

6.0 RULES

6.1 Summary of Authorisation Categories for Different Activities

Activity Status	Description	Must Comply with the Following Conditions/Standards
Permitted	Discharges of dairy sludge and/or farm dairy washwater onto or into land.	Conditions 6.2.1.1 - 6.2.1.5
Controlled	Discharges of farm dairy washwater from a specification two pond treatment system into water, except for natural wetlands and the prohibited activities below.	Standards 6.3.1.1 - 6.3.1.9 Matters 6.3.2.1 - 6.3.2.5 Applications for resource consents are assessed against Policies 5.1 - 5.4
Discretionary	Discharges of dairy sludge or farm dairy washwater onto land which do not comply with the conditions for the permitted activities.	Criteria 6.4.3 - 6.4.4 Applications for resource consents are assessed against Policies 5.1 - 5.4
Discretionary	Discharges of farm dairy washwater into water which do not comply with the standards for controlled activities, except for the prohibited activities below.	Criteria 6.4.3 - 6.4.4 Applications for resource consents are assessed against Policies 5.1 - 5.4
Non-complying	This Plan does not classify any activities as non-complying.	
Prohibited	Discharges of untreated farm dairy washwater or dairy sludge into water.	

Activity Status	Description	Must Comply with the Following Conditions/Standards
Prohibited	Discharges of farm dairy washwater (untreated or treated) into the freshwater lakes or into water draining the lake catchments identified on Sheets 1 and 2 of the attached Maps.	

6.2. Permitted Activities

6.2.1. The discharge of dairy sludge and/or farm dairy washwater onto or into land which complies with Conditions 6.2.1.1 - 6.2.1.5 is a permitted activity.

Conditions:

6.2.1.1 The application rate of nitrogen from any combination of dairy sludge, farm dairy washwater and nitrogenous fertiliser shall be:

- (a) at a rate not exceeding the equivalent of 150 kgN/ha/year and 30 kgN/ha/day in the following areas:
 - (i) those areas underlain by aeolian sands (Awhitu, Kaipara, Taporā, Pakiri, Omaha Flats); OR
 - (ii) those areas underlain by volcanic basalt (Pukekohe, Puni, Waiuku, Bombay, Mangere); OR
- (b) at a rate not exceeding the equivalent of 200 kgN/ha/year and 50 kgN/ha/day, on low permeability clayey soils of low vulnerability due to poor groundwater quality/yield; OR
- (c) at a higher rate where it can be demonstrated by site-specific analysis, to the satisfaction of the ARC prior to application occurring, that existing or reasonably foreseeable uses of the groundwater or receiving water would not be compromised.

Explanation:

*The daily application rate is based on maximum recommended nitrogen application rates for pasture growth which minimise leaching rates of nitrates to soil water. This also assumes that the total nitrogen content of wet sludge is 0.166% and that 50% of the applied nitrogen to pasture is the mineralised organic fraction immediately available for plant uptake. **For further information on this topic refer to Appendix A.***

6.2.1.2 Farm dairy washwater and dairy sludge shall be spread in a manner and in places which ensure that run-off does not result at any time

Explanation:

Management of the land application of washwater must ensure that the rate of application does not exceed the soil's infiltration capacity. This will depend on a number of factors including soil water status, slope, pasture cover, type of spreading device, weather conditions at the time and incidence of pugging by stock. Consequences of excessive application rates include anaerobic soil conditions, hydraulic overloading of soil (saturation), pasture damage and breakdown of soil structure.

6.2.1.3 Washwater or dairy sludge shall not be applied onto land or injected into land in such a place or in such circumstances that it may enter:

- (a) a water body that is not part of the washwater treatment system, or
- (b) any water supply bore, or
- (c) the coastal marine area.

Explanation:

An appropriate separation distance is essential to minimise any adverse effects of the placing of washwater onto or into land. The safe and responsible placing of washwater and/or dairy sludge near water bodies and other notable features, will require the operator to consider the risk of runoff due to site specific conditions.

6.2.1.4 For dairy washwater there shall be contingency measures in place to ensure that there is no contravention of the above conditions in the event of duty pump or other system failure.

Explanation:

There must be either an alternative means of disposing of the washwater onto the irrigable area, or provision for storage in the event of system failure.

