APPENDIX C

Part B: Animal waste storage and application

This document records proposed changes to Rules 14.7.1.1, 14.7.1.2, 14.7.2.1, 14.7.3.1, Schedule 18, Schedule 19 and the Definitions agreed by witnesses in expert conferencing on these provisions on 8 and 9 June 2021 in Dunedin.

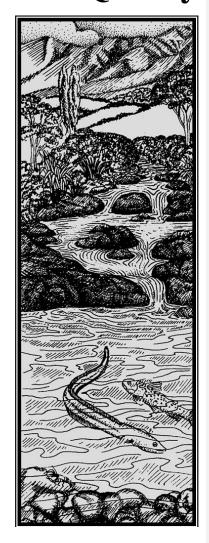
Additions are shown in <u>double underline</u> and deletions are shown in double strike through. Where defined terms have been included in provisions, those terms have been **bolded** for ease of identification.

Relevant provisions:

New Policy 7.D.7	12
New Policy 7.D.8.	13
Amended Rule 12.C.0.2	16
New Rule 12.C.0.4 (discharge – prohibited)	17
New Rule 12.C.1.4 (discharge – short term permitted)	17
New Rule 12.C.2.5 (discharge – restricted discretionary)	18
New Rule 14.7.1.1 (land use – permitted)	20
New Rule 14.7.1.2 (land use – short term permitted)	21
New Rule 14.7.2.1 (land use – controlled)	21
New Rule 14.7.3.1 (land use – discretionary)	22
New Schedule 18	25
New Schedule 19	26
New Definitions – Dairy Effluent Storage Calculator, Suitably Qualified Person	29
Amended Definition – animal waste system	29
Deleted Definition – agricultural waste	29

Note: the highlighted sions are not within the scope of the expert conferencing conducted by the experts and are provided here unamended and for information only.

Water Quality



- 7.1 **Introduction** [Unchanged]
- 7.2 Issues in general [Repealed 1 May 2014]
- 7.3 Issues related to point source discharges to water [Repealed 1 May 2014]
- 7.4 Issues related to non-point source discharges to water [Repealed 1 May 2014]
- **7.5 Objective** [*Repealed* 1 *May* 2014]
- 7.A Objectives [Unchanged]
- 7.B Policies general [Unchanged]
- 7.C Policies for discharges of human sewage, hazardous substances, hazardous wastes, specified contaminants, and stormwater; and discharges from industrial or trade premises and consented dams

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    7.C.1 – 7.C.4 [Unchanged]
    7.C.5 – 7.C.6 [Amended - Part A]
    7.C.7 – 7.C.11 [Unchanged]
    7.C.12 [New - Part A]
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7.D Policies for discharges of water and contaminants, excluding those discharges provided for in 7.C

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    7.D.1 – 7.D.4 [Unchanged]
    7.D.5 [Amended - Part A]
    7.D.6 [New - Part A]
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- 7.D.7 Ensure the appropriate management and operation of animal waste systems by:
 - (a) Requiring animal waste systems to be designed, constructed and located appropriately and in accordance with best practice; and
 - (b) Ensuring that all animal waste systems:
 - (i) Have sufficient storage capacity to avoid the need to dispose of effluent when soil moisture or weather conditions may result in run-off entering water; and
 - (ii) Include contingency measures to prevent discharges to water in the case of equipment or system failure; and

- (ii) Are operated in accordance with an operational management plan for the system that is based on best practice guidelines and inspected regularly; and
- (c) Avoiding the discharge of animal waste to water bodies, artificial watercourses, the coastal marine area and to saturated land; and
- (d) Requiring low-rate effluent application for any new discharge of animal waste to land and encouraging the transition to low-rate effluent application for existing discharges of animal waste to land.
- 7.D.8 Provide for the upgrading of existing animal waste systems that do not meet the standards of Rule 14.7.1.1 by:
 - (a) Granting resource consents only where consent applications contain
 a timebound action plan for upgrading the existing animal waste
 system so that it meets the standards of Rule 14.7.1.1 as soon as
 possible; and
 - (b) Staging implementation of performance standards based on risk.
- **7.D.9** [*New Part Part C*]
- **7.D.10** [*New Part Part G*]
- 7.6 Policies for the enhancement of water quality [Repealed 1 May 2014]
- 7.7 Policies for point source discharges [Repealed 1 May 2014]
- 7.8 Policies for non-point source discharges [Repealed 1 May 2014]
- 7.9 Anticipated environmental results [Repealed 1 May 2014]

