



Environmental Management Strategy
(EMS) v2.0 June 2024

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1 Introduction

1.1 MHV Water Scheme Overview

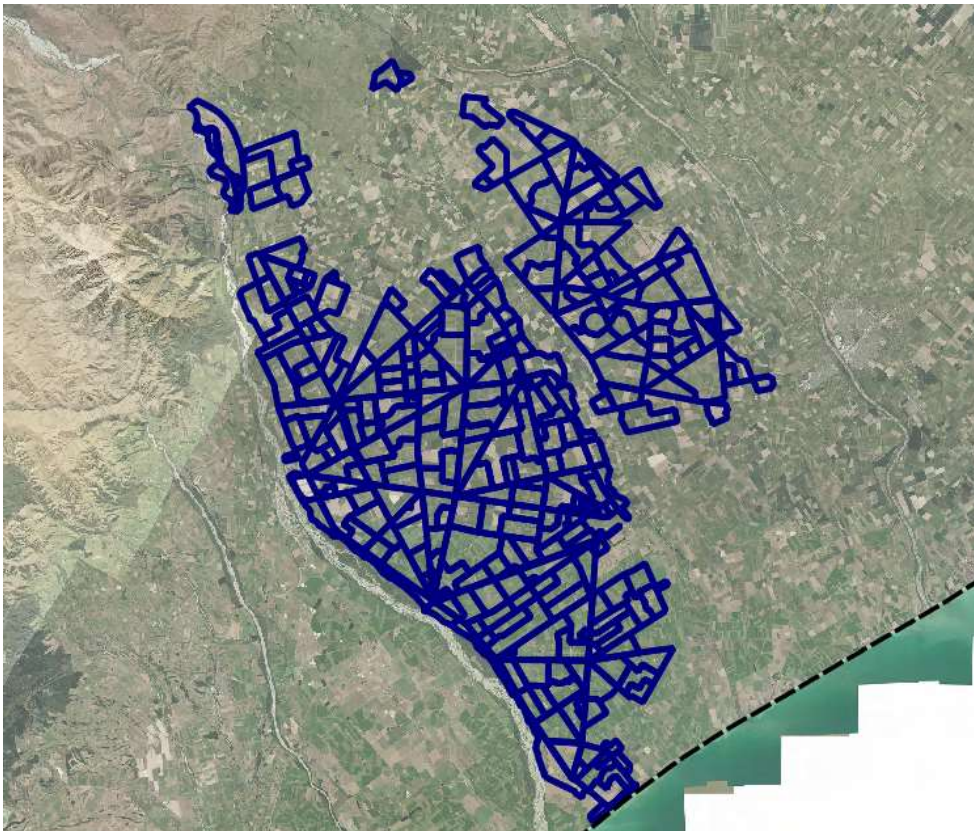
MHV Water Limited was formed in 2017 following the merger of Mayfield Hinds Irrigation Limited and Valetta Irrigation Limited. Our foundation schemes were built in the 1930s and 40s as Government work schemes and began supplying farms with water for irrigation via open races in the 1940's.

Our delivery area is between the Rangitata and Ashburton Rivers on the Canterbury Plains, where we draw water from both these rivers via the Rangitata Diversion Race (RDR). The delivery infrastructure enables water to be delivered to 60,000 ha on over 200 farmer shareholders via approximately 320km of open race and 100km of piped infrastructure ([Figure 1](#)). A Water Conservation Order determines the volume of water that can be extracted from the Rangitata River and both the Rangitata and Ashburton Rivers have minimum flow conditions which initiate restrictions to protect the river ecosystems.

The landscape of the MHV scheme area is peppered with storage ponds, both on-farm and scheme owned, which are filled during times of low demand and are designed to provide the farmer with increased reliability of water should restrictions be imposed. Our shareholder farms are dominated by dairy and dairy support, with a proportion of sheep, beef, and arable farm systems.

As an environmentally responsible organisation, we are continually looking to how we can improve our infrastructure and support our shareholders to meet and exceed Good Management Practices. We do this by promoting irrigator responsibility and education; undertaking regular Farm Environment Plans and audits with our shareholders; investing in research and development and looking strategically at our infrastructure for improvements.

Figure 1: MHV Water ASM Command Area (2022)



1.2 Note on dialect

In Ngāi Tahu/ Kāi Tahu dialect, 'k' is sometimes used interchangeably with 'ng'. This Plan has predominantly used the 'ng' spelling of words (e.g. mahinga kai), but it is also common and correct to see and use the 'k' spelling (e.g. mahika kai).

2 Resource Consents Overview

MHV Water holds a range of resource consents authorising the establishment, operation and maintenance of the irrigation scheme, which are summarised in [Table 1](#) below.

