

Annual Report for WIL Nutrient Discharge Consent: Year Ending 30 November 2019

Waimakariri Irrigation Limited

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✦ Prepared for

Waimakariri Irrigation Limited

✦ November 2019



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1.0 Introduction

Waimakariri Irrigation Ltd (WIL) operates an irrigation scheme between the Waimakariri and Ashley Rivers, as shown in Figure A1 (Appendix A). WIL were granted consent CRC184861 on 4 September 2018 to discharge nutrients from farming activities occurring within the WIL scheme.

Condition 11 of CRC184861 requires an annual report to be prepared by 30 November each year. This report has been prepared by Pattle Delamore Partners (PDP) and Paul Reese from Water Strategies Ltd on behalf of WIL to fulfil the reporting requirements of consent CRC184861.

2.0 Consent Requirements

The reporting requirements for consent CRC184861 are outlined below.

Condition 11

The consent holder shall:

- a. Prepare an annual report which describes:*
 - i. The number of properties and the total area of irrigated land and unirrigated land of those properties listed in the Schedules;*
 - ii. The results of the ASM, which includes the audits that have been undertaken each year in accordance with Condition 10;*
 - iii. A record of the annual loss of nitrogen for the preceding 12-month period (being from the 01 August until the following 31 July) for all properties listed in the Schedules;*
 - iv. Any incidence of non-compliance with the requirements set out within the individual Farm Environment Plans;*
 - v. The actions taken by both the consent holder and (as necessary) the landowner(s) in the Schedule to remedy or mitigate non-compliance identified in accordance with Condition 10.*
- b. Provide a copy of the report to the Canterbury Regional Council, Attention: RMA Compliance and Enforcement Manager by the 30 November every year.*

3.0 Irrigated Land

Table 1 below shows the irrigated and unirrigated land within the WIL scheme. The irrigated and total farm areas were obtained from the individual farm environment plans (FEPs). Table 1 shows that there are 207 properties within Schedule CRC184861A (Schedule A) with a combined irrigated area of 22,880 ha

and a combined total farm area of 29,882 ha. The five properties in Schedule CRC184861B (Schedule B) hold their own resource consents specifying a nitrogen discharge allowance.

Table 1: Irrigated area within WIL scheme as at November 2019

	No. of properties	Irrigated area (ha)	Dryland area (ha)	Total area (ha)
Schedule A	207	22,880	7,002	29,882
Schedule B	5	855	205	1,060
Total	212	23,735	7,207	30,942

4.0 Results from Audited Self-Management Programme

Condition 10 of CRC184861 requires WIL to implement and adhere to an audited self-management (ASM) programme. The ASM document was developed by PDP and WIL and was submitted to ECan on 1 July 2016. A copy of the ASM document is included in Appendix B.

4.1 ASM Reporting Requirements

The ASM reporting requirements are outlined in Condition 10e of CRC184861, as follows:

Condition 10e

- e. *The consent holder shall prepare an annual report describing the results of the ASM programme and the audits that have been conducted each year. The report shall include:*
 - i. *The name of the FEP auditor(s);*
 - ii. *A summary of the audit performance grading;*
 - iii. *A summary of the reasons for any farm receiving a C or D grade;*
 - iv. *A summary of the actions taken to address C or D grades;*
 - v. *A summary of farms that repeatedly received a C or D grade;*
 - vi. *The progress achieved for previously identified issues, if applicable;*
 - vii. *The total annual loss of nitrogen from all properties within the Irrigation Scheme or Principal Water Supplier over the reported year.*

- viii. *The annual average nitrogen loss to water for each property listed in Schedule CRC184861A and Schedule CRC184861B, as calculated in accordance with Appendix CRC184861.*

4.2 FEP Auditors

All FEP Auditors have completed the Advance Sustainable Nutrient Management Course from Massey University and had been registered as accredited FEP Auditors by Environment Canterbury (ECan). Shareholders who have achieved Synlait's *Lead with Pride* accreditation were not audited through the WIL FEP audit programme, but their equivalent grades are reported here.

In the 2018-19 season, the WIL farm environment plans (FEPs) were audited by five auditors, as listed in Table 2.

Table 2: FEP Auditors

Name	Organisation	Certification	Audits Completed
Paul Reese	Water Strategies Ltd	ECan certified	18
Dugald Mclean	Water Strategies Ltd	ECan certified	27
Emma Brand	Independent	ECan certified	12
Alison Van Polanan	EnviroPlan	ECan certified	2
Laura Bunning	Water Strategies Ltd	Under supervision	N/A

4.3 Summary of FEP Audit Grades

The ASM programme administers a total of 108 FEPs. This is made up of 101 WIL FEPs and seven Ngai Tahu FEPs. All seven Ngai Tahu FEPs are dairy platforms. Three of these properties receive WIL water and the remainder receive water from the Ngai Tahu take consent (CRC172924). For ease of management, there are four other Eyrewell properties owned by Ngai Tahu which are managed under the WIL ASM programme. Ngai Tahu reports nutrient discharge compliance for these properties.

In the 2018-19 season, there were 59 FEP audits completed by the auditors detailed in Table 2. In addition, there were nine audits which were delayed and/or rescheduled at a time to suit, these are detailed in Table 3.

Table 3: Delayed FEP Audits

Reason	Number
Mycoplasma Bovis incursions	2
Waiting on irrigation infrastructure upgrade completion	1
Requirement to audit during irrigation season	3
Farm sale process	2
Request due to other unforeseen circumstances	1

There are currently three shareholders, and two pending, who are certified under the Synlait *Lead with Pride* programme. Shareholders who have *Lead with Pride* Accreditation are not audited under the WIL programme, but their equivalent grades are collected and are reported here.

The results of the 59 2018-19 FEP audits are shown in Table 4 below.

Table 4: 2018-19 FEP Audit results

Grade	Audits Completed	Percentage
A	13	22%
B	37	63%
C	8	13%
D	1	2%
Total	59	100%

4.4 Reasons for C or D Grades

There were eight C grades issued during the 2018-19 audits, which is down from 12 C grades in 2017-18. As in 2017-18, there was one D grade issued in 2018-19. Typically, there was no one single reason for a farm receiving a C or D grade but rather a combination of factors. This is demonstrated in Table 5.

Table 5: Summary of Reasons for C or D Grades

Irrigation Management	Number of C or D Audits with Issue Identified
Soil Moisture Monitoring/Irrigation Scheduling	9
Calibration & Maintenance	3
Management and Procedures	1

Table 5: Summary of Reasons for C or D Grades

Soils & Cultivation Management	
Winter Grazing Management	1
Collected Animal Effluent Management	
Management of Effluent Systems	1
Insufficient Effluent Storage	4
Calibration of Effluent Irrigators	1
Waterbodies Management	
Waterbody Management	5

4.5 Actions Taken to Address C or D Grades

All the remaining C and D grades across the scheme are actively managed to improve the issues identified and make step changes to improve farm practices and environmental impact. Of the eight C grades issued, three have since been re-audited as a B. Actions undertaken to rectify the each of the C and D grades are listed below in Table 6. Further information about the D grade property is detailed below in section 4.5.1 of this report.

