences?

Regional councils are generally empowered to license the discharge of waste water into holding tanks completely or partly buried in the ground, cf. section 38(1) of the Statutory Order, except in cases where the local council is empowered to do so under section 37(1) of the Statutory Order.

Examples of licences to be granted by regional councils are for the discharge of domestic waste water, including human waste, from a property with more than two households, the discharge of domestic waste water from two properties sharing a holding tank, the discharge of industrial process waste water and waste water from milking parlours.

In addition, a regional council is empowered to issue a licence when a holding tank is buried elsewhere than on the property occupied by the household(s) using the tank, cf. section 37(2), and when the holding tank does not comply with the clearance distance requirements set out in section 37(3) and (4).

Under section 38(2) of the Statutory Order, any decision by a regional council must, however, comply with the requirements set out in section 37(1) and (5)-(9) of the Statutory Order.

14.3.1 Delimitation against other legislation

Statutory Order on livestock manure

Certain categories of waste water typically to be found on agricultural properties may also be governed by Statutory Order No. 550 of 24 July 1998 issued by the Ministry of Environment and Energy on commercial livestock management, livestock manure,

ensilage, etc. The types of waste water concerned are water from milking parlours (water used to clean milking systems), water used to wash farm products etc., water used to clean feeding equipment and water used to clean poultry houses.

These types of waste water may be transferred to liquid manure tanks or separate tanks, and are therefore also governed by the rules on storage, emptying and disposal set out in the Statutory Order on livestock manure.

14.3.2 Emptying and disposal

Domestic waste water etc.

For emptying of holding tanks used for domestic waste water, human waste and surface run-off, see section 37(8) and (9) and section 14.2.5 of these Guidelines.

Other waste water, including industrial process waste water

For emptying and disposal of the contents of holding tanks used for storing other types of waste water, including industrial process waste water etc., see section 38(3) of the Statutory Order and section 14.3.2 of these Guidelines.

This means that the regional council is to provide for appropriate emptying, transportation and final disposal of the contents of the tanks, and the applicant is required to document that a licence for final disposal has been obtained.

Discharge of waste water to the ground surface

Thus, in the case of waste water to be sprayed on the surface of the ground, the applicant must indicate the site of application. On the basis of this information, the regional council must verify that the holding tank is emptied and the contents finally disposed of in a manner approved by the regional council.

With regard to the discharge or spraying of waste water on the surface of the ground for non-agricultural purposes according to section 34 of the Statutory Order on the licensing of waste water discharges or to the use of waste water for agricultural purposes under the provisions of the Statutory Order on sewage sludge, the regional council must verify that the necessary licences have been obtained.

14.4 Aboveground holding tanks

Waste water etc.

Aboveground holding tanks for waste water, including human waste, are subject to the same rules and regulations as underground tanks, except for the provisions of section 37(2)-(4) of the Statutory Order on the siting of holding tanks on a landowner's own property and clearance distance requirements for siting near water abstraction plants, section 39 of the Statutory Order.

Storm water tanks

The establishment of aboveground holding tanks for surface run-off is not subject to licensing, but must be notified to the local council no later than three weeks in advance, cf. section 39(2) of the Statutory Order.

14.4.1 Emptying and disposal

The rules on emptying and disposal apply correspondingly to waste water from the holding tanks referred to in section 39 of the Statutory Order, cf. section 37(6)-(9) of the Statutory Order and Chap. 15 below.

14.5 Establishment and emptying of holding tanks for waste products from alternative toilet systems

The establishment and emptying of four different alternative types of waterless or low-water toilet are covered and described under these Guidelines.

- Composting toilets/Humus toilets
- Composting/Humus toilets with urine separation
- Water flushing toilets with urine separation
- Vacuum toilets

For a detailed description, see section 13.2.2 above.

Licences for the establishment of holding tanks for the four types of toilet system mentioned above are issued under sections 37-39 of the Statutory Order. This does not include licences for tanks established inside houses or other buildings, such tanks being governed by the rules and regulations laid down by the Ministry of Housing and Urban Affairs.

However, when licensing the establishment of holding tanks for these types of toilet system, the licensing authority must provide for appropriate emptying and final disposal facilities, cf. section 37(8)-(9) and sections 38-39.

Basically, waste products from such toilet systems are considered comparable to night soil. The local council licenses their collection and disposal, cf. Statutory Order No. 366 of 10 May 1992 on non-commercial livestock management, unsanitary conditions, etc. As a general rule, night soil is to be transferred to a waste water treatment plant.

Licences to apply waste products to the surface of the ground are dealt with in section 13.2.2.

Certain parts of the waste products collected from waterless or low-water toilet systems are generally to be handled according to the rules on ordinary waste water. This applies to:

- Tanks for collecting "carrying water" from toilet systems in which faecal matter is flushed down with water (which is then considered comparable to black waste water)
- Tanks for collecting black waste water (vacuum toilets, faecal matter collected from water flushing toilets with urine separation)

The collection and disposal of waste water from such tanks is subject to Part 14 of the Statutory Order, unless the waste products have been subjected to further treatment, cf. Part 13 of the Statutory Order.

Table 14.2
Collection and disposal of waste products from four types of waterless or low-water toilet system

Toilet system	**Licensing authority and legal basis**
1. Composting toilets/Humus toilets	
The waste product is comparable to night soil, and as such generally subject to treatment at a treatment plant.	Local council, cf. Statutory Order No. 366 of 10 May 1992
Post-treatment final product (night soil*) may be applied to farmland or private gardens	Regional council, cf. s. 21 of the Sludge Order**
Any 'black carrying water' is collected in a separate holding tank and/or conveyed to a treatment plant.	Local/regional council, cf. sections 37-39 of the Waste Water Management Order
2. Composting toilets/Humus toilets with urine separation	
Faecal matter is comparable to night soil	Local council, cf. Statutory Order No. 366 of 10 May 1992
Post-treatment final product (night soil and urine) may be applied to farmland and private gardens	Regional council, cf. S. 21 of the Sludge Order**
Any 'black carrying water' is collected in a separate holding tank and/or conveyed to a treatment plant	Local/regional council, cf. sections 37-39 of the Waste Water Management Order
3. Water flushing toilets with urine separation	
Post-treatment final product (urine) may be applied to farmland	Regional council, cf. S. 21 of the Sludge Order**
Faecal matter is comparable to black waste water and must be collected and/or conveyed to a treatment plant	Local/regional council, cf. the Waste Water Management Order
4. Vacuum toilets	
The raw waste product is comparable to ordinary domestic waste water that is collected and conveyed to a treatment plant. However,	Local/regional council, cf. the Waste Water Management Order
The waste product may alternatively be considered comparable to night soil (provided it has a low water content), and finally,	Local council, cf. Statutory Order No. 366 of 10 May 1992

Post-treatment final product (night soil) may be applied to farmland	Regional council, cf. s. 21 of the Sludge Order**

Statutory Order No. 366 of 10 May 1992 on non-commercial livestock management.
Sludge Order: Statutory Order No. 823 of 16 September 1997 on application of waste products for agricultural purposes.
**) Provided that the final product has been subjected to hygienisation to improve its general hygienic condition, the product may be applied in accordance with the Sludge Order. For licensing purposes, the treated product (night soil and urine) may be considered comparable to waste water sludge in respect of hygiene-related restrictions on its application.*
***) The Sludge Order contains provisions for the storage and disposal of the waste products. Similar conditions are to be stipulated in licences issued under section 21.*

14.6 Waste water stabilisation ponds without an outlet

Basically, no-outlet waste water stabilisation ponds for the treatment of waste water are sealed ponds planted with shrubs or trees, such as willows. The pond has no outlet, i.e. neither a drain nor means for percolation. The waste water is absorbed by the plants or evaporates. The dimensions of the pond must allow the storage of the waste water during periods when waste water cannot be absorbed by the plants. Accordingly, a willow pond requires a substantially larger area and volume than a reed-bed plant. On the other hand, it may be used in areas where a reed-bed plant does not provide sufficient treatment, and in areas where waste water cannot be discharged after treatment.

14.6.1 Powers of local councils

The local council may license the discharge of domestic waste water to no-outlet waste water stabilisation ponds for the treatment of waste water from a single property with one or two households, according to section 40 of the Statutory Order.

Prior to issuing such licence, the local council must verify that the waste water stabilisation pond:

- Has watertight bottom and sides
- Is overflow-proof
- Poses no health risk to humans or animals
- Creates no nuisance to neighbours
- Complies with the prescribed clearance distance from water abstraction plants, cf. section 37(3)-(4).

For the purpose of the specification by the local council of requirements for the pond to be watertight, see the Danish EPA's Guidelines No. 1 on the establishment of reed-bed plants and No. 3 on biological sand filter systems up to 30 p.e., both published in 1999.

The local council is generally responsible for verifying that the pond is appropriately designed and has the required capacity to prevent overload and overflow. The local council should therefore make allowance for any changes in the inflowing load, e.g. in connection with change of ownership.

Under section 40(2)(iii), the local council is to verify that the pond poses neither health risks to humans or animals, nor nuisance to neighbours, e.g. due to obnoxious smells. The council should also safeguard against any potential hygiene or health hazards caused by direct or indirect contact with waste water from the pond, and the need to provide protective screening should be assessed.

14.6.2 Powers of regional council

The regional council is competent to license discharges of waste water to no-outlet stabilisation ponds for the treatment of waste water in cases where a licence cannot be issued by the local council. The requirements set out in section 40(2) of the Statutory Order must generally be observed, but section 41(2) empowers the regional council to derogate from the prescribed clearance distance from water abstraction plants, cf. section 40(2)(v).

The regional council is to verify that the stabilisation pond:

- Has watertight bottom and sides
- Is overflow-proof
- Poses no health risk to humans or animals
- Creates no nuisance to neighbours
- Is located at an appropriate clearance distance from water abstraction plant.

14.6.3 Waste water stabilisation ponds with a permeable bottom

Waste water stabilisation ponds with permeable bottom and sides must be considered comparable to an infiltration plant. Typically, the regional council will have the power to license such stabilisation ponds under section 30 of the Statutory Order, the local council being competent to license the disposal of domestic waste water by percolation under section 29 of the Statutory Order only if the pond concerned includes seepage drains.

14.7 Supervision and enforcement

Supervision

It is the responsibility of the local council to supervise holding tanks and no-outlet waste water stabilisation ponds operated by private owners, regional or central government bodies, cf. section 57(1) of the Statutory Order and section 65 of the Environmental Protection Act. The local council is responsible for monitoring compliance with such licences.

Moreover, the local council is responsible for monitoring compliance with any enforcement or prohibition notices issued under statutory provisions.

The regional council supervises public holding tanks and no-outlet waste water stabilisation ponds, cf. section 57(2) of the Statutory Order.

Enforcement

If a violation of any local council decision under sections 37, 39 or 40 of the Statutory Order is ascertained by the local council, the local

council must take enforcement action against such unlawful conduct under Part 8 of the Environmental Protection Act.

However, as the licensing authority, the regional council is competent to take enforcement action against any non-compliance with decisions under sections 37-41 of the Statutory Order in the case of public holding tanks and no-outlet waste water stabilisation ponds.

If the local council ascertains that a decision by the regional council under sections 38, 39 or 41 of the Statutory Order has been violated, the local council is to refer the matter to the regional council, cf. section 65(4) of the Environmental Protection Act, which will subsequently decide upon the matter in accordance with the provisions of the said Act.

14.8 Variation or revocation of licences

Licences issued subject to sections 37-41 of the Statutory Order may be revoked or varied at any time without compensation by the licensing authority, i.e. either the local or the regional council, cf. section 20 of the Environmental Protection Act.

Protection of water abstraction plants

This may be required, for example, in order to protect water supply/water abstraction plants from pollution. A damaged/leaking underground holding tank may be a potential source of pollution of water abstraction plants, even where the holding tank conforms to the requirements set out in section 37(3) and (4) of the Statutory Order.

Environmental protection in general

Similarly, it may be required for the purpose of environmental protection in general to revoke or vary a licence. This may be the case, for example, where the holding tank causes overflow, pollution of surface water or unacceptably unsanitary conditions due to leaks, inappropriate emptying, disposal, etc.

*Revised waste water plan*In connection with the implementation of a different method of waste water discharge in accordance with a revised waste water plan, the local council is competent in any case to revoke the licence if this is required for the purpose of implementing a waste water plan. In these cases, revocation of the licence is deemed to become effective upon the commissioning of the new system, cf. section 20(4) of the Environmental Protection Act, and the decision by the local council cannot be brought before another administrative authority.

Other decisions under section 20 of the Environmental Protection Act may be brought before the Environmental Protection Agency under section 91 of the Environmental Protection Act.

14.9 Right of appeal

Local council decisions

Decisions by the local council under sections 37, 39(1) and 40 of the Statutory Order cannot be brought before any other administrative authority, cf. section 43 of the Order.

Regional council decisions

Decisions by the regional council under sections 38, 39(1) and 41 may be brought before the Environmental Protection Agency in accordance with the general provision to that effect laid down in section 91 of the Environmental Protection Act.

Danish-EPA decisions

Decisions made by the Environmental Protection Agency in appeals against licences issued by a regional council under sections 38, 39 and 41 cannot be brought before the Environmental Appeal Board, cf. section 103 of the Environmental Protection Act.

