

FARM ENVIRONMENT PLANS AS A COMPONENT OF INDUSTRY AUDITED SELF-MANAGEMENT

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Abstract

The Waikato Regional Plan Change 1 – Waikato and Waipa River Catchments, recently publically notified, has been written using an innovative collaborative stakeholder process. This process has sought to engage with the widest cross section of the community possible to help determine the most palatable policy approach to achieving the Vision and Strategy of the Waikato and Waipa Rivers and the National Policy Statement for Freshwater Management

This collaborative process identified tailored Farm Environment Plans (FEP) as a key approach to achieve the objectives of the plan change by managing the effects of four key contaminants; nitrogen, phosphorus, sediment and microbial pathogens.

The plan change policy mix includes two different frameworks that govern the activity status of farms that have undertaken a FEP. Farming activities with an FEP under a Certified Industry Scheme will have a Permitted Activity status, and farming activities with an FEP that sit outside a Certified Industry Scheme will have a Controlled Activity status. A Certified industry scheme allows the Waikato Regional Council to have a formal agreement with an industry body, and then this industry body has individual agreements with the landowners for the provision and delivery of FEPs.

Fonterra participated in a joint project with Federated Farmers and AgFirst Consultants. Federated Farmers and AgFirst concentrated their FEP's on farms outside of a Certified Scheme, whilst Fonterra delivered FEPs to shareholding dairy farmers to test the delivery and content of FEPs, and the viability and operation of a Certified Industry Scheme.

This report will present Fonterra's approach to the delivery of FEPs from the joint project, the challenges in identifying and managing the four key contaminants, the lessons learnt from FEP delivery during the joint project and the alignment between FEPs and other Fonterra Sustainable Dairying initiatives or the Sustainable Dairying Water Accord.

1. Introduction

In October of 2016, The Waikato Regional Council publically notified the proposed “Waikato Regional Plan Change 1 – Waikato and Waipa River Catchments” which set out the proposed strategy and implementation to achieve the Vision & Strategy of the Waikato River. The Vision and Strategy for the Waikato River was established after the passing of three pieces of settlement legislation that relate specifically to the Waikato and Waipa rivers:

- Waikato-Tainui Raupatu Claims (Waikato River) Settlement Act 2010;
- Ngāti Tūwharetoa, Raukawa and Te Arawa River Iwi Waikato River Act 2010;
- Ngā Wai o Maniapoto (Waipa River) Act 2012.

These three acts established co-management arrangements for the Waikato and Waipa rivers between the Waikato Regional Council and the 5 river iwi namely:

- Maniapoto;
- Raukawa;
- Ngati Tuwharetoa;
- Te Arawa river iwi;
- Waikato-Tainui.

The Vision and Strategy focuses on restoring and protecting the health and wellbeing of the rivers, including the protection of the economic, social, cultural and spiritual relationships that Waikato and Waipa River iwi and the Waikato Region communities have with the river.

The Vision and Strategy states that the Waikato and Waipa rivers are degraded and require, amongst other things, restoration and protection. An objective of the Vision and Strategy has been of particular focus of the Plan Change 1: The restoration of water quality within the Waikato River so that it is safe for people to swim in and take food from over its entire length.

The Vision and Strategy is accorded to be the primary direction setting document for the Waikato and Waipa rivers and prevails over any inconsistencies in a national policy statement (such as the National Policy Statement on Freshwater Management) or New Zealand coastal policy, and is deemed to be part of the Waikato Regional Policy Statement.

2. Plan Change Development

The Co-Governance partners (Iwi and Waikato Regionals Council) agreed to adopt a collaborative approach to investigate and develop fresh water management approaches that would be implemented in the Waikato & Waipa River Catchments under Plan Change 1 to achieve the Vision and Strategy for the Waikato River.

A key feature of the collaborative approach was the Collaborative Stakeholder Group (CSG), which represented stakeholders across the spectrum of interested parties, water users and the wider community. The CSG was the central channel for stakeholders and the broader community collaboration in the project. The CSG intensively reviewed and deliberated on technical material from groups of external experts from a range of disciplines. The CSG members also sought input from their respective sectors and from the community.

