

AUCKLAND REGIONAL COUNCIL

RESOURCE CONSENT

PERMIT NO. 30083

CONSENT HOLDER: Watercare Services Limited

FILE REFERENCE: 9610853

CONDITIONS OF CONSENT:

Date of Expiration of Consent: 31 December 2032

Purpose of Consent: An application for a coastal permit (Restricted Coastal Activity) in the coastal marine area adjoining the property of Watercare Services Ltd at Island Road, off Greenwood Road, Mangere including:

- (a) Discharge of treated effluent into the coastal marine area from the existing discharge outlet adjacent to pond 1 and pond 4 up to and including 30 September 2003, pending construction of a new discharge structure; and
- (b) Discharge of treated effluent into the coastal marine area from the new discharge structure authorised by Permit No. 9610851 ("the new discharge structure") on a permanent basis, commencing on 1 October 2003 or such earlier date that the new discharge structure is available for use.

Legal Description of Land: The Wastewater Treatment Plant (including the existing oxidation ponds) operated by the applicant at Mangere, Auckland, being the land comprised and described in Certificates of Title 94A/53 and 94A/54 (North Auckland Registry); and the land comprised and described in Certificate of Title 22D/1132 (North Auckland Registry) (Puketutu Island).

Territorial Authority:	Manukau City Council
Map Reference:	An area of the coastal marine area adjacent to, and in the vicinity of, Puketutu Island and the existing oxidation pond seawalls generally between Map References NZMS 260 R11: E266 6050 N647 1000; E266 4675 1000; E266 4675 N646 7500; E266 5925 N646 7500, as shown cross-hatched on Figure 1(a) annexed.
Quantity	1,209,600 cubic metres per day at a design maximum discharge rate of 25 cubic metres per second provided that the mean daily flow of treated effluent discharged over any one year period shall not exceed 390,000 cubic metres per day at a design maximum discharge rate of 25 cubic metres per second.

STANDARD CONDITIONS OF CONSENT:

1. That this resource consent is granted by the Auckland Regional Council subject to its servants or agents being permitted access to the relevant parts of the property at all reasonable times for the purpose of carrying out inspections, surveys, investigations, tests, measurements or taking samples.
2. The resource consent holder shall pay to the Auckland Regional Council any administrative charge fixed in accordance with s.36(1) of the Resource Management Act 1991, or any additional charge required pursuant to s.36(3) of the Resource Management Act 1991, payable in respect of this resource consent.

SPECIAL CONDITIONS OF CONSENT:

DEFINITIONS

1. "Adjusted Retention Time" means the Reactor Volume divided by the measured rate of flow into the UV Channel as measured in seconds (s).
2. "Applied UV Dose" means the sum of the UV doses for each energized bank of UV lamps in the UV Channel as measured in milliwatts seconds per square centimetre (mWs/cm²).
3. "Background Levels" in relation to culturable enteroviruses is defined as less than 1 enterovirus detect per 10 grams of shellfish flesh (wet weight) as determined from a representative shellfish sample or other such criteria as approved in writing by the Group Manager.

4. "Director" means the director, environmental management, Manukau City Council.
5. "Disinfection Facility" means the facility in which effluent is treated by means of UV irradiation.
6. "DRG" means the Disinfection Review Group, comprising an internationally recognised expert in microbial inactivation through wastewater disinfection processes and an internationally recognised expert in environmental virology.
7. "Flow" for the purposes of Condition 25 means the flow as measured at the inlet to the Disinfection Facility.
8. "Group Manager" means the group manager, environmental management, Auckland Regional Council.
9. "Level 1" is the operating conditions of the Disinfection Facility when the raw sewage enterovirus concentration is below the Trigger Level.
10. "Level 2" is the operating conditions of the UV facility when the raw sewage enterovirus concentration is above the Trigger Level.
11. "Maximum UV Dose" means the UV Dose in a UV Channel that results from the design maximum power being supplied to all of the available UV Banks in that channel as measured in milliwatts seconds per square centimetre (mWs/cm²).
12. 'MRG' means the Microbiological Review Group, comprising an internationally recognised expert in environmental virology, an internationally recognised expert in microbiology, a recognised expert in public health and an internationally recognised expert in wastewater treatment.
13. "Reactor Volume" means the volume of wastewater in the UV Bank at any given time.
14. "SBE" (Secondary Bypassed Effluent) means the incremental flow to the Disinfection Facility over 9m³/s that has not received secondary treatment and is treated separately in the Disinfection Facility.
15. "STE" (Secondary Treated Effluent) means that portion of the flow to the Disinfection Facility that is less than 9m³/s and has received secondary treatment.
16. "territorial authorities" means the Manukau City Council, the Waitakere City Council, the Auckland City Council and the Papakura District Council.
17. "Trigger Level" is the raw sewage enterovirus concentration of 20,000 infectious units per litre as measured at M1.

18. "UV Bank" means a specified number of UV lamps fixed together and submerged in the flow of effluent passing through a UV Channel. There may be one or more UV Banks operating in any one UV Channel at any one time to provide the required UV Dose.
19. "UV Channel" means a channel in the Disinfection Facility through which effluent passes and is treated by means of UV irradiation.
20. "UV Dose" for each bank of UV lamps means the product of the Adjusted Retention Time and the UV Intensity measured in the UV Bank.
21. "UV Intensity" means the average amount of UV irradiation at 254nm received at a fixed point in the UV Bank, as measured by an intensity meter in milliwatts per square centimetre (mW/cm²).

1. FINANCIAL ASSURANCES

- (1) Prior to implementing the consents for the Wastewater 2000 project, the Consent Holder shall enter into a bond (which with all variations provided for in this consent is referred to as the "Bond") on the terms required by this condition to secure performance of the conditions of this consent and to provide security as required in clause 4 of this condition.
- (2) The Bond shall be in favour of the Auckland Regional Council in a form acceptable to the Council.
- (3) The Bond shall provide for variation on an annual basis to vary the sum of Bond in accordance with the Works Construction Index or other suitable alternative approved by the Council. The Consent Holder and all guarantors and providers of security for the Bond shall sign such documents to record variation as are required by the solicitors for the Council.
- (4) The Bond shall be in the form of an on demand bond issued by a New Zealand trading bank or secured by a cash deposit with the Council, or by a letter of credit or such other security as is acceptable to the Council;
- (5) The Consent Holder shall forthwith upon demand pay the Council's legal costs and disbursements on a solicitor and own client basis in respect of the Bond, its preparation, execution, enforcement, variation and ultimate release of the Bond and any of actions or proceedings relating to it or relative to any section of the conditions of consent under Section 128 of the Act.
- (6) The term of the Bond shall be equivalent to the term of this consent plus 5 years.
- (7) The sum of the Bond shall be an amount to be determined in accordance with an environmental risk evaluation and agreed by the Group Manager or, failing agreement, determined by arbitration.

- (8) The environmental risk evaluation shall be carried out by the Consent Holder in accordance with a methodology to be prepared by the Consent Holder and approved by the Group Manager. The methodology shall include the following process:
- (a) Identification of the potential environmental risks arising from any failure to comply with the conditions of consent;
 - (b) Measurement of those risks;
 - (c) The costs of remedying or mitigating any adverse environmental effects which may arise from such failure to comply; and
 - (d) Evaluation of an appropriate sum to adequately provide for such remediation or mitigation of those risks.
- (9) Section 109(1) of the Act is hereby applied to the Bond and the Auckland Regional Council reserves the right to register the Bond under the Land Transfer Act 1952 against all certificates of title to the land on which the consents are to be exercised, if either of the following events occur:
- (a) Transfer of more than 50% of the shares of Watercare Services Limited to non-public ownership;
 - (b) The transfer of this resource consent to any person.
- (10) The Consent Holder shall remain liable under the Act for any breach of the conditions of the consent which occur before the expiry of this consent and for any adverse effects on the environment which become apparent during or after the expiry of the consent and the Bond shall provide accordingly.
- (11) The terms of the Bond may be reviewed on the request of the Consent Holder or by the Council at yearly intervals pursuant to Section 128 of the Act to ensure that the conditions of consent, (including the sum and duration of the Bond) are appropriate to the level of risk occasioned by the activities which are the subject of this consent and the matters to be bonded for in this condition for the avoidance of doubt it is hereby recorded that the sum of the bond may be increased or decreased on such a review. This review shall be additional to the reviews provided for elsewhere in this consent.
- (12) The Consent Holder shall not transfer this resource consent to any person unless all necessary statutory consents are obtained and prior to the transfer the transferee joins as a party to the Bond on the basis that the transferee will be liable for all the obligations secured by the Bond.

2. MANAGEMENT PLANS

- (1) The Consent Holder shall prepare an Outline Management Plan and Detailed Management Plans for the upgrading of the Mangere Wastewater Treatment Plant (MWTP) and its operations.

Recognition of Tangata Whenua Issues

- (2) In preparing all management plans, the Consent Holder shall recognise and provide for Sections 6 (e), 7 (a) and 8 of the Act in regard to the relationship of Waikato - Tainui with the Manukau Harbour.

Where relevant, the management plans shall provide for the procedures to be followed:

- (a) In conjunction with representatives of the Makaurau Marae Committee and a suitably qualified archaeologist, to identify taonga and waahi tapu significant to the area;
- (b) In conjunction with Waikato-Tainui, as represented by the Huakina Development Trust or its successors, to enable the management and protection, and, where appropriate, the use or development of the identified taonga and waahi tapu, including access to identified sites by Waikato-Tainui; and to provide for the participation of the Kaitiaki (including persons holding mana o te whenua status) in the management and protection of those taonga and waahi tapu;
- (c) In conjunction with Waikato-Tainui, as represented by the Huakina Development Trust or its successors, to enable in practical ways for the recognition of the ancestral relationship of Waikato-Tainui with the land and waters of the Manukau Harbour on the site of and in the vicinity of the MWTP by, among other things, making provision for the active involvement of the Kaitiaki (including persons holding mana o te whenua status).
 - (i) In the monitoring programme;
 - (ii) In the development, management and protection of identified taonga and waahi tapu; and
 - (iii) In the design, implementation and monitoring of the restoration works and in the management and protection of the foreshore and coastal environment in the area;
 - (iv) In the day to day execution of the upgrading works.
- (d) To ensure the objectives and policies set out in the Waikato Iwi Management Plan (dated 1996) are adhered to; and

- (e) To ensure that the protocols appended to the Outline Management Plan are provided for.

In regard to issues of waahi tapu and cultural sensitivity, the Consent Holder shall seek and act on the advice of kaumatua holding mana o te whenua status. In the event of koiwi (human remains) being uncovered, work is to cease in the vicinity of the discovery and the Consent Holder shall contact a kaumatua holding mana o te whenua status so that appropriate action can be taken before work can recommence.

Approval of Outline Management Plan

- (3) The Outline Management Plan shall be submitted for the written approval of the Group Manager, and to the Director, following consultation with the Manukau City Council and Community Liaison Group. The approval of the Director shall be in respect of those parts of the plan which concern the Coastal and Foreshore Management Plan and matters subject to the jurisdiction of Manukau City Council.

The works authorised by this consent shall not be commenced prior to such approval of the Outline Management Plan.

