

APPENDIX

10. THE TRIBUNAL has considered and weighed carefully the evidence and submissions of the Applicant and of the objectors and parties who made submissions before it, and in addition has taken into account all written objections and submissions from persons who did not appear before it.

In considering the several applications the Tribunal has looked at each case on its merits, separately, and in addition has looked at the interrelationships between each. In every case the rights have been recommended on their merits, and conditions have been applied which reflect to some degree the interrelationships between each. Hence, the Tribunal has assessed that both the Kaituna River and Lake Rotorua discharge applications may be granted to the Applicant Council and for the same term, the Council itself then being able to choose which right it shall exercise during the specified term. In both situations a higher standard of effluent than at present is to be achieved, thus requiring substantial improvements to the existing treatment system.

Because of the several environmental concerns expressed to the Tribunal by the evidence and through submissions in respect of both the Kaituna River and the Lake Rotorua discharge applications, the Tribunal is of the opinion that each right should be subjected to public review within a term of not greater than 10 years beyond 30 June 1986, and that if, during this 10 year period it becomes apparent that matters have arisen which in the opinion of the Regional Water Board requires it, a cancellation clause may be exercised by the Board.

Furthermore, the Tribunal finds that the question of alternatives to either or both of the Kaituna River discharge and the lake discharge are beyond its jurisdiction; however, the rights as recommended do not preclude consideration of alternatives.

11. ON THE EVIDENCE before it the Tribunal is satisfied that rights should be granted to the Applicant Council and it recommends accordingly; the rights recommended are for finite terms and are subject to cancellation upon 12 months notice in certain circumstances and are subject to a number of other conditions.
12. APPLICATION NO.904/1: TO DISCHARGE TREATED EFFLUENT INTO THE KAITUNA RIVER AT OKERE VIA THE KAITUNA RIVER PIPELINE
The right and conditions recommended to the Regional Water Board are as follows:

"That a right be granted to the ROTORUA DISTRICT COUNCIL to:

DISCHARGE TREATED EFFLUENT FROM THE ROTORUA WASTEWATER TREATMENT PLANT INTO THE KAITUNA RIVER AT OKERE subject to the following conditions:

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1. PURPOSE

For the purpose of discharging treated effluent from the Rotorua Wastewater Treatment Plant, Ngapuna, Rotorua.

2. QUANTITY AND RATE

2.1 Average dry weather flows

During average dry weather flows the daily quantity of treated effluent discharged shall not exceed 26,000 cubic metres and the rate of discharge shall not exceed 360 litres per second.

2.2 Peak wet weather flows

During peak wet weather flows the daily quantity of treated effluent discharged shall not exceed 31,200 cubic metres and the rate of discharge shall not exceed 433 litres per second.

3. POINT OF DISCHARGE

Discharge shall be into the Kaituna River at map reference N67:808202 near the downstream end of the Trout Pool, Okere, as shown on Plan No. W.R.904/1 (M-N Drawing No. 63720/R6) submitted with the application.

4. OUTFALL

The outfall shall be completely submerged at all times.

Plans of the outfall shall be submitted to the Regional Water Board Engineer for written approval before construction commences.

5. EFFLUENT QUALITY

5.1 Grease and Oil

The effluent shall be substantially free from grease and oil.

5.2 Biochemical Oxygen Demand

Over any calendar month the average five day 20°C biochemical oxygen demand of the effluent prior to discharge to the Kaituna River pipeline shall not exceed 650 kilograms per day nor a concentration of 25 grams per cubic metre based on analysis of 24 hour composite samples taken on at least 8 days per month and on different days of the week such that over any consecutive two month period all days of the week are covered at least once.

5.3 Non-filtrable Residue

Over any calendar month the average non-filtrable residue of the effluent prior to discharge to the Kaituna River pipeline shall not exceed 650 kilograms per day nor a concentration of 25 grams per cubic metre based on analyses of 24 hour composite samples taken on at least 8 days per month and on different days of the week such that over any consecutive two month period all days of the week are covered at least once.

6. EFFLUENT ANALYSES

6.1 Effluent analyses shall be carried out as set out in the latest edition of "Standard Methods for the Examination of Water and Wastewater" - APHA-AWWA-WPCF.

