

The compliance status
of dairy shed effluent
discharges to land in
the Canterbury region
for the 2007/08 season

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Executive summary

This report summarises Environment Canterbury's monitoring of the disposal of dairy shed effluent in the Canterbury Region for the 2007/2008 season. The disposal of dairy shed effluent to land in Canterbury must be undertaken in accordance with either a resource consent or the permitted activity rule contained in the Transitional Regional Plan.¹ A total of 560 resource consents and 136 permitted activities were monitored during the season.

These authorisations are monitored on at least an annual basis to ensure that all requirements are being complied with. This is both a legal obligation upon Environment Canterbury under Section 35(2) of the Resource Management Act 1991, and also necessary to ensure that Environment Canterbury delivers upon the community outcomes identified in its Long Term Council Community Plan 2006-2016².

Overall compliance has changed very little in the past year and there has been little significant change in compliance rates over the past 5 seasons.

A total of 319 farms (45.8%) were graded fully compliant compared to 247 farms (39.6%) in 2006/2007. The percentage of farms with significant or major issues of non-compliance has increased from 17.7% in 2006/2007 to 20.0% in 2007/2008; this may be due in part to officers escalating repeated minor non-compliances to significant non-compliance where resolution has not been forthcoming.

Each resource consent or permitted activity has a number of conditions that are checked for compliance during the inspection. In terms of the total number of consent and permitted activity conditions graded fully compliant in the past season, there has been minimal movement, from 89.3% in 2006/2007 to 89.5% in 2007/2008.

The ponding of effluent on the soil surface remains the main problem encountered during monitoring visits with 30% of all farms that use spray irrigation for effluent disposal (97% of all farms) having issues with effluent ponding.

Nitrogen application rates resulting from effluent disposal continue to drop, and the incidences of direct discharges to surface water remains low in Canterbury. There were a total of four direct discharges to surface water observed (none observed in 2006/07), although two of this years incidents were minor in nature.

Analysis of the compliance data shows that 58.2 % of consent conditions graded significantly non-compliant and 51.72% of consent conditions graded majorly non-compliant upon first inspection, were subsequently graded fully compliant by the season end, following re-inspection.

Environment Canterbury has successfully prosecuted one dairy farmer in the past season for a discharge to water. Charges have also been laid against another 2 farmers and these cases are awaiting court hearings. In addition to this, a total of 30 infringement notices (\$750 fine) and 33 abatement notices were issued in relation to the discharge of dairy effluent in the 2007/2008 season³.

The industry is becoming increasingly involved in assisting farmers to achieve compliance with their effluent disposal consents. A number of new initiatives have been undertaken in the past season alongside those already in place. Environment Canterbury has provided support to these initiatives where this has been requested.

¹ This rule only authorises the disposal of effluent from farms producing less than 2000 litres of undiluted effluent per day and operating prior to July 2004. The activity must also be of the same scale and intensity as existed prior to July 2004, when the Proposed Natural Resources Regional Plan was notified. The rule is available on the Environment Canterbury website: <http://www.ecan.govt.nz/Plans+and+Reports/TransitionalRegionalPlan/>.

² <http://www.ecan.govt.nz/Plans+and+Reports/annualPlansReports/>

³ Two abatement notices have subsequently been withdrawn.

Overall there continues to be a high level of non-compliance, there are a number of farms that are performing very well. This report includes examples of the types of practices being undertaken on these farms in order to highlight best practice.

Environment Canterbury will continue to monitor all dairy effluent disposal authorisations in the coming season, with a focus on assisting farmers with minor issues to achieve compliance and increasing both enforcement action and monitoring frequency for those farms where there is a history of significant or major non-compliance issues.

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1 Introduction

1.1 Organisational context

The purpose of Environment Canterbury is to achieve a sustainable environment, protect from disasters and natural hazards, and ensure safe and efficient movement of people and goods for the benefit of people, communities and future generations, at a reasonable level of monetary and personal cost.

Environment Canterbury, in conjunction with other organisations and agencies with a stake in Canterbury's future, has identified a set of community outcomes⁴. These are essentially the outcomes that the community has decided are a priority for the region.

The Long Term Council Community Plan 2006-2016 (LTCCP)⁵ sets out the activities that Environment Canterbury will undertake to further these community outcomes. These activities fall into the following groups:

- Investigations
- Policy-making and planning
- Environmental monitoring
- Regulating and enforcing
- Operations (provision of direct services to the community, i.e. public transport)
- Communicating, educating and advocating

This report is on the regulating and enforcing activities undertaken by Environment Canterbury with regard to the disposal of dairy shed effluent. While Environment Canterbury has a statutory obligation to undertake this work (see section 1.2), it also contributes to achieving the following community outcomes:

- Water is in a healthy condition, clean and plentiful enough to support life
- Business and farming activities do not harm the environment
- Environment, in general, is to be looked after

The disposal of dairy shed effluent to land can adversely affect these outcomes where it is not managed appropriately, particularly with regard to water quality.

However, regulation of the disposal of dairy shed effluent will not deliver improved water quality in isolation. Therefore, Environment Canterbury is also undertaking work in the other activity areas to ensure that water quality is protected. This work includes carrying out investigations to enable a better understanding of the environment, writing policy and planning documents in consultation with the community to enable sustainable development of the water resource and environmental monitoring in order to measure the effectiveness of the Councils activities and identify any trends in water quality.

In addition to these activities, Environment Canterbury provides education and support to the community through the work of the Resource Care section. This section has a number of rural initiatives in place including the practice of offering on-farm visits to discuss and offer suggestions on proposals that benefit both the business and the environment prior to conversion, working with individuals within the Living Streams programme and involvement with the Canterbury Dairy Action Team.

⁴ Report available at : http://www.ecan.govt.nz/NR/rdonlyres/5CD52D8F-9485-466C-B897-D5DA72CB3481/0/LTCCP_CO_Report_2008.pdf

⁵ <http://www.ecan.govt.nz/Plans+and+Reports/annualPlansReports/>

1.2 Regulating and enforcing – what we monitor

Environment Canterbury is responsible for administering the requirements of the Resource Management Act 1991. This act states that no person may discharge any contaminant onto or into land in circumstances which may result in that contaminant entering water, unless the discharge is expressly allowed by a rule in regional plan (and in any relevant proposed regional plan), a resource consent, or regulations.