6.2.1.5 A financial contribution shall be paid to the ARC before 30 June each year. This amount shall be determined in accordance with the ARC's Schedule of Administrative Charges. For the year 1998/99 it shall not exceed \$50. Any future increases in this fee shall not exceed the rate of C.P.I. The charges relate to the following purposes:

- (a) cost of monitoring and inspecting washwater disposal system.
- (b) cost of managing the ARC's dairy washwater system database.
- (c) cost of ARC response to minor non-compliance issues by means of correspondence and educational material.
- (d) cost of specific scientific investigations undertaken by or on behalf of the ARC into the effects of dairy washwater application onto land.
- (e) cost of investigating and monitoring emerging technology for washwater treatment and disposal and dissemination of information in this regard.

Explanation:

The ARC is required to gather information, monitor and keep records as necessary to carry out its functions under Section 35 of the Resource Management Act 1991. Section 108 of the Act authorises consent authorities to impose conditions requiring financial contributions for any purpose specified in the Plan.

6.3. Controlled Activities

The Resource Management Act requires that any rule relating to a controlled activity must state:

- (a) *The standards with which the activity must comply. The ARC cannot refuse consent for a controlled activity if it meets the standards set out in the plan; and*
- (b) *The matters over which the ARC will exercise its control. The ARC can impose conditions pursuant to Section 108 of the Resource Management Act in respect of the matters which are listed as being applicable to any controlled activity.*

6.3.1. The discharge of at least secondary treated farm dairy washwater from a specification two pond treatment system to a water body, excluding natural wetlands, and freshwater lakes or into water bodies draining the lake catchments identified on sheets 1 and 2 of the attached maps, that complies with Standards 6.3.1.1 - 6.3.1.9 is a controlled activity, and shall require a resource consent.

Standards:

6.3.1.1 There shall be at least two ponds for the treatment of farm dairy washwater, comprising an anaerobic pond followed by an aerobic pond.

6.3.1.2 The required sizing of the anaerobic pond(s) shall be based on the following factors:

- (a) BOD loading of 90 grams per cow per day, unless it can be demonstrated otherwise (to the satisfaction of the ARC). The maximum milking herd size shall be used in calculating the total BOD loading.
- (b) 28 grams BOD/m³/day for seasonal-supply milking, and 24 grams BOD/m³/day for year-round or winter milking.¹

Explanation:

The required size of the treatment pond system for effectively treating washwater is directly proportional to the number of cows milked. The reduction of BOD before discharge to the environment is a prime consideration.

6.3.1.3 The anaerobic pond(s) shall have the following minimum requirements:

- (a) Pond depth shall be at least 3.0 metres vertical height between embankment crest and pond floor.

Explanation:

In order for the anaerobic process to function properly, there must be a depth of at least 3 metres so as to exclude interaction of any dissolved oxygen from the air.

¹ The B.O.D. loadings are based on research data from various sources (see References)

- (b) The anaerobic pond(s) shall be desludged at least once in every five years, or when sludge has accumulated to half of the normal depth at the middle of the pond. At least 10% of the total pond volume shall be left in the pond after desludging.

Explanation:

Over-accumulation of sludge decreases retention time of washwater in the pond, thus decreasing treatment efficiency and increasing the risk of solids passing through to the aerobic pond. The complete emptying of anaerobic pond systems can also have a detrimental effect on the population and activity of the anaerobic bacteria that are necessary for the decomposition process. Effective sealing of the pond may also be harmed if all sludge is removed.

6.3.1.4 The aerobic pond(s) shall have the following minimum requirements:

- (a) the aerobic pond(s) shall be preceded by at least one appropriately sized and constructed anaerobic pond.
- (b) the surface area shall be calculated on the basis of providing at least 1m² per 8.4g BOD load or 3.25 m² per cow. In the case of winter milk farms or year round milking, the above surface area requirement shall be increased by 20%. The maximum milking herd size shall be used in calculating the required pond area.

Explanation:

The surface area calculation is based on research data from various sources listed in the References and assumes 70% BOD removal in the preceding anaerobic pond(s). The 20% requirement is a best estimate to compensate for additional waste BOD loadings due to added milking time through the year and decreased pond treatment activity over the colder months.

- (c) pond depth shall be no greater than 1.5 metres vertical height between embankment crest and pond floor.

Explanation:

At depths greater than about 1.5m, aerobic activity decreases markedly, inhibiting the rate of aerobic decomposition.