15. Collection schemes for settling tanks and holding tanks, etc.

Purpose

The reason for introducing mandatory municipal collection schemes is that the treatment performance of drainage systems is closely related to the emptying frequency. A mandatory collection scheme also ensures the safe disposal of sludge/waste water. Furthermore, a municipal collection scheme makes it possible to identify and repair any defects and damage of the tanks.

15.1 General provisions of the Environmental Protection Act

According to section 19(2) of the Environmental Protection Act, the establishment of underground containers for substances that may pollute groundwater, soil and subsoil is subject to licensing.

Pursuant to section 19(5) of the Environmental Protection Act, the Minister may lay down detailed rules for licensing. Part 15 of the Statutory Order contains such rules.

Part 15 of the Statutory Order empowers the local council to establish mandatory collection schemes for settling tanks, holding tanks, etc. The Statutory Order sets out administrative guidelines for the establishment and operation of municipal collection schemes for the following drainage systems:

- Holding tanks
- Settling tanks
- Other drainage systems, grease separators and sand catchers

The delivery of sludge, waste water, etc. to treatment plants is subject to local council licensing pursuant to section 28(3) the Environmental Protection Act.

Certain substances should not be allowed to enter a treatment plant, and chemical sludge from industrial enterprises should be admitted only after an assessment in each case of the nature of the waste water and the suitability of the treatment plant for processing the particular type of waste water.

15.2 Collection scheme for holding tanks etc.

Pursuant to section 44(1) of the Statutory Order, the local council may introduce a collection scheme for the whole or part of the municipality.

Municipal collection schemes are governed by a set of rules and regulations, cf. section 48(2) of the Statutory Order.

15.2.1 General facts about holding tanks

What is a holding tank?

A holding tank is generally a tank for collecting domestic waste water, i.e. a tank in which all or part of the waste water produced in a household is collected.

Before the adoption of the Environmental Protection Act, many holding tanks were designed only for waste water from water closets, while grey waste water was either discharged or disposed of by percolation. The new type of holding tank is typically designed to accommodate all types of domestic waste water from one or more households. With regard to the installation and licensing of holding tanks, see Chap. 14 above.

Traditionally, collection schemes for holding tanks cover ordinary holding tanks, but over the next few years, an increased need is anticipated for collection schemes for wastes from environmental solutions, such as humus/composting toilets, separation toilets, etc.

15.2.2 Holding tanks etc. covered by contractual membership of the public waste water service partnership

In cases where a contract has been concluded between the landowner and the local council on membership of the public waste water service pursuant to the Act on payment rules for waste water installations etc., the emptying of the holding tank is the responsibility of the local council, cf. section 44(2) of the Statutory Order. In this connection, the local council may decide to include the tank under the municipal collection scheme for holding tanks.

The local council is responsible for establishing, operating and maintaining holding tanks covered by a contractual membership of the public waste water service partnership.

Emptying on request

The local authority is responsible for emptying the holding tank as needed or at the landowner's request. The local council specifies guidelines for emptying procedures in the rules and regulations governing collection schemes, cf. section 44(4) of the Statutory Order.

15.3 Collection scheme for settling tanks

Pursuant to section 45(1) of the Statutory Orders, the local council can decide that a common collection scheme for sludge etc. from settling tanks shall be introduced in all or part of the municipality.

Municipal collection schemes are governed by a set of rules and regulations.

15.3.1 General facts about settling tanks

The term 'settling tank' covers septic tanks, Emscher/Imhoff tanks (combined decanters-digesters) and multiple-compartment tanks for simple physical treatment of the waste water. Settling tanks are designed to remove settleable and floatable material from the waste water before it is passed on for further treatment or discharged.

The residue (sludge) is retained in the tank, where a certain degree of decomposition takes place before the tank is emptied.

New factory-made settling tanks for 1-2 households (up to 10 p.e.) are subject to approval ("VA approval") under the approval scheme for water and drainage systems operated by the Ministry of Housing and Urban Affairs. Approval may be granted by three different procedures: 1) A theoretical assessment of the tank to verify that it complies with the requirements of DS 440. 2) A performance test, and 3) Test results from the Swedish counterpart of the Danish VA-approval scheme.

Settling tanks constructed *in situ* are subject to approval by the local authorities. A detailed description of settling tank design is given DS 440 "Code of Practice for smaller drainage disposal systems for percolation into the ground".

For settling tanks used in connection with the establishment of infiltration plants, biological sand filters and reed-bed plants capable of serving up to 30 p.e., reference is made to Danish EPA's Environmental Guidelines Nos. 1-3, 1999 concerning the above low-technology solutions.

15.3.2 Properties included under a collection scheme for settling tanks

Pursuant to section 45 (1) of the Statutory Order, the local council can decide whether a collection scheme for settling tanks is to apply to the whole or only part of the municipality. The scheme is mandatory on all owners of properties located in an area covered by a collection scheme.

Operating a collection scheme for only part of a municipality must be motivated by environmental reasons, e.g. protection of particularly sensitive waters. Another argument could be the variations with regard to the amount of effluent from non-sewered areas with different building density, the greatest need for a collection scheme being found in the areas having the highest building density.

Where possible, a mandatory municipal collection scheme must cover all properties within a defined geographical area. This means that enclaves of properties or single properties cannot be either excluded from or included in the scheme. Nor is it possible to differentiate between properties for intermittent or permanent residence.

15.3.3 Settling tanks covered by contractual membership of the public waste water service

In the case of installations for which a contract has been concluded between the landowner and the local council for membership of the public waste water service, pursuant to the Act on payment rules for waste water installations etc., the local council is responsible for emptying the settling tanks, cf. section 45(2) of the Statutory Order. In this connection, the local council may decide that the tank must be included under the municipal collection scheme. The local council's responsibility is limited to collecting the tank contents, while the landowner must pay the costs of establishing and maintaining the tank.

15.4 Collection scheme for other drainage systems

Pursuant to section 46 of the Statutory Order, the local council may establish mandatory municipal collection schemes for other drainage systems, especially grease separators and sand catchers.

The municipal collection scheme is governed by a set of rules and regulations, cf. section 48(2) of the Statutory Order.

15.4.1 Collection scheme for grease separators and sand catchers

Where should grease separators be installed?

Grease separators are mainly needed in drainage pipes for waste water with a particularly high content of grease, such as:

- Food processing industries
- Commercial kitchens (at restaurants etc.)

The purpose of installing a grease separator is, primarily, to prevent grease clogging up drainage systems and to protect the pumps and other mechanical equipment of the system from wear. Secondly, waste water with a high grease content may cause problems at the treatment plant.

Where should sand catchers be installed?

Sand catchers are installed in drainage systems for surface run-off.

The purpose of establishing sand catchers is twofold: firstly, to prevent the discharge of sand into watercourses and lakes, and, secondly, to prevent the sand causing unnecessary wear to the pumps and other mechanical equipment of the system. However, sand catchers are typically installed in municipal systems, and thus operated by the public waste water service.

In addition, sand catchers may also be needed in outfalls from minor private enterprises, for example, from washing and cleaning facilities.

15.4.2 Emptying of oil and petrol separators

Statutory Order No. 299 of 30 April 1997 on waste management sets out rules for the handling of waste products from oil and petrol separators, including for the emptying of such installations.

15.5 Emptying frequency

15.5.1 General

Under section 47 of the Statutory Order, the local council has general authority to define different emptying frequencies, depending on the size, design and/or load of the individual settling tank, drainage system, etc.

15.5.2 Emptying frequency for holding tanks etc.

Holding tanks must generally be emptied as needed, i.e. when they are full. The municipal rules and regulations for collection schemes specify procedures for the emptying of such tanks.

Under section 44(4) of the Statutory Order, the party responsible for emptying the tank, typically the landowner, must make a request to the

local council to have the tank emptied. The local council fixes a time limit for when and how this request is to be made. In the case of holding tanks covered by a contractual membership of the public waste water service partnership, the owner must request emptying of the tank in accordance with rules laid down by the local council, cf. section 44(5) of the Statutory Order.

15.5.3 Emptying frequency for settling tanks

Guidelines for the emptying frequency for settling tanks are provided in the rules and regulations issued by the local council.

The necessary emptying frequency for settling tanks depends primarily on the load provided by the tank relative to its size and design (number of compartments).

The oldest and smallest settling tanks have a volumetric capacity of approx. 1 m^3. The capacity of newer tanks is at least about twice as much.

The ability of tanks with two or more compartments to retain pollutants is significantly better than that of single-compartment tanks with the same load and volume.

The optimal emptying frequency is therefore determined on the basis of the above-mentioned factors.

Guidelines for emptying frequency

Table 15.1 provides guidelines for the emptying frequency for settling tanks as a function of their load, volume and design.

Generally, no financial benefit is gained from introducing collection schemes with different emptying frequencies. This is because of the large variations in the conditions existing in different geographical areas as well as within individual areas, and because it would involve more administration and more haulage.

In such cases, a uniform emptying frequency may be fixed for the entire municipality or for geographically delimited areas thereof, based on the tank size and design and on the load conditions that characterise the area (e.g. a holiday cottage area).

Inspection

Before initiating schemes with different emptying frequencies, the authorities must obtain the necessary information about the load conditions etc. of the relevant tanks. It is therefore recommended to empty all the tanks once in the first year and at the same time inspect the tanks.

Table 15.1.
Recommended emptying frequencies for settling tanks

Load (persons)	Tank volume (V) m^3	No. of compartments	Emptying frequency (times per year)
1-2	$V < 1.2$	1	2
1-2	$1.2 \leq V < 1.8$	1	1
1-2	$V \geq 1.8$	> 1	Once every second year
2-5	$V < 1.2$	1	4
2-5	$1.2 \leq V < 1.8$	1	2

Load (persons)	Tank volume (V) m^3	No. of compartments	Emptying frequency (times per year)
2-5	V ≥1.8	> 1	1
6-10	1.2 ≤ V < 1.8	1	4
6-10	V ≥1.8	> 1	2

Loads and emptying frequencies are based on the number of permanent residents. In holiday cottage areas, the figures for emptying frequencies are likely to be half of those indicated for permanent dwellings.

The local council fixes the emptying frequency for the individual settling tanks, cf. section 47 of the Statutory Order.

15.5.4 Emptying frequency for other drainage systems

The emptying frequency for other drainage systems is fixed according to need.

The local council establishes rules and regulations for emptying frequency for such systems.

15.6 Administration of collection schemes

The local council is responsible for the administration of collection schemes. Pursuant to section 48(1) of the Statutory Order, the local authority also operates the scheme, but the local authority may outsource the operation of the scheme at its own option.

All collection schemes are subject to rules and regulations to be laid down by the local authority.

According to the Act on payment rules for waste water installations etc., collection schemes must be self-sustaining, and separate accounts must therefore be drawn up for each type of collection scheme.

Separate regulations must be issued for:

- Holding tanks
- Environmental solutions
- Settling tanks
- Other drainage systems

The introduction of a collection scheme must be announced in the most widely circulated local papers.

15.7 Right of appeal

No right of appeal

Local council decisions concerning collection schemes pursuant to Part 15 of the Statutory Order cannot be brought before other administrative authorities, cf. section 49 of the Statutory Order.

16. Water quality standards and emission standards for certain dangerous substances

16.1 Background of Statutory Order No. 921 of 8 October 1996

Statutory Order No. 921 of 8 October 1996 on water quality standards and emission standards for certain dangerous substances discharged into watercourses, lakes or the sea issued by the Ministry of Environment and Energy is an instrument for implementing EU legislation into Danish law, viz. Council Directive 74/464/EEC of 4 May 1976 on pollution caused by certain dangerous substances discharged into the aquatic environment of the Community, also known as the Aquatic Environment Directive.

16.2 Discharges covered by Statutory Order No. 921

Licences issued under Parts 4 and 5 of the Environmental Protection Act for the discharge of waste water containing substances listed in Schedule 1 or Schedule 2 to Statutory Order No. 921 of 8 October 1996 on water quality standards and emission standards for certain dangerous substances discharged into watercourses, lakes or the sea issued by the Ministry of Environment and Energy will be governed by the provisions of the above Statutory Order, cf. section 2 thereof.

Schedule 1 to the Statutory Order basically encompasses all dangerous substances. For a definition of dangerous substances, see Danish EPA's Environmental Project No. 250, 1994, p. 12, on criteria for substances within List II.

16.3 Basis for laying down emission standards

Statutory Order No. 921 of 8 October 1996 aims to minimise the release of the dangerous substances covered by the Order by prescribing the use of the best available techniques. In addition, it must be verified for each discharge that the quality standards set for the waters concerned can be met.

Furthermore, a discharge may neither directly nor indirectly increase the pollution of watercourses, lakes or the sea. This means that the pollution impact of a particular discharge must be assessed for the catchment area as well as in relation to remoter waters.

16.3.1 National and regional water quality standards

National quality standards for the aquatic environment are set in Schedule 2 to Statutory Order No. 921 of 8 October 1996, cf. section 3(1) and (2). The Schedule lists specific water quality standards.

The licensing of the discharge of waste water, however, is subject to conditions being set for the discharge under section 6 of the Order, such conditions being based upon quality standards having been set under section 3(1) for the recipient waters or upon quality standards being otherwise set in connection with the licence for the discharge.