In Canterbury, during the 2007/2008 season, 560 farms held resource consents authorising the disposal of dairy shed effluent to land, while a further 136 farms continue to dispose of effluent under a rule in the Transitional Regional Plan.

Section 35 (2) of the Resource Management Act, 1991, states that:

Every local authority shall monitor –

- (b) The efficiency and effectiveness of policies, rules, or other methods in its policy statement or plans; and*
- (d) The exercise of the resource consents that have effect in its region and take appropriate action where this is shown to be necessary*

Therefore, Environment Canterbury undertakes monitoring of the disposal of dairy shed effluent within its region in order to both satisfy the statutory obligations imposed under Section 35(2) of the Resource Management Act 1991, and to ensure that the disposal of dairy shed effluent does not jeopardise the achievement of the relevant community outcomes.

On dairy farms approximately 10% of the total effluent generated daily is derived from the milking shed⁶. The remaining 90% of the effluent is not currently controlled by resource consents or permitted activities.

1.3 The monitoring process

In the 2007/2008 year, 696 dairy farms were monitored in order to determine compliance with the conditions of the relevant consents and permitted activities. Prior to each farm visit, the Environmental Protection Officer reviews the history of the farm including details of any previous non-compliance, information regarding the disposal area and sensitive areas on the property and the number of cows being milked. All inspections are carried out without any prior warning.

At the time of inspection all efforts are made to contact the most senior person onsite, such as the farm manager or consent holder. When there is no one available on site to talk to, a notice of inspection is left in a prominent position with the Officers contact details and the reason for the visit.

While onsite, information is collected on the peak number of cows milked during the season, the number of hectares used for effluent disposal, whether the effluent storage pond is sealed, and how regularly the travelling irrigator is moved.

An inspection of the effluent disposal system is then carried out. This will include, as a minimum;

- Checking the dairy yard and associated channels to ensure that dairy effluent was not being washed into unlined areas or surface water bodies.
- Examining the effluent storage system for evidence of sump overflows (both recent and historical) and for sealing. (For effluent storage ponds, written evidence of pond sealing is also required).

⁶ Cameron & Trenouth, (1999), "Resource Management Act – Practice and Performance: A case Study of Farm – Dairy Effluent Management"

- Walking over the disposal area to assess the effluent application rate, check for any effluent ponding on the soil surface and to ensure that the appropriate buffer distances are being maintained between bores, soak holes and waterways.
- Checking the effluent pipeline for any breaks or leaks.

Where issues of non-compliance are identified during an inspection they are immediately reported back to the person in charge (if possible) with verbal instruction to rectify the situation. A notice of alleged offence may be issued to the consent holder or farm employee at that stage.

In serious cases an abatement notice may be subsequently issued requiring a certain action to be undertaken, or an activity to cease. Other enforcement action may be taken for serious or repeated breaches such as infringement notices (\$750 fine) or prosecution.

All inspections are followed up with a monitoring report to the consent holder outlining compliance with individual conditions of their consent or permitted activity and summarising any issues that may have been encountered during the visit. The report will also detail any remedial actions that are required and a timeframe within which they are to be completed.

2 Monitoring results

2.1 How compliance is measured

Compliance is assessed by the Environmental Protection Officer while onsite and each consent condition is graded according to the level of compliance. The main compliance grades are as follows:

- Grade 1 – Fully compliant
- Grade 2 – Minor non-compliance
- Grade 3 – Significant non-compliance
- Grade 4 – Major non-compliance

Further details of how individual conditions are graded, are set out in Appendix 1.

The compliance statistics in this report are presented in two ways, by the overall grade and by total condition compliance. The two methods are described below.

Overall Compliance.

The overall compliance grade is derived from the consent or permitted activity condition that has the most significant non-compliance grade. For example, where one condition is graded as having minor non-compliance (grade 2) and another is graded as having significant non-compliance (grade 3), the overall grade becomes 3, significant non-compliance. The overall compliance statistics are provided in table 2.1 below.

Total condition compliance.

This statistic shows the total number of conditions monitored on all dairy effluent consents and permitted activities in the Canterbury Region over the 2007/2008 season, and compares this figure to the total number that were graded 1, fully compliant. This data is presented in table 2.2 below.

Why use two different methods?

Neither method of displaying the compliance statistics gives a truly accurate picture of the level of compliance when considered in isolation. For example, a property graded 2 on one condition will lower the overall compliance figure, despite being fully compliant on all other conditions on the consent. On the other hand, with the total condition compliance figure alone, it is not possible to know whether the majority of farms are failing to comply with a couple of conditions, or a small number of farms are failing to comply with the majority of their conditions.

2.2 Overall compliance results

A total of 696 authorisations to discharge dairy effluent were monitored in the Canterbury region during the 2007/2008 dairy season. Of these, 560 were operating with a resource consent and 136 were covered by the permitted activity rule in the Transitional Regional Plan relating to discharges of animal effluent onto land.

Overall, 45.8% of all farms were fully compliant with all of their consent or permitted activity conditions, and 89.5% of all conditions monitored were being complied with.

The number of farms with significant or major issues of non-compliance has increased slightly in the past year to 20.0%, from 17.7% in 2006/07. This is likely to be partly due to Officers escalating minor non-compliance issues to significant non-compliance, where an ongoing issue or repeat offence that has not been resolved when initially requested.

