WATER MANAGEMENT PLAN

April 2026

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Area:	All Operations
Site:	Waihi

	Position	Name	Date
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Document Issuance and Revision History

Author	WRC Approver	Change	Date
M Burroughs	S Roa	Minor updates required prior to WNP tunnelling. WRC requested changes.	April 2026
M Burroughs	S Roa	Addition of preliminary WNP site works. Alignment to new OceanaGold Standard	December 2025
K Gillard/MB	S Roa	Annual Review	November 2024
M Burroughs	S Roa	Annual Review	December 2023
M Burroughs	S Roa	Includes EMR, Regime E	October 2022
M Burroughs	S Roa	Annual Review	October 2021
C Craig	S Roa	Annual Review, includes alignment to OceanaGold Water Management Standards	November 2020
M Burroughs	S Roa	Annual Review, includes Project Martha	December 2019
M Burroughs	S Roa	Annual Review, alignment to OceanaGold Standard 9.5	November 2018
M Burroughs	S Roa	Includes additional figure of site discharge and sampling points	October 2017
K Mason	S Roa	Includes plans to upgrade the mine dewatering pumps and reduce the size of the TSF1A supernatant pond due to OceanaGold not being a signatory to the cyanide code	August 2016
K Mason	S Roa	Includes plans to dewater from underground only as a result of a slip on the North Wall of the open pit and to construct a pipeline direct from the underground portal to the WTP	May 2015 – addendum to 2015 Water Management Plan
K Mason	S Roa	Includes proposal to discontinue manual direct discharge sampling on weekends and public holidays	February 2015
K. Mason	S Roa	Draft prepared following approval of collection pond direct discharges. Draft reviewed by S Roa and approved in principle - final prepared and submitted in Feb 2015	October 2014
K. Mason	S Roa	Includes recent consent condition changes and anticipates approval of collection pond direct discharge	March 2013
M. Lane & P. Fransen		Includes Trio and details on pond management	2010
K. Mason	D. Crequer	Includes Favona	Nov 2006
K. Dunning	D. Crequer	Annual Review	April 2004
URS		Annual Review	May 2003
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K. Mason	D. Crequer	Original Document	Nov 1999

Contents

1. Introduction

1.1 Background

OceanaGold holds a suite of resource consents under which it operates the Martha, Favona, Trio, Correnso, SUPA, Project Martha and Waihi North projects at Waihi. Many of these consents contain conditions that require a Water Management Plan, or in the case of the Waihi North consents a Waihi Area Water Quality Management Plan. Additionally, OceanaGold's environmental performance standards require a Water Management Plan.

This Plan has been prepared to cover all relevant water management consent requirements and other water related matters pertaining to the above operations.

For Waihi North components, this version of the Plan covers only the initial months of site development at Willows Farm over the period between the time of grant of the Waihi North consents and the scheduled annual update of the Plan for all of the operation's other components. That updated version will cover the full 12 months of subsequent Waihi North project works.

The Plan also links in part with the Dewatering and Settlement Monitoring Plan, and in particular the:

- Biannual Ohinemuri River water and sediment quality monitoring programs; and
- Ongoing reviews of long-term predictions of groundwater quality post mining.

This plan is related to the Tailings Storage Facility Monitoring Plan and the Dewatering and Settlement Monitoring Plan. Water aspects specific to the Tailings Facilities or Underground Dewatering remain in the these two plans as required by the consents.

In addition, the Rehabilitation and Closure Plan contains information relating to water management during closure and post closure, including the requirement for water treatment, monitoring and reporting.

1.2 Purpose

The purpose of the Plan is to set out:

- Water management objectives,
- A description of the water management system to be applied across the site to meet the water management objectives,
- Priorities,
- Planned improvements where appropriate,
- Monitoring and reporting requirements,
- Contingency plans.

The document is reviewed annually, and any proposed amendments forwarded to Waikato Regional Council for approval.

1.3 Objectives

The key objective is to manage water in a manner that ensures that site discharges do not have significant adverse effects on the receiving water, users of the resource, or aquatic biota.

To achieve this objective, OceanaGold must:

1. Comply with the resource consent conditions as they relate to site water management,
2. Dewater the Martha Open Pit and Underground Mines to the extent that mining progress is not hindered, consent conditions are met and there are no long-term significant adverse effects in terms of groundwater and settlement (refer also to the Dewatering and Settlement Monitoring Plan),
3. Meet the freeboard requirements for the impoundments of the Tailings Storage Facilities (TSFs),
4. Prevent unauthorised water discharges through appropriate collection, storage and treatment,
5. Operate a predictive water balance to understand future water management requirements,
6. Reuse and recycle as much water as possible on site and identify opportunities for direct discharge of clean water into the receiving water,
7. Monitor the various waters around site, not only for the purposes of compliance but also to meet internal requirements,
8. Monitor the effects of the site's discharges on the receiving waters,
9. Determine and respond appropriately to trigger limits and targets,
10. Carry out further research and improvements where necessary,
11. Ensure that employees directly involved in site water management are aware of their responsibilities and the necessary procedures for effectively managing water and preventing significant adverse effects on receiving waters.

1.4 Responsibilities

Table 1 summarises the primary responsibilities for water management across the site.

Table 1. Responsibilities.

Role	Responsibilities
Site Water Lead	▪ Maintains the water balance, water account and site methodology.
Processing Maintenance Superintendent	▪ Maintenance of water collection, containment and pumping systems around the site, ▪ Maintenance and calibration of collection pond/silt pond continuous monitors, ▪ Maintenance and calibration of collection pond/silt pond flow measuring devices, ▪ Maintenance of contingency ponds around the Water Treatment Plant (WTP) and Mill, ▪ Bunding and contingency measures around the WTP and Processing Plant, ▪ Maintenance and calibration of river and stream flow gauging facilities and probes, ▪ Maintenance of silt and collection pond storage capacity, ▪ Maintenance of drains and diversions around site.
Processing Specialist and Operators	▪ Day to day operation and monitoring of the WTP, ▪ Routine visual checks as they relate to water management, e.g. pond and pipeline inspections, ▪ Daily reporting to other relevant staff members, so that water treatment priorities can be discussed, and changes implemented as necessary.
Superintendent - Environment	▪ Monitoring and reviewing data (including water quality, flows, potentially acid forming (PAF) slurry tests and biological monitoring) and reporting both internally and to Waikato Regional Council (WRC) in accordance with consent conditions and the relevant internal procedures, ▪ Arranging environmental inspections and audits of all areas on a routine basis, ▪ Managing quarterly river and stream gauging and water level checks with any flow rating updates reported to the WTP, ▪ Informing the General Manager Operations of any practice that has, or could potentially result in a significant adverse effect on the receiving surface waters and/or non-compliance with the conditions of consent.
All Department Heads	▪ Ensuring that relevant contractors are made aware of the Plan and the relevant resource consents.
All Applicable Contractors	▪ Complying with the requirements and conditions of the resource consents which apply to the mine, ▪ At the discretion of OceanaGold, providing written documentation of how they intend to carry out proposed work to ensure that consent conditions are met.
All Applicable Personnel	▪ Being aware of the Plan, and the conditions of the resource consents held for activities at this site, ▪ Meeting the consent conditions and requirements as stated in the Plan and adhering to the relevant site procedures as they relate to water management.

A site water RACI is developed and updated regularly. It is included in Appendix C.

1.5 Catchment Definition and Water Sources

OceanaGold’s Waihi operation is contained within the Waihou-Piako catchment, as defined by the Waikato Regional Council in the Waikato Regional Plan. Discharges from the site enter the Mataura Stream, the Ruahorehore Stream and the Ohinemuri River. The Ohinemuri joins the Waihou River that flows to sea at the Firth of Thames. OceanaGold has a single surface water take from the Ohinemuri River. Exploration drills have a global water take which allows capped quantity water take from different catchments in the Hauraki and Coromandel districts.

Additionally, there is a surface water take from the Mataura Stream. This primarily used dust suppression, including wheel washing, and for concrete batching.

There are several different sources of water generated on site that require management; primarily from dewatering the mines, rainfall runoff from disturbed areas of the site, and surplus process water (tailings liquor).

Figure 1 shows the location of potential water discharge points and regular water sampling points associated with the operation in the vicinity of the Waihi township. Figure 2 shows the location of surface water containments (ponds), their contributing catchments and water type characteristic that are key features of the site water management system for this area.

Clean water diversion drains discharge directly to streams. In addition to the features shown, each TSF has a comprehensive underdrainage system which is described in the Tailings Storage Facility Monitoring Plan.

Figure 3 shows the location of potential water discharges and the regular water sampling points at the Willows site.

A schematic diagram of the current site water management system is shown on Figure 4.

1.6 Regional Water Allocation

Regional water allocation is managed by WRC via their Regional Plan - Variation 6 policy on water. The purpose of the variation is: *"… to ensure there is enough water in waterways to provide for such things as a healthy environment, that towns and businesses are catered for, electricity is generated efficiently and that farmers can work their land successfully*."

Water takes are managed through the resource consent application process. Policy, planning and regulation are monitored by both the OceanaGold Dunedin legal team and the Waihi office. This allows for the early assessment of any proposed changes to governmental regulations or policy. The monitoring assists in evaluating site water allocation security.

1.7 Recent and Proposed Consent Condition Changes

In 2019, a new groundwater take permit (AUTH139551.01.01) was granted by WRC. This allows and requires:

- Dewatering to a maximum depth of 500 mRL,
- Installation of telemetry to report 15 min dewatering volumes to council,
- A shallow and deep aquifer report.

The dewatering telemetry has been installed and accepted by WRC. Additionally, the first Shallow and Deep Aquifer Report 2019 was provided and accepted. This report is required every 5 years, and the 2024 version has been submitted to WRC.

The Project Martha Dewatering consent commenced on 1st January 2020.

In 2021, a non-notified variation of Treated Water Discharge 971813 was submitted. This included a new discharge Regime E. This allows:

- Discharge up to 52,000 m^3/d,
- Discharge up to 60% of river flow,
- Apply new, lower treated water compliance limits.

The variation was approved by WRC in 2022.

Consents were granted for the Waihi North project in December of 2025. These contained conditions similar to those applicable to other pre-existing parts of the project for the protection of natural waters and to discharges from the active areas of the operation. Numerous consents pertain to water discharges, diversions and takes. A consent consolidation project is underway to be completed 2026. Where consents overlap the older consents will be progressively surrendered and new consents may need to be varied.

Figure 1. Water discharge and sample point locations - Waihi.

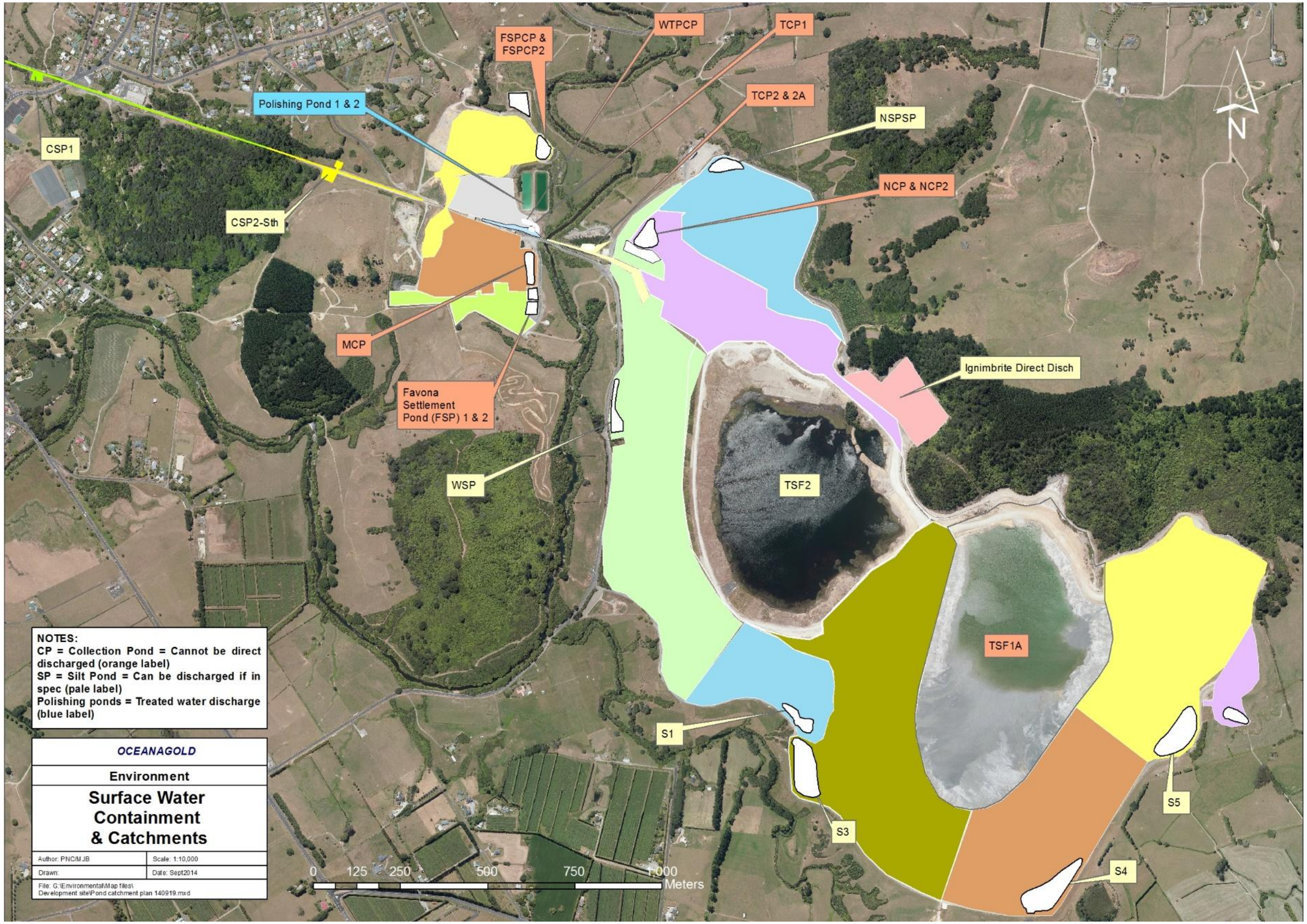

Figure 2. Pond catchment plan and characterisation of runoff - Waihi.

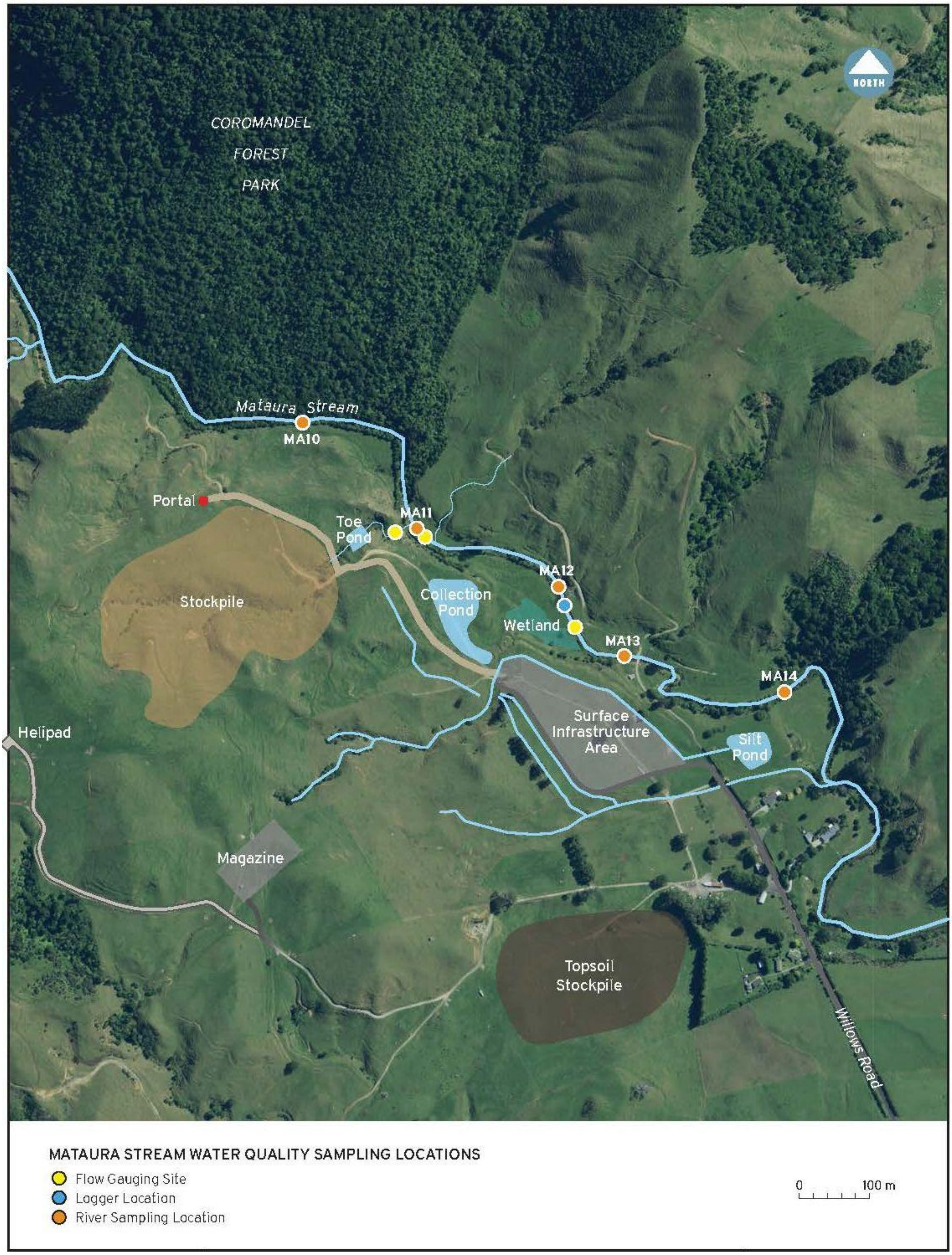

Figure 3. Water discharge and sample point locations – Willows Farm.

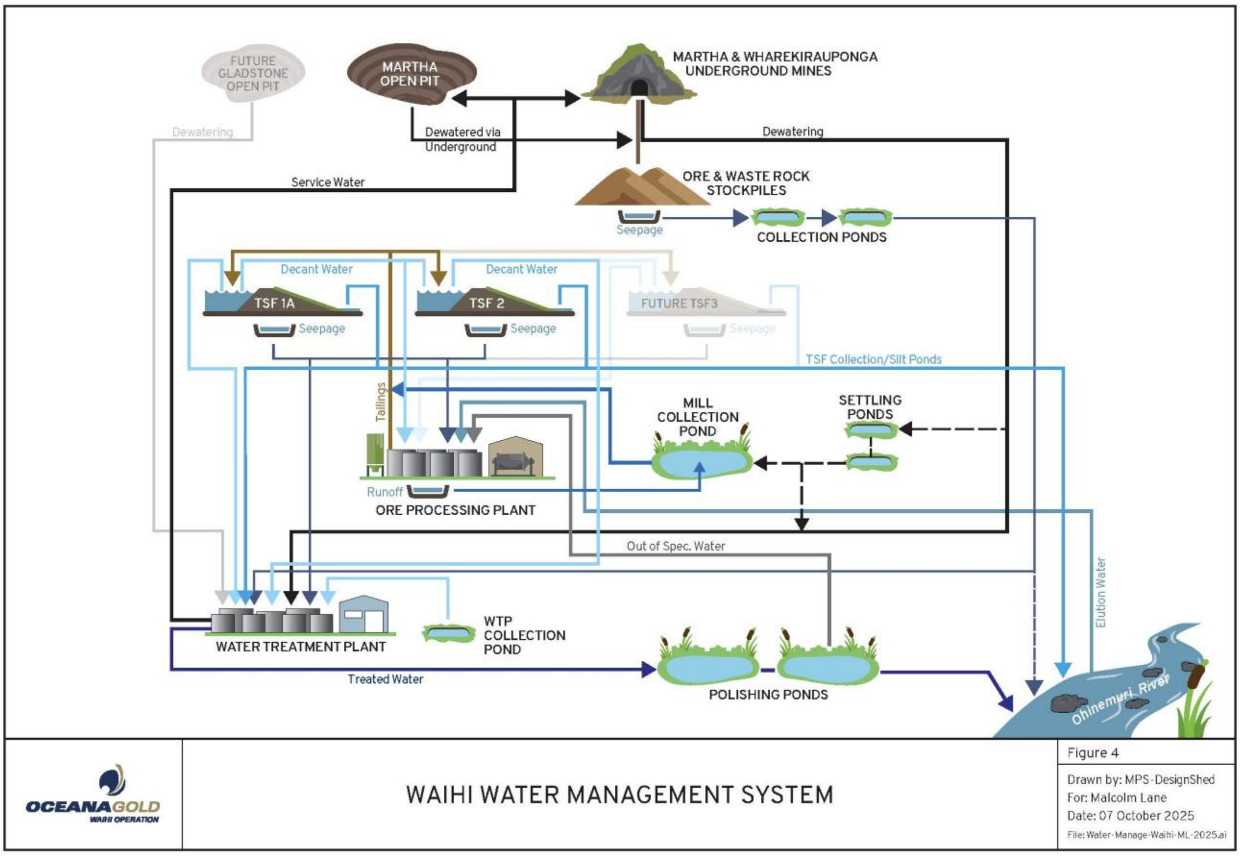

Figure 4. Site water management schematic.