Table 6: Actions taken to address C or D Grades

Property	Previous Grade	Current Grade	Follow up action taken
C Grade			
1	C	B	Irrigator calibrations have been undertaken and soil moisture probes installed
			Winter grazing management plans are in place for adverse soils conditions
2	C	B	Irrigator calibrations have been undertaken and soil moisture probes installed in 3 locations
			A larger Effluent storage pond has been built
3	C	B	Previously this property relied on a combination of drinkers off natural waterways (dryland block) and stock water races for stock water. All drinkers were poorly managed and had some physical challenges to manage well. Whole farm water reticulation system has been installed across both blocks.
4	B	C	Stock crossings options being investigated across natural waterway
			Soil moisture probes installed; Irrigation management plan being formulated

Table 6: Actions taken to address C or D Grades			
Property	Previous Grade	Current Grade	Follow up action taken
			Effluent system upgrade and management options being investigated
			Effluent irrigator calibrations being completed
5	C	C	Fencing being completed on stock water races
			Soil moisture probes installed, Irrigator calibrations and management plan being completed
6	C	C	Fencing and planting to protect the waterbody has been started. Work in progress. This is an ongoing work with the farmer as finances allow
			Soil moisture probes installed
7	C	C	Soil moisture probes installed
			Waterbody management plan when wet and damage can occur
8	C	C	Redesign of stock races and fencing next to the waterways and wet paddocks
			Upgrade of effluent capture system
			Irrigation calibrations
			Soil moisture probes installed
D Grade			
9	D	B	Redesign and upgrade of effluent capture area
			The new owners changed the yard management, and this has created an issue with a feeding pad
			Soil moisture probes installed

4.5.1 D Grade

During the 2018-19 season, one property received a D grade audit. The property changed ownership during 2018 and the new owner altered the yard management to include a feeding pad for the cattle.

Actions taken to rectify the issues were:

- ∴ Instruction to install a hard surfaced feedpad that is able to be scraped and the effluent captured to the existing effluent system.

The farm is due to be re-audited in December 2019.

4.5.2 Incidences of Non-Compliance

There has been one incidence of non-compliance with FEP requirements.

This has been a Land and Water Regional Plan (LWRP) effluent compliance issue dating back 3 years.

This farm initially received a D audit grade in 2017 and 2 subsequent C grades from a number of poor GMP practices on the property. The effluent management and infrastructure that related to the effluent consent non-compliance was one of these. Staffing issues on-farm with a high turnover of key staff has compounded the problem.

To assist the farm there has been ongoing one-on-one interactions and dedicated resource led by WIL, along with input and support from Fonterra and ECan.

Actions taken to rectify the issues were:

- ✧ Full farm and FEP review and pre-audit action plan formulated;
 - This captured infrastructure, health and safety and GMP practices
- ✧ Outside expertise introduced to help with the staff turnover and management;
- ✧ Outside expertise to redesign the effluent infrastructure;
- ✧ Intervention by WIL senior management to convey the seriousness of the situation.

The improvements made were installation of soil moisture monitoring, improved irrigation management, decommissioned old fertiliser storage and new storage constructed, effluent system maintenance and upgrades, changes to herd management and stock movements and increased labour units on the farm.

Following the assistance offered, the farm was independently re-audited in October 2019, and was successfully awarded a B grade.

4.6 Farms that have Repeatedly Received C or D Grades

There have been no repeat D grades as they are proactively managed to improve their practices and rectify the issue. In order of importance D grades and then repeat C grades and the new C grades are targeted with dedicated resources.

Repeat C grades are actively managed with one-on-one assistance from the WIL scheme environmental manager and other advisors as recommended. This ensures there is outside influence and expertise, a clear action plan and timelines to complete actions within the bounds of the farmer financial and physical constraints. In some instances, there are multiple issues that require investment and time to enable improvements. Where there are multiple issues, priority is

given to the problem with the most potential to improve and the severity of the issue. These tend to focus on irrigation, effluent and waterbody management.

As can be seen in Table 6 above, there have been four repeat C grades. Table 7 details the land use and management areas, with issues identified for each of the repeats.

Table 7: Details of repeat C grades

Farm	Land use	Management Areas with Issues Identified
4	Small scale dairy	Waterbody, Effluent and Irrigation
5	Small scale beef finishing	Waterbody and Irrigation
6	Small scale deer	Waterbody and Irrigation
7	Small scale deer	Waterbody and Irrigation

4.7 Progress Achieved for Previously Identified Issues

4.7.1 NEWMS Project

The analysis of the audit grades shows that one of the most critical issues was the implementation and use of irrigation scheduling. As a result, the NEWMS (Nutrient, Environmental Water Management System) project was initiated three years ago, this requires all farms with an FEP to install the Regen irrigation scheduling service. Regen is a combination of soil moisture monitoring and water flow meters per irrigator, on a one to one basis where possible, and a network of climate stations to provide up to date and detailed weather information to inform the irrigation decision making. This project has been installed over the previous three years. As of October 2019, Regen is now installed on 95% of the WIL properties. There has also been the investment in 18 weather stations spread over the scheme to provide accurate and localised climate data including ET, rainfall and temperature.

Each year in response to the shareholders' needs, WIL facilitate workshops and field days. Table 8 below shows the workshops organised and facilitated by WIL for the 2018-19 season. Tracking of the audit results allows the further education and workshops offered to be targeted specifically to the shareholders' needs.

Table 8: WIL workshops and field days

Workshops / field days	Date
Two Irrigation NZ irrigation manager training	Nov 2018 Feb 2019
Six Regen review workshops*	March 2019
*Regen undertook extensive one on one training as each farm was commissioned to ensure the irrigation managers understood the information and were confident in using the recommendations.	

4.7.2 Natural Landscape Projects

At a catchment and a farm level, there are actions being undertaken to enhance and improve the natural landscape. In July 2018, WIL undertook a study¹ to determine the natural biodiversity and complete a stocktake of the scheme area. This has identified numerous areas of interest and two stream catchments (Burgess Stream and Hunters Stream) that have been prioritised to enhance and improve. Burgess Stream is the first catchment to be worked on with a catchment group formed with all farmers made aware of the objectives and importance of the stream.

Ecological and cultural input is being sought to help determine outcomes for each of the areas. On-farm plans are drawn up that include infrastructure changes of fences and tracking improvements and planting to protect the stream. Funding is being sought to enable fencing and planting to commence during 2020.

On-farm, there are many individual projects and opportunities identified through the FEP and audit process to improve practices, infrastructure and to protect and improve natural landscapes and waterways.

4.7.3 GMP Progress

The FEP and audit programme is in the third year now with most farms having been audited at least twice. The improvement in A and B audit grades awarded is most notable with the percentage of A and Bs from the first audits conducted in 2017 shifting from 68% awarded to 80%² awarded in the 2018-19 audits. There are now 10% C grades and only 1% D grade. To achieve this, there have been several factors that have enabled the shift and implementation of GMP.

To measure the shift in practices and improvements occurring, the irrigation objective of the audits has been tracked as an example. The measure used

¹ "Biodiversity in the Waimakariri Irrigation scheme: A stocktake of the sites of Ecological Interest" 26th July 2018.

² As at July 2019

during an audit is a 'Level of Confidence' (LOC) assessment. This is an assessment that the objective and targets as set out in the Industry agreed good management practices booklet are being met. For irrigation, the overall objective LOC rating (high, medium or low) is made up of four targets that include infrastructure, operation and maintenance, scheduling and training.

Using the results from the first round of audits in 2017, irrigation practices were identified as the management area requiring the most support and further education. As a response to this, WIL has provided opportunity for and encouraged further education through workshops, one on one discussions and the further support through the FEP updates.

As a result, the improvement from the first round of audits finished in September 2017 compared to the audits completed in the 2018-19 season has been considerable. There has been a 21% increase in the number of high LOCs awarded for the Irrigation Objective, and a 12 and 9% reduction respectively of medium and low LOCs awarded. This is represented in Table 9 and Figure 1 below.