Table 2.1 Overall compliance results 2007/2008

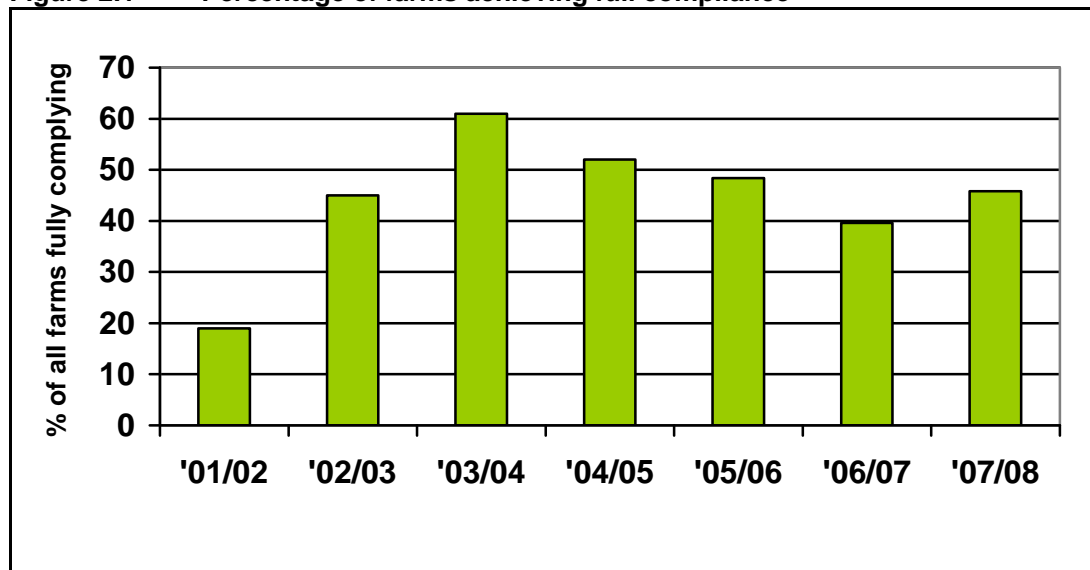
Overall Compliance						
	Total		Permitted Activities		Consents	
Number of farms	696		136		560	
Overall Grade 1 Full Compliance	319	45.8 %	72	52.9 %	247	44.1 %
Overall Grade 2 Minor Non-compliance	238	34.2 %	40	29.4 %	198	35.4 %
Overall Grade 3 and 4 Significant and Major Non-compliance	139	20.0%	24	17.7 %	115	20.5 %

Table 2.2 Condition compliance results 2007/2008

Total Condition Compliance			
	Total	Permitted Activities	Consents
Total number of conditions monitored	6443	773	5553
Total number of conditions grades fully compliant	5767	682	5008
Percentage complied with	89.5 %	88.2 %	90.2 %

Figure 2.1 below shows the percentage of consents and permitted activities that achieved full compliance over the past seven years.

Figure 2.1 Percentage of farms achieving full compliance⁷



⁷ In 2001/2002 not all dairy farms were monitored.
In 2005/2006 farms that had been fully compliant in previous years were not monitored.

2.3 Common issues

The same guideline as in previous years was used for assessing and responding to non-compliance issues, (Appendix 1).

2.3.1 Effluent ponding

The majority of farms (97%) utilise spray irrigation to dispose of dairy shed effluent. As in previous years, the main issue resulting from this method of disposal is the over application of effluent causing ponding on the soil surface.

This can be caused by a variety of factors including failure to shift the irrigator regularly, insufficient area being utilised for disposal, equipment failure such as pipe breakages or pump failure, inadequate system capacity or lack of sufficient effluent storage, resulting in effluent disposal occurring when soil moisture levels are already high.

Effluent ponding on the soil surface has both environmental and economic impacts. It causes the soil profile to become super-saturated and under such conditions only a small percentage of the nutrients available in the soil can be taken up by plants. The rest is lost when it is washed out of the soil profile, potentially contaminating groundwater.

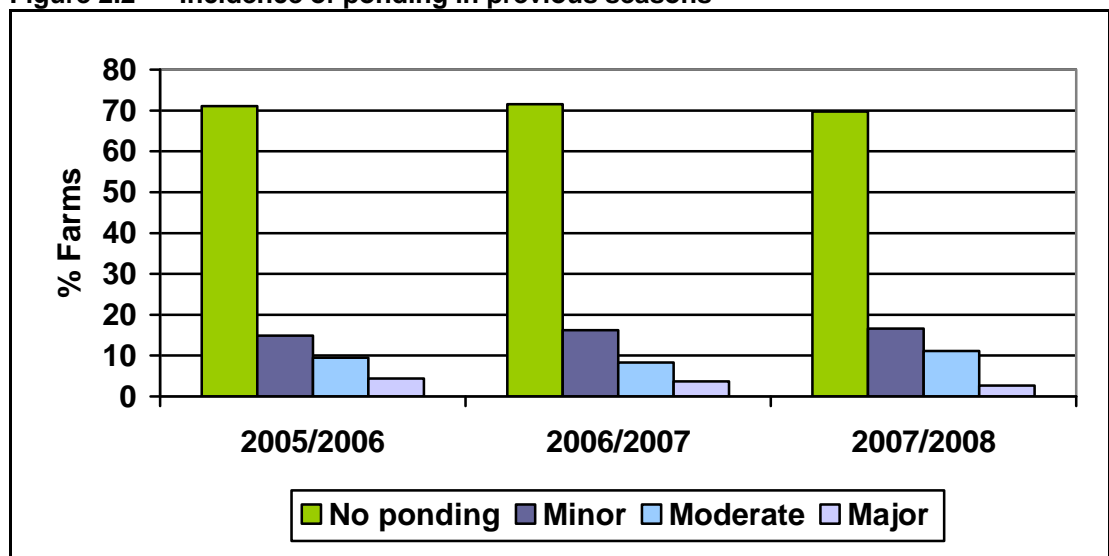
Alternatively, it may lead to surface run-off, which can contaminate waterways, neighbouring properties or other sensitive areas such as wetlands. There can also be adverse effects on pasture production due to negative impacts on the pasture species composition, grass die-off and increased weed growth.

The incidence of effluent ponding in the 2007/2008 season is set out in table 2.3 below. As can be seen in Figure 2.2, the level of effluent ponding has not changed significantly over previous 3 seasons.

Table 2.3 Incidence of effluent ponding on disposal area

	Total	Permitted Activity	Consent
No effluent ponding	471	87	384
Minor ponding	112	28	84
Significant ponding	75	13	62
Major ponding	17	2	15

Figure 2.2 Incidence of ponding in previous seasons



2.3.2 Exceeding undiluted effluent limits

Dairy effluent disposal consents specify a limit on the daily volume of undiluted effluent that can be spread. Often the size of the milking herd will expand and the consent holder has not followed due process and applied to change the resource consent to reflect the increased volumes of effluent. Any volume of effluent discharged in excess of the consent limits is not authorised and the effects of the increased discharge on the environment have not been assessed.