- 6.2 On at least two occasions in every calendar year, each occasion to be at least four months apart, three replicates of one 24 hour composite sample of treated effluent prior to discharge into the Kaituna River pipeline shall be prepared and one each analysed at the Rotorua Wastewater Treatment Plant Laboratory and at two other independent laboratories, one of which shall be TELARC registered. The analyses to be carried out on each sample shall include the concentrations of five day 20°C biochemical oxygen demand, non-filtrable residue, total phosphorus, ammoniacal nitrogen, nitrate nitrogen, total coliform and faecal coliform bacteria.
- 6.3 On at least four occasions in every calendar year, each occasion to be at least two months apart, a 24 hour composite sample of treated effluent shall be taken from the end of the Kaituna River pipeline at or adjacent to the discharge point into the river and analysed for concentrations of those parameters listed in 6.2 above, and in addition analysed for the concentration of hydrogen sulphide. The 24 hour composite sampling period on each occasion shall be arranged to match a similar sampling period at the inlet to the pipeline at the treatment plant, but separated by the time of flow in the pipeline. This condition may be waived by the Engineer to the Regional Water Board where, over a reasonable period, it is established that the effluent quality at entry to and exit from the pipeline is substantially unchanged due to passage through the pipeline.

7. RECORDS

The Grantee shall measure and record the following parameters and send the results to the Regional Water Board after the end of each calendar month.

- 7.1 The volume of effluent discharged each day into the Kaituna River pipeline.
- 7.2 The effluent concentration and quantity of five day biochemical oxygen demand for the month as determined in accordance with condition 5.2 above.
- 7.3 The effluent concentration and quantity of non-filtrable residue for the month as determined in accordance with condition 5.3 above.
- 7.4 The concentration and quantity of total phosphorus, ammoniacal nitrogen and nitrate nitrogen for the month in both the treatment plant influent and the effluent discharged to the Kaituna River pipeline determined from 24 hour composite samples taken in accordance with the two monthly sampling programme set out in conditions 5.2 and 5.3 above.
- 7.5 The number of total coliform and faecal coliform bacteria per 100 millilitres of a representative sample of the effluent taken in accordance with the two monthly sampling programme set out in conditions 5.2 and 5.3 above.

7.6 From time to time, as required by the Regional Water Board, the Grantee shall carry out additional sampling and analytical work.

8. ECOLOGICAL SURVEYS

During the summer period prior to the commencement of discharge into the Kaituna River and every second summer thereafter the Grantee shall arrange the engagement of suitably qualified ecologists approved by the Regional Water Board Engineer to survey and evaluate the effects of the effluent upon those receiving waters from the point of discharge into the Kaituna River downstream to just above the discharge point from the AFFCO abattoir at Rangioru. The results of the survey and the evaluation of any biological impacts shall be reported to the Regional Water Board.

9. TERM OF RIGHT

This right shall terminate on 30th June 1996.

10. THE RIGHT hereby authorised is granted under the Water and Soil Conservation Act 1967 and does not constitute an authority under any other Act, Regulation or By-Law.

11. THIS RIGHT may be cancelled upon not less than twelve months notice in writing by the Regional Water Board to the Grantee, if in the opinion of the Regional Water Board the public interest, the interests of lawful users of water, or the interests of future applicants for water rights so requires, but without prejudice to the right of the Grantee to apply for a further right in respect of the same matter."

13. IN RECOMMENDING that a right in respect of Application No. 904/1 be granted on the above terms and conditions, the Tribunal has the following observations to make:

13.1 In reviewing and assessing all the evidence and submissions before it the Tribunal concluded that the impact of the proposed treated effluent discharge on the receiving waters of the Kaituna River would, at the flow rates and quality granted, enable the Classification requirements to be met during the term of the right.

13.2 The Tribunal has recommended the grant of a right on the basis that the flow regime of the Kaituna River will remain unaltered through the gorge area between Okere and Maungarangi (that is, no hydro-electric development will take place) and that the current flood channel improvement works at the river mouth will be completed and remain in operation throughout the term of the right (that is, no diversion of the river by natural or man-made operations through the Maketu Estuary will take place). If either of the above alterations to the flow regime occur during the term of the right this would constitute grounds for exercising in the public interest the cancellation clause, No.11 above, and for a new application to be made to continue the discharge, but with revised conditions to meet the new flow regime.

