

Dairyshed Effluent & Stream Crossing Survey 2010/2011

Summary Report

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Dairyshed Effluent and Stream Crossing Surveys 2010/2011

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Executive Summary

This report summarises the findings of the dairy farm inspections in 2010/11. The Marlborough District Council (the Council) inspected the dairy effluent management systems on Marlborough's 61 dairy farms to check compliance with the Plan Rules or resource consents. Further, Council checked the sites where cows walk through waterways on each farm to monitor the progress that farmers have made towards installing bridges and culverts to remove the need for dairy herds to cross through waterways.

In the 2009/2010 dairy season the Council changed the way that the dairy effluent survey was undertaken due to the changes to how dairy effluent is being managed nationally by all the regional councils. The move towards national consistency has been industry driven so different regions can be compared to see how the industry is performing. This report is the second year that the Council has used the national guidelines for dairy effluent reporting.

The findings of this year's survey were similar to the findings of the 2009/2010 dairy effluent survey. The dairy effluent issues that were noted from the survey were; that the wastewater collection, containment and application systems on some farms were too close to waterways; solid wastes from sumps, stone traps and ponds was being stored directly to land and the lack of pond storage for adverse weather conditions. Council aims to work with individual farmers and the farming industry to improve dairy effluent compliance in Marlborough.

The Stream Crossing Survey has shown good gains for the elimination of places where cows walk through waterways since the initial surveys which were undertaken progressively throughout Marlborough from 2002 to 2007. The momentum to remove stream crossing sites has slowed in the last few years. It is expected that all the high priority stream crossings will be eliminated by the end of the 2012 dairy effluent season.

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Introduction

This report summarises the findings of the dairy farm inspections in 2010/11 dairy season. The Council inspects the dairy farms to check compliance with Plan Rules or resource consents. The purpose of the inspections is also to check the sites where dairy cows walk through waterways on the farm and to monitor the progress that farmers have made towards installing bridges and culverts removing the need for dairy herds to cross waterways.

In the 2009/2010 dairy season, the Council changed the way that the dairy effluent survey was undertaken due to the changes to how dairy effluent is being managed nationally by all the regional councils. The move towards national consistency has been industry driven so that different regions can be compared to see how the industry is performing. This report is the second year that the Council has used the national guidelines for dairy effluent reporting.

1.1. Dairy Effluent Management Nationally - Background

Reporting rates of dairy effluent compliance have varied dramatically around New Zealand. In 2007, the majority of the regional councils undertook a review of dairy effluent compliance reporting. The review proposed a new set of criteria for categorising dairy effluent compliance for national reporting purposes. All regional authorities are now using the new criteria for national reporting of dairy effluent statistics.

In order to assist councils with the new reporting compliance criteria the Council dairy files are audited to provide independent feedback to each council on its dairy effluent compliance assessment. The intention of the changes to dairy effluent monitoring is to have national consistency on how compliance grades are assigned to dairy farm effluent systems across regional authorities in New Zealand.

The three categories that maybe assigned are:

1. Compliance (C)
2. Non-compliance (NC)
3. Significant non-compliance (SNC)

The criteria for assessing a category 1 (C) classification is that an inspector did not observe any non-compliance at the time of the inspection. This makes allowance for conditions that were not audited at the time of inspection.

The criteria for assigning a category 3 (SNC) classification are described as follows:

- Unauthorised discharges that have entered water (ground or surface water).
- Unauthorised discharges that may enter water (ground or surface water).
- Breach of abatement notice.
- Objectionable effects of odour.
- System shortcomings.
- Multiple non-compliances on site with accumulative effects.

The criteria for assessing a category 2 (NC) classification is all issues that did not fit either category 1 or category 3.

1.2. Dairy Effluent Management in Marlborough

For Marlborough to be nationally consistent means that the Council checks compliance with all of the Plan Rules or resource consent conditions. For farms under the Marlborough Sounds Resource Management Plan (MSRMP) area dairy effluent management is compared against every rule in the MSRMP, Rural Rules 36.1.7.3 Dairy Effluent Disposal (the plan rules are listed in table below). For farms in the Wairau/Awatere Resource Management Plan (WARMP) area dairy effluent management is checked against the resource consent (conditions and application). Full compliance means complying with every rule in the Plan or every condition of resource consent.