Regional council decisions

In the absence of national water quality standards applying to substances covered under Schedule 1, it is accordingly assumed that the regional council lays down water quality standards for the substances concerned as a basis for stipulating conditions for the discharge, cf. section 3(3) of the Statutory Order, and as described in section 3(2), (ii) and (iii).

The Statutory Order facilitates a general understanding of the concept of quality standards, as the regional council will be able not only to set water quality standards, but also quality standards in relation to sediment, plants and animals. At this point, however, only a limited amount of data and experience is available for the setting of other than water quality standards .

Under section 5 of the Statutory Order, new quality standards set for the purpose of a discharge licence must be incorporated into the first revision of the guidelines in the regional plan on the quality and use of watercourses, lakes and coastal waters.

Binding quality standards

Under the Statutory Order, a quality standard is binding in respect of the administration of discharge licences, whether set in Schedule 2 to the Statutory Order or laid down by a regional council under section 3(3) of the Statutory Order.

Quality criteria

The Environmental Protection Agency distinguishes the concepts of quality criterion and quality standard. A quality criterion forms the basis of establishing the concentration level in the aquatic environment above which a particular substance may be expected to cause an impact on the functioning and structure of the ecosystem. Quality criteria are laid down exclusively on the basis of a professional assessment of data on the ecotoxicological characteristics of the individual substances, i.e. the fate and impact of a substance in terms of toxicity, persistence and bioaccumulation.

Quality standards are to be set on the basis of a quality criterion. In many cases, the quality standards will be equivalent to the quality criterion, but special protective measures, e.g. the designation of a nature protection area under section 3 of the Danish Conservation of Nature Act (“Naturbeskyttelsesloven”), may imply that the quality standard for the water concerned deviates from the quality criterion.

In a few cases, the Environmental Protection Agency has assisted regional authorities in establishing a basis of quality criteria on which to lay down quality standards for substances not listed in Schedule 2 to the

Statutory Order. These quality criteria may be accessed via Danish EPA's website.

Type of discharges

16.3.2 When should new quality standards be laid down?

These Guidelines deal with typical waste water discharges, but it should be emphasised that Statutory Order No. 921 also covers inflow of substances from sources other than typical point sources (waste water treatment plants and separately discharged effluents), e.g. leaching from waste and residues deposited in landfills and from wharves built from preserved wood. It appears from the EC Court decisions in proceedings brought against the EU Commission on implementation of the Directive that such discharges are covered. A decision is even imminent according to which fall-out from emissions to air from a specific source will also be covered.

The Environmental Protection Agency finds that quality standards for substances covered by Schedule 1 to the Statutory Order are assumed to be fixed in the case of substantial discharges, whether separately discharged effluents or effluent from a municipal waste water treatment plant. Whether the discharge is deemed to be substantial must be viewed in terms of whether the water quality in the recipient waters will be affected. The concentrations, quantities and persistence of the substance discharged must be included in such an assessment. An examination could be based on whether the concentrations of the substance in the waste water are equivalent to or above the quality standards for the aquatic environment.

Separately discharged industrial effluents

In the case of separately discharged industrial effluents, this means that quality standards must be set and emission standards notified for the discharge of substances covered under Schedule 1.

However, it is not envisaged for the regional council to lay down quality standards in all cases as a basis for the assessment of any substance covered by Schedule 1, and which might be discharged with the waste water from an industrial facility. For trace elements and other substances which, due to their specific use in the enterprise, are regarded as being discharged at a concentration level below that of the quality standards, the determination of the conditions to be stipulated in the licence for such substances may generally be completed without setting quality standards.

Municipal waste water treatment plants

On the basis of various monitoring results, the Environmental Protection Agency finds that the quality standards listed in Schedule 2 to the Statutory Order are today expected to be complied with by all generally well-functioning municipal plants.

This means that quality standards are to be set for substances listed under Schedule 1 in cases where a discharge from a municipal waste water treatment plant deviates from what must normally be expected in such a plant.

If the discharge from a waste water treatment plant is essentially characterised by one or more substances referable to inflows from specific industrial enterprises, the overall discharge must be regarded as atypical

of a municipal waste water treatment plant. In addition to any requirements in relation to the connection of the particular enterprise to the municipal plant, the necessary quality standards must in these atypical cases be set for the waste water treatment plant in question, to be followed by emission standards for the final discharge from the plant of substances covered by Schedule 1.

*Not always necessary to set quality standard*s

$C_{quality\ standards} > C_{effect} * F_{application}$

This also means that the setting of a water quality standard in respect of a given substance may not be required in situations where an assessment indicates that a potential water quality criterion/standard for the substance may be considerably higher than the anticipated maximum concentration of the substance in the discharge. The assessment may, for example, be based on ecotoxicological data and effect concentrations for a substance combined with a high application factor (above 1,000).

The application factor depends on the quality of the data available. The poorer the data, the higher the application factor must be according to the prudence principle. Any pre-existing concentrations in the waters must also be considered. Unless otherwise provided by other environmental considerations, rules or regulations, an emission standard for the substance concerned may subsequently be set on that basis alone in accordance with the Statutory Order.

Discharges of surface run-off

Discharges of surface run-off vary with respect to quantity and duration, but they rarely continue for more than 24 hours. In addition, the risk of affecting the recipient waters will be highest at the beginning of a rain event, the substance concentrations being at their highest and the dilution of the recipient waters at its lowest. Accordingly, this situation will persist for only a short period, say 30-60 minutes.

Quality standards are set to provide protection of waters against permanent effects from discharges. This means that the assessment of whether the quality standard can be met must be carried out in respect of periods longer than normal for rain events. In the case of rain events of longer duration, concentrations will also be relatively low and the dilution rate high.

Against this background, it is usually found unnecessary to base the stipulation of conditions for discharges of surface run-off on quality standards set under Statutory Order No. 921. However, the purpose of stipulating conditions is to ensure that discharges do not expose the water body to acute toxic effects. Therefore, the conditions stipulated for such discharges are typically limited to a maximum permissible value for the hydraulic load, performance requirements for sand catchers, oil/gas separators, waste water stabilisation ponds, etc.

However, for discharges of surface run-off from areas exposed to special loads (out-fall or diffusion of substances from specific sources), a specific assessment should be undertaken as to whether the stipulation of licence conditions is to be based on quality standards. Areas exposed to such loads include scrap sites, filling stations, etc.

Other situations, such as the discharge of highly volatile substances, might probably warrant the setting of emission standards for certain environmentally dangerous substances in accordance with the Statutory Order without any quality standards having previously been set for the substance in question. This must necessarily be based on an assessment of the specific circumstances.

16.3.3 Scientific basis for establishing water quality standards

The regional council's duty to define quality standards pursuant to section 3(3) of Statutory Order No. 921 implies that the regional council also has to establish a basis for setting standards, which includes defining quality criteria where no such criteria have previously been defined.

When processing discharge licence applications, the regional authority may require the applicant to provide the necessary data for the substances to be discharged. These primarily include data on chronic toxicity (NOEC) or acute toxicity (LC_{50}) and information concerning bioaccumulability and degradability.

In this connection, guidelines from Danish EPA issued under section 3(3) of Statutory Order No. 921 define the methods, procedures, data and documentation needed by the regional council to define a quality criterion. However, the regional council cannot generally expect the Environmental Protection Agency to provide assessments of dangerous substances and establish quality criteria merely on request.

Danish EPA's Environmental Project No. 250 (1994) on ecotoxicological quality criteria for surface water describes a method of defining quality criteria for surface water and sediment. The Environmental Protection Agency used this method to establish the quality standards defined in Schedule 2 to Statutory Order No. 921.

Data search and data quality evaluation

The formulation of quality criteria should be based on a data search strategy which also includes evaluation of the data quality. The report published in TemaNord, 1995:581 "Environmental Hazard Classification" indicates a number of data sources and a step-by-step search strategy that allows searching by up to four steps until sufficient data have been obtained. In the TemaNord report, the description of this data search strategy is followed by a classification system for evaluating data quality, depending on whether the data have been acquired in accordance with a standardised method.

It should also be mentioned that an increasing number of data sources are and will be available via the Internet. Thus, the most important ecotoxicological database for the effects of specific substances on aquatic organisms can be accessed at US-EPA's internet address *http://www.epa.gov/medicotx/ecotox_home.htm*. (US-EPA is the American counterpart of Danish EPA).

Data interpretation

TemaNord, 1995:581, "Environmental Hazard Classification" further contains information on the interpretation of ecotoxicological data, especially data for low-solubility substances, and tests for biodegradability other than the test for high biodegradability. TemaNord also

describes a method of estimating effect data where no such data are available – the so-called QSAR-method (Quantitative Structure Activity Relationships).

Despite the fact that the guidelines in TemaNord address classification and labelling of substances according to their deleterious effect on the environment, the search and interpretation principles may advantageously be applied in drawing up water quality criteria.

In addition, the pending EU directive concerning the framework for a new Community water policy ("The Water Framework Directive") will establish a procedure for defining water quality standards. This or stricter procedures will apply when the directive has been implemented in Danish legislation. According to the proposed directive, the procedure is largely identical with that used to date by the Environmental Protection Agency.

16.3.4 Water quality standards for groups of substances

PAHs

Schedule 2 to Statutory Order No. 921 defines a general quality standard of 0.001 µg/l for polyaromatic hydrocarbons (PAHs). This quality standard applies to individual PAHs, not to a sum of PAHs. It was determined on the basis of data for the PAHs that involve the highest environmental risk (especially 3,4-benzpyrene and 3,4-benzofluoranthene). The quality standard of 0.001 µg/l may therefore serve as a general standard for individual substances, and thus ensure protection of the environment, even from the most dangerous PAHs.

However, the regional council may derogate from the general quality standard of 0.001 µg/l laid down in the Statutory Order by fixing a different quality standard for a specific PAH, provided that this is done on the basis of data on the PAH concerned and in accordance with the procedure described in section 3 of Statutory Order No. 921.

16.4 Stipulating emission standards

16.4.1 Compliance with the requirement for using the best available techniques and the quality standard fixed ("the combined or integrated approach")

Assessment of level of pollution in the local area

According to Statutory Order No. 921, water bodies in immediate proximity of a discharge pipe are subject to a number of specific requirements, particularly the applicable quality standards.

Pursuant to section 1 of Statutory Order No. 921, the discharge of substances covered by the Statutory Order is to be minimised using the best available techniques.

In this context, section 6 of Statutory Order No. 921 means that it must be assessed whether an emission standard laid down on the basis of use of the best available techniques is sufficiently strict to allow achievement of the quality standards set for the waters in the area surrounding the outfall, or whether more stringent requirements should be estab-

lished for the discharge in order to ensure achievement of a specific quality standard.

This is a combination of two well-known strategies for establishing emission standards: on the basis of the best available techniques and on the basis of a quality standard. Statutory Order No. 921 dictates that the strategy that results in the strictest emission standard must be followed. This method of defining emission standards is referred to as “the combined or integrated approach” and is one of the corner stones of the EU Directive concerning integrated pollution prevention and control (“the IPPC Directive”), which governs the activities of major industrial enterprises. The combined approach will also be a crucial element of the pending EU Directive on the framework of the new European water policy (“the Water Framework Directive”).

If a discharge based on the use of the best available techniques causes lower concentration levels in the receiving waters than those assumed in the quality standards, the higher value does not justify the discharger in offsetting the difference. In such cases, the emission standard must be fixed on the basis of what can be achieved by using the best available techniques, and it is not acceptable to adjust the emission standard to the quality standard.

However, in cases where using the best available techniques does not lead directly to achievement of the quality standards, section 6(3) of Statutory Order No. 921 shall be taken to mean that unless a surface area close to and with impact from the discharge (‘impact area’) has been identified in the regional plan, the quality standards defined in Schedule 2 or by the regional authority must be met immediately after the initial dilution zone.

If, however, an impact area has been identified with regard to the discharge of specific dangerous substances in connection with regional planning, the quality standards must be met at the boundary of the impact area, instead of immediately after the initial dilution zone.

Acute toxicity

The regional authority must also ensure, cf. section 6(3) of Statutory Order No. 921, that the substance does not occur downstream of the initial dilution zone in concentrations that may produce acute toxicity within the impact area, and that the discharge does not cause accumulation of the substance in the sediment, molluscs, crustaceans or fish found in the impact area. It should be mentioned in this connection that the concentrations that may lead to acute or chronic toxicity, respectively, are generally different. In most cases, the level causing acute toxicity may be assumed to be 10 - 20 times higher than the value defined as the quality standard. Finally, the regional authority must ensure that the discharge does not have a deleterious effect on the taste of fish and crustaceans.

16.4.2 Initial dilution rate

The regional council is to base the conditions to be stipulated in the licence on the initial dilution of the discharge concerned, cf. section 6(3) of Statutory Order No. 921.

The initial dilution is defined as a certain (preliminary) dilution of the waste water that takes place at the outfall due to the turbulence created by the momentum of the waste water jet (momentum = mass x velocity) or by the difference in density between the water in the jet and the surrounding water. The initial dilution ceases when the friction of the surrounding water has slowed down the waste water's velocity to that of the surrounding water. (See Danish EPA's Environmental Project No. 260, 1994, "Environmental hazards of industrial waste water").