Table 9: Level of Confidence awarded for Irrigation Objective

Level of Confidence	Sep-17	Oct-19	% Change
High	11%	32%	+21%
Medium	79%	67%	- 12%
Low	10%	1%	-9%

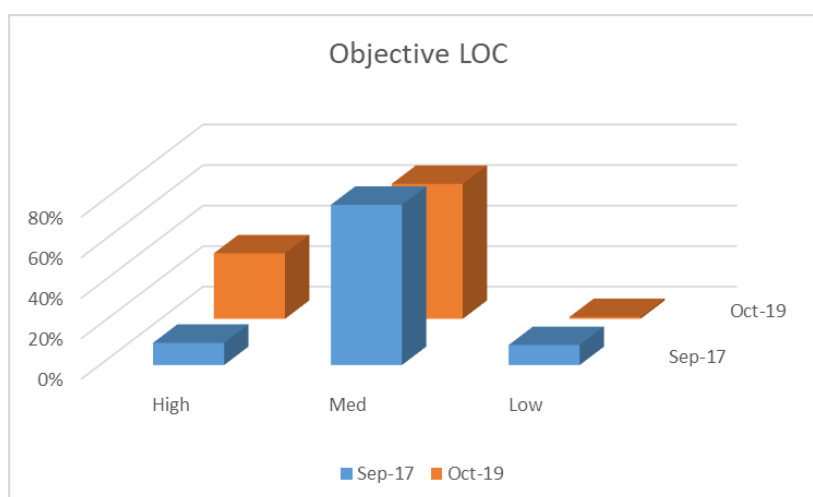


Figure 1: Irrigation Objective Level of Confidence 2017 to 2019

Table 10 provides a summary of all the current audit grades for all 108 FEPs managed by the WIL scheme.

Table 10: Summary of all current FEP grades

Grade	Audits Completed	Percentage
A	21	19%
B	76	70%
C	10	9%
D	1	1%
Total	108	

5.0 Annual Nitrogen Loss

5.1 Schedule A Properties

Table C1 (Appendix C) shows the annual nitrogen loss for the period 1 August 2018 – 31 July 2019 for all properties listed in Schedule A of consent CRC184861.

Table 11 below provides a summary of the nitrogen losses for properties listed in Schedule A for each of the three nutrient allocation zones (NAZs). As shown in Table 11, the current nitrogen losses are less than the consented limits for the Ashley-Waimakariri (red), Ashley (orange) and Waimakariri (green) zones.

Table 11: Summary of nitrogen losses for Schedule A for the period 1 August 2018 – 31 July 2019

	Nutrient Allocation Zone		
	Ashley-Waimakariri	Ashley	Waimakariri
Consented limit (kg/yr)	3,108,197	194,698	8,558
Aug 2018 - Jul 2019 (kg/yr)	2,216,042	156,237	7,711
% of limit	71%	80%	90%

5.2 Schedule B Properties

At present there are five properties in Schedule CRC184861B (Schedule B). Details of these consents are shown in Table 12 below.

Table 12: Summary of consents in Schedule B

Consent Holder	Resource Consent Specifying NDA	NDA (kg N/ha)
Eyrewell Dairy Limited	CRC160478	69 (6.3.2)
Keswick Farm Dairies Limited	CRC169538	Red: 36; Orange: 43 (6.3.2)
Carleton Dairies Limited	CRC174943	52 (6.3.2)
Beauhill Trustee Limited	CRC175785	40 (6.3.2)
Schouten Dairies Limited	CRC180289	51 (6.3.2)

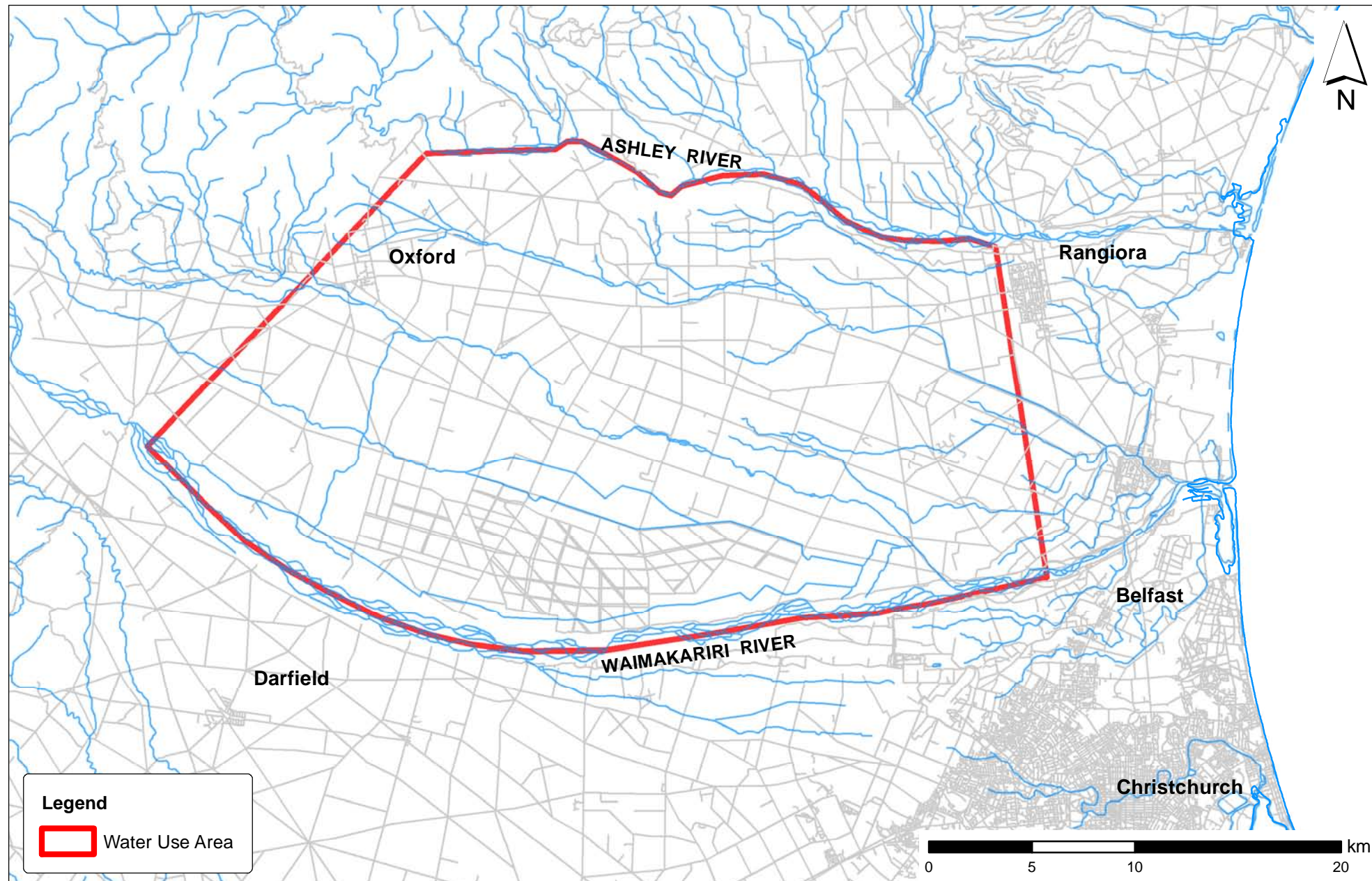


Figure 1: Area Within Which WIL Water May be Used

Appendix B

Audited Self Management Programme

Waimakariri Irrigation Limited

Audited Self-Management Programme

1.0 Introduction

1.1 Resource Consent

This Audited Self-Management Programme (ASM) has been prepared to satisfy the requirements of WIL's consent CRC184861 (condition 10).