1.8 Water Management Imperatives

The Water Treatment Plant (WTP) is an integral part of the water management system for the site. The WTP treats several water sources prior to discharge to the Ohinemuri River. The system relies on effective monitoring, planning and response both on a day-to-day basis and into the future to ensure that the water treatment priorities are well understood, and targets are met.

On a daily basis, and more frequently if necessary, an assessment is made of the water treatment priorities for the following day. This information is communicated to the Water Treatment Plant Operators via the PI VISION displays as they start their shifts.

The following water management imperatives must always be considered, planned for, and managed:

1. Effective WTP operation and consistently compliant treated water quality (i.e. limited downtime for the WTP);
2. Maintenance of the quality of the TSF2 decant pond to allow the continuation of direct discharge;
3. Collection, reuse and/or treatment of seepage;
4. Treatment or pumping to WTP/TSF1A of Favona Stockpile Collection Pond water;
5. Addition of limestone to potentially acid forming waste rock as necessary, i.e. waste rock used to construct the active TSF embankment(s), waste rock stockpile areas and channels as required (e.g. the Favona Stockpile area, otherwise known as the Polishing Pond Stockpile);
6. Progressive rehabilitation where possible;
7. Direct discharge and/or treatment as necessary of collection pond water;
8. Direct discharge and/or treatment as necessary of West and S1 Silt Pond water;
9. Treatment of Mill Contingency Pond water;
10. Treatment of Water Treatment Plant Contingency Pond water;
11. Treatment of Tailings Contingency Pond water;
12. Mine dewatering;
13. Maintenance of the required TSF freeboards and management of water levels in the active TSF tailings impoundment(s) to optimize tailings consolidation;
14. Maintenance of diversion channels;
15. Maintenance of silt control.

At all times, the water treatment decisions that are made consider the requirements of the consent conditions while seeking to ensure that no unauthorised discharges occur. There are no discharge permits for the Mill Contingency Pond and Tailings Contingency Ponds, and no permitted activity rules in the Regional Plan that authorise their discharge. For this reason, the Mill Contingency Pond and Tailings Contingency Ponds are managed to avoid discharges into the receiving waters.

1.9 OceanaGold Water Management Standards

The OceanaGold Water Management Standards set out requirements in relation to responsible water management to ensure water abstraction, use and discharge complies with relevant legislation, permits, covenants, licences and OceanaGold's Water Management Framework.

There are three main components to the standard:

- Baselines and assessments
- Water balances and models
- Operational performance

Details of compliance to standard are listed in Appendix B. OceanaGold undertake Level 2 assurance of the Water Management standard every three years.

1.10 Management of change

OceanaGold maintains a management of change process and has an established plan (WAI-300-PLN-003). The purpose of this plan is to ensure the prevention of harm to the environment, communities, staff, processes, and property in identification and control of risks associated with new or modified facilities, equipment, materials, or processes prior to implementation and to ensure appropriate communication of the change to all affected stakeholders. INX InControl is the current software used to track MoC.

Any change to infrastructure and operations which could impact water quality and volumes is part of a formal management of change process.

1.11 Water related grievances

OceanaGold maintains a complaints and grievance process and has an established SOP (WAI-800-PRO-007). The process is required to be:

- transparent, readily accessible and culturally appropriate for persons or organisations to raise a concern, complaint or grievance
- does not infringe on the human rights of the complainant, including confidentiality
- provides options for escalation if the issue was not addressed to the satisfaction of the complainant or if the mechanism is inadequate or inappropriate for handling serious human rights grievances; and
- is compliant with all relevant legislation, regulations and/or consent conditions

Any water related grievance is categorised in INX InForm.

1.12 Plan Structure

Following an overview of the project status and the implications on water management, the Plan outlines the key elements of the water management system and for each element provides:

1. A brief description of where and how the element fits into the water management system.
2. The specific objectives for that element of the water management system.
3. An explanation of its priority in the management hierarchy.
4. The key areas on which to focus the management of that component.
5. A brief description of the consent requirements (performance criteria), monitoring and reporting requirements and the available contingencies.

In the past, it has been difficult at times to treat all water sources due to the need to treat large quantities of collection pond water. For that reason, priorities were set to ensure that collection ponds with the lowest quality, and those that were about to overflow, were treated first.

Direct discharge of collection pond water from the site is consented provided the collection pond water quality meets specified conditions relating to pH and turbidity. By allowing collection pond water of an acceptable quality to directly discharge, the Water Treatment Plant Operators are better able to focus on those sources of water that warrant management and treatment priority.

2. Overview

2.1 Project Status

As of October 2025, the following is relevant with respect to water management across the site:

- No stoping has occurred in Correnso/SUPA since January 2023, however narrow vein mining is set to begin in the next few months;
- Project Martha development and production continues;
- Mine dewatering from underground continues;
- Regime E has been used at the Water Treatment Plant (11-17th January 2024);
- Waihi North Project approvals were granted December 2025, with construction activities commencing in February 2026.

2.2 Baseline Water Assessments

Baseline water assessments are conducted as part of the consenting process. Each new application requires water related technical assessments and discusses potential impacts of each project. Summary AEE's (Assessments of Environmental Effects) are created for each consenting project. Any predicted impacts result in agreed consent conditions being developed and regulatory compliance required. Previous baseline assessments include:

- Martha Mine and extended project
- Favona Mine
- Trio Mine
- Correnso
- SUPA
- MDDP
- Project Martha
- Exploration/Wharekirauponga
- Services trench

There are currently 52 consents exercised related to water and numerous conditions to manage any effects. The WNP resulted in 58 technical reports assessing effects of the project. Specific water related reports included water management, stormwater, groundwater, hydrology and surface water. Technical assessments are listed here: https://www.fasttrack.govt.nz/projects/waihi-north/substantive-application. The WNP will result in some renewal and amalgamation of the existing consents that overlap.

2.2.1 Key Water Users

Technical reports are required to identify existing surface and groundwater resource users and assess any effects mine development and operation may have on those resources. Figure 5 and Figure 6 show the near mine water users at Waihi and Willows Rd. There are numerous small scale surface water takes and four groundwater takes in Waihi. West of Willows Rd is a major surface water take – the potable town supply for Waihi.

The technical assessments state no significant effects on key water users have been identified from current and future project plans.

In the unlikely event mining activities adversely affect any lawfully established stock, domestic or other water supplies, OceanaGold will provide alternative equivalent water supply. Delivery by water tankers would be the most suitable solution until such a time the water supply is reestablished.

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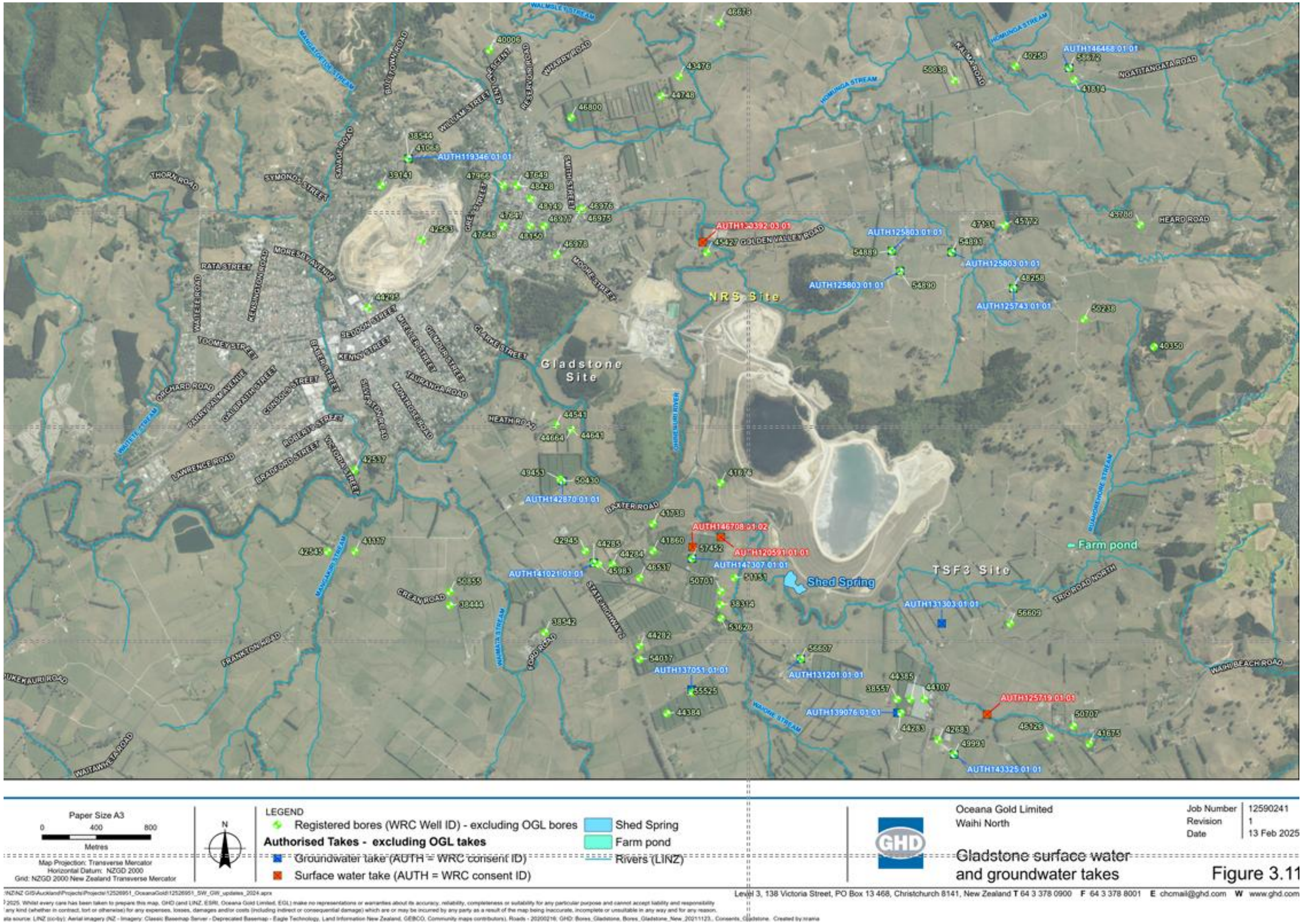

Figure 5: Waihi mine site near water users

Figure 6: Willows Rd near water users

2.3 Operational Water Balance

A Water Balance Model (WBM) was used to assess how water gains change over the life of the mine to check that proposed infrastructure for conveyance, storage and treatment will be adequate and to inform the design of the proposed infrastructure. This is carried out using the GoldSim (refer www.goldsim.com) software package which is designed to run Monte Carlo simulations for probabilistic analysis of dynamic systems.

The WBM was first developed in 2012 for the Waihi mines as an initiative of the site environmental team. The objective of building the model was to have a tool to forecast storage requirements in the TSFs and as an ongoing check that the site water management infrastructure as a whole had capacity for ongoing mine development. The model was also used to predict water treatment requirements post closure as a component of annual bond calculations.

The WBM was further developed to represent Project Martha and now also includes the components of the Waihi North Project. The model aims to capture all significant water movements across the site affected by mine operations. The model is run as a probabilistic analysis based on 100 years of measured rainfall data, corresponding combined Ohinemuri River and Ruahorehore Stream flow rates, and the projected mine plan for the Waihi North Project.

Currently a scope has been developed to adapt the model to be operational and suitable for short term planning. The model update is expected early 2026.

2.4 Water Management Implications

2.4.1 Mine Dewatering and Re-watering

OceanaGold commenced the Project Martha dewatering consent which allows dewatering to 500m RL. In 2020, four dewatering pumps were installed in two underground bores (800 PC1 and 800 PC2) from the 800 mRL level to facilitate dewatering to lower levels. Water from these bores is connected to the existing Correnso dewatering line and levels began to be drawn down using these pumps during 2021. At the end of 2023, groundwater levels were drawn to 662 mRL. The bores were reaching the extent of their dewatering level capabilities and so dewatering in MUG is by face dewatering and portable pump systems. The current dewatering arrangement is shown below in Figure 7.

Dewatering will need to continue until:

- Open pit and underground mining are complete,
- OceanaGold is satisfied that there will be no continuation of mining,
- A decision has been made that lake filling can commence.

In previous years, significant efforts were made refining the pit wall runoff sampling, analysis and mapping the geology of the wall to provide a refined alteration map. This information was used to remodel the lake water quality predictions. As part of the Martha Project consenting in 2018, AECOM remodelled the predicted lake water quality..

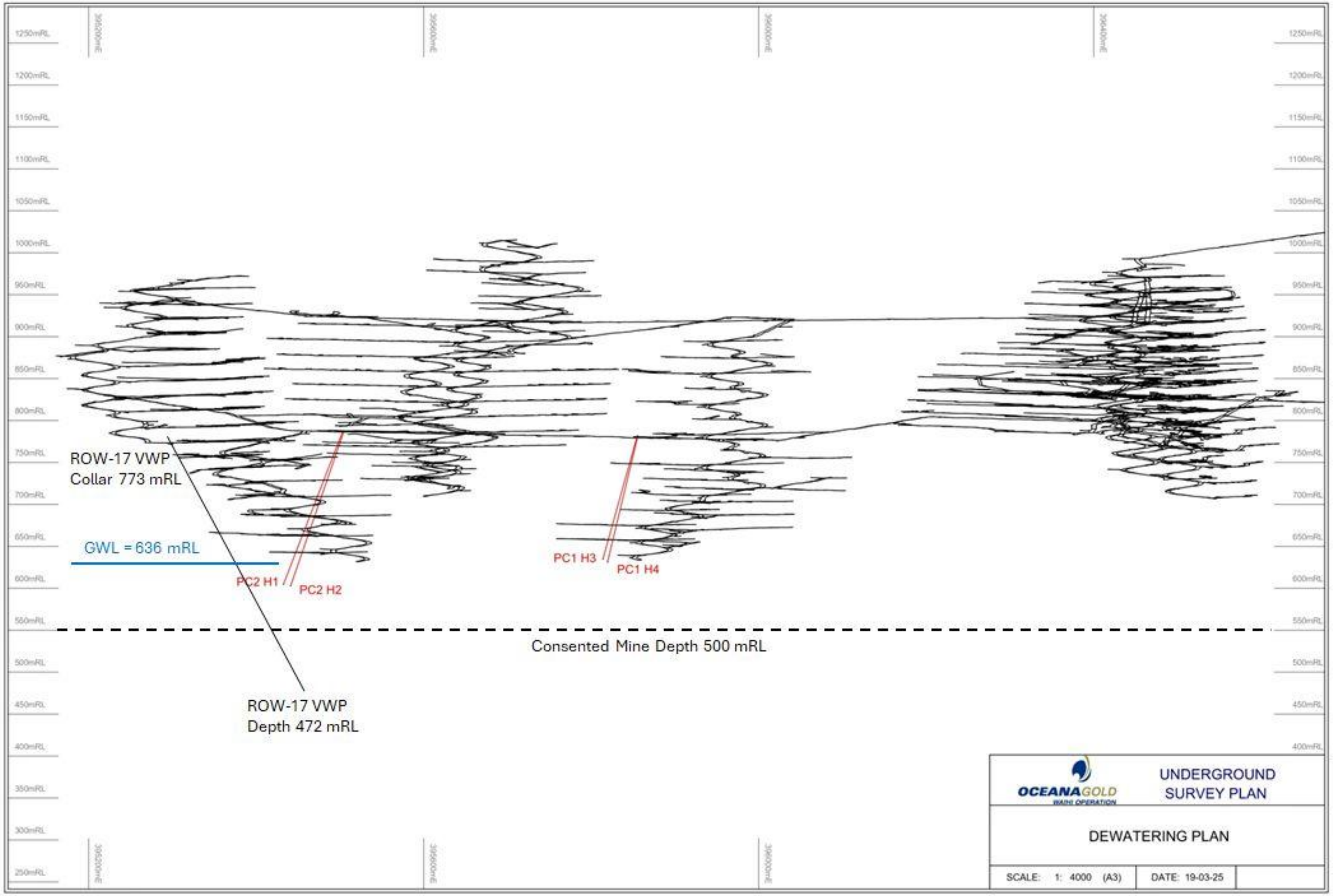

Figure 7. Location plan of dewatering bores.

2.4.2 Favona, Trio and Correnso

The following consents exist for dewatering of the current underground mining operations:

- 109742 – To take groundwater and mine water for dewatering the Favona Underground Mine,
- 121446 – Dewatering of the underground workings associated with the Trio Project,
- 124860 – Undertake dewatering of underground workings (including groundwater and mine water) within the Golden Link Project Area, including the Correnso Underground Mine.

Rehabilitation of the Favona (polishing pond) stockpile area and the Favona portal area will not advance until backfilling of the underground is complete, by which time any remaining ore and waste rock stockpiles will be depleted.

2.4.3 Waihi North

This Plan covers the initial Willows Farm site works, which comprises topsoil stripping from and construction of the site access road, the surface facilities area, the haul road to the proposed portal site, initial tunnelling, the collection pond and silt pond. The water management facilities and activities for these works comprise temporary construction-related erosion and sediment control measures that are detailed by Southern Skies, (Section and Ref.6.7). A separate Erosion and Sediment Control Plan is required to cover these activities.

Upgrades to the existing WTP consented as part of the Waihi North project will be ongoing during the period covered by this Plan. While the upgraded Plan is described below in s3.2, the new elements of the WTP will be operational by late 2026.

Tunnelling at Willows Road is estimated to start early April 2026. Tunnel dewatering will be from a sump piped to sediment and grit removal tanks and then into a line fed to the service trench main line. Dewatering water will be directed to a Waihi site collection pond (FSPCP) which will then pump via established piping to the WTP. This arrangement will be operational for up to 3 months. When all pipework is plumbed directly to the WTP, no further discharge into FSPCP will be required.

The Willows Collection Pond is not due to be completed until June 2026. Surface water from around the portal (non-PAF area) will be channelled to sediment retention ponds before discharge to the Mataura Stream. This is covered by the Area 2 ESCP. The collection ponds and retention ponds will be constructed as required by Area 2 consent conditions.