After exhaustive and extensive analysis over a 24 month period, the CSG choose an intergenerational 80 year time frame to achieve the water quality objectives of the Vision and Strategy. Because of the extent of the change required to restore and protect water quality in the 80 year timeframe, the CSG has adopted a staged approach. This approach breaks the required improvements into a number of steps, the first of which is to implement a range of actions in a 10 year period that will be required to achieve 10% of the required change between current water quality and the long term water quality targets of 2096.

3. Rule Mix within Plan Change 1

In order achieve the desired 10% improvement within the 10 year plan change timeframe, the CSG developed 7 different rules to assist with achieving this target. These rules deal with a

range of issues, from small and low intensity land use, to commercial vegetable growers, to land use change. The rules all have an appropriate gating or qualification process to determine which rules each land parcel is governed by.

It is anticipated that the bulk, if not all, dairy farming enterprises will be required to comply with either “Rule 3 – Permitted Activity Rule; Farming Activities with a Farm Environment Plan under a Certified Industry Scheme” or ‘Rule 4 – Controlled Activity Rule; Farming Activities with a Farm Environment Plan not under a Certified Industry Scheme”

Both rules will require farms to have a Farm Environment Plan (FEP) prepared by a farm environment planner certified by the Waikato Regional Council. The point of difference being that Rule 3 allows for the property to operate with a permitted activity status if it is enrolled in a Certified Industry Scheme whereas properties which do not enrol with a Certified Industry Scheme will operate with a controlled activity status and will require a resource consent to be issued by the Waikato Regional Council.

The Certified Industry Scheme option allows for a formal agreement between landowners and industry bodies where the industry body is willing to take on the role of administrating and ensuring landowner compliance with the expectations of the plan change. Landowners operating under an industry scheme will be expected to meet the same standards of risk assessment and mitigation implementation as the farmers operating under the consented regime.

The proposed plan change sets out the expectations on the criteria that any Industry Audited Self-Managed scheme or service provider must achieve in order to be eligible to become a Certified Industry Scheme to ensure consistency between various sectors and schemes.

4. Farm Environment Plan Project

A project was formed with the purpose of developing a range of Farm Environmental Plans in order to investigate the actual costs of producing and developing a FEP including a Nitrogen Reference Point, assess the cost to the farmer of implementing the FEP actions, any resource consent requirements, any issues arising from the process of developing the FEP’s and any wider issues that could be raised in the submission process.

The Project was led by Federated Farmers of New Zealand, and the project partners were Fonterra, Waikato Regional Council, and Foundation for Arable Research (FAR) and DairyNZ. The project report was carried out by Phil Journeaux from AgFirst and an evaluation report conducted by Ruth Hungerford of Momentum Research and Evaluation.

The project encompassed the delivery of FEP’s on 24 farms during the September and October of 2016. 11 of which were dairy farms conducted by Fonterra under the pretext of Rule 3 and the operation of a Certified Industry Scheme, and 13 farms of multiple enterprise types conducted by AgFirst under the context of Rule 4 as a controlled activity.

In order to produce the FEP’s required for the project, Fonterra utilised staff from its existing network of Sustainable Dairying Advisors, with technical and policy assistance as required from internal experts. Fonterra has made strong steady progress over a prolonged period in building and growing its sustainable dairying capability and resources, through targeted recruitment and ongoing professional development. The mix of skills, qualifications and

experience that Fonterra has developed would be very closely aligned to what you'd expect to see at a commercial rural agriculture consultancy firm. Fonterra has a staff employed in a range of different roles from on farm support and delivery; technical, research, advocacy and policy support with strategic leadership from a senior manager. Fonterra's commitment and investment in Sustainable Dairying is significant and contributes directly into Fonterra's purpose "To be the worlds most trusted source of dairy nutrition".

Fonterra has a number of current commitments, projects and programmes which provided a good basis for the development of FEP's. These include;

- Every Farm, Every Year; which captures a snapshot of all existing farm environmental infrastructure during the annual Farm Dairy Environmental Assessment;
- Waterways Programme; which helps farmers by supporting them in meeting stock exclusion and riparian expectations for on farm waterways.
- Nitrogen Programme; which is an annual programme of collecting farm systems data required to generate an Overseer[®] file, and providing farmers with a report detailing nitrogen leaching risk, nitrogen conversion efficiency rates and nitrogen surplus.
- Water Use programme; which provide support for efficient water us on farm.