The requirements for the ASM are as follows:

An Audited Self Management Programme (ASM) shall be implemented as follows:

- a. *The consent holder shall implement and adhere to an audited self-management programme (ASM), which is developed by a suitably qualified person and approved by the Canterbury Regional Council. The ASM document shall include but not be limited to:*
 - i. *Environmental targets and objectives for the scheme and its shareholders;*
 - ii. *The proposed monitoring and reporting regime including but not limited to a description of the:*
 - a. *FEP audit process and the frequency used to assess individual on-farm progress with the content of any FEP and Appendix CRC184861;*
 - b. *Methods used to follow up with shareholders who are not achieving the environmental objectives identified during individual on-farm audits;*
 - c. *The proposed data to be collected and reported to the Canterbury Regional Council;*
 - d. *Independent annual review of the FEP audit process;*
 - e. *How nutrients from all land subject to the scheme or principal water supplier will be accounted for;*
- b. *The consent holder shall provide a report to the Canterbury Regional Council describing the performance of the scheme in meeting its environmental targets and objectives by 30 November each year.*
- c. *Any significant changes to the ASM document shall be implemented only after approval confirmed in writing by the Canterbury Regional Council.*
- d. *FEP audits shall be undertaken by a suitably qualified person at the frequency determined by Appendix CRC184861, with the exception of the first audit, which shall be completed within 12 months of the FEP being completed.*
- e. *The consent holder shall prepare an annual report describing the results of the ASM programme and the audits that have been conducted each year. The report shall include:*
 - i. *The name of the FEP auditor(s);*
 - ii. *A summary of the audit performance grading;*
 - iii. *A summary of the reasons for any farm receiving a C or D grade;*
 - iv. *A summary of the actions taken to address C or D grades;*
 - v. *A summary of farms that repeatedly received a C or D grade;*
 - vi. *The progress achieved for previously identified issues, if applicable;*

- vii. The total annual loss of nitrogen from all properties within the Irrigation Scheme or Principal Water Supplier over the reported year.*
- viii. The annual average nitrogen loss to water for each property listed in Schedule CRC184861A and Schedule CRC184861B, as calculated in accordance with Appendix CRC184861;*
- f. A copy of the annual report shall be provided to the Canterbury Regional Council, by 30 November each year;*
- g. The FEP audit records and reports for each property undertaken in accordance with condition 5. shall be kept and supplied to the Canterbury Regional Council upon request.*
- h. The consent holder shall notify Canterbury Regional Council within 20 working days of any exclusion of a shareholder(s) from the ASM programme.*

Figure 1 (Appendix A) shows the extent of the Scheme.

2.0 Environmental Targets

WIL's primary environmental target (in regards to this ASM document) is:

- All shareholders will be at GMP by 1 September 2020

To achieve this target, all farms supplied with WIL water will have an initial FEP by 1 September 2016. By 1 September 2017 the FEPs will include definitive timelines as to how individual farms will be at GMP by 1 September 2020.

Some further environmental targets are:

- All FEPs prepared prior to 1 September 2016 will be audited by 1 September 2017
- All FEPs prepared after 1 September 2016 will be audited within 12 months of being completed
- There will be no D grade audits by 1 September 2018
- There will be no C grade audits by 1 September 2019

3.0 Farm Environment Plans

Farm Environment Plans (FEPs) are the principal tool for the delivery of the good management practice (GMP) outcomes, combined with an auditing process that encourages implementation of GMP measures.

WIL are using two ECan approved FEP templates:

1. All properties larger than 20 ha will complete the WIL online FEP.
2. For properties less than 20 ha in size¹ the ECan developed 'Lifestyle Block Management Plan' (LBMP) is being used. Although discretion is being used if the property warrants a full FEP due to the intensification of land use.

3.1 WIL Online Template

¹ This approach has been endorsed and approved by ECan (see correspondence with PDP and ECan April 2016) as a pragmatic implementation of consent conditions

- The FEP template that is being used is a joint venture between Opuha Water Ltd (OWL) and WIL and a third party technical provider. WIL and OWL jointly own the IP and each scheme have individual access to their program.
- It is an online version that has been approved by ECan for the delivery of the FEPs for the WIL Scheme. All Scheme FEPs must use this template to guarantee consistency.
- It is accessible through the WIL website <http://www.wil.co.nz>
- Each shareholder/farmer is given a unique username and password to be able to access and manage the FEP for themselves. It is a facilitated process controlled by the Scheme environmental manager or contractor to firstly draft and then finalise the FEP. The final versions are held centrally and will be updated at each audit.
- Copies of all farm plans will be held on file including future iterations of plans to enable monitoring of progress made on individual farms and across the Scheme area as a whole.

3.2 Lifestyle Block Management Plan (LBMP)

- This is an ECan developed template for small scale, low intensity properties that are required to complete a Farm Environment Plan.
- It is available through the ECan website <http://ecan.govt.nz/publications/Plans/Lifestyle-block-management-plan-Mar2015.pdf> or on request from WIL

WIL have set themselves a target of having all shareholder farms operating at GMP by 1 September 2020. The implementation of this progression towards GMP will be implemented through the FEPs.

3.3 FEP Process

3.3.1 Existing shareholdings

Step 1

Identify the properties where WIL water is used.

Step 2

Categorise the landholding for plan type (FEP or LBMP)

Step 3

Complete a FEP or LBMP - to complete the plan there is no specific requirement as to who carries this out; either land manager, owner, consultant, or with Scheme support. However it must involve the land manager or the person who is designated as the person responsible for implementing the plan.

It must be accompanied by:

- a. An “actual” nutrient budget (Overseer® or ECan approved alternative) for the previous production year
- b. Farm map in accordance with ECan LWRP Schedule 7

All FEPs and LBMPs must include:

- a. All land owned, leased or managed, that is associated with the farming operation both dryland and irrigated. Blocks that are not contiguous and within the WIL command area must also be included
- b. All water entitlements associated with any land associated with the operation. For properties that have both WIL water and other consented water takes (groundwater and surface takes), the WIL FEP must include all land area and water sources associated with the

property using WIL water whether it is dryland, irrigated via consented water or irrigated by WIL water.

Step 4

Submit the final² FEP/LBMP to WIL

3.3.2 New shareholdings or inclusion of new land area or properties into CRC184861 Schedule A

Before any water movement or transaction is approved by the WIL board of directors, they must first be satisfied the inclusion of new land area and the intended land use and management does not risk making the consents non-compliant.

Step 1

Identify the properties where WIL water is used

Step 2

Categorise the landholding for plan type (FEP or LBMP)

Step 3

Complete a FEP or LBMP (prior to submitting the proposal to the WIL board)

The FEP must include:

- a. Provide a predictive nutrient budget (Overseer® or ECan approved alternative) to demonstrate their N losses will be within modelled expectations of the nutrient loss below the root zone.
- b. An explanation and management plan of how management practices are going to meet GMP

Step 4

Submit the final FEP/LBMP to WIL

3.4 Overseer Modelling

All shareholders must do annual Overseer modelling, except for properties less than 20 ha in size.

3.5 FEP Review

At the completion of a FEP audit the FEP will be reviewed to monitor progress and ensure improvement towards, or beyond GMP. The reviewed and altered document will be submitted to WIL for recording and reporting purposes. The review is under the expectation that measurable steps are being taken to meet GMP and they will be included into the FEP under the continuous improvement objective.

3.6 Variations

1. When any 'significant'³ changes are made on-farm, the FEP must be updated within three months of the change. All 'significant' changes must be notified to the Scheme.

² As at 10th February 2016 all existing shareholdings and associated properties must have a completed FEP or LBMP before 1st September 2016.

³ "Significant" changes definition includes change in management personnel, land use, increase in irrigated area, infrastructure upgrades.

2. All water movements whether it is leased, sold, bought or changed use locations must be notified to the Scheme. All new areas must have a new FEP or be included into an existing FEP within three months of change.
3. Those properties less than 20 ha completing a LBMP will not be required to complete a nutrient budget⁴ (unless they are associated with a larger operation or by discretion on a case by case basis dependent on land use intensification).

