

Quality vs. Quantity Relationships

from

TUALATIN BASIN WATER AND SEWERAGE MASTER PLAN

by

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Stream Waste Assimilation Capacity

"Every stream has physical and ecological characteristics which enable it to absorb pollutional impacts without lasting water quality degradation. These characteristics comprise the assimilative mechanism of a stream. A finite amount of waste material may be assimilated without overloading the assimilative mechanism. This amount of waste, different for each type of waste material, is the assimilative capacity of the stream.

Algae

"Algal blooms and the resulting conditions are one of the major water quality problems in the lower Tualatin River...As far upstream as river mile 45, sufficient levels of phosphate are always available to cause significant growth. Although there are marked increases in phosphate are always available to cause significant growth. Although there are marked increases in phosphate levels at major waste loading points, sufficient phosphorus for algal growth is already present from upstream contributions. It is doubtful that primary emphasis on removal of phosphate from municipal and industrial waste effluents would effectively control algal growth.

Degree of Treatment Selection

"The combining of primary, secondary and tertiary treatment in total represents one of the most modern concepts in sewage treatment. Nevertheless, after completion of the process the effluent would still essentially be sewage and as such would be unsuitable for human consumption without additional treatment. This is primarily due to bacteria and virus contamination and the presence of undesirable inorganics such as chlorides and heavy metals. With suitable dilution it will not have a detrimental effect on the receiving stream.

"With regard to the need for nutrient removal the following Oregon State Sanitary Authority staff memorandum dated September 27, 1968, is quoted as follows:

'It is the opinion of the staff that no more 'tertiary' treatment plants should be approved for construction until such time as the Tualatin plant is in operation and its capabilities can be evaluated. Furthermore, the need for nutrient removal requires more evaluation before this degree of treatment is required. Nutrient removal from sewage effluents may have no noticeable effects on water quality in the Tualatin Basin due to the contributions of nutrient from land drainage and irrigation return water.'