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13.3 The Tribunal is of the view that a longer term of right beyond the termination date of June 1996 could be granted, and that the Applicant Council can thus plan with confidence for the long term utilisation of a Kaituna River pipeline. However, the Tribunal holds that increasingly more stringent conditions on effluent quality will be required in the future to reduce the impacts of the discharge on the varied consumptive and recreational uses of the river water and on the needs of fisheries and wildlife habitats. Given that commissioning of a pipeline could be achieved at the earliest by 1985/86, the Tribunal is of the view that, given the present flow regime in the river, public review of the conditions on effluent quality is warranted within a 10 year period from commissioning. The flow quantities have been reduced from those applied for in keeping with the shorter term for the right.

13.4 The Tribunal has noted the concerns of the Maori people and the cultural and environmental values placed upon the Kaituna River and the Maketu Estuary, and hold that these concerns are important in respect of assessing the impact of the proposed discharge. In giving weight to these concerns the Tribunal has considered the nature of the effluent, its quality, the flow regime in the river and the term of right granted and comments as follows:

- (a) A two-stage biological wastewater treatment plant as at Rotorua converts the wastewater into a treated effluent containing small quantities of humus solids plus nutrient salts and bacteria, all of which are natural materials of similar composition and character to those residuals present in natural run-off from farmland and forest areas. Given the transformation of the effluent to a product similar to natural materials likely to gain entry to the Kaituna River, the Tribunal cannot sustain the claim made by the Te Arawa Maori Trust Board, that the discharge of treated sewage effluent to the river would be a complete disregard and an absolute desecration of the historical and environmental values which are of such significance to the Maori people, who regard the river as sacred.
- (b) The Tribunal is however of the view that the concerns of the Maori people warrant a requirement that the effluent quality be to a standard consistent with a high level of performance such as can be achieved by a modern activated sludge plant. Hence, the effluent standard recommended is $25\text{g}/\text{m}^3$ biochemical oxygen demand and $25\text{g}/\text{m}^3$ suspended humus solids, levels which represent a higher standard than the previous conditions set for discharge to Lake Rotorua. Such an effluent standard will ensure that at the dilutions proposed throughout the term of the right the highly treated effluent residuals discharged to the river will be as close as is practicable in character to natural residuals entering from land run-off.

- (c) The submission made on behalf of the Maori people referred to concerns about the impact on the Maketu Estuary. A flow regime has been specified which will ensure no impact on the estuary under present conditions and allowance is made for cancellation of the right if diversion of the River into the estuary is ever contemplated.
- (d) A relatively short term of right has been granted to provide opportunity for public evaluation and review of the impact of the discharge within a reasonable time.

13.5 Concurrent with the recommendation to grant the right to discharge to the Kaituna River, a recommendation has been made to grant a right for discharge to Lake Rotorua. Hence, the Maori people, along with all other parties who made submissions to the Tribunal, are able to participate in the process in respect of alternative courses of action which may be considered by the Applicant Council.

14. APPLICATION NO.904/2: TO DISCHARGE TREATED EFFLUENT INTO LAKE ROTORUA VIA THE PUARENGA STREAM UNDER EMERGENCY CONDITIONS

The right and conditions recommended to the Regional Water Board are as follows:

"That a right be granted to the ROTORUA DISTRICT COUNCIL to:

DISCHARGE, FOR EMERGENCY OR MAINTENANCE REASONS, TREATED EFFLUENT INTO THE PUARENGA STREAM subject to the following conditions:

1. PURPOSE

For the purpose of discharging treated effluent from the Rotorua Wastewater Treatment Plant when a discharge through the Kaituna River pipeline is not possible because of a failure in the pumping equipment or pipeline, a total electrical outage, a shut down of the pipeline for maintenance purposes, or if, under exceptional conditions, peak wet weather flows exceed the capacity of the storage pond and pumping system.

2. QUANTITY AND RATE

2.1 Average dry weather flows

During average dry weather flows the daily quantity of effluent discharged shall not exceed 26,000 cubic metres. Discharge at all times must be through the effluent storage ponds.

2.2 Peak wet weather flows

During peak wet weather flows the daily quantity of treated effluent discharged shall not exceed 31,200 cubic metres, except that under exceptional conditions where the capacity of the storage ponds cannot cope with prolonged wet weather flows through the treatment plant, this daily quantity may be exceeded. Discharge at all times must be through the effluent storage ponds.