12
Rules: Water Take,
Use and Management



12.0 - 12.B[*Unchanged*]

12.C Other discharges

- 12.C.A.1 Discharge rules in section 12.C apply to any discharge not provided for in sections 12.A, 12.B or 13.5.
- 12.C.A.2 Within section 12.C, prohibited activity rules prevail over any permitted, controlled, restricted discretionary and discretionary activity rules.

Note: Rules applying to plantation forestry:

- Refer to the Resource Management (National Environmental Standards for Plantation Forestry) Regulations 2017: http://www.legislation.govt.nz/regulation/public/2017/0174/latest/whole.html
- Refer to Schedule 17: Rules applying to plantation forestry in Otago.
- Rules that apply: 12.C.1.1 (d) (e) (f), excluding (iii); 12.C.2.1; 12.C.2.2; 12.C.2.4; 12.C.3.2.

12.C.0 Prohibited activities: No resource consent will be granted

- 12.C.0.1 [Unchanged]
- 12.C.0.2 The discharge of any contaminant from an animal waste system, silage storage or a composting process:
 - (i) To any lake, river or Regionally Significant Wetland; or
 - (ii) To any drain or water race that goes to a lake, river, Regionally Significant Wetland or coastal marine area; or
 - (iii) To the bed of any lake, river or Regionally Significant Wetland; or
 - (iv) To any bore or soak hole; or
 - (v) To land in a manner that results in overland flow entering any:
 - (a) Lake, river, Regionally Significant Wetland or coastal marine area that is not permitted under Rule 12.C.1.1 or 12.C.1.1A; or
 - (b) Drain or water race that goes to any lake, river, Regionally Significant Wetland or coastal marine area that is not permitted under Rule 12.C.1.1 or 12.C.1.1A; or
 - (vi) To land within 50 metres of:
 - (a) Any lake, river or Regionally Significant Wetland; or
 - (b) Any bore or soak hole; or

- (vii) To saturated land; or
- (viii) That results in ponding,

is a *prohibited* activity.

12.C.0.3 [Unchanged]

12.C.0.4 The discharge of animal waste from an animal waste system:

- (i) To any lake, river or Regionally Significant Wetland; or
- (ii) To any drain or water race that goes to a lake, river, Regionally Significant Wetland or coastal marine area; or
- (iii) To the bed of any lake, river or Regionally Significant Wetland; or
- (iv) To any bore or soak hole; or
- (v) To land within 50 metres of:
 - (a) Any lake, river or Regionally Significant Wetland; or
 - (b) Any bore or soak hole; or
- (vi) To land in a manner that results in ponding or overland flow to water, including to frozen land; or
- (vii) That results in any of the following effects in receiving waters, after reasonable mixing:
 - (a) the production of conspicuous oil or grease films, scums or foams, or floatable or suspended materials; or
 - (b) any conspicuous change in the colour or visual clarity; or
 - (c) any emission of objectionable odour; or
 - (d) the rendering of fresh water unsuitable for consumption by farm animals; or
 - (e) any significant adverse effects on aquatic life;

is a *prohibited* activity.

12.C.1 Permitted activities: No resource consent required

12.C.1.1 - 12.C.1.3 [Unchanged]

- 12.C.1.4 Notwithstanding any other rule in this Plan, the discharge of animal waste, or water containing animal waste, from an animal waste system onto or into land is a *permitted* activity providing:
 - (a) The animal waste system is permitted under Rule 14.7.1.2; and
 - (b) The discharge is not prohibited under Rule 12.C.0.4; and
 - (c) The discharge does not occur within 50 metres of the boundary of the property on which the animal waste is generated, or beyond that boundary.