Once the Collection Pond is constructed water will be directed to this pond and sent directly to the WTP.

2.4.4 Tailings Impoundments

Discharge of TSF2 impoundment water directly to the Ohinemuri River will continue subject to appropriate ongoing monitoring. Should tailings deposition resume into TSF2, all impoundment water would be diverted back to treatment prior to the first placement of tailings, which would continue throughout the period of deposition and until the quality of that water again becomes suitable for direct discharge. The capping of TSF2 tailings, and the construction of an outlet/spillway from the TSF2 pond to the adjacent tributary will not be completed until OceanaGold is sure that it will not be needed to store additional tailings.

Improvements in the TSF1A impoundment water quality cannot be expected to start until tailings deposition into the impoundment ceases and, following a following period of water treatment, the quality becomes suitable for direct discharge.

Treatment of decant will be required to operate until impoundment water quality from any operating TSF has improved to the point where it can be discharged directly to the receiving environment. Based on experience with TSF2, this is expected to take two or so years after final tailings deposition.

Partial capping of all TSFs and construction of spillways to carry rainfall discharging from TSF1A to TSF2 and from TSF2 to the TB1 tributary of the Ohinemuri River (refer Figure 1) would occur during the post-mining period.

2.4.5 Seepage

The collection and treatment of seepage is expected to continue for some time, although OceanaGold expects to separate out the clean seepage flows from those that have yet to achieve acceptable quality, thus significantly reducing the volumes of seepage requiring treatment before discharge.

OceanaGold intends to commence an individual assessment of seepage drain quantity and quality which, when complete, will determine whether approval should be sought to direct discharge any seepage flows. In some cases, generally around TSF2, some of the pipework discharges to manholes at elevations that are too low to gravity feed them into adjacent surface water collection systems. OceanaGold will consider this as part of its planning for closure.

2.4.6 Summary

In the coming period, stormwater and treated water practices will continue largely unchanged from that of recent years at the existing site and will be extended to the new activities at the Willows Farm site.

3. Water Management Program

3.1 Introduction

The Waihi area is characterised by relatively high rainfall and the site operates with a net excess of water. Effective management of the water sources is important to maintaining production while ensuring compliance with the conditions of consent. To ensure that the quality and timing of any site discharges do not adversely affect the ecology of the receiving water, the following measures are taken.

- Natural water is diverted away from areas disturbed by mining activities wherever practicable to reduce the volumes of affected water.
- All water from areas disturbed by mining activities is directed to appropriate collection and treatment facilities prior to discharge off-site.
- Where practicable, OceanaGold will endeavour to reduce the volumes of water requiring treatment.
- Disturbed areas will be progressively rehabilitated at the earliest practicable time to minimise silt losses and improve runoff water quality.

For those sources of water that are affected by mining activities, OceanaGold has limited ability to control the quantities of water requiring treatment prior to discharge from the site. The underground mines need to be constantly dewatered for safety and operational reasons, and these volumes of mine water can change depending on the nature of the host rock and groundwater systems within them. Other water volumes are influenced by rainfall. The on-site practices and tools used to manage these volumes are:

- Optimising the capacity of the WTP;
- Regularly updating the water balance model to predict future site water management requirements and implementing actions necessary to effectively manage the predicted volumes of water;
- Maintaining effective buffer storage, so that water can be stored on-site as necessary, e.g. during periods of high rainfall;

- Ensuring, through PAF slurry testing, that adequate limestone is added to the waste rock to ensure that the pH of collection pond water remains above 6.5, thus providing an opportunity for direct discharge; and

- Prioritising daily waters to be treated.

The remainder of this section provides a detailed description of the various sources of water around site and the related management systems.

3.2 Water Treatment

3.2.1 Description

The original WTP has been in operation since 1988. It was upgraded in 2011 to add a fourth metals treatment stream and a reverse osmosis (RO) plant stream to allow for treatment of increased volumes of groundwater from the Martha Open Pit. This was necessary to enable continued dewatering of the Martha Pit and Favona Mine and the increased dewatering of the deep andesite aquifer in order to develop the Trio Underground Project beneath Union Hill. As previously mentioned, the RO Plant is currently not in an operational state but could be utilized with additional capital.

Following grant of the Waihi North project consents, the WTP capacity will be increased to enable treatment to the maximum rate of 52,000m^3/day as provided for under Regime E of the existing consent (and as renewed as part of the Waihi North consents). The WTP upgrading works are expected to be in progress throughout the period covered by this version of the Plan.

The treated water discharge line will have an additional pipelines and diffusers installed at E1 and E2 (Figure 1).

The upgraded WTP comprises the original four and three new parallel streams. Of the original streams, three (1, 2 & 4) are designed and operated to precipitate and remove soluble metals from pond and mine water. The three new streams also treat the non-cyanided water from these sources.

Stream 3 of the original WTP comprises two phases of treatment; oxidation of cyanide to destroy the cyanide complexes followed by metals precipitation and removal. Stream 3 is used primarily to treat tailings decant liquors, cyanided seepage and water from the Mill Contingency Pond (MCP) but is used for metals-only removal during periods of high rainfall when excess surface water volumes accumulate onsite.

The water treatment system has five different operating modes as set out in discharge permit 971318. These operating modes will be retained following the grant of WNP approvals. Each operating mode has its own treated water quality compliance limits, with the higher rates requiring lower treated water constituent concentrations to maintain acceptable river water quality (refer s3.2.5).

3.2.2 Objectives

- To prevent any discharge of treated water from the site that could adversely affect the water quality of the Ohinemuri River and/or its biota.

- To avoid any operational constraints due to the accumulation of excess water onsite by optimising the volumes of excess water treated and discharged from the site.

3.2.3 Priorities

The discharge of treated water is the primary discharge from the site, and it remains the ultimate contingency if ponds require treatment. For this reason, it is imperative that the WTP remains operational with limited downtime, and that it continues to consistently achieve compliance with the discharge permit water quality limits.

While the risk of a non-compliant discharge is low due to the inherent safeguards designed into the process, a non-compliant discharge has the potential to cause significant, and possibly long-term, environmental impairment to the Ohinemuri River, thus breaching the first objective of the Plan, and needs to be guarded against.

Additionally, it is important that the WTP availability and the rate of discharge can be maximised for operational reasons. Therefore, continual close attention to treatment plant process and river flow (which dictates the allowable discharge rates) is required by the operators. Quarterly river gauging at the Frendrups and Ruddocks sites are to be undertaken to ensure the flow ratings are accurate and current. Any change to the rating needs to be reported to the WTP and discharge formulas amended.

The site operates under a delicate water balance, which means that the discharge capacity is slightly more than combined inflow volumes. The site could easily shift from a negative water balance (discharge capacity more than inflows) to a positive water balance if process disruptions were experienced in the WTP. The direct discharge of collection pond water in accordance with the silt pond discharge consent provides additional capacity in that regard.

During WTP outages, water must be stored on-site until treated water compliance is again achieved and discharge can restart. There is limited on-site storage, the greatest capacity being the TSF1A impoundment, and the accumulation of water can have longer-term implications on water management in terms of both the increased pressure on the site water management systems as well as on other processes. For example, excess water on the impoundment reduces tailings density and hence tailings storage capacity. Ultimately, an accumulation of excess water on-site could lead to a mandatory shutdown of the entire operation.

In summary, the WTP is a critical component of the site's water management system. Greater WTP availability means that overall site water management becomes easier, with an increased level of environmental protection and decreased operational risk.

3.2.4 Management Focus

The operation of the WTP is managed through a suite of Standard Operating Procedures (SOPs). This Plan does not cover those detailed processes, but in applying them, the WTP operators need to have the following management focus to the operation:

1. Maximise WTP utilisation by avoiding discharge downtime due to process disruptions (i.e. WTP on recycle) as far as practicable.
2. Maintain WTP throughput as close as safely practicable to the allowable discharge rates set by the discharge permit.
3. Optimise the treatment rate for decant from the operational TSF(s).
4. Optimise treatment of seepage.
5. Optimise the treatment rate for collection and silt pond water whenever necessary.
6. Optimise treatment of mine dewatering water.
7. Ensure no unauthorised pond overflows.

To maintain the treatment system in good working order to meet the above management priorities, an annual maintenance shut-down is expected to occur during the summer low-flow period when the allowable rate of treated water discharge prevents or constrains WTP operation. Routine maintenance tasks during this shut-down include descaling of the treated water discharge pipes and diffusers to minimise the build-up and discharge of scale (gypsum) which has been shown to carry elevated trace element concentrations.

3.2.5 Performance Criteria

The maximum combined daily discharge from both the upstream (E1 or Frendrups) and downstream (E2 or Domain Rd) discharge points under the available regimes is as follows in Table 2.

Table 2: WTP Discharge Rate Compliance Limits

Discharge Flow Limits[1] The lesser of:		Discharge Regimes				
		A	B	C	D	E
Instantaneous	(%)[2]	15%	20%	10%	40%	60%
or						
Instantaneous	(L/s)	235	-	-	-	-
	(m^3/hr)	846	-	-	-	-
Daily average	(m^3/hr)	833	1,083	216	1,083	2,166
	(m^3/day)	20,000	26,000	5,200	26,000	52,000

NOTES: 1. The compliance limit is the lesser of any of those listed for each discharge regime
2. Measured as a percentage of the instantaneous Ohinemuri River flow rate.

The treated water quality under each of the discharge regimes is set out in Error! Reference source not found..

Table 3. Water Treatment Plant Discharge Quality Limits.

Parameter	Treated Water Concentration (g/m^3 unless otherwise stated)									
	Regime A		Regime B		Regime C		Regime D		Regime E	
	Normal Compliance [1]	Maximum [1]	Normal Compliance [1]	Maximum [1]	Normal Compliance [1]	Maximum [1]	Normal Compliance [1]	Maximum [1]	Normal Compliance [1]	Maximum [1]
pH	6.5-9.5		6.5-9.5		6.5-9.5		6.5-9.5		6.5-9.5	
Temperature	<3°C rise	<3°C rise	<3°C rise	<3°C rise	<3°C rise	<3°C rise	<3°C rise	<3°C rise	<3°C rise	<3°C rise
Total Suspended Solids	10	50	8	40	5	10	8	40	8	40
Cyanide (WAD)	0.25	0.71	0.2	0.56	0.36	1.02	0.11	0.32	0.09	0.25
Iron	1.0	6.7	0.8	5.0	0.1	0.3	0.5	3.1	0.4	2.4
Manganese	1.0	1.3	0.8	1.0	0.1	0.4	0.5	0.6	0.4	0.5
Copper	0.07[2]	0.13[2]	0.055[3]	0.10[3]	0.031[4a]	0.054[4a]	0.033[4a]	0.06[4a]	0.025[4b]	0.05[4b]
Nickel		1.2[2]		0.94[3]		0.64[4a]		0.55[4a]		0.42[4b]
Zinc		0.8[2]		0.61[3]		0.38[4a]		0.36[4a]		0.27[4b]
Ammonia	Refer Table 3		Refer Table 3		Refer Table 3		Refer Table 3		Refer Table 3	
Silver	0.02[2]	0.03[2]	0.017[3]	0.024[3]	0.005[4a]	0.005[4a]	0.01[4a]	0.014[4a]	0.007[4b]	0.011[4b]
Antimony		0.23	0.1[5]	0.18	0.07[5]	0.33	0.06[5]	0.10	0.05	0.08
Arsenic		1.45		1.14		0.02		0.66		0.51
Selenium	0.15	0.27	0.12[5]	0.2[5]	0.22[5]	0.38[5]	0.07[5]	0.12[5]	0.05[5]	0.09[5]
Mercury		0.0005[6]		0.0005[6]		0.0005[6]		0.0005[6]		0.0005[6]
Cadmium		0.008[2]		0.007[3]		0.004[4a]		0.004[4a]		0.003[4b]
Chromium (VI)		0.08		0.06		0.05		0.04		0.03
Lead		0.02[2]		0.018[3]		0.006[4a]		0.011[4a]		0.008[4b]
Hardness Assumption	670		530		200[4]		315		243	

Notes:

1. "Normal Compliance" values are to be met 97% of the time based on all analyses taken during a quarterly period when the WTP is discharging. "Maximum" values are not to be exceeded in any single analysis.
2. Operating Regime A – For hardness related metals, the compliance values in Table 1 assume a hardness in the WTP discharge of 670 g/m^3 as $CaCO_3$ prior to dilution in the Ohinemuri River. This equates to an in-river hardness of about 100 g/m^3 as $CaCO_3$ following mixing. Refer to Table 2 for compliance levels at differing hardness concentrations.

3. Operating Regime B – For hardness related metals, the compliance values in Table 1 assume a hardness in the RO only discharge of zero and 530 g/m^3 as $CaCO_3$ prior to dilution in the Ohinemuri River. This equates to an in-river hardness of about 100 g/m^3 as $CaCO_3$ following mixing. Refer to Table 2 for compliance levels at differing hardness concentrations.

4. Operating Regime C – Prior to discharge of RO permeate, hardness must be added to achieve a minimum hardness of 200 g/m^3 as $CaCO_3$ to ensure in-river compliance for hardness-related metals. Refer to Table 2 for compliance levels at differing hardness concentrations.

    4a) Operating Regime D – For hardness related metals, the compliance values in Table 1 assume a hardness in the WTP discharge of 315 g/m^3 as $CaCO_3$ prior to dilution in the Ohinemuri River This equates to an in-river hardness of about 100 g/m^3 as $CaCO_3$ following mixing. Refer to Table 2 for compliance levels at differing hardness concentrations.

    4b) Operating Regime E – For hardness related metals, the compliance values in Table 1 assume a hardness in the WTP discharge of 243 g/m^3 as $CaCO^3$ prior to dilution in the Ohinemuri River. This equates to an in-river hardness of about 100 g/m^3 as $CaCO^3$ following mixing. Refer to Table 2 for the compliance levels at differing hardness concentrations.

5. Values are trigger limits, not compliance limits. If the trigger limits are exceeded, the consent holder shall inform the Waikato Regional Council as soon as practicable and prepare a report, to the satisfaction of the council, to demonstrate that continued discharges at concentrations exceeding the trigger limits will have no more than minor effects on the Ohinemuri River. This report shall be provided to the Council within two months of the consent holder becoming aware of the trigger exceedence.

6. Current analytical procedures for mercury have a practical quantification limit (PQL) of 0.00008 g/m^3, and for chromium (VI) have a PQL of 0.001 g/m^3. The reporting 'limit' for mercury and chromium concentrations shall be reviewed annually by the consent holder and shall be adjusted in line with improvements in analytical technology.

7. Discharge limits for metals are for ‘acid-soluble’ concentration, determined on unfiltered samples.

Table 4: Compliance Criteria for Total Ammonia

	Normal Compliance, (g/m³ as total ammonia)							Maximum, (g/m³ as total ammonia)						
Temperature, (⁰C)	0	6	10	15	20	25	30	0	6	10	15	20	25	30
pH	Regime A													
6.50	23.00	21.46	20.70	19.17	19.17	19.17	18.40	268.31	252.98	237.65	229.98	222.31	222.31	222.31
6.75	23.00	21.46	20.70	19.93	19.17	19.17	19.17	245.31	229.98	214.65	206.98	206.98	199.32	199.32
7.00	23.00	21.46	20.70	19.93	19.17	19.17	19.17	214.65	199.32	191.65	183.98	176.32	176.32	176.32
7.25	23.00	21.46	20.70	19.93	19.17	19.17	19.17	133.39	168.65	153.32	151.02	147.19	145.65	145.65
7.50	23.00	21.46	20.70	19.93	19.17	19.17	19.17	133.39	124.96	118.82	114.22	111.92	111.16	111.16
7.75	21.46	19.93	19.17	18.40	17.63	17.63	18.40	93.53	87.39	83.56	80.49	78.96	78.19	78.96
8.00	13.95	13.03	12.42	12.04	12.65	11.88	12.19	61.33	57.50	54.43	52.90	52.13	52.13	53.66
8.25	7.90	7.44	7.13	6.90	6.90	6.98	7.21	34.50	32.20	31.43	30.66	29.90	30.66	31.43
8.50	4.45	4.22	4.06	4.06	4.06	4.22	4.45	19.93	18.40	17.63	17.63	17.63	18.40	19.93
8.75	2.61	2.45	2.38	2.38	2.45	2.68	2.91	11.27	10.73	10.50	10.58	10.89	11.65	12.65
9.00	1.49	1.45	1.45	1.49	1.61	1.76	2.07	6.59	6.36	6.36	6.59	6.98	7.74	8.89
pH	Regime B													
6.50	18.00	16.79	16.20	15.00	15.00	15.00	14.40	209.98	197.98	185.99	179.98	173.98	173.98	173.98
6.75	18.00	16.79	16.20	15.60	15.00	15.00	15.00	191.98	179.98	167.99	161.98	161.98	155.99	155.99
7.00	18.00	16.79	16.20	15.60	15.00	15.00	15.00	167.99	155.99	149.99	143.98	137.99	137.99	137.99
7.25	18.00	16.79	16.20	15.60	15.00	15.00	15.00	104.39	131.99	119.99	118.19	115.19	113.99	113.99
7.50	18.00	16.79	16.20	15.60	15.00	15.00	15.00	104.39	97.79	92.99	89.39	87.59	86.99	86.99
7.75	16.79	15.60	15.00	14.40	13.80	13.80	14.40	73.20	68.39	65.39	62.99	61.79	61.19	61.79
8.00	10.92	10.20	9.72	9.42	9.90	9.30	9.54	48.00	45.00	42.60	41.40	40.80	40.80	41.99
8.25	6.18	5.82	5.58	5.40	5.40	5.46	5.64	27.00	25.20	24.60	23.99	23.40	23.99	24.60
8.50	3.48	3.30	3.18	3.18	3.18	3.30	3.48	15.60	14.40	13.80	13.80	13.80	14.40	15.60
8.75	2.04	1.92	1.86	1.86	1.92	2.10	2.28	8.82	8.40	8.22	8.28	8.52	9.12	9.90
9.00	1.17	1.13	1.13	1.17	1.26	1.38	1.62	5.16	4.98	4.98	5.16	5.46	6.06	6.96
pH	Regime C													
6.50	33.00	30.79	29.70	27.50	27.50	27.50	26.40	384.97	362.97	340.98	329.97	318.97	318.97	318.97
6.75	33.00	30.79	29.70	28.60	27.50	27.50	27.50	351.97	329.97	307.98	296.97	296.97	285.98	285.98
7.00	33.00	30.79	29.70	28.60	27.50	27.50	27.50	307.98	285.98	274.98	263.97	252.98	252.98	252.98
7.25	33.00	30.79	29.70	28.60	27.50	27.50	27.50	191.39	241.98	219.98	216.68	211.19	208.98	208.98