3. POINT OF DISCHARGE

Discharge shall be into the Puarenga Stream through the existing outfall at map reference N67:737031.

4. EFFLUENT QUALITY

Effluent quality shall in all respects comply with the requirements of the conditions set down for Water Right No.904/1 to discharge treated effluent into the Kaituna River.

5. RECORDS

The Grantee shall measure and record the following parameters and send the results to the Regional Water Board at the end of each calendar month.

5.1 The nature and duration of overflows discharged to the Puarenga Stream including an estimate of the volume of effluent for each day or part day thereof, reason for the discharge, and times during which the discharge took place.

5.2 An estimate of the quantity of five day biochemical oxygen demand and non-filtrable residue discharged during each period of overflow. Where such overflows comprise peak wet weather flows in excess of the pumping capacity to the Kaituna River pipeline, grab samples shall be utilised to gather the requisite information.

6. STANDBY PUMPING EQUIPMENT

The Kaituna River pipeline pumping station shall have standby pumping equipment capable of pumping at least 50% of the design pumping capacity of the station.

7. SPARE PUMPS AND MOTORS

The Grantee shall maintain in working order at the Wastewater Treatment Plant at least one spare pump and motor of the type installed in the Kaituna River pipeline pumping station.

8. STORAGE CAPACITY

The Grantee shall provide sufficient storage capacity between the Wastewater Treatment Plant and the Kaituna River pipeline to ensure that a period of at least thirty minutes elapses between activation of the automatic alarm system and the commencement of an overflow. The storage time shall be calculated on the basis of average dry weather flow.

9. AUTOMATIC ALARM SYSTEM

An automatic telephone alarm system shall be installed to give at least thirty minutes warning of a possible overflow. The warning period shall be calculated on the basis of average dry weather flow.

The alarm system shall be independent of mains power supply and shall be regularly maintained and tested.

10. TERM OF RIGHT

This right shall terminate on 30 June 1996.

11. THE RIGHT hereby authorised is granted under the Water and Soil Conservation Act 1967 and does not constitute an authority under any other Act, Regulation or By-Law.

12. *THIS RIGHT may be cancelled upon not less than twelve months notice in writing by the Regional Water Board to the Grantee, if in the opinion of the Regional Water Board the public interest, the interests of lawful users of water, or the interests of future applicants for water rights so requires, but without prejudice to the right of the Grantee to apply for a further right in respect of the same matter."*

15. IN RECOMMENDING that a right in respect of Application No. 904/2 be granted on the above terms and conditions, the Tribunal has the following observations to make:

15.1 This right makes provision for three separate situations:

- (a) Where under normal conditions of use of the Kaituna River pipeline, including both dry and wet weather flow conditions, an emergency situation develops due to mechanical or power failure, then the total treated effluent flow, balanced through the storage ponds at the treatment plant, may be discharged to Lake Rotorua via the Puarenga Stream.
- (b) Where, due to maintenance requirements associated with either the storage ponds, the pumping station, or the pipeline, it is necessary to shut down the flow through the pipeline then the total treated effluent flow may be discharged direct to Lake Rotorua via the Puarenga Stream.
- (c) Where, under exceptional conditions of prolonged peak weather flows the total flow through the treatment plant exceeds the pumping capacity through the Kaituna River pipeline, then the excess flows over the 31,200 cubic metres per day, or the total flows including the excess, where emergency or maintenance conditions prevail in terms of (a) and (b) above, may be discharged to Lake Rotorua via the Puarenga Stream.

The flow quantities have been reduced from those applied for in keeping with the shorter term for the right.

15.2 The Tribunal intends that the Grantee shall operate the storage ponds to provide balancing of daily flows at all times, except where maintenance on the ponds themselves requires their stand-down. Their storage and balancing capacity shall be maintained at all times at levels which limit the excess overflows to the lake to a few times per year.

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15.3 It is envisaged that this right would only be exercised on a few occasions per year if at all during any one calendar year, and that the frequency of exercise will be less during the first few years of the term of right than near the end of the term as growth in load on the treatment plant reaches the flow quantities granted. If the right is seen to be exercised with periodic frequency beyond what would reasonably be considered emergency or maintenance situations then this could constitute grounds for implementing the cancellation clause No.12.