For a more detailed description of the aspects associated with dilution, reference is made to Danish EPA's Environmental Project No. 188, 1992, "Ecotoxicological assessment of industrial waste water".

Rule of thumb

In practice, however, this definition of initial dilution is not always very useful in practice. In most cases, the momentum of waste water discharges is relatively low, and the dilution of the waste water jet due to the momentum of the waste water flow is of minor importance. However, the dilution conditions should always be assessed in connection with granting a licence.

In the case of direct discharges into a large recipient, the regional council may for practical purposes and in the absence of better data, assume an initial dilution factor of 10. However, given a certain knowledge of the local discharge conditions and the specific effluent, this estimate can be qualified. For open and turbulent waters, a higher factor may be estimated, and for discharges to small watercourses it may be lower. The estimate must further be based on the volume to be discharged.

Another aspect is the irrelevancy of fixing a higher initial dilution factor in cases where using the BAT principle as a basis for stipulating discharge licence conditions results in requirements that are more severe than the quality standards. If so, the initial dilution may be disregarded when stipulating licence conditions.

In connection with discharges to small watercourses, a potential initial dilution often has to be disregarded due to the low mean minimum flow of such streams, i.e. unless the concentration in the discharge is identical to (or lower than) the quality standard that applies to the watercourse, the latter cannot be achieved.

16.4.3 Delimitation of an impact area for waste water discharges

The quality standards are assumed to be met close to the outfall, but an assessment of the environmental effects in the impact area versus the possibility of limiting the discharge may also form the basis of a decision for the regional council to delimit and identify an impact area for the discharge. In this connection, it must also be evaluated whether other discharges may directly affect the achievement of an existing quality standard.

The regional council is to calculate or estimate in each case whether the emission standards for the relevant substances can be met for discharges effected in accordance with the BAT principle.

If the standards cannot be met immediately below the initial dilution zone, the regional council should consider whether to identify an impact area in the regional plan around the discharge with regard to the substances involved, or to demand that the quality standards be respected outside the initial dilution zone. In the latter case, stricter conditions for substance reduction in the effluent will have to be stipulated in the licence.

The decision of whether to identify an impact area for a discharge or impose stricter emission standards should be made after careful weighing of the technical and financial possibilities of reducing the effluent concentrations against the environmental impact of the discharge. In this connection, consideration should also be given to other effects on the aquatic environment caused by the substances concerned and accepted in practice. If the regional council decides to identify an impact area for the discharge, the area must be sufficiently large to ensure that the quality standards are met at the boundary of the impact area, cf. section 6(3) of Statutory Order No. 921.

16.4.4 Existing substance concentrations in the receiving waters

Emission standards fixed by the regional council must be based on the substance concentrations already present in the waters and on incoming loads from other sources, cf. section 6(2) of Statutory Order No. 921. This applies to the assessment of the concentrations to be anticipated outside the initial dilution zone, as well as to the evaluation of whether an established quality standard will be met at the boundary of a potential impact area.

Since the competence to fix emission standards pursuant to Parts 4 and 5 of the Environmental Protection Act lies with the regional council, the regional authority decides the type of documentation that is to be provided by licence applicants in order to satisfy the requirements laid down in the Statutory Order. The regional council must therefore decide in each case whether the available documentation, possibly supplemented by various calculations, is sufficient basis for stipulating licence conditions, or whether it has to be supplemented by further examinations or information.

In this connection, the regional council should note that the EU Commission has considered it important in cases of alleged violation of the Aquatic Environment Directive that the resulting concentration level in the waters receiving the discharge was shown to be in compliance with the quality standards.

16.4.5 No increased pollution

Pursuant to section 9(1) of Statutory Order No. 921, the regional authority is to ensure that the licensing of a discharge may in no circumstances cause any increase, direct or indirect, in the pollution of watercourses, lakes and the sea due to any of the substances listed in Schedule 1 to the Statutory Order.

Assessment of indirect pollution

It is often difficult to assess whether a given discharge may indirectly cause increased pollution of waters outside the local area.

Firstly, because it is not always relevant to apply the defined quality standards in this context, since they are not an expression of a general and satisfactory protection level, but only a tool to be used specifically in the stipulation of terms and conditions for waste water discharges. Effects from other sources will also have an impact on the overall pollution situation.

Secondly, the Environmental Protection Agency finds that present knowledge on the occurrence, fate and effect of the individual substances in the aquatic environment is generally insufficient to ensure that a given discharge will not increase pollution.

In this connection, the regional authority should note that section 9(2) of Statutory Order No. 921 defines the concept 'pollution' in narrower terms than the generally accepted Danish definition.

The definition given in section 9(2) is quoted below:
"The term 'pollution' as used in subsection 1 above means the discharge by man, directly or indirectly, of substances or energy into the aquatic environment, the results of which are such as to cause hazards to human health, harm to living resources and to aquatic ecosystems, damage to amenities or interference with other legitimate uses of the waters."

In this connection, attention is drawn to the long-term national policy for the reduction and phasing out of the discharge of environmentally incompatible substances. They include the fundamental obligation defined in the Aquatic Environment Directive to take the appropriate steps to eliminate pollution of the aquatic environment by the dangerous substances within List I of the Directive and to reduce pollution by the substances within List II of the Directive - cf. Schedule 1 to Statutory Order No. 921. Denmark has furthermore entered into international agreements on the protection of the marine environment by progressive reduction in the discharge of environmentally deleterious substances with a view to final phase-out by the year 2020.

Against this background, the Environmental Protection Agency finds that the assessment of whether a given discharge will cause indirect pollution – especially of marine areas – should be based primarily on an overall consideration of the total volume of the discharge and of the substance introduced into aquatic environments within larger areas. However, the assessment may also be based on other data. A conclusion to the effect that the discharge concerned will be able to comply with section 9(1) of Statutory Order No. 921 should not be accepted, unless supported by favourable developments with regard to the overall discharge.

Compliance with section 9(1) of the Statutory Order No. 921 may also be ensured by a review that demonstrates that the combined substance load deriving from direct sources, sources in the hydrological catchment area and from atmospheric deposition into major waters does not increase as a result of the licensing of a given discharge. However, it must be rendered likely that the total discharge into the area concerned of dangerous substances whose release into the environment is subject

to reduction and phasing out will be reduced. In either case, the assessment should ideally be based on positive developments demonstrated in the combined discharge from all sources over the term of a regional plan.

In many cases, the data on the basis of which the development in the total discharge of a given substance may be assessed are limited. However, this situation will gradually improve, among other things, due to the results produced under NOVA, the national monitoring programme.

Acceptable assessment level

An acceptable approach to assessing the documentation submitted could be by correlating information about the magnitude of the discharges gained from: 1) Existing discharge licences; 2) Available results from internal controls and from supervision by the regional council; and 3) Other specific data on the release of substances into the waters concerned that may be available to the regional council.

Since assessments regarding compliance with section 9(1) of Statutory Order No. 921 are primarily carried out at a general level, it is less important to have a complete set of data on the discharge and inflow from all existing sources available in each case.

16.4.6 Permissible substance quantities

Although the substance concentration of a discharge may be so low that it is not always necessary to establish quality standards for the substances involved, it may, nevertheless, be necessary to lay down emission standards for the discharge with regard to substance quantities, cf. the above section on assessment of indirect pollution.

16.5 Release monitoring requirements

According to section 7 of Statutory Order No. 921, the regional authority is to stipulate conditions regarding the following parameters in licences to discharge environmentally incompatible substances:

(1) The maximum concentration of the substance permissible in the discharge
(2) The average concentration permissible in the discharge during one or more specified periods
(3) The maximum quantity of the substance permissible in the discharge during one or more specified periods
(4) Internal control measures.

Scope is allowed for various combinations of emission standards and related internal control measures, as the regional council (in cooperation with the applicant) is empowered to lay down the emission standards and related internal control measures that are deemed most appropriate in the given case. Thus, the aim is not to stipulate identical release monitoring requirements for all discharges, but to adjust the requirements to the local conditions. However, conditions must be laid down within all four categories.

Emission standards are to be fixed on the basis of the following considerations:

1) Acute effect
2) Chronic effect
3) Bioaccumulation.

Acute effects are controlled by establishing requirements with respect to maximum permissible concentration (cf. item (1) above) and a requirement regarding maximum permissible water volume (typically per second, hour or 24 hours). Combining these two requirements provides an indirect definition of the requirement governing the maximum quantity of the substance that may be released during the specified period (cf. item (3) above).

Chronic effects are controlled by laying down requirements with respect to average concentration over a certain period (e.g. one or more 24-hour periods, one month) (cf. item (2)) and requirements regarding maximum water volume. Combining these two requirements provides an indirect definition of the requirement governing the maximum quantity of the substance that may be released during the specified period (cf. item (3)).

Unacceptable accumulation of substances in sediments, animals or plants is controlled by fixing requirements for the maximum permissible quantity of the substance that may be released over a longer period, typically one year (cf. item (3)). Depending on the methods of monitoring and internal control stipulated, it will also be possible to meet requirements relating to items (1) and (2).

Emission standards will have to be fixed on the basis of that of the three above considerations which is most critical to the quality of the receiving waters. In practice, fixing requirements on the basis of a worst-case scenario should obviate the need to lay down release monitoring requirements with regard to the other two considerations. Alternatively, these considerations will be covered by the most stringent requirement.

The Environmental Protection Agency finds that release monitoring requirements, cf. section 7 of Statutory Order No. 921, may be fixed using statistical methods; see, for example, Danish Standard No. 2399, “Effluence control – Control computation of effluence data”. It should be noted, however, that the methods described in this Danish Standard are based on a specified sampling frequency.

In this context, ‘internal control measures’ (item (4) above) includes sampling frequency, sampling method, limits of detection, reporting frequency, analytical method, etc.

16.6 Revision of existing discharge licences

Under section 10 of Statutory Order No. 921, the regional authority is responsible for ensuring that conditions stipulated in existing discharge

licences are updated to comply with the provisions of the Statutory Order.

The Environmental Protection Agency presumes that, in general, the current rules and regulations for industrial effluents laid down in the Environmental Protection Act provide sufficient legal basis for governing the discharge of environmentally incompatible substances. It must therefore in each case depend on an assessment of the nature of the industry concerned whether a revision of the discharge licence is called for. This also applies to public waste water treatment plants handling a high proportion of industrial waste water, as the Environmental Protection Agency estimates that most of the licences already issued to municipal treatment plants comply with the Statutory Order, since the effluent content of dangerous substances is currently on the safe side of a potential quality standard for the receiving waters.

Pursuant to section 10 of Statutory Order No. 921, existing discharge licences that include specific conditions regarding certain substances covered by the aforesaid Statutory Order must be reconsidered in order to establish whether the quality standards are met and, if necessary, updated by means of enforcement notices issued under section 30 of the Environmental Protection Act.

However, the regional council is under no obligation to reconsider a discharge licence that does not include conditions regarding specific substances, unless it is either suspected that these substances are introduced into the aquatic environment in quantities or concentrations that exceed the normal level for the effluent in question, or that the quality standards set for the aquatic environment are not being met.

It should be noted that licences authorising the discharge of any of the 17 ‘List I substances’ marked with a ‘c’ in Schedule 2 to Statutory Order No. 921 may be issued for a limited period only to allow reconsideration of the licences every four years, cf. the four statutory orders listed in section 8 of Statutory Order No. 921.

The EU Directive concerning the new European water policy (“The Water Framework Directive”) to be adopted this year is also expected to include a requirement for regular revision and, if necessary, updating of existing discharge licences.

Eight years of legal protection

If setting a quality standard for a water body makes it necessary to revise the discharge licence issued to an enterprise that has obtained an environmental approval under Part 5 of the Environmental Protection Act, such revision is not covered by the general eight-year period of legal protection granted under the environmental approval. This is because quality standards fixed pursuant to Council Directive 76/464/EEC of 4 May 1976 and Statutory Order No. 921 override all other statutory provisions, and it is therefore not possible to postpone the setting of emission standards that must be met to ensure compliance with the quality standards until after the expiry of the enterprise’s approval period.

16.7 Right of appeal

A discharge licence issued under section 28(1) of the Environmental Protection Act may be brought before the Environmental Protection Agency within 4 weeks of the receipt of the decision, cf. sections 91 and 93 of the said Act.

In connection with appeals against the discharge licence, the appellant should state whether the objection relates to the general quality standard for the water body concerned, and in respect of which the particular discharge licence has been granted, or to the calculation made on the basis of the quality standards. In either case, the appellant should enclose documentation for his opinion with the appeal.

Although the quality standard is a general requirement, and therefore does not form part of a decision made in any given case, the Environmental Protection Agency will nevertheless examine the correctness of the quality standard compared with the quality objectives set for the area and the environmental condition of the water body concerned.

The general quality standard must be published before or in connection with the publication of the guidelines for the quality and use of the water body set out in the next revision of the regional plan, cf. section 5 of the Statutory Order. Appeals against quality standards may be filed under the Planning Act ("Lov om Planlægning").

If, when considering a specific discharge licence, the regional council fixes a new quality standard and in this connection finds that it may affect other discharges etc., the regional council may publish the quality standard in an addendum to the regional plan. This gives interested parties the opportunity to comment upon or object to the quality standard concerned.