	Normal Compliance, (g/m³ as total ammonia)							Maximum, (g/m³ as total ammonia)						
Temperature, (^{0}C)	0	6	10	15	20	25	30	0	6	10	15	20	25	30
7.50	33.00	30.79	29.70	28.60	27.50	27.50	27.50	191.39	179.29	170.48	163.88	160.58	159.49	159.49
7.75	30.79	28.60	27.50	26.40	25.30	25.30	26.40	134.20	125.39	119.89	115.49	113.29	112.19	113.29
8.00	20.02	18.70	17.82	17.27	18.15	17.05	17.49	88.00	82.50	78.10	75.90	74.80	74.80	76.99
8.25	11.33	10.67	10.23	9.90	9.90	10.01	10.34	49.50	46.20	45.10	43.99	42.90	43.99	45.10
8.50	6.38	6.05	5.83	5.83	5.83	6.05	6.38	28.60	26.40	25.30	25.30	25.30	26.40	28.60
8.75	3.74	3.52	3.41	3.41	3.52	3.85	4.18	16.17	15.40	15.07	15.18	15.62	16.72	18.15
9.00	2.14	2.08	2.08	2.14	2.31	2.53	2.97	9.46	9.13	9.13	9.46	10.01	11.11	12.76
pH	Regime D													
6.50	10.50	9.80	9.45	8.75	8.75	8.75	8.40	122.49	115.49	108.49	104.99	101.49	101.49	101.49
6.75	10.50	9.80	9.45	9.10	8.75	8.75	8.75	111.99	104.99	97.99	94.49	94.49	90.99	90.99
7.00	10.50	9.80	9.45	9.10	8.75	8.75	8.75	97.99	90.99	87.49	83.99	80.49	80.49	80.49
7.25	10.50	9.80	9.45	9.10	8.75	8.75	8.75	60.90	76.99	69.99	68.94	67.20	66.49	66.49
7.50	10.50	9.80	9.45	9.10	8.75	8.75	8.75	60.90	57.05	54.24	52.14	51.09	50.75	50.75
7.75	9.80	9.10	8.75	8.40	8.05	8.05	8.40	42.70	39.90	38.15	36.75	36.05	35.70	36.05
8.00	6.37	5.95	5.67	5.50	5.78	5.42	5.57	28.00	26.25	24.85	24.15	23.80	23.80	24.50
8.25	3.61	3.40	3.26	3.15	3.15	3.19	3.29	15.75	14.70	14.35	14.00	13.65	14.00	14.35
8.50	2.03	1.93	1.85	1.85	1.85	1.93	2.03	9.10	8.40	8.05	8.05	8.05	8.40	9.10
8.75	1.19	1.12	1.09	1.09	1.12	1.22	1.33	5.15	4.90	4.79	4.83	4.97	5.32	5.78
9.00	0.68	0.66	0.66	0.68	0.74	0.80	0.95	3.01	2.90	2.90	3.01	3.19	3.53	4.06
pH	Regime E													
6.50	8	7.47	7.2	6.67	6.67	6.67	6.4	93.33	87.99	83.04	79.99	77.33	77.33	77.33
6.75	8	7.47	7.2	6.93	6.67	6.67	6.67	85.33	79.99	74.66	71.99	71.99	69.33	69.33
7.00	8	7.47	7.2	6.93	6.67	6.67	6.67	74.66	69.33	66.66	63.99	61.33	61.33	61.33
7.25	8	7.47	7.2	6.93	6.67	6.67	6.67	46.4	58.66	53.33	52.53	51.2	50.66	50.66
7.50	8	7.47	7.2	6.93	6.67	6.67	6.67	46.4	43.47	41.33	39.73	38.93	38.67	38.67
7.75	7.47	6.93	6.67	6.4	6.13	6.13	6.4	32.53	30.4	29.07	28	27.47	27.2	27.47
8.00	4.85	4.53	4.32	4.19	4.13	4.13	4.24	21.33	20	18.93	18.4	18.13	18.13	18.67
8.25	2.75	2.59	2.48	2.4	2.4	2.43	2.51	12	11.2	10.93	10.67	10.4	10.67	10.93
8.50	1.55	1.47	1.41	1.41	1.41	1.47	1.55	6.93	6.4	6.13	6.13	6.13	6.4	6.93
8.75	0.91	0.85	0.83	0.83	0.85	0.93	1.01	3.92	3.73	3.65	3.68	3.79	4.05	4.4

	Normal Compliance, (g/m³ as total ammonia)							Maximum, (g/m³ as total ammonia)						
Temperature, (^{0}C)	0	6	10	15	20	25	30	0	6	10	15	20	25	30
9.00	0.52	0.5	0.5	0.52	0.56	0.61	0.72	2.29	2.21	2.21	2.29	2.43	2.69	3.09

3.2.6 Monitoring and Reporting

An extensive monitoring and reporting program is undertaken by OceanaGold in relation to water management. Several of the monitoring and reporting requirements are stipulated in various consents, while others are implemented based on internal standards or requirements, best practice environmental management or other external guidelines (such as AS/NZ Standards).

Monitoring, calibration and reporting requirements are captured in an extensive suite of documentation and procedures across multiple departments on site. These documents are reviewed and updated as necessary, and copies of specific documentation will be made available to WRC on request.

3.2.7 Contingency

In the event of treated water being out of specification with the discharge permit limits, discharge from the polishing ponds (alternatively know as compliance ponds) must cease and the treatment plant operated in recycle mode until the pond water is suitable for discharge. Alternatively, changing to a different treatment regime may be an option.

3.3 TSF2 Tailings Pond

3.3.1 Description

Discharge of tailings to TSF2 ceased on 15 July 2005. Since that time, the water quality in the tailings pond has improved to a level where its constituent concentrations are lower than the receiving water standards defined in various resource consents. Approval was received from WRC on 23 October 2007 allowing OceanaGold to discharge TSF2 water to the Ohinemuri River via an unnamed tributary to the north of the Waste Disposal Area under discharge permit 971323.

In August 2020, OceanaGold was granted consent for an additional crest raise on TSF2. This allows raising the crest from 156.0 mRL to 160.7 mRL, a 4.7 m increase. No work on the crest raise is proposed during the period covered by this Plan.

Discharge from the TSF2 pond occurs via a pump located in what was the decant pond during its operational life. The pump is turned on manually when rainfall raises the pond water level close to the maximum allowable level and once water quality analyses have confirmed that the water is suitable for discharge. The maximum allowable water level is determined by a minimum freeboard requirement, which is defined as being sufficient to impound the surface run-off arising from the Probable Maximum Precipitation (PMP) event, plus 1.0 m. This was recalculated by Engineering Geology Ltd in 2016. In practice, for TSF2 the minimum freeboard is 3.12 m. Following rainfall or any event that reduces the freeboard below the minimum requirement, the water level is drawn down as soon as practicable to restore the full freeboard.

In 2023, preparation work was carried out for the TSF2 crest raise. A southern abutment key cut was completed, as required before the TSF1A crest is raised further. Drainage channels and sediment control was put in place for these works and the water quality of TSF2 was not adversely affected.

Turbidity, pH and EC are continuously monitored with triggers detailed below. Water quality monitoring for a full suite of analytes is also carried out monthly whether the pond is discharging or not. To guard against a sub-standard quality discharge, an automatic override shuts the pumps off in the event of trigger values for turbidity, pH or conductivity being exceeded. The trigger values are as follows:

- ≥6.5 pH ≤ 9
- Turbidity ≤ 30 NTU[1] (assumed to correspond to SS ≤ 20 g/m^3)
- EC ≤ 80 mS/m

In addition to these parameters, temperature and flow (when discharging) are also continuously metered.

In 2025 it was determined that too much water was held on the TSFs. Typically, TSF1A water required underground dewatering water to help dilute the cyanided water from TSF1A, however dewatering rates have reduced significantly in 2025. A management decision was made to use TSF2 water to dilute TSF1A water within the WTP, thereby lowering the water levels in both facilities. Mill staff devised a pumping method to send TSF2 water to the WTP. A target water level RL is 152.11.

Flow monitors on several pipelines (tailings, dam return, decant, brine) that run close to TSF2 provide security against a pipe burst that could discharge contaminants into TSF2 and compromise the water quality. The flow meter alarms automatically shut down the pumps on that pipeline and the TSF2 discharge pumps in the event of a pipe burst.

3.3.2 Objectives

- To maintain TSF2 water quality to the receiving water quality standards defined in consent conditions or better.
- To prevent any uncontrolled discharge from TSF2 that could adversely affect the water quality of the Ohinemuri River and/or its biota.

3.3.3 Priorities

Rainfall on TSF2 totals around 800,000 m^3 per year. The excess rainfall is discharged directly to the Ohinemuri River and so does not contribute to the site water balance in terms of treatment. However, if contamination of the TSF2 impoundment occurred, the site would face a significantly greater volume of water requiring treatment prior to discharge with a significant increase in difficulty for site water management. The TSF2 discharge remains high in importance in the site water management system due to the large volume that would severely stress the system if treatment were required.

There is no expectation that the water quality will deteriorate to a point where it requires treatment without intervention, unless either OceanaGold makes a decision to add tailings or some other contaminants to TSF2, or an incident occurs such as a tailings, decant or brine pipeline burst that discharges contaminants into TSF2.

Prior to OceanaGold making any decision to reuse TSF2 for tailings deposition or disposal of any other materials, e.g. pond silt, WTP sludge, a detailed review of the impacts on the site water balance is essential to ensure that the inclusion of TSF2 supernatant does not force the site into a positive water balance situation.

The risk of deteriorating water quality due to pipeline bursts is considered low following the relocation of automatic flow monitoring equipment and the software modifications that provide fail safe lockouts on the pumps servicing the pipelines and the TSF2 discharge pump.

In practice, the management of the TSF2 discharge requires little effort beyond monitoring, responding promptly to any incidents in its catchment, and ensuring any decisions about its future use consider the potential impact on the site's water balance. However, it remains a high priority due to the large volume of water involved if its quality deteriorates, preventing direct discharge.

3.3.4 Management Focus

The management focus, in order of priority for the TSF2 discharge needs to be on:

1. Ensuring the water quality of the pond is equal to or better than the receiving water quality standards stated in discharge permit 971323 prior to switching on the discharge pump,
2. Managing any mining-related activities occurring around the crest of the impoundment to ensure that they do not adversely affect pond water quality,
3. Maintaining a maximum water level within the pond to provide water cover over the tailings while also maintaining a minimum freeboard to the lowest waste rock embankment crest level.

3.3.5 Performance Criteria

- Maintaining indicator water quality measurements as described in 3.3.1.
- Maintaining water quality in the receiving water within the limits set out in the conditions of consent.
- Maintaining the TSF2 pond level to ensure minimum freeboard and tailings coverage priorities are achieved.

While environmental monitoring occurs, and needs to continue, within the unnamed tributary upstream and downstream of the TSF2 discharge point, it has been agreed with WRC that the tributary provides the mixing zone for the discharge. Compliance with the receiving water quality standards stipulated in the consents is therefore not required within the tributary.

It is necessary to include the effect of the TSF2 discharge in assessing the total cumulative effect of all site discharges on the Ohinemuri River. Discharge permit 971323 requires that the TSF2 discharge "in combination with all other discharges authorised for the site, shall not cause a significant adverse environmental effect on the receiving groundwater and surface water…".

3.3.6 Monitoring and Reporting

TSF2 pond water quality is monitored against the full suite of discharge parameters routinely as per the site monitoring schedule. Additional to this, the water is continuously monitored for pH, EC and turbidity via permanent continuous sonde monitors. Water quality probes within these monitors are checked weekly and calibrated monthly by a site Electrical staff. Data gathered through monitoring processes is collated and reviewed by OceanaGold and external consultants each calendar year to form an annual report of the water quality and management of the TSFs. Once finalised, this report is submitted to WRC.

3.3.7 Contingency

In the event of the continuous monitoring system indicating water quality that is out of specification, the automatic shutdown system of the discharge pump will prevent a non-compliant discharge. A water quality sample shall be taken and analysed. If the result indicates the water quality complies with the receiving water standards, the discharge can be manually restarted.

If a water analysis indicates the pond water does not comply with the receiving water quality standard, the contingency actions are to:

1. Prevent discharge from TSF2 until remedial actions and/or rainfall dilution return pond water quality to receiving water quality standards,
2. Investigate mining-related activities within the TSF2 pond catchment and stop and remediate any activities that are affecting the pond water quality,
3. Divert TSF2 water to the WTP for treatment prior to discharge, should the water level approach the minimum freeboard level before the water quality complies with receiving water quality standards.

The necessity to treat TSF2 water could seriously compromise the site's overall water balance, and any campaign of treatment will need to be carefully balanced against the other water management demands at that time.

3.4 TSF1A Tailings Pond

3.4.1 Description

Water in TSF1A contains elevated concentrations of cyanide and metals derived from the ore treatment process. A relatively large proportion of this water (called dam return water) is returned to the process plant for reuse in the ore treatment process. Excess water (decant) goes directly to the WTP for treatment prior to discharge.

Within the WTP, the decant goes through two phases of treatment – oxidation of the cyanide to destroy the cyanide complexes, followed by metals precipitation and removal.

3.4.2 Objectives

- To prevent unauthorised discharges to receiving waters.
- To maximise the reuse of dam return water through the processing plant.
- To monitor pond water quality to:
  - Observe trends, e.g. changes due to ore type or seasonal fluctuations.
  - Identify water treatment requirements.
- Upon the cessation of tailings discharge, identify opportunities for direct discharge of tailings pond water.

3.4.3 Priorities

Decant must be treated prior to discharge and its management priority is set by the WTP (refer to Section 3.2). The water must be treated at a rate necessary to maintain freeboard, as required by condition 9 of consents 971303 to 971306. The freeboard level provides capacity for the impoundment to contain the surface runoff generated by the Probable Maximum Precipitation (PMP) event without overtopping, plus an additional 1.0 m, below the embankment crest. This equates to a minimum freeboard of 2.63 m.

3.4.4 Management Focus

- Maximising the reuse of dam return water.
- Maintaining the water level below the consented maximum at all times (2.63 m below the lowest point of the embankment crest).
- Reducing the pond water level to optimize tailings beaching in line with best practice while monitoring tailings, supernatant water and birdlife to ensure no adverse effects.

3.4.5 Performance Criteria

The embankment structures shall incorporate a minimum freeboard above all material in the tailings pond (i.e. solid and liquid). This level shall be sufficient to impound the surface runoff arising from the Probable Maximum Precipitation (PMP) event without overtopping, plus 1.0 m (refer to TSF1A tailings and waste rock disposal consents 971303 to 971306, condition 9, and the Tailings Storage Facility Monitoring Plan).

For the rehabilitated tailings ponds, performance criteria exist as conditions of consent number 971323.

3.4.6 Monitoring and Reporting

- Pond water levels are monitored and recorded up to three times a week.
- Decant quality is monitored monthly.
- Tailings are sampled for WAD CN and acid generating capacity with results reported annually in the TSF Monitoring Report – Geochemistry.
- Tailings supernatant water is also sampled with results reported annually in the TSF Monitoring Report – Geochemistry.
- Bird counts are carried out weekly on TSF1A.

3.4.7 Contingency

The allowable freeboard provides a contingency against overtopping of the tailings pond water.

3.5 Tailings Storage Facility Seepage Water Flows

3.5.1 Description

An extensive seepage collection system exists beneath both TSFs. This system is designed to capture upwelling groundwater, seepage from tailings and leachate from the waste rock used to construct the tailings embankments. The term “seepage” describes the combined flows from these sources. The characteristics of seepage depend on the source, quality and quantity of the individual flows.

Tailings underdrains collect seepage from the tailings as well as upwelling groundwater. During the initial period of tailings placement, the flow from tailings is relatively high and contains elevated levels of cyanide and soluble metals. As the tailings volume increases, the mass consolidates and permeability of the tailings mass reduces significantly, resulting in a decrease in flow and an improvement in quality, at which time the characteristics of underdrain flows trend towards those of natural groundwater.

Upstream cut-off drains also collect tailings seepage and groundwater. Experience has shown that tailings liquor concentrations in these drains are highest when decant pond water is standing against the embankment and reduce as tailings levels rise and consolidate to provide a low permeability layer. The source of tailings liquors in the drains is typically from the areas adjacent to the embankment abutments where water levels are highest and tailings levels are low.

Leachate drain flows depend on the rainfall volumes that fall on the waste rock embankment between the time that the rock is placed and capped. Leachate drains collect water from potentially acid forming (PAF) waste rock and may contain elevated concentrations of sulphate and soluble metals. As the embankments are completed, and the Zone G capping extends reducing the exposed waste rock areas open to rainfall infiltration, the volume of leachate from this source reduces. Over time, with the completion of capping, air is excluded from the rock mass reducing sulphide oxidation and an improvement in leachate quality is expected.

Toe drains carry mainly groundwater that wells up below the embankment structure but may contain some waste rock seepage. Initial toe drains pick up seepage from the starter embankment.

Seepage flow derived from TSF1A can be directed to either the process water tanks or the WTP. TSF2 seepage water is directed to the WTP for treatment prior to discharge.

Treatment of surplus seepage water is given priority over water from all other sources as, unlike these other sources, there is very little buffer storage capacity within the seepage collection system.

3.5.2 Objectives

- To prevent the uncontrolled discharge of seepage that could otherwise contaminate groundwater and surface water.
- To monitor individual drain flows and quality with a view to direct discharge clean water when appropriate.

3.5.3 Priorities

Seepage quantities are relatively minor compared with the volumes of water from elsewhere on site. However, there is no storage capacity for these flows other than within the reticulation (drains, manholes, pumping stations and pipework), and a build-up of head within the seepage reticulation can be expected to result in increasing risk of seepage flows into the ground with resulting repercussions for site water management. It is the limited storage and the potential for adverse effects on groundwater that dictates that seepage be treated continuously and with priority.

3.5.4 Management Focus

The management focus, in order of priority for seepage needs to be on:

1. Maintenance of the pumping and reticulation system to avoid mechanical breakdown that could increase heads within the drainage system, thereby increasing the risk of seepage flows to groundwater or overflows from manholes to the perimeter drains, and prompt action to repair any system breakdowns if they occur.
2. Treating seepage continuously as a top priority for the WTP, when seepage is not diverted to the mill.
3. Monitoring and reporting water quality and flows from all underdrainage systems to verify the as-built structure is achieving predicted design performance objectives. Refer also to the TSF Monitoring Plan.

Seepage in some drains, for example those carrying tailings liquor, is expected to contain traces of cyanide. In 2010, OceanaGold reviewed the cyanide monitoring procedures to establish the most relevant cyanide species, the most appropriate analytical methods, scientifically justifiable and robust minimum concentrations that demonstrate the presence of cyanide (i.e. avoid false positives), and list the actions required if a minimum concentration is met or exceeded. In summary, the reportable level for WAD cyanide is in the range 0.0028 to 0.0045 mg/L and for total cyanide 0.0060 mg/L. In addition, measurement of WAD cyanide is preferred as it is more reliable due to the sample being stabilised with sodium hydroxide, stored in opaque sample bottles and kept chilled. It is also the consented and more appropriate cyanide species in terms of potential effects on aquatic biota.

Ongoing monitoring of all seepage drains (as detailed in the TSF Monitoring Plan) includes assessment of chemistry trends, including cyanide, as the trends may indicate a change in seepage quality that warrants investigation.

3.5.5 Performance Criteria

All underdrainage from beneath TSF1A and TSF2 will be pumped to the WTP for treatment prior to discharge or for use in the process plant, unless otherwise authorised in writing by WRC (for TSF1A, refer to Martha Mine Extended Project Resource Consents 11.0, Tailings and Waste Rock Disposal, consents 971303 to 971306, conditions 5 and 8). To date, no underdrainage from the tailings and waste rock portion of TSF1A has been authorised for direct discharge and performance criteria do not apply. However, direct discharge of collection pond subsoil drains (SS3 and SS4) has occurred since commencement of the waste disposal. Discharge of this water was approved by WRC in 2000 (see letter Appendix A).

Prior to direct discharge of any seepage, appropriate performance criteria will need to be developed. Without restricting what these performance criteria might be, if discharge water quality meets or is better than that of the receiving water standards then its discharge would not have an adverse effect on the receiving waters or their biota.

3.5.6 Monitoring and Reporting

Refer to Tailings Storage Facility Monitoring Plan.

3.5.7 Contingency

None required. Seepage is given priority for treatment. Any applicable contingencies apply to the WTP and the management of treated water.

3.6 Silt, Collection and Contingency Ponds

There is an extensive system of silt, collection and contingency ponds around site, each type of pond having a different function.

Runoff from catchments that may contain sediment, but no chemical or elevated soluble metal contaminants is directed to silt ponds, where much of the sediment would settle before the water discharged to natural surface water. Silt ponds were placed below areas of active earthworks that contained no exposed PAF material and down-catchment of rehabilitated areas.