5. Farm Environment Plan Methodology and Delivery

In order to have maximum benefit from time spent on farm, this was the approach and methodology taken to construct the FEP's;

- A detailed farm systems questionnaire was created, which sought to gather information and data relating to the property and the farming system. As much as possible of this questionnaire was completed prior to the farm visit using the information which Fonterra already has access to with this information then verified on farm for accuracy and fact checking.
- A farm visit was scheduled. These visits varied in lengths from 3 to 5 hours depending on the complexity and size of the farm. Whilst on farm, the Sustainable Dairying Advisor would check and complete the farm questionnaire for accuracy, would review the 14/15 and 15/16 seasons' nitrogen programme results and make any changes required based upon improving accuracy, and then undertake a full farm walk with the farmer where all identified or potential critical source areas from which sediment, nitrogen, phosphorus and microbial pathogens could be lost from the farm.
- These source areas are mapped spatially using GIS software, with a risk assessment undertaken to help guide the Sustainable Dairying Advisor and farmer on what type of action and timeframe might be appropriate for the management for this critical source area.

- The Sustainable Dairying Advisor would then consolidate all the information gathered on farm and develop a draft version of the FEP, this drafting included a peer reviewed calibration exercise to ensure consistency.
- The draft would then be shared and discussed with the farmer to ensure it accurately represented the risks areas, actions and timeframes that were discussed whilst on farm.
- Following this a finalised FEP was produced and distributed to the farmer for their implementation.

This process took on average 14 hours, with a range of 11 to 17 hours depending on size and complexity of the farm. As a comparison the AgFirst produced FEP's averaged 25. This shows the advantage that Fonterra has in having easy access to existing Overseer Files, Farm System Information and Farm Maps.

Even in a small team, it was a challenge to ensure continuity across the identification of critical source areas, actions to mitigate the risk and timeframes that would be attributed to the critical source area. To that end a risk matrix (figure 1) was developed which ranked each area against the scale of contaminant risk loss versus the likelihood of the contaminant reaching surface water. This matrix proved very effective to allocating risk, and also displaying the risk ranking in a logical and easy to explain way.

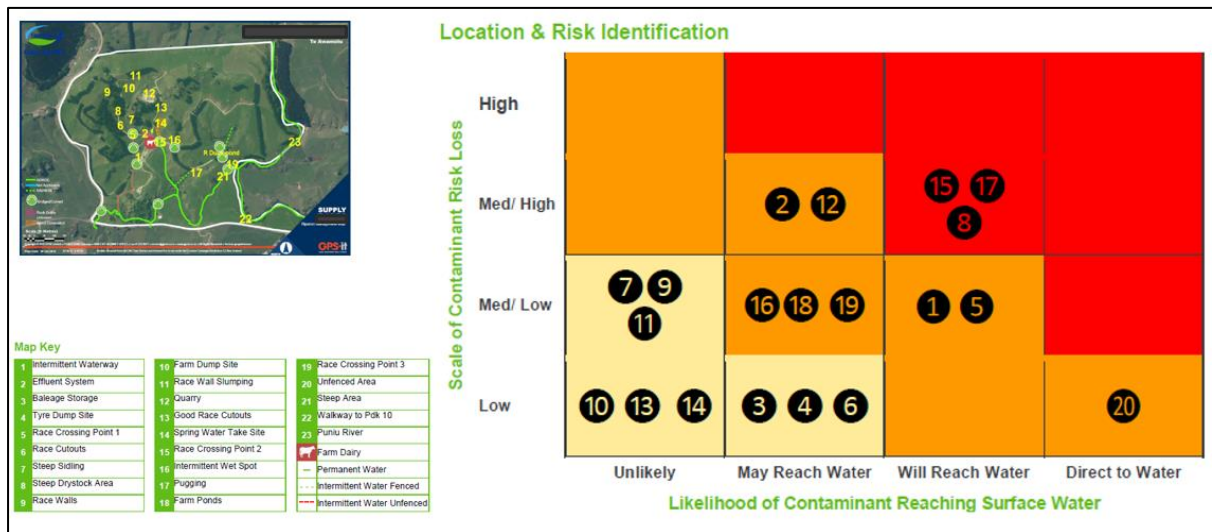


Figure 1 – Risk Matrix with Farm Map and Key

This risk matrix proved very effective for providing guidance on consistently allocating the risk, and consequently the mitigations and timeframes which the actions need to occur for phosphorus, sediment and microbial pathogen contaminants. This outcome was not necessarily replicated with Nitrogen as the relationship between soil disturbances within proximity to surface water has little relationship to the risks associated with nitrogen loss. Assigning the risk to nitrogen loss relied upon the skills and expertise of the Sustainable Dairying Advisor, and their ability to identify risks from analysis of the farms Overseer[®] nutrient budget, analysis of the farms management and the physical characteristics observed on the farm walk.