Contents of Outline Management Plan

- (4) The Outline Management Plan shall have as its purpose ensuring that the upgrading and operation of the MWTP, and the activities authorised for those purposes, are managed in an integrated and effective manner, and in accordance with the conditions of the consents, and shall include:

Compliance

- (a) An outline of procedures to be followed at the MWTP to ensure compliance with consent conditions, rules in Regional and District Plans, legislation and regulations;
- (b) A framework for developing, and a description of the scope of, more detailed management plans ("Detailed Management Plans") to be prepared in accordance with Special Condition 2 (7) below for the purpose of giving effect to (a);
- (c) Methodology and approval procedures for making changes to the Outline Management Plan and the Detailed Management Plans;

Audit Group/Community Liaison Group/Neighbourhood Liaison Sub-group

- (d) Procedures for the formation, and an outline of the operation of, an Audit Group, a Community Liaison Group, and a Neighbourhood Liaison Sub-group in accordance with the provisions of Special Conditions 3 and 4 of this consent; and

Linkages

- (e) Linkages with other plans developed by Watercare Services Limited such as the Water Supply Network Efficiency Plan, and the detailed report on Alternative Disposal Options and Beneficial Reuse required pursuant to Special Condition 9 of this consent and Special Condition 7 of Consent Number 9610859.
- (5) The Consent Holder shall complete the following Detailed Management Plans within twelve months of the commencement of these consents:
- (a) Influent Management Plan;
 - (b) Operations Plan;
 - (c) Construction Plan;
 - (d) Contingency Plan;
 - (e) Monitoring Plan;
 - (f) Audit Plan;
 - (g) Coastal and Foreshore Restoration Plan;
 - (h) Bird Roost Plan; and
 - (i) Landfill Post Closure Plan.

Purpose of Detailed Management Plans

- (6) The Detailed Management Plans shall set out in detail:
- (a) Procedures and methods to be followed to give effect to the Outline Management Plan and ensure compliance with applicable consent conditions; and
 - (b) Shall include details of how the Consent Holder will train all staff so that the various Management Plans are adhered to.

Approval of Detailed Management Plans

- (7) The works authorised by this consent shall not be commenced until the Detailed Management Plans have been approved in writing by the Group Manager, following consultation with the Manukau City Council and the Community Liaison Group, following review by the Audit Group.

Proviso:

The Coastal and Foreshore Restoration Plan shall also require the written approval of the Director, pursuant to this clause.

Review of Detailed Management Plans

- (8) The Auckland Regional Council may review each Detailed Management Plan one year after the date of approval, and annually thereafter, to give effect to any changes required for any of the following reasons:

- (a) Changes required by Auckland Regional Council, after consultation with Manukau City Council, to ensure compliance with consent conditions. Such changes may be requested as a result of inter alia, matters drawn to the Council's attention by the Audit Group, the Community Liaison Group, or arising from future research into improved sampling and monitoring technology;
 - (b) Changes requested by the Consent Holder, and approved by Auckland Regional Council provided they do not result in a relaxation of standards set by, or conflict with, the requirements of resource consent conditions;
 - (c) Changes in legislation or regulations;
 - (d) Changes in Regional or District Plans;
 - (e) Changes needed to revise procedures based on operational experience.
- (9) Any changes to the Detailed Management Plans pursuant to (8) above shall be made in accordance with the methodology and approved procedures in those plans and shall be approved in writing by the Group Manager before implementation. Any changes to the Coastal and Foreshore Restoration Plan shall also be subject to the written approval of the Director, Manukau City Council, before implementation. Changes to the Outline Management Plan may only be made in accordance with the review provisions set out in Special Conditions 5 and 8 of Consent 9610850.
- (10) The Consent Holder shall prepare all Detailed Management Plans in accordance with the provisions of the approved Outline Management Plan.
- (11) All detailed Management Plans shall provide details of reporting requirements and these details will become a schedule of reporting in the Monitoring Management Plan.
- (12) The Consent Holder shall carry out operations in general accordance with the provisions of the approved Outline Management Plan and Detailed Management Plans.

Detailed Management Plans

Influent Management Plan

- (13) (a) The Consent Holder shall complete and comply with an Influent Management Plan, the purpose of which is to describe the steps, monitoring and reporting to be undertaken to demonstrate compliance with Special Condition 18 of Consent Number 9610853; and which shall include procedures to be implemented and quality monitoring to be adopted to ensure that the quantity of wastewater and the

concentration of contaminants in the wastewater is, as far as practicable, minimised.

Contingency Plan

- (b) The Consent Holder shall complete and comply with a Contingency Plan which shall describe in detail remedial actions should environmental incidents including but not limited to incidents caused by deliberate acts or omissions, or discharges other than those authorised by this consent occur.

Monitoring Plan

- (c) The Consent Holder shall complete and comply with a Monitoring Plan which shall stipulate the precise technical details of monitoring programmes that will:
- (i) Enable the potential human health effects on the whole of the Manukau Harbour caused by microbiological and pathogenic constituents in the discharge to be assessed. This shall include the assessment of areas where it could reasonably be expected that the general public may have land-based access to the harbour, and shall include:
 - Shellfish suitability for human consumption; and
 - Human health risks due to resuspension from sediments of effluent-derived pathogenic micro-organisms in the Manukau Harbour;
 - (ii) Enable the potential ecological effects on the Manukau Harbour caused by nutrients in the discharge to be assessed;
 - (iii) Enable the potential environmental effects on the Manukau Harbour ecosystem, including the Non Compliance defined in Special Condition 17 of consent number 9610853, caused by contaminants in the discharge to be regularly assessed, including, but not limited to, the following aspects:
 - Mixing of the discharge with the waters of the Manukau Harbour;
 - Faunal and floral species abundance and diversity;
 - Faunal and floral species dislocation/habitat enhancement;
 - Bioaccumulation of contaminants in aquatic organisms;
 - Shellfish health;
 - Sediment contamination; and
 - Effluent toxicity;

- (iv) Determine the extent to which the Wastewater 2000 Outcomes and the Waikato Tainui Outcomes as set out in the advice notes to this consent are being satisfied throughout the Manukau Harbour;
- (v) Determine the existence and/or extent of the zone adjacent to the new discharge structure where the environmental effects on the Manukau Harbour are not consistent with the Wastewater 2000 Outcomes and Waikato - Tainui Outcomes as set out in the Advice Notes to this consent so that adverse effects from any such inconsistencies can be addressed;
- (vi) Monitor the quality and quantity of the discharge so that the assessments set out in this condition can be undertaken.
- (vii) Monitor the effectiveness of the Disinfection Facility in treating the effluent and ensure that appropriate data is provided to the DRG to enable them to carry out their functions under Special Condition 7(1).
- (viii) Evaluate and trial methodologies which provide for the early detection of viruses in influent using PCR based technology, cell based culture techniques or other approved viral detection methods. The Consent Holder shall instruct the MRG to review the results of the trial as part of the UV Dose System Verification study required under condition 20(6)(g) and to make any recommendations that they consider appropriate under condition 20(11)(c) to provide for a long term monitoring program of influent.

The Consent Holder shall ensure that any person undertaking monitoring and other activities described in the Monitoring Plan shall be suitably qualified.

Construction Plan

- (d) The Consent Holder shall complete and comply with a Construction Plan which shall contain details of construction required to exercise this consent including engineering design details, construction methods and Quality Assurance/Quality Control (QA/QC) procedures to be followed during construction.

Operations Plan

- (e) The Consent Holder shall complete and comply with an Operations Plan which shall include details of operational procedures to be followed at the MWTP to ensure that the conditions of this consent are complied with.

The Operations Plan shall incorporate a documented Disinfection Facility maintenance programme including the method and frequency of cleaning, replacement and calibration of UV intensity meters , flow meters and turbidity meters and the method and frequency of cleaning and replacement of UV lamps.

Audit Plan

- (f) The Consent Holder shall complete and comply with an Audit Plan which shall include details of the operation of the Audit Group and procedures to be followed in the performance of its role and fulfilment of its functions including the auditing of all monitoring data gathered as a requirement of the conditions of this consent.

Coastal and Foreshore Restoration Plan

- (g) The Consent Holder shall complete and comply with a Coastal and Foreshore Restoration Plan that shall be prepared and implemented in accordance with Special Condition 6 of consent number 9610851.

Bird Roost Plan

- (h) The Consent Holder shall complete and comply with a Bird Roost Plan which shall contain details of the procedures to be implemented to ensure that the requirements more particularly set out in Special Condition 7A of Consent Number 9610851 are fulfilled. The procedure for completing this plan is set out in Special Condition 7B of that consent and its approval shall be in accordance with this condition.

Landfill Post Closure Care Plan

- (i) The Consent Holder shall complete and comply with a Landfill Post Closure Care Plan. The Plan shall specify the care required for all landfills developed on the MWTP site following their closure, and shall contain the following aspects:
 - (i) General description of the landfill site, including topography, natural water sources, and geotechnical investigations;
 - (ii) Description of the waste collection, treatment and disposal system that has operated on site, including, where known, the composition of the material in the landfill;
 - (iii) End use of the site;
 - (iv) After-care including on-going monitoring of leachate discharges and management of surface runoff, stormwater control, and site remediation;

- (v) Any implications of site management and operation of landfill for Iwi;
- (vi) Identification of discharges and environmental effects, and the safeguards in place to avoid or reduce the environmental effects; and
- (vii) Auditing and reporting requirements.

3. AUDIT GROUP

- (1) The Consent Holder shall retain, and meet the reasonable costs of, an independent Audit Group. The Audit Group shall consist of:
 - (a) Up to two members of Waikato-Tainui, one of whom shall be appointed by the Huakina Development Trustees, or their successors, and one of whom shall be appointed by the Trustees of the Makaurau Marae Committee, or their successors; and
 - (b) Between three and five other members with acknowledged technical expertise in the following fields:
 - (i) Design of wastewater treatment plants;
 - (ii) Operational management of wastewater treatment plants;
 - (iii) Wastewater chemistry and marine water quality;
 - (iv) Marine biology
 - (v) Air quality; and
 - (vi) Application of alternative wastewater technologies.

The appointment of the members with the above technical expertise shall be subject to the written approval of the Group Manager.

The Audit Group shall be established within three months from the date of commencement of this consent. The Consent Holder shall instruct the Audit Group to appoint one of its members to act as convenor of the Audit Group, that appointment being subject to the written agreement of the Consent Holder. The Convenor of the Audit Group shall be responsible for ensuring that the Audit Group performs its role in accordance with the provisions of the Outline Management Plan and the Audit Plan, that appropriate expertise is available to the Audit Group, and that liaison occurs between the Audit Group, and the Consent Holder, the ARC, the Community Liaison Group and other interested parties.

The Consent Holder shall take all steps reasonably required to enable the Audit Group to perform its role and undertake its functions as outlined in Special Condition 3 (2) below, and in the Outline Management Plan and the Audit Management Plan.

