ALLIANCE
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ALLIANCE GROUP LIMITED
Mataura Plant

Programme Manual

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ENVIRONMENTAL MANAGEMENT SYSTEMS

TABLE OF CONTENTS

1.0 INTRODUCTION

1.1 Purpose

To describe the environmental activities at the Mataura plant and the systems employed to maintain control over them in a manner which ensures compliance with regulatory resource consent conditions and internationally recognised environmental management standards.

1.2 Scope

This Programme Manual applies to all environmental activities undertaken by the Alliance Group at the Mataura Plant. It includes the Processing Plant, Potable Water Treatment Plant, Pallet Stores and Hide Department. The scope does not include the external environmental aspects arising from the supply of stock or materials to the plant nor to the external transport of product from the site.

1.3 Reference

COR-TQM-002 Alliance Group Corporate Social Responsibility Policy
ISO 14001:2015 Environmental Management Systems
MAT-ADMCP-001 Air Discharge Management and Contingency Plan
MAT-PGM-003 Quality Management System
MAT-PGM-004 Operational Hygiene
MAT-PGM-005 Personnel Management
MAT-PGM-010 Health and Safety
MAT-SWMP-001 Stormwater Management Plan
MAT-WTS-001 Potable Water Management Plan
MAT-WWT-001 Wastewater Treatment and Blood Processing Procedure
MAT-WWT-003 Disposal of Wastewater Treatment Solids to Land
PRO 100 (CAR) & PRO 117 (Environmental Incident)
Ministry for the Environment: Good practice guide for assessing and managing odour in New Zealand 2003

Resource Consent Discharges to Water	202327 & 204125
Resource Consent Discharges to Land	207295
Resource Consent Discharges to Air	20158002
Resource Consent Water Abstraction	204126 & 202328
Resource Consent Dam, Divert Use and Discharge	AUTH-20171566-01 AUTH-20171566-02
Resource Consent Stormwater Discharge	206301

AGL Corporate Environmental Systems overview Manual (PRO EMS 001)

1.4 Attachments

Attachment 1 – Environmental and Health and Safety Legislative Register
Attachment 2 – Environmental Impact Assessment
Attachment 5 – Dissolved Air Ratio Curves
Attachment 6 – Water Take Low Flow Contingency Plan
Attachment 7 – Wastewater Solids Spill Plan
Attachment 9 – Wastewater Discharge Low Flow Contingency Plan
Attachment 10 – Departmental Control Lists

1.5 Definitions

cBOD5:	The 5-day carbonaceous biochemical oxygen demand, as a measure of organic matter
Defect:	***A Critical Defect is: (C)*** (a) One that would have a direct effect on environmental compliance, such as breach of resource consent limit (b) An accumulation of major defects that collectively effects environmental compliance ***A Major defect is: (M)*** (a) One that may result in a direct effect on environmental compliance (b) An accumulation of minor defects that collectively may affect environmental compliance ***A Minor defect is: (m)*** (a) One which is not expected to have any direct effect on environmental compliance
DRP:	Dissolved Reactive Phosphorus
Environment:	Surroundings in which an organisation operates, including air, water, land, natural resources, flora, fauna, humans, and their inter-relation
Environmental aspect:	Element of an organisation's activities, products or services that can interact with the environment
Environmental impact:	Any impact on the environment, whether adverse or beneficial, wholly or partially resulting from an organisation's activities, products or services
Environmental objective:	Overall environmental goal, arising from the environmental policy, that an organisation sets itself to achieve, and which is quantified where practicable
Environmental policy:	Statement by the organisation of its intentions and principles in relation to its overall environmental performance which provides a framework for action and for the setting of its environmental objectives and targets
FIDOL:	Odour characteristics as Frequency, Intensity, Duration, Offensiveness and Location
GHG:	Greenhouse Gas, being the six gases defined under the Kyoto Protocol and New Zealand Emissions Trading Scheme as; carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O) hydrofluorocarbons (HFC's), perfluorocarbons (PFC's) and sulphur hexafluoride (SF_6)
NES:	National Environmental Standards
NH4-N:	Ammoniacal Nitrogen
PM10:	Particulate matter less than 10 microns in diameter
Prevention of pollution:	Use of processes, practices, materials or products that avoid, reduce or control pollution, which may include recycling, treatment, process changes, control mechanisms, efficient use of resources and material substitution
RFWP:	Regional Fresh Water Plan For Southland
RMA 1991:	Resource Management Act 1991
TKN:	Total Kjeldahl Nitrogen
TP:	Total Phosphorus
TSP:	Total Suspended Particulates
TSS:	Total Suspended Solids
WCO:	Water Conservation (Mataura River) Order 1997
ISO 14001 recommends the following verbal forms are used: **"shall";** **"should";** **"may";** **"can"**	 Indicates a requirement; Indicates a recommendation; Indicates permission; Indicated a possibility or a capability.

1.6 Actions and Responsibilities

1.6.1 Environmental Policy

The Alliance Group Ltd Mataura Plant acts in accordance with the overarching Alliance Group Limited Environmental Policy, a component of the Alliance Group Corporate Social Responsibility Policy, COR-TQM-002. The Environmental Policy included in COR-TQM-002 is reproduced below.

ENVIRONMENTAL POLICY

Alliance Group Ltd is committed to the sustainable management of the natural and physical resources which it depends on.

In meeting this commitment, Alliance Group will align itself with applicable New Zealand and international standards and will take all practicable steps to:

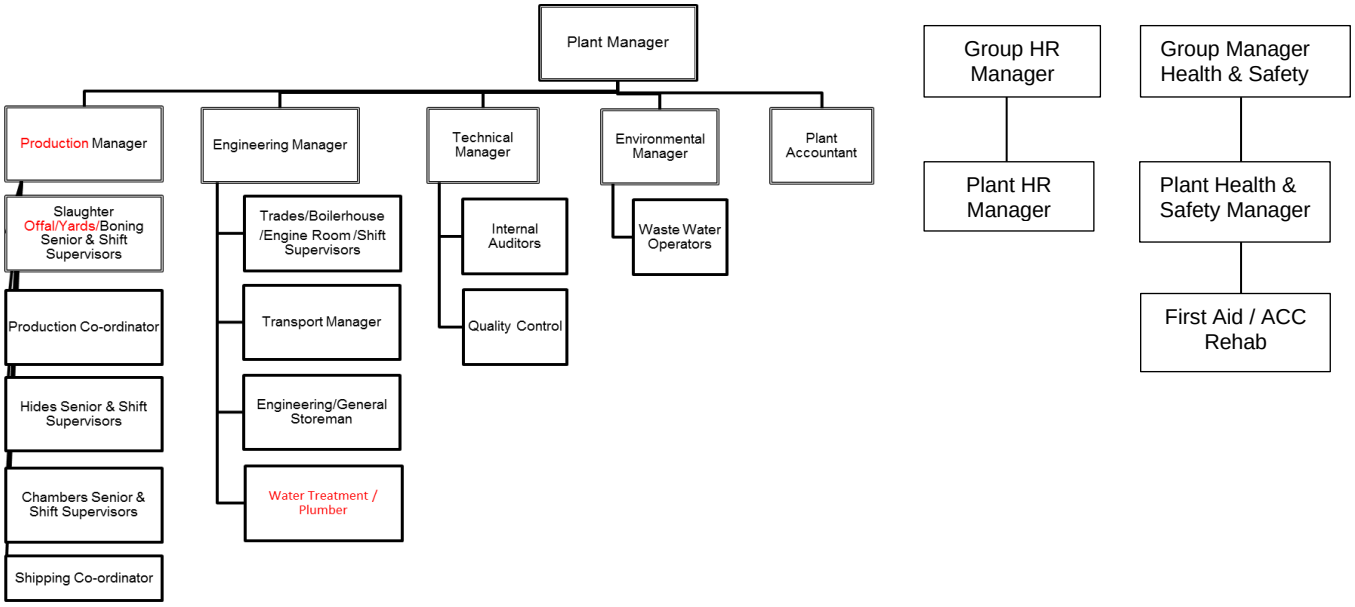
- meet or exceed internal and key stakeholder expectations and relevant regulatory requirements;
- continually improve environmental performance by identifying and measuring impacts, developing clear objectives and meaningful targets, and measuring progress with effective monitoring;
- optimise the use of all resources including energy, water, packaging and chemicals, to minimise the wastes produced and the overall impact of our operations;
- annually review the adequacy of the environmental management programme and progress towards achieving environmental objectives and targets;
- communicate regularly on environmental matters with stakeholders including shareholders, employees, customers, suppliers, communities and regulatory bodies;
- allocate appropriate resources to enable effective environmental management.

The Mataura Plant environmental impacts and environmental work plans (MAT-PGM-009 attachment 2) are referenced to the environmental policy by numerically associating them to the policy bullet points.

1.7 Environmental Management Authorities

1.7.1 Environmental Interactions

Below is a copy of the Plant Organisation Chart as per MAT-RMP-001.