1.2.1. Dairy Effluent 2010/2011

In the 2010/11 dairy effluent survey the Council staff inspected all of Marlborough's 61 dairy farms. 42 dairy farms in the Marlborough Sounds Resource Management Plan area were checked against the Plan Rules and 19 farms in the Wairau/Awatere Resource Management Plan area were checked against their respective resource consents for dairy effluent discharge. Below is a table which shows how the Plan Rules were assessed. The method of assessment is in blue italics. Resource consents were assessed in a similar manner, however, the conditions are detailed in the report as the conditions vary for each farm.

Dairy Plan Rules Assessment - Rule 36.1.7.3

- | | |
|-----|---|
| (a) | The discharge shall not be within 20 metres of a surface water body or over any unconfined aquifer;
<i>Visual observation on site and Council mapping system.</i> |
| (b) | There shall be no run-off of contaminants into surface water resulting from the discharge of the contaminant onto or into land;
<i>Visual observation on site.</i> |
| (c) | The total nitrogen loading on the area to be used for discharging shall not exceed 200 kg N/ha/yr;
<i>3 hectares of disposal area is required for every 100 cows this is checked with the farmer and by Council mapping. Minimum receiving land area per 100 cows for effluent applied fresh from the farm dairy (Dairying for the Environment 2006). Scientific information is recommending 5 hectares of disposal area is best practise.</i> |
| (d) | When discharging effluent a buffer zone of a minimum 10 metres in width is to be maintained between the area of discharge and any property boundary;
<i>Visual observation on site.</i> |
| (e) | The wash water collection, containment and application system shall not be within 20 metres of the boundary of any neighbouring property without that person's prior written consent, a copy of which shall be forwarded to the Marlborough District Council;
<i>Visual observation and check of Council records.</i> |
| (f) | The wash water collection and containment system shall not be within 20 metres of any surface water body;
<i>Visual observation and Council mapping system.</i> |
| (g) | The wash water collection, containment and application system shall not be within 20 metres of any area identified by Tangata Whenua as being of special value, or any filed archaeological site;
<i>The farmer was asked if there were any tangata whenua or archaeological sites on the farm.</i> |
| (h) | There shall be no spray drift beyond the boundary of the land to which the effluent is discharged;
<i>Visual Observation on site.</i> |
| (i) | No objectionable odours shall be able to be detected at or beyond the legal boundary of the land to which the effluent is discharged;
<i>Odour check at the boundary on site.</i> |
| (j) | There shall be contingency measures in place to ensure that there is no contravention of the |

above conditions in the event of system failure or adverse climatic conditions;
Visual Observation on site Council mapping system.

- (k) The system will be monitored by the Marlborough District Council to ensure there is compliance with the above conditions.
All dairy farms in Marlborough are inspected (so not commented on in the report for each farm).
- (l) The discharge, after reasonable mixing shall not breach the water quality standard set for the waterbody in Appendix H.
There are no direct discharges to water (so not commented on in the report for each farm).

Note: that compliance is only what was noted on the site inspection, Council can only say that the farm complied or did not comply at the time and date that the inspection was undertaken. Council staff are also relying on information the farmer provides.

1.2.2. Stream Crossings 2010/2011

The stream crossing survey is a separate survey from the dairy effluent survey although it is carried out at the same time. The results of the stream crossing survey do not affect the grading of the farm in terms of dairy effluent compliance. The places where cows walk through waterways on dairy farms were checked on the farm visits. The findings of the original stream crossing survey and the progress that the farmers have made to install culverts or bridges is included in the individual results for each farm.

Discussion

1.3. Dairy Effluent

This section of the report discusses the findings of the dairy effluent inspections. For the second dairy season the Council has undertaken the dairy effluent survey in accordance with the national compliance reporting criteria. The Marlborough results of the dairy effluent survey can be compared to other regions' Dairying and Clean Streams Accord. Below is a discussion of the key issues which were noticed in the survey. The issues found in this year's survey are the same as the issues found in the 2009/2010 dairy effluent survey. Discussing the issues found on the farms is hoped to assist farmers in moving forward for positive environmental outcomes.