- (2) The role of the Audit Group is to provide expert, independent advice to the Consent Holder, Auckland Regional Council, Manukau City Council, the Community Liaison Group and the Neighbourhood Liaison Sub-group on all environmental aspects of the MWTP, including, but not limited to:

- Design details of the upgraded facilities;
- Construction and decommissioning activities;
- Treatment plant performance;
- Commissioning of new plant items;
- Operation of the facilities in accordance with best wastewater treatment plant practices;
- Compliance with the conditions of all resource consents;
- Environmental monitoring results;
- Watercare Annual Environmental Report;
- Tangata Whenua concerns;
- Public and community health;
- Concerns of the local community and the Community Liaison Committee; and
- Efficient and effective means of achieving the Wastewater 2000 outcomes and the Waikato - Tainui outcomes as set out in the advice notes to this consent.

by undertaking the following functions:

- (a) By investigating and advising on all matters specified above, taking into account efficient and cost effective methods or options where relevant;
- (b) By attending on and investigating the cause of any environmental incident that may have arisen from the exercise of and in breach of this consent, if requested to do so by the Group Manager. Any such investigation shall include consideration of actions the Consent Holder has taken to:
 - (i) Investigate and deal with environmental incidents that may have arisen from the exercise of, and in breach of, this consent; and
 - (ii) Prevent any recurrences of such incidents, including, among others, those reported to the Auckland Regional Council by the Community Liaison Group, the Neighbourhood Liaison Sub-group or any member of the local community;
- (c) By recommending improvements to the design and operation of the wastewater treatment plant and associated activities such that their environmental performance is optimised;
- (d) By recommending amendments to the monitoring programmes in order to ensure:

- (i) That progress towards the achievement of the Wastewater 2000 Outcomes and the Waikato - Tainui outcomes, as set out in the Advice Notes to this consent, is being adequately assessed;
 - (ii) That any environmental effects of the discharge and/or activities authorised by this consent are correctly assessed; and
 - (iii) That progress is made to achieve the practical expression of kaitiakitanga.
 - (e) By recommending changes, including changes to the resource consent conditions that may be required to ensure:
 - (i) That the Wastewater 2000 Outcomes and the Waikato - Tainui Outcomes, as set out in the Advice Notes to this consent, are being achieved;
 - (ii) That any significant adverse effects on the environment arising from the exercise of this consent are dealt with; and
 - (iii) That progress is made to achieve the practical expression of kaitiakitanga.
 - (f) By recommending that a formal review of the resource conditions is necessary;
 - (g) By undertaking a detailed site inspection not less than once per year, in addition to any other site inspections undertaken as part of an investigation into an environmental incident;
 - (h) By taking reasonable steps to consult with the Community Liaison Group at the request of that group to provide it with the necessary information and advice to assist it to perform its role;
 - (i) By reviewing the adequacy of the Detailed Management Plans and any proposed changes to those plans prior to their approval by the Auckland Regional Council and thereafter on an annual basis;
 - (j) By considering the best practicable option, in particular development and integration of new technology and/or management practices, that may enable the avoidance of or reductions in the discharge of contaminants and enable improved environmental outcomes; and
 - (k) By making recommendations to the Auckland Regional Council and the Consent Holder in relation to any of the above matters.
- (3) The Consent Holder shall instruct the Audit Group to hold formal meetings every three months, in addition to any extraordinary meetings that the Audit Group requires to discharge their functions. The formal meetings may be held

at a lesser frequency if authorised in writing by the Group Manager, provided that meetings are held at least once a year.

The Consent Holder shall inform the Auckland Regional Council, the Manukau City Council, the Community Liaison Group, and the Neighbourhood Liaison Sub-group of any meeting of the Audit Group a minimum of 10 working days in advance of that meeting.

- (4) The Consent Holder shall ensure that detailed minutes of the Audit Group meetings are recorded and forwarded to the Auckland Regional Council, Manukau City Council, the Community Liaison Group and the Neighbourhood Liaison Sub-group within two weeks of any meeting being held.
- (5) The Consent Holder shall take all other steps reasonably required to enable the Audit Group to perform its functions, and without limiting that obligation shall:
 - supply the Audit Group with all information relevant to the performance of its functions; and
 - permit access to the MWTP site at all reasonable times;
 - keep a record of all complaints received in connection with the operation of the plant and the steps taken to investigate and deal with each complaint.
- (6) The Consent Holder shall instruct the Audit Group to prepare an Audit Report once per year, which should be submitted no later than 30 September of each year to the Consent Holder, the Auckland Regional Council, the Manukau City Council, the Waitakere City Council, the Auckland City Council and the Community Liaison Group. The report shall address the activities of the Audit Group over that year in the performance of its role and the exercise of its functions.
- (7) The role of the Audit Group does not replace the obligations of the Consent Holder to comply with the conditions of this consent or the role of the regulatory authorities.

4. COMMUNITY LIAISON AND NEIGHBOURHOOD LIAISON SUB-GROUPS

Community Liaison Group

- (1) The Consent Holder shall consult with representatives of the community, including but not limited to, representatives of:
 - (a) The Mangere Bridge Residents and Ratepayers Association;
 - (b) Waikato - Tainui, being the Huakina Development Trust and Makaurau Marae Trustees;

- (c) The territorial authorities;
- (d) Representatives of environmental groups; and
- (e) The local community

to facilitate the establishment and maintenance of a Community Liaison Group.

- (2) The role of the Community Liaison Group is to be a body which provides a forum:
- (a) To facilitate communication and dialogue between the Consent Holder, the wider community and interested parties;
 - (b) To facilitate (through the Neighbourhood Liaison Sub-group) ongoing communication and consultation with the local community about any concerns and complaints that members of that community may have about the operation of MWTP, its effects on the environment, and ways of alleviating those concerns and dealing with complaints;
 - (c) To monitor communication and dialogue between the Consent Holder and the Neighbourhood Liaison Sub-group;
 - (d) To record the reporting of environmental incidents to the Consent Holder by the Neighbourhood Liaison Sub-group and to facilitate the reporting of such incidents to the Audit Group, the Auckland Regional Council and Manukau City Council on a periodic basis. This role does not replace the obligations of the consent holder and regulatory authorities;
 - (e) To consider in consultation with the Audit Group all environmental aspects of the MWTP including:
 - (i) Progress with construction of the upgraded facility;
 - (ii) Treatment plant performance;
 - (iii) Compliance with the conditions of all resource consents;
 - (iv) Environmental monitoring results; and
 - (v) Any other matters specified in Special Condition 3 (2).
- (3) The Consent Holder shall use its best endeavours to ensure that formal meetings of the Community Liaison Group are held at least once every six months from the commencement of this consent. The Consent Holder shall provide an appropriate venue for the meetings of the Community Liaison Group. In addition, extraordinary meetings may be called as circumstances

warrant. The Consent Holder shall inform the Auckland Regional Council and the Manukau City Council of any meeting of the Community Liaison Group a minimum of 10 working days in advance of that meeting.

- (4) The Consent Holder shall ensure that the minutes of the Community Liaison Group meetings are forwarded to the Auckland Regional Council, the territorial authorities, and the Audit Group within two weeks of any meeting being held.
- (5) The Consent Holder shall assist the Community Liaison Group to fulfil its purpose by, among other things:
 - (a) Appointing two of the Consent Holder's senior officers to represent it on the Community Liaison Group;
 - (b) Ensuring at least one of its representatives attends all of the formal meetings of the Community Liaison Group;
 - (c) Discussing all environmental aspects of the plant including, but without being limited to, concerns and complaints of the local community and ways of satisfying them;
 - (d) Providing information to the Community Liaison Group about all environmental aspects of the plant;
 - (e) Taking reasonable steps to facilitate consultation with the Community Liaison Group by the Audit Group; and
 - (f) Discussing any actual or alleged failure by the Consent Holder to comply with consent conditions; and, if requested by the Group Manager, instructing the Convenor of the Audit Group to arrange an investigation by the Audit Group, or such member or members of the Audit Group as the Group Manager or the convenor of the Audit Group considers appropriate, of any such failure. The finding of any such investigation shall be reported to the Auckland Regional Council, the Manukau City Council, the Community Liaison Group and the Neighbourhood Liaison Sub-group.

Neighbourhood Liaison Sub-group

- (6) The Consent Holder shall consult with the Community Liaison Group to facilitate the establishment and maintenance of a sub-group of the Community Liaison Group, to be known as the Neighbourhood Liaison Sub-group. The sub-group shall consist of a nominee of the Mangere Bridge Residents and Ratepayers Association, a nominee of the Makaurau Marae Trustees, an officer of the Auckland Regional Council and an officer of the Consent Holder. The role of the Neighbourhood Liaison Sub-group is to facilitate ongoing communication and consultation with the local community and the diligent resolution of any concerns and complaints that members of that community

may have about the operation of the MWTP, its effects on the environment, and ways of alleviating those concerns and dealing with complaints.

- (7) The Consent Holder shall take all reasonable steps and do all things necessary to investigate, in a prompt manner, any complaint forwarded to the Consent Holder by a member of the Neighbourhood Liaison Sub-group and the Consent Holder may, if it considers it appropriate, call a meeting of the Neighbourhood Liaison Sub-group for that purpose and, if requested by the Group Manager, arrange an investigation by the Audit Group or such member or members of the Audit Group as the convenor of the Audit Group considers appropriate. The Consent Holder shall ensure that the findings of the above investigation are reported to the Auckland Regional Council, the Manukau City Council, the Community Liaison Group and the members of the Neighbourhood Liaison Sub-group.
- (8) The Consent Holder shall assist the Neighbourhood Liaison Sub-group to perform its role by undertaking the steps referred to in clause 5(a)-(f) above as if all references to the "Community Liaison Group" were references to the "Neighbourhood Liaison Sub-group".

5. REVIEW CONDITIONS

Auckland Regional Council may initiate a review any of the conditions of this consent (including any specified quantity) in accordance with Section 128 of the Resource Management Act 1991, by serving notice of its intention to do so under section 128 of the Act for the purpose of:

Adverse Effects

- (a) Dealing with any adverse effect on the environment which may arise from the exercise of this consent, including:
 - (i) Dealing with any adverse effects on the water quality and biota of the Manukau Harbour and effects on the quality of the air which may arise from the exercise of this consent; and
 - (ii) Requiring the Consent Holder to consider, report upon to the Auckland Regional Council, and, if necessary, to adopt the best practicable option to prevent or minimise any adverse effect of any discharge or emissions on the environment that may arise from the exercise of this consent.

In considering and reporting upon the best practicable option, the Consent Holder shall have regard to;

- The nature of the discharge or emission and the sensitivity of the receiving environment to adverse effects; and

- The financial implications, and the effects on the environment, of that option when compared with other options; and
- The current state of technical knowledge and the likelihood that the option can be successfully applied.

and, without limiting 5 (a), the Auckland Regional Council may also review any of the conditions of this consent for the purpose of:

Monitoring

- (b) Altering the monitoring requirements, including requiring further monitoring, or increasing or reducing the frequency of monitoring.

Audit Group/Community Liaison Group Recommendations

- (c) Giving effect, if appropriate, to recommendations of the Audit Group, the Community Liaison Group, or the Neighbourhood Liaison Sub-group;

Regional Plan

- (d) Implementing the rules of any relevant regional plan which is proposed or becomes operative after the date of commencement of this consent;

New Technology/Management Practices

- (e) Considering the development and integration of new technology and/or management practices that would enable the avoidance of or reductions in the discharge of contaminants or emissions and/or result in improved environmental outcomes;

Wastewater 2000 Outcomes and Waikato - Tainui Outcomes

- (f) Requiring the Consent Holder to take such further steps or do such things as are necessary to ensure the achievement of the Wastewater 2000 outcomes and the Waikato - Tainui Outcomes, as set out in the Advice Notes to this Consent, in a reasonable time;

Alternative Disposal Options and Beneficial Reuse

- (g) Implementing alternative disposal options and beneficial re-use of all or part of the treated effluent, the biosolids and other by-products;

Controls on Influent

- (h) Requiring the implementation of measures to reduce the quantity of the contaminants in the influent;

Kaitiakitanga

- (i) Implementing measures to enable the practical expression of kaitiakitanga; and

MRG recommendation under Special Condition 20(11)

- (j) Responding to a recommendation by the MRG under Special Condition 20(11) in the event that the Auckland Regional Council is not satisfied, on a reasonable basis, that the recommendation is the best practicable option to prevent or minimise any adverse effect of any discharge.