Specific authorities and responsibilities relating to the Mataura Plant Environmental Management System are as follows:

Group Environmental Manager

- authority and responsibility to co-ordinate and control the AGL environmental management systems
- liaise with the division / plant representatives to control and co-ordinate the development and maintenance of the environmental programme within their respective areas
- monitor and report on the development of the environmental programme
- direct, co-ordinate and report on on-going reviews of the programme
- provide advice and assistance to division / plant / site managers and representatives on the development of the programme
- co-ordinate the programme with consultants, contractors and other suppliers
- Provide support to Mataura plant and personnel in the development and maintenance of the EMS

Plant Manager

- Overall management of all plant operations and all associated activities, including environmental effects
- Development of the business plan for Mataura operations
- Ensuring adequate resources are provided for compliance with environmental issues and obligations
- Ensuring the effectiveness of the Environmental Management System (EMS) by communicating its importance and the need to conform to its requirements
- Establishing objectives within the EMS
- Integrating the EMS requirements into the plants business processes
- Ensuring the resources needed for the implementation of the EMS are available and sufficient to enable to achieve its intended outcomes
- Directing and supporting management and other staff to contribute to the successful implementation of the EMS
- Promoting continued improvement in environmental performance

Engineering Manager

- Management of technical resources on plant for all environmental issues
- Preparation of applications to the Alliance Group Limited Board of Management for capital expenditure for major cost items
- Management of potable water treatment systems
- Management of energy production and consumption of energy resources
- Management of preventative maintenance activities, breakdowns repairs, co-ordination of transport and off-season maintenance activities

Environmental Manager

In conjunction with the Group Environmental Manager;

- Management representative for environmental systems and overall responsibility for environmental issues
- Management of continual improvement programmes by identifying impacts, developing clear objectives and effective monitoring
- Responsible for communication with stakeholders including regulatory bodies, the Plant Manager, the Alliance Group Environmental Manager, employees and communities
- Management of environmental monitoring for process control and compliance purposes
- Responsible for annual reviews of the Environmental Management Systems and any document updates
- Responsible for receiving environmental concerns from Plant processes and determining appropriate actions
- Responsible for identifying and organising environmental training
- Responsible for ensuring that all environmental non-conformances are documented and corrective and preventive action taken
- Ensures that audits are carried out on the EMS as required by suitable persons
- Responsible for environmental performance data control
- Responsible for resource consent compliance reporting and complaints recording
- Responsible for obtaining and preparing routine samples of the Mataura River for compliance purposes

Technical Manager

- Management of chemicals on plant, including the introduction of all new chemicals
- Responsible for document control
- Responsible for the plant RMP & Quality Management Systems
- Responsible for annual reviews of the Quality Management Systems
- Responsible for the internal audit programme

Production Manager

- Management of the Slaughter / Stockyards departments
- Management of water use in each department
- Management of product recovery away from wastewater drains
- Management of the Hide Department and Co-products
- Management of the further processing departments

Human Resources Manager

- Management of Human Resources on site

Shift Engineer Supervisors

- Responsible for preventative maintenance activities, breakdown repairs, co-ordination of transport and off-season maintenance activities
- Responsible for supervision of potable water treatment systems
- Responsible for energy production and consumption of energy resources

Slaughter Supervisors

- Responsible for control of water use
- Responsible for product recovery away from wastewater drains
- Responsible for effective use of blood collection and product conveyance systems

Further Processing Supervisors

- Responsible for control of water use
- Responsible for product recovery away from wastewater drains

Hide Processing Supervisor

- Responsible for product recovery away from wastewater drains

Wastewater Supervisor

- Responsible for the day to day operations of the Wastewater Treatment Plant and blood processing
- Responsible for ensuring that DAF solids are removed off-site regularly, in 'fresh' condition or decantered in 'fresh' condition and transported off site for composting
- Responsible for scheduling of wastewater vessel cleaning
- Responsible for data entry into required spread sheets

Wastewater Treatment Operators

- Responsible for operating the wastewater treatment plant according to recognised practices and procedures

Health and Safety Manager

- Responsible for site Health and Safety issues in the event of a spill
- Responsible for implementation of systems to ensure compliance with HSNO regulations

2.0 INPUTS AND OUTPUTS

Inputs → **Processes** → **Outputs**

Livestock
Approx max daily throughputs
Cattle – 1120

Water

Electricity

Coal

Diesel

Packaging

Processing Chemicals

Personnel
Peak season approximately 450 employees

Yards

Slaughter & Dressing

Further Processing

Chilling / Freezing

Edible Co-Product Collection

Hide Processing

Pharmaceutical Collection

Pet food Collection

Edible Products

- Cuts / Bulk Pack
- Green/Red Offal
- Soup Stock Bones

Inedible Products

- Pharmaceuticals
- Pet-food
- Dried Blood
- Hides / Skins
- Raw Renderable material transported to Lorneville

Waste Streams

Processing Wastewater

Amenities Wastewater

Stormwater

Solid Waste

- Wastewater screenings
- DAF solids/Decantered DAF solids
- Boiler ash
- Waste packaging
- Scrap metal
- General waste
- Recycling

Air Emissions

- Steam
- Odour
- Gases
- Boiler Stack Emmissions

3.0 REGULATORY REQUIREMENTS

3.1 Legislation

Awareness of new or changed legislation is initially a corporate function overseen by the Alliance Legal Council. Alliance Corporate office subscribes to “Brookers Online” and relevant information is passed from Plant Managers to Department Managers and plant personnel as required.

The Group Environmental Manager (GEM) also subscribes directly to the “Brookers Online” service and distributes relevant information received from this source to plant environmental representatives.

This information assists with the maintenance of a Mataura register of primarily environmental, but also Health and Safety associated legislation. The legislation register is compiled and maintained by Environmental Manager (EM). Use is also made of Central Government websites such as Ministry for the Environment, Ministry for Economic Development, Department of Labour, Accident Compensation Corporation, National Drug Policy, Global Safety Network, Ministry of Agriculture and Forestry, Ministry of Fisheries and New Zealand Legislation. The register is attached to this procedure.

The Mataura plant environmental, and health and safety legislative register is reviewed by the Environmental Manager at least annually as part of the system review. The register is updated as required.

3.2 Local Government

Consents held by Mataura are listed in a table in MAT-PGM-009 attachment 1. The consent register is maintained by the EM who is responsible for ensuring that all the necessary consents are held and are current.

Changes to local government policies and plans are either communicated directly to the appropriate plant personnel (usually the GEM or the EM) by the local authorities and/or are available on the relevant websites.

The local government regulations sourced from their websites (www.southlanddc.govt.nz, www.es.govt.nz, www.gdc.govt.nz) is used to determine the local regulatory requirements when new work is planned.

4.0 ENERGY PRODUCTION & SERVICES

4.1 Electricity

Electricity is supplied by Contact Energy.

The Mataura site uses approximately 16,000 MWh of electricity per year, the use of which is seasonally based in line with processing demands.

The Mataura site also has a hydro-electric power plant that generates approximately 3,800 MWh of electricity per year.

Records are held by the Engineering Department. The Group Environmental Manager maintains a database of electricity usage for the purpose of key performance indicator reporting.

4.2 Coal

A contract exists with Greenbriar for the supply of lignite coal to the Mataura site from the New Vale Coal Mine. The contract is held by the Alliance Group Engineering Manager.

The Mataura site uses approximately 8,000 tonnes of coal per year, the use of which is seasonally based and in line with processing demands. Records are held by the Engineering Department. The Group Environmental Manager maintains a database of lignite usage for the purpose of key performance indicator reporting.

4.3 Boiler Operation

The Mataura Plant operates two Babcock and Wilcox coal fired boilers (9.4MW & 3.8MW) at the main site for the provision of steam and hot water and a Tripass coal fired boiler (1.4MW) at the Hide Department site for the provision of hot water only.

Boilers are manned by fully qualified operators. The Management System includes the keeping of a log book for the larger Babcock and Wilcox coal fired boilers which is used to record checks of the operation.

4.4 Water

To meet demands for water to the Mataura site there are currently two resource consents for the abstraction of water from the Mataura River. The consents permit the abstraction of up to 35,600 m^3/day from the Mataura River for the main plant processing, and up to 700m^3/day from the Mataura River for hide processing. Physical restrictions imposed by pump and pipe capacity keep volumes extracted within these limits.

Of the water abstracted approximately 3,500m^3/day is treated to a potable standard to meet processing demands during peak production.

The process for potable water treatment at the Mataura site can be found in MAT-WMP-001.

In addition to potable water demands, approximately 3,000m^3/day of non-potable water may be used in non-edible areas of the plant such as, stockyards, rendering and wastewater treatment, during peak production.

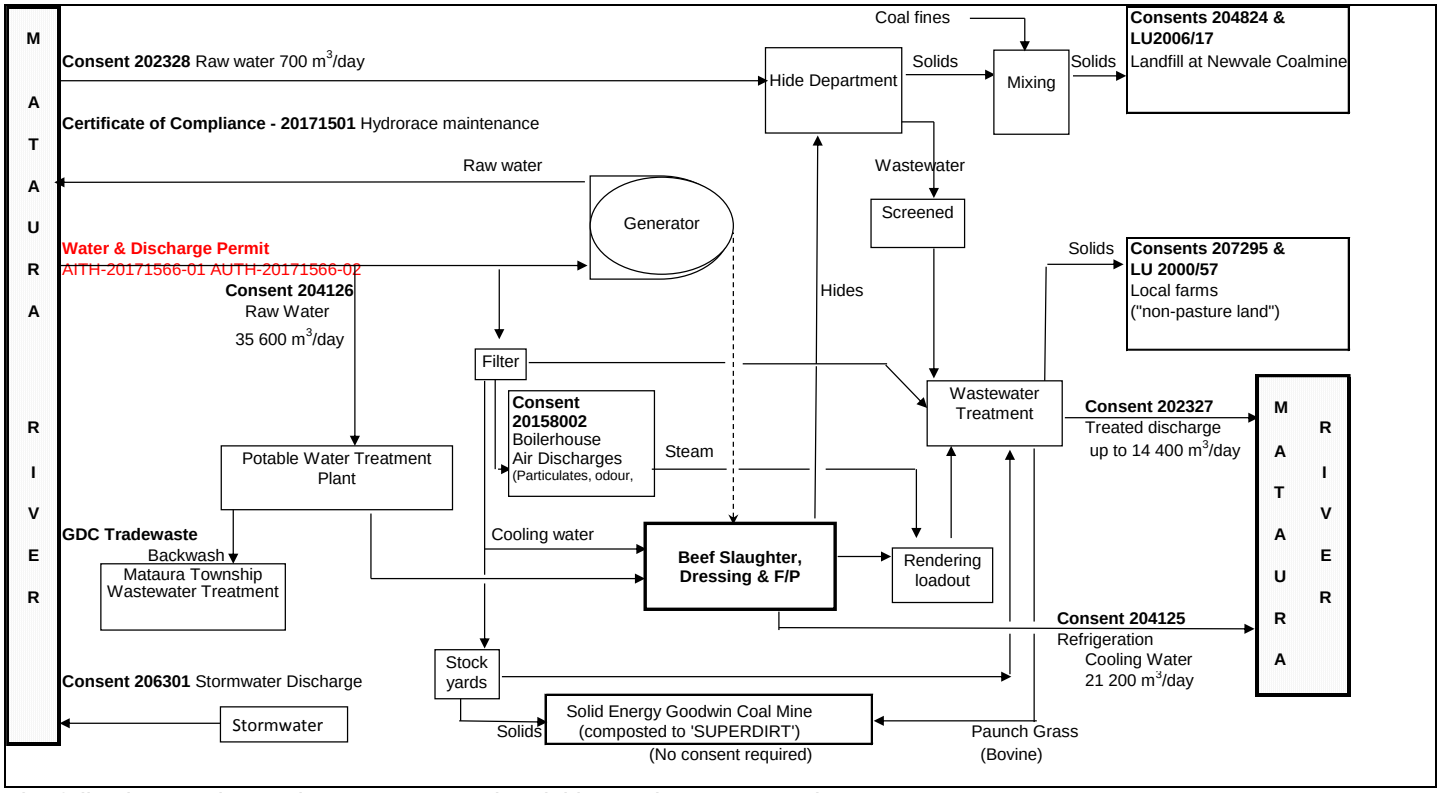
Refer to MAT-PGM-009 section 5.4 for further information related to the resource consent requirements for the water takes.