6.3.1.5 Consent holders shall ensure that ponds used for the storage and treatment of farm dairy washwater meet the following criteria:

- (a) all washwater from the milking yard and pit shall be collected and directed into the pond system; and
- (b) no material other than farm dairy washwater shall be allowed to enter the treatment system. The total BOD entering the treatment system (in any 30 day period) shall not exceed the design capacity of the treatment system (as specified in conditions 6.3.1.2 and 6.3.1.4).

Explanation

The treatment ponds, specified under the controlled activity 6.3.1, are designed to treat a limited quantity of BOD. Exceeding this amount will overload the treatment system and reduce the quality of the discharge to an unacceptable level. Utilising the treatment ponds to treat effluent resulting from standing cattle off pastures is acceptable, providing the loading is not exceeded. It has been estimated that the effluent produced by the entire dairy herd standing on the yard for up to 6 x 20 hour days in any 30 day period will not exceed the design loading, providing there are no other inputs.

- (c) clean water shall as far as possible be diverted from entering the treatment system. Roof water and watertank overflows shall not enter the treatment system on current and new pond systems, except when such water is used for normal washdown purposes.

A clean water diversion gate shall be required:

- (i) in any new pond systems built after the adoption of the Plan.
- (ii) on existing systems where there is a demonstrable problem relating to excess clean water inflow, or if the roof water has not already been diverted.
- (iii) on additional yard areas (such as stand off pads and feed pads) that are connected to the pond system.

The diversion shall prevent clean yard water entering the pond system when the yard is not in use; and

- (d) pipes which discharge washwater into ponds shall be positioned so as not to cause erosion of the pond embankment; and
- (e) suitable baffles shall be installed at the outlet of each pond to prevent excessive solids and floatable material from passing out. Baffles shall be arranged so as not to allow a siphon effect to occur at any time and to ensure that at least 400 mm freeboard is maintained between the highest pond level and the lowest point of the embankment crest.

Explanation:

400mm is a recommended minimum freeboard so as to prevent overtopping and damage to the embankment crest from wave action.

- (f) baffles shall be kept clear of weeds and other obstructive matter so that normal outflow is not impeded.

- 6.3.1.6** Ponds shall be fenced so as to prevent uncontrolled entry and grazing of stock on the embankments.

Explanation:

Stock can seriously damage the embankment crest, resulting in erosion and weakening of the embankments.

- 6.3.1.7** Vegetation shall not be allowed to encroach into or grow on the surface of any pond.

Explanation:

Weed growth, particularly over the aerobic pond, greatly reduces the action of sunlight and atmospheric oxygen in treating the ponded effluent. Weed growth can also block pipes causing over-topping and weakening of the embankments.

- 6.3.1.8** The maximum total ammonia level in the receiving water after reasonable mixing shall not exceed 0.7g/m^3 , or such greater concentration as will not have an adverse environmental impact to the satisfaction of The Director Environmental Management, Auckland Regional Council.

Explanation:

This level has been demonstrated in research overseas and in New Zealand to be the level required for the protection of sensitive aquatic organisms in terms of long term exposure.

Auckland farm dairy washwater oxidation pond systems median ammonia levels are approximately 77g/m^3 total ammonia at the point of discharge (ARWB 1990a), therefore a minimum of 100 times dilution will be required in the receiving water to assimilate the ammonia concentration.

Many Auckland streams have insufficient dilution to assimilate the ammonia in treated washwater to safe levels, for all or part of the year. The discharge from most farms is currently centered around the milking and washdown period and therefore occurs in two pulses per day. The dilution required for any discharge is dictated by washwater volume in relation to stream flow. Any mechanism which smoothes out the discharge to an even rate will assist the operator in meeting the discharge criteria, so methods of spreading the discharge period or improving the diffusion rate of the discharge should be considered. These could include using a smaller diameter outlet structure or application to a vegetated area. The use of a particular option will be the decision of the individual operator.

*National Institute of Water and Atmospheric Research (NIWA) was contracted by the ARC to provide a dilution model which can be applied to any catchment in the Auckland Region. The model considers catchment hydraulic data and provides information about the assimilative capacity of a stream or waterway with respect to multiple discharges and cumulative effects. The model takes account of return-period low flows, and width of stream at the point of discharge in relation to dispersion characteristics. The model will be a tool used to assess whether there is 'sufficient dilution' and whether such dilution is available throughout the year. **For further information on this topic refer to Appendix C.***

6.3.1.9 Any new pond(s) constructed after the date that this Plan becomes operative shall not be located:

- (a) in flood-prone areas or in areas unduly subject to surface water or ground water intrusion, or
- (b) in such a place where seepage of contaminants may enter and potentially cause adverse effects on:
 - (i) a water body that is not part of the washwater treatment system, or
 - (ii) any water supply bore, or
 - (iii) the coastal marine area.