12.C.2 Restricted discretionary activities: Resource consent required

12.C.2.1 – 12.C.2.4 [Unchanged]

- 12.C.2.5 The discharge of animal waste, or water containing animal waste, from an animal waste system onto or into land is a restricted discretionary activity provided:
 - (a) The discharge is not prohibited under Rule 12.C.0.2A; and
 - (b) The discharge is not permitted under Rule 12.C.1.4;

In considering any resource consent under this rule, the Otago Regional Council will restrict the exercise of its discretion to the following:

- (i) The application depth and rate;
- (ii) Size and location of the disposal area, including separation distances from lakes, rivers, Regionally Significant Wetlands, bores, soak holes, water supply for human consumption and dwellings;
- (iii) Measures to avoid, remedy or mitigate adverse effects on water quality, taking into account the nature and sensitivity of the receiving environment;
- (iv) Measures to avoid, remedy or mitigate adverse effects on Kāi
 Tahu cultural and spiritual beliefs, values and uses;
- (v) Duration of consent and any review conditions;
- (vi) Quality of, and compliance with, a management plan for the animal waste system; and
- (vii) Any information and monitoring requirements.

12.C.3 Discretionary activities: Resource consent required

12.C.3.1 & 12.C.3.2 [Unchanged]

14

Rules: Land Use other than in Lake or River Beds



14.1 - 14.4 [Unchanged]

14.5 [New – Part G]

14.6 [New – Part D]

14.7 Animal Waste Systems

14.7.1 Permitted activities: No resource consent required

- 14.7.1.1 The use of land for the use and maintenance of an animal effluent system animal waste system (including storage pond(s) and ancillary structures) that was constructed prior to 25 March 2020 is a permitted activity providing:
 - (a) The <u>animal effluent storage facility storage pond</u> is sized in accordance with the 90th percentile as calculated by the Dairy Effluent Storage Calculator and using schedule X for non-dairy animals; and
 - (b) The animal effluent storage facility storage pond is either:
 - (i) Fully lined with an impermeable synthetic liner and has a leak detection system underlying the animal effluent storage facility storage pond which is inspected not less than monthly, there is no evidence of any leakage, and a written record is kept recording the results of each inspection; or
 - (ii) Of impervious concrete construction; or
 - (iii) An above ground tank; or
 - (iv) Ccertified by a Suitably Qualified Person within the last five years as:
 - (4i) having no visible cracks, holes or defects that would allow effluent to leak from the animal effluent storage facility: Structurally sound and without any visual defects; and
 - (2ii) Meeting the relevant pond drop test criteria in Schedule 18 (excluding above-ground tanks, bladders, and solid animal effluent storage facilities); and
 - (c) A management plan for the animal waste system animal effluent system is prepared and implemented that requires:
 - (i) Pond drop tests of the <u>animal effluent storage facility</u>

 storage pond(s) every three years (excluding aboveground tanks, bladders, and solid animal effluent storage facilities); and
 - iii) Implementation of contingency measures to prevent the discharge of animal waste_liquid or solid animal effluent to a surface water body, an artificial

Commented [FB1]: Q2 sets out the reasons for making the following replacements through the rules in section 14 and Schedules 18 and 19:

Replacing "animal waste system (including storage pond(s) and ancillary structures)" and "animal waste system" with "animal effluent system"

Replacing "storage pond" with "animal effluent storage facility"

Replacing "animal waste" with "liquid animal effluent" and/or "solid animal effluent" as appropriate.

Commented [FB2]: See Q10 for explanation.

Commented [FB3]: See Q4 for explanation.

Commented [FB4]: See Q4 for explanation.

Commented [FB5]: See Q5 for explanation.

Commented [FB6]: Management plans are discussed in Q19 but no amendments were agreed to 14.7.1.1(c).

Commented [FB7]: Frequency of pond drop tests is discussed in Q5 but no amendments were agreed to 14.7.1.1(c)(i).

Commented [FB8]: See Q5 for explanation.

RULES: LAND USE OTHER THAN IN LAKE OR RIVER BEDS

watercourse, or the coastal marine area, either directly or indirectly, in the event of power outage or the failure of equipment; and

(d) Upon written request by the Regional Council a written statement or certificate from a Suitably Qualified Person is provided to show compliance with Conditions (a) to (c).