For details on collection of water samples refer to MAT-WWT-001.

5.0 CONSENTED ACTIVITIES

The environmental effects of activities at the Mataura Plant are considered against the relevant provisions of central and local government legislative and planning requirements, and Ngai Tahu resource management planning documentation, to determine the status of the activity and subsequent consideration by resource consent application if required. The RMA 1991 is the overriding environmental legislation.

The following schematic illustrates the Mataura Plant water, wastewater and relevant consents as an overview.



The following sections relate to consented activities at the Mataura Plant.

5.1 Treated Wastewater Discharge

The Mataura Plant operates under the provisions of resource consent 202327 for the discharge of treated wastewater to the Mataura River, as a discretionary activity.

The WCO specifies minimum water quality standards which apply to the entire river water from its source to the sea. The RFWP should not be inconsistent with the provisions of the WCO. Rule 1 of the RFWP states that the discharge of any contaminant or water into a surface water body requires resource consent as a discretionary activity, provided that the discharge does not reduce the water quality below the minimum standards set out for the relevant water body in Appendix G of the RFWP "after reasonable mixing".

The minimum standards relevant to the Mataura Plant are set out in Appendix G of the Water Quality Standards Document.

5.1.1 Wastewater Sources

The following table is an indication of the typical peak production volumes of water from each department contributing to the total site waste stream.

Department	(m^3/day)
Bovine Processing	1600
Hide Department	450
Wastewater Treatment	2500
Total Wastewater	**7,000**

Wastewater flows are shown schematically in section 5.1.2

Stockyards

Potable water is used for stock drinking water. River water is used for the first stock wash and then stock is given a second wash using potable water, as per MPI requirements. Stock yards are cleaned using river water. Wastewater from the stock washes is directed to the “non-green” wastewater stream. Wastewater from the yards cleaning is captured in the Beef recycle tank and reused in paunch chutes; the overflow goes to the “green” wastewater stream.

Processing Departments

Water is used for hand-washes, sterilisers and product washing, equipment washing, general cleaning and product movement within chutes.

The processes include slaughter and dressing, edible and inedible offal's, chilling, cutting and boning, gut-cutting and washing.

Wastewater from the processes is separated at source for phosphorus treatment and screened through various contra shears before delivery to either the "green" or "non-green" compartments of "Coopers Sump".

Hide Processing

Hide processing occurs at a separate site, approximately 1.5km north of the main plant.

Processing of bovine and deer hides at the hide department involves temporarily preserving the hides with salt and a fungicide to allow for direct export.

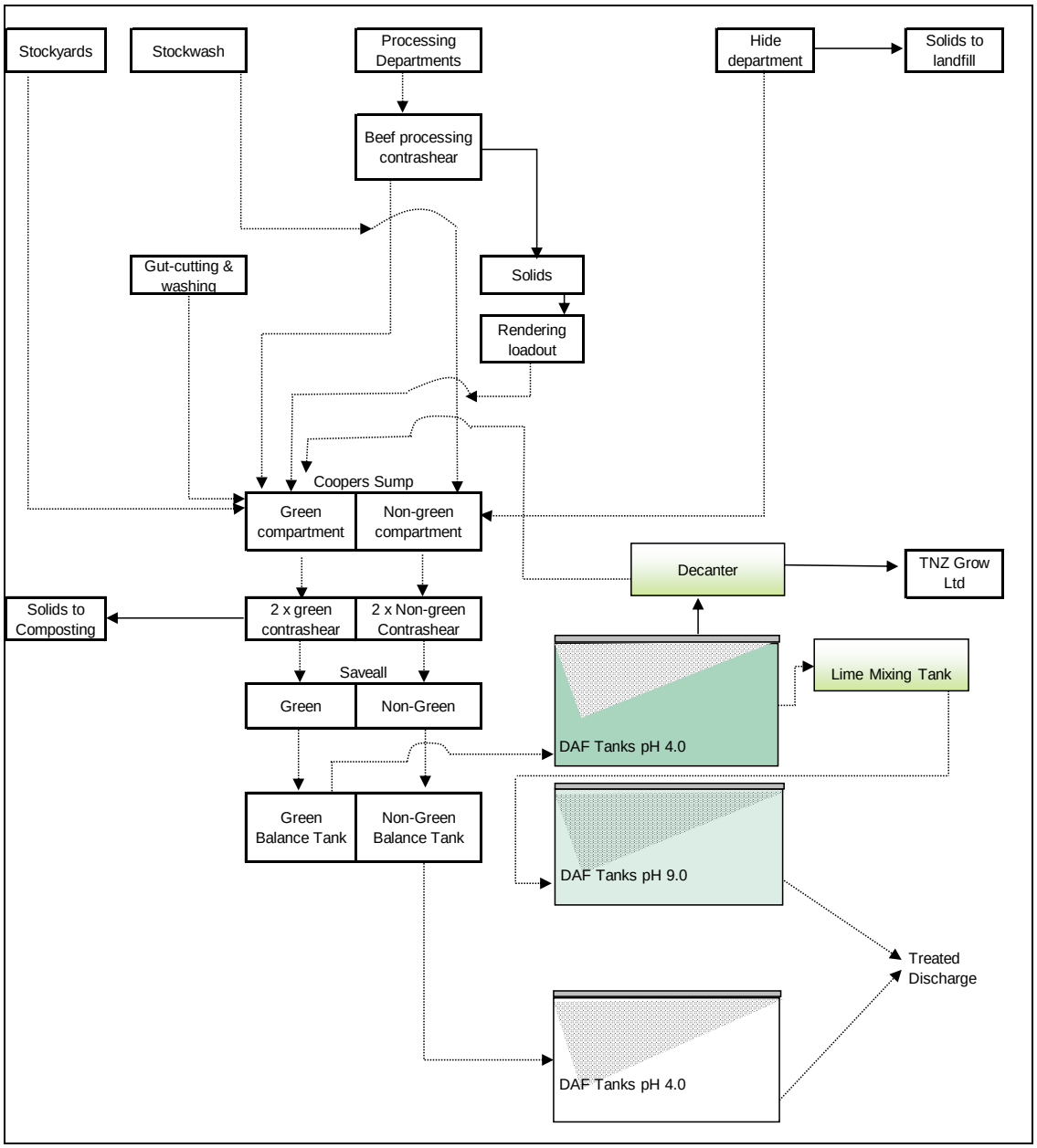
Bovine hides are delivered to the hide department from the main plant for processing. Water is used in a recycle system at the main plant for cooling of the hides during hold and transfer. The wastewater is screened before discharge to the 'non-green' save-all.

Wastewater Treatment System Closure & Wastewater Control

During extended periods of plant closure (e.g. "off-season") it is necessary to drain and clean all sumps, save-all, balance tank and DAF tanks for inspection and maintenance. Typically, the individual wastewater treatment system components are isolated to give effect to maintenance. Any rain or wash water collecting in the system is redirected for treatment within a single DAF tank over this period.

5.1.2 Wastewater Treatment

The following schematic illustrates the wastewater flows (dashed lines) and associated solids removal (solid lines) at the Mataura Plant.



Primary screening

Coarse solids are screened and either go to landfill or utilised in an off-site independent (New Vale) commercial compost operation.

The compost material typically includes animal paunch contents. The composting operation is owned and managed by agreement with Greenbriar and occurs at the New Vale mine.

The landfill material from hide processing activities is disposed of at the New Vale Coal Mine under resource consent (see MAT-PGM-009 section 5.2).

Settling and sand / grit removal

Settled material such as sand and grit is continually removed by a dedicated sand and grit removal system attached to the wastewater treatment save-all. The sand/grit is sent off site with the compost material.

Balance Tank Cleaning

From time to time there may be a need to clean settled solids from the base of the balance tank, which also provides for inspection and maintenance. In practice this is seldom done due to the effectiveness of the continuous sand and grit removal system described above. Solids are typically removed with a small tractor unit from within the tank and transported to the New Vale Coal Mine for disposal. For more details on cleaning and working within the balance tanks refer to (MAT-WWT-001 section 5.5).

