



## Tracking of Hydraulic and Organic Loads Imposed by the Industrial Effluent

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### Editorial Note

Disposal of treated wastes is an important step an industry has to follow in order to ensure that the delicate ecological balance of the environment is not disturbed. Disposal may be done in a receiving body of water such as a river, lake, or sea. Disposal on land is also practised, taking care to see that the soil is not adversely affected by the residual pollutants in the effluent. Where underground sewerage is available, the treated effluents may be discharged into municipal sewers, provided they meet the quality standards laid down for this mode of disposal. In addition, the quality of the industrial effluents must be such that: they will not endanger the lives of the drainage maintenance crew, who may be required to enter the sewers for maintenance and repairs, the material of the sewers will not be damaged, and the effluent treatment plant, if one is provided at the end of the drainage system, will be capable of tracking the hydraulic and organic loads imposed by the industrial effluents. Industries wishing to follow this mode of disposal will almost always be required to give some pre-treatment to the waste water, its extent depending on: the volume and strength of the waste water, and the degree of dilution offered by the sewage flowing in the drainage system.

A result of treating waste water by one or more of the above discussed means is generation of sludge's, which may be organic or inorganic in nature. Sludge constitute a peculiar problem on account of their properties such as viscosity, presence of pollutants in a concentrated form, some of which can be toxic and hazardous or

difficult to dewater and dispose of. This fact needs careful consideration while designing the waste water treatment plant. The treatment is said to be complete when the solid residues, liquid effluents and gaseous emissions are adequately treated and safely disposed of.

The design of a waste water treatment plant begins with collecting information about the volume of waste water to be treated, its characteristics, and the degree of treatment required in order to meet specified discharge standards. Knowledge about the mode of manufacture, viz. continuous or batch is also useful. A batch process produces an effluent in the form of a slug which lasts for a short time, while a continuous process generates a waste water stream which flows continuously, although at varying rates. Based on this information, one can decide a grab sample of the waste water would be representative of its quality, or a composite sample would be necessary. Information about the raw materials, chemicals and other ingredients used in the manufacturing process helps one to decide the physical and chemical tests to be conducted on the representative samples for characterizing the effluent. Correct interpretation of the results of the analysis of the waste water samples enables one to choose a proper treatment process.

The measurement of waste water flow can be done either on the outfall channel or pipe carrying the entire waste water flow from the industry, or on the individual waste streams within the industry. The first method is useful in knowing the total flow, but cannot distinguish between the contributions of individual streams.