3.7 Guarantees

Shareholders will agree, by signing a commitment statement, that the actions and management practices contained within the FEP suit the nature of their property and land uses, to give a high confidence of achieving the specified objective within an agreed timescale.

4.0 Auditing

4.1 Auditors

WIL will select auditors who meet the definition of a 'Certified Farm Environment Plan Auditor' in proposed Plan Change 5 of the LWRP, which is as follows:

means a person that either (a) is approved by the Chief Executive of Environment Canterbury as meeting the following criteria and is registered on the Environment Canterbury website as a Certified Farm Environment Plan Auditor or (b) is a member of an International Standards Organisation accredited audit programme that has been approved by the Chief Executive of Environment Canterbury as including audit criteria equivalent to that set out in Part C of Schedule 7; and

1. *has at least 5 years' professional experience in the management of pastoral, horticulture or arable farm systems; and*
 - a. *holds a Certificate of Completion in Advanced Sustainable Nutrient Management in New Zealand Agriculture from Massey University; or*
 - b. *holds a Certificate of Completion in Sustainable Nutrient Management in New Zealand Agriculture from Massey University; or*
 - c. *holds a tertiary qualification in agricultural science or demonstrates an equivalent level of knowledge and experience; and*
2. *is a current member of a Professional Institute that requires members to subscribe to a Code of Ethics and has a procedure in place for dealing with complaints made against members; and*
3. *demonstrates, to Environment Canterbury, proficiency in the auditing of Farm Environment Plans against the matters set out in Part C of Schedule 7.*

4.2 Auditing of Lifestyle Blocks

The Scheme recognises that all land associated with the use of Scheme water needs to be treated equally with the same GMP expectations.

Due to the predominantly low intensity nature of the lifestyle blocks they pose a significantly lower risk to the environment than a commercial property. There are however some small blocks that are farmed more intensively.

⁴ Nutrient losses from the smaller properties will be accounted for in WIL reporting to ECan based on a predetermined categorisation.

WIL therefore reserves the right to consider what level of investigation is appropriate on a case by case basis.

Requirements

To have an on-site inspection of the property at least once every four years on a rotation. The investigation will look specifically (but not exclusively) at:

- Irrigation management
- Grazing management
- Fertiliser management

This will be carried out by the WIL Environmental Manager or appointed person. The inspection will provide a grade A to D similar to the FEP grading based on a Level of Confidence (LOC) approach.

The LOC approach involves an assessment of the likelihood that each objective and associated targets have been met based on:

- Information provided at the time of audit (actual data, photographs, records, reports)
- Stated practice, provided it can be reasonably justified with other information or evidence
- Observation of actual GMPs
- Stated GMPs supported by evidence
- Nutrient budgets
- Field observation

All grades other than an 'A' will trigger some advice and support from WIL to rectify the issues identified.

This direct approach recognises that often the owners of the lifestyle blocks do not have the skills or knowledge of how to fix a problem or who to ask to help. The expectation will be that once advice is given on how to fix or who to ask for support the owner will follow it up independently of the Scheme.

4.3 Auditing of Other WIL Shareholders (Excluding Lifestyle Blocks)

Requirements

Audits must be undertaken by a suitably qualified person, as defined in section 4.1 of this ASM document.

Audits must be undertaken in accordance with the most recent version of the 'Canterbury Certified Farm Environment Plan (FEP) Auditor Manual'. They will be given a grade A to D based on a Level of Confidence (LOC) approach.

The LOC approach involves an assessment of the likelihood that each objective and associated targets have been met based on:

- Information provided at the time of audit (actual data, photographs, records, reports)
- Stated practice, provided it can be reasonably justified with other information or evidence
- Observation of actual GMPs
- Stated GMPs supported by evidence
- Nutrient budgets
- Field observation

Figure 2 (Appendix A) shows a flow chart of the audit process.

All new FEPs will be audited within one year of completion.

In the subsequent years depending on the grade achieved in the audit the interval between audits shall be no greater than four years. Figure 3 (Appendix A) shows a diagram of the audit interval.

Audit grade	Audit Return interval
A	4 years
B	2 years
C	12 months
D	6 months

For A and B grade audit results, the interval will revert to within 12 months if there is a change in management or a significant change in farm systems. A significant change in farm systems is defined as: “a change in the farm system means whole farm operation conversions, including but not limited to, converting between dairy support, dairy platform, sheep & beef and cropping; and also any introduction of a new stock type to the farm, e.g. deer or wintering dairy cows. Changes such as, varying the type of crop grown or varying the relative proportions of stock types do not constitute a farm system change.”

Audit reports must be submitted to WIL within 14 days of completion.

Following the initial audit round finishing on 1 September 2017, the Scheme will select ¼ of ‘A’ grades and ½ of ‘B’ grades to begin the next round of audits. The selection of the properties each year until 2020 will be at the discretion of the Scheme and will form the basis of the audit rotation for the following years. This will ensure that all FEPs are reviewed at least twice before the expiry of consent CRC142754.

To determine the selection priority the following criteria may be considered:

- Ability of current infrastructure to meet targets
- Costs and time required to meet GMP
- Staff turnover and training
- Robustness of current management systems
- Current nutrient losses
- Areas of high environmental risk

4.4 Independent Annual Review of the FEP Audit Process

An independent review of the FEP audit process will occur annually.

5.0 Post Audit Process

Following each audit the shareholder/land manager will receive an audit report culminating in a grade. This report will record progress against FEP actions. It can highlight areas where progress against identified actions has not been made and identify any new operational risks that were not recorded in the original FEP or have developed over the preceding time. The audit report will set out any problems that must be acted upon within a specific timescale.

All audit reports and updated FEPs will be kept on file and made available to the shareholder/land manager. These must be retained by the shareholder/land manager and will be used as the basis of future inspections.

The FEP and Audit report will be assessed by the Scheme. Depending on the grade the following responses will occur.

5.1 Farms Achieving 'A' Grade

Shareholders/land managers whose farms that have achieved an 'A' grade will be recorded as making excellent progress toward, or have met, GMP.

Farms in this category will be scheduled for the next audit in four years following the audit, unless there has been a change in management or a significant change in farm systems, in which case the interval will revert to within 12 months.

5.2 Farms Achieving 'B' Grade

Shareholders whose farms have achieved a 'B' grade will be recorded as making good progress.

For those environmental management areas where there is medium level of confidence that the FEP objectives can be achieved the Scheme will assess:

- a. Whether the actions in the FEP are specific, measureable, achievable in the timescale and realistic in terms of the level of risk and resources available;
- b. If the shareholder/land manager is on-track to implement the actions identified in the FEP; and
- c. If what has already been achieved and future actions will lead to a high confidence that the objective is being met.

The assessment on the above criteria will provide a second check and balance to the audit. The Scheme will provide a 'high' 'medium' or 'low' confidence rating that the subsequent audit grade will improve. No further action will be taken but the shareholder /land manager will be recorded as being 'on track', 'static' or 'deteriorating' to achieve the objectives in the FEP.

They will be scheduled for the next audit in two years, unless there has been a change in management or a significant change in farm systems, in which case the interval will revert to within 12 months.

5.3 Farms Achieving 'C' Grade

Shareholders whose farms have achieved a 'C' grade will be recorded as making some progress.

For those environmental management areas where there is moderate confidence that the FEP objectives can be achieved the Scheme will assess:

- a. Whether the actions in the FEP are specific, measureable, achievable in the timescale and realistic in terms of the level of risk and resources available;
- b. If the shareholder/land manager is on-track to implement the actions identified in the FEP; and
- c. If what has already been achieved and future actions will lead to a high confidence that the objective is being met.