Standard Wastewater Treatment (Treatment for Non-Green)

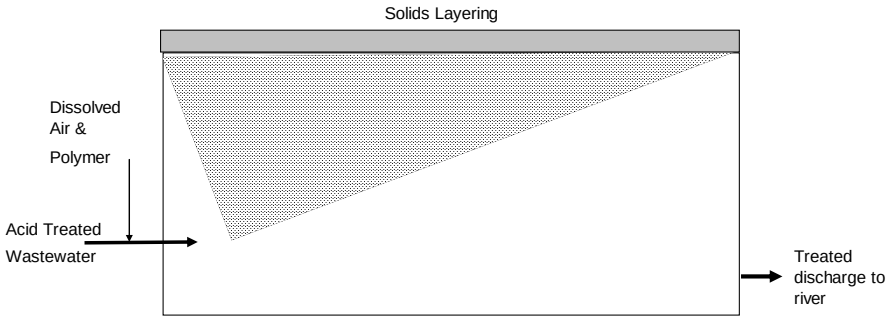
Wastewater is pumped from the save-all to the balance tank, and pumped from the balance tank into the Aminodan Plant Dissolved Air Flotation (DAF) tanks where it is:

- Dosed with sulphuric acid, typically to pH 4.0 (See MAT-PGM-009 attachment 4)
- Dosed with an anionic polymer, typically at a rate of 4.5 ml/m³
- Treated with dissolved **air**, typically at **20%** dissolved air to effluent ratio. (See MAT-PGM-009 attachment 5)

The pH adjustment promotes coagulation of the suspended solids for flotation by dissolved air. The pH adjustment denatures many of the dissolved proteins, converting them into minute insoluble particles. Oily emulsions are broken down which encourages fat to separate from the wastewater. The polymer addition further flocculates the coagulated solids, assisting the flotation process and creating a solids layer on each tank requiring continual removal by the wastewater treatment operators to hold tanks (see Procedure MAT-WWT-001), and subsequent continual removal to off-site locations by contractors (see MAT-PGM-009 section 5.2).

The DAF tanks each have a capacity of approximately 80 m³. Wastewater is normally fed into each tank at 40 - 45 m³/hr and dissolved air flows at 12 m³/hr (200 litres per minute). In the DAF tank the wastewater has a normal residence time of approximately 1 hour and 40 minutes.

Schematic of standard DAF tank operation

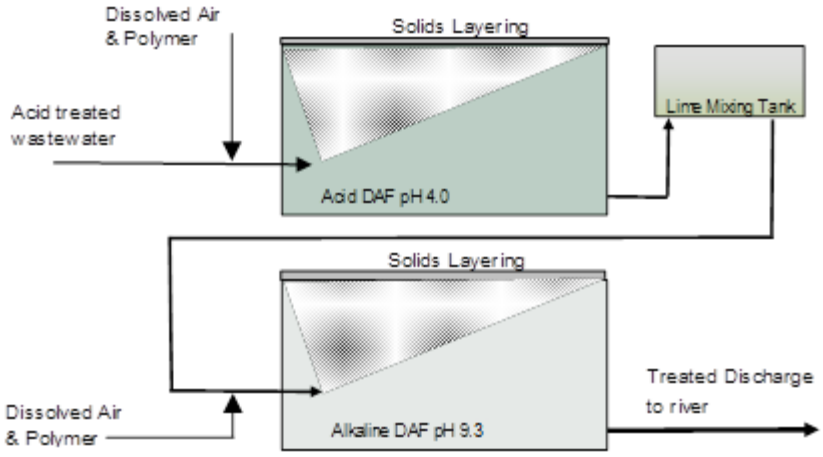


Phosphorus Treatment (Treatment for Green Wastewater with High Phosphorus Loading)

(Also refer to MAT-WWT-001 section 5.1.1)
Wastewater is pumped from the save-all to the Aminodan Plant DAF tanks where it is:

- Dosed with sulphuric acid, typically to **pH 4.0** (See MAT-PGM-009 attachment 4)
- Dosed with an **anionic polymer**, typically at a rate of **5.0 ml/m³**
- Treated with **dissolved air**, typically at **20%** dissolved air to effluent ratio. (See MAT-PGM-009 attachment 5)
- Dosed with hydrated lime, typically to **pH 9.3**
- Dosed with an **anionic polymer**, typically at a rate of **3.0 ml/m³**
- Treated with **dissolved air**, typically at **20%** dissolved air to effluent ratio. (See MAT-PGM-009 attachment 5)

Schematic of phosphorus treatment DAF tank operation



Low Acid Demand

If wastewater contains a high proportion of rainwater, or other non-potable water from stock washing (e.g. on Sundays) or hosing down (e.g. off-season) only a small amount of acid will be required to achieve pH 4.0. The stroke on the acid dosing pumps may need to be reduced to avoid wild pH fluctuations.

High Acid Demand

On some occasions there is high acid demand. To achieve pH 4.0 the acid pump outputs increase as shown in MAT-PGM-009 attachment 4. At this time the operator monitors acid dosing more closely than normal to ensure that the automatic system responds properly. If the pump outputs increase above 70% the acid pump strokes are increased temporarily.

Low Hydraulic Load

From time to time there is insufficient wastewater volume to maintain an optimum flow rate of 45m³/hr through the DAF tanks and the effluent flows are usually reduced. The polymer pump speed is correspondingly reduced to maintain the optimum dose rate. Alternatively, the DAF plant could be shut down completely until the level in the balance tank increases, or some DAF tanks could be taken off line. If individual tanks are taken off-line the DA (Dissolved Air) is also valved off and the polymer pump speed is reduced to avoid wasting polymer.

The number of DAF tanks that can be taken off line is determined by the air compressor's discharge pressure. If the water pressure in the DA system approaches or exceeds the air pressure, there will be loss of dissolved air, as indicated by loss of 'fizz' from the sight glass. If this occurs water is dumped from the pressure tank so that dissolved air can be re-established.

High Hydraulic Load

Occasionally high water usage on the plant increases the volume of wastewater produced and it may be necessary to increase the wastewater flow into the DAF tanks. The polymer pump speed is increased to maintain the polymer dose at 4.5 ml/m³, and the dissolved air flow rates are increased to maintain a 20% DA ratio (see MAT-PGM-009 attachment 5). In this situation the residence time in the DAF tanks is reduced, which may affect treated wastewater quality slightly, but compliance with the consent limits is still expected.

Low Effluent Solids Loading

Low solids loading causes no major process problems, but it may result in overdosing of polymer. Sludge could thicken considerably and some white patches of polymer may become visible, particularly as it is scraped. This will probably correlate with low acid demand .

High Effluent Solids Loading

The save-all and one or more of the wastewater contra shear screens can be bypassed for the non-green and the green waste stream for maintenance if necessary, but this may put an extra solids load on the DAF plant. Increases to the polymer dose and the dissolved air ratio may be required to counteract increases in TSS concentration.

DAF Sludge Decanter

DAF Sludge enters the decanter feed line at approximately 6-8% solids which is then injected with steam to assist with the dewatering process. The decanter uses centrifugal force to separate the liquid and solids with the liquid re-entering the treatment system via the green stream. The solids exit the decanter at around 40-50% total solids; this is augured 30m into a trailer unit where it is transported to TNZ Growing Products Ltd in Kennington.

5.1.3 Wastewater and Receiving Water Monitoring

Samples of the treated wastewater and receiving waters are collected once week rotating through all the days of the week (as per the sampling schedule) when the treatment plant is in operation, in accordance with resource consent conditions. (Refer to MAT-WWT-001).

Key Performance Indicators

Parameter	Key Indicator	Units	Monitored	Targets	Management Reviews
Raw Wastewater Volume	Green Non-Green	m³/day m³/day	Daily Daily	<3,500 <3,500	Weekly
Raw Wastewater	Total Suspended Solids COD	g/m³ g/m³	Weekly Weekly	<1200 <3500	Weekly
Treatment Process Control	pH (acid phase) pH (alkaline phase) Polymer dose rate (acid phase) Polymer dose rate (alkaline phase) Dissolved Air Turbidity	pH pH ml/m³ ml/m³ % Visual appearance	Hourly Hourly Daily Daily Hourly Hourly	pH 3.9 – 4.2 pH 9.1 – 9.4 4.5 3.0 20% - 25% Clear	Weekly

Process Monitoring and Reporting

The Wastewater Treatment Operators monitor key process control indicators and make daily reports to the Wastewater Supervisor.

Wastewater Operators and Supervisor are to make diary notes of any observations or issues that occurred during their shift as these are useful to refer to at later dates.

The EM highlights any issues at daily board meetings and management meetings and prepares information to be included in the monthly board report for the Plant Manager.

Compliance Monitoring

The EM compiles a 5-weekly Discharge Compliance Report for Environment Southland detailing the wastewater and river analyses results.

Environment Southland produce an annual monitoring report for the region that is publicly available on the website http://www.es.govt.nz

Receiving Environment Monitoring

Environment Southland have a telemetry river monitoring site at both Tuturau and the Gore Site where river flow, temperature, conductivity and dissolved oxygen levels are monitored continuously. The data is available on the website envdata.es.govt.nz/index.aspx?c=flow

The EM initiates annual surveys to monitor the biological status of the Mataura River focusing on periphyton and macro invertebrates, as described in Resource Consent 202327 (condition 5 and appendices I & II).

The EM initiates surveys to monitor sewage fungus growth in the Mataura River upstream and downstream of the treated wastewater discharge when river flow decrease below 30m³/sec, with regard to resource consent 202327 appendix V and records observations in "P:Environmental/Resource Consents/Discharge to River 202327/Consent Requirements/Investigations/Sewage Fungus" folder.

At least 20 sets of upstream and downstream ecoli samples are collected from monitoring sites U2 & D1 between December and March for monitoring as part of suitability for recreation grade requirements of Resource Consent 202327.

5.1.4 Treated Wastewater Discharge

The treated wastewater is discharged directly to the Mataura River through three submerged point source discharge pipes. A maximum discharge of up to 14,400 m³/day is described within resource consent 202327. The discharge is monitored electronically by three flow meters. There are no other methods of discharge for the treated wastewater.

The discharge area is at the base of the control tower, adjacent to the save-all.

5.1.5 Treated Wastewater Standards

Resource consent 202327 contains commitments (as conditions) undertaken by Alliance with regard to treated wastewater quality. The main condition limits are:

- Volume 14,400m³/day
- $cBOD_5$ load 3500 Kg/day
- $cBOD_5$ concentration 300g/m³
- Total Suspended Solids concentration Consistently <100g/m³ never >200g/m³
- Sulphide concentration Consistently <2g/m³ never >5g/m³
- Ammonical-Nitrogen concentration Consistently <30g/m³ never >50g/m³
- Dissolved Reactive Phosphorus <14.4kg/day

Consistently less than is defined as not less than four out of every five results meeting the lesser specified value.