1.3.1. Washdown Collection, Containment and Application Systems

One of the issues noted in the past two seasons under the Marlborough Sounds Resource Management Plan is in regard to Rule 36.1.7.3 (f) the wash water collection, containment and application system shall not be within 20 metres of any surface water body. It was found that the location of the wash water collection, containment and application systems on 16 farms were too close to waterways.

13/1/1/5 - The effluent pond is too close to a river. In a flood situation the effluent pond may be inundated.

13/1/1/6 - The effluent pond is too close to a waterway. The pond is in an area identified as a Council flood hazard.

13/1/1/9 The effluent pond is too close to a waterway. The pond has historically been inundated in flood events.

13/1/1/14 - The effluent pond is too close to a small waterway. It is unlikely that the ponds would be inundated in a flood event. It would be appropriate to apply for consent to either authorise the pond or move the waterway.

13/1/1/18 - The effluent ponds are too close to a waterway. It is unlikely that the ponds would be inundated in a flood event. It would be appropriate to apply for consent to authorise the ponds.

13/1/1/23 - The sump is too close to a waterway. The sump is in an area identified as a Council flood hazard.

13/1/1/24 - The sump is too close to a waterway. The sump is in an area identified as a Council flood hazard.

13/1/1/28 - The effluent pond is too close to a waterway. A resource consent has been granted to move the waterway away from the pond.

13/1/1/35 - The effluent pond is too close to a waterway. It is unlikely that the ponds would be inundated in a flood event. It would be appropriate to apply for consent to authorise the pond.

13/1/1/36 - The effluent pond is too close to a freshwater pond. The effluent pond has historically been inundated in flood events.

13/1/1/39 - The sump and stone trap are too close to a waterway. It is unlikely that the ponds would be inundated in a flood event. It would be appropriate to apply for consent to authorise the sump and stonetrap.

13/1/1/43 - The effluent pond is too close to a farm drain. The farm drain does not inundate the pond in flood events. It would be appropriate to apply for consent to either site the pond in this location or to culvert the drain.

13/1/1/45 - The effluent pond is too close to a waterway. It is unlikely that the ponds would be inundated in a flood event. It would be appropriate to apply for consent to either authorise the pond or move the waterway.

13/1/1/74 - The effluent ponds are too close to a waterway. The ponds are in an area identified as a Council flood hazard.

13/1/1/45 - The effluent pond is too close to a waterway. It is unlikely that the ponds would be inundated in a flood event. It would be appropriate to apply for consent to either authorise the pond or move the waterway.

13/1/1/89 - The effluent pond is too close to a waterway. It is unlikely that the ponds would be inundated in a flood event.

13/1/1/97 - The wash water collection, containment and application system are too close to a waterway. The sump and stone trap are not inundated in flood events. It would be appropriate to apply for consent to authorise the location of the wash water collection system.

1.3.2. Solid Waste Management

An issue noted on 12 farms was the management of solid waste from stone traps and ponds. Current practises are to clean out stone traps, sumps and ponds and deposit this material in a stockpile to dry. The concentration of solid waste in one area can cause problems such as direct leaching of nutrients to groundwater or stormwater runoff from uncovered areas of solid waste running into waterways. Solid waste must be stored on an impervious surface where contaminated stormwater cannot run off to land or water. Storing solid waste directly on the ground is rated as non-compliance or significant non-compliance depending on the scale and siting of the solid waste storage.

1.3.3. Ponds and Storage

As generally perceived, and supported by the Council rainfall data, the 2010/2011 dairy effluent season was a wetter than average year. This highlighted shortcomings in many farm effluent systems. Previously farm effluent systems may have been complying on the Council dairy effluent inspection under fine weather conditions. In wetter weather conditions systems with inadequate storage have failed to comply.

In order to avoid discharge of contaminants to groundwater or surface water, the Marlborough Sounds Resource Management Plan rules require contingency measures to be in place in the event of system failure or adverse climatic conditions. Under the Wairau Awatere Resource Management Plan each farm is assessed as part of the resource consent process. The Plan Rules in both regions do not outline how much storage is required. Dairying for the Environment (2006) recommends 340m³ per 100 cows for Marlborough. Ponds need to be sealed to ensure that there is no leakage. Ponds need to be managed so that there is a free board. Free board in the pond will allow for storage of effluent in unforeseen circumstances.