Explanation:

The safe and responsible placement of new pond systems in proximity to water bodies and other notable features will require consideration of potential adverse effects. The ARC has not prescribed a separation distance as this will vary on a case by case basis depending on site specific considerations. In doing this the ARC recognises that operators know their own situations best and intends to enable them to utilise their knowledge to support decisions about appropriate system siting.

6.3.2 Matters over which the ARC may Exercise Control

The following matters may be considered by the ARC for inclusion as conditions of any resource consent to discharge farm dairy washwater under Rule 6.3.1:

6.3.2.1 Pond siting and construction, including materials used, batters and pipeworks;

6.3.2.2 Measures to avoid, remedy or mitigate adverse effects on matters of cultural and historical significance to tangata whenua, including the location of discharges and ponds in proximity to areas of special value as identified in the *Proposed Regional Plan: Coastal 1995*;

6.3.2.3 Measures to avoid, remedy or mitigate adverse effects on the following:

- (1) areas identified as being susceptible to degradation and/or with special values as detailed in Tables 8.1 and 8.2 and Map Series 5 Maps 1-4 in the *Proposed Auckland Regional Policy Statement 1994*; and
- (2) heritage resources (including natural, geological, cultural and landscape resources) identified in the *Proposed Auckland Regional Policy Statement 1994* as having significant values; and
- (3) Coastal Protection Areas as identified in the *Proposed Regional Plan: Coastal 1995*.

6.3.2.4 Monitoring requirements for the discharge.

6.3.2.5 The maximum consent term shall be 15 years in accordance with the recommendations in Section 3 of Appendix B.

6.3.3 Notification of Controlled Activities

Applications for controlled activities will be considered without notification or the need to obtain the written approval of affected parties, in accordance with Section 94(1)(b) of the Resource Management Act unless, in the opinion of the ARC, there are special circumstances justifying notification in accordance with Section 94(5) of the Resource Management Act.

6.4 Discretionary Activities

6.4.1 The discharge of dairy sludge or farm dairy washwater onto land where that discharge does not comply with the conditions for a permitted activity is a discretionary activity and shall require a resource consent.

6.4.2 The discharge of farm dairy washwater into a water body where that discharge does not comply with standards 6.3.1.1 - 6.3.1.9 for a controlled activity is a discretionary activity and shall require a resource consent.

6.4.3 Applications for discretionary activities shall demonstrate that the proposal is the best practicable option (as defined in Section 2 (1) of the Resource Management Act) and shall be assessed against the following criteria:

- (1) that the volume and level of contamination of the discharge has been minimised to the greatest extent practicable; and
- (2) any adverse effects on people or communities shall be avoided, remedied or mitigated where practicable; and
- (3) adverse effects on the present and reasonably foreseeable use of the receiving waters for recreation purposes and the suitability of fish and shellfish for consumption have been avoided, and where this is not practicable, remedied or mitigated; and
- (4) the discharge, after reasonable mixing, does not, either by itself or in combination with other discharges, give rise to any or all of the following effects:
 - (a) the production of any conspicuous oil or grease films, scums or foams, or floatable or suspended materials;
 - (b) any emission of objectionable odour;
 - (c) the rendering of fresh water unsuitable for consumption by farm animals;
 - (d) any significant adverse effects on aquatic life and the life-supporting capacity of air, water, soil and ecosystems;
 - (e) any significant adverse effects on aesthetics or amenity.

6.4.4 In assessing the types of discharges specified in 6.4.3, particular regard shall be given to the protection of the values of the following:

- (1) areas identified as being susceptible to degradation and/or with special values as detailed in Tables 8.1 and 8.2 and Map Series 5: Maps 1 - 4 in the *Proposed Auckland Regional Policy Statement 1994*; and

- (2) areas of significance to tangata whenua as identified in the maps of the *Proposed Auckland Regional Policy Statement 1994* and in the *Proposed Regional Plan: Coastal 1995*; and
- (3) heritage resources (including natural, geological, cultural and landscape resources) identified in the *Proposed Auckland Regional Policy Statement 1994* as having significant values; and
- (4) Coastal Protection Areas as identified in the *Proposed Regional Plan: Coastal 1995*.