5.1.6 Ecological and Community Aesthetic Values

The wastewater treatment system is managed to avoid, remedy or mitigate effects on river water quality, ecological and community values. Effects may include:

- Visible surface films or foam (fat, oil and grease, proteins)
- Reduced clarity (suspended solids)
- Dissolved Oxygen depletion (sulphide or organics)
- Accrual of algal growths (nutrients: nitrogen and phosphorus)
- Habitat degradation (suspended solids)
- Contact recreation (pathogens)
- Toxicity or odours (sulphide or ammonia)

5.1.7 Cultural and Spiritual Values

The Crown has formally acknowledged the association and values which the Mataura River holds for Ngai Tahu, by giving effect to the Deed of Recognition as set out in the Ngai Tahu Claims Settlement Act 1998. A Deed of recognition recognises Ngai Tahu's historic, spiritual, and traditional relationships with the Mataura River and the Manawhenua status which results from this relationship.

The Mataura River is regarded by Ngai Tahu as a highway, meeting place and area of Mahingakai (place of food and physical resource gathering). Ngai Tahu has particular interest in harvesting eels (tuna) and lamprey (kanakana) from the Mataura Falls area. The Mataura Falls from approximately 3km upstream to approximately 7km downstream was gazetted as New Zealand's first freshwater Mataitai Reserve on 11 August 2005 under the Fisheries Act 1996, for the purpose of managing customary food gathering. A Mataitai Reserve prevents commercial fishing.

5.2 Land Discharges

The Mataura Plant operates under the provisions of resource consents 207295 and LU 2000/57 for the discharge of DAF solids to non-pasture land, consent 204824 held by Greenbriar for the discharge of hide processing solids to backfill at the New Vale Coal Mine.

5.2.1 DAF Solids

There are two options for the removal of DAF sludge from Alliance Mataura, the first being dewatering of the sludge via a decanter as discussed in section 5.1.2 and the resultant solids supplied to TNZ Growing Products Limited.

The second option is a contingency whereby Tulloch Transportation are still contracted to remove DAF solids from the Mataura Plant and apply the DAF solids to non-pasture land in a manner that meets the requirements of resource consent 207295 and the Ruminant Protein Regulations.

The Regional Effluent Plan states under Rule 5.3.2 that discharges of sludge (DAF Solids) on to or in to land is a discretionary activity, if certain criteria are met. The criteria include buffering distances from houses and watercourses, application rates, return periods, odour control.

The procedure and requirements for discharging the waste water treatment solids to land are described in MAT-WWT-003: Disposal of Wastewater Treatment Solids to Land.

The Biosecurity (Ruminant Protein) Regulations 1999 and its amendments prohibit the spreading of DAF solids to pasture, to prevent the possibility of ruminant consumption of ruminant protein. DAF solids are therefore spread to non-pasture land and incorporated into the soil in such a way as to prevent the possibility of ruminant consumption of ruminant protein.

5.2.2 Hide Solids

The Mataura Plant operates under the provisions of resource consents 204824 and LU 2006/17 for the discharge of wastewater solids generated by the hide processing department to the New Vale Coal Mine. The consents are held and administered by Greenbriar at the New Vale Coal Mine.

Monitoring

Conditions 2 to 6 of resource consent 204824 specify a number of monitoring requirements which include:

- Condition 2: Annual volumes <2000Te
- Condition 3: Prohibition of discharge to water, or areas of the mine being dewatered
- Condition 4: Prevention of odour discharge
- Condition 5: Delivery Record: Date, Origin, Volume (tonnes), Discharge area of mine
- Conditions 6: Complaints Record: Location, date and time, cause, corrective action

The monitoring requirements for consent 204824 are undertaken by Greenbriar at the NewVale Coal Mine.

5.2.3 Ash

Ash from the Mataura Plant is transported to the New Vale Coal Mine for disposal under a consent held by Greenbriar

5.3 Air Discharges

For the purposes of this Programme Manual, discharges to air from, and under the control of, the Mataura Plant are defined as odour, GHG's and Total Suspended Particulates (TSP).

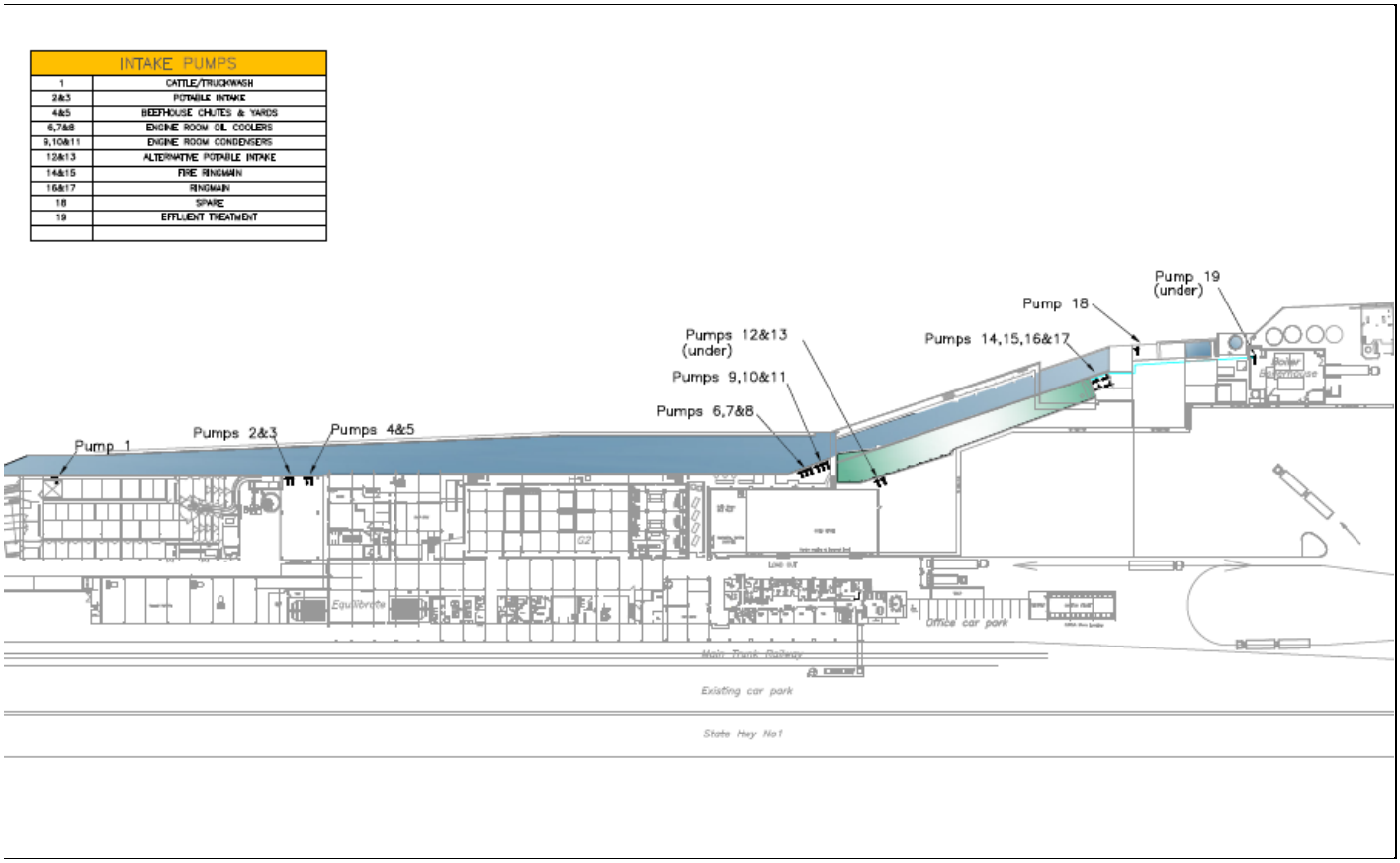
Mataura Plant operates under Resource Consent 20158002 for Air Discharges. An Air Discharge Management and Contingency Plan (MAT-ADMCP-001) has been developed to manage discharges to Air.

5.4 Water Takes

The Mataura Plant operates under the provisions of resource consent 204126 to provide for the taking of up to 35,600m^3/day of water from a water race fed by the Mataura River. The Mataura Plant also has a smaller water take consent (202328) to take up to 700 m^3/day for hide and hide processing.

The WCO requires that the Mataura River flows above the Mataura Island road bridge must not be reduced by the grant or exercise of cumulative water permits below 95%. In other words, the WCO provides for cumulative water permits of no more than 5% of the Mataura River flow. The Mataura Plant is upstream from the Mataura Island Road Bridge.

The pumping capacity is an important aspect of the water take resource consent requirements for the Mataura Plant. It is the responsibility of the Engineering Manager to notify the EM before any significant changes to water supply pumps are made. The following is an illustration of the pump locations at the Mataura Plant:



5.4.1 Monitoring

Condition 3 of resource consent 204126 requires the Mataura Plant to monitor the volume of water taken each day. Daily volume records are obtained by combining the maximum total refrigeration condenser cooling water take with the daily treated wastewater discharge. The condenser water take is limited by pump capacity at 20,400 m³/day. The treated wastewater discharge is recorded daily as described in MAT-PGM-009 section 5.1.3. The monitoring results are stored by the EM in the applicable consent folder under Environmental, in the P/Effluent/current season/ Daily Data folder.