In the Marlborough Sounds Resource Management Plan area three farms do not have a pond. Some of the ponds in the Sounds area are not large enough to store effluent for long enough for the adverse weather conditions of the area. Eight of the Wairau Awatere Plan farms do not have ponds. Please note that the Marlborough Sounds farms without ponds are non-complying. Wairau/Awatere Resource Management Plan farms may comply because they have a resource consent. It is likely when a resource consent for a farm expires that when applying for a new consent an effluent storage pond will be required to be installed.

1.4. Dairying and Clean Streams Accord - Regional Action Plan

The Dairying and the Clean Streams Accord is an agreement between Fonterra Co-operative Group regional councils (including Marlborough District Council), the Ministry of Agriculture and Forestry and the Ministry for the Environment. To improve the environmental performance of dairying, the Accord

establishes a goal of achieving “clean healthy water in dairying areas”. The Regional Action Plan sets National and Local Targets, please refer to appendix A for a full copy of the Dairying and Clean Streams Accord Regional Action Plan.

The reported level of compliance and non-compliance for dairy effluent management in the 2010/2011 year for the Dairying and Clean Streams Accord is shown in Table 2 below. Overall the compliance ratings have dropped this dairy effluent season. This may be due to the wetter than average season that Marlborough experienced. Council aims to work with individual farmers and the farming industry to improve dairy effluent compliance in Marlborough.

Table 2

	2009/10 Percentage	2010/2011 Percentage
Full Compliance	57%	47.5%
Non-Compliance	38%	29.5%
Significant Non-Compliance	5%	23%

1.5. Stream Crossings

The information gathered on the farm inspections regarding the stream crossing survey is collated in Table 3 below. The table shows the stream crossing sites in Marlborough from the first survey until the 2010/2011 dairy season. On the initial survey the Council categorised the crossings into high and low priorities. The crossings sites were prioritised by frequency of use, number of cows, size and type of waterway and whether the waterway was permanent or ephemeral.

Table 3 Stream Crossings in Marlborough

	Stream Crossings (SC) at First Stream Crossings Survey 2002 to 2007			
	Number of Farms with SC	Number of High Priority SC	Number of Low Priority SC	Total Crossings
Rai Valley	27	43	69	112
Pelorus	12	12	25	37
Tuamarina	9	15	29	44
Linkwater	7	12	5	17
Havelock	7	9	5	14
Wider Marlborough	9	2	3	5
Total	71	93	136	229

Stream Crossings (SC) at 2008/09 Dairy Season				
	Farms with SC	High Priority SC	Low Priority SC	Total
Rai Valley	9	9	27	36
Pelorus	7	2	13	15
Tuamarina	8	10	22	32
Linkwater	6	10	4	15
Havelock	6	7	6	13
Wider Marlborough	1	2	3	5
Total	37	40	75	115
Stream Crossings (SC) at 2009/10 Dairy Season				
	Farms with SC	High Priority SC	Low Priority SC	Total
Rai Valley	9	9	30	39
Pelorus	5	0	9	9
Tuamarina	8	9	22	31
Linkwater	5	6	2	8
Havelock	6	6	6	12
Wider Marlborough	1	1	3	4
Total	34	31	72	103
Stream Crossings (SC) at 2010/11 Dairy Season				
	Farms with SC	High Priority SC	Low Priority SC	Total
Rai Valley	9	6	28	34
Pelorus	3	0	6	6
Tuamarina	8	3	22	25
Linkwater	3	3	1	4
Havelock	6	6	7	13
Wider Marlborough	3	3	9	12
Total	32	21	73	94

The results table above shows that Rai Valley, Tuamarina and Linkwater are continuing to eliminate high priority stream crossing sites. Havelock has increased the number of surveyed stream crossing sites with the discovery of an additional site where cows walk through a waterway, with no reduction of stream crossing sites. Wider Marlborough also has increased the number of places where cows cross through waterways with two new dairy farms being surveyed in the 2010/11 season. Overall the total number of stream crossing sites have reduced from 229 crossing sites when the farms were first surveyed to 94 crossing sites as of June 2011.