15.4 Under no situation does this right permit discharge of anything other than fully treated effluent into Lake Rotorua. Any stormwater overflows containing untreated or partially treated wastewater from the influent to the treatment plant or the outlet from the primary settling tanks respectively, should be the subject of a separate water right application.

16. APPLICATION NO.904/3: TO DISCHARGE TREATED EFFLUENT INTO LAKE ROTORUA DURING DEWATERING OF THE KAITUNA RIVER PIPELINE
The right and conditions recommended to the Regional Water Board are as follows:

"That a right be granted to the ROTORUA DISTRICT COUNCIL to: DISCHARGE FOR EMERGENCY OR MAINTENANCE REASONS TREATED EFFLUENT FROM THE KAITUNA RIVER PIPELINE INTO VARIOUS WATERWAYS subject to the following conditions.

1. PURPOSE

For the purpose of discharging treated effluent from sections of the Kaituna River pipeline when it is necessary to isolate and dewater such sections for emergency or maintenance reasons.

2. QUANTITY AND RATE

The quantity of effluent discharged at any point shall be limited in amount to the volume contained within the section to be dewatered for emergency or maintenance reasons. The pipeline shall be constructed in such a manner that sections associated with each dewatering point of discharge may be isolated for dewatering purposes, thus allowing the pipeline sections on either side of the isolated section to retain their contents and thereby minimise the total quantity discharged on any emergency or maintenance occasion.

The rate of discharge at any discharge point shall not exceed 200 litres per second.

3. POINTS OF DISCHARGE

- 3.1 *Flood channel - Moses Road near map reference N76:742034.*
- 3.2 *Flood channel - adjacent to Vaughan Road near map reference N76:746035.*
- 3.3 *Flood channel - adjacent to Vaughan Road (extension of Basley Road flood channel) near map reference N76:752042.*

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- 3.4 Lake Rotorua - Waingaehe Stream mouth near map reference N76:768066.
- 3.5 Flood channel - adjacent to State Highway 30 near map reference N76:793095.
- 3.6 Waiohewa Stream - adjacent to State Highway 30 bridge near map reference N76:793112.
- 3.7 Ohau Channel - downstream of State Highway 33 bridge near map reference N76:798155.

4. EFFLUENT QUALITY

The quality of the discharge flows shall essentially comply in all respects with the conditions of Water Right 904/1. Where inspection and/or operating experience indicates that an accumulation of solids within the pipeline is being discharged at any dewatering point in excess of the set effluent quality, then measures shall be taken to prevent its release to the lake.

5. NOTICES

- 5.1 The Grantee shall prepare notices warning the public of the presence of effluent in the waterways. The size of the notices and the wording shall be subject to the approval of the Regional Water Board Engineer.
- 5.2 Before any discharge takes place the Grantee shall erect notices warning of the discharge, at the discharge point and at such other points as may be required by the Regional Water Board Engineer.
- 5.3 The notices shall be left in place for at least seven days after the discharge ceases and shall not be removed until the approval of the Medical Officer of Health in Rotorua has been obtained.
- 5.4 Before each discharge, if practical, or as soon as possible thereafter the Grantee shall place notices in a Rotorua daily newspaper and over Rotorua radio stations to advise the public of the discharges.

6. EROSION CONTROL

Before any discharge takes place the Grantee shall carry out works to ensure that the waterway banks and bed are not eroded by the discharge.

7. REMEDIAL ACTION

After any discharge from an emergency valve has taken place the Grantee shall carry out any remedial action that may be required by the Medical Officer of Health in Rotorua or by the Regional Water Board Engineer.

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8. REPORTS

The Grantee shall, if possible, advise the Regional Water Board before a discharge takes place.

Within seven days of any discharge occurring the Grantee shall advise the Regional Water Board in writing as follows:

- (a) Reason for discharge.
- (b) Date and time when discharge began and ended.
- (c) Total quantity of effluent discharged.

9. TERM OF RIGHT

This right shall terminate on 30 June 1996.

10. THE RIGHT hereby authorised is granted under the Water and Soil Conservation Act 1967 and does not constitute an authority under any other Act, Regulation or By-Law.