The assessment on the above criteria will provide a second check and balance to the audit. The Scheme will provide a 'high' 'medium' or 'low' confidence rating that the subsequent audit grade will improve.

The Scheme will work with or facilitate the shareholder/land manager to identify what improvements can be made toward meeting the objectives in the FEP. They will be required to formulate a management plan within 2 months of the audit with clear timelines and actions they will undertake to meet the FEP objectives and move the audit grade into a 'B' category.

They will be scheduled for a further farm inspection within 12 months.

5.4 Farms Achieving 'D' Grade

A 'D' grade is unacceptable to the Scheme.

Shareholders whose farms have achieved a 'D' grade will be recorded as making poor progress.

All management areas which record a low confidence that the objective is being met will be highlighted as in need of urgent attention. Action will be required immediately to mitigate the risk.

For those environmental management areas where there is low confidence that the FEP objectives can be achieved the Scheme will assess:

- a. Whether the actions in the FEP are specific, measureable, achievable in the timescale and realistic in terms of the level of risk and resources available;
- b. If the shareholder/land manager is on-track to implement the actions identified in the FEP; and
- c. If what has already been achieved and future actions will lead to a high confidence that the objective is being met.

The Scheme will work with or facilitate the shareholder/land manager to identify what improvements can be made toward meeting the objectives in the FEP. They will be required to formulate a management plan within 1 months of the audit with clear timelines and actions they will undertake to meet the FEP objectives and move the audit grade into a 'C' or 'B' category.

They will be scheduled for a further farm inspection within 6 months.

5.5 Repeat 'C' and 'D' Grades

The Scheme wishes to see improvement to be able to meet GMP across all water users. If there are continuous underperforming shareholders/land managers then the following actions will occur.

Discuss and implement constructive options with the shareholders and farm manager to improve performance.

Impose additional charges to recover costs of extra audit management requirements and/or a penalty water charge.

Restrict water supply before other better performing shareholders face restrictions

Longer term water shut off

Terminate Water Supply Agreement

6.0 Exclusion from ASM Programme

If exclusion of any shareholder/land manager from the ASM programme occurs for whatever reason the Scheme will notify ECan within 20 working days from the date the exclusion took effect.

7.0 Non-cooperation or Non-compliance

Different levels can occur. The different levels need to be recognised with appropriate actions. The examples below do not provide an exhaustive list but gives an indication of the sort of non-cooperation or compliance that could occur and the possible sanctions.

Level	Example	Possible Action
One	Failing to provide information	Request for information
Two	Continued non-provision of information following request	Further request
	Nutrient budget not completed	Request completion
	Partial FEP deterioration within an audit interval	Request management plan to rectify
Three	Repeatedly abstracting more water than allowed	Restrict or cease water supply exclusion from program Terminate WS agreement
	Breach of water supply agreement	Restrict or cease water supply exclusion from program Terminate WS agreement
	Repeat C & D audit grades	Restrict or cease water supply exclusion from program Terminate WS agreement
	continued non-provision of nutrient budget	Restrict or cease water supply exclusion from program Terminate WS agreement

8.0 Methods to Assist Environmental Performance Improvements

The Scheme will adopt a pragmatic and supportive approach to enabling improvement. The majority of shareholders/and managers are willing and able to comply with the FEP and audits.

The Scheme and this ASM document place emphasis on improving environmental outcomes through greater resource use efficiency, with the aim of encouraging shareholders/land managers to engage with the Scheme not only for environmental reasons but also to improve the efficiency and economic performance of their businesses.

Being proactive and focusing on the on-farm activities which farmers can control will lead them to being empowered to improve. The compliance aspect will follow as a natural consequence of good practice. Setting up the expectations and making farmers aware of what they need to be doing, recording, working toward, is the first step. Providing information, using good communication to promote awareness of the need and providing accessible templates, guidance and information to enable improvement. Appendix B provides a list of the support being provided.

A successful compliance model is fair, reasonable, consistent and transparent in the process. Where it is appropriately implemented, shareholders/land managers are more likely to make the permanent changes required to consistently perform at a higher standard. There is a fall-back position of sanctions if needed but the preferred approach is to work proactively with shareholders and land managers sympathetically with their businesses.

The aggregation of data and actions needed from the FEPs will provide steer on what management actions need to have resources, support and training developed or sourced to improve the issue.

The Scheme has made ongoing provision and has contracted an environmental manager to manage the delivery of the ASM and the FEP programme. This direct and dedicated contact point has not been available in the past.

9.0 Reporting

WIL will prepare an annual report describing the performance of the Scheme in meeting its environmental targets and objectives.

The report shall include:

- i. The name of the FEP auditor(s);
- ii. A summary of the audit performance grading;
- iii. A summary of the reasons for any farm receiving a C or D grade;
- iv. A summary of the actions taken to address C or D grades;
- v. A summary of farms that repeatedly received a C or D grade;
- vi. The progress achieved for previously identified issues, if applicable;
- vii. The total annual loss of nitrogen from all properties within the Irrigation Scheme or Principal Water Supplier over the reported year.
- viii. The annual average nitrogen loss to water for each property listed in Schedule CRC184861A and Schedule CRC184861B, as calculated in accordance with Appendix CRC184861;

This report shall be provided to the Canterbury Regional Council, Attention: RMA Compliance and Enforcement Manager, by the 30 November each year.

10.0 Changes to this ASM Document

Any significant changes to this ASM document shall only be implemented after approval confirmed in writing by the Canterbury Regional Council.