The exceedence of this limit can often highlight that the effluent disposal system has not been upgraded to handle the increased volumes of effluent being produced. This can lead to non-compliance with the conditions of the consent or permitted activity and subsequent adverse environmental effects.

A total of 46 (6.6%) farms were found to be exceeding the maximum undiluted effluent limits specified on their effluent disposal consent in the past season.

2.3.3 Nitrogen loading

Dairy shed effluent contains a high level of nitrogen and over application can increase the risks of nitrate-nitrogen leaching through the soil profile, causing both contamination of groundwater and a loss of nutrients from the farming system.

In order to limit the loss of nitrate-nitrogen to groundwater, a limit of 200 kg/nitrogen per hectare per year is imposed. This requires a disposal area of approximately 3.25 hectares for every 100 cows that are being milked.

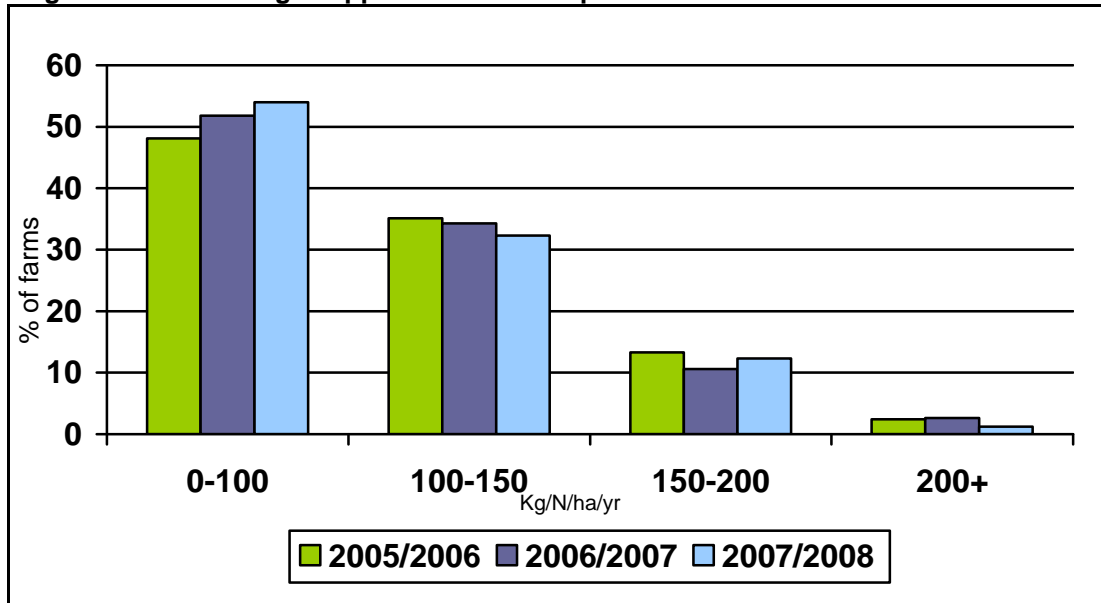
Table 2.4 shows the numbers of farms within each category. There is a high level of compliance with this requirement with the majority of farms applying effluent at a rate less than 100 kg/nitrogen per hectare per year.

Where the limit is being exceeded, the nitrogen loading can be reduced by either milking less cows or increasing the available disposal area.

Table 2.4 Nitrogen application rates from effluent disposal

	Total	Permitted Activity	Consent
0-100 kg/ha	376	69	307
100-150 kg/ha	225	44	181
150-200 kg/ha	86	19	67
200 + kg/ha	9	4	5

Figure 2.3 Nitrogen application rates in previous seasons



2.3.4 Discharges within 20 metres of a waterway

Effluent is not to be applied within 20 metres of any surface water body in order to reduce the risk of effluent runoff. This requirement was found to have been breached on 11 occasions in the 2007/2008 season. This compares with 8 observed breaches in the 2006/2007 season.

Unlike the previous season, where the main cause of discharges was due to over application of effluent and sump overflows, the main cause this season was due to the effluent irrigator being setup too close to a waterway. In one case it was due to effluent runoff from the disposal area.

Written warnings were issued to 6 consent holders where the incident was deemed to be minor. The remaining five properties were re-inspected and found to have achieved compliance with this requirement.

2.3.5 Discharges directly into water

A discharge of dairy effluent directly into water has the potential to cause significant adverse environmental effects. There were three incidences of direct discharges of effluent to water found during monitoring inspections in the past season.

Two of the incidents were graded as minor and related to small amounts of effluent being washed off sealed areas into a waterway. Due to the minor nature of these two events, the consent holders have been issued with written warnings and requested to take remedial actions to ensure any repeat occurrence is avoided. These will be followed up in the coming season and any further non-compliance is likely to result in enforcement action being taken.

Charges have been laid in the third case and this is currently awaiting a court hearing.

In addition to these three cases, a further discharge was dealt with by the enforcement team. The offender in this case has been prosecuted.

2.4 Enforcement

All enforcement action is undertaken in accordance with the Compliance Monitoring and Enforcement Policy 2006⁸. This policy is designed to ensure that the use of the enforcement tools available to Environment Canterbury is transparent, and that people are treated in a consistent and equitable manner.

The enforcement methods most commonly used in relation to the disposal of dairy effluent, are infringement notices (\$750 fine, prescribed in the Resource Management (Infringement Offences) Regulations 1999), abatement notices (requiring an action to be undertaken or an activity to cease) and court prosecution (maximum fine of \$200,000 and 2 years imprisonment for any one offence).

The use of enforcement action taken by Environment Canterbury over the past three seasons has increased, as shown in Table 2.5.

Table 2.5 Enforcement action taken over the past three seasons

	2005/2006	2006/2007	2007/2008
Infringement Notices	3	22	30
Abatement Notices	1	26	33 ¹
Prosecution	0	0	3 ²

¹ Two abatement notices have subsequently been withdrawn.

Of the three prosecution cases in the 2007/2008 season, one has been convicted and fined \$8500.00 for a discharge to water and the remaining two cases have had charges laid and are awaiting court hearings.

2.5 Comparing 2007/08 to previous monitoring seasons

The results for the 2007/2008 season show little substantial change in the levels of overall full compliance over the past seasons and a static level of compliance based on the number of conditions complied with.