6. Farm Environment Plan Report

By undertaking the delivery of FEP's under the guise of a Certified Industry Scheme, it provided an opportunity to be innovative with the look and the content of the FEP that is given to the farmers.

We could have a clear differentiation between documents and information that will provide value to farmers in the form of a FEP versus information that will provide value to auditors or regulators in the form of an "Audit Pack". It meant that the data intensive information such as the farm questionnaire and the underlying farm systems data used for the creation of the Overseer[®] nutrient budgets did not necessarily have sit inside the FEP, as these are readily available from Fonterra as administrator of the scheme.

It meant that we could produce a document that focused clearly on the farm, and its individual needs. In doing so, we were able to incorporate some visual elements based upon best practice for encouraging change management.

This involved the use of colour, farm maps, farm photos, intuitive gauges and easy to understand graphics. This is a signification deviation for the appearances of alternative FEP templates and was well received by the farmers, with the following farmer comments gathered during the evaluation report conducted by Ruth Hungerford of Momentum Research and Evaluation;

"It is really good. I can look at it and see 'this is what we need to do' without having to read the detail. Dial indicators - are good to glance at. Photos - if you did it [the farm visit] a month ago and then [look at the plan and] wonder 'what's that about?' you can see the photo and think 'okay'"

"One of the things I thought was really good was that it was pictorial; visuals, very easy to remember the conversation because they took photos and put them in the plan. And [I like] the monitors that show you the risk and where the arrows are, because you can flick through it [and see what is important]. ...This was to the point, it addresses what needs to be addressed and is not pages and pages of descriptions. The overall farm map with the risk identification was numbered so it was obvious where the high risk points were."