16.8 Future revision of Schedule 2 to Statutory Order No. 921

The quality standards listed in Schedule 2 to Statutory Order No. 921 of 8 October 1996 are set on the basis of existing data on impacts on the aquatic environment, ecosystems, etc. As experience of setting and applying quality standards is currently limited, the standards are expected to be updated on a continuing basis. By way of example, the Schedule will in due course be extended by quality standards in respect of a large number of additional polyaromatic hydrocarbons (PAHs).

17. Other provisions

17.1 Register of licences

Section 50 of the Statutory Order requires the licensing authority to keep a register of all licences issued under the Statutory Order.

The register is to include information about the location of the licensed waste water systems as well as of the waters into which the waste water is discharged.

Under section 83(1) of the Environmental Protection Act, the licensing authority may be ordered to disclose the registered data for the evaluation of matters governed by the Act.

17.2 General provisions on conditions for discharge licences

In general, a discharge licence must be issued upon application from a landowner/enterprise. Consequently, the licensing or supervisory authority is not entitled to demand that a requested revision of an existing licence must be applied for, unless the landowner/enterprise is required to apply according to section 2 of the Statutory Order.

In connection with the revision of an existing discharge licence, the licensing authority may order the licence holder to submit information on conditions relating to the waste water discharge concerned under section 72 of the Environmental Protection Act. On the basis of this information an enforcement notice may be issued, providing for a change of conditions for waste water discharges under section 30 of the Environmental Protection Act, or for discharges into the soil under section 20 of the said Act.

17.2.1 Fixed-term licences

Section 51(2) of the Statutory Order provides that licences issued under the Statutory Order may be limited in time.

This may be appropriate in a number of situations, e.g. in the case of discharges from waste water treatment plants where it is uncertain whether permanent requirements can be met with the currently used technology. In this case, indicative requirements may be set for a certain period, after which the licensing authority may determine whether the requirements are to apply on a permanent basis.

Fixed-term licences may also be appropriate where the loads of industrial effluents connected to municipal waste water treatment plants are subject to planned gradual reduction, depending on the reduction achievable before discharge from the enterprise by introducing cleaner technology, etc.

17.2.2 Provisions on supervision and monitoring

Licences issued under the Statutory Order should provide for supervision and monitoring, including internal control (monitoring by licence holders).

The extent of supervision and monitoring should be determined according to the principle of proportionality, i.e. the more important the licence in terms of pollution, the greater the need for supervision and monitoring.

It is an important principle in prescribing terms and conditions for a discharge licence that it must be done in a manner that allows monitoring according to a well-established procedure. Conditions that cannot be monitored or are inadequately defined are impossible to enforce in practice.

Part 8 provides minimum conditions for sampling of discharges for the purpose of internal control. In addition, it is for the licensing authority to assess the need for supervision and monitoring.

For discharges from waste water treatment plants the Danish Standard, DS 2399, "Effluence control – Control computation of effluence data" provides guidelines for monitoring and the number of samples to be taken.

For industrial connections to municipal waste water systems, Danish EPA Guidelines No. 6, 1994, "Guidelines for licensing the connection of industrial effluents to municipal waste water systems" provide monitoring guidelines and verification rules, cf. Chap. 8 of these Guidelines.

17.3 Registration

On technical or planning grounds, public or private waste water systems sometimes have to be sited on land not belonging to the municipality.

In that case, the siting of a waste water system may be subject to a voluntary agreement entered into with the landowner concerned. If it is not possible to make such an agreement with the landowner, the local council must instead acquire the necessary land for the installation compulsorily, cf. Part 8 of the Environmental Protection Act.

In order to safeguard the siting of the installation against objections from future owners of the land and against legal proceedings in general, a covenant must be registered on the land, both in the case of a voluntary agreement and compulsory acquisition. The covenant is to describe the ownership of specific areas, subject to any

restrictions as to use or other restrictions, obtained under the agreement or by compulsory acquisition.

In addition, a covenant should specify the status of the waste water system, so that it appears from the land register whether the system is public or private. This is also important in relation to the Act on payment rules for waste water installations etc., under which the local council is not authorised to operate on private land for funds provided by the public waste water service, except for the purpose of establishing disposal systems under section 7a of the said Act.

18. Administrative provisions and provisions governing the right of appeal

18.1 Administrative provisions

In making decisions under the Statutory Order, local and regional councils are under a duty to ensure that the administrative provisions set out in Part 10 of the Environmental Protection Act are complied with.

Part 10 of the said Act contains a number of administrative provisions, describing the procedures to be followed and the due process considerations to be observed by the authorities when making decisions under the Act.

The provisions of Part 10 of the Act are supplemented by the general rules on the drafting of decisions laid down by the Act on Public Administration - including the rules providing for the parties to be heard, for guidelines for the lodging of appeals and for administrative acts to be reasoned.

As far as decisions made by authorities under the Environmental Protection Act and the Statutory Order on the licensing of waste water discharges are concerned, compliance with the following administrative provisions are especially important.

Decision format

A decision made under the Statutory Order is to be communicated in writing to the party concerned and to any other interested persons, organisations or authorities, as well as to all authorities involved in the proceedings, e.g. in connection with opinions rendered, cf. section 74 of the Environmental Protection Act.

Decisions against which appeal lies must also contain satisfactory guidelines for the lodging of appeals, stating that any appeal against the decision is to be lodged with the Environmental Protection Agency in writing. If no appeal lies, this must likewise be stated in the decision.

Finally, the decision must provide information about the time limit within which appeals must be lodged or within which legal actions must be brought before the courts.

Hearing of parties in connection with enforcement or prohibition notices

Under section 75 of the Environmental Protection Act any enforcement or prohibition notice issued under the Act or under orders or regulations made thereunder must be notified in advance. In terms of waste water regulations, this requirement is especially relevant to enforcement notices issued under section 30 of the Environmental Protection Act, but the advance notification requirement must also be deemed to extend to decisions under section 20 on the revocation of section 19 licences for discharge of waste water by percolation etc.

The advance notification or information under section 75(1) of the Environmental Protection Act must be given in writing to the party to whom the notice is directed, and must describe the right to access public files and the right to make statements under the rules laid down by the Act on Public Administration.

Moreover, the advance notification must be drawn up as a letter of intent, outlining the decision contemplated by the authority.

Under section 75(2), first sentence, advance notification may be omitted in cases where immediate action is required.

Besides section 75 of the Environmental Protection Act, the general provisions of the said Act on Public Administration providing for the parties to be heard apply - notably section 19.

For further guidance on advance notification of enforcement and prohibition notices, see Danish EPA's Environmental Guidelines No. 12/1992 on the enforcement of the Environmental Protection Act.

18.2 Appeals and legal actions

Appeals against decisions made under the Statutory Order are subject to the provisions of Part 11 of the Environmental Protection Act on appeals and legal actions and Part 12 on the Environmental Appeal Board.

18.2.1 Right of appeal

Decisions made by local or regional councils may be appealed against to the Environmental Protection Agency unless otherwise provided under the Statutory Order.

Time limit for appeals

Under section 93 of the Environmental Protection Act the time limit for lodging appeals is four weeks from the date on which the notice or decision is deemed to have been notified. However, if the decision has been publicly notified, the time limit runs from the date of publication.

Format and lodging of appeals

Appeals must be lodged in writing to the authority making the decision, which authority must in turn, upon the expiry of the time limit, submit the written appeal to the Environmental Protection Agency, enclosing all case documents and any other material on which the decision was based, cf. section 94 of the Environmental Protection Act.

The effect of appeals on compliance with enforcement or prohibition notices

Under section 95 of the Environmental Protection Act, appeal of an enforcement or prohibition notice generally results in a stay of execution.

However, this does not apply where it has been decided by the authority issuing the enforcement or prohibition notice in the first instance that for a specified reason the notice is to be complied with immediately, cf. section 78 of the Environmental Protection Act.

Stay as to application of licences etc., on grounds of appeal

An appeal against any licence, approval or exemption granted under the Statutory Order does not result in a stay of execution, cf. section 96 of the Environmental Protection Act.

Any application of a licence before the expiry of the time limit for lodging appeals or before the licence etc. has been reviewed by the appeals authority will be at the risk of the licence holder and will not involve any restrictions of the right of the appeals authority to vary or revoke the licence, approval or exemption, etc.

Parties entitled to appeal

The parties entitled to appeal against decisions made under the Statutory Order are listed in sections 98-100 of the Environmental Protection Act.

Basically, the party to whom the decision is addressed and any party with a separate and substantial interest in the outcome of the case are entitled to appeal. In addition, the regional council may appeal against decisions by the local council, and *vice versa*.

Moreover, the Public Health Officer may appeal against decisions made by the authorities according to Parts 3-5 of the Environmental Protection Act or thereunder, thus including decisions made under the Statutory Order on the licensing of waste water discharges.

Legal actions brought before the courts

Under section 101 of the Environmental Protection Act, all decisions made under the Statutory Order may be brought before the courts. Under section 101, process must be filed within six months from the date of notification of the decision to the party concerned, publication in the press, etc.

18.2.2 Environmental Appeal Board

Decisions made by the Environmental Protection Agency or by the Minister under Parts 4 and 5 of the Environmental Protection Act may be appealed against to the Environmental Appeal Board within four weeks of notification, cf. section 103(1)(ii) and section 108, cf. section 93 of the said Act.

Section 103(1)(ii) provides for a further condition for the right to appeal, viz. that the decision is deemed to be of major or general public importance.

Under section 103(2) of the Environmental Protection Act, the Environmental Protection Agency is competent to decide in matters relating to its own jurisdiction.

Appeals against decisions by the Environmental Protection Agency are to be submitted directly to the Environmental Appeal Board.

Where an appeal lodged against an enforcement or prohibition notice is entertained by the Environmental Appeal Board, execution is stayed unless otherwise decided by the Board or provided under section 78(2) of the Environmental Protection Act.

19. Supervision and enforcement

19.1 Supervision

Part 18 of the Statutory Order lays down rules conferring powers of supervision in respect of waste water systems covered by the Order, and, on an overall basis, section 59 of the Statutory Order provides that the rules laid down in Part 9 of the Environmental Protection Act are also to apply to supervision and enforcement of the rules laid down in the Statutory Order on the licensing of waste water discharge.

As it appears from Part 9 of the said Act, the supervisory authority is to supervise, i.e. verify the compliance with the rules on waste water management provided for under the Act and the Statutory Order. Also, the supervisory authority is to provide the necessary enforcement in case of any contravention of the Act or the Statutory Order.

Moreover, the supervisory authority is responsible for verifying compliance with the specific requirements set out in licences, approvals, enforcement notices and exemptions, etc., and for verifying that any pollution caused by enterprises, private individuals, waste water treatment plants, etc., keeps within the objects of the Environmental Protection Act and does not exceed an acceptable level.

Neither the Act nor the Order sets out detailed requirements as to the planning, scope or implementation of the supervision, but in the nature of things and as a clear regulatory assumption, the supervisory authority is under a duty to conduct active supervision, in such a manner that it may be established whether the administrative rules and approvals/enforcement notices are complied with.

What constitutes good supervision practice?

Generally, "good" supervision is deemed to include defined inspection and testing as and when required under specific decisions, e.g. licences or enforcement notices. If conduct likely to be detrimental to the environment is reported to the supervisory authority, the authority must, as a matter of good supervision practice, investigate the conduct complained against.

The supervision further depends on the establishment of conditions as to internal control and reporting, but in other respects the planning, and to a certain extent the scope, of the supervision may be determined at the discretion of the individual supervisory authority.

In Information from the Danish EPA No. 7/1997 "Environmental Supervision 1995", the Agency has established certain minimum requirements for the scope of the supervision. Moreover, good supervision practice is described in Environmental Guidelines No. 3, 1994, “Supervision of Agriculture” and Environmental Guidelines No. 3, 1995, “Supervision of Enterprises”.

19.2 Enforcement

For general information regarding the enforcement of the Environmental Protection Act and the Statutory Order on the licensing of waste water discharge, see Environmental Guidelines No. 12, 1992 Enforcement of the Environmental Protection Act. These guidelines are meant as a support for supervisory authorities in their processing of individual cases.

20. Penalties

20.1 Penalties for violations of the Statutory Order on the licensing of waste water discharge

As a general rule, any violation of the Environmental Protection Act is punishable by a fine.

Basically, this is also the case for violations of the Statutory Order. Under section 60(1) of the Statutory Order, landowners, enterprises, municipal waste water treatment plants, etc., are liable to fines if they

- Fail to apply for licences for the discharge of waste water under Parts 5-10 & 12-14 of the Statutory Order
- Violate terms and conditions stipulated in discharge licences issued under Parts 5-10 & 12-14 of the Statutory Order
- Fail to comply with Part 8 of the Statutory Order on emission limit values for certain substances present in discharges from public waste water systems
- Fail to notify the local council of the contemplated establishment of a holding tank according to Part 14 of the Statutory Order, cf. section 39 thereof
- Fail to comply with enforcement or prohibition notices.

If any violation is committed intentionally or through gross negligence, causing detrimental or potentially detrimental environmental effects, or if such violation has produced a financial return for the person violating the rules or regulations under the Statutory Order, the penalty may be increased to detention or imprisonment for up to two years.