However, the levels of overall full compliance are still lower than those recorded in the three seasons prior to 2006/2007. Some of the possible reasons for this are:

- Increased scrutiny of repeated non-compliance. For example, where a farm has been graded 2 (minor non-compliance) for effluent ponding for 2 years prior, the Environmental Protection Officer is likely to escalate it to a grade 3 (significant non-compliance) if the same degree of ponding is evident this season. This is reflected in the increase in grade 3 non-compliances and a corresponding reduction in grade 2 non-compliances.
- Rapid growth within the industry is leading to increasing volumes of effluent to be disposed of. The effluent disposal systems in place are not always adequate to deal with this increased volume and require upgrading.
- The full impacts of increased enforcement action and recently launched industry initiatives are yet to be seen. (see section 3)

There are also a number of positive trends emerging from the data over the past seven seasons:

- There is a steady decrease in the nitrogen loadings. This may indicate that effluent disposal areas being expanded at a rate greater than the growth in effluent volumes. This does indicate an increased appreciation of the effluents nutrient value by applying it at a rate at which it is not lost to the environment through runoff into surface water ways or by leaching into the groundwater system.

⁸. A copy of this policy is available on the Environment Canterbury website; <http://www.ecan.govt.nz/Protection+and+Education/EnvironmentalRegulation/Plansand+Reports/>

- The incidence of major effluent ponding is decreasing. This is most likely due to an increased awareness amongst farm staff that the effluent irrigator requires regular checking and an increasing use of centre-pivot disposal systems.
- There is still a very low incidence of direct discharges of effluent to surface water occurring, when compared to national statistics. While three incidents of direct discharges to surface water is of concern, this does mean there were 690 other farms where this was avoided at the time of inspection.

Of all the conditions graded non-compliant in the 2007/2008 season, 38.3% had been graded non compliant for the same condition at least once in the previous two seasons, and 8.7% were non compliant with the same condition for the past three seasons. This suggests that there may be a number of farms within the industry who are failing to address matters of non-compliance on an ongoing basis.⁹

Overall there is still scope for substantial improvement with the level of compliance. Environment Canterbury will continue to work with the industry over the coming months to effect this change.

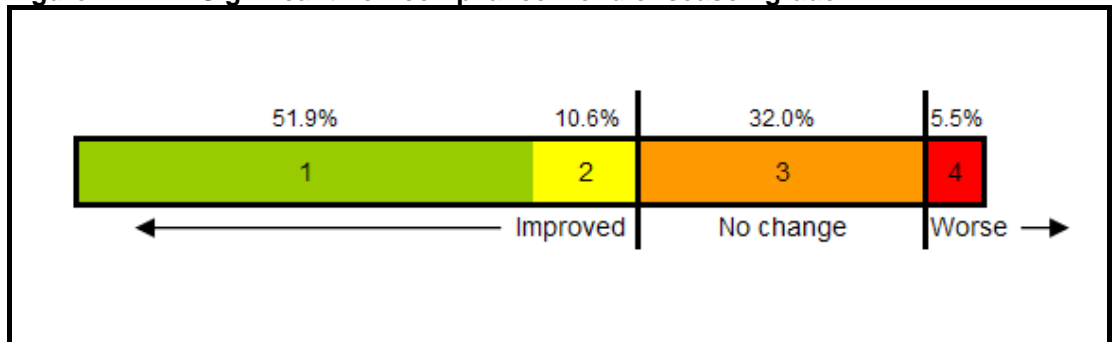
2.6 End of season results

When non-compliance is graded as significant (grade 3) or major (grade 4) by an Environmental Protection Officer, a follow up inspection is carried out to ensure that the matter has been resolved.

Figure 2.4 below shows the final grade applied to all conditions graded as significantly non-compliant upon the first inspection of the season. This indicates whether those conditions graded as significantly non-compliant at the start of the season improved their level of compliance, stayed the same or in some cases got worse over the course of the season.

51.9 % have achieved compliance during the season, however 37.5 % remained the same or got worse. Some of the conditions that remained as grade 3 will be because they were inspected near the end of the season and there has been insufficient time to carry out a follow up visit before the season end.

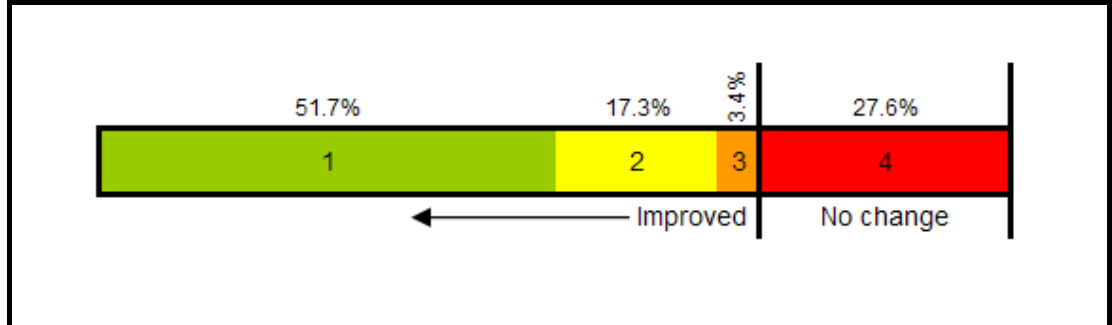
Figure 2.4 Significant non-compliance – end of season grade



⁹ Note that these figures are calculated based only on farms that have had the same consent or permitted activity for the past three seasons.

Figure 2.5 shows the final grade applied to all conditions graded as majorly non-compliant upon the first inspection of the season. Just over 50% of farms achieved full compliance by the end of the season. As with the grade 3 non-compliances, those near the end of the season may not have received follow up visits and therefore remain in the major non-compliance category.

Figure 2.5 Major non-compliance – end of season grade



2.7 Canterbury Resource Management Awards

At the 2008 Canterbury Resource Management Awards, the Community Category winner was the Pahau River Enhancement Group at Culverden. The group has improved water quality in the Pahau River by reducing levels of phosphorous and E.coli. It achieved this by double fencing to prevent stock access to waterways, redirecting border-dyke wipe-off water into detention ponds, and improving irrigation and effluent management. Efforts were supported by research and a number of workshops and field days. This project required action from a 16 or so large properties and the Amuri Irrigation Company.