Outline Management Plan

- (k) Amending the Outline Management Plan.
- (l) If recommended by the MRG, implementing the Sentinel Public Health programme, referred to in Special Condition 26(3) below, and amending the Outline Management Plan accordingly.

Notice of intention to review under clauses 5 (a) - (l) may be served on the Consent Holder within the month of October in the years 2006 and 2009; and thereafter in the month of October at 5 yearly intervals during the duration of the consent, the first being in October 2014. Notice of intention to review the review years specified herein may be served on the Consent Holder in the month of October of any year.

6. SPECIFIC REVIEW CONDITION

- (1) That the Auckland Regional Council may review the conditions of this consent, in accordance with section 128 of the Act, for the following purposes:
 - (a) Minimising the size of the Non Compliance Zone shown in Figure 2(b) to the smallest practicable area.
 - (b) Reviewing the maximum discharge rate of 25 cubic metres per second, with a view to changing that rate if necessary to minimise adverse effects on the coastal environment.
 - (c) Imposing more restrictive standards on the discharge of treated effluent or otherwise changing the conditions of this consent to deal with any adverse effects on the environment and/or to coincide with programmes to separate stormwater and sewerage.
- (2) Notice of intention to review under Special Condition 6(1) may be served on the Consent Holder within the month of October in the years 2006 and 2009;

and thereafter in the month of October at 5 yearly intervals during the duration of the consent, the first being in October 2014.

- (3) Notice of intention to review Special Condition 6(2) and the review years specified therein may be served on the Consent Holder in the month of October of any year.

7. REVIEW BY DISINFECTION REVIEW GROUP

- (1) If, at any time after 1 October 2003, monitoring undertaken in accordance with this consent indicates any of the following problems:
 - (a) There is a failure to comply with the Disinfection Facility operating conditions specified in Special Condition 25; or
 - (b) Human enteric viruses occurring above Background Levels in shellfish around the edge of the Non-Compliance Zone as defined in Special Condition 17(1)(b); or
 - (c) Bacteriological contamination in shellfish exceeds 230 faecal coliforms per 100 grams of shellfish flesh¹ or such other guideline or limit which may be promulgated for the purpose of safeguarding public health; or
 - (d) Pathogens or other substances in harbour waters, sediments or shellfish outside the Non Compliance Zone at concentrations which represent a health risk in terms of contact recreation or shellfish gathering; or
 - (e) There is a breach of any limits or standards specified or determined pursuant to Special Condition 20; or
 - (f) There is an outbreak of infectious disease which implicates the MWTP or which could reasonably be linked to the discharge from the MWTP,

then the matter shall be reported by the Consent Holder to the Group Manager and to the DRG ("the report") no later than one month from the problem occurring or being identified. In addition, any unexpected result shall be reported to the DRG/MRG as soon as practicable following receipt of that result.

- (2) If, notwithstanding the monitoring being undertaken pursuant to this consent, it is not possible to establish the presence or absence of any of the abovementioned problems, the DRG may nevertheless, if it considers that there are substantial public health grounds to do so, investigate the matter and make recommendations pursuant to clause 5 of this condition.
- (3) The report shall include:

¹ The requirement to comply with Special Condition 7(1)(c) is suspended in accordance with Special Condition 12(5)

- 549A 4/50 = 560 x 1/4
- (a) All relevant monitoring data for the 3 months prior to the problem being identified;
 - (b) Any relevant operational data for the plant for the 3 months prior to the problem being identified,
 - (c) Any explanation or rationale for the problem which the Consent Holder sees fit to provide.
- (4) The Consent Holder shall also provide, upon request, such other information as the DRG requires.
- (5) The DRG shall review the report and other information and make specific written recommendations pursuant to Special Condition 7(8), and make specific written recommendations to the Consent Holder requiring the Consent Holder to take any steps or cease any action necessary to address the problems. Any such recommendation must contain a specified time within which the recommendations must be complied with. The DRG at the time it makes any recommendations to the Consent Holder under this clause, shall forward a copy thereof to the Group Manager.
- (6) Upon receipt of those recommendations the Consent Holder must forthwith:
- (a) Implement the recommendations; or
 - (b) Apply to the Auckland Regional Council pursuant to section 127(1)(a) of the Resource Management Act 1991 for the purpose of reviewing the conditions of this consent to address the problems or matters identified in Special Condition 7(1) or (2) above.
- (7) For the avoidance of doubt it is hereby recorded that the Consent Holder shall not be in breach of this consent by way of non compliance with any specified recommendations under this clause if it has applied under section 127 (1)(a) of the Act as aforesaid and is proceeding diligently to have the said application heard and determined.
- (8) The Consent Holder shall retain the DRG to undertake audits of the operation of the UV dose system, including all relevant supporting documentation, at least every six months or other such frequencies as approved in writing by the Group Manager. The precise details of the auditing process shall be incorporated into the Monitoring Management Plan. A copy of the audit report shall be provided to the Consent Holder and Group Manager by 1 December each year for the term of this consent.

8. SECTION 127 APPLICATION

- (1) That the Consent Holder may apply to the Auckland Regional Council in accordance with Section 127(1)(a) of the Act in December 1998 and annually

thereafter for the purpose of changing or cancelling any condition which specified a date in this consent (other than as to duration) for the following purposes:

- (a) To take account of any factor which may have altered or affected the construction programme for any work authorised by this consent;
- (b) To take account of the development and integration of any new technology and/or management practices which may affect or alter the construction programme; and
- (c) Reducing the frequency of compliance monitoring for the Non Compliance Zone.

9. INVESTIGATIONS OF ALTERNATIVE DISPOSAL OPTIONS AND BENEFICIAL REUSE

- (1) That by 30 September 2000, the Consent Holder shall commission an independent investigation into alternative disposal options and beneficial reuse and prepare a detailed report to the Auckland Regional Council and the territorial authorities. The terms of reference for the study shall be subject to review by the Audit Group and the written approval of the Group Manager by 30 September 2000. The study shall not be commenced until such time as approval for the terms of reference for the study has been obtained from the Group Manager. The study shall include, among other things:
 - (a) A detailed investigation of technically feasible options for avoiding or minimising the discharge of effluent from the MWTP into the Manukau Harbour, and for the beneficial re-use of treated effluent, biosolids and other by-products from the MWTP, and a feasibility study which assesses the demand for such by-products;
 - (b) A study of the feasibility of "re-use plants " to be built for location areas where there is a demand for water and other by-products of effluent, for example in industrial/horticultural areas in order to avoid or minimise the discharge of effluent into the Manukau Harbour and the disposal of biosolids and other by-products at the site of the MWTP;
 - (c) A feasibility study of alternative effluent disposal options for the Auckland region, including, but without limiting, satellite wastewater treatment plants and land disposal systems in locations in other parts of the Auckland region;
 - (d) Detailed costing of the options; and
 - (e) The preferred options under (a), (b) and (c) with associated implementation programmes.
- (2) The Consent Holder shall complete the investigation and provide the report on

the investigation to the Group Manager and the territorial authorities by 30 September 2003. The investigation and report, and any subsequent updates of that investigation and report, shall be subject to review by the Audit Group, and shall be to the satisfaction of the Group Manager.

- (3) That by 30 September 2000, the Consent Holder shall advise the Auckland Regional Council and the territorial authorities of the public consultation it proposes to undertake in connection with clause (1) above, and its programme for examining and reporting on the matters referred to in that clause.
- (4) That the Consent Holder shall from time to time undertake such further investigations as are necessary to update the report; and by 1 October 2006, and by 1 October thereafter at 5 yearly intervals during the duration of the consent (the next being by 1 October 2011), it shall report to the Auckland Regional Council and the territorial authorities on these investigations and any consequential changes to the report.

10. POINT OF DISCHARGE

That the point of discharge of the treated effluent will be:

- (a) From the date of commencement until 30 September 2003, or such earlier date as the new discharge structure is available for use, to the coastal marine area adjoining Puketutu Island from the existing outlets adjacent to pond 4 and, in emergency situations, the existing outlets adjacent to pond 1, as shown in Figure 1(a) ("the emergency outlets"). Any use of the emergency outlets shall be recorded by the Consent Holder, and reported to the Group Manager within 48 hours of the incident, together with the full details of the reasons for the use of the emergency outlets.
- (b) From 1 October 2003, or such earlier date as the new discharge structure is available for use, to the coastal marine area from the new discharge structure to be located on the north eastern side of Puketutu Island, at the location shown in Figure 1(b).

11. APPROPRIATE LIMITS ON PLANT CAPACITY

- (1) That the maximum possible inflow to the plant shall be limited to 1,209,600 cubic metres per day and the inflow to the plant shall not exceed a mean daily flow of 390,000 cubic metres over any one year period.
- (2) That the Consent Holder shall not increase the existing hydraulic capacity of the incoming interceptor system to the plant. For the purpose of this clause, the existing system includes the south western interceptor. Nothing in this condition shall prevent the Consent Holder carrying out works which improve the efficiency or operability of the existing networks, provided the hydraulic capacity of the interceptor system is not increased.

- (3) That the maximum discharge from the plant shall not exceed 1,209,600 cubic metres per day discharged at 25 m³ /s at map reference NZMS 260 R11 667 696.
- (4) That the discharge of treated effluent is authorised at the point of discharge at any time except for a period of two hours commencing 1.5 hours after low tide.
- (5) That the actual timing and duration of any discharge shall:
 - (a) Be selected such that the area of its reasonable mixing with the sea is minimised and the speed of its removal from the harbour is maximised;
 - (b) Be selected so as to ensure that all effluent, as far as practicable, is discharged solely on the outgoing tide; and
 - (c) Except as expressly provided in these conditions, otherwise occur in a manner generally consistent with that outlined in the AEE lodged in support of, and forming part of, the application.

The procedures to be adopted to achieve the foregoing shall be described in the Operations Management Plan.

12. COMPLIANCE WITH TABLES 1 AND 2

- (1) That from the date of commencement of this consent until 30 September 2003 effluent quality from the MWTP as measured at the main outfall sample point shall comply with the requirements in Table 1 (annexed). After the new discharge structure is in use and up to 30 September 2003, the Consent Holder shall operate the available plant to produce an effluent of the best practicable quality up to the Table 2 standard.
- (2) That from 1 October 2003 effluent quality from the MWTP shall comply with the requirements in Table 2 (annexed).
- (3) *[Condition deleted]*
- (4) That from 1 October 2003 the Consent Holder shall comply with the requirements of Special Conditions 17(1)(b) and 17(2)².
- (5) That from the period 1 October 2003 the faecal coliform limit specified in Special Conditions 7(1)(c), 17(2) and Table 2 which is referenced in footnote 8 shall be suspended unless otherwise formally notified in writing (including reasons) by the Group Manager, after consultation with the Consent Holder.

² The requirement to comply with Special Condition 17(2) is suspended in accordance with Special Condition 12(5)

13. MONITORING MANAGEMENT PLAN

That the Consent Holder shall complete and comply with a Monitoring Management Plan in accordance with Special Condition 2. The Monitoring Management Plan shall incorporate all components of the Harbour Environment Monitoring Programme as set out in **attached** Schedule A and shall in addition, but without limitation, incorporate the following requirements:

Compliance Monitoring - General

- (a) From 1 October 2003, compliance with the standards for effluent quality set out in Table 2 shall be monitored at the points specified in Table 2, and in the manner described in Table 2.
- (b) From 1 October 2003, the Consent Holder shall undertake the monitoring required to demonstrate compliance with Table 6.
- (c) From 1 October 2006, compliance monitoring shall be undertaken in accordance with any recommendations resulting from the studies undertaken pursuant to Special Condition 20(11) below.
- (d) From 1 October 2003, the Consent Holder shall carry out monitoring required pursuant to Special Condition 25.