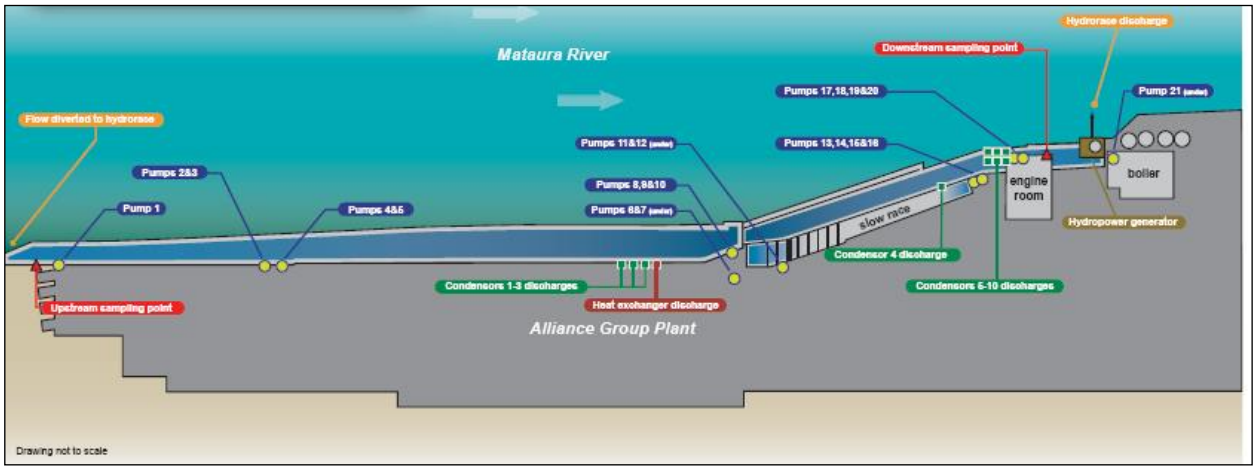
Condition 4 of resource consent 204126 requires the Mataura Plant, at river flows less than 20 m³/s as measured at the Tuturau recording site, to take water as described by a Management Plan (refer MAT-PGM-009 section 11.0).

5.5 Cooling Water Discharge

The Mataura Plant operates under the provisions of resource consent 204125 to provide for the discharge of up to 21,200 m³/day of refrigeration condenser cooling water to a water race fed by the Mataura River.

5.5.1 Monitoring

Condition 4 of resource consent 204125 requires the Mataura Plant to measure the temperature of the water in the water race upstream and downstream of the discharges once per week when the flow of the Mataura River at the Tuturau monitoring site is less than 40 m³/s. The results of monitoring are to be reported to Regional Council by 31 October each year. The following is an illustration of the cooling water discharge locations:



Monitoring is undertaken during routine upstream and downstream river sampling in relation to the discharge consent.

5.5.2 Risk

The potential for a significant ammonia leak and loss to the river is extremely unlikely. If an ammonia leak were to make its way to the river it would be toxic to fish.

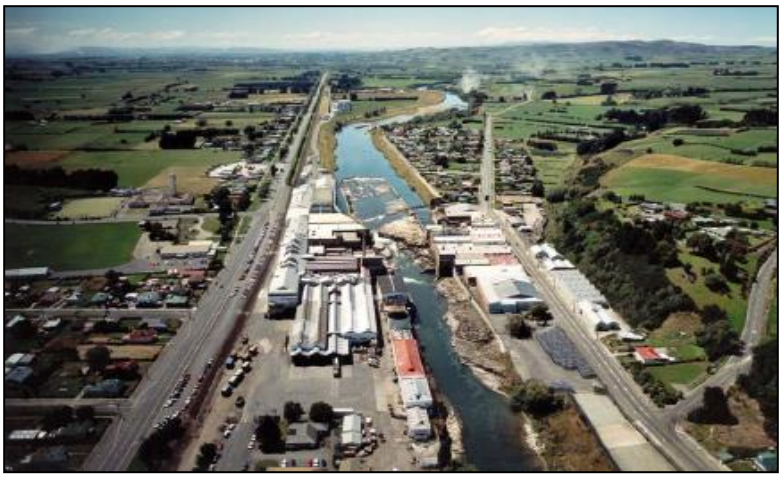
5.6 Stormwater Discharge

The Mataura Plant operates under the provisions of resource consent 206301 for the discharge of stormwater into the Mataura River. A Stormwater Management Plan (MAT-SWMP-001) has been prepared to manage the effects of stormwater and comply with consent conditions.

5.7 Dam and Divert

The Mataura Plant operates under the provisions of resource consent AUTH-20171566-01 AUTH-2017156602 to dam, divert and discharge water from the Mataura River by use of a weir structure for hydro-electric power generation. The Mataura Plant also has a certificate of compliance CC20171501 which provides for the maintenance of the hydro race.

The WCO prohibits the granting of any consent for damming of the Mataura River from its source to the sea. The WCO prohibition does not apply to the weir at the Mataura Plant, by specifically describing it. The following photographs indicates the location of the weir upstream of the Mataura Falls (as an “n” shape), in relation to the Mataura Plant on the true right bank.



5.7.1 Monitoring

Condition 2 of resource consent AUTH-20171566-01 AUTH-2017156602 requires a minimum flow of not less than 0.05m (50mm) at the centre of the weir. The minimum flow requirements are maintained electronically and verbally between the Mataura Plant and the Mataura Industrial Estate (old Carter Holt Harvey Paper Mill).

Condition 3 of resource consent AUTH-20171566-01 AUTH-2017156602 requires a warning system should flows over the weir reduce to less than 50mm. The warning system is utilised by the Mataura Plant Engineers and Mataura Industrial Estate Caretaker.

Condition 5 of resource consent AUTH-20171566-01 AUTH-2017156602 requires that Environment Southland be notified when there has been a reduction or cessation in the rate of diversion of water necessary to comply with condition 2. The SCADA system has been programmed to alert the Environmental Manager when this has taken affect to allow notification of Environment Southland to occur.

Conditions 7-22 of resource consent AUTH-20171566-01 AUTH-2017156602 describe the requirements of the Mataura Plant to action and Elver Trap and Transfer Plan and a Downstream Fish Monitoring Programme.

6.0 HAZARDOUS MATERIALS

6.1 Asbestos

An assessment has been made of the Mataura site and no friable asbestos has been identified. If friable asbestos is suspected then senior engineering staff and Health & Safety Manager are to be informed and procedures put in place

for confirmation of the material as friable asbestos and for its subsequent removal following the OSH publication "Guidelines for the Management and Removal of Asbestos".

Non friable asbestos material does not present a health risk if it is maintained in good order and not worked on with abrasive cutting or grinding equipment. Non-friable asbestos remains on plant in the form of flat and corrugated compressed asbestos-cement sheeting, asbestos-cement pipes for water and drainage, asbestos gaskets, and pump and valve packing. Should work be required in these areas then procedures in the OSH publication "Guidelines for the Management and Removal of Asbestos" will be followed. Good work hygiene practices should be practiced and any off-cuts or collected dust should be disposed of as asbestos waste sealed in 200 μm thick plastic bags labelled "*Asbestos hazard – Wear respirator and protective clothing while handling contents.*"

6.2 Chemicals

(Refer to MAT-PGM-004: Chemical Control section)

The Technical Manager or delegate is responsible for approving chemical use on plant. The responsibilities include the maintenance of the Mataura Chemical Register and SDS sheets and approval of trial chemicals. The primary focus is that chemicals are MPI approved but in evaluating new chemicals possible environmental impacts are assessed by the EM and their acceptance is dependent on these being absent or minimal.

6.3 Hazardous Substances

(Refer MAT-PGM-010: HSNO Requirements section.)

The HSNO Act is referenced for information on quantities of hazardous goods that may be held on site, on requirements for appropriate signage, bunding, protection, tracking, identifying, disposal and emergency management requirements. Appropriate advisors are to be consulted when required.

The Mataura site has a current Location Test Certificate pursuant to the HSNO Act. The Health and Safety Manager is responsible for ensuring that all requirements are met for this certificate to remain valid. The Health and Safety Manager is responsible for approved chemical handler training and certification as required by HSNO.

6.4 Specialised Waste Control

If any specialised cleaning activities are scheduled using chemicals that are not in normal use, the chemical cleaning waste shall be trucked off site for disposal into specialised hazardous waste treatment facility such as Chemwaste Industries in Christchurch. The operation should be conducted in accordance with the NZWWA "Liquid and Hazardous Waste Code of Practice" available on their website at www.waternz.org.nz or from the Ministry for the Environment website www.mfe.govt.nz. Examples of specialised waste production would include sludge removal and disposal from the bulk acid tank, or waste chemical removal.

7.0 SOLID WASTE

7.1 Organic

Handling and disposal of off-site of wastewater solids generated by primary screening (MAT-PGM-009 sections 5.1.2 and 5.2) is by agreement with Greenbriar, for the purpose of composting (no resource consent required) for commercial sale, or landfilling at the New Vale Coal Mine (consent 204824).

7.2 General

General waste materials from processing areas and amenities are placed into skips and transferred directly to the regional landfill. Approximately 250 tonnes are disposed of annually. Records are held by the EM.

7.3 Ash

Ash generated by coal fired boilers is transferred directly to the New Vale Coal Mine (MAT-PGM-009 section 5.2.3). Ash is equal to ~3% of the coal volume by weight (~300 tonne/pa). Records are held by the EM.

7.4 Recycling

During the Mataura Plant processing season, cardboard and plastics are collected separately where practical and compacted on site and stored, for sale to the Gore Lions Club for recycling. Used gumboots are recycled with Matta Products. General recyclable materials are recycled via the Gore District Council recycling program. Records are held by the EM.

7.5 Decantered DAF Solids

Decantered DAF solids generated by the Wastewater Treatment Plant are transported off site by Tulloch Transport to TNZ Growing Products Limited, located in Kennington, Invercargill for composting.

8.0 NOISE ISSUES

Section 4.5 of the GDC District Plan describes the requirements with regard to noise levels. The Mataura Plant is within Industrial zoning. The maximum limit for noise generated from industrial zones is as follows:

• On any day:	7.00am – 10.00pm	55dBA L_{eq}
•	10.00pm – 7.00am	40dBA L_{eq}
•	10.00pm – 7.00am	75dBA L_{max}

Noise levels are required to comply with the New Zealand Standards (NZS 680:1999; NZS 6802:1999).

The Mataura Plant's key concern with noise is with regard to health and safety standards within processing areas. External monitoring for noise is not carried out. Should a noise complaint be received, the EM is responsible for investigating the complaint. Results of the investigation are recorded and held by the EM.