Note: Rule 14.7.1.1 does not manage discharges of animal waste liquid or solid animal effluent to land. Animal waste systems Animal effluent systems that comply with Rule 14.7.1.1 will require resource consent under Rule 12.C.2.5 for the discharge of animal waste to land.

14.7.1.2 The use of land for the use and maintenance of an <u>animal effluent</u>

<u>system animal waste system (including storage pond(s) and ancillary structures)</u> that was constructed prior to 25 March 2020 and does not comply with the conditions of Rule 14.7.1.1 is a *permitted* activity until the application date specified in Schedule 19.

14.7.2 Controlled activities: Resource consent required

- 14.7.2.1 The use of land for the construction, use and maintenance of an animal effluent system enimal waste system (including storage pond(s) and ancillary structures) constructed after 25 March 2020 is a controlled activity provided the following conditions are met:
 - (a) The animal effluent storage facility storage pond is sized in accordance with the 90th percentile as calculated by the Dairy Effluent Storage Calculator and using schedule X for non-dairy animals; and
 - (b) The <u>animal effluent storage facility</u> storage pond is either:
 - Fully lined with an impermeable synthetic liner and has an effective leak detection system that underlies the animal effluent storage facility storage pond; or
 - (ii) Of concrete construction; or
 - (iii) Is an above-ground tank; and
 - (c) The design of the animal effluent storage facility, and any sludge bed/weeping wall animal waste system has been certified by a Chartered Engineer as being in accordance with the relevant parts of IPENZ Practice Note 21¹ and IPENZ Practice Note 27;² and
 - (d) The animal effluent system (excluding conveyancing pipes)

 animal waste systemis not located:

Commented [FB9]: See Q10 for explanation.

Commented [FB10]: See Q16 for explanation.

Commented [FB11]: See "Other Matters".

¹ Available from Otago Regional Council's website at http://www.orc.govt.nz

² Available from Otago Regional Council's website at http://www.orc.govt.nz

RULES: LAND USE OTHER THAN IN LAKE OR RIVER BEDS

- (i) Within 50 metres of any lake, river or regionally significant wetland; or
- (ii) Within 90 metres of any water supply used for human consumption; or
- (iii) Within 50 metres of any bore or soak hole; or
- (iv) Within 50 metres of the property boundary; or
- (v) Above subsurface drainage (other than a leak detection system); and
- (e) A management plan for the animal effluent system animal waste system is prepared and implemented that requires:
 - (i) For animal effluent storage facilities ponds that are fully lined with an impermeable synthetic liner and has have a effective leak detection system that underlies the animal effluent storage facility storage pond, inspections not less than monthly with a requirement to keep a written record of the results of each inspection; and
 - (ii) Pond drop tests of the animal effluent storage facility storage pond(s) every three years (excluding aboveground tanks, bladders, and solid animal effluent storage facilities); and
 - (iii) Implementation of contingency measures to prevent the discharge of animal waste solid or liquid animal effluent to a surface water body, an artificial watercourse, or the coastal marine area, either directly to water or onto or into land in circumstances which may result in these contaminants entering water, in the event of power outage or the failure of equipment; and
 - (iv) If a leak is detected by the leak detection system, an assessment is undertaken by a Suitably Qualified Person within two months of the detection to determine whether the leak is within the normal operating parameters of the pond_animal_effluent_storage facility.

In granting any resource consent under this rule, the Otago Regional Council will restrict the exercise of its control to the following:

- (a) The design and construction of the system, including storage capacity, nature of the animal waste solid or liquid animal waste and the anticipated life of the system; and
- (b) The design, construction and adequacy of ancillary structures that are components of the animal waste system animal effluent system; and

Commented [FB12]: Management plans are discussed in Q19 but no amendments were agreed to 14.7.2.1(e).

Commented [FB13]: See Q8 for explanation.

Commented [FB14]: Frequency of pond drop tests is discussed in Q5 but no amendments were agreed to 14.7.2.1(e)(ii).

Commented [FB15]: See Q5 for explanation.