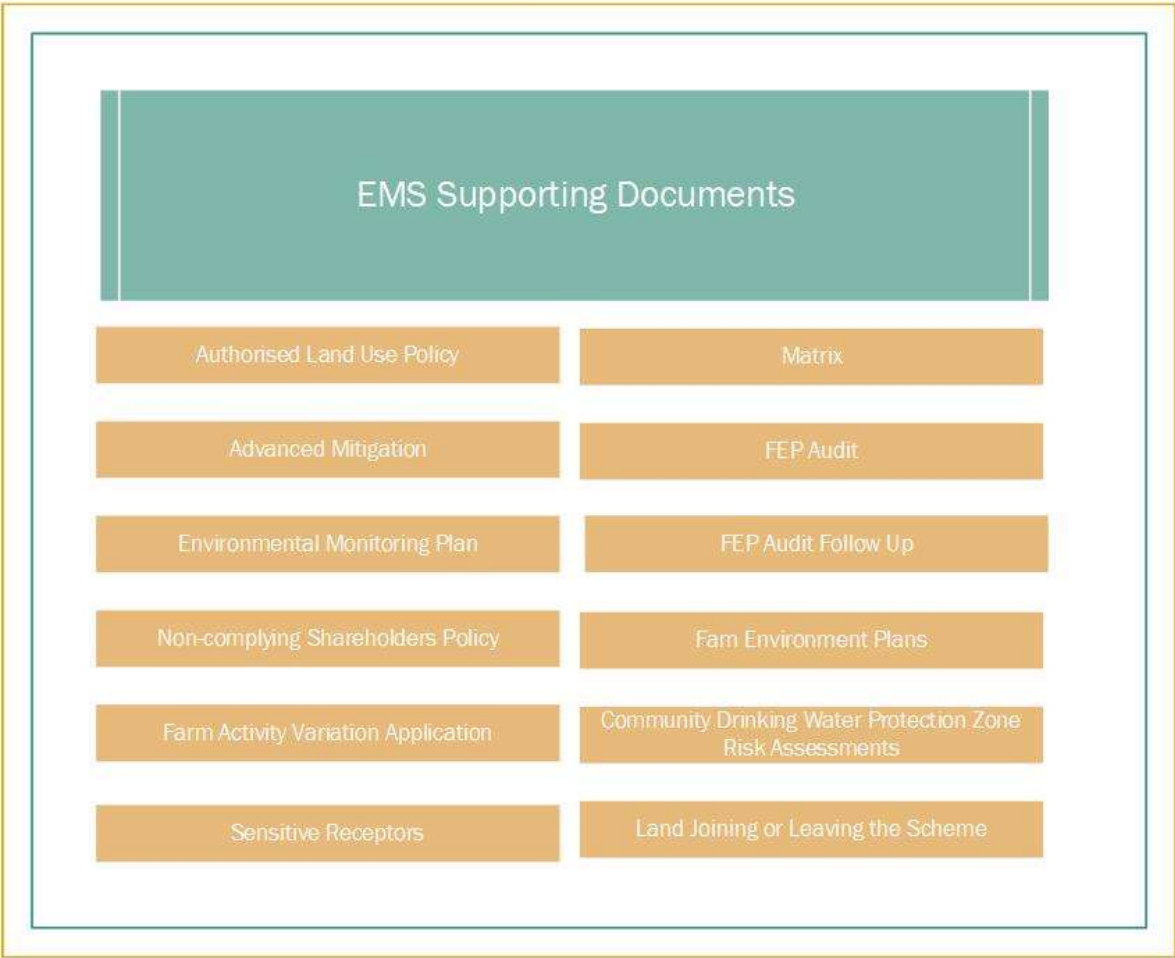
Table 1: MHV Water Resource Consents

Consent Number	Permit Type	Activity	Granted	Expiry
CRC183850	Water Take	To divert and take surface water from the Rangitata Diversion Race	17/5/2017	31/1/2042
CRC185857	Discharge Nutrients	To use land for the purpose of farming and discharge nutrients to water	13/5/2021	31/12/2030
CRC170886	Discharge Water	To discharge diverted water into Harris Drain	28/10/2016	28/10/2036
CRC175752	Water Take	To take up to 350 l/s of water from Harris Drain	28/10/2016	28/10/2036
CRC181412	Discharge Water	To discharge up to 5,700 l/s water into Rangitata River	22/4/1994	20/4/2029
CRC176279	Discharge Water	To discharge up to 1,350 l/s water into Ashburton River	03/06/1999	20/4/2029
CRC176281	Discharge Water	To discharge up to 1,610 l/s water into Hinds River via Mulligan Drain	03/06/1999	20/4/2029
CRC176290	To Dam and Store Water	To dam and store up to 78,000 m ³ of water from the Valetta Irrigation Scheme	14/09/2004	14/09/2039

3 Audited Self-Management Programme Overview

The MHV Water Environmental Programme encompasses a number of scheme policies and procedures to ensure all resource consents are complied with, operational procedures and catchment initiatives. The Environmental Management Strategy (EMS) sets out the policies and procedures to be implemented to ensure compliance with resource consent CRC185857. All other consenting requirements, internal procedures and other initiatives are managed through the Environmental Implementation Plan (EIP), which is approved by MHV Water Board and given effect through the shareholder water supply agreements.

Environmental Management Strategy (EMS)



3.1 EMS Purpose and Scope

The purpose of the EMS is to fulfil the EMS requirements stipulated in the nutrient discharge resource consent CRC185857, granted 13th May 2021. In particular, condition 12(b) which specifies the EMS shall ensure the following:

1. Resource Consent CRC185857 is complied with,
2. Properties provided for in Conditions 4(a) and 4(b) implement HPZ gmp, and in the case of Properties provided for in Condition 4(a), the specified further reductions to achieve nitrogen loss reduces over time, and
3. Properties required to hold a Farm Environment Plan are achieving or working towards the achievement of an A audit.

A summary of how all key consent conditions are managed through the EMS are detailed in [Table 2](#).