Collection ponds are sited to receive runoff from active working catchments that contain PAF material and that might therefore contain elevated concentrations of soluble metals. Water from collection ponds is pumped to the WTP for treatment prior to discharge except under heavy rainfall conditions where the runoff volumes exceeded the capacity of the system. Under these conditions the receiving waters would have been in flood, providing sufficient dilution to the overflow that no adverse effects have occurred.

Over recent years, due in part to the regular addition of limestone to the waste rock, water quality improved in the collection ponds adjacent to the current TSFs to the extent that direct discharge, subject to conditions, is possible. This practice will continue wherever and whenever possible. It is not expected to be feasible for runoff from the soon-to-be-built Willows Rock Stack or, later into the future, from the Northern Rock Stack and TSF3 embankment.

Contingency ponds are sited to capture chemical spills, e.g. at the mill (MCP), and at strategic locations on either side of the Ohinemuri River (Tailings Contingency Ponds, TCP1 and TCP2).

The management of ponds has at times in the past, been a challenge due to:

- Heavy rainfall events.
- Some misclassification of NAF (non-acid forming) and PAF rock.
- An increase in the overall footprint of the operation with the addition of facilities to service Favona and Trio.
- Consequential changes in catchment areas coupled with limitations in available area in which to construct or increase the capacity of ponds.

As a result, the management of ponds has been a specific focus in the past. Several actions were put into place to address the misclassification of PAF rock and the water quality of that runoff subsequently improved. OceanaGold also improved its limestone addition to the PAF rock, resulting in consistently good water quality in the collection ponds which allowed the Company to seek approval from WRC to direct discharge the collection pond water, subject to conditions. In summary, a considerable amount of work has been done to address the previous pond issues.

The following section of the Plan provides a detailed background section on the ponds, including a brief description of the context and of the issues associated with each type of pond and/or specific ponds. The section covers silt ponds, collection ponds and contingency ponds. The site originally operated with only silt ponds that discharged (and contingency ponds that did not) until runoff quality dictated a more rigorous runoff management regime, from which the collection pond concept was developed.

Collection ponds are required to have a minimum water storage capacity including pumping equivalent to the volume of runoff generated from within their catchment during a defined design storm. For collection ponds the discharge to the Ohinemuri river, the design storm event has a 10-year return period and a 72-hour duration. For collection ponds discharging to either the Mataura Stream or Ruahorehore Stream, design storm has a 10-year return period and 24-hour duration.

Silt ponds are typically designed to provide capacity for either the 2-year return period, 2-hour duration or 2-year return period 1-hour duration storm events.

The methods for determining rainfall event periods and for calculating pond volumes is set out in Appendix A.

3.6.1 Background

3.6.1.1 Silt Ponds

Overview

During initial site development and operation, site earthworks and mining involved the reworking and excavation of benign surface soils and/or oxidised rock respectively. The only contaminant in the surface runoff from the active areas of the site was sediment. A purpose-designed study prior to the start of project development in 1987 showed that a settling time of two hours was sufficient to drop most of the sediment from the flow to a level where the discharge could be considered “substantially free from suspended solids,” as required under the legislation of the time, and which legal precedent generally defined as no more than 100 mg/L of suspended solids. The settling characteristics of natural sediments occurring on-site and the design criterion of a two-hour retention time were confirmed during work undertaken around 1997 in preparation for the Martha Mine Extended Project consent applications.

Silt ponds were designed and built to provide the requisite two-hour retention under rainfall events with a return period of no more than 2 years. During rainfall events with return periods of greater than 2 years, the suspended solids concentration in the discharge could potentially be greater than 100 mg/L. Baseline studies indicated that the receiving waters of the Ohinemuri River could have an equivalent suspended solids concentration under rainfalls of this magnitude. Therefore, the suspended solids concentration in the discharges would not differ substantially from those in the river and the 100 mg/L limit did not apply under these large flows.

For water discharged from the silt ponds under rainfall events having a return period of no more than 2 years, condition 7 of consent 971311 requires a quality that has:

- pH 6.0 – 9.0; and
- A suspended solids concentration of no greater than 100 g/m^3.[1]

Within the period covered by this version of the Plan, the development of the new Willows Farm site will require additional sediment control systems. The details of these temporary silt ponds are provided by Southern Skies (Ref.6.7). Stormwater runoff that potentially contains non-acid forming (NAF) silt will be directed to the Willows silt pond once it is constructed and becomes operational.

Waste Rock Embankment

The three ponds serve the TSF2 waste rock storage areas, North Stockpile Silt Pond (NSPSP), West Silt Pond (WSP) and South 1 (S1). Technically, TSF1A has no silt ponds, however S3, S4 and S5 can operate as silt ponds and be directly discharged.

The construction of the stockpile associated with NSPSP is covered under discharge permit 971295 (which then refers to the silt ponds discharge consent 971311) from the Extended Project.

For WSP and S1, water quality is assessed by a continuous monitoring system (measuring pH and turbidity), automatically controlling a gravity decant system. The discharge pumps are manually turned on when it rains if water quality parameters permit. The continuous monitoring system shuts down the pumped discharge if it indicates a drop in water quality outside the set trigger values. The discharge can then be manually diverted to the WTP.

The quality of runoff reporting directly to S1 is typically within specification and the catchment reporting to this pond is now so small that it seldom overflows during rainfall events.

[1] Turbidity is used as a surrogate for total suspended solids concentration (TSS). The relationship between TSS and turbidity has been demonstrated to be 100 g/m^3 TSS ≈ 110 NTU.

The water quality in WSP is also typically within specification, although in the past its quality has at times been adversely affected when North Collection Pond (NCP) overflowed as it discharged into WSP via the perimeter drain. When the water quality deteriorates, the continuous monitoring automatically shuts off the discharge pump and gravity decant system. Discharge to the river from WSP ceases, and the water is diverted to the WTP.

In 2007, the pH of the runoff to NSPSP and Surplus Soil Stockpile Silt Pond (SSSPSP) regularly dipped below the allowable range of 6.0 to 9.0. It was discovered that a type of rock from the south stability cutback had been improperly classified as NAF, which led to it being dispersed through what was supposed to be NAF stockpiles, adversely affecting the runoff quality. While sufficient to affect runoff quality, the quantity of PAF material within the stockpile was relatively minor and OceanaGold received specialist advice at the time that the material was suitable for use as final capping layers following the addition of specified quantities limestone that render it NAF.

To address this issue, and until the PAF-contaminated material had been removed, runoff from the north and south stockpiles was diverted away from NSPSP and SSSPSP to NCP and S5 respectively. For NSPSP and SSSPSP, prior to discharge, a pH and TSS test is taken, and the discharge valve opened to allow gravity discharge if the parameters are within specification. The changes made have resulted in much improved water quality in those ponds.

Upon removal of the Surplus Soil Stockpile, the catchment of SSSPSP was rehabilitated to pasture in 2013. OceanaGold previously sought feedback from the councils and peer reviewers on this matter, and as a result, OceanaGold intended to decommission SSSPSP in 2015. Changing priorities have meant that the pond has not been decommissioned yet. It is possible that the pond may be utilised in the future.

Silt traps have been constructed to control silt that would otherwise flow into NSPSP. Monitoring of the pond water will continue to demonstrate compliance and assess the need for any further mitigation.

<u>Other Silt Ponds</u>

There were originally three conveyor silt ponds (CSP1, otherwise known as Barry Road Silt Pond), CSP2N (North) and CSP2S (South) otherwise known as the Union Hill Silt Ponds). CSP2N originally collected stormwater runoff from a drain on the northern side within the conveyor trench. The sump in the conveyor trench would block and for that reason, the flow was directed into CSP2S, with CSP2N capturing stormwater runoff from the surrounding area only, and CSP2S capturing runoff from the length of the conveyor. For this reason, CSP2S was undersized, and was enlarged in 2014 to increase its containment capacity in accordance with the conditions of consent.

CSP1 discharges to the Eastern Stream and is authorised under consent W1742 which was granted for the original Martha project in 1987. CSP2N and CSP2S discharge to an unnamed tributary of the Ohinemuri River under consent W1743 issued for the original Martha mine.

Conditions 5 and 6 of these consents require that discharge water quality is characterised by way of a monitoring programme. Should the monitoring results show that the discharge water would cause damage to receiving waters, it shall be diverted to a treatment plant. To date this has not been required, and runoff quality has been managed by spreading limestone periodically along the conveyor corridor. It is noted that while consents W1742 and W1743 expired on 24th July 2017, the consents continue to be exercised while a new application is being processed (S124(1) RMA 1991).

3.6.1.2 Collection Ponds

Overview

In late 1993, routine monitoring revealed low pH water with elevated metals concentrations in the silt ponds around the Waste Disposal Area of TSF2. Subsequent investigations revealed the cause to be partially oxidised waste rock that was being mined for the first time as the pit floor was excavated below the level of full oxidation.

An interim solution was implemented, comprising limestone addition to the waste rock and pumping the silt pond contents to the WTP for treatment prior to discharge. The liming of the waste rock placed in the embankment provided buffering that delayed the onset of acid generation until the material could be covered. The new reticulation system reduced the frequency and volumes of poor quality water discharging from the silt ponds. Hydrated lime addition to the ponds was also practiced for a period to improve pond water quality by increasing pH and precipitating soluble metals.

The permanent solution that followed, comprised a hopper feeding limestone onto the conveyor belt carrying waste rock to the Waste Disposal Area and larger ponds and pumps for the catchments containing exposed PAF rock that further reduced the frequency and volumes of discharge from these catchments. Silt ponds without exposed PAF in their catchments would continue to operate as they had during the previous decade. The system was formalised during the consenting process for the Extended Project and the lime hopper, three large collection ponds around TSF1A (S3, S4 and S5) and one large collection pond at the north end of TSF2 (NCP) were constructed as part of the Extended Project development works.

The philosophy for the collection pond design was to:

1. Retain the runoff from PAF waste rock on-site for treatment under any rainfall event with a return period of less than 10 years. The basis for this criterion was that the streams and rivers would be in flood during events with return periods of more than 10 years and would thus provide adequate dilution for the collection pond discharges to avoid impacts on aquatic biota.

2. Provide sufficient retention within the ponds to delay any overflow by a day or so based on the observation that the peak river flows generally occurred during the second or third day of a major rainfall event, thus increasing the chances that an overflow would coincide with the peak flood flows, maximising dilution and reducing the risk to aquatic biota.

    i) The resulting design criterion for the ponds at the existing waste storage facilities requires the collection ponds to have a live capacity (i.e. a combination of storage and pump capacity) sufficient to contain the volume of runoff generated within its catchment by a 72-hour, 10-year return period rainfall event.

    ii) For new collection ponds discharging to either the Mataura Stream or the Ruahorehore Stream, the designs provide for a live capacity (combined storage and pump capacity) sufficient to contain the volume of runoff generated within each pond's catchment by a 24-hour, 10-year return period rainfall event. The shorter duration design storm reflects the more rapid stream response to rainfall within these smaller catchments.

    iii) For the period covered by this version of the Plan, the Willows collection pond is overdesigned as during this initial period of operation the Willows Rock Stack will not be operational and the underground accesses to the Wharekirauponga underground, which will contribute dewatering volumes to the pond, will not be constructed.

3. Give the treatment of collection pond water priority at the WTP following significant rainfall events so as to empty the ponds as quickly as possible thereby maximising their available working storage capacity for the subsequent rainfall event(s).

4. To provide continuous monitoring of pH and turbidity to indicate whether or not the water was safe for direct discharge, based on an empirically derived relationship between the continuously monitored parameters and soluble metals concentrations that was developed from the decade of pond water monitoring data available at that time.

5. Where the monitoring indicated water of adequate quality, a pond would be allowed to overflow rather than be pumped to the WTP for treatment, i.e. would revert to being a silt pond.

The expectations for discharge from collection ponds if two large rainfall events occur within a short period of time was considered during the development of the collection pond operating philosophy in 1997, and the conclusions were:

1. The WTP and the collection pond reticulation have a finite capacity, which means that treatment of the total retained volume of runoff in the collection ponds will take time.

2. It is therefore likely that there will be times when a rainfall event occurs before the full working capacity of all of the ponds has been restored.

3. Under these circumstances, the ability for OceanaGold to prevent a pond discharge, even under rainfall events of less than the 10-year return period required by the consent, may be limited or non-existent.

4. However, two heavy rainfall events in quick succession would result in an extended period of high river levels, and the waste rock liming would result in a discharge quality that was better than the assumed worst-case, meaning that the risk to aquatic biota should not be significant (which would be confirmed by the water quality monitoring during discharge events required by the consents).

It is noted that since some of the collection pond direct discharges has been approved, there is a greater opportunity to maintain the ponds at lower levels between events, so that the storage capacity can be recovered in the event that the collection pond water does require treatment in subsequent rainfall events.

<u>Waste Rock Embankment</u>

The three collection ponds serving TSF1A are S3, S4 and S5. The fourth collection pond, North Collection Pond (NCP) receives runoff from the waste rock load-out area at the end of the conveyor and from nearby haul roads. Until approval was granted to direct discharge the collection ponds, the principle had been to treat all collection pond water as soon as practicable to recover the available live storage capacity prior to the next rainfall event. That is currently still the case for NCP.

With the grant of the Waihi North consents two new waste rock stacks (Willows and Northern) and a new TSF (TSF3) will be constructed, and each will require one of more new collection ponds. None of these new facilities will be operational during the term covered by this version of the Plan, which will need to be incrementally amended ahead of the operation of each of the new facilities.

<u>Favona Stockpile</u>

The Favona (or polishing pond) Stockpile Collection Pond (FSPCP) captures runoff from the stockpile located north of the Water Treatment Plant. In 2009, the footprint of the Favona Stockpile was increased by about 1 hectare to accommodate additional quantities of Martha ore mined during a four-month mill shutdown; the result of a fire in the mill motor control centre in May 2009. Included with this work was the construction of a second collection pond that, together with the original FSPCP, provides the design capacity for both the increased stockpile footprint as well as that of the haul road. Discharge permit 109744 authorises the placement of waste rock and ore into the stockpile and provides for the collection pond discharge.

The two ponds, known as FSPCP and FSPCP2 operate together, runoff from the stockpile first reporting to the original pond from which it is pumped either to the WTP or to TSF1A. When water levels approach full capacity of the original pond FSPCP during periods of heavy rainfall, water will overflow into the new pond FSPCP2. Following rainfall, water stored in the new pond will be pumped back into FSPCP and then to the WTP or to TSF1A.

Given the potential for poor water quality within this pond due to stockpile runoff, the treatment of this water is prioritised with the aim of preventing overflows into surface waters.

3.6.1.3 Contingency Ponds

Overview

The site was originally developed with three contingency ponds, one for mill runoff (Mill Contingency Pond, MCP) and the other two located on each side of the Ohinemuri River adjacent to the mill bridge to capture spills from the tailings, dam return or decant pipelines (Tailings Contingency Ponds, TCP1 and TCP2). A later opportunity was identified and an embankment was constructed across a gully down-catchment of the water treatment plant, to create a fourth contingency pond (Water Treatment Plant Contingency Pond, WTPCP).

The concept for these ponds was different from both silt and collection ponds, being more closely aligned to bunds around chemical or hydrocarbon tank facilities. Stormwater reporting to these ponds should typically be suitable for direct discharge except following a pipeline burst or chemical spill.

In the event of a spill, the contents would be contained within the ponds and would be disposed of appropriately, reducing the risk of an uncontrolled discharge to the receiving environment. However, the contingency ponds differ from the silt and collection ponds as they typically have no specific discharge permit. Contingency ponds are not designed to contain runoff indefinitely, the expectation being that should a spill report to these ponds, the contents would be pumped out and disposed of in an appropriate manner and not discharged to the receiving waters. The more recent WTPCP is the only contingency pond for which there is a specific discharge permit.

The basis for the original sizing of the MCP is not known, but may have been based on the volume of the largest tank plus some margin. The volume of the tailings contingency ponds was calculated on the maximum volume of tailings from a pipeline burst, the volume of the pipe from the low point at the Ohinemuri River to the high point of the pipe adjacent to TSF2.

The volume of the WTPCP was determined by the shape of the gully that became contained by the embankment constructed between the western abutment of the mill bridge and the polishing pond embankment. A discharge permit was later sought and granted for this pond. The discharge permit names the pond as the Water Treatment Plant Collection Pond, as opposed to the Water Treatment Plant Contingency Pond. The conditions cross reference to the Collection Ponds Discharge Consent 971312.

Mill Contingency Pond

The catchment for the MCP includes the mill, stores, Favona portal, ore stockpiles, ore treatment facilities and associated chemical storage. Each of these has potential for contaminating runoff that, in the case of some chemicals, cannot be readily assessed by simple water treatment tests, e.g. acidic waste rock runoff with high sulphate that is detectable using pH and conductivity.

The catchment to the MCP has increased over the years and in response, OceanaGold has made several upgrades to the MCP to increase its capacity to that of a collection pond in recognition of the nature of the materials and activities within its catchment.

In the past, mine water from underground was pumped to two settling ponds to reduce the sediment load before overflowing to the MCP, from where it was pumped to the WTP for treatment. This followed an assessment of the design of the MCP at the time that Favona was being consented which showed that its capacity could meet the collection pond design criteria with the increased flow, provided the installed pump capacity was increased. Therefore, a bigger pump was installed.

In 2015, a pipeline was constructed which takes water directly from the underground mine to the WTP. The mine dewatering water is currently directed to a manifold where water can be sent either direct to the WTP or to the Favona settling ponds.

The mine dewatering is now most often pumped direct to the WTP, and the ponds now mostly only contain stormwater from the site.

Under moderate rainfall conditions, water from the MCP is used for process water makeup or is directed to the WTP. Under heavy rainfall events, excess MCP water (including Favona settling pond water) if these ponds are overflowing, is pumped to the tailings sump and on to TSF1A for later treatment as decant.

Until now, the use of the tailings sump as part of the water management system has meant that at times Martha ore treatment rates have been reduced, or the mill shut down completely, in order to maximise the water-handling capacity of the tailings sump. Also, at times of heavy rainfall, dewatering of the underground mine has had to cease to restrict further inflows to MCP. The expectation is that this will be less of an issue now that mine dewatering water is able to be sent directly to the WTP.

Water Treatment Plant Contingency Pond

As occurs in the mill, all liquid chemical storage facilities within the WTP are bunded. However, if for some reason chemical (or fuel[2]) loss occurs outside the bunds in sufficient quantities to cause contamination of site runoff, the spill can be contained and would be collected in the WTPCP. Following a spill, pond contents would be disposed of in the most appropriate manner, e.g. recovered and returned to on-site storage, pumped to the tailings storage facility, or taken off-site for treatment/disposal at appropriately licensed facilities.

In addition, overflows from the conveyor transfer station silt ponds (TSSPs) report to the WTPCP, although the normal and preferred mode of operation for the TSSPs is to recirculate settled wash water back to the conveyor belt wash system. During recent years, this has been minimal with material no longer being conveyed from the open pit. The final contribution to the WTPCP comes from a cut-off drain constructed in the embankment forming the WTPCP, with seepage collected in the drain being pumped back to the pond.

The concept of the WTPCP originated after the initial site development but before the upgrades associated with the Extended Project occurred. The WTPCP was formalised as part of the Extended Project consenting process, and unlike the other contingency ponds has a discharge permit (971315) that requires the pond to meet the design and operational specifications of the collection ponds.

The pond is equipped with pumps and an automatic level control system to manage the pumps. A smaller pump delivers water to the process water make-up tank when levels within the ponds remain low. If the water level in the pond exceeds a set point, a larger pump that discharges to the brine pipeline and then to TSF1A automatically switches on. High level alarms are installed in the WTPCP.