11. THIS RIGHT may be cancelled upon not less than twelve months notice in writing by the Regional Water Board to the Grantee, if in the opinion of the Regional Water Board the public interest, the interests of lawful users of water, or the interests of future applicants for water rights so requires, but without prejudice to the right of the Grantee to apply for a further right in respect of the same matter."

17. IN RECOMMENDING that a right in respect of Application No.904/3 be granted on the above terms and conditions, the Tribunal has the following observations to make:

17.1 It is accepted by the Tribunal that for practical reasons associated with the operation of a pipeline of the scale and operating life of the proposal, the provision of dewatering points for use in emergency or maintenance conditions is a necessity that cannot be avoided.

17.2 It is envisaged however that this right would only be exercised infrequently during its term. If it is seen to be exercised with a periodic frequency beyond what would reasonably be considered emergency or maintenance situations then this could constitute grounds for implementing the cancellation clause No. 11.

18. APPLICATION NO.933: TO DISCHARGE TREATED EFFLUENT INTO LAKE ROTORUA VIA THE PUARENGA STREAM

The right and conditions recommended to the Regional Water Board are as follows:

"That a right be granted to the ROTORUA DISTRICT COUNCIL to:

DISCHARGE TREATED EFFLUENT FROM THE ROTORUA WASTEWATER PLANT INTO THE PUARENGA STREAM subject to the following conditions:

1. PURPOSE

For the purpose of discharging treated effluent from the Rotorua Wastewater Treatment Plant at Ngapuna, Rotorua.

2. QUANTITY AND RATE

2.1 Average dry weather flows

During average dry weather flows the daily quantity of treated effluent discharged shall not exceed 24,000 cubic metres and the rate of discharge shall not exceed 450 litres per second.

2.2 Peak wet weather flows

During peak wet weather flows the daily quantity of treated effluent discharged shall not exceed 72,000 cubic metres and the rate of discharge shall not exceed 2,500 litres per second.

3. POINT OF DISCHARGE

Discharge shall be into the Puarenga Stream through the existing outfall at map reference N76:737031 as shown on the plan submitted with the application.

4. EFFLUENT QUALITY

4.1 Grease and Oil

The effluent shall be substantially free from grease and oil.

4.2 Effluent Quality During Transitional Period

From the time of issue of this right until 30 June 1986 (hereinafter referred to as the "transitional period") the treatment plant shall be operated so that the effluent meets, as closely as practicable, the following quality requirements which are based on those set out in Water Right No. 444.

4.2.1 Biochemical Oxygen Demand

Over any calendar month the average five day 20°C biochemical oxygen demand of the effluent prior to discharge shall not exceed a concentration of 30 grams per cubic metre based on analysis of 24 hour composite samples taken on at least two days per week.

4.2.2 Non-filtrable Residue

Over any calendar month the average non-filtrable residue of the effluent prior to discharge shall not exceed a concentration of 30 grams per cubic metre based on analysis of 24 hour composite samples taken on at least two days per week.

4.2.3 Total Phosphorus

Over any calendar month at least 70% of the total phosphorus contained in the influent to the treatment plant shall be removed prior to discharge in the effluent. The percentage removal shall be based on analysis of 24 hour composite samples taken on at least two days per week.

4.3 Effluent Quality after Transitional Period

After the end of the transitional period the requirements set out below shall be complied with throughout the remainder of the term of the right.

4.3.1 Biochemical Oxygen Demand

From 1 July 1986 over any calendar month the average five day 20°C biochemical oxygen demand of the effluent prior to discharge shall not exceed 600 kilograms per day nor a concentration of 25 grams per cubic metre based on analysis of 24 hour composite samples taken on at least 8 days per month and on different days of the week such that over any consecutive two month period all days of the week are covered at least once.

4.3.2 Non-filtrable Residue

From 1 July 1986 over any calendar month the average non-filtrable residue of the effluent prior to discharge shall not exceed 600 kilograms per day nor a concentration of 25 grams per cubic metre based on analysis of 24 hour composite samples taken on at least 8 days per month and on different days of the week such that over any consecutive two month period all days of the week are covered at least once.