Table 2: Relevant Conditions of Resource Consent CRC185857

Condition	Requirement	EMS Section
11(b)	Within 12 months of the Commencement Date, the Consent Holder shall update and comply thereafter with the revised EMS that is to be prepared in accordance with Conditions 12 to 14.	8 – Document Management
12(a)	The EMS shall identify the roles and responsibilities of the persons and entities involved in the management of the Consent Holder’s environmental programme and the implementation of this resource consent.	4 – Roles and Responsibilities
12(b)	The EMS shall implement environmental objectives and targets for all Properties described in Conditions 4(a) and 4(b) to ensure: <ol style="list-style-type: none"> i. Resource Consent CRC185857 is complied with, ii. Properties provided for in Conditions 4(a) and 4(b) implement HPZ gmp, and in the case of Properties provided for in Condition 4(a), the specified further reductions to achieve nitrogen loss reduces over time, and iii. Properties required to hold a Farm Environment Plan are achieving or working towards the achievement of an A audit. 	5 – Objectives and Targets 6 – Continuous Improvement
12(c)	The EMS shall ensure the consent holder has robust audit and reporting procedures in place to ensure a high level of compliance with Farm Environment Plans, Schedule 24a Plans or Certified Freshwater Farm Plans (as might apply).	7 - Reporting EMSFE – 002 FEP Audits
12(d)	The EMS has appropriate procedures in place (through the EMS and each Farm Environment Plan, Schedule 24a Plan or Certified Freshwater Farm Plan) to ensure the identification of effects on neighbouring sensitive receptors are appropriately avoided, remedied, or mitigated.	EMSSR – 001 CDWPZ EMSSR – 002 Sensitive Receptors

Condition	Requirement	EMS Section
12(e)	The EMS shall be consistent with the Environmental Monitoring Plan and associated requirements provided for in Conditions 22 to 27.	EMP
12(f)	<p>The EMS shall require that any Properties wanting to undertake a significant change will first need to obtain the approval of the consent holder, with the EMS providing details on how applications for significant change are to be assessed, including procedures to ensure applications for significant change are only approved where:</p> <ul style="list-style-type: none"> i. In the case of any NES Equivalent Farm, contaminant loads in the catchment and concentrations of contaminants in the receiving waterbodies are, as a result of the significant change, likely to be no greater than that occurring at 2 September 2020, having regard to: <ul style="list-style-type: none"> A. Any assessed nutrient loss, and B. The controls set out in any Farm Environment Plan, Schedule 24a Plan or Certified Freshwater Farm Plan (as might apply) <p>Provided that Condition 12(f) shall not apply where the significant change application relates to an increase in irrigated area that is not being used for dairy farming (being the use of land by milking dairy cows).</p> <p>Advisory note: Where a property can demonstrate a significant change will not result in any increase in losses from the Property, it is not expected catchment-scale modelling or assessments will be required.</p> <p>And</p> ii. Effects on local sensitive receptors are avoided, remedied, or mitigated. 	EMSNM – 001 ALU Policy EMSNM – 002 FAVA Process
12(g)	<p>The EMS shall provide reproducible methodology on:</p> <ul style="list-style-type: none"> i. How the nutrient loads are calculated, and the rationale for that nutrient load applied, and ii. How nutrients from all land subject to this resource consent will be accounted for. 	EMSNM – 004 Matrix EMSFEF – 004 Advanced Mitigation
12(h)	The EMS shall provide detail on how the management of Properties joining or leaving the scheme is to occur (including the methodology for allocating nutrients).	EMSNM 003 – Land Joining and Leaving
13(a)	The EMS shall provide for or require effects on neighbouring sensitive receptors to be managed through further measures (in addition to Condition 12(b), including:	EMSFEF – 001 FEP Process EMSFEF – 002 FEP Audits EMSNM – 002 FAVA Process EMSSR – 002 Sensitive Receptors

Condition	Requirement	EMS Section
	<ul style="list-style-type: none"> i. Requiring that stock are excluded from waterbodies in accordance with Regional Council rules, any granted resource consent(s) and the Resource Management (Stock Exclusion) Regulations 2020; and ii. Encouraging the establishment of vegetated riparian strips to minimise nutrient, sediment, and microbial pathogen loss to waterbodies. 	
13(b)	The EMS shall provide for or require the management of nutrient loss on Properties (which are not Authorised Properties) through a Farm Environment Plan or Certified Freshwater Farm Plan (as might apply) and audit process in accordance with the conditions of this resource consent.	EMSfEP - 001 FEP Process
13(c)	<p>The EMS shall provide for or require Properties provided for in Conditions 4(a) and 4(b) to:</p> <ul style="list-style-type: none"> i. Have their annual nutrient losses assessed in accordance with the Matrix Method identified in Schedule CRC185857B, ii. Be subject to an audit procedure in accordance with Conditions 19 and 20 (with the EMS being required to specify the steps that will be taken – including consequences to ensure future compliance – for Properties where Condition 12(b)(iii) applies and is not being met. 	EMSfNM – 004 Matrix
13(d)	The EMS shall provide for or require the Farm Environment Plan audit records for each Property undertaken in accordance with this Condition 13(d) being kept and made available for the Canterbury Regional Council to inspect, upon request; procedures to enable each Farm Environment Plan, Schedule 24a Plan or Certified Freshwater Farm Plan to be amended to address any changes that might be recommended following the preparation of a Remediation and Response Plan that is prepared in accordance with Condition 26.	EMSfEP – 002 FEP Audits EMSfEP – 003 FEP Audit Follow Up MHVOP – Non-compliant shareholder policy EMP
13(e)	The EMS shall provide for or require for the monitoring and data required under this consent and the EMS to be collected and reported to the Canterbury Regional Council in accordance with Condition 28 (with a copy to be provided to Te Rūnanga o Arowhenua).	EMP
13(f)	The EMS shall provide for or required that within 20 working days of the exit of any Property from Schedule CRC185857A (and the management of nutrient losses by the consent holder), the consent holder is to advise the Canterbury Regional Council of the authorised land use that is to apply to the departing Property.	EMSfNM 003 – Land Joining and Leaving
14(a)	When preparing the EMS or seeking amendments to any of the matters listed in Conditions 12 and 13, the consent holder shall engage with the Chair of Te Rūnanga o Arowhenua or their representative to discuss the finalisation of the EMS content listed in Condition 12 within reasonable timeframes.	8.4 – Consultation with Te Rūnanga o Arowhenua