20.2 Penalties for violation of municipal rules or regulations

Violation of rules or regulations set out under the Statutory Order is only punishable by a fine, cf. section 60(2) of the Statutory Order.

20.3 Criminal liability attaching to corporations (legal entities), etc.

Section 60(4) of the Statutory Order contains a reference to Part 5 of the Danish Penal Code.

The provisions of Part 5 of the Penal Code do not in themselves confer any authority to hold corporations (legal entities) criminally liable. This must be specifically provided for under special legislation - as in the Environmental Protection Act as well as in the Statutory Order on the licensing of waste water discharges issued thereunder.

Under section 26 of the Penal Code, criminal liability for companies etc. covers any legal person, including public and private limited com-

panies, co-operative societies, partnerships, schemes, foundations, estates, local and central government authorities, unless otherwise specified under special legislation.

It appears from the legislative material for section 26 of the Penal Code that the provisions on criminal liability for legal persons - including existing provisions on corporate liability - comprise all entities etc. capable of entering into legal relations.

Thus, it must be assumed that criminal liability may be imposed for any violation of the Statutory Order irrespective of corporate structure or form, and it must further be assumed that also municipal waste water service partnerships may be held liable under the provision in question.

STATUTORY ORDER NO. 501 OF 21 JUNE 1999 ON THE LICENSING OF WASTE WATER DISCHARGES PURSUANT TO PARTS 3 AND 4 OF THE ENVIRONMENTAL PROTECTION ACT[1]

In pursuance of sections 7(1)(i) and (iii), 7a(1), 19(4 and 5), 27(3), 29, 32(4), 67, 73(1 and 3), 92 and 110(3) of the Environmental Protection Act as last amended by Act No. 373 of 2 June 1999, it is now provided as follows -

PART 1

Scope

1.—(1) This Statutory Order applies to all public and private waste water systems.

(2) This Statutory Order further establishes rules for the direct discharge of substances to the ground water.

2.—(1) Any substantial change in a waste water system or any of the conditions under which it operates, including relocation or reconstruction, is subject to the issuing of a new licence hereunder. Similarly, any substantial change in the volume or composition of the waste water entering the system shall require the issuing of a new licence.

(2) The licensing authority shall decide whether the character of a change affecting a waste water system or any of the conditions under which it operates warrants a new licence.

(3) Decisions made under subsection (2) above cannot be brought before another administrative authority.

3. This Statutory Order shall not apply to the issuing of licences for the discharge and spraying of waste water etc. onto the ground for agricultural purposes.

PART 2

Definitions

[1] The Statutory Order contains provisions implementing Council Directive EEC 91/271, Official Journal 1991 L 135, p. 40, and Council Directive EEC 80/68, Official Journal 1980 L 20, p. 43, Commission Directive 98/15/EC, Official Journal 1998 L 67, p. 29.

4.—(1) For the purposes of this Statutory Order, 'waste water' means any water discharged from residential, industrial or other buildings, including run-off from areas impervious to water.

(2) 'Domestic waste water' means waste water from household activities, including discharges from water closets.

(3) 'Surface run-off' means stormwater draining from roofs and other areas completely or partly impervious to water, including railway areas. Surface run-off must not contain substances other than those usually present in stormwater draining from such areas, nor have a significantly different composition.

(4) 'Human waste' means faecal matter and urine.

(5) For the purposes of this Statutory Order, '1 population equivalent (p.e.)' means the waste water load that has a biochemical oxygen demand (BOD_5) of 21.9 kg oxygen per year, or that corresponds to 4.4 kg total nitrogen per year or 1.0 kg total phosphorus per year.

(6) 'Holding tank for waste water, etc.' means a watertight container of a type that is or can be approved for the storage of waste water etc. by the licensing authority, cf. section 37(1).

(7) 'Waste water system' means a system of open as well as closed conduits and other facilities used for the drainage and/or treatment of waste water, etc. that is discharged into watercourses, lakes, the sea, drained into the ground or otherwise disposed of.

(8) The 'capacity' of a waste water system means the amount of waste water with its load of pollutants expressed in population equivalents (p.e.) that may be discharged under a licence issued under Parts 3, 4 or 5 of the Environmental Protection Act ('the Act') from one or more properties within the catchment area identified for the waste water system concerned.

(9) 'Public waste water systems' means waste water systems whose operation and/or maintenance is/are the responsibility of one or more local councils.

(10) 'Private waste water systems' means waste water systems other than those defined in subsection (9) above. However, all waste water systems established by a local council pursuant to section 7a of the Act on payment rules for waste water installations, cf. Statutory Order No. 923 of 5 December 1997, are private, including those operated and maintained by the local council on behalf of a property owner.

(11) 'Best available techniques' means the technology that is within the technical and financial means of the type of enterprise concerned.

PART 3

Content of the waste water plan

5.—(1) The local council's plan for disposal of waste water in the municipality ('the waste water plan') shall provide the information listed in section 32(1)(i)-(vii) of the Act and be accompanied by the necessary maps. The plan shall further contain information on the following:

(i) The relation of the waste water plan to the municipal plan and the regional plan, as well as to financial planning and the physical condition of the watercourses;

(ii) Existing and planned common waste water systems in the municipality with a definition of the individual sewage catchment areas and an indication of whether the system is under public or private ownership;

(iii) Other methods of waste water disposal used in the municipality, e.g. spraying;

(iv) The waters to which the waste water from the individual sewage catchment areas is discharged or planned to be discharged, the location of waste water outfalls and an estimate of the volumes to be discharged;

(v) A renovation plan for the municipal collecting system listing objectives in order of priority. The plan shall also include a timetable and a financial plan for the renovation project;

(vi) The estimated cost of establishing and operating the public waste water systems and systems established by local councils under section 7a of the Act on payment rules for waste water installations etc., cf. Statutory Order No. 923 of 5 December 1997;

(vii) The properties that may have to yield up land, or on which a covenant will have to be imposed if projects are implemented in accordance with the waste water plan;

(viii) The properties that are connected to the public collecting system and the extent of such connections, cf. section 12(3).

(2) The waste water plan shall further contain a statement by the local council which renders it probable that the waste water generated in the areas identified under section 32(1)(iv) of the Act may be disposed of by percolation, and that such disposal does not conflict with the prevailing geological and/or hydrogeological conditions, nor with the rules set out in section 28 below.

(3) Before plans to establish a private common waste water system are included in a proposed waste water plan, the owners of buildings and land affected by the plan shall set up a local property owners' waste water association, which will be responsible for the establishment, operation and maintenance of the plant. A draft of the association's by-laws shall be submitted when the proposed waste water plan is published. When the common waste water system has been included in the waste water plan, an entry regarding the adoption of the final by-laws of the association shall be made in the title register maintained by the Land Register for each of the properties concerned.

(4) Whenever there is a change in the assumptions on which the waste water plan is based, the local council shall update the plan for waste water disposal in the municipality – including the catchment area boundaries and the timetable for implementing the plan.

PART 4

Procedure for processing and adopting the proposed waste water plan

6.—(1) The waste water plan proposed by the local council shall be made available to the public together with an invitation to submit comments to the council within a time limit of at least 8 weeks from the date of publishing.

(2) Before the proposed waste water plan is published, cf. section 7 below, the local council shall obtain the regional council's comments regarding any conflicts between the objectives set out for the waters in the regional plan and the future minimum measures of percolation and/or treatment defined in the local plan for each subarea, cf. section 32(1)(iv)-(v) of the Act.

(3) Simultaneously with publishing the proposed plan, the local council shall send a copy to the regional council for its information.

7. The local council shall announce the adoption of the waste water plan in the local newspapers. At the same time, a copy of the adopted waste water plan shall be sent to the regional council.

8. Whenever a revised regional plan or a supplement thereto involves a change in the method used for waste water disposal in rural areas, the local council shall ensure that the municipal waste water plan is amended accordingly within 18 month of the adoption of the regional plan, however, not earlier than 1 July 2000.

PART 5

Connection of waste water discharges to waste water systems

9. Connection to the public collecting system is mandatory on properties located within one of the sewage catchment areas of the public waste water system defined in the waste water plan, provided that the required service sewer is available at the property boundary. The connection shall be established at the property owner's own cost and through closed conduits.

10.—(1) The local council shall license the connection of waste water to private waste water systems to an extent that conforms with the capacity of the system concerned, and provided that the waste water is subsequently discharged into a public waste water system.

(2) Licensing under subsection (1) above is subject to the prior written consent of the party in charge of the system.

11.—(1) Decisions by the local council to license connection to public waste water systems, including to the associated outfalls, cf. section 28(3) of the Act, and decisions made under section 10 hereof cannot be brought before other administrative authorities if they concern the following:

(i) Connection of domestic waste water from household installations representing a load of 30 p.e. or less, including surface run-off from catchment areas;

(ii) Connection of industrial process water from installations representing a load of 30 p.e. or less, including surface run-off, provided that the contents of the waste water can be expressed in p.e., and provided that it does not contain substances other than those usually present in domestic waste water, nor has a significantly different composition; or

(iii) Connection of surface run-off, except from areas used for parking more than 20 cars and from roads.

PART 6

Termination of the right and duty to connect
(withdrawal from the public waste water service partnership)

12.—(1) The local council may grant permission for property owners to withdraw in full or in part from the public waste water service partnership on the following conditions:

(i) That the withdrawal does not conflict with the local council's plan for the disposal of waste water in the municipality, cf. section 32(1)(ii) of the Act;

(ii) That the withdrawal is agreed between the property owner and the local council;

(iii) That the withdrawal does not have serious adverse effects on the overall economy of the waste water service;

(iv) That the withdrawal does not prevent the proper technical functioning of the waste water service.

(2) Permission to withdraw in full or in part from the public waste water service partnership is only granted to property owners who have obtained a licence to use an alternative method of waste water disposal or discharge. The licensing of an alternative method of disposal or discharge of waste water is subject to the following:

(i) That the alternative method of disposal or discharge is compatible with the objectives set out in the regional plan for the quality and use of watercourses, lakes or coastal waters, as wells as with the objectives for the use and protection of the ground water;

(ii) That the requirements in Part 8 below will continue to be met, notwithstanding any reduction in the approved capacity; and

(iii) That the alternative method of discharge will not interfere with the quality of the treatment to which the overall volume of waste water is subjected.

(3) Whenever a property owner who has obtained the permission referred to in subsection (1) above withdraws from the public waste water service partnership, an entry to this effect shall be made in a waste water plan, in order to provide a register of the properties that are included under the public waste water service partnership and the extent to which they participate.

PART 7

Discharge of waste water into watercourses, lakes or the sea

13.—(1) Applications for licences to discharge waste water into watercourses, lakes or the sea shall be submitted to the local council.

(2) In cases where the regional council is the licensing authority, the local council shall refer the application to the regional council accompanied by the local council's comments.

(3) The licensing authority, cf. sections 14 and 15 below, shall define the kind of information to be submitted with the application.

(4) When licensing private common waste water systems, the local council shall attach special importance to the following:

(i) That the implementation of the project does not conflict with the intentions of sound and appropriate urban development; and

(ii) That the implementation of the project conforms with the waste water plan and the guidelines for water quality and ground water protection set out in the regional plan.

14.—(1) The local council is the licensing authority in cases involving the discharge of the following categories of waste water:

(i) Domestic waste water from residential and industrial installations representing a load of 30 p.e. or less, including surface run-off;

(ii) Industrial process water from installations representing a load of 30 p.e. or less, including surface run-off, provided that the contents of the waste water can be expressed in p.e., and provided that they do not include substances other than those usually present in domestic waste water, nor have a significantly different composition; and

(iii) Other types of surface run-off, except from areas used for parking more than 20 cars and from roads and railways.

(2) Local council decisions under subsection (1) above cannot be brought before other administrative authorities.

15. The regional council is the licensing authority in cases involving the discharge of waste water not covered by section 14 above.

16.—(1) In respect of applications for the establishment of infiltration plants in cases where the clearance distance between the infiltration plant and watercourses, lakes or the sea is less than 25 m, sections 13, 14 and 15 hereof shall apply correspondingly.

(2) In the processing of applications for the licensing of infiltration plants pursuant to subsection (1) above, it should be ensured that the following requirements are met:

(i) That the hydrogeological conditions are such that discharge may in all probability take place without the risk of polluting water abstraction plants; and

(ii) That discharge will not result in pollution of ground water resources that can be used for water abstraction.

(3) Local council decisions under subsection (1) above cannot be brought before other administrative authorities.

17.—(1) The licensing authority shall define the required capacity of the waste water system in the discharge licence.

(2) In the case of competence disputes between the local council and the regional council, the regional council shall be the licensing authority.

(3) Regional council decisions under subsection (2) above cannot be brought before other administrative authorities.

PART 8

Emission limit values for the discharge of certain substances from public waste water systems

18.—(1) Waste water treatment plants with an approved min. capacity of 2,000 p.e. that discharge to watercourses and lakes shall no later than 1 January 2006 comply with the requirements set out in section 19 for organic substances measured as BOD_5 and COD.

(2) Waste water treatment plants with a min. approved capacity of 5,000 p.e. shall comply with the requirements set out in section 19 for phosphorus and organic substances measured as BOD_5 and COD.