Compliance Monitoring - Non Compliance Zone

- (e) Water quality monitoring shall be undertaken to determine compliance with condition 17(1)(b)³ on a minimum of 3 transects across the Non Compliance Zone. This monitoring shall be undertaken monthly for a period of 12 months commencing on 1 October 2003 and thereafter quarterly. That water quality monitoring shall include additional monitoring of a minimum of three storm discharges where inflow exceeds 9m³/sec within the first two years of this condition applying. All samples shall be analysed for faecal coliform bacteria.
- (f) The potential for non point sources to obscure accurate definition of the effects of MWTP effluent in relation to the Non Compliance Zone shall be identified and eliminated by providing for:
 - (i) Sampling to occur at the point in time at which the main body of the effluent plume is expected to be passing through each sampling site (in accordance with the modelling which has been undertaken); and
 - (ii) Background monitoring to take place across a transect of the Purakau Channel north of the MWTP to determine the contribution of non point sources (if any).

³ The requirement to comply with Special Condition 17(1)(b) is suspended in accordance with Special Condition 12(5)

- (g) The approximate locations of the sampling transects referred to in 13(e) and (f) are indicated in Figure 3 attached to this consent.
- (h) Without limiting this condition all sampling and monitoring is to be undertaken in accordance with the Monitoring Management Plan.
- (i) All compliance monitoring results are to be reported within one month after sampling to:
 - (i) The Group Manager;
 - (ii) The Community Liaison Group and Neighbourhood Liaison Sub-Group;
 - (iii) The Audit Group; and
 - (iv) The territorial authorities, or their agents; and
 - (v) The DRG and the MRG

14. WASTEWATER ANALYSES

That the Consent Holder shall collect and analyse wastewater quality samples required under these consent conditions in accordance with procedures set out in "Standard Methods for the Examination of Water and Wastewater, 19th Edition", or "Standard Methods for the Examination of Water and Wastewater, 20th Edition", published by the American Public Health Association, the American Water Works Association, and the Water Environment Federation, or similar standard methodologies as approved in writing by the Group Manager.

15. DESIGN DETAILS

That the Consent Holder shall provide design details and construction methods for works relating to:

- (a) The effluent delivery system from the treatment plant to the tidal storage basin;
- (b) The tidal storage basin;

The design details and construction methods for the effluent delivery system and the tidal storage basin shall be as set out in the Construction Management Plan and shall ensure effluent is confined to the delivery channel and does not seep into the inter-tidal area after the oxidation ponds are decommissioned.

- (c) The shoreline discharge structure.

Within twelve months of the granting of this consent, the Consent Holder shall submit to the Group Manager for written approval, the detailed design for the new discharge structure which shall be in accordance with best engineering practice and achieve rapid mixing of the effluent with the receiving waters and minimise scouring of the sediments on the harbour bed. The discharge structure shall be constructed in accordance with the approved design and best engineering practice. All design details as approved and construction methods shall be as set out in the Construction Management Plan.

16. COMPETENT OPERATOR

That the Consent Holder shall ensure that the treatment plant and effluent discharge structures are operated at all times:

- (a) By a competent operator as approved in writing by the Group Manager; and
- (b) In accordance with best wastewater treatment plant operational practice.

17. NON COMPLIANCE ZONE

- (1) There shall be deemed to be a "Non Compliance Zone" within which adverse effects associated with effluent discharged from the MWTP are to be confined at all times. The Non Compliance Zone shall be:
 - (a) From the date of commencement of consent until 30 September 2003, the area shown in Figure 2 (a); and
 - (b) From 1 October 2003, the area shown on Figure 2 (b).
- (2) The Consent Holder shall ensure that effluent discharged from the MWTP to the Manukau Harbour is of a quality that does not prevent compliance with the Ministry for the Environment/Ministry of Health Microbiological Water Quality Guidelines for Marine and Freshwater Recreational Areas (June 2002) for shellfish gathering waters at the boundary of the Non Compliance Zone⁴, namely:
 - (a) For shellfish gathering, the median faecal coliform content of samples collected over the year should not exceed 14MPN (Most Probable Number) per 100ml, nor should more than 10% of samples exceed 43MPN per 100ml.
- (3) That the discharge shall not cause any significant adverse effects on marine

⁴ The requirement to comply with Special Condition 17(2) is suspended in accordance with Special Condition 12(5)

life beyond the Non Compliance Zone.

- (4) That the Consent Holder, in consultation with the Medical Officer of Health, shall install and maintain signs, approved in writing by the General Manager, within three months of the consent being granted, adjacent to the "Non Compliance Zone" as defined by Special Condition 17(1), warning the public that shellfish should not be taken for human consumption, and that contact recreation (including swimming) should be avoided within the area of the Non Compliance Zone.
- (5) If monitoring indicates that, at any time, the Non Compliance Zone has been compromised or that the standards referred to in Special Condition 17(2) are not being met in areas outside the Non Compliance Zone, then the Consent Holder shall:
 - (a) Determine the area of non-compliance;
 - (b) Notify the Medical Officer of Health and the relevant territorial authority public health officers; and
 - (c) In consultation with the Medical Officer of Health and the relevant territorial authority public health officers, erect signs warning the public that shellfish and/or (as appropriate) that contact recreation in those areas should be avoided until further monitoring indicates otherwise.
- (6) That the Consent Holder shall ensure that when monitoring is being undertaken in accordance with Table 5 (annexed), then they shall erect and maintain signs warning the public that shellfish should not be taken from that area for human consumption. These signs shall be maintained by the Consent Holder until culturable enterovirus concentrations are reduced to Background Levels.
- (7) The Consent Holder shall erect and maintain signs warning the public that shellfish should not be taken for human consumption from areas around Puketutu Island until final recommendations of Special Condition 20(11) have been implemented.

18. INFLUENT MANAGEMENT PLAN

- (1) That the Consent Holder shall complete and comply with an Influent Management Plan which shall without limitation include the following:
 - (a) Provisions specifying influent monitoring;
 - (b) Provisions setting out the steps to be taken to prepare a programme to measure Effluent Toxicity;
 - (c) Details of the Trade Waste Programme to be implemented by the Consent Holder which shall include the means by which the Consent

Holder shall manage and control the trade waste component of that influent; and

- (d) Details of the Inflow and Infiltration Reduction Programme to be implemented by the Consent Holder.

Influent Monitoring

- (2) The purpose of influent monitoring is to adequately characterize the flow and pollution load of the influent so as to:
 - (a) Maximise treatment efficiency;
 - (b) Protect against incoming toxicity;
 - (c) Determine or assess treatment efficiency; and
 - (d) Provide a basis of background or historical data from which to devise flow and contaminant reduction programmes.
- (3) Influent monitoring shall include:
 - (a) Continuous flow recordings;
 - (b) Measurements to provide estimates of continuous BOD, COD concentrations;
 - (c) Appropriate toxicity monitoring to achieve the goal referred to in Special Condition 18(2)(b); and
 - (d) 24 hour composite auto sampling for the following:
 - (i) daily - suspended solids;
 - (ii) twice weekly - ammonia and alkalinity;
 - (iii) twice monthly - nutrients (DRP, TKN);
 - (iv) monthly - metals;
 - (v) quarterly - volatile organic carbons, semi volatile organic carbon, pesticides; and
 - (vi) 12 monthly - dioxins.
 - (e) Grab samples for enterovirus on an 8 day rolling interval.
- (4) All influent monitoring results shall be reported to the Group Manager and to the Audit Group quarterly.

- (5) The steps to be taken should levels of toxicity be detected such that other parts of the treatment process are placed at risk and there would be a deterioration in final effluent quality shall be included in the Contingency Plan.

Effluent Toxicity

- (6) The Consent Holder shall commission a programme of Effluent Toxicity Testing to the satisfaction of the ARC and the Audit Group. The programme shall be commenced on or before 1 October 2003 and shall provide for testing and analysis of the effluent at least quarterly. Results of the testing and analysis shall be reported in writing to the Group Manager and to the Audit Group within 3 weeks of the testing. The testing and analysis of results shall be in accordance with the protocols contained in the USEPA guidelines⁵ concerning Effluent Toxicity.
- (7) The programme shall also identify the management response to be undertaken by the Consent Holder in the event that the analyses show unacceptable levels of toxicity as defined by a testing protocol to be approved in writing by the Group Manager and following consultation with the Audit Group.

Trade Waste

- (8) The Consent Holder shall prepare and implement a Trade Waste Programme to control and minimise influent constituents that might cause:
- (a) processing problems at the treatment plant; and
 - (b) adverse effects on the Manukau Harbour.

The effectiveness of this programme shall be reviewed by the Consent Holder at 2 yearly intervals from the commencement of this consent for the purpose of considering:

- Alterations to the monitoring requirements in the light of the results of the review;
- Further definition of final effluent standards in relation to metals and trace constituents; and
- minimising and/or mitigating any adverse effect on the environment of the Manukau Harbour.

⁵ The guidelines referred to in this condition are:

- (i) USEPA 1991
Technical Support Document for Water Quality Based Toxic Control
2nd Edition EPA/505/2/90/001, Office of Water, Washington DC.
- (ii) USEPA 1992
Short-term Methods for Estimating the Chronic Toxicity of Effluent and Receiving Waters to Marine and Estuarine Organisms.
2nd Edition EPA 600/4/91/003, Environmental Monitoring and Support Laboratory Cincinnati, Ohio.

Each review shall be completed within a reasonable time and the results of the review shall be referred to the Audit Group and the Group Manager within one month of its completion.

Inflow and Infiltration Reduction Programme

- (9) The Consent Holder shall prepare and implement an inflow and infiltration reduction programme aimed at reducing the amount of stormwater inflow infiltration. Details of this programme should include:
 - (a) Agreements (if any) with the territorial authorities or their agents, regarding inflow and infiltration reduction; and
 - (b) Proposed ongoing initiatives for reduction.
- (10) The effectiveness of this programme should be reviewed 2 yearly for the purpose of:
 - (a) Ensuring proposed outcomes are being met;
 - (b) Recommending changes to consent conditions to limit influent volume if it is demonstrated there has been a significant adverse affect to the harbour; and
 - (c) Determining the targets to be met regarding appropriate reduction in influent volume over specific timeframes.

19. DISINFECTION

- (1) That the Consent Holder shall design and operate the disinfection process for the MWTP in accordance with the results of a pilot study ("the pilot study") to be undertaken forthwith in accordance with this condition, and in accordance with the recommendations of the DRG. The DRG shall consist of an internationally recognised expert in microbial inactivation through wastewater disinfection processes and an internationally recognised expert in environmental virology. The DRG shall be retained by the Consent Holder, which shall meet the reasonable costs of the DRG.
- (2) The pilot study shall be undertaken in four stages as follows:
 - (a) Planning and design of the pilot study to consider and identify a process or processes (including process design parameters) suitable to achieve a four log reduction of seeded viruses (MS2 bacterial virus and attenuated poliovirus) between the influent to and effluent from a suitable pilot plant to be provided by the Consent Holder for the purpose of the pilot study. The disinfection processes to be considered shall include, but not be limited to:

- (i) Ultraviolet irradiation.
- (ii) Sand filtration.
- (iii) Sand filtration and ultraviolet irradiation.
- (iv) Microfiltration.
- (v) Microfiltration and ultraviolet irradiation.