Condition	Requirement	EMS Section
	<p>The consent holder shall, subject to any alternative procedure that might be agreed with Te Rūnanga o Arowhenua and advised to the Regional Leader – Monitoring and Compliance, Canterbury Regional Council:</p> <ol style="list-style-type: none"> Provide drafts of the EMS or amendments to the EMS along with any relevant supporting materials to Te Rūnanga o Arowhenua at least six weeks prior to the documents being submitted to the Canterbury Regional Council for certification, Offer to meet with Te Rūnanga o Arowhenua representatives within the six-week period for the purposes of discussing the EMS or the amendments to the EMS, Incorporate the comments or changes received from Te Rūnanga o Arowhenua into the EMS or the amended EMS, except that if the consent holder determines the comments or changes are not appropriate, it shall undertake further consultation with Te Rūnanga o Arowhenua to see if alternative further changes can be made. If the consent holder determines that further changes cannot be made, then it shall prepare a document that records the comments or changes that have not been included and the reasons for not including them. 	
14(b)	The updated EMS along with any document to be prepared in accordance with Condition 14(a) are to be provided to Te Rūnanga o Arowhenua at the time of seeking certification from the Canterbury Regional Council in accordance with Condition 15.	
15	The EMS and any amendment to the EMS that has been prepared in accordance with Conditions 12 to 14 shall be submitted to the Regional Leader – Monitoring and Compliance, Canterbury Regional Council for certification. The EMS and any changes shall only be implemented following certification by the Regional Leader – Monitoring and Compliance, Canterbury Regional Council.	
16(a)	<p>The consent holder shall engage a suitably qualified and independent expert to undertake:</p> <ol style="list-style-type: none"> A full review of the EMS prior to 1 December immediately after the second and sixth anniversaries of the Commencement Date of this resource consent, and A review of at least one third of the EMS (to be rotated annually at each EMS review to ensure the full EMS is reviewed at least once every three years) prior to 1 December for each year that is after the second anniversary of the Commencement Date, excluding the full reviews required in the above clause. <p>The reviews shall:</p>	<p>8.3 – External Review EMS – 004 Matrix 7.2 – Reporting</p>

Condition	Requirement	EMS Section
	<ul style="list-style-type: none"> i. Identify and discuss the implementation of the EMS and any improvements that may be able to be made to better achieve the objectives developed in line with Condition 12(b), ii. Review any changes made to the use of the property irrigation, land use and management standards as applied through the Matrix Method when calculating the scheme nitrogen loss, and iii. Review the process undertaken to update any changes made to the nutrient budget reference files used to calculate scheme nitrogen load limits and losses into the most recent version of OVERSEER®. 	
16(b)	Following the review, the consent holder shall provide a copy of the review report to Te Rūnanga o Arowhenua and offer to meet with it for the purposes of discussing the findings of the review, and any amendments that might be made to the EMS.	
16(c)	A copy of the review shall be provided to the Regional Leader – Monitoring and Compliance, Canterbury Regional Council as a part of the annual report to be provided under Condition 16.	
17	In the event that a Property is excluded from the ASM programme then the Consent Holder shall notify Te Rūnanga o Arowhenua and the Regional Leader - Monitoring and Compliance, Canterbury Regional Council within 20 working days of the exclusion.	EMSNM – 003 Land Joining or Leaving the Scheme
28	<p>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 a summary of the FEP Auditing programme for the completed year preceding the reporting period, including the following:</p> <ul style="list-style-type: none"> a. the name of the FEP auditor(s); b. a summary of the audit performance grading, including the predominant farming system on the properties graded; c. the number of Properties receiving each audit grade; d. the number of properties which have received repeated fail grades (being C or D grades in relation to a Farm Environment Plan or any fail grade as may be determined in consultation with the Regional Leader - Monitoring and Compliance, Canterbury Regional Council in relation to any Certified Farm Environment) in the past five years (including a summary of the reasons and actions taken); e. the total annual calculated loss of nitrogen from all Properties within the Command Area over the reported year, in accordance with the method outlined in Schedule CRC185857B, and including information on: 	7.2 – Annual Compliance Report