The Council determined timeframes for all the high priority stream crossings to be eliminated. The timeframes for all the regions has now past. The Council has issued abatement notices for some of the high priority stream crossings which have yet to be eliminated. It is expected that all the high priority stream crossings will be eliminated by the end of the 2012 dairy effluent season.

The Council is still processing resource consent applications for the installation of culverts or bridges which remove the need for dairy herds to walk through waterways free of charge. The purpose of the stream crossing survey is to improve water quality in Marlborough's waterways. The Stream Crossing Survey has shown good gains for the elimination of places where cows walk through creeks since the initial survey, however, the momentum to remove stream crossing sites has slowed in the last few years.

Conclusion

In 2010-11 the Council undertook site inspections to the 61 dairy farms in Marlborough. The purpose of the inspections is to check compliance with the permitted activity standards of the Plan or the dairy effluent discharge consents. The dairy effluent issues that were noted from the survey were; that the wastewater collection, containment and application system on 16 farms were too close to waterways; on 12 farms the management of solid waste from stone traps, sumps and ponds was stored directly to land and 11 farms in Marlborough do not have any pond storage for adverse weather conditions. Council aims to work with individual farmers and the farming industry to improve dairy effluent compliance in Marlborough.

The stream crossing survey is a separate survey from the dairy effluent survey although it is carried out at the same time. The previously surveyed sites where cows walk through creeks were inspected. Good gains for the elimination of places where cows walk through creeks have been made since the initial survey, however, the momentum to remove stream crossing sites has slowed in the last few years.

References

Phillip Heatley, Dairying and the Environment Committee, Fonterra and Dairy InSight: *Dairying And The Environment* 2006.

Appendix A



Background Information

Dairying and Clean Streams Accord

Dairying is a significant land use in New Zealand. However, there have been increasing concerns regarding the effects of this intensive land use on the quality of water within our streams, rivers, lakes and wetlands.

The Dairying and Clean Streams Accord is an agreement between Fonterra Co-operative Group, regional councils, unitary authorities (such as the Marlborough District Council), the Ministry of Agriculture and Forestry and the Ministry for the Environment to improve the environmental performance of dairying. It establishes a goal of achieving "clean healthy water in dairying areas".

Five priorities for action are identified in the Accord to reduce the impact of dairying on streams, rivers, lakes and wetlands: cattle access to water bodies, dairy herd stream crossings, dairy shed effluent discharges, nutrient management and wetlands. Each of these priorities has a national performance target, as follows:

- Dairy cattle are excluded from 50% of streams, rivers and lakes by 2007, 90% by 2012
- 50% of regular crossing points have bridges or culverts by 2007, 90% by 2012
- 100% of farm dairy effluent discharges comply with resource consents and regional plans immediately
- 100% of dairy farms have in place systems to manage nutrient inputs and outputs by 2007
- 50% of regionally significant wetlands to be fenced to prevent stock access by 2007, 90% by 2012

The Marlborough Regional Action Plan adapts these national targets to local conditions. See inside for Marlborough targets.

Regional Action Plan

The Dairying and Clean Streams Accord represents an industry taking responsibility for improving its environmental management. This initiative therefore presents an opportunity for the Marlborough District Council to assist efforts to improve the sustainability of dairying in Marlborough while exercising its statutory responsibilities under the Resource Management Act 1991.

Regional Action Plans have been developed by Fonterra and each of the regional councils and unitary authorities to assist the implementation of the Accord.

The purpose of the Marlborough Regional Action Plan is to detail local commitments toward achieving the Accord's goal, while taking into account local circumstances. The Regional Action Plan records commitments made by Fonterra and the Marlborough District Council to reduce the adverse effects of dairying activities on water and habitat quality in Marlborough. These commitments focus on the priorities for action already established by the Accord. Some of the local targets differ to the national targets, reflecting the relative adverse effects of dairying operations in the local context.

The Regional Action Plan also sets out the respective roles of the Council and Fonterra in achieving the local targets.