Any reconfigurations of The Mataura Plant take into account any temporary, permanent or cumulative adverse effect of noise, and with regard to high or low probability. Plant reconfigurations are the responsibility of the Plant Manager and Engineering Manager.

9.0 APPROVED SUPPLIERS

Approved suppliers are those that have demonstrated willingness and an ability to meet the professional and environmental criteria desired by Alliance Mataura staff. Should this performance fail to meet the required standard then a supplier should be removed from this list. As other suppliers are shown to provide a satisfactory service they should be added to this list. Performance shortcomings may include a disregard for Mataura Health and Safety and environmental programmes or for Alliance staff and property.

Consultancy Services	Aquatic Sciences
	Pattle Delamore Partners Limited
	Freshwater Solutions
	Mitchell Daysh
	WM Compliance Solutions
Biological Monitoring	Freshwater Solutions
Soil Analysis	Soilwork Limited
Air Emission Testing	K2 Environmental Limited
Laboratory Analysis	Watercare
	NIWA
	Alliance Lorneville Laboratory
Solids Transfer	Tulloch Transport
DAF Solid Spreading	Tulloch Transport
Sump Cleaning	Gore Septic Tank Services
Wastewater Treatment Chemicals	IXOM
	Chemiplas
	Graymont Lime Limited
General / Ash Waste Transport	Souness

10.0 COMMUNICATION

10.1 Internal

The Group Environmental Manager provides environmental updates regularly at the Alliance Plant Managers' meetings.

Requests for capital expenditure are processed by the Mataura Engineering Manager for approval by the Group Engineering Manager. All capex requests are required to be assessed for environmental impact.

10.1.1 Staff and Employee Communication

The EM provides information to the plant management team on all matters of environmental interest affecting or relating to the Mataura site at the daily visual board Management Meetings.

Any issues pertaining to wider plant staff are communicated at supervisors meetings.

If critical issues arise information is communicated by supervisor instruction, memo or phone message.

Any enquiry or concern raised internally will be dealt with and recorded in an appropriate manner decided by the EM and other appropriate staff on a case by case basis.

10.1.2 Employee Training

Refer to MAT-PGM-005: Personnel Management

In conjunction with the Management Team, the EM should develop and deliver a range of targeted training and awareness programmes. Management and senior supervisors select the appropriate staff to attend and management, supervisors and maintenance personnel receive the same information. Assistance in identifying and organising training can be sought from the Mataura Training & Recruitment Manager. A record of those attending this training should be maintained.

	Communication Mechanism	Timeframe	Delivered by
Meat workers/ Supervisors/ Staff/Management	Plant Inductions (Refer to MAT-PGM-005)	Pre-season / annually – usually October / November	Environmental Manager
Supervisors / Staff	Targeted programmes or Supervisors Meetings		Environmental Manager
Management	Management Meetings / Targeted programmes		Environmental Manager

Seasonal employees are made aware of key environmental issues and their responsibilities during company and departmental inductions. Key points are included in the staff handbook.

Managers are involved in Environmental Management Systems meetings, where they help construct the environmental objectives and targets for the Mataura Plant. Records of the EMS meetings are held by the EM.

If an individual's need for more formal environmental training is identified and an external provider of an appropriate course is available, then given budgetary and time constraints this training will be offered. Appropriate training may include systems, audit, information technology or specific areas such as wastewater.

10.2 External

Response to external communications will be carried out within appropriate timeframes, by the appropriate person. Initial response should be within a week of an inquiry. Records will be held on file.

10.2.1 Consent Authorities

Environmental compliance monitoring is to be reported to consent authorities as required by the relevant resource consents. Non-mandatory data and technical reports will be provided to consent authorities to support applications for resource consents. These may become public through the consultation and notification process.

10.2.2 Environmental Stakeholders

The EM, in conjunction with the Group Environmental Manager prepares an annual monitoring and review report for the treated wastewater discharge consent. This report is then sent out to all stakeholders for review before the annual stakeholders meeting. At the annual meeting stakeholders are given the opportunity to discuss any concerns or issues openly with the Alliance Group, which may include more than the treated wastewater discharge consent.

Stakeholders include the following:

- Environment Southland
- Gore District Council
- Southland District Council
- Department of Conservation
- Te Ao Marama
- Hokonui Runanga
- Southland Fish and Game
- Public Health South

10.2.3 Communities

Summary information to the community is available on request. Information given may include community surveys, complaints record, compliance with consent conditions, progress on performance improvement objectives and targets.

10.2.4 Livestock Suppliers

General information of environmental issues can be included if needed. The information may include customer expectations, emerging issues, NZ government policies and legislation.

10.2.5 Customers

Information will be provided to customers in response to their enquiries and during customer audits / visits. General information will be provided by the Environmental Programme brochure.

10.2.6 Media

Information will be provided to the media in response to their enquiries by the Group HR & Communications Manager, General Manager Processing, Group Environmental Manager or the Plant Manager. Other information will be provided from time to time by the way of media releases.

11.0 CONTINGENCY & EMERGENCY PLANS

11.1 Treated Wastewater Discharge

During renewal of the treated wastewater resource consent (202327), The Mataura Plant committed to production of a contingency plan for discharge of treated wastewater at river flows below 10m³/s. The contingency plan was developed and submitted to Environment Southland in October 2008. Refer MAT-PGM-009 attachment 9.

11.2 Water Take

During renewal of the main water take resource consent (204126), The Mataura Plant committed to production of a contingency plan for taking of water from the hydro-race fed by the Mataura River at river flows less than 20m³/s. The contingency plan was developed and submitted to Environment Southland on 28 May 2007, amended slightly following consultation and re-submitted on 20 August 2007. Refer to MAT-PGM-009 attachment 6.

11.3 DAF Solids

A contingency plan dealing with uncontrolled spills of DAF solids during transportation is held by the EM and is provided to the employed transporter (Tulloch Transport) to be carried out at all times. Refer to MAT-PGM-009 attachment 7.

11.4 Wastewater Treatment Contingency Plan

This is a contingency plan to deal with uncontrolled spills and malfunction of equipment during the operation of the wastewater treatment plant. Refer to MAT-WWT-001: Wastewater Treatment And Blood Processing and MAT-WWT-001 Attachment 1: Wastewater Contingency Plan.

11.5 Emergency Spill Plan

Refer MAT-SWMP-001: Stormwater Management Plan.

Measures have been put in place to minimize the risk of a spill of any untreated wastewater to the river in the event of a power cut. However if there is a spill of untreated or partially treated wastewater directly or indirectly to the Mataura River the EM is to notify Environment Southland and the Department of Conservation without undue delay as required by condition 7a of resource consent 202327. The notification should be kept brief and contain the time, location and measures being taken to avoid, remedy or mitigate the situation. If the discharge is likely to contain high pathogen levels from stockyard/gut processing effluent, Public Health South and Te Ao Marama should also be notified.

If the spill is a result of a power outage, the Engineering Manager co-ordinates direct contact with power suppliers as required.

11.6 Environmental Incident / Complaint Reporting

All environmental incidents / complaints should be recorded onto Info-Leader form PRO 117. In the event of an incident / complaint that is likely to have more than minor environmental impact including all resource consent non-compliances, corrective or preventative actions will be identified and recorded on Info-Leader form Pro 100, Non-conformance Details form (CAR), and implemented. It is the responsibility of the Environmental Manager to ensure any identified corrective or preventative actions arising are put in place and ensuring these are effective. Where appropriate succeeding internal audits or independent checks should show verification of the effectiveness of corrective and preventive actions.

The process for communication and notification of all environmental incidents / complaints is as follows:

11.6.1 Internal

1. All employees have a duty to prevent environmental harm (includes spills, odours, dust, and noise).
2. All employees must immediately notify their supervisors and managers of any breakdowns or process 'upsets' that have the potential to cause environmental harm.
3. Department Managers must immediately contact the EM with all information relating to the event
4. The EM makes an informed decision (or seeks more information) about the need to notify the correct public authorities.
5. The Plant Manager is notified as required.

11.6.2 External

All external incidents / complaints received will be investigated as above in section 11.6.

In the event of an official visit from Regional or Territorial authorities (Compliance or Investigating Officers) regarding a complaint or investigation, efforts should be made to advise the EM, Plant Manager or other senior persons immediately. The Council's Investigating Officer should be accompanied at all times on site, and Alliance staff are to take notes of the visit and investigation. Alliance staff should exercise caution in their response to an Officer and generally should only answer questions and not offer any information.

12.0 PROCESS CHANGES

12.1 New Plant Equipment

New equipment is introduced via the Capital Expenditure Request (capex) system and this process involves an assessment of the expected environmental implications – both positive and negative. This is to be recorded on the capex request form. Consideration should be given in particular to resource use and potential discharges.

12.2 New Processes

If a new process is proposed then an assessment of the environmental effects is to be made and this assessment should be incorporated in the decision making process. The assessment should include consideration of whether the proposed process is captured by the relevant existing consents, resource use and potential discharges.

An assessment of the potential impacts of the construction phase of a project should be made and recorded in MAT-PGM-009 attachment 2. Routine checks shall be made to the construction site and observations of positive or negative impact recorded.

13.0 VERIFICATION

Verification of the EMS shall be carried out according to internal verification procedures as described in MAT-PGM-003 Quality Management System.

Sections of the Environmental Management Systems for the Mataura Plant shall be audited at least once every year by an internal trained auditor who is independent of the on-site environmental team. All areas of the EMS should be audited within a 3 year cycle.

The scope and timeframe for audits will be included in the plant audit schedule by the Technical Manager. The audit may include all elements of this EMS Programme Manual as well as any referenced environmental procedure.

A formal audit report is prepared and non-conformances dealt with according to standard Alliance Group audit protocols. All audit reports should be provided to the Plant Manager, EM and Engineering Manager and other staff as appropriate. Non-conformances are rectified and closed out within agreed time-frames.

An external verification audit of Alliance Group EMS for compliance with ISO 14001 is carried out annually. Applicable outcomes from this audit shall be implemented at the Mataura Plant by the EM.

The EM shall retain a copy of EMS audit reports for a minimum of four years.