Condition	Requirement	EMS Section
	<ul style="list-style-type: none">i. the load that has been calculated or deemed for each Property in accordance with Conditions 3 to 7;ii. the total aggregated NDA for each Nutrient Allocation Zone, being the sum of the assessed nitrogen losses from all Properties provided for in Conditions 4(a) and (b) and identified in the relevant part of Schedule CRC185857A; and iii. predicted changes in average nitrogen concentrations beyond the root zone. <ul style="list-style-type: none">f. the reporting on environmental monitoring required in accordance with Condition 25;g. a summary of any significant change applications considered in accordance with Condition 12;h. the performance of Properties in the scheme in meeting the environmental targets and objectives as specified in the Farm Environment Plans required by Condition 18(a); andi. results of the review required by Condition 16	

4 Roles and Responsibilities

Table 3: MHV Water Roles & Responsibilities

Role	Entity	Environmental and Operational Responsibilities
Board of Directors	MHV	iv. Oversee all Strategy and Policy to ensure adherence
CEO	MHV	v. Manage oversight and delivery of EMS, Policy and Procedure and compliance to all consent conditions
Change Manager	MHV	vi. Communicate MHV policies and procedures to shareholders
Senior Hydrogeologists	MHV	vii. Prepare, implement and report on Environmental Monitoring Plan
Environmental Manager	MHV or nominee	viii. Develop and implement the EMS to comply with resource consent requirements. ix. Work with farmers to ensure EMS practices are implemented on farm. x. Management of Environmental Staff and external contractors.
Environmental Advisor	MHV or nominee	xi. Develop and implement the EMS to comply with resource consent requirements. xii. Work with farmers to ensure EMS practices are implemented on farm.
Environmental Assistant	MHV or nominee	xiii. Assist Environmental Team will implementation of EMS
Farm Environment Plan Auditor	External Contractor(s)	xiv. Undertake audits and report progress to the Environmental Team.
Matrix Calculation	External Contractor(s)	xv. Update reference nutrient budgets and Matrix into new versions of Overseer xvi. Calculate NDA and N Losses
EMS Reviews	External Contractor(s)	xvii. Peer review EMS xviii. Peer review Matrix calculations and Overseer update processes

5 Objectives and Targets

Condition 12(b) of resource consent CRC185857 require MHV Water have set objectives and targets to ensure:

1. Resource Consent CRC185857 is complied with,
2. Properties provided for in Conditions 4(a) and 4(b) implement HPZ gmp, and in the case of Properties provided for in Condition 4(a), the specified further reductions to achieve nitrogen loss reduces over time, and
3. Properties required to hold a Farm Environment Plan are achieving or working towards the achievement of an A audit.

5.1 Objectives

To achieve the outcomes specified by resource consent CRC185857, MHV Water will ensure the following environmental objectives are achieved through the implementation of this EMS:

1. Improve long term water quality trends in the catchment
2. All MHV Shareholders are actively engaged with the cycle of continuous improvement
3. Shareholders are supported to ensure farming activities are actively managed to avoid, remedy, or mitigate adverse impacts on sensitive environments and receptors.

5.2 Targets

Objective	Target	KPI Reporting
1. Improve long term trends in water quality in the catchment	Improve understanding of groundwater and surface water systems within the catchment	Annual Compliance Report from 2022
	Farming activities are managed to reduce N surplus	Last Board Meeting of the year
2. All MHV Shareholders are actively engaged with the cycle of continuous improvement	Farming activities are at good management practice or better	Board Report
	Shareholders are actively engaged with improving their environmental understanding and practices	Board Report
3. Shareholders are supported to ensure farming activities are actively managed to avoid, remedy, or mitigate adverse impacts on sensitive environments and receptors.	Shareholders are aware of sensitive receptors on their property and the actions required to avoid, remedy, or mitigate impacts from their farming activities	Board Report
	Data management systems are in place to monitor achievement of targets	Board Report

6 Continuous Improvement

Our primary tool to achieve our environmental objectives is to embed the principles of continuous improvement into our systems and interactions with our shareholders. We intend to improve water quality by encouraging shareholders to implement sustainable, long-term changes to their farming practices by maximising engagement, knowledge and understanding of options available to them to reduce their impact.

The cycle of continuous improvement is best described as a *Plan – Do – Check – Act* model described by Carruthers in 2011¹ [Figure 2](#). The iterative process encouraged by the *Plan – Do – Check – Act* model has long been recognised as an effective tool to improve overall knowledge and understanding by the users, which is essential for ensuring the preferred practices to improve water quality are implemented consistently over a long period of time.

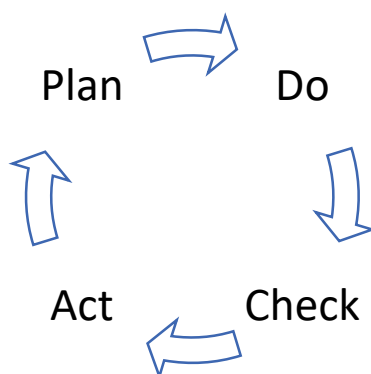


Figure 2: (Carruthers 2011) Plan - Do - Check - Act model for continuous improvement

MHV Water implements the *Plan – Do – Check – Act* model through the EMS and wider environmental programme by:

- Ensuring Farm Environment Plans are dynamic, living documents
- Communicating results from the groundwater monitoring programme
- Engaging with shareholders regularly to understand our catchment context, access new technology or resources which become available, and review and update actions needed to further reduce their impact.
- Holding shareholders accountable with the implementation of their farm plan
- Providing follow up support to integrate feedback from their audits back into their farm plan

Over time, the iterative cycle of continuous improvement will result in sustained improvements of on-farm practices in a way which will reduce nutrient losses to water from shareholder properties.