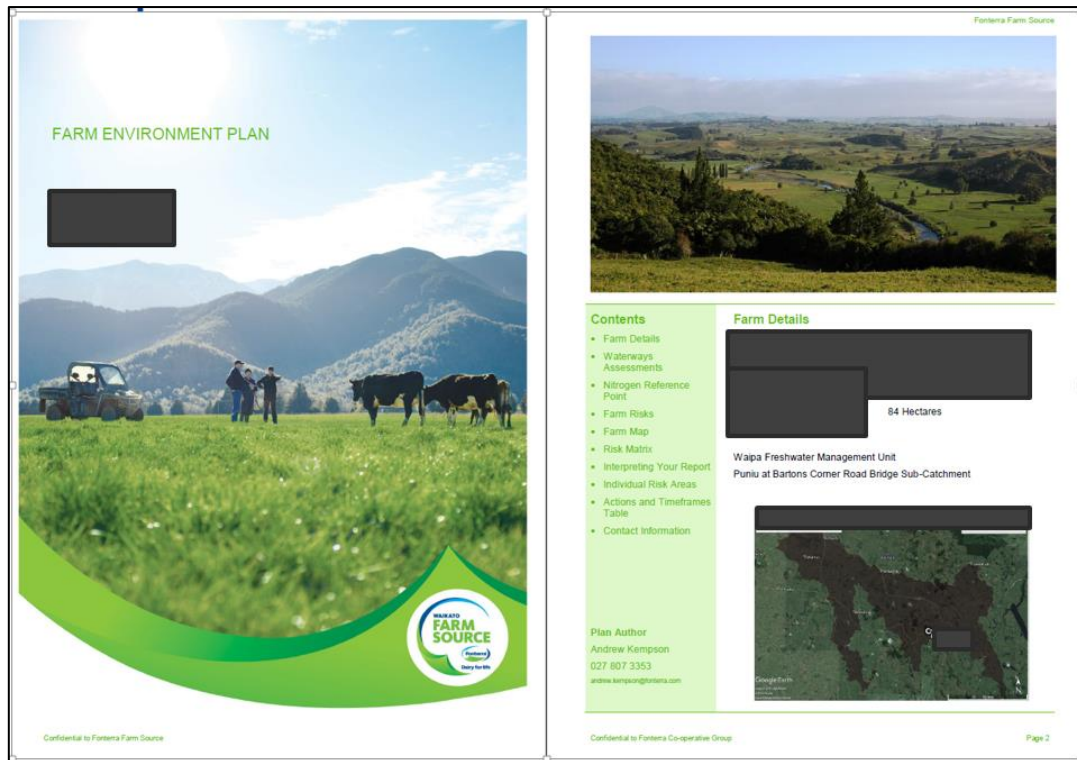


Figure 2 – FEP Cover, Farm Details and Contents

Figure 2 shows the use of the images, maps and colour not typically associated with the standard or commercially available FEP templates. The contents shows that the document is very focused on the farms own individual traits, strengths and risk areas.

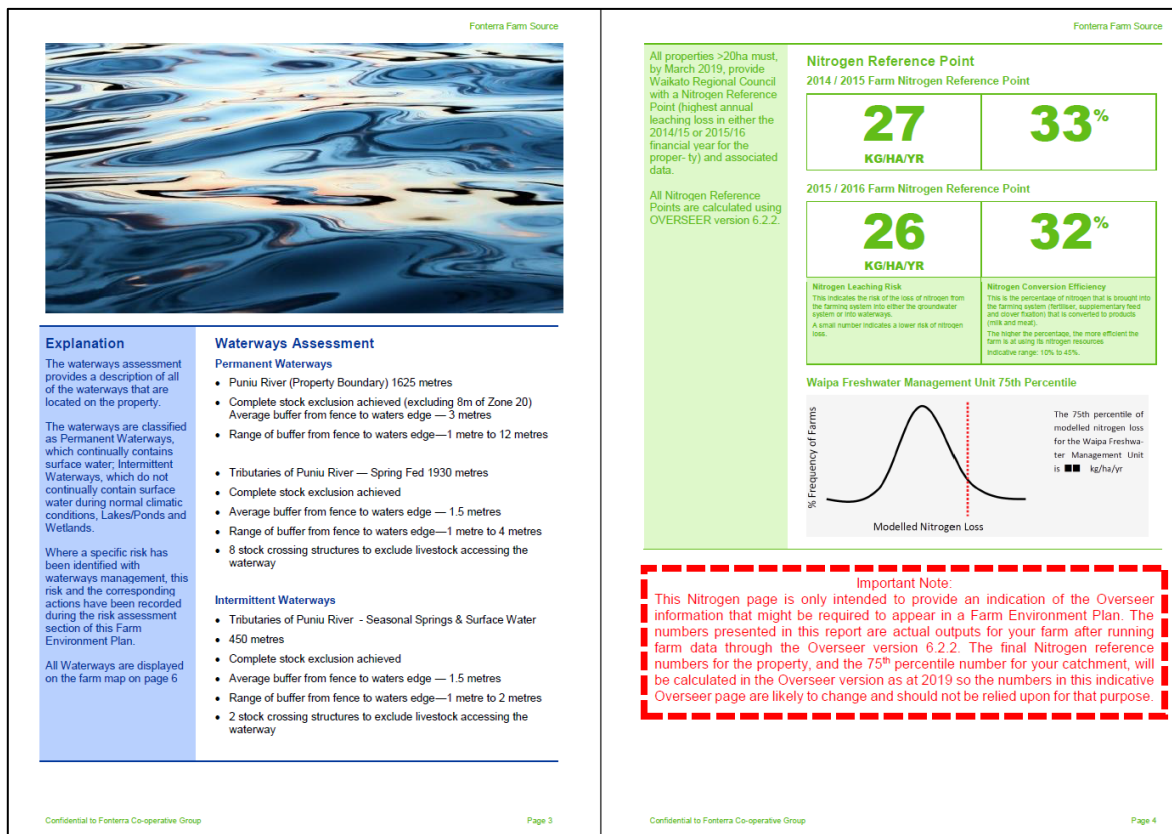


Figure 3 – Waterways assessment and Nitrogen Reference Point

Figure 3 shows how the waterways are to be assessed for the FEP. The proposed plan change has some very specific expectations relating to the stock exclusion status of surface water bodies with well-defined explanations of what defines a water body. Any water body (including natural or constructed wetland, drain, or lake) that continually contains surface water is required to have fencing in place to achieve stock exclusion, with a further level detail relating to fencing setback distances which are related to slope and current fencing status. This means that a waterways assessment during a FEP creation needs to consider and document all these factors.