3 Industry engagement

In an effort to improve the rates of compliance with dairy shed effluent consents, the industry has undertaken the following initiatives during the past season.

3.1 Fonterra Effluent Management Project

This was a joint project run by DairyNZ and Fonterra with support from Environment Canterbury. The projects operational objective was to:

- Achieve close to 100% compliance in the 2007/2008 season
- Achieve 100% compliance in the 2008/2009 season.

A secondary outcome of the project was to:

Gain experience and understanding of future ways to elevate environmental performance to a high level status within dairy farm strategic and operational thinking through having;

- Established a project process that can be used to achieve ongoing high levels of compliance in other regions or regulatory categories for the dairy industry.
- Further developed and tested support resources and tools, resource materials and information / training programmes that can be used by farmers / farm staff and their advisors in order to seamlessly achieve high compliance in the future.
- Gained greater understanding of the infrastructure, operational, attitudinal and motivational barriers to farmers achieving high levels of compliance with conditions of consents both inside and outside a monitoring programme.

Using the compliance data for the 2006/2007 season, suppliers who had minor non-compliance issues that did not appear to have been resolved were contacted by phone and offered assistance with achieving compliance. A total of 133 farms were in this category.

A further 72 farms were identified as having unresolved significant or major non-compliance issues in the 2006/2007 season. Of these, 46 were deemed to be due to infrastructure issues and inspections of their systems were undertaken by an agricultural engineer and recommendations subsequently made on possible improvements. The remaining 26 farms were contacted by telephone and offered assistance and visits by a representative of the project, if required.

The final group consisted of 33 farms which had been the subject of enforcement action over the 2006/2007 season. These farms were contacted by telephone and their issues had either already been resolved, or they were visited by an agricultural engineer or project representative.

The projects operational objective has not been achieved for the past season, and this is in some part due to the project being run concurrently with the 2007/2008 seasons compliance inspections. It is however expected that the effects of the project will be seen in subsequent years as the improved infrastructure and new management techniques take effect.

The secondary objective has been achieved with much being learnt about the most efficient methods of targeting assistance to suppliers should future projects such as this be run by Fonterra.

3.2 Sustainable Dairy Specialist Role

Fonterra is currently in the process of recruiting a second Sustainable Dairy Specialist for the South Island to assist in providing education and guidance to Fonterra suppliers. This role will be based at Clandeboye and is expected to commence work in the coming months.

3.3 Effluent Indicator System

The Fonterra Effluent Indicator System was released in 2007 and has been developed to assist suppliers who are convicted of an offence against the Resource Management Act (1991), in relation to the disposal of dairy shed effluent.

The system works with farmers after they have been successfully prosecuted, but are still failing to comply with their resource consent or permitted activity conditions. At this stage Fonterra will work with the supplier to formulate an Effluent Management Improvement Plan, to address the issues of non-compliance. Failure to meet the targets in the plan will result in a series of associated penalties being imposed by Fonterra. In extreme cases these penalties could result in Fonterra refusing to collect the suppliers milk.

There are currently no farms in the Canterbury Region that are included in the Effluent Indicator System.

3.4 Synlait

Synlait tracks compliance for all of their supply farms and is looking to provide assistance to high risk farms in the near future. The company is also in discussions with its suppliers about the possibility of making consent compliance and clean stream provisions a condition of supply.

Any existing farm that wants to supply the company is checked for environmental compliance prior to being signed up and all new farms are monitored throughout the conversion process.

3.5 DairyNZ Farm Enviro Walk

DairyNZ, (formerly Dexcel) have recently released a self assessment checklist to assist farmers to identify practices on their farms that may be leading to contamination of waterways¹⁰. This self assessment is accompanied by a technical support manual that provides information about effluent, nutrient and land management issues.

3.6 Dairying and Clean Stream Accord

The Dairying and Clean Streams Accord¹¹ is a voluntary agreement between Fonterra, Ministry for the Environment, Ministry of Agriculture and Forestry and regional councils. This was approved in May 2003 and is an industry self-management initiative to achieve positive environmental outcomes.

The Accord aims to minimise the impact of dairying on New Zealand's streams, rivers, lakes and wetlands so that they are suitable, where appropriate, for fish, drinking by stock and swimming. The Accord specifies targets to keep dairy cattle out of streams, lakes and wetlands, to treat farm effluent, and to manage the use of fertilisers and other nutrients.

The most recent progress report¹² shows that the targets to be achieved by 2007 have either been achieved, or are at least close to being achieved in relation to excluding cattle from waterways and nutrient management. However, the industry continues to struggle with the target of achieving full compliance with resource consent conditions and regional rules for dairy shed effluent disposal.

¹⁰ www.dairynz.co.nz/farmenvirowalk

¹¹ <http://www.mfe.govt.nz/issues/land/rural/dairying-accord-may03.pdf>

¹² The Dairying and Clean Streams Accord: Snapshot of Progress – 2006/2007, Full report available at <http://www.mfe.govt.nz/publications/land/dairying-clean-streams-accord-snapshot-feb08/index.html>

A recent report released by Fish and Game New Zealand and Forest and Bird¹³ claims that in catchments where the Accord has been monitored, water quality has generally continued to decline despite the Accord having been in place for 5 years. The report suggests that this is due to the Accord focusing on 'so-called best practice' instead of measurable improvements, questionable reporting methods and rapid land use intensification in recent years.

The reports criticism of the reporting methods appears to be well founded, with the information supplied by Fonterra and its shareholders in the Petries Creek and Rhodes Stream catchments being at odds with Environment Canterbury's physical inspections of the catchments in 2007.¹⁴ A Federated Farmers peer review of the Fish and Game New Zealand and Forest and Bird report questioned it's validity¹⁵

Environment Canterbury does however remain supportive of the Accord as one of the tools available to assist in maintaining and enhancing water quality in the region, It also needs to be acknowledged that the water quality issues being faced today are often the results of decades of land use and improvements in water quality may take longer to achieve than the brief time that the Accord has been in force.

3.7 Primary Sector Water Partnership

The Primary Sector Water Partnership is a group of major primary sector organisations, including Federated Farmers, Fonterra, Dairy NZ and Irrigation New Zealand.