7 Reporting

7.1 Board Reporting

MHV Water Board reports are generally held 6-weekly. The Environmental Report to the Board, prepared by the Environmental Manager, will include the following when applicable:

- Progress with completion of FEP updates

¹ Carruthers, G. (2011). [Auditing and critical review in environmental management systems \(EMS\) in agriculture: Is there value for similar approaches in New Zealand's proposals for audited self-management](#). Fertiliser and Lime Research Centre Workshop, Palmerston North, New Zealand.

- Finalised FEP Audit grades, including follow up undertaken for B, C or D grade properties.
- Proportion of shareholdings who have attended a development opportunity within a 12-month period
- Summary of Significant Change applications for a decision

7.2 Annual Compliance Report

An annual compliance report will be prepared and provided to MHV Board, Environmental Canterbury and Te Rūnanga o Arowhenua by 1st December each year in accordance with Condition 28 of resource consent CRC185857.

8 Document Management Control

8.1 Version Control Description

The numerical versions listed in this document and all supporting documentation indicate *material* or *immaterial* changes. Material changes to the document are indicated by changing the first digit and include:

- Changes to intent or direction
- Changes related to resource consent compliance

Immaterial changes are indicated by changing the second digit and include:

- Formatting or proofing edits
- Changes which do not relate to resource consent compliance, such as updates to references or file locations.
- Updates or changes internal MHV Water Operating Procedures

Only material changes to the EMS or supporting documents require approval from the MHV Board, review by Te Rūnanga o Arowhenua and re-certification by Canterbury Regional Council prior to implementation.

8.2 Internal Review of EMS

The Environmental Management Strategy and any supporting documentation may be reviewed in response to the following:

- Changes to resource consent conditions
- Implementation of National Environmental Standards for Freshwater (2020) and National Policy Statement for Freshwater (2020)
- Deteriorating trends in water quality within the Hekeao/Hinds Catchment
- Changes in market dynamics
- Recommendations from the Remediation and Response Plan
- In response to internal or external reviews of policies and procedures

8.3 External Review of EMS

In accordance with Condition 16 of CRC185857, the EMS and Matrix inputs are to be reviewed by a suitably qualified and independent expert in accordance with [Table 3](#).

Table 3: External EMS Review Schedule

Initiation Date	EMS	Matrix
13th May 2023	Full EMS Review	All reviews
13th May 2024	1/3 rd EMS Review – Part 1	
13th May 2025	1/3 rd EMS Review – Part 2	
13th May 2026	1/3 rd EMS Review – Part 3	
13th May 2027	Full EMS Review	
13th May 2028	1/3 rd EMS Review – Part 1	
13th May 2029	1/3 rd EMS Review – Part 2	
13th May 2030	1/3 rd EMS Review – Part 3	

The EMS reviewer shall be suitably qualified and experienced in the development, review, and assessment of document management systems. The aim of the EMS review is to identify and discuss improvements in the documentation and implementation of the EMS to ensure the following:

1. Resource consent CRC185857 is complied with
2. Properties achieve applicable N loss reduction targets
3. Properties with a Farm Environment Plan are achieving or working towards an “A” audit grade.

Except for the years where a full review is required, only 1/3rd of the EMS shall be reviewed, to be rotated annually to ensure the whole EMS is reviewed over a period of 3 years.

The Matrix reviewer shall be suitably qualified and experienced in GIS systems and analysis. The aim of The Matrix review is to ensure the following changes or updates are in accordance with the reproducible methodology detailed in the EMS and supporting documentation:

1. Farm system, irrigation and management standards GIS layers used to calculate nitrogen losses
2. Process undertaken to update reference nutrient budget files to a new version of Overseer

8.4 Consultation with Te Rūnanga o Arowhenua

In accordance with condition 14 of resource consent CRC185857, the draft Environmental Management Strategy, all supporting documentation and any material variations thereof are to be provided to be provided to the Chair of Te Rūnanga o Arowhenua or their representative at least 6 weeks prior to submission to Environment Canterbury for certification.

Within the 6-week consultation period, MHV Water shall offer to meet with the Chair of Te Rūnanga o Arowhenua or their representative to discuss and explain the draft EMS documentation.

Once feedback has been received, MHV Water will prepare a document detailing the feedback received and how it has been integrated into the EMS. If amendments have not been accepted, MHV Water shall further consult with Te Rūnanga o Arowhenua to discuss an alternative solution. Where an alternative solution cannot be agreed upon, the reasons for not incorporating the feedback into the EMS or supporting documents shall be listed in the format detailed in Appendix 3.

The final draft EMS and report (where applicable) are to be provided to the Chair of Te Rūnanga o Arowhenua or their representative when seeking certification from Environment Canterbury.

8.5 Certification of EMS

Condition 15 of resource consent CRC185857 requires the Environmental Management Strategy and any material amendments related to matters described in Conditions 12 or 13 of resource consent CRC185857 are to be certified by Canterbury Regional Council prior to implementation.

Where there is a material change to a single EMS supporting document, only the amended supporting document will need to be re-certified.

Prior to the application of any certification or recertification of the EMS by Canterbury Regional Council, the EMS or amendments, shall first be approved by the Board of MHV Water and provided to Te Rūnanga o Arowhenua for comment as detailed in Section 8.4.