(3) Waste water treatment plants with an approved capacity of more than 15,000 p.e. shall comply with the requirements set out in section 19 for phosphorus, nitrogen and organic substances measured as BOD_5 and COD.

(4) The issuing of new licences for the discharge of waste water from treatment plants with a min. approved capacity of 5,000 p.e. is subject to the requirements set out in section 19 for phosphorus, nitrogen and organic substances measured as BOD_5 and COD in cases concerning:

(i) The establishment of a new waste water treatment plant; or
(ii) An increase in the approved capacity of the plant.

19.—(1) Unless lower concentrations are stipulated in a discharge licence or are required pursuant to section 30 of the Act, the proportion of the following substances present in waste water effluent subject to section 18 above shall be reduced to the following values:

(i) Organic substances COD ..... <7
(ii) Organic substances BOD_5 (modified) ..... <1
(iii) Total nitrogen N ..... <
(iv) Total phosphorus P..... <1.

(2) Compliance with the emission limit values specified in subsection (1) above shall be verified using the guidelines for monitoring substance transport established in the current Danish Standard for the examination of waste water and on statistical calculations based on discharge data.

(3) The verification process described in subsection (2) above shall be based on a 12-month inspection period during which at least 12 flow-weighted 24-hour samples are taken at regular intervals, but see subsection (4), below.

(4) However, the monitoring of waste water treatment plants with a min. approved capacity of 50,000 p.e. shall be based on a 12-month inspection period during which at least 24 flow-weighted 24-hour samples are taken at regular intervals.

PART 9

Reduction of the load of nitrogen and phosphorus discharged to watercourses, lakes and the sea with effluent from major industrial enterprises

20.—(1) This Part of the Statutory Order governs the issuing of discharge licences to major industrial enterprises discharging an annual load of min. 22 tonnes of nitrogen or min. 7.5 tonnes of phosphorus to watercourses, lakes and the sea.

(2) The regional council is the licensing authority in cases involving the connection of enterprises in the category defined in subsection (1) above to the outfall of a public waste water system, provided that the connection is made downstream of the public waste water treatment plant.

(3) Waste water connections of the type referred to in subsection (2) above shall, with regard to the enterprise's overall waste water discharge, be deemed separate industrial outfalls as defined by the Act, cf. sections 28(1) and 34(3) of the Act.

21.—(1) Unless the regional plan defines higher quality standards for the receiving waterbody, discharges of nitrogen and phosphorus pursuant to section 20 above shall be reduced to the lowest possible level using the best available techniques, cf. section 4(11) above.

(2) The discharge of nitrogen and/or phosphorus must not impede the achievement of the quality objectives established for the receiving waterbody.

22.—(1) Applications for licences to discharge nitrogen and phosphorus pursuant to Part 9 hereof shall be submitted in writing and accompanied by the following information, with due allowance being made for any variations due to the nature of the individual enterprise or waste water system:

(i) A description of the project chosen for the removal or reduction of the nitrogen and/or phosphorus load of the waste water discharged, including a specification of the emission limit values and quantities to which the load can be reduced. A description shall also be given of the measures planned by the enterprise to achieve the lowest possible emission limit values and quantities;

(ii) Information on the relation of the proposed project to existing alternative technologies and on the economic and financial impact of a reduction in the discharged load of nitrogen and/or phosphorus;

(iii) A description of the possibility of removing or further reducing the load of nitrogen and/or phosphorus by implementing a technical development project;

(iv) A description of whether the possibilities of reducing or removing the load of nitrogen and/or phosphorus may be improved by using alternative raw materials or by limiting or discontinuing the production in question;

(v) Sufficient information about the accounts and financial position of the enterprise to enable the regional council to determine which of the measures envisaged for removing or reducing the load of nitrogen and/or phosphorus can be implemented.

(2) The application shall be submitted to the local council and subsequently transmitted to the regional council with the local council's comments.

(3) If the regional council finds the information provided in the application insufficient, the regional council shall notify the enterprise accordingly in writing, specifying the information needed and a deadline for submitting such information.

23.—(1) Decisions by regional councils to license the discharge of nitrogen and phosphorus are subject to section 21 above.

(2) The licence shall contain a description and evaluation of the information given in the application, including the main considerations on which the regional council based its decision to grant the application. The licence shall further establish requirements for the discharge of nitrogen and/or phosphorus and specify the measures of internal control to be undertaken by the enterprise.

PART 10

Prohibition of the direct discharge of certain substances to the ground water

24.—(1) Direct discharge to the ground water of the substances listed in Schedule 1 is prohibited, unless by percolation through the ground surface or the subsoil, but see subsection (2).

(2) However, the regional council may, for scientific purposes related to the characterisation, protection or rehabilitation of waters, license the discharge to the ground water of the substances listed in Schedule 1, provided that the quantities in which these substances are discharged are strictly limited to those necessary to the scientific purposes concerned and are too small to affect the quality of the receiving ground water.

PART 11

Disposal of waste water from dispersed settlements

25.—(1) For the purposes of this Part 11 of the Statutory Order 'disposal of waste water from dispersed settlements' means individual or collective discharge of waste water from properties representing a total waste water load of 30 p.e. or less.

(2) Enterprises not subject to licensing under Part 5 of the Act are encompassed by subsection (1) above, provided that:

(i) The load of any waste water discharged, except surface run-off, can be expressed in p.e.;

(ii) The waste water discharged does not contain substances other than those usually present in domestic waste water; and

(iii) The total waste water load is 30 p.e. or less.

(3) Enterprises subject to licensing under Part 5 of the Act, which also governs the enterprise's discharge licence, are not encompassed by subsection (1) above, unless

(i) The enterprise only discharges domestic waste water and surface run-off; and

(ii) The total waste water load is 30 p.e. or less.

26.—(1) Licences for the discharge of waste water from dispersed settlements issued by the local council shall as a minimum stipulate the same degree of treatment as that defined for the licensed area in the waste water plan, cf. section 32(1)(iv)-(v).

(2) Enforcement notices issued to properties located in dispersed settlement areas by the local council under the provisions for improved disposal facilities laid down in section 30 of the Act shall as a minimum stipulate the degree of treatment defined for the particular area in the waste water plan, cf. section 32(1)(iv)-(v).

(3) Licences and enforcement notices issued under subsections (1) and (2), respectively, shall stipulate a level of treatment according to the classification described in Schedule 2 hereto.

(4) With regard to enforcement notices concerning the establishment of infiltration plants pursuant to section 30(5) of the Act, the provisions of section 28(5) below shall apply correspondingly.

27.—(1) Enforcement notices under the provisions for improved disposal facilities of section 30 of the Act are issued subject to the following conditions being met:

(i) That requirements have been stipulated for the property's facilities for the drainage and discharge of waste water;

(ii) That the discharge of waste water from the property increases the pollution of the waters situated below the outfall; and

(iii) That it has been shown that the waters situated below the outfall are polluted to a degree that prevents compliance with the objectives set out for the area in the regional plan.

(2) Subsection (1)(ii) and (iii) shall not apply to enforcement notices issued to remedy unsanitary conditions caused by the discharge.

PART 12

Discharge of waste water into the ground (infiltration plants)

28.—(1) The local council can license the establishment of infiltration plants capable of serving 30 p.e. or less. The waste water may not contain substances other than those usually present in domestic waste water, nor have a significantly different composition.

(2) Licensing pursuant to subsection (1) above is subject to the following:

(i) That no infiltration plant may be established in the exclusion zones defined under section 22 of the Act;

(ii) That no infiltration plant may be established at a distance of less than 300 m from an abstraction plant required to produce water of drinking water quality;

(iii) That no infiltration plant may be established at a distance of less than 150 m from an abstraction plant not required to produce water of drinking water quality;

(iv) That no infiltration plant may be established at a distance of less than 25 m from watercourses, lakes or the sea, cf. section 16 above.

(3) In cases where the hydrogeological conditions are such that discharge into the ground can, in all probability, take place without the risk of polluting water abstraction plants, the clearance distance between the infiltration plant and abstraction plants of the type referred to in subsection (2)(iii) above and abstraction plants that supply or are designed to supply less than 10 households and are required to produce water of drinking water quality may be reduced to 75 m;

(4) Before issuing a licence pursuant to subsection (3) above, the local council shall obtain the opinion of the regional council.

(5) Before granting a licence, the local council shall ensure that the following conditions are fulfilled:

(i) That soil analysis has proved that the subsoil of the property allows percolation;

(ii) That the infiltration plant is dimensioned, located and constructed in a manner that prevents surface run-off, unsanitary surface conditions or any other nuisance;

(iii) That prior to entering the infiltration plant the waste water is passed through a settling tank;

(iv) That the infiltration plant, together with the associated drainage facilities, is designed and operated in accordance with the guidelines established by the authorities;

(v) That the infiltration plant incorporates seepage drains; and

(vi) That, where possible, the base of the infiltration plant is placed 2.5 m and in no circumstances less than 1 m above the highest ground water table.

(6) In cases where the clearance distance from the infiltration plant to watercourses, lakes or the sea is less than 25 m, section 16 above shall apply to decisions made by the local council under section 28(1).

29.—(1) The local council can license the discharge of surface run-off to an infiltration plant subject to the following:

(i) That the surface water entering the infiltration plant does not include run-off from public roads or from areas used for parking more than 20 cars;

(ii) That the infiltration plant is not used for domestic waste water or industrial process waste water;

(iii) That the infiltration plant is dimensioned, located and constructed such as to prevent surface run-off, unsanitary surface conditions or any other nuisance;

(iv) That the clearance distance between the infiltration plant and water abstraction plants supplying water of drinking water quality is at least 25 m;

(v) That the clearance distance from watercourses, lakes or the sea is at least 25 m, cf. section 16.

(2) In cases where the clearance distance from the infiltration plant to watercourses, lakes or the sea is less than 25 m, section 16 above shall apply to decisions made by the local council under section 29(1).

30.—(1) The regional council can license the discharge of waste water to infiltration plants in cases where the local council is not the licensing authority pursuant to sections 28-29.

(2) Regional council decisions pursuant to subsection (1) above must not conflict with the water supply, waste water, regional and municipal plans applying to the area. Licensing is subject to the following:

(i) That the hydrogeological conditions are such that discharge into the ground may, in all probability, take place without the risk of polluting water abstraction plants;

(ii) That discharge into the ground will not cause pollution of ground water resources that are exploitable for water supply purposes;

(iii) That discharge into the ground will not prevent compliance with the guidelines for the quality of watercourses, lakes and the sea established in the regional plan;

(iv) That the clearance distance from watercourses, lakes and the sea is at least 25 m;

(3) In cases where the clearance distance from the infiltration plant to watercourses, lakes or the sea is less than 25 m, section 16 above shall apply to decisions made by the regional council under section 30(1).

31.—(1) The regional council may empower the local council to license the establishment, within a specified area, of infiltration plants having a capacity of 30 p.e. or less, subject to the provisions of section 30(2). The waste water may not contain substances other than those usually present in domestic waste water, nor have a significantly different composition.

(2) In connection with decisions made pursuant to subsection (1) above, the clearance distance requirements set out in section 28 (2)(i)-(iii) may only be relaxed if a hydrogeological assessment shows that exploitable ground water resources will not be polluted.

(3) In connection with decisions made pursuant to subsection (1) above, the regional council shall further stipulate conditions in respect of the following:

(i) The design and siting of the infiltration plants, including the clearance distance between individual infiltration plants;

(ii) The clearance distance between the infiltration plants and water-courses, lakes, ditches, drain pipes systems or the coast;

(iii) The clearance distance between the infiltration plants and the ground water necessary to ensure the appropriate functioning of the infiltration plants. Certain measures may be needed to establish the necessary clearance distance, e.g. lowering the ground water table or filling up low-lying areas.

(4) The regional council can modify or revoke decisions made pursuant to subsection (1) above.

(5) Regional council decisions under subsections (1) and (4) above cannot be brought before other administrative authorities.

32.—(1) Applications concerning the establishment of infiltration plants shall be submitted to the local council.

(2) In cases where the regional council is the licensing authority, the local council shall refer the application to the regional council accompanied by the local council's comments.

33.—(1) Local council decisions made pursuant to sections 28 and 29 cannot be brought before other administrative authorities.

(2) Regional council decisions under section 30 above cannot be brought before other administrative authorities in the following cases:

(i) The granting or refusal of an application for a licence to discharge waste water into an infiltration plant with a capacity of 30 p.e. or less, in cases where the waste water does not contain sub-

stances other than those usually present in domestic waste water, nor has a significantly different composition; or

(ii) The granting or refusal of an application for a licence to discharge surface run-off into an infiltration plant, except run-off from public roads, railways or areas used for the parking of more than 20 cars.

20.4 PART 13

Discharge and spraying of waste water on the surface of the ground for non-agricultural purposes

34.—(1) Upon obtaining the opinion of the District Medical Officer of Health and the District Veterinary Inspector, the regional council can license the discharge and spraying of waste water on the surface of the ground for non-agricultural purposes.

(2) Licensing pursuant to subsection (1) above cannot be granted if the discharge or spraying of waste water involves a risk or may cause -

(i) Pollution of ground water;

(ii) Pollution of surface water;

(iii) Health hazards to humans or animals;

(iv) Nuisance to neighbours;

(v) Surface run-off.