Tailings Contingency Ponds

Several critical pipelines cross the Ohinemuri River on the northern side of the mill bridge, including the tailings, dam return, decant and RO brine pipelines. There are two tailings contingency ponds (TCP1 and TCP2) which are located on the western and eastern banks of the Ohinemuri River, respectively, that would capture pipeline contents resulting from ruptures or spillages.

TCP1 contains no monitoring or pumping equipment, and its catchment is a small area immediately adjacent to the WTPCP. The operation of this pond remains as originally designed in which it provides temporary containment of a spill to allow time for the spill to be cleaned up manually. The pond was not designed to contain surface

[2] All fuel tanks are bunded and have a concrete pad for vehicles to park on while refueling. Spills are collected to an oil-water separator which is serviced regularly.

runoff, or to overflow to the Ohinemuri River. Should TCP1 overflow, the contents would report to WTPCP, which has a significantly greater capacity, level alarms and a pumping system for recovery of the spilt materials.

The catchment for TCP2 includes the trench in which the pipelines to and from the tailings storage facilities are laid and in which the tailings booster pumps are sited. Gland sealing water from the booster pumps drains to TCP2 and can contain low concentrations of cyanide. TCP2 comprises two ponds in series, with level controls and alarms in the second pond. TCP2 operates in the same way as WTPCP, i.e. has a smaller pump that discharges to the process water make-up tank at low pond levels, a larger pump discharging to TSF1A via the brine line that automatically starts at higher pond water levels and a high-level alarm.

3.6.2 Favona Stockpile Collection Ponds

3.6.2.1 Description

A description of FSPCP and FSPCP2 is given above in Section 3.5.1.2.

Due to the reactive nature of the underground waste rock on the stockpile, the pond water has in the past contained significant concentrations of iron, however this is dependent on the underground geochemistry of the areas being mined. The stockpile has a forked Zone A Sub Soil (ZASS) underdrainage system (Figure 8). This drains to the ZASS manhole which is pumped to the WTP. The preferred management option for FSPCP water is to also pump it to the WTP, but a secondary option is to pump it to TSF1A via the RO Concentrate System if necessary.

3.6.2.2 Objectives

To prevent any uncontrolled discharge of potentially contaminated surface runoff from the Favona (or polishing pond) Stockpile, that could adversely affect the water quality of the Ohinemuri River and/or its biota.

3.6.2.3 Priorities

The water collected in the FSPCP has at times been the worst-quality runoff from the site, being high in iron and other trace elements, and with a low pH due to the reactive nature of the waste rock stored on the stockpile. The FSPCP water therefore warranted priority treatment along with the MCP and TCP2, due to the absence of discharge permits for those ponds. Although the water quality has improved, the priority of treatment at the WTP remains.

3.6.2.4 Management Focus

The management focus for FSPCP water needs to be on maintaining the maximum live capacity within the ponds to minimise the chance of overflow. This will involve ensuring that:

1. The pumps and control systems are well maintained and available for use whenever required in response to a rainfall event.
2. Pumps are turned on at the start of every rain event to maximise live storage capacity during each rainfall event.
3. Regular de-silting occurs to prevent build-up that reduces the total live storage capacity (combination of live volume and pump capacity) of the ponds (refer to Section 3.6.10 for further detail).
4. Limestone is used on the waste rock stockpile to manage runoff water quality.

3.6.2.5 Performance Criteria

FSPCP and FSPCP2 will be permanent features throughout the life of the adjacent stockpiles. All stormwater runoff from around the Favona stockpile area where PAF waste rock is exposed will be diverted to the FSPCP. (Refer to the Favona Mine consent 109744, condition 5(a)).

Figure 8. Mill and Favona drainage, ponds and groundwater bores.

The FSPCP ponds are designed to have a minimum water storage capacity equivalent to the volume of runoff generated from within its catchment during a 10-year return period, 72-hour duration, design storm. The methods for determining rainfall event return periods and for calculating pond volumes are set out in Appendix A. (Refer to the Favona Mine consent 109744, condition 7(b)).

For rainfall events with a return period of less than or equal to 10 years, all stormwater reporting to the ponds will be pumped to the WTP for treatment or pumped to the RO line for pumping to TSF1A. (refer to the Favona Mine consent 109744, condition 7(c), and to Appendix A, which provides the method for determining rainfall event return periods and whether an overflow event complies with the consent conditions),

De-silting of FSPCP and FSPCP2 is required to maintain the minimum live storage capacity of the pond (volume/pump capacity equivalent to the volume of runoff generated from within its catchment during a 10-year return period, 72-hour duration, design storm). For the purposes of complying with this criterion, silt quantities shall be maintained at less than 3,000 m^3 (≈25% of the original combined pond volume).

Apart from exceptional circumstances, maintenance and de-silting of these ponds will only occur during periods of projected fine weather. All silt removed will be disposed of in TSF1A.

No chemicals or additives will be used in the collection ponds or the discharge from those without the prior written approval of WRC.

3.6.2.1 Monitoring and Reporting

The monitoring and reporting requirements for FSPCP mirror those of the other collection ponds where discharges are authorised by the Collection Pond Discharges consent, i.e. NCP, S3, S4 and S5.

3.6.2.2 Contingency

The option exists to treat the water either through the WTP or to send it to TSF1A. Spreading of crushed limestone over the waste rock stockpile has been carried out periodically in the past to manage pond water quality prior to water treatment.

3.6.3 Mill Contingency Pond

3.6.3.1 Description

A general description of MCP is given above in Section 3.5.1.3.

There are no discharge permits associated with MCP. Progressive upgrades have been made to MCP so that it complies with the collection pond design and operational criteria, i.e. it has a minimum water storage capacity equivalent to the volume of run-off generated within the catchment during a 10-year return period, 72-hour duration, design storm, taking into account a combination of both storage volume and pumping rate. Additionally the pond is earthen clay lined to prevent and seepage to groundwater.

3.6.3.2 Objectives

To prevent discharges of potentially contaminated surface runoff from the mill, stockpiles, stores and Favona portal areas to the Ohinemuri River.

3.6.3.3 Priorities

The potential for chemical spills, including cyanide spills, within MCP catchment is the reason that MCP is given high priority in the water management system hierarchy. The potential for chemical contamination justifies a management approach that minimises the chance of an overflow to the Ohinemuri River. This includes giving MCP relatively high priority access to water treatment.

The MCP catchment includes existing contingency measures and safety systems that significantly reduce the chances of contaminated runoff reporting to the pond. These include:

1. Bunds around tanks that store or contain chemicals, and particularly around the cyanide handling facilities and reticulation, and the leach tanks that contain cyanide solution.

2. Warning systems that notify the occurrence of an incident that might potentially result in the uncontrolled discharge of chemicals, allowing remedial action to be taken to avoid contamination of runoff or to respond promptly to an incident that causes contamination.

3. The obvious nature of a failure of a major vessel, e.g. a leach tank that would allow remedial action to be taken to avoid contamination of runoff or to respond promptly to an incident that causes contamination.

4. The safety margin between the collection pond design criteria and the combined volume/pump capacity installed in the MCP is greater than that of the FSPCP and the NCP, making it less likely that the MCP will overflow during rainfall events.

In the unlikely event of a major spill or leak within the catchment of the MCP, these contingency measures would provide the opportunity to capture and clean up the spill before it can materially affect runoff quality. In the event that runoff to the pond becomes contaminated, the option exists to initiate truck-mounted pump-out of the pond contents and appropriate disposal.

3.6.3.4 Management Focus

The management focus for MCP water needs to be on maintaining the maximum live capacity and preventing a significant deterioration in water quality within the pond to minimise the chance and effect of an overflow. This will involve ensuring that:

1. The occurrence of spills and discharges within the MCP catchment that potentially affect the quality of water in the MCP are minimised through using good practice when handling chemicals and maintaining vigilant monitoring and observation practices to guard against activities that might result in spills and uncontrolled discharges.

2. Timely and appropriate clean-up responses occur in the event of a spill, including the shutdown of the MCP pumping system and truck mounted pump-out of pond contents if necessary.

3. The pumps and control systems are well maintained and available for use whenever required in response to a rainfall event.

4. Pumping to the process water tank or WTP starts as soon as possible after the start of every rain event to maximise live storage capacity during each rainfall event.

5. There is a timely change from pumping to the process water tank or WTP to pumping to the tailings sump to minimise the chance of pond overflow.

6. Regular de-silting occurs to prevent build-up that reduces the total live storage capacity (combination of live volume and pump capacity) of the pond (refer 3.6.10 for further detail).

3.6.3.5 Performance Criteria

De-silting of the MCP is required to maintain the minimum live storage capacity of the pond (volume/pump capacity equivalent to the volume of runoff generated from within its catchment during a 10-year return period, 72-hour duration, design storm). For the purposes of complying with this criterion, silt quantities shall be maintained at less than 1,000 m^3 (≈25% of the original pond volume).

Apart from exceptional circumstances, maintenance and de-silting of collection ponds will only occur during periods of projected fine weather. All silt removed will be disposed of in TSF1A.

3.6.3.6 Monitoring and Reporting

This is expected to be minimal given that the pond is to be managed in such a way that it will not discharge to the receiving waters. However, an overflow event would trigger in-river water quality monitoring and an investigation with results and findings reported to WRC as soon as possible.

3.6.3.7 Contingency

MCP itself is a contingency measure and OceanaGold has a system in place that ensures various actions are taken depending on the pond water level. This includes ceasing milling of the ore to ensure that MCP water can be directed to the TSF1A tailings pond via the tailings pipeline and ceasing dewatering of the underground mine when the water could enter MCP. The need to do either is expected to be less now that the mine dewatering is routinely being diverted to the WTP.

3.6.4 Collection Ponds

3.6.4.1 Description

A general description of the collection ponds is given above in Section 3.5.1.2. The individual existing and future collection ponds are:

- Willows collection pond (WCP) – receives runoff from the Willows Rock Stack and all water pumped from the Wharekirauponga access drives and underground mine.
- Northern collection pond (NCP) – receives runoff from the Northern stockpile adjacent to TSF2, which will be replaced by the;
- Northern Rock Stack collection pond (NRSCP) – will be constructed prior to the use of the Northern Rock Stack.
- S3, S4 and S5 – the collection ponds around the toe of the TSF1A embankment. S5 will cease to exist with over-built by TSF3.
- S6 and S7 – the collection ponds associated with TSF3.

3.6.4.2 Objectives

The objectives are to maintain the quality of collection pond water through appropriate limestone addition to the waste rock and achieve "silt pond" status so that the water can be directly discharged where appropriate.

3.6.4.3 Priorities

The main priority is to maintain water quality in the collection ponds to allow direct discharge of the water. Provided the current programme of NAF/PAF identification, limestone application to PAF material, PAF slurry testing and progressive rehabilitation is maintained, there should be no issue achieving acceptable water quality on a consistent basis.

3.6.4.4 Management Focus

As described above, the management focus is:

1. Ensuring that the water quality of the collection ponds is maintained through adequate limestone application of the waste rock and ongoing progressive restoration.

2. Discharging to receiving waters whenever possible to free up the WTP for treating other water sources.

3.6.4.5 Performance Criteria

The collection ponds are expected to be permanent features throughout the life of the mine. When these ponds are operating as collection ponds, the performance criteria outlined in s3.6.1.2 shall apply. When water quality allows collection ponds to operate as silt ponds, the performance criteria for silt ponds apply.

When operating as collection ponds, for rainfall events with a return period of less than or equal 10 years, all stormwater reporting to the ponds will be pumped to the WTP for treatment (refer WRC Resource Consent Section

9.0, Collection Ponds, condition 5, and to Appendix C, which provides the method for determining rainfall event return periods and whether an overflow event complies with the consent conditions).

De-silting of the collection ponds is required to maintain the minimum live storage capacity of the pond (volume/pump capacity equivalent to the volume of runoff generated from within its catchment during a 10-year return period, 72-hour or 24-hour duration, design storm). For the purposes of complying with this criterion, silt quantities within NCP will be maintained at less than 1,000 m^3 (≈10% of the original combined pond volume). Silt quantities within all other collection ponds shall be maintained at less than ≈20% of the original pond volume to ensure that pond water can be pumped down to just below the level of the (earth covered) HDPE liner that was installed in the bottom of the pond to provide for dead water storage. The maximum quantities are as stated in Table 5.

Table 5: Maximum Collection Pond Silt Quantities

Collection Pond	Maximum Silt Quantity (m^3)
WCP	3,600
NCP	4,000
S3	10,000 combined
S4	
S5	5,000
S6	4,000 combined
S7	

Apart from exceptional circumstances, maintenance and de-silting of collection ponds will only occur during periods of projected fine weather. All silt removed will be disposed of to the active TSF.

No chemicals or additives will be used in the collection ponds or the discharge from those without the prior written approval of WRC.

3.6.4.6 Monitoring and Reporting

When the ponds are operating as collection ponds, the water will be sampled and analysed for pH, EC, suspended solids, cyanide (WAD)[3], total ammonia, iron, manganese, copper, nickel, zinc, silver, antimony, arsenic, selenium, cadmium, chromium (VI), lead and mercury during every overflow event (refer Martha Mine Extended Project consent conditions Section 9.0 Collection Ponds condition 12). During every overflow event, a water sample from the each of the receiving waters (Mataura Stream, Ruahorehore Stream and Ohinemuri River as applicable) will be taken from sites both upstream and downstream of the pond discharge and analysed for the same parameters listed above.

Metals in the discharge will be 'acid-soluble' concentrations determined on unfiltered samples (refer consent conditions Section 9.0 Collection Ponds, condition 12.), while the 'soluble' fraction of the metals will be analysed in the receiving waters samples.

Unless otherwise agreed in writing by WRC, all water quality sampling and analysis will be undertaken using Standard Methods for the Examination of Water and Wastewater (19th Edition 1995, or updates), APHA, AWWA and WEF; analyses will be undertaken at an appropriately qualified laboratory (refer consent conditions Section 9.0 Collection Ponds 971312, condition 15). The Company uses RJ Hill Laboratories in Hamilton and SGS Laboratories in Waihi for environmental water analyses.

[3] Cyanide (WAD) analysis for the WCP is not required for the WCP as no cyanide will be present at Willows Farm.

Monitoring results will be forwarded to WRC quarterly (refer Martha Mine Extended Project consent conditions Section 9.0 971312 Collection Ponds, condition 14).

During commissioning of the collection pond direct discharge (with the ponds operating as silt ponds) an intensive monitoring and reporting programme was followed as described in the Water Management Plan, 2015. On 23 June 2016, WRC approved the Company's request to cease the direct discharge sampling (refer Appendix A). The SCADA telemetry data is now reported quarterly. Monthly monitoring of the Mataura Stream at MA11 and MA12, Ruahorehore Stream at RU1, RU1b and RU3 is undertaken, and the Ohinemuri River water quality is sampled on a weekly basis. In addition, the biological monitoring programme and river sediment monitoring provide an assessment of the effects of the collection pond direct discharge.

Pond discharges are tested for acid soluble metals and stream samples are tested for soluble metals, with the exception of mercury which is based on acid soluble concentrations from unfiltered samples.

3.6.4.7 Contingency

None required. The provision, and default operation (pumping to treatment) of the collection ponds is itself a contingency measure against poor quality runoff from the waste rock embankment.

3.6.5 West Silt Pond

3.6.5.1 Description

WSP is operated as a silt pond (refer Appendix C for approval letter for WSP and S1). However, if the pH reduces below 6 and/or the turbidity increases above 110 NTU, (due to overflows from the NCP or otherwise) the water must be sent to the WTP for treatment.

3.6.5.2 Objectives

The water management objectives for WSP are to:

- Maintain the pH of the pond above 6 and the turbidity below 110 NTU so that the pond water can be direct discharged.
- Treat water that has a pH <6 and NTU >110.
- Treat all water for rainfall events less than the 10-year return period storm, when operating as a collection pond in conjunction with NCP.
- Prevent significant adverse environmental effects to the receiving groundwater and surface water, to aquatic biota, or on other users of these resources. To this end, the silt pond discharges, either separately or in combination with all other site discharges, will not cause an exceedance of the receiving water standards as specified in the consents.

3.6.5.3 Priorities

When the pH is greater than 6 and the turbidity less than 110 NTU, there is no priority set for treating the water through the WTP because it will be directly discharged. If the pH of the water falls below 6 or the turbidity increases above 110 NTU, the water will require treatment. If several collection ponds require treatment, it is most likely that NCP and WSP would take precedence given that S3, S4 and S5 have greater capacities for storage. However, during prolonged and repeat rainfall events the priorities would be reassessed daily.

The direct discharge of the collection pond water provides significant relief to the WTP to the extent that there should be capacity to treat the remaining ponds if they require treatment.

3.6.5.4 Management Focus

The management focus for WSP needs to be on maintaining its direct catchment to avoid deterioration of runoff quality, which should include:

1. Limiting areas of disturbance that could result in increased sediment loads in the runoff.
2. Advancing and maintaining revegetation as part of the operation's routine progressive rehabilitation to minimise sediment loads in the runoff.
3. Avoiding activities that could result in the exposure of PAF within the catchment (excluding the activities in the NCP catchment).
4. Maintaining the pumps and control systems so that they operate reliably whenever required in response to a rainfall event, allowing discharge of the maximum water volumes when quality allows, and preventing the discharge of poor-quality water to the extent possible.

The latter is particularly important when NCP overflows, especially if the pH and turbidity of NCP do not meet the criteria for "silt ponds."

3.6.5.5 Performance Criteria

When WSP is operating as a silt pond, the performance criteria for silt ponds apply and when WSP operates as a collection pond, the performance criteria for NCP apply.

3.6.5.6 Monitoring and Reporting

When WSP is operating as a silt pond, the monitoring and reporting requirements for silt ponds apply (refer Section 3.6.8).

Condition 9 of the consent states that pH and suspended solids shall be monitored in silt pond discharges on a monthly basis for the purposes of defining the impacts on the receiving water. This condition is met when the continuous monitoring system, that incorporates a pH and turbidity probe and programming on SCADA, automatically shuts off the pumped discharge to the river. Overflow events are sampled as per the procedure for River Water Quality Sampling (WAI-200-PRO-017).

When WSP operates as a collection pond, the monitoring and reporting requirements for collection ponds apply (refer Section 3.6.4).

3.6.5.7 Contingency

The following contingencies exist for WSP when operating as a silt pond.

If the pond water does not meet the suspended solids compliance limit of 100 g/m^3, coagulants (e.g. alum or potable water grade polyelectrolytes) may be used to assist settling of sediment within the pond prior to discharge. If coagulants or chemicals are used, written approval is required from WRC prior to their use (refer WRC Resource Consent regarding Silt Ponds, 971311, condition 5).

If monitoring shows the pH of the water to be outside the 6.0 – 9.0 compliance range, the protocol set out below may be followed:

1. If the pond water pH is low, the contributing catchment (excluding the NCP catchment) will be inspected for PAF material or acidic chemicals.
2. If found, the PAF materials will be removed from the site, covered with a compacted layer of NAF material and/or limed, and in the interim, runoff will be collected and treated via the WTP.
3. Limestone chips may be added to the flow channels that report to the ponds to assist with the management of runoff pH.

Non-compliance with the specified oil and grease condition is considered unlikely, and the only feasible source is earthmoving machinery through either a hydraulic hose or fuel tank rupture, from fuel spills during refilling, or hydrocarbon contaminated soil disposal within the bulk fill zone of the TSF embankment. In the event that a rupture or spill occurs, or if oil and/or grease is noted in pond discharges, a check will be made of possible sources. Any spill will be contained and contaminated soils will be excavated and removed from the catchment. Contaminated soil is disposed of to the tailings storage facility after mixing with superphosphate to assist with the breakdown of hydrocarbons. To date, there have been no non-compliances of the oil and grease condition.