RULES: LAND USE OTHER THAN IN LAKE OR RIVER BEDS

- (c) The height of embankments and the placement and orientation relative to flood flows and stormwater run-off; and
- (d) Methods to protect the system from damage by animals and machinery; and
- (e) Quality of, and implementation of, a management plan for the animal waste system animal effluent system which requires pond drop tests of the system's storage facility pond(s) every three years (excluding above-ground tanks, bladders, and solid animal effluent storage facilities); and
- (f) Potential adverse effects of construction, maintenance and use on water bodies, drains, groundwater, bores, drinking water supplies, the coastal marine area, stop banks, dwellings, places of assembly and urban areas; and
- (g) Location of the animal waste system animal effluent system;
 and
- (h) Measures to avoid, remedy or mitigate adverse effects on Kāi
 Tahu cultural and spiritual beliefs, values and uses.

14.7.3 Discretionary activities: Resource consent required

- 14.7.3.1 The use of land for the construction, upgrade, use or maintenance of an animal effluent system animal waste system (including storage pond(s) and ancillary structures) is a discretionary activity provided it is not:
 - (a) Permitted under Rules 14.7.1.1 or 14.7.1.2; or
 - (b) Provided for by Rule 14.7.2.1.

Commented [FB16]: Frequency of pond drop tests is discussed in Q5 but no amendments were agreed to the matters of control for Rule 14.7.2.1.

Commented [FB17]: See Q5 for explanation.

20 Schedules



Schedules 1 - 17 [Unchanged]

18. Schedule of storage pond drop test requirements and criteria

This schedule outlines the requirements for undertaking pond drop tests on storage ponds animal effluent storage facilities that are part of an animal waste system animal effluent system and the pass criteria for drop test results.

Requirements

- <u>Testing is undertaken over a minimum period of 48 hours. A minimum of 24</u> hours of accurate data within a single test period.
- Testing recording equipment is to be accurate to 0.8 mm or less. Total test error of less than ±1 mm.
- Continuous readings are to be taken over the entire test period at not more than 10 second intervals.
- Any change in pond fluid level over the test period needs to be accounted for.
- Ponds must be at or over 75% design depth before a test can be undertaken.

 Ponds must be at or over 75% design depth (excluding freeboard) before a test can be undertaken.
- The pond has been de sludged in the 12 months prior to the test being
 undertaken and there is no sludge or crust on the pond surface during the test.
 The level of sludge or crust on the pond surface during the test should be
 minimal so that it does not impact on test results.
- The pond surface is not frozen during any part of the testing.
- An anemometer is installed for the duration of the test and only data obtained
 when the wind speed does not exceed 50 kilometres per hour (14 m per
 second) at the test site is used in the test results. wind speed is at 10 metres
 per second or less for at least 24 hours during the test.

Criteria

When tested in accordance with the requirements above, the pond is considered to meet the pond drop test criteria if the maximum pond level drop change does not exceed the following:

Maximum design depth of pond (m) excluding freeboard	Maximum allowable pond level drop change (mm per 24 hours)
<u><0.5</u>	<u>1.2</u>
<u>0.5 to 1.0</u>	<u>1.4</u>
1.0 to 1.5	<u>1.6</u>
<u>1.5 to 2.0</u>	<u>1.8</u>
>2.0	<u>2.0</u>

Commented [FB18]: See Q3 for explanation of all changes in this Schedule.

19. Schedule of progressive implementation of animal waste storage requirements

Many animal waste systems in Otago will need to be upgraded to meet the requirements of this Plan. The intent of this Schedule is to stage implementation of the Plan's requirements according to the environmental risk posed by existing systems. To assess this risk, Schedule 19 provides two calculations that will determine the current storage volume available on a landholding (in days) as follows:

- Schedule 19A sets out the calculations required to determine days of storage available on a landholding.
- Schedule 19B sets out the date by which a complete resource consent application must be lodged with the Otago Regional Council under Rule 14.7.3.1 (and correspondingly Rule 14.7.1.2 ceases to apply). A complete application is one that is not determined as being incomplete by the Otago Regional Council pursuant to section 88 of the Resource Management Act 1991.