Appendix A: Figures

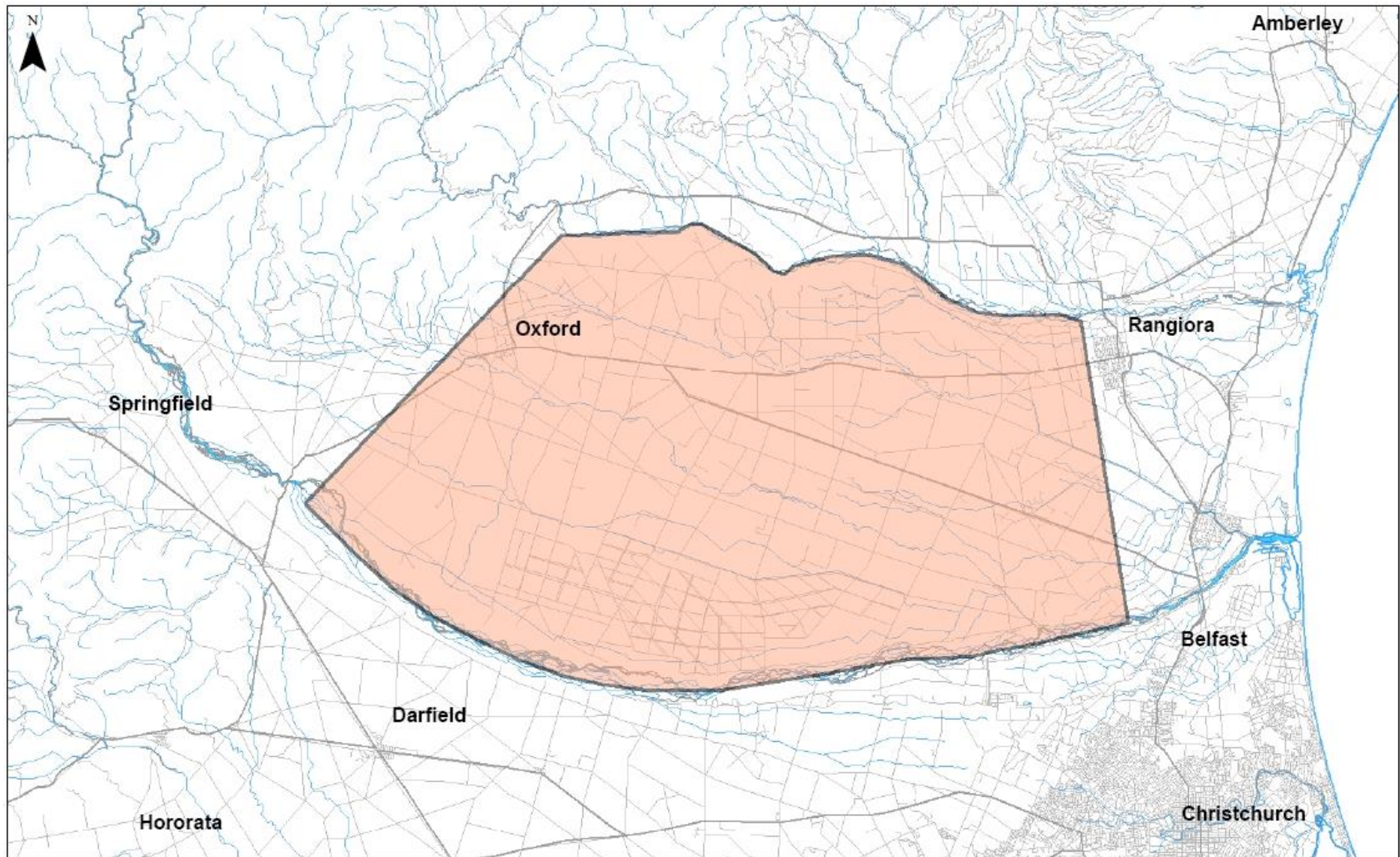


Figure 1: Waimakariri Irrigation Scheme

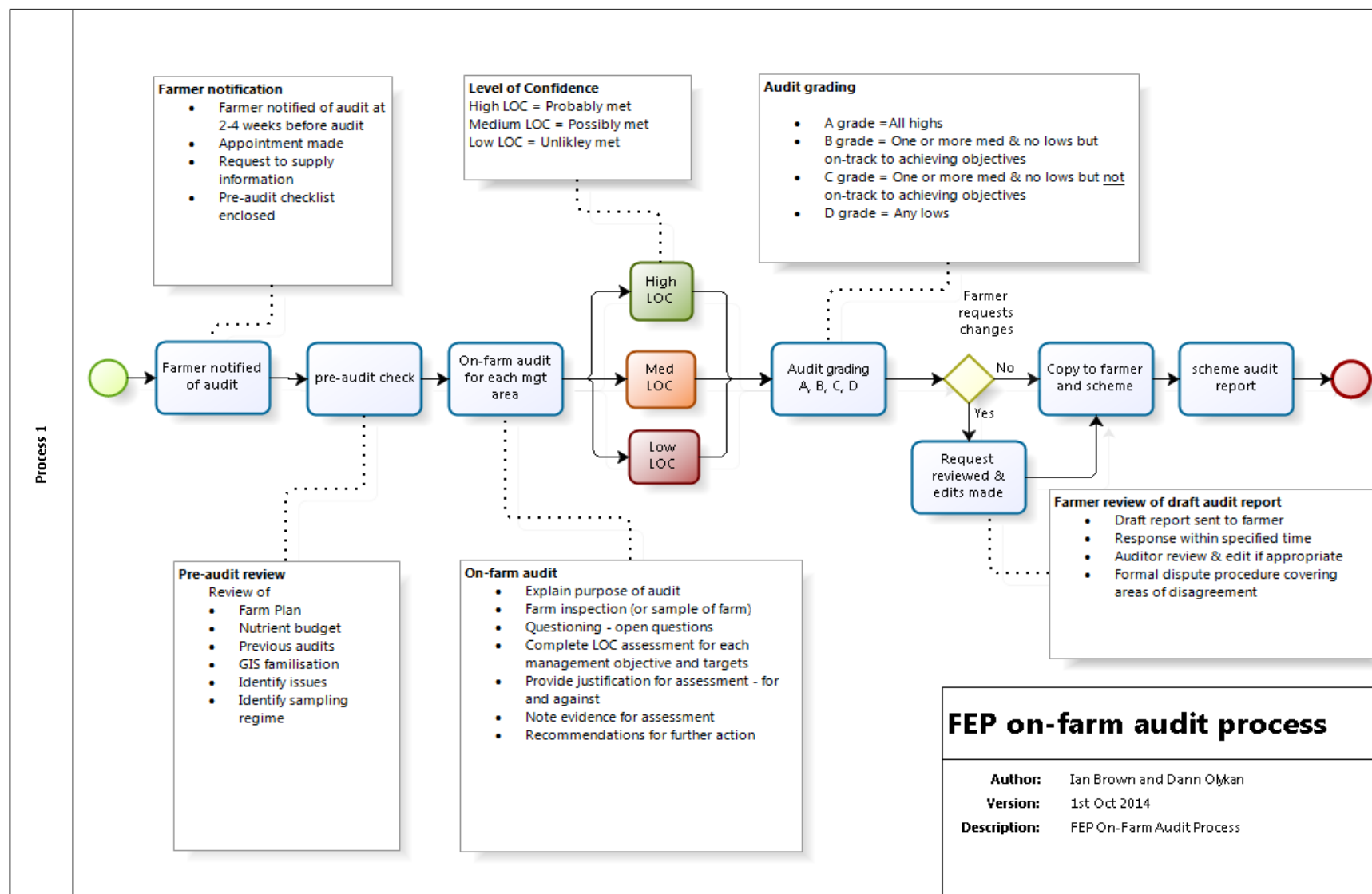


Figure 2: FEP on-farm audit process

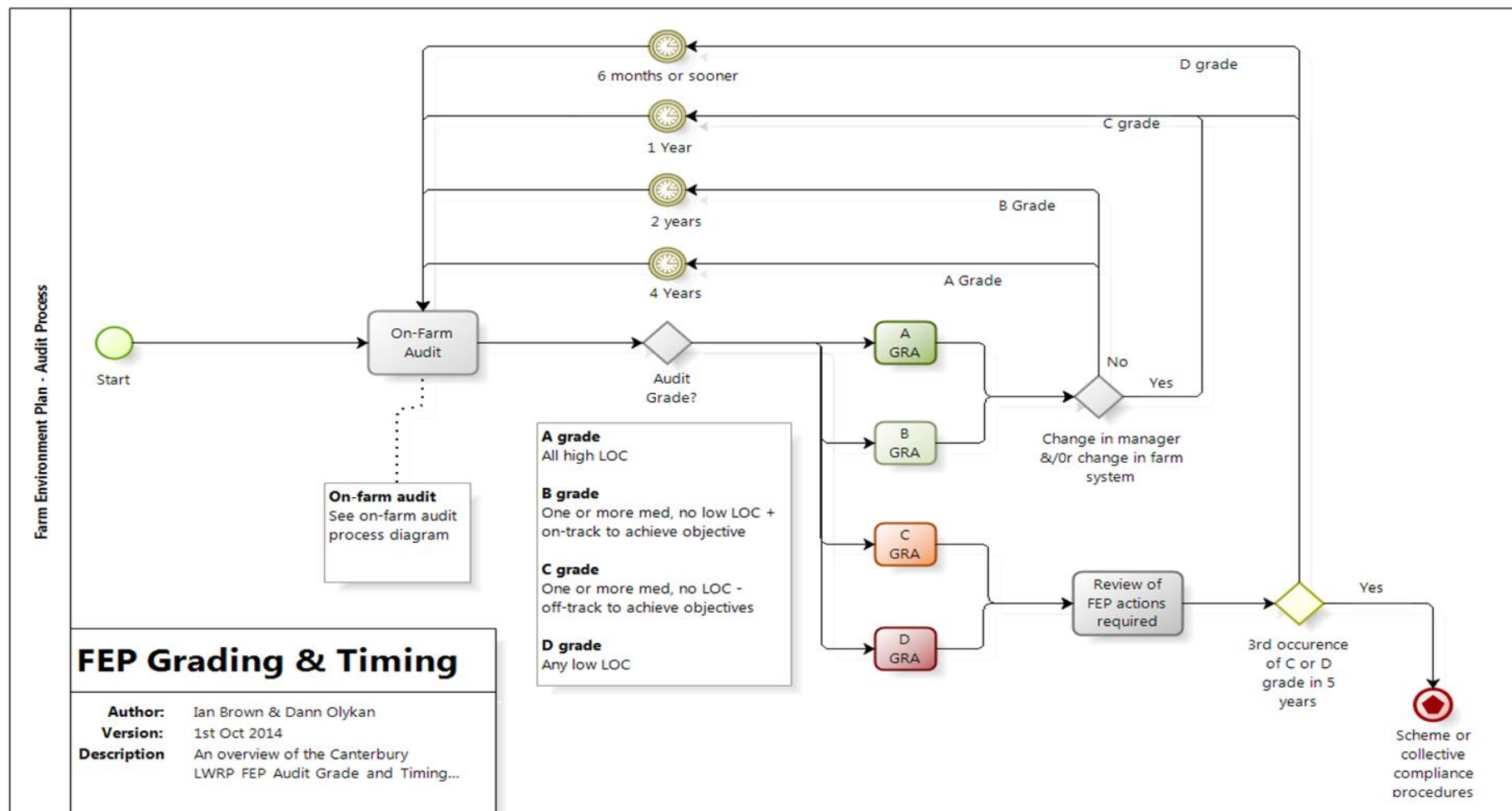


Figure 3: FEP grading and timing

Appendix B: Support for WIL Shareholders

Systems

- Simple online systems
- Provide user-friendly and useful templates
- Provide checklists and record sheets

Support

- Collate and make available useful information, especially from other industry bodies
- Simplifying and communicating GMP
- Be available for one on one advice
- Translate requirements into actions

Facilitation

- Facilitate learning through sharing information with others, such as farm focus days
- Enable sharing of research
- Work with other industry bodies to be consistent

Research

- Communicate latest research to interested Shareholders
- Invest and support research initiatives

Communicating Success

- Celebrate success
- Communicate progress and meeting of milestones

Appendix C

Nitrogen Loss Tables

**Table C1: Annual Nitrogen Losses for the Period
1 August 2018 - 31 July 2019**

Property number	Nutrient Allocation Zone Mass Nitrogen Loss (kg/yr)		
	Ashley-Waimakariri	Ashley	Waimakariri
1	5,587	0	0
2	27,283	0	0
3	10,680	0	0
4	4,091	0	0
5	119,953	0	0
6	12,796	0	0
7	60,345	0	0
8	23,982	0	0
9	118	0	0
10	2,361	0	0
11	208	0	0
12	596	0	0
13	21	0	0
14	191	0	0
15	7,169	0	0
16	23	0	0
17	11,166	0	0
18	7,853	0	0
19	98	0	0
20	37,944	0	0
21	15,506	118	0
22	18,726	143	0
23	18,733	143	0
24	31,003	0	0
25	2,366	0	0
26	31,153	0	0
27	12,718	0	0
28	16,192	0	0
29	8,586	0	0
30	1,400	0	0
31	1,133	0	0
32	12,929	0	0
33	0	16,582	0
34	0	9,300	0
35	0	26,214	0
36	7,455	0	0
37	35,575	0	0
38	6,409	0	0
39	20,637	12,632	0
40	1,690	1,910	0
41	42,304	0	0
42	3,562	8,288	0
43	423	984	0

44	448	0	0
45	1,664	0	0
46	22,518	0	0
47	60	0	0
48	84	0	0
49	33,207	0	0
50	1,909	884	0
51	739	0	0
52	6,894	0	0
53	4,689	225	0
54	4,519	0	0
55	3,099	0	0
56	4,861	0	0
57	43,095	0	47
58	14,896	0	0
59	9,339	0	0