3.6.6 Water Treatment Plant Contingency Pond

3.6.6.1 Description

A general description of the WTPCP is given above in Section 3.5.1.3. Discharge permit 971315 for the WTPCP requires it to be designed, constructed and operated in accordance with the conditions specified in Waikato Regional Council consent 971312.

3.6.6.2 Objectives

To prevent uncontrolled discharges to the Ohinemuri River of potentially contaminated surface runoff from the WTP area and/or from leaks and spills from pipelines that cross the Ohinemuri River Bridge and that can contain cyanide (tailings, dam return, decant pipelines) or other chemical contaminants (RO brine line).

3.6.6.3 Priorities

The issues that relate to the WTPCP are similar to those for the MCP in that runoff normally reporting to the pond may contain some sediment, and significant contamination of the runoff can only result from an incident within the catchment. In that case, there are contingency measures and safety systems that minimise the chances of any major incident going undetected, including:

1. Bunds around tanks that store or contain chemicals.
2. TCP1, which would contain any initial flow from a pipeline burst (refer Section 3.6.7).
3. Flow meters on the pipelines that provide a warning system for bursts or significant leaks of pipelines.
4. The obvious nature of a failure of a major vessel, e.g. a chemical storage tank, that would allow remedial action to be taken to avoid contamination of runoff or to respond promptly to an incident that causes contamination.

In the unlikely event of a major spill or leak within the catchment of the WTPCP, these contingency measures would provide the opportunity to capture and clean up the spill before it can materially affect runoff quality. In the event that runoff to the pond becomes contaminated, the option exists to initiate truck-mounted pump-out of the pond contents and appropriate disposal.

The consent for the WTPCP requires treatment of all water from events less than or equal to the design storm, i.e. equivalent to the runoff generated from within the catchment during a 10-year return period design storm. For that reason, this pond has the same priority as other ponds on site operating under “collection pond” status.

3.6.6.4 Management Focus

The management focus for WTPCP water needs to be on maintaining the maximum live capacity within the pond to minimise the chance and effect of an overflow. This will involve ensuring that:

1. The occurrence of spills and discharges within the WTPCP catchment that potentially affect the quality of water in the WTPCP are minimised through using good practice when handling chemicals and maintaining vigilant monitoring and observation practices to guard against activities that might result in spills and uncontrolled discharges.
2. Timely and appropriate clean-up responses occur in the event of a spill, including the shutdown of the WTPCP pumping system and truck mounted pump-out of pond contents if necessary.

3. The belt wash ponds are regularly de-silted and the recycling pump(s) operate properly to avoid discharges that potentially consume WTPCP capacity.
4. The WTPCP pumps and control systems are well maintained and available for use whenever required in response to a rainfall event.
5. Pumping to the process water tank or brine line starts as soon as possible after the start of every rain event to maximise live storage capacity during each rainfall event.
6. There is a timely change from pumping to the process water tank or brine line to minimise the chance of pond overflow.
7. Regular de-silting occurs to prevent build-up that reduces the total live storage capacity (combination of live volume and pump capacity) of the pond. For the purposes of complying with this criterion, silt quantities shall be maintained at less than ≈25% of the original pond volume, or approximately 250 m^3 (refer Section 3.6.10 for further detail).

3.6.6.5 Performance Criteria

WTPCP has its own, specific discharge permit that requires the pond to be designed, constructed, managed, monitored and reported upon in accordance with the conditions specified in Waikato Regional Council consent 971312. As a contingency against spills, there is no current intention to reclassify this pond.

3.6.6.6 Monitoring and Reporting

Once during each shift, a visual inspection is made of the WTP area, particularly the chemical load-out bunded containment areas, and all above-ground pipelines within the WTP collection pond catchment, to identify possible sources of runoff contamination and where observed, to initiate appropriate additional monitoring and clean-up procedures.

Under the current regime with WTPCP operating as a collection pond all water reports to the WTP. WTPCP quantities are captured in the water balance and reported in the annual Sustainability data.

3.6.6.7 Contingency

None required. The WTPCP is itself a contingency measure, guarding against minor levels of contamination in runoff from the WTP by pumping the runoff to either the process water tank when WTPCP water levels are low or to TSF1A via the brine line when levels increase.

3.6.7 Tailings Contingency Ponds

3.6.7.1 Description

A general description of the two tailings contingency ponds is given above in Section 3.5.1.3.

3.6.7.2 Objectives

To prevent uncontrolled discharges to the Ohinemuri River of leaks and spills from pipelines that run between the mill and the waste disposal area that can contain cyanide and may contain tailings (tailings, dam return, decant pipelines) or other chemical contaminants (RO brine line).

3.6.7.3 Priority

There are no discharge permits for the tailings contingency ponds. TCP1 does not have a pump and the water would flow from TCP1 into WTPCP. In contrast, TCP2 would overflow into the Ohinemuri River, so treatment of the TCP2 water has the same priority as the MCP.

The continuous monitoring system provides immediate warning of a flow differential at three locations along the pipelines that would indicate a burst, allowing for prompt remedial action to be taken. The ponds have been sized to adequately contain a pipeline volume in the unlikely event of a burst. In the unlikely event of a failure, the response to discontinue pipe flows and to initiate clean-up needs to be immediate due to the potential harm likely to occur if the pipeline contents discharge to the environment. This is especially the case with TCP2.

3.6.7.4 Management Focus

The management focus for the two TCPs shall be on:

1. Maintaining the continuous monitoring system on the tailings, decant, dam return and brine pipelines in good working order and responding immediately to any alarms raised by this system.
2. Maintaining vigilant monitoring and observation practices to guard against activities or incidents that might result in spills and uncontrolled discharges that report to the TCPs.
3. Maintaining the TCP2 pumps and control systems to ensure that they are available for use whenever required in response to a rainfall event.
4. Pumping from TCP2 to the process water tank as early as possible after the start of every rain event and a timely change to pumping to TSF1A via the brine line if water levels rise, to maximise live storage capacity during each rainfall event and minimise the chance of pond overflow.
5. Timely and appropriate clean-up responses occur in the event of a spill, including the shutdown of the TCP2 pumping system and truck mounted pump-out of pond contents if necessary.
6. De-silting to prevent build-up that reduces the total live storage capacity of the pond (refer Section 0 for further detail).

3.6.7.5 Performance Criteria

The tailings contingency ponds have no resource consents under which they can discharge to the Ohinemuri River. The items listed under management focus therefore provide the performance criteria.

3.6.7.6 Monitoring and Reporting

There are no specific monitoring or reporting requirements for the TCPs. However, in the unlikely event of an overflow, the water would be sampled as if it was a collection pond discharge. A water sample from the Ohinemuri River would also be taken from sites both upstream and downstream of the pond discharge and analysed for the same parameters as the TCP2 discharge.

Metals in the discharge will be ‘acid-soluble’ concentrations determined on unfiltered samples, while the ‘soluble’ fraction of the metals will be analysed in the receiving waters samples.

Unless otherwise agreed in writing by WRC, all water quality sampling and analysis will be undertaken using Standard Methods for the Examination of Water and Wastewater (19th Edition 1995, or updates), APHA, AWWA and WEF; analyses will be undertaken at an appropriately qualified laboratory. The Company uses RJ Hill Laboratories in Hamilton and SGS Laboratories in Waihi for environmental water analyses.

WRC will be advised of an overflow within 24 hours of its occurrence and the above monitoring results will be forwarded to WRC as soon as possible thereafter.

3.6.7.7 Contingency

None required. The TCPs are contingency measures against uncontrolled discharges from site.

3.6.8 Silt Ponds

3.6.8.1 Description

A description of the silt ponds is given above in Section 3.6.1.1.

3.6.8.2 Objectives

Reduce sediment concentrations in the site runoff to a level that enables the runoff to be discharged without having a significant adverse effect on the receiving waters of the Ohinemuri River and Ruahorehore Stream.

To prevent significant adverse environmental effects as a result of site discharges to the receiving groundwater and surface water, to aquatic biota, or on other users of these resources. To this end, the silt pond discharges, either separately or in combination with all other site discharges, will not cause exceedance of the receiving water standards as specified in the consents.

3.6.8.3 Priority

Provided the catchments that contribute runoff to the silt ponds do not contain exposed PAF material, the mine activities remain construction or rehabilitation related, and the sediment levels within the pond remain low, the silt ponds can be expected to operate satisfactorily with relatively little management effort.

3.6.8.4 Management Focus

The management focus for silt ponds needs to be on maintaining the contributing catchments to avoid deterioration of runoff quality, which should include:

1. Limiting areas of disturbance that could result in increased sediment loads in the runoff.
2. Advancing and maintaining revegetation as part of the operation's routine progressive rehabilitation to minimise sediment loads in the runoff.
3. Avoiding activities that could result in the exposure of PAF within the catchment, including the regular clean-up of conveyor belt spillage that can report to the conveyor silt ponds.
4. For the waste embankment silt ponds, maintaining the discharge components, whether these be gravity, pump, manual or automated control systems, so that they operate reliably whenever required in response to a rainfall event. Automatic systems should allow for the discharge of the maximum volumes of water when quality allows while preventing the discharge of poor quality water to the extent possible. Manual discharges should be initiated after water quality monitoring indicates that a discharge can occur safely without risk to the receiving waters.
5. De-silting to prevent build-up that reduces the total live storage capacity (combination of live volume and pump capacity) of the pond (refer 3.6.10 for further detail).
6. Spreading crushed limestone to manage runoff water quality where necessary.

3.6.8.5 Performance Criteria

<u>Silt Ponds - General</u>

For any construction or activities in catchments without existing silt ponds, sediment control is required in accordance with the following WRC document:

> Erosion and Sediment Control Guidelines for Soils Disturbing Activities, Environment Waikato Technical Report No. 2009/02, January 2009. (https://waikatoregion.govt.nz/assets/WRC/WRC-2019/TR0902.pdf)

Unless otherwise agreed with WRC, the contributing catchments to silt ponds will contain no contaminated or potentially acid-forming (PAF) soil or rock. In this regard, "non-acid-forming" is defined as:

1. Having a Net Acid Generation (NAG) pH of no less than 4 and,
2. Having a Net Acid Producing Potential (NAPP) equal to or less than 0 (refer Martha Mine Extended Project Consents, Silt Ponds, Resource Consent 971311, condition 6).

Throughout their operational life, silt ponds will be regularly cleaned of silt and maintained to retain the design capacity (refer consent conditions Silt Ponds, 971311 and Favona consent 109743, condition 4).

Condition 3 of Favona resource consents 109743 (relating to the diversion and discharge of ground and surface water around the project area) and 109744 (relating to the discharge of waste rock and ore and discharge of seepage from temporary stockpiles into the ground) requires sediment minimisation plans, including measurable criteria to be included within the Plan. Sediment minimisation plans in the past included a temporary silt pond and collection pond.

Condition 2 of resource consents 109743 (relating to the diversion and discharge of ground and surface water around the project area) and 109744 (relating to the discharge of waste rock and ore and discharge of seepage from temporary stockpiles into the ground) requires that OceanaGold be responsible for the structural integrity and maintenance of the works associated with these consents and for any erosion control and energy dissipation works that may become necessary as a consequence of the exercise of these consents.

Conveyor Silt Ponds – CSP1 and CSP2

The minimum live storage capacity must be equivalent to the volume of runoff generated during a 2-year return period, 1-hour duration, design storm (refer Appendix A for the method for calculating pond volumes).

The maximum suspended sediment concentration in the stormwater discharge is 100 g/m^3 for the peak discharge during an event with a return period up to and including two years (refer Appendix A for the method of determining rainfall event return periods).

For storms with a return period more than two years, the suspended sediment concentration in the discharge shall be no greater than that of the receiving waters (refer W1742 condition 5 and W1743 condition 4).

With the cessation of the running of conveyor belt, monitoring of the ponds and overflow is in abeyance.

Waste Embankment Silt Ponds – NSPSP, WSP, S1

The minimum live storage capacity must be equivalent to the volume of runoff generated during a 2-year return period, 2-hour duration, design storm (refer Appendix A for the method for calculating pond volumes).

For rain events having a return period of no more than 2 years, pond discharges are subject to compliance with the conditions of consent 971311, which, under condition 7, requires the discharges to:

- Contain no oil or grease.
- Have a suspended solids concentration of no greater than 100 g/m^3.
- Have a pH within the range of 6.0 – 9.0 units.

Under condition 8, pond overflows during rain events with a return period of more than 2 years, either separately or in combination with other site discharges, shall not cause any in-river exceedance of the receiving water quality standards stipulated in Table 1 of consent 971311 (refer Appendix A for the method of determining rainfall event return periods).

3.6.8.6 Monitoring and Reporting

A site inspection will be conducted annually, and following major rain storms, to check the structural integrity of the works.

Where the inspection indicates remedial or maintenance work is required, this will be undertaken as soon as practicable, and inspected upon completion to ensure that the work has been undertaken satisfactorily.

In terms of discharges, water quality monitoring for all silt ponds will be undertaken in accordance with consent 971311. In this regard, condition 9 requires monthly monitoring of pH and suspended solids in silt pond discharges for the purpose of defining the impacts of the silt pond discharges on the receiving water. As far as practicable, monitoring is undertaken when the silt ponds are discharging. The results of the monitoring programme will be forwarded on a quarterly basis to WRC.

Notwithstanding the requirements of condition 9, as the primary objective of the water management regime must be to prevent adverse effects on the receiving waters of the Ohinemuri River and Ruahorehore Stream, it is more important to monitor pond and river quality when the ponds are discharging than to sample monthly at times when the ponds are not overflowing. Accordingly, this Plan requires that sampling of the silt ponds coincide with pond discharges, and that sampling be conducted at least once per month during overflow events.

3.6.8.7 Contingency

If silt pond discharges do not meet the suspended solids compliance limit of 100 g/m^3, coagulants (e.g. alum or potable water grade polyelectrolytes) may be used to assist settling of sediment from the runoff. If coagulants or chemicals are used, written approval is required from WRC prior to their use (refer WRC Resource Consent Silt Ponds, 971311, condition 5).

If pond monitoring shows the pH of the discharge to be outside the 6.0 – 9.0 compliance range, the protocol set out below may be followed:

1. If the discharge pH is low, the contributing catchment will be inspected for PAF material or acidic chemicals.

2. If found, the PAF materials will be removed from the site, covered with a compacted layer of NAF material and/or limed to achieve a runoff pH within the accepted range.

3. Limestone chips may be added to the flow channels and source areas that report to the silt ponds to assist with the management of runoff pH.

4. As a short term emergency action, hydrated lime may be added to the pond. The most effective method of lime addition will need to be determined at the time, but in the past has involved a hopper, into which bags of hydrated lime can be tipped, mounted on a venturi through which pond water is pumped and returned to the pond.

5. If required in the interim due to the risk of a discharge adversely affecting receiving water/biota, runoff will be collected and treated via the WTP.

6. If the preceding measures do not provide a robust means of improving the discharge quality, pumps should be installed to return silt pond water to the WTP for treatment prior to discharge.

Based on around 30 years of operational performance, non-compliance with the specified oil and grease condition is considered unlikely.

In the event that oil and/or grease is noted in pond discharges, a check will be made of possible areas of spillage. Any spill will be contained and contaminated soils will be excavated and removed from the catchment.

Contaminated soil will be disposed of to the tailings storage facility after mixing with superphosphate to assist with the breakdown of hydrocarbons.

3.6.9 Pond Catchments

For all ponds except S1, an assessment of the contributing catchment and live capacity was carried out at different times during 2014 with the purpose of checking that the design criteria required by the consent conditions was being met. The locations of each pond are shown in Figure 2, and an assessment of the pond capacity against design criteria is tabulated in Table 6. This will be updated as new facilities are constructed and commissioned.

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Table 6. Pond Capacity and Compliance Check.

	Pond ID	Catchment Area (see dates below)	Design Rainfall Event								Compliant?		Consent	Comments
			Return Period (yrs)	Duration (hours)	Depth (mm)	Runoff Factor	Required Live Storage Capacity (m^3)	Surveyed Live Storage Volume (m^3)	Pump (m^3/h)	Total (m^3)	Storage Only	Including Pumping		
Silt Ponds														
Conveyor CSP1	CSP1	1.9416	2	1	30.0	0.6	349	1029	0	1029	Yes	N/A	W1742	
Conveyor CSPS2	CSP2S	1.0383	2	1	30.0	0.7	218	253	0	253	Yes	N/A	W1743	
West WSP	WSP	28.72	2	2	42.0	0.7	8444	11577	150	11,877	Yes	Yes	971311/971312	
South S1	S1	7.77	2	2	42.0	0.7	2284	9625	280	10,185	Yes	Yes	971311/971312	Automatic gravity discharge when water quality in spec
North Stockpile NSPSP	NSPSP	13.24	2	2	42.0	0.5	2780	5526	0	5,526	Yes	N/A	971311	Quality check prior to manual discharge
Collection Ponds														
Favona Stockpile FSPCP & FSCP2	FSPCP	10.93	10	72	285.0	0.25, 0.3, 0.6,,1.0	16112	10572	130	19932	No	Yes	109744	Silt to be less than 3000 m^3
North NCP	NCP	9.58	10	72	285.0	0.7	19112	10265	280	30425	No	Yes	971312	
South 3 S3	S3	27.46	10	72	285.0	0.7	54783	43310	300	64910	Yes	Yes	971311/971312	
South 4 S4	S4	17.61	10	72	285.0	0.7	35132	44406	300	66006	Yes	Yes	971311/971312	
South 5 S5	S5	20.5	10	72	285.0	0.7	40898	34479	280	54639	No	Yes	971311/971312	
Contingency Ponds														
Mill MCP (incl. Favona Settling	MCP	8.6	10	72	285.0	0.7,1.0	18896	4015	800	61615	No	Yes		Various pumps initiated as water level
Water Treatment Plant WTPCP	WTPCP	1.79	10	72	285.0	0.8	4081	1019	48	4475	No	Yes	971315	
Tailings 1 TCP1	TCP1	0.46	2	2	42.0	0.7	135	268	0	268	Yes	N/A		
Tailings 2 TCP2	TCP2	1.03	2	2	42.0	0.7	303	1241	50	1341	Yes	Yes		
Pond Combinations														
NCP+WSP		38.3	10	72	285.0	0.7	27556	22860	430	53820	No	Yes		
S4+S5		38.11	10	72	285.0	0.7	76029	78,885	200	93,285	Yes	Yes		

Notes:

- TCP ponds are designed to collect spills and have no criteria. Catchment area of TCP2, TCP2A and TCP3 combined is 1.03 ha, and pond capacity of TCP2, TCP2A and TCP3 combined is 1,241 m^3.
- MCP design capacity assumes 100 m^3/hr overflow from Favona sediment settling ponds, which is conservative.

Date of Survey of Catchment Area/Pond Volumes.

	Date of Survey	Comment
CSP1	12 February 2014	
CSP2S	21 July 2014	R Dix survey following enlargement of the pond in 2014
WSP	22 March 2022	N Neame
S1	April 2012	
NSPSP	22 March 2022	N Neame
FSPCP	12 February 2014	
NCP	22 March 2022	N Neame
S3	22 March 2022	N Neame
S4	22 March 2022	N Neame
S5	22 March 2022	N Neame
MCP	11 March 2014	
WTPCP	12 February 2014	
TCP1	12 February 2014	
TCP2	12 February 2014	

Table 6 shows that all silt and collection ponds were compliant with the design criteria specified in the consents when both storage volume and pumping rates are considered. It also shows that the WTPCP and the MCP comply with the collection pond design specifications. S1 was not measured in 2014, however, the pond catchment is rehabilitated, receives very little silt, and consistently meets the consent conditions in terms of suspended solids.

