

APPENDIX V

ENVIRONMENT WAIKATO STATEMENT ON THE TURANGI SEWAGE TREATMENT SYSTEM

This application was publicly notified in the *Taupo Times* on 3 July 1990, the closing date for submissions was the 1 August 1990, and no submissions were received.

Turangi township has a sewage reticulation system with effluent from the township entering a two oxidation pond system. The effluent after treatment in the ponds is pumped to one of two distribution lines. These distribution lines divide into two resulting in four lines which access four separate irrigation areas. The effluent is distributed from these onto approximately 7.5 hectares of irrigation beds. The irrigation beds are dosed alternately with the grass cover being harvested for composting on a regular basis. The irrigation beds were rebuilt in 1985 to enhance the existing impervious layer beneath the topsoil layer and to create a series of ridges and channels. Effluent that runs off the beds is collected in drains that direct the effluent to a low lying area which provides additional treatment. The effluent flows from this low lying area to a natural wetland which the effluent passes through before entering Lake Taupo. The system was designed to treat the waste using an overland flow system, not through land infiltration. The overland flow system was considered, by the designers, as providing the highest level of effluent treatment.

The treatment system was originally designed by the Ministry of Works and Development and was intended to treat domestic sewage from about 10,000–12,000 workers from the Tongariro Power Development project. With the completion of the scheme the population utilising the system has decreased with the maximum population of 5,000 persons occurring during holidays. The maximum discharge volume recently estimated from pumping records is 1,395 cubic metres per day. The volume applied for is sufficient to cater for an increase in the present population.

The treatment system has been monitored by the applicant with effluent quality from samples taken from the low lying area prior to reaching the natural wetland since 1990 being as follows:

	Typically*	High*
BOD ₅	20 grams per cubic metre	35.8 grams per cubic metre
Suspended solids	25	46.8
Total nitrogen	12	26.5

Ammoniacal nitrogen	6	12.7
Total phosphorus	6	7.8
Faecal coliforms	5×10^3 per 100 mls	8.5×10^3 per 100 mls

The system design was intended to produce a high quality effluent with a low nutrient content. When operating as intended the above monitoring results show the system can provide a significant reduction in contaminants including nutrients. However at times the treatment system is unable to achieve this higher standard for various reasons including climatic conditions, shock loading rates etc.

The impervious sealing layer placed under the irrigation area is expected to prevent percolation of effluent into the ground with effluent that does not evaporate being channelled to collection drains. The collected effluent is channelled to a natural wetland area which will provide some additional treatment. As such the volume of contaminants, especially nutrients reaching the lake from this source is likely to be less than measured in effluent samples. The present disposal system has been in operation since the 1960s and no direct monitoring has been undertaken to identify what if any adverse impacts there are.

The treatment system reduces the contaminant loading that would otherwise enter the environment. As such the treatment of this waste is in line with Council policy. However policy also requires the protection and enhancement of significant water bodies and protection of wetlands. By allowing a discharge to a wetland which will eventually enter Lake Taupo there is potential for degradation of water quality. As such to protect and enhance water quality it may be necessary to prevent any discharge to surface water.

The application has not been processed to date as no specific investigations have been undertaken by the applicant to determine the destination of the contaminants or the actual effect of the discharge on the receiving environment. At this time the Council is considering granting a permit prior to the end of December 1994 to authorise this discharge. This permit will require the applicant to put in place a monitoring programme to more accurately identify the effects of this discharge on the environment.

* The figures quoted for 'typical' and 'high' values in this statement (on the Tribunal's record of documents as D4) are a summary of more detailed figures provided by the Taupo County Council, through Crown counsel, to the Tribunal (C5). These represent a monthly monitoring of samples taken from the 'lagoon' between March 1990 and July 1994. No other monitoring appears to have been done to ascertain what levels of nutrients may be entering Lake Taupo, either by groundwater flows into the tailrace or through drains or by surface flow into the Tokaanu swamps.