This planning and design stage shall be undertaken by, or under the instructions of, the DRG and the pilot plant shall be in all respects to the satisfaction of the DRG.

- (b) Execution of the pilot study by suitably qualified persons approved by the DRG, such execution to be to the satisfaction of the DRG in all respects.
 - (c) Reporting to the DRG on the results of the pilot study, to the satisfaction of the DRG in all respects.
 - (d) Identification by the DRG of a suitable process or processes (including process design parameters) to meet the four log reduction in the viruses referred to in paragraph 2(a) above in the pilot plant and an assessment of:
 - (i) The extent to which the identified process or processes will enable beneficial reuse of effluent and biosolids; and
 - (ii) The extent to which the process or processes can be designed to incorporate facilities to enable such beneficial reuse.
- (3) An additional purpose of the pilot study shall be to identify to the satisfaction of the DRG so as to enable the DRG to recommend:
- (a) A surrogate indicator or indicators (if any can be identified) for determining the effectiveness of virus inactivation. A surrogate indicator or surrogate indicators are to be identified by monitoring in both influent and effluent, of the following:
 - (i) Faecal coliform bacteria;
 - (ii) Enterococci;
 - (iii) clostridium perfringens;
 - (iv) F-specific bacteriophage;
 - (v) culturable human enteric viruses.

- (b) Water quality parameters required for the process to achieve the 4 log reduction in viruses referred to in paragraph 2(a) above.
 - (c) A monitoring regime to monitor the water quality parameters, details of which shall be incorporated into the Monitoring Management Plan.
- (4) On completion of the study, the DRG shall:
- (a) Make recommendations to the Consent Holder as to the process or processes identified in (2)(d) of this condition.
 - (b) Advise the Consent Holder as to the water quality parameters determined pursuant to 3(b) of this condition.
 - (c) Recommend to the Consent Holder, any surrogate organism or organisms which it has identified pursuant to 3(a) of this condition.
 - (d) Recommend an interim guideline limit for any surrogate or surrogates identified, or if no surrogate has been identified, an interim guideline limit for one or more human enteric viruses. For the avoidance of doubt, this guideline limit shall only apply from 1 October 2003.
- (5) The Consent Holder shall forward the DRG's recommendations⁶ following from the pilot study including:
- (a) The recommended process or processes;
 - (b) The results of the investigation into beneficial reuse;
 - (c) The water quality parameters determined pursuant to 3(b) of this condition; and
 - (d) Any recommended surrogate indicator, or indicators identified pursuant to 3(a) of this condition,

together with the Consent Holder's proposals for the preferred recommended process or processes to the Group Manager and, following consultation with the Group Manager and the territorial authorities, shall:

- forthwith implement one of the recommended processes and thereafter operate the plant in accordance with that process; and
 - from 1 October 2003, comply with water quality parameters identified pursuant to Special Condition 19(3)(b).
- (6) For the avoidance of doubt, chlorine based disinfection technology shall not be considered as part of the pilot study or recommended as a suitable treatment

⁶ For the purpose of avoiding doubt, the DRG submitted a report entitled "Pilot Plant Investigations Surrogate Study Results and Recommendations Final Report" dated June 2002 in order to meet the obligations of this condition.

process.

- (7) For the purposes of this condition, a four log reduction represents a reduction by 10,000 times, such that 10,000 viruses in influent would be reduced to 1 virus in effluent.

20. MICROBIOLOGICAL STUDY

- (1) The Consent Holder shall commission a specialist microbiological study ("the microbiological study"), with parameters and details as established pursuant to 20(4) below and which study is approved in writing by the Group Manager, on the potential public health effects associated with:

- (a) The discharge of pathogens to the receiving environment; and
- (b) The accumulation and resuspension of effluent derived pathogenic micro-organisms from sediments.

- (2) The study shall be designed by a group of four persons, one of whom shall be an internationally recognised expert in environmental virology, another of whom shall be an internationally recognised expert in microbiology, another of whom shall be a recognised expert in public health and one of whom shall be an internationally recognised expert in wastewater treatment ("The Microbiological Review Group ("MRG")).

- (3) The MRG shall be retained by the Consent Holder, which shall meet the reasonable costs of the MRG.

- (4) The parameters and details of the study shall be set by the MRG in consultation with the Group Manager within 6 months of the commencement of this consent, and shall include the following:

- (a) An assessment of the concentrations of selected organisms from the following groups:

- (i) Viruses;
- (ii) Parasites;
- (iii) Bacterial pathogens; and
- (iv) Any surrogate organism identified in the course of the pilot study pursuant to Special Condition 19 of this consent;

in the effluent discharged from the MWTP; shellfish (including sentinel shellfish to be seeded in such locations as the MRG deems appropriate); sediments; and harbour waters (parasites only).

("the pre upgrade study").

- (b) An assessment of concentrations following the upgrade of selected organisms from the following groups:

- (i) Viruses;
- (ii) Parasites;
- (iii) Bacterial pathogens; and
- (iv) Any other organisms considered by the MRG to be relevant to the microbiological study;

in the effluent discharged from the MWTP; shellfish (including shellfish in such locations as the MRG deems appropriate); sediments; and harbour waters (parasites only).

("the post upgrade study").

- (c) An assessment of the current state of engineering and technical knowledge, and the available wastewater technology, and the financial implications of any limits or standards which might be recommended in relation to the effluent discharge.
 - (d) A programme designed to identify and recommend a suitable monitoring tool or tools that can be used by the Manukau City Council to determine the impact of the Mangere Wastewater Treatment Plant discharge on the safety of recreational users of the Mangere Ward beaches.
 - (e) Such other matters as the MRG considers appropriate.
- (5) The pre and post upgrade studies shall be undertaken by the Consent Holder under the supervision and to the satisfaction of the MRG. The pre upgrade study shall commence as soon as the parameters and details of the study have been determined in accordance with special condition 20(1) and 20(4). The post upgrade study shall commence on 1 October 2003 and be concluded by 1 October 2005. 6
- (6) The Consent Holder shall, in parallel with the post upgrade microbiological study, undertake a two year "UV dose system verification study" under the supervision and to the satisfaction of the MRG. The UV dose system verification study shall commence on 1 October 2003 and be concluded by 1 October 2005, unless agreed in writing by the Group Manager, and shall comprise an assessment of the following areas:
- (a) The effectiveness and reliability of the UV dose based system to deliver the required UV dose to effluent,
 - (b) Whether or not the Applied UV Dose levels specified in Table 6 are

appropriate to ensure the protection of recreational and shellfish gathering waters outside of the Non-Compliance Zone,

- (c) Whether or not the Level 1 and Level 2 and the Trigger Level operating conditions and associated sampling regime are appropriate for the long term operation of the MWTP,
- (d) The biosimulator test results and their application in ensuring accurate calibration of the Applied UV dose,
- (e) Whether or not any additional monitoring should be undertaken to ensure the protection of recreational and shellfish gathering waters outside of the Non-Compliance Zone,
- (f) Whether or not the standards referred to in Special Conditions 7(1)(c), 17(2) and Table 2 should remain suspended for the term of the consent (including an appropriate reference to any current national microbiological shellfish quality standards or guidelines that may be promulgated), and
- (g) Such other matters as the MRG considers appropriate.

The above study shall, where appropriate, make reference to the acceptable level of risk of infection detailed in Chapter 5 'Public Health Risk Assessment' of the DRG report titled "Pilot Plant Investigations – Surrogate Study Results and Recommendations" (June 2002).

- (7) The Consent Holder shall request that the MRG provide by 31 November 2004 a "one year monitoring evaluation report" to both the Consent Holder and the Group Manager, including any recommendations as to whether the monitoring referenced in Special Condition 20(4)(b) is appropriate, and whether any changes to the monitoring are appropriate.
- (8) Based on the one year monitoring evaluation report, the Group Manager may review the monitoring requirements set out in the Monitoring Management Plan in accordance with Special Condition 2(8) of this Consent.
- (9) The Consent Holder shall request that the MRG provide, by no later than 31 July 2006, unless agreed in writing by the Group Manager, a final "operation evaluation report" that incorporates the findings of the pre-upgrade, post-upgrade and UV dose system verification studies, including the recommendations as to suitable monitoring tools for safety of beaches referred to in Special Condition 20(4)(d), to the Consent Holder and the Group Manager.
- (10) The Consent Holder shall request that the MRG consults with the following stakeholders prior to finalising the report referenced in Special Condition 20(9) above:
 - (a) the Group Manager;

- (b) The Audit Group;
 - (c) The Community Liaison Group and Neighbourhood Liaison Sub-group;
 - (d) The territorial authorities; and
 - (e) The Auckland District Health Board.
- (11) Following the above review by the MRG, if it considers appropriate to do so after consultation with the Group Manager, may:
- (a) Confirm the appropriateness of the UV dose based standards and associated monitoring programme as defined in Special Condition 25; and/or
 - (b) Recommend any appropriate limits or standards to be met in the effluent discharge for:
 - (i) Any surrogate organism or organisms; and/or
 - (ii) One or more viruses or pathogens, -
 and monitoring to be undertaken to determine compliance with any such limits or standards; and/or
 - (c) Make other recommendations arising from the microbiological study and UV dose system verification study as it considers appropriate.
- (12) Upon receipt of any recommendation by the MRG, under Special Condition 20(11) above, the Consent Holder shall:
- (a) As soon as reasonably practicable, comply with any recommended limits, standards or any other recommendations specified in Special Conditions 20(11)(a) and/or 20(11)(b), and undertake any monitoring required in respect thereto; or
 - (b) No later than 28 days after receipt of any such recommendations specified in Special Conditions 20(11)(a) and/or 20(11)(b) and/or 20(11)(c), apply to the Auckland Regional Council pursuant to section 127(1)(a) of the Resource Management Act 1991 for the purpose of reviewing the conditions of consent in relation to the proposed recommendations, in order to set appropriate limits, or standards, other than that recommended, which the Consent Holder considers are necessary and sufficient to safeguard against potential adverse public health effects through contact recreation and shellfish gathering in the vicinity of the MWTP. For the avoidance of doubt it is hereby recorded that the Consent Holder shall not be in breach of this consent by way of non-compliance with the limits or standards recommended under Special Condition 20(11) above, if it has applied under section 127 as

aforesaid and is proceeding diligently to have the said application heard and determined.

- (13) That in the event that the MRG is unable or chooses not to make recommendations under Special Condition 20(11)(a) or 20(11)(b), or it makes a recommendation under Special Condition 20(11)(c), the ARC may exercise its discretion to review the consent as provided for in Review Condition 5.
- (14) Any limits referred to in Special Condition 20(11)(b) or (c) above shall be set by reference to such limits, standards or recommendations as are necessary to safeguard against potential adverse public health effects through contact recreation and shellfish gathering.

21. LINKAGE

That the Consent Holder shall ensure:

- (a) The oxidation ponds are decommissioned and the pond walls removed and the area presently occupied by the ponds returned to the sea by 1 October 2003;
- (b) Substantial progress in implementing the Coastal and Foreshore Restoration Plan has been achieved by 1 October 2003; and
- (c) The Coastal and Foreshore Restoration Plan has been fully implemented by 1 October 2006.