6.4.5 Notification of Discretionary Activities

An application for a resource consent need not be notified in accordance with section 94 of the Resource Management Act if:

- (a) the consent authority (in this case the ARC) is satisfied that the adverse effect on the environment of the activity for which consent is sought will be minor; and
- (b) written approval has been obtained from every person who, in the opinion of the consent authority, may be adversely affected by the granting of the resource consent unless, in the authority's opinion, it is unreasonable in the circumstances to require the obtaining of every such approval.

6.5. Prohibited Activities

- 6.5.1 The discharge of untreated farm dairy washwater or dairy sludge into a water body is a prohibited activity.**
- 6.5.2 The discharge of farm dairy washwater (untreated or treated) into the freshwater lakes or into water draining the lake catchments identified on Sheets 1 and 2 of the attached Maps is a prohibited activity.**

6.6 Rule Relating to other Regional Plans

This Plan does not authorise any land use or discharge activity which is controlled in any way by other regional plans. For example, if the discharge is into the coastal marine area, then the provisions of the *Proposed Regional Plan: Coastal 1995* shall apply.

6.7 Time Frames for Lodging of Resource Consent Applications

The rules in this Plan will become operative in each of the catchments in the region at the time specified in the Table below, and as shown on Sheets 3 and 4 of the attached Maps.

All new dairy farms established after the adoption of this Plan are required to comply with the Plan prior to the commencement of milking (refer to the table under 6.1 for activity status).

Priority and Active Date	Catchment Areas
Priority 1	
6 months from the date that the Plan becomes operative.	Waitapu Waiteitie Oruawharo Tauhoa Okahukura Peninsula Lower Hoteo Hays Stream (upstream of Hays Creek Road)
Priority 2	
1 year from the date that the Plan becomes operative.	Mangawhai Poutawa Stream Pakiri Whangateau Matakana Mahurangi Puhoi Waiwera Orewa Weiti Upper Waitemata

Priority 3	
18 months from the date that the Plan becomes operative.	Kaipara South Head Ototoa/Kuwakatai Lake West Kaipara River Lower Kaipara River Muriwai Kumeu Ararimu Kaukapakapa Upper Kaukapakapa Makarau Araparera
Priority 4	
2 years from the date that the Plan becomes operative.	Pakuranga Otara Turanga Mangere West Airport Pukaiki/Waokauri Papakura Stream Waikopua Lower Wairoa Taitaia Hays Stream (downstream of Hays Creek Road) Hingaia Mangawheau Upper Wairoa Hunua Aroaro/Awahero Orere South East Wairoa

Priority 5	
30 months from the date that the Plan becomes operative.	Awhitu West Coast South Matakawau Rangiriri/Ohiku Kohonui/Te Hakono Waipipi West Waiuku
Priority 6	
3 years from the date that the Plan becomes operative.	Waiuku Taihiki Kingseat Te Hihi Glassons Creek Pukekohe Ngakoroa All other catchments in the Auckland Region

Explanation:

This Plan will become operative in different catchments within the region at different times. This is to enable the discharge consent applications within each catchment to be assessed together, to enable consideration to be given to potential cumulative adverse effects on water. It also enables operators to have certainty as to when they will be required to meet the conditions for the permitted activities or apply for a resource consent. The order in which the priorities have been set is based on historical compliance information. For each priority catchment group the ARC will notify operators in advance of the application lodgement date.

6.8 Other Resource Management Methods

In conjunction with this Plan, the ARC will produce a series of guidelines to assist operators in meeting its requirements. The ARC endorses the guidelines promulgated in the Dairying and the Environment manual (Heatley, P, 1995) produced by the Dairying and the Environment Committee. The periodic (at least annually) routine monitoring of washwater systems will be performed under contract to the ARC. This provides an independent assessment of washwater treatment systems and their degree of compliance, bringing about cost efficiencies.

Explanation:

In promulgating design and operating standards, there is a need for information to be made available to operators, contractors, and any other interest groups outlining required standards, and including examples of how such systems could be built or managed using readily available materials and proven ideas as examples. The national guidelines document produced by the Dairying and the Environment Committee will be considered the foremost reference.

Appendix B summarises the consent processing procedures under the Resource Management Act.