19A Storage calculation

Two calculations are required to determine the current minimum number of days of animal waste storage available on a landholding. These are set out below.

Step One: Daily waste volume

To calculate the daily waste volume per farm, use the following formula:

^ being 0.05 cubic metres (50 litres per cow per day)

For example:

<u>During milking season</u>, Farm A milks 500 cows twice per day. Using the formula above:

 $\frac{\text{Daily waste}}{\text{volume } (m^3)} \equiv \frac{500}{\text{Note of } x} = \frac{500}{\text{Note of } x} = \frac{2}{\text{Note of } x}$

 $\frac{\text{Daily waste}}{\text{volume (m}^3)} \equiv \underline{50}$

Commented [FB19]: Schedule 19 was discussed in Q12 and Q13 but no amendments were agreed to the provisions.

Step Two:

To calculate the minimum number of days of storage available, use the following formula:

Days of storage

 $\frac{\text{ys of storage}}{\text{available}} \equiv \frac{\text{Actual storage volume } (m^3)^{\land} \div \text{Daily waste volume } (m^3)}{\text{Actual storage volume } (m^3)^{\land} \div \text{Daily waste volume } (m^3)}$

^ determined assuming that the storage facility is empty.

For example:

As calculated above, Farm A has a daily waste volume of 50 m 3 . The farm has a storage pond with a storage volume of 1000 m 3 . Using the formula above:

Days of storage

 $\frac{1000 \div 50}{1000}$

<u>available</u>

Days of storage

 $\frac{\text{available}}{\text{available}} \equiv \frac{20}{20}$

<u>Using</u> the table in Schedule 19B, Otago Regional Council must receive a complete resource consent application under Rule 14.7.3.1 from Farm A no later than two years from the date Plan Change 8 is made operative.

19B Application dates

The following table sets out the dates by which complete resource consent applications must be received under Rule 14.7.3.1 (and correspondingly Rule 14.7.1.2 ceases to apply). The "application date" is the date Plan Change 8 is made operative, plus the number of years in the "year" column below.

Days of storage available as calculated in accordance with Schedule 19B	<u>Year</u>
0 - 10	<u>0.5</u>
<u>11 – 40</u>	<u>2</u>
41+	3

21 Glossary

MONITORING AND REVIEW

Calculator

The table below only contains the Plan's definitions which are particularly relevant for this plan change

Agricultural waste Waste from an agricultural process or premises that is derived from

primary agricultural production. This includes animal waste and

animal dip material.

Animal waste Faeces or urine from any animal.

Animal waste Includes Means the collection, conveyance, storage, and treatment,

<u>effluent</u> system <u>disposal or application</u> of liquid or solid animal <u>waste</u> <u>effluent</u>.

A pond, tank, or structure primarily used for the containment or storage facility storage of animal effluent, but excludes any ancillary structures for

the collection, conveyance or treatment of liquid or solid animal

effluent, such as sumps, stone traps and weeping walls.

 Dairy Effluent
 Means the Dairy Effluent Storage Calculator available from Otago

 Storage
 Regional Council's website at http://www.orc.govt.nz/

<u>Eiguid animal</u> Faeces and urine from land-based animals, including associated process water, wash-down water, contaminants and sludge but excluding solid animal effluent. For the purposes of this definition, it

does not include incidental animal effluent present in livestock

processing waste streams.

Solid animal Solid excreta from land-based animals that cannot be pumped and sprayed, including bedding material and manure, but does not include

dead animals or animal parts.

Suitably Qualified PersonA person that has been assessed and approved by the Otago Regional Council as being appropriately qualified, experienced and competent

in the relevant field of expertise based on the following criteria:

(a) Either:

(i) A relevant tertiary qualification in agricultural engineering or civil engineering, or

(ii) A relevant equivalent qualification (for example, international qualifications); and

(iii) At least five years' professional experience in designing and constructing effluent management systems; or

(b) At least ten years' professional experience in designing and constructing effluent management systems. $\begin{tabular}{ll} \textbf{Commented [FB20]:} Amendments to this definition were agreed in principle in Q10 but no specific drafting was agreed. \end{tabular}$

MINOR AND CONSEQUENTIAL CHANGES