

For information

Legislative Council Panel on Environmental Affairs

Review of Trade Effluent Surcharge rates –

Survey of effluent strength of the restaurant trade and statistics on applications for reassessment of TES by the restaurant trade

Introduction

At the meeting of the Panel on Environmental Affairs held on 18 March 2008, Members requested us to provide further information on the methodology of the survey of effluent strength of the restaurant trade, as well as statistics on the chemical oxygen demand (COD) values of reassessment cases concerning the restaurant trade.

2. This paper provides the information sought.

Presently prescribed generic COD values for the restaurant trade

3. Individual operators of the restaurant trade are liable to pay a trade effluent surcharge (TES) based on the generic COD values specified in the *Sewage Services (Trade Effluent Surcharge) Regulation* (Cap 463 Sub Leg B) according to the volume of water consumption. The current set of values is 3,600 grammes per cubic metre (g / cu m) and 2,315 g / cu m for COD_{total}¹ and COD_{settled}² respectively.

4. Those generic COD values were determined in 1995 when the Sewage Services Charging Scheme was introduced. The set of COD values, together with applicable COD values for other trades, was based on a mix of theoretical considerations, information on the nature of effluents discharged by the same trades elsewhere in the world, and actual measured values.

Survey of effluent strength of the restaurant trade

5. Since the introduction of the TES scheme, there have been complaints that for the restaurant trade in particular the applicable generic COD values are too high. In view of the lapse of time since the introduction of the TES scheme, and noting in particular the efforts made by the trades to control pollution,

¹ The value is a measurement of the chemical oxygen demand of the whole sample of a trade effluent without allowing gravity separation of the sample, thus indicating the total organic load.

² The value is a measurement of the chemical oxygen demand of the un-settleable portion of a sample of trade effluent after gravity separation and removal of the settleable portion by allowing the sample to sit still for 60 minutes. It indicates the organic load of the unsettled portion of the effluent.

we carried out a trade-specific survey of effluent strength in order to collect the latest information with a view to updating the set of COD values.

6. The survey of effluents from the restaurant trade was carried out by the Environmental Protection Department in August and September 2005. We aimed at collecting about 400 samples from operators of the trade for analysis. In order to ensure the final outcome would be representative of the average effluent strength of the restaurant trade as a whole, we divided operators into three categories before randomly selecting restaurants for the collection of samples. The three categories represented operators with a daily water consumption of (a) greater than 100 cubic metres; (b) between 10 and 100 cubic metres; and (c) less than 10 cubic metres. From each of the categories, we randomly selected 50, 200 and 150 operators respectively for collection of samples.

7. Staff of EPD collected grab effluent samples during inspections of the randomly selected restaurants over a two-month period according to the distribution described in paragraph 6 above. The inspections were carried out during the period of normal business activity, when trade-related wastewater would be expected to be generated. Samples were collected at the effluent discharge points of the selected operators and sent to independent laboratories accredited under the Hong Kong Laboratory Accreditation Scheme for analysis.

8. Before embarking on the survey, we informed representatives of the Association of Restaurant Managers and the Hong Kong Federation of Restaurants and Related Trades that a survey would be conducted. However, the randomly selected operators of the trade were not informed of the inspection beforehand so as to safeguard the integrity of the samples to be collected.

9. By the end of the survey, a total of 384 samples had been collected during inspections and analysed. The results indicated that effluent strength ranged from as low as 32 g / cu m, to as high as 77,500 g / cu m. Based on all 384 samples the mean total COD was 2,520 g / cu m. To avoid distortion of the results by unusually high and low values, samples lying beyond two standard deviations from the mean were deleted and the results recalculated. On this basis, 10 sample results were discarded. The values then ranged from 32 g / cu m to 14,900 g / cu m with a mean of 1,629 g / cu m. We thus concluded that a reasonable estimate of the mean total COD of restaurant effluents free from distortion by outliers would be 1,630 g / cu m. We consider that this is an appropriate value to apply given the existing structure of the charging scheme which relies on the use of average figures to determine the polluting loads, and hence the charges to be paid. If we were to adopt another statistic, such as the median, the entire scheme would need to be re-worked, and it would not necessarily mean that the charges to be met by each trade would be reduced.

10. We are confident that the methodology of the survey is scientifically

sound and reliable, and the average strength of the effluents is representative of the general quality of effluents discharged by the restaurant trade, taking into account the pollution control measures adopted across the trade as a whole.

Reassessment of TES rates

11. While a generic COD value is applied to a trade under the TES scheme, individual operators may feel that as a result of the pollution control measures they employ, the effluent they discharge is weaker than the generic value. In such circumstances an operator may choose to apply for reassessment of the effluent strength discharged by his establishment. The detailed reassessment procedure is provided for in the Regulation and the Technical Memorandum issued pursuant to Section 13 of the Sewage Services Ordinance (Cap 463). An operator is obliged to arrange for collection and testing of effluents at his own cost.

12. In order to encourage operators with good pollution control practices to seek reassessment of applicable TES rates, we introduced the *Sewage Services (Trade Effluent Surcharge) (Amendment) Regulation 2007* in April 2007, which was supported by the Legislative Council, to extend the period during which a re-assessed TES rate is effective from one year to two years. We also amended the relevant Technical Memorandum to reduce the number of specified sampling days for small establishments from three to two. These proposals have reduced the cost relating to reassessments for TES trades.

13. Under the TES scheme, there are about 14,000 operators of different sizes in the restaurant trade. In the 12 years since the introduction of the TES scheme, there have been on average 460 applications for reassessment per year. About 84 percent of these applications were successful, representing the top two percent of all operators with better pollution control practices in the restaurant trade. For the period between March 2007 and February 2008, the COD values for reassessment cases ranged from 300 g / cu m to 1,690 g / cu m, with a mean of 867 g / cu m. It should be noted that these figures represent the performance of those establishments with the best pollution control practices and are bound to describe effluents which are better than average quality. It would therefore be wholly inappropriate to assume that they could or should be adopted as generic values to be applied to the trade as a whole.

Facilitating the trades to adopt pollution control measures

14. We believe it is the collective responsibility of every individual of the community to reduce the pollution of our living environment. Hence we have introduced the TES scheme on the premises of the "polluter-pays" principle.

15. As stated in paragraph 12 above, we have already extended from one year to two years the period of time for which a TES reassessment remains

valid, and reduced the number of sampling days for small operators required under the TES scheme. Both these measures have reduced the reassessment costs and should encourage more restaurants to implement good pollution control practices and apply for reassessment. We will continue to encourage TES trades to adopt good pollution control measures. We will arrange workshops or other activities to promote the adoption of pollution control measures by the TES trades and encourage trade associations to organise activities promoting pollution control with funding support from, for example, the Environment and Conservation Fund.

Environmental Protection Department
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