8.6 Distribution List

Organisation		Role(s)	Document(s)	Date
MHV		CEO, Environmental Manager, Board of Directors, Shareholders, MHV Water website	EMS	12 May 2022
			EMS Reviews	
			Annual Report	
Te Rūnanga o Arowhenua		Senior Environmental Policy Advisor	EMS	13 May 2022
			EMS Reviews	
			Annual Report	
Canterbury Council	Regional	Regional Leader – Monitoring and Compliance	EMS	13 May 2022
			EMS Reviews	
			Annual Report	

9 Amendment Register

Version	Date Reviewed	Purpose / Amendments	Section Reviewed	Reviewer	Status
1.0	May 2022	Development of EMS	All	Eva Harris	FINAL DRAFT
1.0	May 2022		All	Mel Brooks	Approved
2.0	June 2024	EMS review recommendations	All	Nicole Matheson and Mel Brooks	Approved

10 Appendix 1 – EMS Supporting Documents

Table 4: Summary of EMS Supporting Documents

Document Number	Document Name	CRC185857 Condition	Status
EMP	Environmental Monitoring Plan	12(e)	Certified
EMSFE – 001	Farm Environment Plan Process	12(b) 13(a)	FINAL
EMSFE – 002	Farm Environment Plan Audit Process	12(c) 13(d)	FINAL
EMSFE – 003	Farm Environment Plan Audit Follow Up	12(c) 13(d)	FINAL
MHV Policy	Authorised Land Use Policy (v4.0)	13(b)	FINAL
EMSNM - 002	Farm Activity Variation Application Process	12(f)	FINAL
EMSNM – 003	Properties joining or leaving the scheme	12(h) 13(f)	FINAL
EMSNM – 004	Matrix – Nutrient Accounting	12(g) 13(c)	FINAL
EMSNM - 005	Advanced Mitigation	12(c) 12(g)	FINAL
EMSSR – 001	Sensitive Receptors – Community Drinking Water Protection Zones	12(d)	FINAL
EMSSR - 002	Sensitive Receptors	12(d)	FINAL
MHV Policy	Non-complying shareholders Policy	13(c)	FINAL

11 Appendix 2 – Definitions

Term	Definition
2009-13 Nitrogen Baseline	<p>(a) the discharge of nitrogen below the root zone, as modelled with OVERSEER® (where the required data is inputted into the model in accordance with OVERSEER® Best Practice Data Input Standards), or an equivalent model approved by the Chief Executive of Environment Canterbury, averaged over the period of 01 July 2009 - 30 June 2013, and expressed in kg per hectare per annum, except in relation to Rules 5.46 and 5.62, where it is expressed as a total kg per annum from the identified area of land; and</p> <p>(b) in the case where a building consent and effluent discharge consent have been granted for a new or upgraded dairy milking shed in the period 01 July 2009 - 30 June 2013, the calculation under (a) will be on the basis that the dairy farming activity is operational; and</p> <p>(c) if OVERSEER® is updated, the most recent version is to be used to recalculate the nitrogen baseline using the same input data for the period 01 July 2009 – 30 June 2013.</p>
ALU	Authorised Land Use
Approved Environmental Programme	Are an environmental programme which have been formally recognised by Environment Canterbury as meeting the equivalent environmental management and auditing standards stated in the Land and Water Regional Plan.
ASM	Audited Self-Management
Authorised Property(s)	Properties that MHV Water has elected to treat as Authorised Properties for the purposes of Conditions 9 and 10 of CRC185857.
CDWPZ Impacted Land	<p>Land that is included in a Community Drinking Water Protection Zone, plus any other land within the same paddock where it is not possible to treat such further land on a different management basis for the purposes of condition 21 of resource consent CRC185857.</p> <p><i>Advisory note: For example:</i></p> <ul style="list-style-type: none"> • it will typically not be possible to provide differential stock grazing within the same paddock; and • it may be possible to provide differential management for a cropping or horticultural operation in the same paddock.
Commencement Date	13 th May 2021, date resource consent CRC185857 was given effect to.
Community Drinking Water Protection Zone	A Community Drinking Water Protection Zone as identified in Schedule 1 of the Canterbury Land and Water Regional Plan.
EIP	Environmental Implementation Plan
EMP	Environmental Management Plan
EMS	Environmental Management Strategy

Term	Definition
Farming Activity	All Agricultural and Horticultural land uses (whether irrigated or not) and including but not limited to dairy farming, dairy support, winter grazing, sheep and beef farming, deer, pig and goat farming, arable/cropping, fruit & vegetable productive land uses and other agricultural and horticultural land use and forestry/ineffective areas.
Farming Enterprise	An aggregation of parcels of land held in single or multiple ownership (whether or not held in common ownership) that constitutes a single operating unit for the purpose of nutrient management
FAVA	Farm Activity Variation Application
FEP	Farm Environment Plan or Certified Freshwater Farm Plan or equivalent
FEP Implementer	An individual who makes day to day decisions related to the management of irrigation, fertiliser, soils, or effluent
Good Management Practice	As described in the Industry Agreed Good Management Practice Guide, Version 2 (September 2015) and subsequent variations
HPZ gmp	The farming practices described in Schedule 24a of the operative Canterbury Land & Water Regional Plan (at the Commencement Date), considering: <ul style="list-style-type: none"> i. the type of farming activity; and ii. the drainage characteristics of the soils; and iii. the climatic conditions and topography of the Property; and iv. the type of irrigation system used.
ICL	Irrigo Centre Limited
NDA	Scheme or Property Nitrogen Discharge Allowance as may apply
NES Equivalent Farm	A Property on which: <ul style="list-style-type: none"> a) 20 ha or more is in arable land use; or b) 5 ha or more is in horticultural land use; or c) 20 ha or more is in pastoral land use; or d) 20 ha or more is in a combination of any two or more of the land uses described above: Provided that this definition shall not limit the consideration of, as a significant change application, any increase in the area used for dairy farming (being the use of land by milking dairy cows) by more than 10 hectares.
PLU	Permitted Land Use
Primary Organisation	A Primary Organisation is an Approved Environmental Programme which a shareholder has confirmed in writing to be responsible for managing the environmental outcomes of the shareholder property
Property	Any contiguous area of land, including land separated by a road or river, held in one or more ownership, that is utilised as a single operating unit, and may include more than one certificate of title
Sensitive Receptor	Areas of wetland, surface water bodies and riparian areas, sites of cultural significance (as may be further defined in consultation with Te Runanga o Arowhenua) and, in the

