



METRO

WASTEWATER MANAGEMENT

DEPARTMENT

MONITORING AND CONTROL OF

SEWAGE DISPOSAL AND TREATMENT

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SEWAGE DISPOSAL AND TREATMENT

The Importance of Monitoring

Wastewater is made up of both industrial effluent and domestic sewage.

Where there is no formal disposal system, sewage is normally treated and disposed of on-site. Care must be taken in setting the parameters under which this will be permitted in order to prevent pollution of the soil and natural water courses and surface runoff which could lead to serious health, hygiene and environmental problems.

In the case of the formal sewerage systems, it is critical that these also are well managed to avoid pollution problems with resulting public or environmental health concerns.

Regular tests have to be conducted during all stages of the sewage conveyance, treatment and ultimate disposal systems to ensure that the disposal process does not have a negative impact on rivers and sea environment.

This pamphlet provides information about the monitoring and control of sewage disposal in the Durban Metropolitan area.

Monitoring Sewage Disposal in the Metro Area

Durban Wastewater Management Department (DWM) is responsible for providing a formal sewerage system and for the treatment and safe disposal of wastewater in the Metro area. Associated with this it also carries out, for self auditing purposes, general pollution monitoring. In turn the Department itself is monitored and controlled by the Department of Water Affairs and Forestry (DWAF).

The monitoring and testing carried out by DWM is undertaken in four main areas; at source, the reticulation system, the treatment process itself and the treated discharge to river and sea.

1. Monitoring a Source

DWM issues permits to commerce and industry which regulate the discharge of trade and industrial effluents to the sewerage system. Where industries are discharging a significant volume or a high strength effluent, these are regularly monitored to ensure compliance with quality requirements set down in the Metropolitan Sewage Disposal Bylaws. This monitoring can also be used to determine the tariff of charge to be raised where the effluent is stronger than normal domestic sewage.

In instances where contravention of the Bylaws has occurred DWM may issue notices, recover costs or refer the incident for prosecution.

2. Self Auditing of the Reticulation System

DWM undertakes a large river and water courses monitoring programme in the Metro area to assess the state of surface water as a self audit on the integrity of the formal sewerage system and on other polluters. The analysis of these samples is undertaken to indicate the water quality from a chemical and biological aspect. If pollution is found, steps are immediately taken to identify the cause and prevent the repetition of such pollution by direct action or by issuing of a notice in terms of the Metropolitan Sewage Disposal Bylaws.

3. Monitoring At the Treatment Works

Wastewater entering the treatment works is analysed regularly at all stages of the treatment process. This enables the works operator to determine the strength of incoming wastewater and to adjust his treatment process accordingly, and also provides a background check to the effectiveness of the source monitoring.

Land based treatment is largely a natural process and has to be managed carefully to maintain efficiency. Tests are conducted throughout various physical and biological stages of the treatment process.

4. Monitoring of Discharge and Disposal of Treated Sewage

DWM discharges treated effluent into rivers and estuaries as part of the land based treatment process and partially treated effluent into the sea via its two deep sea marine outfall pipelines.

Rivers : Monitoring of river water upstream and downstream of the discharge point is required by the Department of Water Affairs and Forestry in terms of its permits issued in terms of the Water Act to assess the impact on the receiving water quality. Samples are taken on a monthly basis and analysed for pH, oxygen absorption levels, faecal coliforms and various critical chemical constituents.

Marine Environment: Surf water is sampled at various points along the beaches twice a month and tested for the presence of E. Coli and other microbial indicators of pollution. Measurement of salinity indicates the presence of any fresh water run off from the land.

Bacteriological, biological and chemical monitoring surveys of sea water, surf water, sediments and marine biological tissue samples are carried out (annually) in the vicinity of the marine outfalls by an independent organisation as an audit function in terms of the discharge permits.

Chemical testing is carried out by DWM on the partially treated effluent before it is discharged via the marine outfall pipe to ensure the quality remains within the

requirements of the discharge permit issued by the Department of Water Affairs and Forestry. The tests are conducted weekly.

The physical condition of the sea outfall pipes is monitored by regular underwater inspections.

As a result of the above monitoring carried out on a routine basis, it is easy to obtain an overall perception of the state of the river or the sea i.e. its closeness to the water quality of the natural system.

Enforcement and Sanction

The Environmental Conservation Act (No. 73 of 1989), the Water Act (No. 54 of 1956) and local Bylaws provide a foundation for ensuring water quality. If an incident occurs corrective action or charges can be brought under various sections of legislation.

Penalties for contravention range from fines to imprisonment. The maximum penalty for a first time contravention of the Sewage Disposal Bylaws is six months imprisonment in terms of the Local Authorities Ordinance (No. 25 of 1974). If the incident is serious enough charges can be brought by the Department of Water Affairs in terms of the Water Act or by the Attorney General under the Environmental Conservation Act which has a maximum penalty of ten years imprisonment.

A guilty party can also be fined, can be liable for the cost of any clean up operation and can have property confiscated.

General

The monitoring and control of water pollution in the Metropolitan area by the Department of Wastewater Management, is seen as imperative in maintaining a healthy environment for the community and for natural resources.