(3) Applications for licensing pursuant to subsection (1) above shall be submitted to the local council, which shall refer the application to the regional council accompanied by the local council's comments.

35. The regional council's refusal of applications made pursuant to section 34(1) cannot be brought before other administrative authorities.

36.—(1) Cases involving doubt as to whether the discharge or spraying of waste water on the surface of the ground is for agricultural or non-agricultural purposes shall be referred to the Danish Environmental Protection Agency.

(2) The Danish Environmental Protection Agency's decisions under subsection (1) above cannot be brought before other administrative authorities.

PART 14

Establishment of holding tanks for waste water etc. -
Inflow, collection and disposal of contents

37.—(1) The local council can license the discharge of domestic waste water, human waste or surface run-off from single properties with one or two households to holding tanks wholly or partly buried in the ground, subject to the following:

(i) That the holding tank is type-approved by the Danish Approval Committee for testing oil tanks ("Prøvningsudvalget for Olietanke") , cf. Statutory Order on the supervision of oil storage facilities issued by the Ministry of Environment and Energy in force at any time.

(ii) That the holding tank is deemed by the licensing authority to fulfil similar quality criteria for the storage of domestic waste water, human waste or surface run-off;

(iii) That the holding tank can be approved by the licensing authority for inclusion in a toilet system whose operation requires the tank to be completely watertight (vacuum systems); or

(iv) That the holding tank is made of concrete and built by a qualified sewerage contractor in accordance with a design approved by the licensing authority.

(2) The holding tank shall be sited on the property.

(3) If an abstraction plant for drinking water is installed on the property, licensing is subject to the following:

(i) Where the abstraction plant supplies or is designed to supply at least 10 properties, the holding tank shall be placed at a distance of at least 50 m from the plant;

(ii) Where the abstraction plant supplies or is designed to supply less than 10 properties, the holding tank shall be placed at a c distance of at least 30 m from the plant;

(iii) Where the abstraction plant supplies or is designed to supply a single property, the holding tank shall be placed at a distance of at least 15 m from the plant.

(4) The clearance distance of the holding tank from other abstraction plants shall be at least 15 m;

(5) The clearance distance of the holding tank from roads and the property boundary shall be at least 2 m.

(6) The capacity of the holding tank shall be appropriate to the desired emptying frequency and the inflow of domestic waste water, human waste or surface run-off. The tank shall be sited and installed with easy access for emptying.

(7) Prior to licensing the establishment of a holding tank, the local council shall ensure that the tank will not expose humans or animals to health hazards, nor create nuisance to neighbours;

(8) Prior to licensing the establishment of a holding tank on a property not covered by a municipal collection scheme, it shall be verified that the tank will be appropriately emptied by vacuum tanker, and that a contract has been concluded with the local council for the direct transfer of the contents of the tank to a waste water treatment plant in accordance with instructions given. However, this provision shall not apply if a licence for full or partial reuse of the domestic waste water has been granted, in which cases subsection (9) below shall apply correspondingly.

(9) Prior to licensing the establishment of a holding tank for human waste and surface run-off, the local council shall ensure that the tank will be emptied and its contents transported and finally disposed of in an appropriate manner. The application submitted to the local authorities shall indicate the location for final disposal of the waste water and document that a licence for final disposal at the specified location has been obtained.

38.—(1) In cases where the local council is not empowered to grant a licence pursuant to section 37 above, the regional council can license the discharge of waste water and human waste to holding tanks wholly or partly buried in the ground.

(2) In cases where the regional council is the licensing authority pursuant to section 38(1), the provisions of section 37(1)(i)-(iv) and section 37(5)-(9) above shall apply correspondingly, but see subsection (3).

(3) Holding tanks for waste water other than domestic waste water shall be emptied and their contents collected and finally disposed of using a method of transportation and final disposal approved by the regional council. The application submitted to the regional council shall indicate the

location for final disposal of the waste water and document that a licence for final disposal at the specified location has been obtained.

39.—(1) In connection with the establishment of aboveground holding tanks for waste water (including domestic waste water) and human waste, section 37(1), section 37(5)-(9) and section 38 above shall apply correspondingly.

(2) The establishment of an aboveground holding tank for surface run-off shall be notified to the local council no later than 3 weeks in advance.

40.—(1) The local council can license the discharge of domestic waste water into a waste water stabilisation pond with no outlet for the treatment of waste water from a single property comprising one or two households.

(2) Prior to issuing a licence under subsection (1) above, the local council shall verify that the waste water stabilisation pond:

(i) Has watertight bottom and sides;

(ii) Is overflow-proof;

(iii) Poses no health risk to humans and animals;

(iv) Creates no nuisance for neighbours; and

(v) Complies with the requirements for a clearance distance from water abstraction plants, cf. section 37(3 and 4).

41.—(1) In cases where the local council is not empowered to grant a licence pursuant to section 40 above, the regional council can license the discharge of waste water to no-outlet waste water stabilisation ponds.

(2) Licences pursuant to section 41(1) may be granted only if the pond meets the requirements set out in subsection (2). However, the regional council may derogate from the clearance distance requirements according to section 40(2)(v) if it is rendered probable that the establishment of a given pond does not involve any risk of contaminating the water abstraction plant.

42.—(1) Decisions to license the establishment of a no-outlet waste water stabilisation pond with permeable bottom and sides shall be made in accordance with the rules on discharge of waste water into the ground set out in Part 12 hereof.

43. Local council decisions under section 37, section 39(1) and section 40 cannot be brought before other administrative authorities.

PART 15

Disposal schemes for the contents of settling tanks, holding tanks, etc .

44.—(1) The local council may decide to arrange for collective disposal of waste water or human waste from settling tanks in all or parts of the municipality. The use of such a disposal scheme is mandatory on all property owners, but see subsections (2) and (3) below.

(2) In the case of waste water systems subject to contractual membership under section 7a of the Act on payment rules for waste water installations etc., the local council is responsible for emptying holding tanks etc. that form a constituent part of the waste water system. The local council may decide to include the emptying of such tanks under the municipal collection scheme.

(3) Use of a municipal disposal scheme for human waste and certain types of waste water discharged into a holding tank in accordance with the rules set out in Part 14 above shall not be mandatory on property owners who have obtained a licence for alternative final disposal or reuse.

(4) Holding tanks forming part of installations covered by subsection (1) above shall be emptied upon the request of the party responsible for ensuring that the tank is emptied within the time limit fixed by the local council and as directed by the local council.

(5) Holding tanks forming part of installations covered by subsection (2) above shall be emptied upon the owner's submission of a request in accordance with the rules fixed by the local council.

45.—(1) The local council may decide to arrange for collective disposal of sludge from settling tanks in all or parts of the municipality. The use of such a disposal scheme is mandatory on all property owners, but see subsection (2) below.

(2) The local council is responsible for emptying settling tanks that form a constituent part of waste water systems covered by contractual membership under section 7a of the Act on payment rules for waste water installations etc. The local council may decide to include such tanks under the municipal collection scheme described above.

46. As regards the emptying of other drainage facilities, the local council may decide to arrange for collective disposal. The use of such a scheme is mandatory on all property owners.

47. The local council may stipulate different emptying frequencies for the individual settling tanks, drainage facilities, etc. depending on their size, design and/or waste water load.

48.—(1) The local council shall be responsible for the administration and operation of municipal collection schemes.

(2) The local council shall draw up rules and regulations for the collection schemes.

(3) The local council shall ensure that the rules and regulations governing the collection schemes are published in local newspapers widely circulated in the municipality.

49. Decisions made by the local council pursuant to sections 44-48 cannot be brought before other administrative authorities.

PART 16

Other provisions

50. The licensing authority shall keep a register of the licences issued pursuant to this Statutory Order. Registration shall be made with reference to both location and receiving waters.

51.—(1) Conditions can be stipulated in licences issued pursuant hereto, including requirements for internal control measures.

(2) Licences granted hereunder may be limited in time.

PART 17

Supervision and enforcement

52.—(1) The regional council shall supervise public waste water systems discharging into watercourses, lakes or the sea.

53.—(1) The local council shall supervise all waste water systems that are connected to a public waste water system, including the associated outfalls, but see subsection (2) below.

(2) The regional council shall supervise waste water systems that are connected to the outfall from a public waste water system in cases where the connection is made pursuant to section 20(2) hereof.

54. The local council shall supervise waste water systems that are connected to private waste water systems discharging into a public waste water system.

55.—(1) The local council shall supervise private waste water systems discharging into watercourses, lakes or the sea, but see subsections (2) - (5) below.

(2) The supervision of discharges from enterprises whose activities are subject to approval, cf. Statutory Order No. 794 of 9 December 1991 as amended by Statutory Order No. 848 of 30 September 1994 on Approval of Listed Activities shall be organised as follows:

(i) The regional council shall supervise discharges from waste water systems installed at enterprises for which the regional authority is the approval authority ("a-labelled enterprises"); and

(ii) The local council shall supervise discharges from waste water systems installed at enterprises for which the local authority is the approval authority.

(3) The regional council shall supervise discharges from waste water systems installed at enterprises operated by the local council.

(4) The local council shall supervise discharges from waste water systems installed at enterprises operated by the regional council.

(5) The regional council shall supervise discharges from waste water systems installed at enterprises covered by Part 9 of this Statutory Order.

56.—(1) The local council shall supervise private waste water infiltration plants.

(2) The regional council shall supervise public waste water infiltration plants.

57.—(1) The local council shall supervise private waste water holding tanks and private no-outlet waste water stabilisation ponds.

(2) The regional council shall supervise public holding tanks and public no-outlet waste water stabilisation ponds.

58.—(1) The regional council shall draw up surveys of the state of pollution of each of the receiving waters, the type and volume of waste water discharged and the objectives formulated in the regional plan's guidelines for the quality and use of each receiving waterbody.

(2) Upon request, these surveys shall be made available to the relevant local council and to the Danish Environmental Protection Agency.

59. All other aspects of supervision and enforcement shall be governed by the provisions laid down in Part 9 of the Act.

PART 18

Penalties

60.—(1) Unless heavier penalty is warranted by other legislation, the following shall be deemed offences punishable by a fine -

(i) Unlicensed discharge of waste water at locations where a discharge licence issued hereunder is required;

(ii) Violation of conditions stipulated in a discharge licence issued hereunder;

(iii) Violation of section 19 hereof, cf. section 18;

(iv) Failure to notify the local council pursuant to section 39 hereof; or

(v) Failure to comply with prohibition or enforcement notices.

(2) Rules and regulations issued by a local council pursuant to Part 15 hereof may include a provision to the effect that violation of such rules and regulations shall be punishable by a fine;

(3) The penalty may be increased to detention or imprisonment for up to 2 years if the violation was committed intentionally or through gross negligence, and if the violation -

(i) Caused detrimental or potentially detrimental environmental effects; or

(ii) Produced or was intended to produce a financial return for the person in question or for others, including by the saving of costs.

(4) Companies etc. (legal entities) can be held liable under Part 5 of the Danish Penal Code, cf. section 110(4) of the Act.

PART 19

Entry into force

61.—(1) This Statutory Order enters into force on 1 July, 1999.

(2) Statutory Order No. 310 of 25 April 1994 issued by the Ministry of Environment and Energy on the Licensing of Waste Water Discharges Pursuant to Parts 3 and 4 of the Environmental Protection Act is hereby repealed.

62. Waste water plans or waste water plan supplements drawn up pursuant to Statutory Order No. 310 of 25 April 1994 on the Licensing of Waste Water Discharges Pursuant to Parts 3 and 4 of the Environmental Protection Act shall continue in full force and effect until superseded by waste water plans or waste water plan supplements drawn up pursuant to this present Statutory Order.

63.—(1) Regulations issued pursuant to Statutory Order No. 310 of 25 April 1994 on the Licensing of Waste Water Discharges Pursuant to Parts 3 and 4 of the Environmental Protection Act shall continue in full force and effect until superseded by regulations issued pursuant to this present Statutory Order, unless otherwise provided herein.

(2) Any violation of such regulations shall be punishable under the provisions of this present Statutory Order. However, violations committed before the entry into force of this Statutory Order shall be punishable under the rules applicable at such time.

Ministry of Environment and Energy, 21 June, 1999

Svend Auken

/Jesper Hermansen

21. Schedule 1

This schedule applies to all substances belonging to the families and groups listed below, except those considered irrelevant due to their low risk of toxicity, persistence and bioaccumulation.

1. Organic halides and substances capable of forming organic halides in an aquatic environment.
2. Organic phosphorus compounds.
3. Organic tin compounds.
4. Substances that may be carcinogenic (likely to cause cancer), mutagenic or teratogenic (likely to cause foetal malformation) in or via an aquatic environment.
5. Mercury and mercury compounds.
6. Cadmium and cadmium compounds.
7. Mineral oils and hydrocarbons.
8. Cyanides.

21.1 Load reduction requirements according to class of treatment

Class of treatment	21.1.1 BI5	Total phosphorus	Nitrification
SOP	95%	90%	90%
SO	95%		90%
OP	90%	90%	
O	90%		

O: Load reduction, organic substances
P: Load reduction, total phosphorus
SO: More stringent requirements for reduction of organic substances and nitrification