14.0 EQUIPMENT CALIBRATION

Calibration of key monitoring equipment (pH meter, thermometers) is carried out.

Equipment is available onsite to check the performance of and calibrating flow measuring equipment on the site. Where more formal calibration is required an external agency will be engaged.

Further information relating to the calibration of equipment is found in Quality Management Systems Manual (MAT-PGM-003).

15.0 ENVIRONMENTAL SYSTEMS

15.1 Systems Structure

This document provides an overview of the Mataura EMS. It and related documents within the EMS are administered using the Information Leader quality management system. Further information relating to the QMS is included in MAT-PGM-003: Quality Management System.

The Technical Manager is the plant Document Controller and has overall responsibility for the distribution and control of all documents.

The EM is responsible for annual review of all documents within the EMS and instigating amendments if required.

15.2 Record Retention

All records relating to the EMS should be retained for at least four years. Reports relating directly to consents should be retained at least for the duration of the consent.

15.3 Review

The EM shall be responsible for preparing an annual review report of all environmental issues at the Mataura Plant. The report shall be retained on file for a minimum of four years for verification purposes.

The review is to be undertaken using the management review Template available in InfoLeader (FM-EMS-001) and should include (but not be restricted to) the following areas:

- Review the EMS Programme Manual and issue updated revision if necessary;
- Review of Environmental Impact Assessment Procedure and subsequent review of Environmental Policy;
- Review of audit non-conformances and recommendations;
- Review of compliance monitoring results and responses to any breaches of compliance conditions;
- Summary of environmental complaints for the year or season;
- Review and comment on Environment Southland's "Environmental Compliance Monitoring Report" prepared annually;
- Review of production throughputs and key inputs (e.g. electricity, water, coal), including comments on trends or noted outliers. Also include comment on outputs, e.g. solid waste, landfill, etc.;
- Review of major environmental issues to arise during the year;
- Review of environmental work programme progress
- Review of regulatory requirements
- Summary of community consultation events
- Adequacy of available resources
- Conclusion in terms of effectiveness of the EMS and identification and opportunities for improvement
- Review of progress of objectives and targets from previous management review

An annual meeting shall also review the identified environmental aspects and impacts and the priorities assigned to the environmental impacts as outlined in MAT-PGM-009 attachment 2 Environmental Impact Assessment Procedure.

New or revised environmental targets or objectives should be set as an outcome of this review. A revised work plan should be established and the documented departmental environmental controls should be updated.

At the time of the annual review the Environmental Manager shall organise someone to cross check a limited set of compliance monitoring data as reported by the external laboratories to that which has been reported to the council.

The EM is responsible for ensuring that the outcomes of the management review are discussed at the management meeting and all outcomes are acted upon within agreed time frames.

16.0 DOCUMENT AMENDMENT REGISTER

Date	REV	Description
1 April 2008	2	1.2: Inclusion of Potable Water Treatment Plant 1.3: Inclusion of further references 1.5.1: Mataura Plant reference to Group Environmental Policy 1.6.1: Various changes to position authorities and responsibilities 2.0: Added quantities to inputs and changed effluent to wastewater 4.0: Addition of Energy Production and Services Table 4.4: Added in low flow contingency requirements 5.1.3: Updated wastewater and receiving water monitoring 5.1.4: Update treated water discharge 5.2.1: Added requirement for increased DAF solids testing Added new sections 5.2.2 Pelt Solids, 5.2.3 Ash 5.3.1: Updated primary and secondary control strategy 5.3.2: Added further detail and clarification for odour determination of offensive and objectionable 5.4: Amended reference to water takes under WCO Added new section 5.5.2 5.6: Amended “Permitted” to “Discretionary” 5.6.1: Amended paragraph 4 6.1: Added further detail 7.1: Added further detail 7.3: Added further detail 10.0: Updated whole section due to internal memo from Group Environmental Manager 15/5/08 11.5: Added in how to notify ES of a spill 11.6: Spilt internal and external incidents. 13.0: Added further detail Whole Document: Boarder around the outside of page (outside the RMP)
10 Nov 2008	3	Overall changes to reflect changes in staff structure 1.2: Redefined scope 1.6.1: Added corporate responsibilities, amended SEO and Tech Manager responsibilities, added Compliance Manager 1.7: Added reference to Attachments 7 and 8. 4.5: Added reference to Emergency Spill Procedure 9.0: Added basis for supplier approval 10.1.2: Extended 11.5: Updated 12: New – Process Changes 13: Renumbered 14:New – equipment calibration 15: Renumbered and extended 16: Renumbered.

Date	Rev	Section	Changes
04/06/10		General 1.3 1.5.1 4.1 4.2 4.5 5.1.1 5.1.4 5.2.3 5.3.3 7.3 10.1.1 10.1.2 13.0	EFT updated to WWT OM replaced with PGM due to changes within Alliance Group, consistency across all plants Formatted entire document References updated Policy reference updated Updated for AKL KPI reporting Updated for AKL KPI reporting Updated storm water consenting reference Updated for reused water Number of discharge pipes corrected Updated to include ash disposal to NewVale coal mine Updated percentages to current figures Updated to include ash to NewVale coal mine Communications inserted Added recording process Updated to “sections of”
19/11/10	5	General 1.4 5.1.2 5.1.3 5.2 5.2.3 5.5.3 5.4 7.4 9 10.1 11.6	Formatted entire document Added Defect definitions Wording amended pH (alkaline) Targets updated Wording updated at start of section Wording updated Some wording removed PRFWP changed to RWP Figured changed for plastic recycled, wording added about paper recycling and contaminated plastic Eco$ense removed, NIWA added ESM deleted and wording updated, months changed in table Wording updated
28/11/11	6	General 1.5.2 1.6 5.1.2 5.1.3 5.1.5 5.3.1 5.4.1 5.6.1 6.3 6.4 7.4	Updated Codesand naming, added document references where needed though out document, reformatted document Updated diagram, titles and tasks Added Attachment 10 Updated diagram Updated web page references Updated consent codes Updated wording for Wastewater Treatment section, paragraph 2 & 3 Updated the pump capacity Updated final paragraph Safety Advisor added to people to be informed Technical Manager replaced by Chemical Control Officer Approximate tonnages sentence removed

26/4/13	8	General 1.3 1.7 4.1 4.5 5.1 5.1.2 5.1.3 5.2.1 5.3.1 5.3.3 6.6 10.1.1 12.2 13.0	Updated some referenced sections names throughout document Added other referenced manuals Deleted attachment 3 Updated who was responsible for the collection & dispatch of water samples First and last paragraph after bullets updated Bulleted points at end deleted Corrected web address for Receiving Environment Monitoring Path for where record on computer are updated 2nd & 3rd paragraph deleted, 1st & 2nd lot of bullet points deleted, sentence under Biosecurity Regulations 1999 deleted, Monitoring & Complaints sections deleted Waste water treatment section – removed about routine cleaning Last paragraph replaced Changed NZWWA web site address Table moved to 10.1.2 2nd paragraph new 2nd paragraph updated to current requirements, new paragraph added about external verification
6/10/14	9	1.2 1.3 1.5.1 1.6.1 2.0 4.0 5.6 7.4 5.0, 5.1.1, 5.1.2, 5.1.3, 5.2.3, 5.5.2, 6.2, 9.0, 14.0	Updated to refer to Hide Department Updated to include references to PRO 100 & 117 and Stormwater Discharge 206301 Updated Environmental Policy Updated Plant Management Organisation Chart & a couple of minor changes to responsibilities Minor changes to Inputs and Outputs Changes to reflect current plant operations Reference to new Stormwater Discharge consent Included Gumboot recycling Minor changes to reflect current plant operations
17/09/15	10		Minor updates made as required.
22/2/2016	11	General 5.1.2	Minor updates as per Audit Rec 17/16 Reference to rendered product removed 17/16#7
7/12/2016	12	1.3 1.4 5.3 1.6.1, 2.0, 4.0, 5.0, 9.0, 11.0, 12.0 and 15.3	Revised reference list to avoid repetition of legislative requirements and to include other applicable EMS documents. Moved attachments to a more suitable spot in the document Deleted a lot of the air discharge narrative as this included in the Air Discharge Management and Contingency Plan Other minor edits
31/01/2017	13	1.5 1.7.1 2.0 5.1.1 5.1.2 6.3 11.4 15.3	Added ISO 14001 verbal forms to definition Updated Plant Organisation Chart Added reference to soup stock bones to edible product list Updated description stockyards water use Replaced references to pelt processing with hide processing Updated title to Health and Safety Advisor Changed name to Wastewater Treatment Contingency Plan Included, Review of progress of objectives and targets
	14	General 2.0 4.3 5.0 5.1.2 5.1.3	Updated titles and responsibilities. 18/18#1. Suppliers updated 18/18#4 Update to boiler information 18/18#3 Inputs and Outputs updated 18/18#2 Updated hydrorace maintenance consent # Some section titles updated for clarity 18/18#6,7,5 and updated with decanter information 18/18#8

		5.2.1 5.4.1 5.7 7.0 9.0 10.2.4	Report title updated 18/18#9. Gore added as a monitoring site 18/18#10 Updated with decanter information 18/18#11 Computerised folder locations updated18/18#12 Consent references updated 18/18#13 Reference to compaction of general rubbish removed 18/18#14 List of approved suppliers updated 18/18#15 Reworded for clarity 18/1/#16
7/11/2019	15	1.3 5.0 5.7	Updated to refer to resource consent AUTH-20171566-01 AUTH-2017156602
11/05/2020	16	1.7 2.0 5.0 5.1.1 5.1.3 7.5 10.1 11.5	Updated Plant Manager responsibilities to EMS Updated Wastewater Team Leader to Wastewater Supervisor and description of DAF solids to include decantered solids Included decantered solids to outputs Updated reference to Hydro Consent AUTH-20171566-01 & AUTH-20171566-02 Removed reference to Deer Hides Minor updates to process monitoring and reporting Included description of SFRG monitoring Added section to describe decantered DAF solids to TNZ Updates to communication Amended notifications which are to occur following a spill event