22. ARCHAEOLOGICAL SITES

That the Consent Holder shall protect and manage in a manner consistent with the provisions of the Outline Management Plan and relevant Detailed Management Plans:

Known Archaeological Sites

- (a) All archaeological sites identified in the application document "Watercare Treatment Plant Area - Archaeological Appraisal" prepared by Russell Foster and Associates for Watercare Services Limited dated May 1996;

Unknown Archaeological Sites

- (b) In the event of archaeological evidence being uncovered (e.g. shell, midden, hangi or oven pit depressions, defensive ditches, artefactual material or human bones), work is to cease in the vicinity of the discovery and a suitably qualified archaeologist is to be contacted so that appropriate action can be taken before work can recommence at the discovery site, and

Waahi Tapu

- (c) All taonga and waahi tapu, identified in consultation with Tangata Whenua and a suitably qualified Archaeologist, that is reasonably expected to be impacted by works associated with this consent.

23. DISPUTE RESOLUTION PROCEDURES

- (1) The DRG shall, before it begins its deliberations, appoint a suitably qualified person as a sole arbitrator to decide, pursuant to the Arbitration Act 1996, any dispute arising where the members of the DRG are evenly divided on any decision, recommendation or action that is to be made or taken by the DRG in terms of Special Conditions 19 and 20, which of the conflicting opinions is to be adopted as the decision, recommendation or action of the DRG. In the event of any such disputes the members of the DRG shall attempt in good faith to resolve such dispute. If the members are unable to achieve resolution within 21 days of the dispute arising the Consent Holder shall submit the dispute to be finally resolved by the sole arbitrator pursuant to the Arbitration Act 1996. The arbitral award shall be final and binding and there shall be no right to appeal against the award or seek judicial review of it in any Court and, in particular, the provisions of Clause 5 of the Second Schedule of the Arbitration Act 1996 shall not apply in respect of any arbitration under this clause. The decision of the arbitrator shall constitute the decision, recommendation or action of the DRG, for the purposes of Special Conditions 19 or 20 of this consent. The costs of and incidental to the arbitration shall be met by the Consent Holder.
- (2) The MRG (or a majority of its members) shall, before it begins its deliberations, appoint a suitably qualified person as a sole arbitrator to decide, pursuant to the Arbitration Act 1996, any dispute arising where the members of the MRG are evenly divided on any decision, recommendation or action that is to be made or taken by the MRG in terms of this Special Condition 20 of this consent, which of the conflicting opinions is to be adopted as the decision, recommendation or action of the MRG. In the event of any such disputes the members of the MRG shall attempt in good faith to resolve such dispute. If the members are unable to achieve resolution within 21 days of the dispute arising the Consent Holder shall submit the dispute to be finally resolved by the sole arbitrator pursuant to the Arbitration Act 1996. The arbitral award shall be final and binding and there shall be no right to appeal against the award or seek judicial review of it in any Court and, in particular, the provisions of Clause 5 of the Second Schedule of the Arbitration Act 1996 shall not apply in respect of any arbitration under this clause. The decision of the arbitrator shall constitute the decision, recommendation or action of the MRG, for the purpose of Special Condition 20 of this consent. The costs of and incidental to the arbitration shall be met by the Consent Holder.

INSECT NUISANCE

24. The Consent Holder shall ensure that the activities authorised by this consent do not give rise to any insect nuisance that is noxious, offensive or objectionable.

25. COMPLIANCE WITH UV DOSE BASED STANDARDS

- (1) That from 1 October 2003 the Consent Holder shall ensure that the discharge shall be disinfected by means of UV irradiation from an artificial source with at least 85% of the available radiation in the wavelength range 250 to 260nm.
- (2) That from 1 October 2003 the Consent Holder shall ensure that the Applied UV Dose exceeds any specified dose set out in Table 6 (annexed) for at least 99% of measurements taken each calendar month.
- (3) That from 1 October 2003 the Consent Holder shall undertake monitoring in accordance with Table 3 and Table 4 (annexed).
- (4) The Consent Holder shall ensure monitoring measurements for each of the following parameters are recorded at 15 minute intervals and in accordance with the Monitoring Management Plan:
 - (a) the instantaneous flow rate at each UV Channel in the Disinfection Facility;
 - (b) the average UV Intensity at 254nm within each UV Bank; and
 - (c) the calculated average Applied UV Dose for each operational UV Channel over the preceding 15 minute period.
 - (d) any other parameter(s) as determined by the MRG as a result of any recommendations that may apply as a result of Condition 20(11).
- (5) That the Consent Holder shall ensure that continuous recorders for those items listed in Special Condition 25(4) are provided and maintained in good working order and in accordance with the Operations Management Plan.
- (6) That the Consent Holder shall undertake monitoring in accordance with Table 5 (annexed) when the following conditions apply:
 - (a) Level 2 operating conditions; or
 - (b) Enterococci indicator bacteria exceed the Table 4 trigger level from 1 October 2005; or
 - (c) Maximum UV dose is being applied to bypass flows ($>9\text{m}^3/\text{s}$) in accordance with Table 6 but the Applied UV Dose is less than $35\text{mWs}/\text{cm}^2$ for more than 30 minutes; or

- (d) In the event that effluent from the treatment plant has not been subjected to the appropriate UV dose as defined in Table 6.
- (7) That the Consent Holder shall ensure that in the event of any mechanical or electrical failure in the monitoring system specified in Special Condition 25(4), then, until that failure is rectified, the following conditions will apply:
- (a) if practicable, the affected UV Channel(s) shall not be used.
 - (b) if it is impracticable not to use the affected UV Channel(s), and if the failure relates only to one or two UV Bank(s) within each channel(s), then the UV Dose to be applied to those channel(s) shall be calculated by reference to the monitoring data obtained from the other UV Bank(s) within each UV Channel(s).
 - (c) if it is impracticable not to use the affected UV Channel(s), and if the failure relates to one or more entire UV Channel(s), then those channel(s) shall be subject to the Maximum UV Dose.
- (8) The Consent Holder shall provide and maintain an alarm system connected to a 24 hour manned station, which shall be activated:
- (a) when the power supply to the Disinfection Facility has been interrupted; or
 - (b) in the event of any mechanical or electrical failure of the monitoring system specified in Special Condition 25(4) or any other failure in the control system for the Disinfection Facility for more than 30 minutes.
 - (c) in the event that there has been a discharge of effluent for more than 30 minutes that has not been subjected to the required Applied UV dose.
- (9) In the event that the Consent Holder becomes aware that there has been a discharge of effluent for more than 30 minutes that has not been subjected to the required Applied UV Dose, then:
- (a) the Consent Holder shall notify the Group Manager as soon as practicable and no later than 48 hours afterwards;
 - (b) unless the Table 5 monitoring is already being undertaken, then monitoring shall be implemented in accordance with Table 5; and
 - (c) the Consent Holder shall record the reasons why the situation occurred, the actions taken by the Consent Holder, and an assessment of what measures can be adopted in the future to minimise such occurrences, and, if requested, shall provide a report to the Group Manager.

- (10) That the Consent Holder shall keep all recorded monitoring data specified in Special Condition 25(4) on site for a minimum of five years. The monitoring records shall be made available to a warranted ARC officer, or their agent, upon request.
- (11) The Consent Holder shall report to the Group Manager on or before 1 October 2005, 1 October 2007, 1 October 2009 and thereafter at five yearly intervals as to whether there has been any further technology developments representing the best practicable option for detecting viruses in the influent to the MTWP.

26 STUDY INTO THE POTENTIAL DEVELOPMENT OF A SENTINEL PUBLIC HEALTH PROGRAMME

- (1) The Consent Holder shall commission an independent study into the potential development of a Sentinel Public Health Programme in consultation with the MRG. The study shall investigate:
 - (a) The relationship between the incidence of illness in the catchment community and enterovirus concentrations in the sewage received at the WTP.
 - (b) The feasibility of implementing a Sentinel Public Health Programme to assist with the control of the Disinfection Facility.
- (2) Following the independent study the Consent Holder shall supply a copy of the independent study to the MRG in the event that the MRG may wish to make recommendations to the Consent Holder on the benefits of a Sentinel Public Health Programme.
- (3) In the event that the MRG recommends that there would be a significant public health benefit in pursuing the Sentinel Public Health Programme the Consent Holder shall forward such a recommendation to the Group Manager.

ADVICE NOTES

1. WASTEWATER 2000 OUTCOMES

In exercising this resource consent, the Consent Holder shall have regard to the Wastewater 2000 outcomes including the following:

“The purpose of the consent is to achieve or promote the following goals or outcomes in relation to the upgrading and operation of the MWTP, which were agreed as a result of the Wastewater 2000 consultation process:

- (a) To support the progressive improvement and restoration of the Manukau Harbour towards a healthy natural state.
- (b) To seek to ensure that effluent (after initial mixing) will not prevent any part of the Harbour from meeting recognised standards for:
 - (i) swimming and surface recreation; and
 - (ii) the free breeding and safe human consumption of fin fish and shellfish.
- (c) To treat effluent to the best practicable standards, recognising that it may not be possible to avoid having an adversely impacted area in the vicinity of a shoreline discharge.
- (d) To ensure that the Manukau Harbour is not used for the treatment of effluent.
- (e) To ensure that the proliferation of undesirable biological growth as a result of discharge of nitrogen is avoided.
- (f) To upgrade and operate the MWTP so as to avoid:
 - (i) offensive odours;
 - (ii) air emissions that are injurious to health or property; and
 - (iii) insect nuisances.
- (g) To develop protocols to ensure that the on-site handling and use of sludge and sludge-derived product, for landforming and landscaping does not produce adverse odour effects or health hazards.
- (h) To preserve possibilities for future options to maximise economically sustainable and beneficial reuse of treated effluent.
- (i) To restore as much as possible of the former harbour bed to its natural marine estuary condition.

- (j) To recognise the Tangata Whenua customary and traditional relationships with the Manukau Harbour.

2. WAIKATO TAINUI OUTCOMES

In exercising this consent, the Consent Holder shall have regard to issues of significance to Tangata Whenua, including the following:

Vision Statement: Continued Discharge

- (1) It is recognised by the Consent Holder that Waikato - Tainui do not support, endorse or condone the discharge of effluent, treated or untreated, into the Manukau Harbour. Waikato - Tainui have accepted that these consents allow such discharge on the understanding that the Consent Holder will act to mitigate the effects of the discharge until such time as the findings of an extensive and thorough investigation into alternative effluent discharge and beneficial re-use disposal options are developed.

and, in doing so, the Consent Holder will:

Iwi Management Plan

- (a) Ensure that the activities allowed by these consents and the associated management plans are undertaken in manner that is not inconsistent with the Waikato Iwi Resource Management Plan: Manukau;

Representation

- (b) Recognise Waikato - Tainui as the Tangata Whenua and Kaitiaki of the environment of the Manukau Harbour, and respect and work within the structure of Waikato - Tainui Iwi;

Consultation with Tangata Whenua for the Manukau Harbour

- (c) Consult in the first instance with the Huakina Development Trust, or its successor, as representatives of the Kaitiaki of the Manukau Harbour and the environmental authority of the Tainui Maori Trust Board, or its successor.
 - (d) Thereafter, ensure that all parties shall demonstrate the claim to represent Tangata Whenua for the Manukau Harbour, by way of written agreement; and
 - (e) Consult with Tangata Whenua in good faith.
- (2) In undertaking consultation, it is acknowledged by Waikato - Tainui that the Consent Holder has an obligation to consult widely with all affected parties as part of the resource consent process.