This group has drafted a plan of action, which is in the consultation stage at the time of publishing. The main goal of the Primary Sector Water Partnership plan in the agricultural sector, is to improve water quality and quantity within five years. This is to be achieved through working in partnership with central and local government to develop sustainable water strategies and implement nutrient management budgets.

¹³ [http://www.forestandbird.org.nz/files/file/Dairying_and_Declining_Water_Quality\(3\).pdf](http://www.forestandbird.org.nz/files/file/Dairying_and_Declining_Water_Quality(3).pdf)

¹⁴ "Dairying & Clean Streams Accord. Results of Teir 2 Monitoring Within the Rhodes Stream/Petries Creek Catchment Areas" Environment Canterbury Report No. U07/82. ISBN: 978-1-86937-731-1

¹⁵ <http://www.fedfarm.org.nz/n1065.html>

4 Getting things right

The following are observations by Environmental Protection Officers of actions being undertaken on farms that assisted in achieving compliance.

4.1 In the shed

- Stormwater is diverted away from the effluent disposal system.
- The yard is wetted down prior to milking and scrapers are used prior to hosing down to reduce the volume of washdown water being used.
- All concreted areas are sufficiently bunded to contain effluent.

4.2 Sumps and storage systems

- All channels, sumps, pipes and storage facilities are sealed and well maintained.
- The stone trap is cleaned out regularly and the solids are placed on a concrete pad to dry and any liquid is able to run back into the stone trap. Alternatively the material is spread to land while complying with the buffer distances between waterways, bores and soakholes.
- Adequate storage capacity is available to allow for effluent irrigation to be deferred at times when soil moisture levels are too high to irrigate.
- Storage facilities are maintained with sufficient freeboard to ensure storage is available when required.

4.3 Effluent disposal

- Effluent irrigators are set up correctly and apply effluent at the lowest rate possible ensuring that ponding, effluent runoff and pasture damage does not occur.
- Disposal only occurs when soil conditions are suitable. This requires adequate on site storage (see 4.3 above).
- Regular checks are undertaken on the effluent irrigator and it is shifted as required.
- Where a travelling irrigator is used, the hose is laid out properly to prevent drag on the irrigator.
- Sensitive areas such as bores, waterways and soak holes are identified and the appropriate buffer distances maintained.
- The effluent application rate is measured routinely to ensure that the application rate does not exceed 50 % of the water holding capacity of the soil.
- The effluent application area is sufficient to maintain nitrogen application rates below 200 kg/ha/year and effluent is applied evenly over this area. (Note that the area may need to be larger to keep potassium levels within the optimum range).
- A nutrient budget has been prepared and is adhered to.

4.4 Management

- A management plan is maintained and displayed in a prominent place in the dairy shed, along with a copy of the consent.
- Staff responsibilities are clearly defined and staff are adequately trained in how systems operate.
- The equipment is maintained regularly as recommended by the manufacturer.
- Contingency measures are in place in the event of equipment failure such as a spare pump and contact details for vacuum tanker operator.
- A pre-season check is undertaken to ensure that the effluent disposal system is adequate for the coming seasons herd size and that all consent requirements are being complied with.
- Where effluent is injected into irrigation water that is connected to a ground or surface water source, either a reduced pressure zone backflow preventer or an air gap is installed to avoid back flow of effluent into the water source.

4.5 Further information

For further guidance on dairy effluent disposal best practice, refer to 'A guide to managing farm dairy effluent – Canterbury'. This provides detailed information on best practice management techniques and is available from Environment Canterbury's Customer Services by calling (0800)EC INFO, or can be downloaded from www.dairynz.co.nz.

5 Strategy for the 2008/2009 season

Environment Canterbury will continue to support industry initiatives that educate and assist farmers to dispose of effluent appropriately and will be working closer with industry representatives to address individual significant and major issues of non-compliance as they arise.

Table 5.1 provides a guide to the type of response that is likely to be recommended by the Environmental Protection Officer for a given situation. It is intended as a guide only and each case is assessed on its own merits. Where non-compliance is not rectified by the end of the dairy season (see Section 2.6), and this non-compliance is repeated in the 2008/09 season, there is likely to be an increase in the use of prosecution as the most appropriate enforcement option.

Table 5.1 Guide to use of likely enforcement action

Issue	Likely response
Significant or major non-compliance where there is no history of similar breaches in the past.	<ul style="list-style-type: none"> • Formal warning; or • Abatement and/or infringement notices in severe cases; and • Re-inspection to ensure compliance achieved.
Repeated significant or major non-compliance .	<ul style="list-style-type: none"> • Abatement and infringement notices; or • Prosecution; and • Re-inspections with repeated infringement notices until compliance is achieved.
Ongoing significant or major non-compliance where multiple infringement notices have not resulted in compliance being achieved.	<ul style="list-style-type: none"> • Prosecution; and • Continued increased monitoring frequency in coming seasons until such time as history of compliance is established
Discharge which results in a direct discharge to a surface water body or to groundwater (i.e. via a soak hole)	<ul style="list-style-type: none"> • Prosecution; and • Continued increased monitoring frequency in coming seasons until such time as history of compliance is established

The approaches that Environment Canterbury will take to address the different levels of non-compliance are detailed below.

5.1 Minor non-compliance

While the majority of the non-compliance identified by Environment Canterbury Environmental Protection Officers falls into the minor category, these minor breaches can often be an indicator of a failing that will in time lead to a more significant breach of consent conditions. Addressing these issues of non-compliance is likely to lead to a reduction in overall non-compliance in the long term.

Environment Canterbury will therefore be endeavouring to provide clearer guidance to farmers on what is required to rectify minor non-compliances, and where appropriate undertaking an increased level of follow up to ensure that they are rectified.

A letter has also been sent to all farmers reminding them to check that they are complying with all the conditions on their consent at the start of the season to ensure that any issues are dealt with early.

5.2 Significant or major non-compliance

The use of the enforcement tools available to Environment Canterbury will be increased in the coming season to address significant and major non-compliances.

At the recent Environmental Compliance Conference 2008, Environmental Lawyer Karenza de Silva stated that she believes local authorities currently under utilise both infringement notices and abatement notices, and that they are cost effective tools for achieving compliance.¹⁶

In the 2008/2009 season, farms that are assessed as having significant or major issues of non-compliance will be monitored with increasing intensity until such time as a history of compliance can be established. Where compliance is not achieved, multiple infringement notices will be issued against farm employees, owners, companies and directors, as appropriate.