4.3.3 Total Phosphorus

From 1 July 1986 over any calendar month the total phosphorus of the effluent prior to discharge shall not exceed 750 kilograms for the month, and over a full calendar year the total phosphorus of the effluent prior to discharge shall not exceed a total of 7,500 kilograms (being an average of 625 kg per month), all based upon analysis of 24 hour composite samples taken on at least 8 days per month and on different days of the week such that over any consecutive two month period all days of the week are covered at least once.

5. EFFLUENT ANALYSIS

5.1 Effluent analyses shall be carried out as set out in the latest edition of "Standard Methods for the Examination of Water and Wastewater" - APHA-AWWA-WPCF.

5.2 On at least two occasions in every calendar year, each occasion to be at least four months apart, three replicates of one 24 hour composite sample of treated effluent prior to discharge shall be prepared and one each analysed at the Rotorua Wastewater Treatment Plant Laboratory and at two other independent laboratories, one of which shall be TELARC registered. The analysis to be carried out on each sample shall include the concentration of five day 20°C biochemical oxygen demand, non-filtrable residue, total phosphorus, ammoniacal nitrogen and nitrate nitrogen, total coliform and faecal coliform bacteria.

6. RECORDS

The Grantee shall measure and record the following parameters and send the results to the Regional Water Board after the end of each calendar month.

- 6.1 The volume of effluent discharged each day.
- 6.2 The effluent concentration and quantity of five day biochemical oxygen demand for the month determined in accordance with conditions 4.2 and 4.3 above.
- 6.3 The effluent concentration and quantity of non-filtrable residue for the month determined in accordance with conditions 4.2 and 4.3 above.
- 6.4 The concentration and quantity of total phosphorus for the month as determined in accordance with conditions 4.2 and 4.3 above for both the influent and effluent.
- 6.5 The concentration and quantity of ammoniacal nitrogen and nitrate nitrogen for the month in both the treatment plant influent and the effluent determined from 24 hour composite samples taken in accordance with the two monthly sampling programme set out in condition 4.3 above.
- 6.6 The number of total coliform and faecal coliform bacteria per 100 millilitres of a representative sample of the effluent taken in accordance with the two monthly sampling programme set out in condition 4.3 above.
- 6.7 From time to time, as required by the Regional Water Board, the Grantee shall carry out additional sampling and analytical work.

7. SURRENDER OF RIGHT NO. 444

Water Right No. 444 held by Rotorua District Council shall be surrendered on issue of this right.

8. TERM OF RIGHT

This right shall terminate on 30 June 1996.

9. THE RIGHT hereby authorised is granted under the Water and Soil Conservation Act 1967 and does not constitute an authority under any other Act, Regulation or By-Law.

10. THIS RIGHT may be cancelled upon not less than twelve months notice in writing by the Regional Water Board to the Grantee, if in the opinion of the Regional Water Board the public interest, the interests of lawful users of water, or the interests of future applicants for water rights so requires, but without prejudice to the right of the Grantee to apply for a further right in respect of the same matter.

19. IN RECOMMENDING that a right in respect of Application No. 933 be granted on the above terms and conditions, the Tribunal has the following observations to make:

19.1 In reviewing and assessing all the evidence and submissions before it the Tribunal has concluded that in the short term (that is within the 10 year period from June 1986), the discharge of a highly treated effluent subjected to rigorous phosphorus stripping can be accepted into Lake Rotorua.