Plan Change 1 also contains provisions relating to a farms nitrogen leaching risk during reference seasons of 2014/2015 or 2015/2016. An individual farms ongoing performance and compliance against the historical nitrogen reference point figure will be dependent upon if this historical point exceeds the 75th percentile nitrogen leaching value within the farms geographic freshwater management unit. The FEP will demonstrate this by clearly displaying the nitrogen reference point for the property, and the current nitrogen leaching figure derived from the Fonterra nitrogen programme using the outputs from Overseer[®].



Figure 4 – Waterways Map, Farm Management Block Map, Critical Source Area Map

An important piece to the FEP is being able to adequately display all areas where there is a risk of diffuse discharge of sediment, nitrogen, phosphorus and microbial pathogens. Fonterra has already invested in the development of a GIS mapping tool which enables multiple layers and farm maps to be produced to cover a variety of different requirements. The FEP contained a farm map displaying waterways, farm management blocks (which relates to the farm block set up within Overseer[®]) and a map displaying areas of potential risk of diffuse discharge.

Figure 5 shows how each individual risk area is displayed in the FEP. Each area is numbered and relates to the farm map displaying risk areas. Each area is accompanied with farm photos taken during the farm walk to help with the identification of the area and the risk observed, a description of the area, what contaminants are at risk of being lost and what actions are required to manage the risk of contaminant loss. Each area has a gauge displaying “Contaminant Loss Risk” and “Risk of Reaching Surface Water” which is then plotted on the risk matrix previously mentioned and displayed in Figure 1.

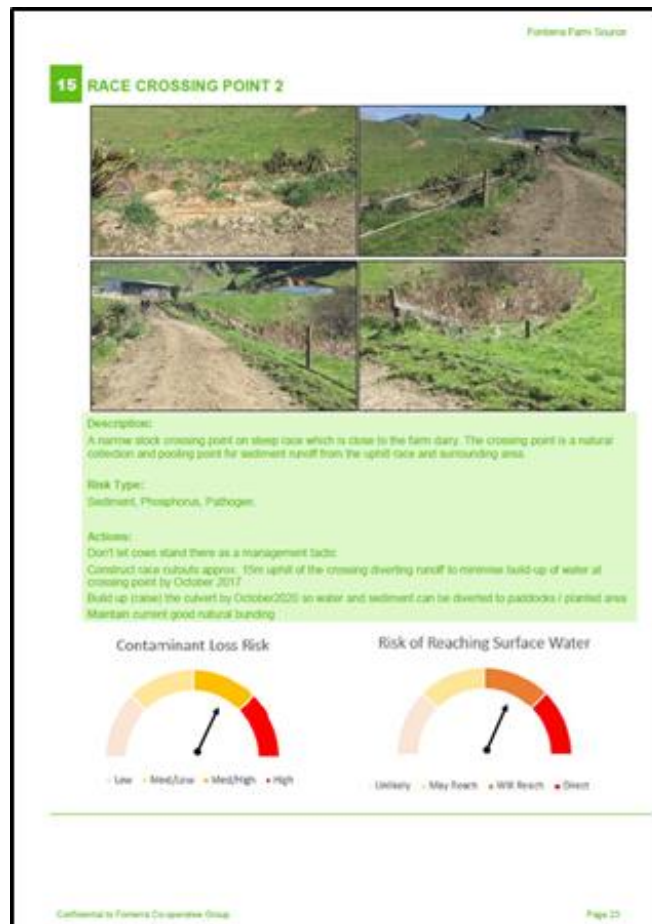


Figure 5 – Individual Risk Areas

An important consideration of the FEP was that the underlying premise of the project was to deliver a FEP under the guise of a Certified Industry Scheme in order to meet a set of draft rules established under a regional plan change. This meant that the actions and timeframes had to be very robust in terms of being auditable and measurable, as the actions may provide the first point of compliance with the proposed plan change.