Abatement notices will continue to be issued where it is appropriate to do so, and infringement notices will be issued for breaches of abatement notices where this is warranted.

Prosecution will continue to be utilised in extreme cases of non-compliance, such as direct discharges to water, however these incidents remain relatively infrequent in the Canterbury Region.

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http://www.solgm.org.nz/site/Business_School_Events/2008_LG_Environmental_Compliance_Conference.aspx

6 Conclusion

Environment Canterbury Officers have undertaken monitoring inspections of 696 effluent disposal authorisations during the 2007/2008 season. This has been undertaken in order to fulfil the Councils obligations in relation to Section 35(2) of the Resource Management Act 1991 and to further the achievement of the community outcomes identified in the Long Term Council Community Plan.

Overall compliance has improved slightly in the 2007/08 season when compared to the previous season; however there has been little significant change in compliance rates over the past 5 seasons.

There has been a slight increase in the level of significant and major non-compliance in the past season, but this may be due in part to officers escalating repeated minor non-compliances to significant non-compliance where resolution has not been forthcoming.

The incidences of discharges near and into waterways has increased when compared to last season, however the figures for the 2006/2007 season were unusually low and as a region Canterbury continues to have very low rates of direct discharges to surface water.

It is also positive that nitrogen loading rates as a result of dairy shed effluent disposal are dropping and the number of farms found to be breaching the 200 kg per hectare limit has reduced.

Analysis of the compliance data has also shown that over 50% of farms with significant or major breaches of their conditions achieve compliance by the end of the season, following re-inspection.

The amount of enforcement action taken in the 2007/2008 season has increased with more infringement and abatement notices being issued than ever before, and three farmers having charges laid against them for serious breaches of either their consent or the permitted activity rule. One of these offenders has been convicted and fined \$8,500 while the other two cases are awaiting court hearings.

The industry became increasingly involved in assisting their suppliers to achieve compliance in the 2007/2008 season, such as the Canterbury Effluent Management Project run by Fonterra. It is hoped that projects such as these will lead to an improvement in compliance rates in the coming years, and Environment Canterbury will continue to provide support to these projects where this is required.

Environment Canterbury's focus for the 2008/2009 season will be on assisting those farms with minor issues of non-compliance to achieve full compliance. Pressure on those farms with ongoing significant or major issues of non-compliance will be increased through greater use of the enforcement tools provided by the Resource Management Act and an increase in the level of monitoring undertaken. This will persist until a history of non-compliance can be established.

7 Acknowledgements

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Field inspections teams were:

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Appendix 1 Compliance Grades

Non-compliance Issue	Typical Grade	Typical Causes	Resolution Advice	Likely Environment Canterbury follow-up
Minor ponding identified	2	<ul style="list-style-type: none"> Travelling irrigator speed setting too low. 	Reduce rate of application. Assess system for faults. If fault found repair.	Advice given in Compliance Monitoring Report (CMR). No requirement to re-inspect.
Significant ponding identified	3	<ul style="list-style-type: none"> Failure to shift travelling irrigator. 		Advice given in CMR. Farm likely to be re-inspected. Possible infringement and/or abatement notices issued.
Severe ponding identified	4	<ul style="list-style-type: none"> Travelling irrigator malfunction. Hose breakages. Poor equipment maintenance. Storage facility overflow 	Possible major system fault. Have system assessed by qualified advisor.	Infringement and/or abatement notices likely to be issued. Re-inspection will be scheduled.
Nitrogen overload	2, 3 or 4 depending on severity.	Insufficient disposal area utilised for the number of cows being milked.	Extend the disposal area to ensure that nitrogen application does not exceed 200kg/ha/yr. (approximately 3.3 ha/100 cows), <u>or</u> reduce number of cows being milked.	Advice given in CMR. Date given before which the disposal area is to be extended or herd size reduced. The size of the disposal area will be fully assessed the following season to ensure that it has been extended.
Undiluted effluent exceeded (applies to resource consents only, not permitted activities).	2	Failure to apply for a change in consent conditions when increasing herd size.	Application to be made to change the relevant consent condition. This will require an assessment to ensure that the environmental effects of the increase are nil or minor.	Advice given in CMR that undiluted effluent volume has been exceeded. An application to change the relevant condition of the resource consent, or a new consent, is required to be made prior to a specified date.
Any increase in effluent volume where the disposal is being carried out as a permitted activity.	2	Failure to apply for resource consent when increasing herd size.	Apply for a resource consent to discharge effluent onto land.	Advice given in CMR that a resource consent is now required. An application is required to be made prior to a specified date.
Effluent discharge to water (including where effluent is running off into surface or ground water).	4	<ul style="list-style-type: none"> Effluent application rate on disposal area too high, resulting in runoff to surface water or soak-hole. Storage facility overflow Pipe breakage 	Cease discharge immediately.	Enforcement action will be taken, likely to result in prosecution.
Effluent disposal within buffer distance around a watercourse, groundwater bore or soak-hole.	3	Failure to identify location of waterway, bore or soak hole when setting up travelling irrigator.	Move irrigator to outside the restricted area.	Advice given in CMR. Likely to be re-inspected.
Failure to provide evidence that effluent storage facility is sealed.	2	Failure to provide evidence that effluent storage facility is sealed.	Either: <ul style="list-style-type: none"> Provide documentation showing that the storage facility is appropriately lined; or Test the storage facility to show that is sealed to the required standard; or Have the storage facility lined and provide evidence that it has been completed. 	Advice given in CMR that evidence needs to be provided. Continued failure to provide information may result in enforcement action.
Failure to install adequate backflow prevention where effluent is being injected into irrigation water.	3	Failure to identify the requirement on the resource consent for a backflow prevention device to be installed.	Install an appropriate backflow prevention mechanism recognised as acceptable by Environment Canterbury.	Advice provided in CMR that an appropriate backflow prevention system is to be fitted to the bore. Failure to have a system fitted within a specified timeframe may result in enforcement action.

Appendix 2 Area boundaries



Appendix 3 Examples of effluent ponding



No ponding - fully compliant



Minor ponding - Grade 2



Significant ponding - Grade 3



Major ponding - Grade 4