- 19.2 Evidence presented to the Tribunal concerning the performance of the existing treatment plant confirms that the effluent standard requirements authorised by the current Water Right No.444 cannot be attained without significant modifications to the treatment plant. In order to carry out such necessary works as are needed to cope with present performance inadequacies in respect of phosphorus removal and to cope with the required higher standards of treatment and the wastewater load growth during the term of the right, the Tribunal has allowed a transitional period of some three years to June 1986.
- 19.3 In assessing at this point in time the influence that past nutrient inputs have had on the level of eutrophication related problems associated with Lake Rotorua, the Tribunal has come to the view that a degree of stability in lake conditions may be attainable in the short term provided that the annual input of wastewater derived total phosphorus can be limited to 7,500 kilograms. The Tribunal is satisfied that current wastewater treatment technology is available to enable this total phosphorus limit to be attained throughout the term of the right.
- 19.4 Complete exclusion of wastewater effluent would eliminate its effects on the lake, but it will give no assurance that this on its own will be sufficient to prevent future problems related to water clarity, algal blooms and weed growths.
- 19.5 Furthermore, the Tribunal has come to the view that any measures to reduce the levels of wastewater derived dissolved and suspended organic matter discharged to the lake can but contribute to the attainment of better water quality in the lake. The higher standards of five day biochemical oxygen demand and non-filtrable residue set by the conditions of this right can readily be achieved by a modern wastewater treatment plant.
- 19.6 In regard to the effect that Sulphur Bay has on retention of wastewater residuals from the treatment plant, thereby reducing the ultimate dispersal of these materials into the lake, the Tribunal heard conflicting opinion. In the absence of firm evidence one way or the other on this matter the Tribunal prefers to accept that Sulphur Bay has but limited influence in retaining effluent nutrient residuals.
- 19.7 The Tribunal appreciates the special character of Lake Rotorua as a recreational and wildlife asset of local and regional benefit and a tourist attraction of national importance. All parties to the hearing and all who contributed submissions considered by the Tribunal were clearly concerned to see that the fullest practicable protection to the lake and its environment should be achieved. There were however differences of viewpoint as to the degree to which this protection might extend, the methods by which it might be achieved, and the urgency with which protection measures should be implemented.

5.3 Non-filtrable Residue

Over any calendar month the average non-filtrable residue of the effluent shall not exceed 72 kilograms per day nor a concentration of 30 grams per cubic metre.

6. RECORDS

The Grantee shall measure and record the following parameters and send the results to the Regional Water Board after the end of each calendar month:

- 6.1 The volume of effluent discharged into the pond and the volume discharged out of the pond each day.
- 6.2 The concentration and quantity of five day biochemical oxygen demand discharged into the pond and discharged out on at least two days per week as measured by the analysis of 24 hour composite samples, and also the average concentration and quantity for the month.
- 6.3 The concentration and quantity of non-filtrable residue discharged into the pond and discharged out of the pond on at least two days per week as measured by the analysis of 24 hour composite samples, and also the average concentration and quantity for the month.
- 6.4 The concentration and quantity of total phosphorus, ammoniacal nitrogen and nitrate nitrogen discharged into the pond and discharged out of the pond, on at least two days per week, as measured by the analysis of 24 hour composite samples.
- 6.5 The numbers of total coliform and faecal coliform bacteria per 100 millilitres of representative samples of the effluent discharged into the pond and the effluent discharged out of the pond. The samples shall be taken on at least two days per week.
- 6.6 From time to time, as required by the Regional Water Board, the Grantee shall carry out additional sampling and analytical work.

7. REPORTS


After 31 December each year the Grantee shall prepare a report on the year's experimental work associated with this right and shall submit two copies of the report to the Regional Water Board by 31 March of the following year.

8. TERM OF RIGHT

This right shall terminate on 30 June 1991.

9. THE RIGHT hereby authorised is granted under the Water and Soil Conservation Act 1967 and does not constitute an authority under any other Act, Regulation or By-Law.

10. THIS RIGHT may be cancelled upon not less than twelve months notice in writing by the Regional Water Board to the Grantee, if in the opinion of the Regional Water Board the public interest, the interests of lawful users of water, or the interest of future applicants for water rights so requires, but without prejudice to the right of the Grantee to apply for a further right in respect of the same matter."



21. IN RECOMMENDING that a right in respect of Application No. 934 be granted on the above terms and conditions the Tribunal has the following observations to make:

21.1 Several of the submissions presented to the Tribunal on this matter were concerned with the merits of carrying out the experimental investigations proposed by the Applicant Council. The Tribunal did not consider these submissions relevant to its deliberations on this application. If the Council wishes to investigate matters relative to alternative methods of treating and dispersing of the effluent from its wastewater treatment plant, then that is its prerogative and any parties who wish to question the merits of such a course of action have the remedy of making submissions direct to the Rotorua District Council.

21.2 The Tribunal in reviewing the quantities of flow sought by the right, and in considering the quality of effluent to be passed into and out of the experimental pond system is satisfied that the effluent discharged during the short term of the right will be adequately absorbed without detriment to the lake system.

22. THE TRIBUNAL considers that in many respects the fixed terms and the several conditions which it has recommended be attached to these rights meet in large measure the main concerns of the objectors and it recommends that in other respects all objections be disallowed.