Essentially anybody undertaking a monitoring visit or an audit should be able to pick up a FEP, and measure a farms progress towards completion of any documented action. To ensure that all the actions across the whole farm are adequately captured, a compliance table was added at the rear of the FEP which documented the critical source area, the required actions and the completion date. This table provides the basis for any ongoing monitoring and auditing requirements.

7 Project Review and Conclusions

At the conclusion of the project, an internal review looked the project and what lessons could be learnt. Overall the experience was seen as a positive by both Fonterra and the plan authors. It has enabled Fonterra to have a far more informed view of implementation of Rule 3, which is of particular value to reach that informed view prior to submissions on the proposed plan being closed.

Unsurprisingly, the majority of the challenges were related to how best to interpret the proposed rules whilst out on farm where nothing is as black and white as it seems.

Other queries relate to things such as how should a FEP should deal with any future possible possibilities such as cropping, and regressing etc which currently may not occur on the property. It is not possible that every eventuality can be covered by an FEP.

The Waikato Regional Council provided feedback to the project partners with guidance on the content of the FEP's against the provisions in the proposed plan change.

The feedback is valuable to understanding what the strengths and weakness that the council observed. WRC found some of the decisions around presentation and formatting to be really well thought out and implemented. They were complimentary on the use of the table to document actions against timeframes and they also found the use of the risk matrix to be good as they found the plans very consistent.

Like most projects, there were also some opportunities to improve suggested by the council. They suggested that having a separate dairy effluent section would be beneficial instead of treating the effluent system as a critical source area and they found the plans to be a snapshot in time with limited consideration of seasonal variation or potential future possibilities.

In concluding the project by rolling up the findings from both the Fonterra and AgFirst components of the project, Phil Journeaux noted in the project report that the main issues were around the ability to identify intermittent/ephemeral water bodies and how stock exclusion could be achieved (particularly for drystock farms on land >25 ° slope), cultivation methods on peat land, responsibilities of lease holders versus land owners and how a FEP can adequately cover future possibilities.

As the use of FEP's on farm are an important tool to help achieve the long term water quality objectives to meet the vision and strategy of the Waikato River, it's important to reflect on the farmers' feedback from the evaluation report conducted by Ruth Hungerford. As the farmers will ultimately need to understand and implement the FEP, their feedback is a key consideration.

Some key farmer findings noted are;

- 92% of the participating farmers agreed or strongly agreed that plan author was able to answer the questions they had.
- 92% agreed or strongly agreed that managing contaminant loss on their property was important to them.
- 75% agreed or strongly agreed that some of their on farm practices could improve to reduce nutrient loss.
- 90% agreed or strongly agreed that the farm plan included suggested actions / practices that they agreed needed to be done.
- 100% agreed or strongly agreed that they intend to use the farm plan as a tool to manage contaminant loss on their property.

The following farmer quote best articulates a positive outcome, where the combination of an experienced farm environment planner operating within a well-structured plan delivery

mechanism with a motivated farmer can deliver actual on-farm change to achieve positive water quality outcomes:

“There were some suggestions that were made that we weren’t aware of. For example, a big one was a race that was an erosion prone area. Water zooms down the race and gets to a crossing. The SDA suggested we make cut outs further up the race and to lift the level of the crossing and we did it. It worked beautifully”

References

Proposed Waikato Regional Plan Change 1 – Waikato and Waipa River Catchments (2016).

Retrieved from <https://www.waikatoregion.govt.nz/assets/WRC/Council/Policy-and-Plans/HR/ReadProposedPlan/Final-PlanChange1-with-insert-of-withdrawal.pdf>

Proposed Waikato Regional Plan Change 1 – Waikato and Waipa River Catchments Section 32 Evaluation Report (2016). Retrieved from

<https://www.waikatoregion.govt.nz/assets/WRC/Council/Policy-and-Plans/HR/ReadProposedPlan/Section-32-with-partial-withdrawal-addendum-added.pdf>

Waikato River Authority (2010). Restoring and Protecting the health and wellbeing of the Waikato River. Retrieved from <http://versite.co.nz/~2013/16230/files/assets/basic-html/index.html#1>

Journeaux P (2016). Report to Waikato Federated Farmers. Farm Environment Plan Project

Hungerford R (2016) Evaluation Report on the Waikato Federated Farmers Farm Environment Plan Project