Waahi Tapu

- (3) The Consent Holder and all those exercising authority under these consents acknowledge the status and responsibility of Kaumatua of the Manukau to protect waahi tapu and give appropriate cultural consideration and access at all times to such waahi tapu. In this regard, the protocols and management of waahi tapu shall be carried out in a manner consistent with protocols appended to the Outline Management Plan.

3. ARCHAEOLOGICAL SITES

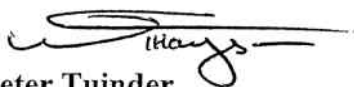
All archaeological sites are protected under the Provisions of the Historic Places Act 1993. It is an offence under the Act to destroy, damage or modify any archaeological sites, whether or not the site is entered on the New Zealand Historic Places Trust Register of historic places, historic areas, waahi tapu and waahi tapu areas without the consent of the Trust. Under sections 11 and 12 of that Act, applications may be made to the Trust for consent, where avoidance of effects is not practicable.

It is the responsibility of the Consent Holder to obtain the necessary Authorities under the Historic Places Act 1993, should these become necessary as a result of any activity associated with this consent.

RECOMMENDATION

The conditions of this consent have been changed by Auckland Regional Council pursuant to the Resource Management Act following written permission of the Minister of Conservation. Permit 30083 now replaces Permit 26635.

FP



Peter Tuinder
Group Manager,
Consents & Consents Compliance
Auckland Regional Council

Date: 16 November 2005

Table 1 Effluent Standards at the MWTP Pond 4 Outfall

Effluent Parameter	Unit	Sample Type	Sample Frequency	Standard
Flow	m ³ /d	instantaneous	continuous	record only at the Eastern and Western interceptor
Temperature	° C	instantaneous	continuous	record only
pH	pH units	composite of each discharge	twice daily	all samples within range 6 - 9
Dissolved Oxygen	% saturation	instantaneous	continuous	record only
Total Biochemical Oxygen Demand ⁽¹⁾	gO/m ³	composite of each discharge	one analysis daily	Maximum monthly mean 45 95 percentile over 3 months 90 maximum not to exceed 120
Soluble Biochemical Oxygen Demand ⁽²⁾	gO/m ³	composite of each discharge	one day per week	record only
Non-Filterable Residue	g/m ³	composite of each discharge	twice daily	Maximum monthly mean 70 95 percentile over 3 months 110 Maximum not to be exceeded 150
Oil and Grease	g/m ³	composite of each discharge	7 day composites analysed weekly	record only
Total Ammonia (as N)	gN/m ³	composite of each discharge	7 day composites analysed weekly	Maximum monthly mean 38
Nitrate plus nitrite (as N)	gN/m ³	composite of each discharge	7 day composites analysed weekly	record only

TABLE 1 (CONTINUED)

Effluent Parameter	Unit	Sample Type	Sample Frequency	Standard
Total Kjeldahl nitrogen	gN/m ³	composite of each discharge	7 day composites analysed weekly	record only
Total nitrogen ⁽³⁾	gN/m ³	composite of each discharge	7 day composites analysed weekly	Maximum monthly mean 52
Dissolved Reactive Phosphorus	gP/m ³	composite of each discharge	7 day composites analysed weekly	Maximum monthly mean 10
Total phosphorus	gP/m ³	composite of each discharge	7 day composites analysed weekly	Maximum monthly mean 10
Enterococci bacteria	Cfu/100 ml	composite of each discharge	twice daily	Maximum monthly median <5000
Faecal coliform bacteria	Cfu/100 ml	composite of each discharge	twice daily	Maximum monthly median <50,000

(1) unfiltered 5-day carbonaceous BOD

(2) filtered 5-day carbonaceous BOD

(3) total Kjeldahl N plus Nitrate & Nitrate N

Table 2 Effluent Standards at the MWTP Outlets as Described in Condition 12, 13 and Figure 1(b)

Effluent Constituent	Mon. Site	Unit	Sample Type	Sample Frequency	Standard
Flow	M1 M15	m ³ /day	instantaneous	continuous	Record only ⁽⁷⁾ , (11)
Temperature	M15	°C	instantaneous	continuous	Record only
PH	M15	pH units	composite of each discharge ⁽⁹⁾	twice daily	All samples within range 7-9, 95% of the time on a 12 month rolling average. Minimum not to be less than 6.5.
Dissolved oxygen	M15	% saturation	instantaneous	continuous	Minimum monthly mean 80%
Turbidity	M9	NTU	instantaneous	continuous	Record only
Total biochemical oxygen demand ⁽¹⁾	M15	gO/m ³	composite of each discharge ⁽⁹⁾	twice daily	Maximum monthly mean 15; 95 percentile over 3 months not to exceed 30. ⁽⁶⁾ Maximum not to be exceeded 50.
Soluble biochemical oxygen demand ⁽²⁾	M15	gO/m ³	composite of each discharge ⁽⁹⁾	one day per week	Record only
Non-Filterable residue	M15	g/m ³	composite of each discharge ⁽⁹⁾	twice daily	Maximum monthly mean 15; 95 percentile over 3 months not to exceed 30 ⁽⁶⁾
Oil and grease	M15	g/m ³	composite of each discharge ⁽⁹⁾	7 day composites analysed weekly	Maximum monthly mean 0.5

TABLE 2 (CONTINUED)

Effluent Constituent	Mon. Site	Unit	Sample Type	Sample Frequency	Standard
Total ammonia (as N) - summer ⁽³⁾ - winter ⁽⁴⁾	M15	g/m ³ g/m ³	composite of one discharge ⁽⁹⁾	composite sample from one discharge, collected and analysed on Tuesday, Thursday and Saturday of each week	Maximum monthly mean 3.0. Maximum not to be exceeded 6.0 Maximum monthly mean 5.0. Maximum not to be exceeded 15.0
Nitrate plus nitrite (as N)	M15	g/m ³	composite of each discharge ⁽⁹⁾	7 day composites analysed weekly	Record only
Total Kjeldahl nitrogen	M15	g/m ³	composite of each discharge ⁽⁹⁾	7 day composites analysed weekly	Record only
Total nitrogen ⁽⁵⁾ - summer ⁽³⁾ - winter ⁽⁴⁾	M15	g/m ³ g/m ³	composite of each discharge ⁽⁹⁾	7 day composites analysed weekly	Maximum monthly mean 9.5 Maximum monthly mean 35
Dissolved reactive phosphorus	M15	g/m ³	composite of each discharge ⁽⁹⁾	7 day composites analysed weekly	Maximum monthly mean 9
Total Phosphorus	M15	g/m ³	composite of each discharge ⁽⁹⁾	7 day composites analysed weekly	Record only
Faecal coliform bacteria	M15	Cfu/100ml	composite of each discharge ⁽⁹⁾	twice daily ⁽¹⁰⁾	Maximum monthly median 80 ⁽⁸⁾ 95 percentile over 3 months not to exceed 250 ⁽⁶⁾⁽⁸⁾

NOTES TO TABLE 2

<p>(1) Unfiltered 5-day carbonaceous BOD</p> <p>(2) Filtered 5-day carbonaceous BOD</p> <p>(3) December - March inclusive</p> <p>(4) April - November inclusive</p> <p>(5) Total kjeldahl N plus Nitrate & Nitrite N</p> <p>(6) 3-month periods: Jan-Mar; April-June; July-Sept; Oct-Dec. The 95 % ile should be calculated as in Microsoft Excel version 7 or any authorised updates of this method.</p> <p>(7) All concentration standards apply to annual average flow up to 390,000 m³/day, thus defining the maximum permitted mass discharge.</p> <p>(8) For the avoidance of doubt this is the standard referred to in Special Condition 12(5).</p>	<p>(9) Flow proportional composite from each discharge period.</p> <p>(10) One flow proportional composite sample shall be taken for the first 2.5 hours of each discharge period (or one sample for the entire discharge period if the period is shorter than 2.5 hours). Where discharge periods are greater than 2.5 hours, a further flow proportional composite sample shall be taken for each further 2.5 hours of the discharge period or part thereof. The sampling receptacle should be emptied after each composite sample is taken. All such samples shall be included for the purposes of calculating the maximum monthly median.</p> <p>(11) Record total pump hours per discharge period</p> <p>Exception: If the mean daily flow of 390,000 cubic metres is exceeded the Consent Holder shall submit to the Group Manager, within two weeks of the exceedence, a report providing an explanation for the exceedence. The Group Manager shall take such action, if any, which it considers appropriate following the receipt of the report.</p>
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Table 3: Wastewater Treatment Plant Influent Monitoring Programme

Influent Constituent	Monitoring Site	Unit	Sample Type	Sample Frequency	Standard
Enterovirus	M1	pfu/L or TCID ₅₀ /L or detectable units/L	Grab sample	Samples to be taken at no greater than eight day intervals	Record only

Table 4: UV Operational Monitoring

Constituent	Monitoring Site	Unit	Sample Type	Sample Frequency	Trigger
Enterococci bacteria	M10 ⁽⁵⁾	cfu/100 mL	composite of each discharge ⁽¹⁾	twice daily ⁽²⁾ from 1 October 2003	80 ⁽³⁾ .
F-specific bacteriophage ⁽⁴⁾	M9 and M10	pfu/mL	Grab sample	Monthly for first year and then quarterly	Record only
<i>Clostridium perfringens</i> spores ⁽⁴⁾	M9 and M10	MPN/100 mL	Grab sample	Monthly for first year and then quarterly	Record only

(1) Flow proportional composite from each discharge period as or other such appropriate sampling methodology as approved in writing by the Group Manager, and as detailed in the Monitoring Management Plan.	(3) Any exceedance of this value, or such other value as approved in writing by the Group Manager, from 1 October 2005 shall trigger sampling as per Special Condition 25(6).
(2) One flow proportional composite sample shall be taken for the first 2.5 hours of each discharge period (or one sample for the entire discharge period if the period is shorter than 2.5 hours). Where discharge periods are greater than 2.5 hours, a further flow proportional composite sample shall be taken for each further 2.5 hours of the discharge period or part thereof. The sampling receptacle should be emptied after each composite sample is taken.	(4) Where concentrations at monitoring site 'M9' are sufficient, then F-specific bacteriophage shall be used preferentially over <i>Clostridium perfringens</i> spores.
(5) The monitoring site referenced here as 'M10' shall be located in the UV disinfection facility outlet weir, such that all flows, including any bypass flows, are sampled.	

Table 5: Monitoring Triggered by Special Condition 25(6)

Constituent	Monitoring Site	Unit	Sample Type	Sample Frequency	Standard
Enterovirus	Shellfish at Nga Kuia E Toru	pfu/100 g or TCID ₅₀ /100 g	3 replicate composite samples of shellfish flesh	48 hours after Trigger Level has been exceeded, and then monthly until enterovirus concentrations reach Background Levels.	Record only

Table 6: UV Disinfection Facility Minimum Applied UV Dose.

Influent Sewage Flow	Minimum Applied UV Dose ⁽¹⁾ to secondary treated effluent (mWs/cm ²)	Minimum Applied UV Dose to bypassed secondary treated effluent (mWs/cm ²)
Level 1		
All flows below 9 m ³ /s	35	-
All flows above 9m ³ /s	35	Maximum Output ⁽²⁾
Level 2		
All flows below 6 m ³ /s	75	-
All flows between 6 m ³ /s and 7.5 m ³ /s	60	-
All flows between 7.5 m ³ /s and 9 m ³ /s	50	-
All flows above 9m ³ /s	40	Maximum Output ⁽²⁾

1. Condition 25(2) applies.	2. Where Maximum Output is applied to bypass flows over 9m ³ /s, then Special Condition 25(6)(c) shall apply.
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