The Marlborough Regional Action Plan has been developed with input and support from local Federated Farmer representatives.

To get further information about the Regional Action Plan, or to receive a free copy, please contact either Shelley Lines at the Council on (03) 520 7400 or Fonterra Shareholder Services Contact Centre on 0800 65 65 68

Dairying and Clean Streams Accord



Regional Action Plan for Marlborough

2008



Stock access to waterbodies

- ☀ Dairy cattle are excluded from 50% of streams, rivers and lakes by 2007, 90% by 2012

The Council will continue to encourage dairy farmers to prevent stock access to water bodies. This will include working with individual farmers to protect particular rivers and streams from the adverse effects of stock access and general advocacy with groups representing dairy farmer interests.

In most cases, fencing will be the only practical method of excluding stock.

Dairy herd stream crossings

- ☀ 90% of category 1 and 2 dairy herd stream crossings in the Rai River catchment are eliminated by the commencement of milking season (August) in 2006.
- ☀ 90% of category 1 and 2 dairy herd stream crossings in the Pelorus River and Tuamarina River catchments are eliminated by the commencement of milking season (August) in 2007.*
- ☀ Except for those stream crossings in the above catchments, 50% of all other crossing points have bridges or culverts by 2007, 90% by 2012.

The Council will continue with the implementation of the existing management strategy for the Rai River catchment.

The adverse effects of dairy herd stream crossings in other areas will be progressively investigated from 2004. The management strategies that are subsequently developed will depend upon the results of monitoring and consultation with the dairy farming community. The investigations will focus on the following areas:

- Canvastown
- Linkwater
- Koromiko/Tuamarina

Management of dairy shed effluent

- ☀ There is no "major" non-compliance with relevant resource consents or permitted activity rules.
- ☀ The rate of "minor" non-compliance with relevant resource consents or permitted activity rules shall not exceed 15% in any one milking season and any instance of "minor" non-compliance shall be rectified to the satisfaction of the Council within 2 weeks.
- ☀ All dairy farmers that require a discharge permit to discharge dairy shed effluent onto land are operating with the necessary consents.

The Council will continue to annually inspect dairy shed effluent discharges and assess the discharge as either in compliance, in "minor" non-compliance or in "major" non-compliance.¹

Currently 26 out of 30 farmers who require resource consents for their effluent discharges have the necessary consents.

Nutrient Management

- ☀ 100% of dairy farms to have in place systems to manage nutrient inputs and outputs by 2007

Fonterra will promote nutrient budgeting systems for all dairy farms, in consultation with the dairy farming community and fertiliser industry.

¹ Major non-compliance is categorised as non-compliance likely to result in significant adverse effects on the surrounding environment and includes unlawful discharges of effluent to water or the excessive application of effluent to land. Minor non-compliance, on the other hand, represents non-compliance that is not likely to result in significant adverse effects on the surrounding environment.

Wetlands

- ☀ 50% of regionally significant wetlands to be fenced to prevent stock access by 2007, 90% by 2012

The Council is currently identifying significant natural areas throughout Marlborough. Where significant wetlands are identified on or adjacent to dairy farms, the Council will work with the dairy farmer to protect the wetland from the adverse effects of stock access.

Monitoring and reporting on targets

Fonterra will monitor progress toward achieving these targets. However, the Council has a statutory responsibility to monitor the state of Marlborough's environment, compliance with the permitted activity standards of the Marlborough Sounds Resource Management Plan and Proposed Wairau/Awatere Resource Management Plan, and conditions of resource consents. Where this monitoring information is relevant to ascertain progress toward achieving the targets, the Council will provide this information to Fonterra. Examples include the Council's strategy for eliminating stream crossings in the Rai River catchment and the annual inspections of dairy shed effluent discharges. This will avoid any duplication in monitoring effort.

There is also a need to evaluate the effectiveness of the Regional Action Plan in achieving the overall objective of the Accord (i.e., "clean healthy water in dairying areas") and to ensure that it reflects community expectations. Monitoring of the targets may identify that the targets or implementation actions need to be modified or replaced. For this reason, representatives of the Council and Fonterra will meet on at least an annual basis to evaluate and review the content of the Regional Action Plan.