Term	Definition
	case of any land located within a Community Drinking Water Protection Zone, the Community Drinking Water Supply.
Significant Change	<p>In relation to the farming activity on a Property means:</p> <ul style="list-style-type: none"> (a) an increase in the area irrigated by more than 10 hectares; (b) an increase in the area -used for dairy farming (being the use of land by milking dairy cows) (whether irrigated or not) by more than 10 hectares; (c) any increase in the area used for intensive winter grazing (being the grazing of livestock on annual forage crop at any time in the period 1 May to the following 30 September); and (d) any increase in the area on a property of dairy support land (being the farming of non-milking dairy cows, including heifers), <p>as compared to the maximum area used on that Property in any year within the period 1 July 2014 to 30 June 2019².</p>
The Matrix	Is used to estimate the NDA for the property by using the Authorised Land Use, soil type, and irrigation type
The Schedule	Is a register of the estimated NDAs for each shareholder property, of which the sum of the nitrogen losses forms the NDA for MHV Water
TSA	Targeted Stream Augmentation
Winter Grazing - LWRP	As defined by the Canterbury Regional Council Land and Water Regional Plan: The grazing of cattle within the period of 1 May to 30 September, where the cattle are contained for break-feeding of in-situ brassica and root vegetable forage crops or for consuming supplementary feed that has been brought onto the property.
Winter Grazing - NES	As defined by the National Environmental Standards for Freshwater 2020: Means grazing of livestock on an annual forage crop at any time in the period that begins on 1 May and ends with the close of 30 September of the same year.
WSA	Water Supply Agreement

² For clarity, any increase in irrigation area, or the area of land used for Dairy Farm Land and Dairy Support Land for the purpose of assessing if a change is “significant” is defined based on the primary land use mapped for the property in the MHV QGIS mapping system at the commencement date of resource consent CRC185857 (13th May 2021).

12 Appendix 3 – Te Rūnanga o Arowhenua EMS Feedback Report

Te Rūnanga o Arowhenua feedback received 21 April 2022

EMS Document Name	Version	Section	AEC Feedback	Accepted Y/N	MHV Water Comment
EMSSR-002	DRAFT	4.1	Change sentence to read: Some sites may have been lost or degraded due to urban and rural development. Gathering food and other resources is still an integral part of what it means to be Te Rūnanga o Arowhenua, and as kaitiaki, the enhancement of what remains today is a key priority.	Accepted	
	DRAFT	4.3	Change sentence to read: The core principles to embody management of cultural sites of significance to Arowhenua are:...	Accepted	
	DRAFT	4.4	Change paragraphs to read: Between 1879-81, approximately 1712 Ngāi Tahu mahinga kai sites across Canterbury and Otago were surveyed and presented to the Smith Nairn Commission as evidence of the Crown's abdications of their obligations of Te Tiriti of Waitangi. The location of many of the sites of significance are not available publicly as tikanga dictates this knowledge is held by few people to effectively manage the mahinga kai resource or protect the taonga. Within the command area of MHV sites of significance to Arowhenua have been identified on the MHV Water GIS mapping system. These sites were identified and mapped in consultation with Te Rūnanga o Arowhenua in 2022. Variation in the number or extent of registered sites of significance identified on the MHV GIS mapping system are to follow the process described in EIPSR-001.	Accepted	
		4.5	Delete:	Accepted	

			<p>“Priority of site to Te Rūnanga o Arowhenua”</p> <p>Arowhenua does not prioritise matters of significance. It is considered for the purposed of sites that are significantly altered discussion around the site context today will inform actions to mitigate any identified consents.</p>		
ESMFEP-001 FEP Process	DRAFT		No changes to this document		
EMSFEF-002 FEP Audits	DRAFT		No changes to this document		
EMSFEF-003 FEP Audit follow up	DRAFT		No changes to this document		
EMSNN-002 – Farm Activity Variation Application Process	DRAFT		No changes to this document		
EMSNN-003 – Land Joining or leaving MHV Water	DRAFT		No changes to this document		
EMSNN-004 – Matrix Methodology	DRAFT		No changes to this document		
EMSSR-001 Community drinking water protection zones	DRAFT		No changes to this document		
Environmental Management Strategy (EMS) v1.0	DRAFT		No changes to this document		
Advanced Mitigation Auditor Guidance Version 10	DRAFT		No changes to this document		
Authorised Land Use Policy 004	DRAFT		No changes to this document		
Non Compliant Shareholder Policy	DRAFT		No changes to this document		