60	36,993	0	0
61	10,117	0	0
62	5,738	0	0
63	13,394	0	0
64	1,135	0	0
65	220	0	0
66	303	303	0
67	2,213	0	0
68	1,512	0	0
69	1,150	0	0
70	3,158	0	0
71	219	0	0
72	90	0	0
73	13,537	0	0
74	56,339	0	0
75	1,276	0	0
76	63,725	0	0
77	181	0	0
78	159	0	0
79	157	0	0
80	5,280	0	0
81	188	0	0
82	8,141	0	0
83	6,765	0	0
84	1,492	0	0
85	66,953	0	452
86	844	0	0
87	1,680	0	0
88	2,184	0	0
89	17,352	0	0
90	5,323	0	0
91	1,380	0	0
92	51,840	25,603	0
93	472	0	0

94	17,328	0	0
95	825	0	0
96	1,274	0	0
97	19,696	0	0
98	3,128	0	0
99	172	0	0
100	42	0	0
101	19,643	0	0
102	218	0	0
103	7,491	2	0
104	751	0	0
105	2,160	0	0
106	15,803	0	0
107	21,750	0	0
108	17,754	0	0
109	15,962	0	0
110	67,754	0	0
111	90	0	0
112	102	0	0
113	590	0	0
114	5,915	0	0
115	13,348	0	0
116	2,131	0	0
117	15,750	0	0
118	19,891	0	0
119	16,502	0	0
120	1,656	0	0
121	2,640	0	0
122	0	269	0
123	0	4,650	0
124	118	0	0
125	118	0	0
126	1,000	2	0
127	4,648	12	0
128	734	2	0
129	23,184	0	0
130	24,193	0	0
131	14,975	0	0
132	30,256	0	0
133	0	3,365	0
134	23,087	0	34
135	127,188	0	0
136	2,493	0	0
137	1,053	0	0
138	63	0	0
139	4,248	0	0
140	107	0	0
141	142	0	0
142	106	0	0
143	14,514	0	7,178

144	468	993	0
145	5,304	0	0
146	2,700	0	0
147	7,489	0	0
148	6,360	0	0
149	42,502	0	0
150	2,544	0	0
151	6,324	0	0
152	578	0	0
153	6,327	0	0
154	123	0	0
155	1,193	0	0
156	91	0	0
157	1,014	0	0
158	112	0	0
159	1,066	0	0
160	5,015	0	0
161	5,193	0	0
162	10,881	0	0
163	32,805	0	0
164	7,448	0	0
165	19,965	0	0
166	0	1,485	0
167	34,192	0	0
168	350	0	0
169	14,040	0	0
170	2,147	0	0
171	974	0	0
172	3,323	0	0
173	804	0	0
174	1,050	0	0
175	1,975	0	0
176	3,001	3,929	0
177	17,808	0	0
178	148	0	0
179	960	0	0
180	46,374	0	0
181	2,137	0	0
182	8,073	0	0
183	2,597	0	0
184	774	0	0
185	4,653	0	0
186	48,512	0	0
187	439	79	0
188	210	0	0
189	90	0	0
190	70,760	0	0
191	132	0	0
192	3,852	0	0
193	2	0	0

194	18,167	9,344	0
195	17,947	9,230	0
196	0	17,110	0
197	90	0	0
198	135	0	0
199	11,733	1,539	0
200	656	86	0
201	3,006	0	0
202	90	0	0
203	414	0	0
204	1,847	0	0
205	4,643	0	0
206	125	0	0
207	5,218	812	0
	2,216,042	156,237	7,711