Assessing compliance for the ponds in isolation does not provide the complete story. There are restrictions in the reticulation, and with the WTP capacity, that means that the combination of ponds also needs to be considered, Table 6 therefore includes an assessment of the normal pond combinations.

The reticulation from S3, S4 and S5 is a bottleneck, preventing delivery of water to the WTP at a rate equal to the sum of the individual rated pump capacities. However, provided the water quality within these ponds remains acceptable, the ability to directly discharge the collection pond water provides significant relief compared to the bottleneck that existed in previous years.

The forebays and silt traps of four ponds were cleaned in 2025. The ponds were surveyed in March 2022 and were well within compliance.

3.6.10 Silt Removal

3.6.10.1 Collection Ponds

The collection ponds need to be regularly inspected for silt build-up as these serve areas of active earthworks. Excessive sediment build-up in the ponds decreases storage capacity and the effectiveness of the ponds. There have in the past been practical difficulties with de-silting these ponds, the principal difficulty being identifying a method that would not damage the ponds' HDPE liners (a requirement of the conditions of the Extended Project).

In recent years, greater emphasis has been placed on cleaning the ponds and surveying them after cleaning to ensure that they meet the conditions of consent.

In addition, OceanaGold constructed silt retention ponds within S3, S4 and S5, and above S3 to help to remove silt from the inflow prior to it entering the collection pond proper.

In addition to the silt volume limits given above in Table 5, OceanaGold has recommended that de-silting must occur in the other ponds before silt build-up reaches 25% of pond volume, which equates to the following volumes:

- FSPCP – 3,000 m^3
- MCP – 1,000 m^3
- WTPCP – 250 m^3
- TCP – 460 m^3

Based on the pond/pump capacities shown in Table 6, compliance with the design storm capacity would still be achievable with these silt volumes. Several of the ponds could contain significantly larger quantities of silt and still comply.

All silt and collection pond sediment must be disposed of in the active TSF, e.g. as per Condition 10 of Discharge Permit 971312. This includes the ponds in the Mill area. Due to the sometimes-sloppy consistency of excavated sediment, material may be stored temporarily at the base of the Favona stockpile to allow drying out. The sediment can then be transported to the TSF for disposal, lowering the risk of spillages.

3.6.10.2 Silt Ponds

The silt ponds are regularly inspected for silt build-up and de-silted as required to maintain the design storage capacity and effectiveness.

3.7 Mine Dewatering/Rewatering

Dewatering of the new mines consented as part of the Waihi North project is not scheduled to start within the term covered by this Plan.

3.7.1 Description

Mine water is the term used to describe the combined groundwater and surface water that reports to the Martha Pit and the underground mines. It includes the groundwater from workings, pit wall runoff, the surface water directed into the pit from the surface facilities area and service water used within the mines.

In the past, water was pumped directly from the Martha Mine and under normal operating conditions, the water level in the workings was maintained at least 10 m or more below the pit floor. The volume of workings between the water level and the pit floor provided buffer storage for storm-generated surface water, allowing work to continue at the base of the pit even following extended or intense rainfall.

The slip on the North Wall in April 2015 resulted in a loss of access to the pit dewatering pumps. All mine dewatering is now dewatered via pumps located in the underground mines. The dewatering level is now determined by the requirements to carry out underground mining. Underground mining requires the ground to be dewatered ahead of the working areas of the mine. The water is collected in sumps close to the working faces and pumped to surface via the portal.

During 2020, four underground dewatering pumps were installed in two bores (800 PC1 and 800 PC2) from the 800 mRL level to lower groundwater levels for the Project Martha development. Dewatering to 500 mRL is permitted under the Project Martha consent. Water levels began to be drawn down using these pumps during

2021. Flow meters are installed on these and water quality samples are taken from them on a quarterly basis. As of August 2024, groundwater levels have been drawn to 647 mRL.

Currently treated water is used as service water underground, e.g. for drilling, because the water pumped from the mine has a relatively high sediment load.

3.7.2 Objectives

To ensure that mine dewatering does not have any adverse effects on receiving waters, and to collect water quality data that enables refinement of the pit lake water quality modelling prior to the completion of mining.

The conditions of consent require the application of limestone to Trio and Correnso waste rock used as backfill underground on an “as required” basis. Sampling of discharges from temporary waste rock stockpiles and monitoring wells is carried out to geochemically model the water quality post closure, once the mines have been flooded.

3.7.3 Priorities

There is no means by which mine water can be discharged from the site other than through the WTP. In addition, there is essentially no ability to store water underground. For this reason, the treatment priority for mine water has increased compared to past years when some buffer storage was available in the open pit.

3.7.4 Management Focus

The current pumping rates vary between 35 – 130 L/s, depending on rainfall and operational requirements. Dewatering is primarily from the drive and stope face as mining continues below the dewatering bore levels.

Sampling of backfill continues, showing the waste rock is non-acid forming. Sampling of the monitoring wells is also carried out routinely.

The management focus is:

1. Mine dewatering at a rate sufficient to maintain production and ensure safety.
2. Applying limestone to backfill where necessary.

Mine dewatering water acts as a diluent to treated decant water. Its treatment priority needs to be balanced against those of water from more contaminated sources that could discharge to the receiving waters.

3.7.5 Performance Criteria

The previous average and maximum permitted daily water take specified in the consents no longer apply. The focus now is to dewater at a rate necessary for production and safety.

3.7.6 Monitoring and Reporting

Consent 109742 condition 3 requires the volume of water abstracted from the mine to be monitored on a weekly basis and reported to the Council on a quarterly basis. Dewatering volumes are monitored and recorded in the SCADA system managed by the Mill/WTP.

Additionally, the new dewatering consent requires automated daily data to be sent to WRC. The data is totalised in 15-minute values as per Condition 6 of Water Permit AUTH139551.01.01. A daily e-mail containing the appropriately formatted file is sent to WRC from the Pi system.

A Settlement, De-watering and Water Quality Monitoring Plan is prepared and provided to WRC for its written approval (refer schedule 2 to consents 109742 to 109746 inclusive, condition 2). Requirements of the Settlement, De-watering and Water Quality Monitoring Plan include monitoring of the dewatering line and service water line(s) to determine the net amount of water extracted from the mine. Under more recent consents the plan is currently titled the Dewatering and Settlement Monitoring Plan. Reporting of dewatering volumes is undertaken annually and the results presented in the Dewatering and Settlement Monitoring Report. Note that a similar condition is included in consent 124860 for Correnso.

The annual Favona Water Quality Monitoring Report includes all the data necessary to meet condition 4 of Schedule Two – General conditions of Favona Consents 109742 to 109746 inclusive. The report includes a section entitled “Characterisation of Underground Mining Material” with results from the waste rock monitoring.

3.7.7 Contingency

The geochemical and hydrogeological predictions will be repeated as the number of sample records increases. The purpose of the modelling is to identify any potential problems with respect to groundwater quality before they develop. If results from the revised model indicate a likely deterioration in groundwater at or following closure that will have more than minor adverse effects on other users of the groundwater or the pit lake, OceanaGold will have to identify mitigation measures.

3.8 Clean Water Diversion Channels

3.8.1 Scope

The following diversion channels to maintain clean surface runoff quality apply to the project:

- Diversion of natural water around an oxidised stockpile N2 at northern end of TSF2; and discharge to an unnamed tributary (water permit 971296/971297).
- Diversion of an unnamed tributary (unnamed Stream 2) of Ohinemuri River at Northern end of TSF2 (water permit 971298).
- Diversion of an unnamed tributary (Stream 1) of Ohinemuri River by way of culverting at the northern end of TSF2 (water permit 971299).
- Diversion of natural water around surplus soil stockpiles at the southern diversion drain (Area D) (and discharge into unnamed tributary 3) (water permit No. 971300 and 971301).
- Diversion of unnamed tributary of Ruahorehore Stream at eastern end of the eastern stockpile (eastern diversion drain) (water permit 971302).
- Diversion of natural water around eastern side of TSF1A via the southern diversion drain and discharge to unnamed tributary (water permit 971307 and 971308).
- Diversion of natural water around TSF2 (and part of TSF1A) via the northern diversion drain (water permit 971309) and discharge into unnamed Stream 2 via northern diversion drain (discharge permit 971310).
- Diversion of natural water to the south on the western side of the process plant site area, within area D (water permit 971310) and discharge into the Ohinemuri River (discharge permit 971317).
- Diversion and discharge of ground and surface water (farm runoff and intercepted groundwater) from around the project area (water permit 109743 for the Favona Underground Mine).
- To dam and divert clean surface water at the Willows Farm site (conditions SC2.B, SC2.D and SC2.E) including the use of culverts (conditions SC2.H)

3.8.2 Objectives

To divert natural water away from areas of mining activity wherever practicable in order to minimise the volumes of water affected by the activities and to reduce the volumes of water generated on-site that require treatment.

3.8.3 Performance Criteria

- For the Martha Mine Extended Project, diversion channels and associated works were designed to convey the peak runoff generated by a 10-year return period storm (refer to Martha Mine Extended Project consents Section 3.0, Consents 971296-971302, 971308 to 971310, 971316 and 971317 Clean Water Diversions, condition 4).

- For the Favona Mine consent 109743, condition 4 requires that any earthworks or structures installed for the diversion and discharge of stormwater shall be designed to manage a 10% AEP (Annual Exceedance Probability) flood event and pass a 1% AEP flood event. Secondary flow paths shall be away from the stockpiles.

- For the Favona Mine consent 109743, condition 3 requires that sediment control practices shall be undertaken which are in general accordance with the principles outlined in the document prepared by the Waikato Regional Council entitled “Erosion and Sediment Control – Guidelines for Soil Disturbing Activities” dated 2003, or updates.

- For the Willows Farm, clean water diversion channels must be in accordance with Waikato stormwater management guideline TR2020/07, dated May 2020, and must be designed and maintained to manage a 10% AEP flood event.

- All construction works have been and will be implemented under the supervision of persons with appropriate experience in the supervision of civil engineering construction works (refer to WRC Resource Consent Section 3.0, Clean Water Diversions, Consents 971296-971302, 971308 to 971310, 971316 and consent 971317, condition 5, and 109743, condition 5).

- The area of disturbance during construction of the diversion works has been and will be kept to a minimum to reduce the volumes of sediment-laden runoff (refer to WRC Resource Consent Section 3.0, Clean Water Diversion, Consents 971296-971302, 971308 to 971310, 971316 and 971317, condition 6 and consent 109743, condition 6).

- All works associated with the diversions and associated works, including erosion control and energy dissipation works, will be and have been designed, built and maintained to ensure their structural integrity throughout their operational life (refer to WRC Resource Consent Section 3.0, Clean Water Diversions, Consents 971296-971302, 971308 to 971310, 971316 and 971317, condition 2).

- The Company shall advise the Council in writing in advance of the proposed construction of each of the diversion channels, and shall provide plans of the proposed works, and advise as to proposed start times for construction (refer to 109743 condition 7).

3.8.4 Monitoring and Reporting

A site inspection will be conducted six-monthly and following major rainstorms to check the structural integrity of the diversions and associated works.

Where the inspection indicates remedial or maintenance work is required, these will be undertaken as soon as practicable, and inspected upon completion to ensure that the work has been undertaken satisfactorily.

3.8.5 Contingency

None required.

3.9 Elution Water Take

3.9.1 Scope

OceanaGold holds consent 114554 which authorises the Company to take up to 430 m^3/day at a rate not exceeding 5 L/s from the Ohinemuri River for elution water purposes. It is noted that while the consent expired on 15th July 2017, the consent continues to be exercised while a new application is being processed (S124(1) RMA 1991). The water is taken from a location close to the Mill Bridge, adjacent to the Processing Plant.

3.9.2 Objectives

Take water for elution purposes while ensuring that there are no adverse effects on the river.

3.9.3 Performance Criteria

The objective is achieved by meeting the conditions of consent relating to flow volume and rate, intake velocity and mesh screen size and ceasing the take when issued with a water shortage direction from WRC.

3.9.4 Monitoring and Reporting

The conditions of consent specify limits for the flow volume and rate. The consent flow volume is achieved by using a pump that cannot exceed 5 L/s. The water is metered, and records of flow volume are forwarded to WRC in the quarterly water reports.

3.9.5 Contingency

In the event of a dry summer that results in a direction from WRC to cease the take, the Company would need to look into alternative methods. One possibility is installing a small RO unit or refurbishing the existing RO plant.

3.10 Service Water

3.10.1 Scope

Potable water drawn from the town supply is used for the following purposes:

- Drinking water the office blocks and amenities buildings.
- Safety showers around the site.
- A standby for pump gland water.
- Reagent mixing at the WTP.
- Stock drinking water.
- Residential use on farms surrounding the embankments.

Treated water is used for the following purposes:

- In the fire main system which travels along the conveyor.
- Tailings pumps and tailings boost pumps gland sealing.
- Surface and underground drilling.
- Dust control and irrigation.
- Crushing and conveying including conveyor belt wash.
- Vehicle washing.
- Hand washing in the underground crib room (following UV treatment).

For TSF2, the South Gully Spring is used as stock drinking water on the embankment. For TSF1A, a combination of S5 subsoil drain and WG1 is used as stock drinking water on the embankment.

TSF2 pond water is used for dust control on the TSF haul roads.

3.10.2 Objectives

The objectives are to:

- Provide a consistent supply of potable water where it is required while minimising the potable water take especially during dry periods.
- Ensure that a consistent supply of water is available for stock grazing on the TSF embankments and surrounding farm.
- Ensure that treated water is available for use where needed as service water around the site.

3.10.3 Monitoring and Reporting

Potable water use around the site is metered and Hauraki District Council charges for its use. The volumes are monitored and reviewed by OceanaGold and any significant increases that may indicate leaks in the system or inefficient use are investigated.

Water used for stock is sampled on a six-monthly basis and checked against the Stock Drinking Water Standards.

3.10.4 Contingency

If the WTP needs to be shut down for maintenance, the water that would normally be treated is sent to the TSF1A pond. There is sufficient water available in the compliance ponds to service the site until the WTP is back online.

3.11 Water Storage Options

While the collection ponds and underground can provide some storage, the principal surplus water storage option for the site is the operating TSF.

3.12 Monitoring, Reporting & Calibration

Site documentation details the following to ensure all applicable standards are met.

- The overall monitoring and reporting requirements for the site water management system.
- Details of monitoring methods and quality control procedures.
- Calibration and maintenance schedules and procedures for monitoring equipment.

4. Definitions

Term	Description
Oceana Gold	Oceana Gold (New Zealand) Ltd
NAF	Non-acid forming waste rock
PAF	Potentially acid forming waste rock
WRC	Waikato Regional Council
RMA	Resource Management Act
WTP	Water Treatment Plant

5. Associated Documents

Item	Title	Location
SOP	River Water Quality Sampling	SharePoint – WAI-200-PRO-017
SOP	Collection and Silt Pond Management	SharePoint – WAI-200-PRO-018
SOP	Water Treatment Plant Discharge Sampling	SharePoint – WAI-200-PRO-027
SOP	Underdrain Sampling and Flow Measurement	SharePoint – WAI-200-PRO-034
PLN	Management of change	SharePoint - WAI-300-PLN-003
SOP	Concerns, Complaints and Grievances Procedure	SharePoint - WAI-800-PRO-007

6. References

1. EGL, 1998: Extended Project Collection Pond Design. Engineering Geology Ltd.
2. WWC, 1997: Martha Mine Extension Site Water Management. Final Report. Woodward–Clyde.
3. WGC, 1999: Collection Pond Design Report. Waihi Gold Company Extended Project MP04.
4. WRC, 1999: Reclassification of Collection Ponds Report. Waikato Regional Council, WRCDOCS-#538100-v1-Letter.
5. NWG, 2009: Engineering Geology Ltd letter, 11 August 2009. In: Application to Vary Discharge Permit 109744 (NWG File ref: Polishing Pond Extension Notice-b 090820).
6. Mitchell Daysh, 2024: Substantive Application Report, Waihi North Project.
7. Southern Skies, 2024: Erosion and Sediment Control Assessment Report, Waihi North Project (OceanaGold document number WAI-985-000-REP-LC-0042).

APPENDIX A – Estimating Rainfall Event Return Periods

C-1 RAINFALL EVENT RETURN PERIOD

C-1.1. Introduction

Conditions of consent require that discharges from silt and collection ponds occur only in heavy rainfall events, the magnitude of the events being specified in terms of rainfall return period. The following subsection outlines the method by which the return period of a given rainfall event can be calculated, and therefore the compliance of a pond discharge can be confirmed.

C-1.1.1. Silt Ponds

The conditions of consent impose different quality requirements for discharges within or above the specified design storm, which is typically the 2-year return period rainfall event. The conditions of consent impose slightly different conditions on discharge quality from the conveyor silt ponds than those imposed on other silt ponds. For the conveyor silt ponds, the threshold is stated as the 2-year return period 1-hour event. For other silt ponds, the threshold quality test includes a 2-hour rainfall duration.

In any event, discharge quality compliance needs to be checked against the 2-year return period event, which can be assessed as outlined in this appendix.

C-1.1.2. Collection Ponds

The conditions of consent require that each collection pond shall be designed and constructed to have a minimum water storage capacity equivalent to the volume of run-off generated from within its catchment during a 10-year return period, with either a 24-hour or 72-hour design duration, design storm, taking into account both pond volume and pumping. The new collection pond that discharges to the Mataura Stream, and those that discharge to the Ruahorehore Stream require design to the 24-hour return period event. The 72-hour design duration applies to collection ponds that discharge to the Ohinemuri River. Existing collection ponds S3, S4 and S5 (for the time it remains in service) were also designed to the 72-hour duration standard.

For rainfall events with a return period less than or equal to ten years, all stormwater reporting to the collection ponds shall be pumped to the Water Treatment Plant for treatment.

C-2. RAIN EVENT RETURN PERIOD CALCULATION

The return period of a rain event is determined from the depth-duration-frequency relationship for a given location. The relationship for Waihi is given in Table C-1.

Table C-1: Waihi Rainfall Depth-Duration-Frequency (rainfall, mm)

	Duration	10min	20min	30min	1hr	2hr	6hr	12hr	24hr	48hr	72hr
Return Period (yrs)	2	12	17	22	30	42	78	111	150	179	195
	5	17	24	31	45	63	103	147	190	224	249
	10	20	28	37	56	77	119	171	217	254	285
	20	23	32	42	65	90	134	193	242	282	320
	50	27	38	50	78	108	155	228	276	319	365

OceanaGold has automatic weather stations sited at the waste disposal facility and at Willows Farm that record hourly rainfall in mm. Following a rainfall event, the rainfall data can be scanned to assess the greatest depth of rain falling during any given period from 1 to 72 hours. The maximum value for each duration can be compared with the values in Table C-1 to determine the maximum return period. It is this value that is used to report the return period of the rainfall event.

The calculation can be most readily done using a standard spreadsheet held by OceanaGold’s Environmental Department (Depth-Duration-Frequency.xls). The data contained in Table C-1 is already entered in the spreadsheet, which contains a plot of the curve for each return period.

The assessment is performed by copying the automatically-generated hourly rainfall data into the tables set up on the “Storms” sheet, which calculates the maximum rainfall (mm/duration) and rainfall intensity (mm/h) for each period from 1 to 72 hours. The maximum rainfall for each duration is plotted on the same chart as the standard curves generated from the data in Table C-1. The return period reported for a given rainfall event is the maximum value generated for rainfall event under consideration.

An example is shown in Figure C-1. In this example, the return period to be reported is about 2 years (the example rainfall curve is slightly above the 2-year return period event but less than the 5-year return period event).

Note that because the shortest duration rainfall recorded at OceanaGold’s weather station is 1 hour, it is possible that shorter duration events with greater return period could have occurred but will not be available from the record.

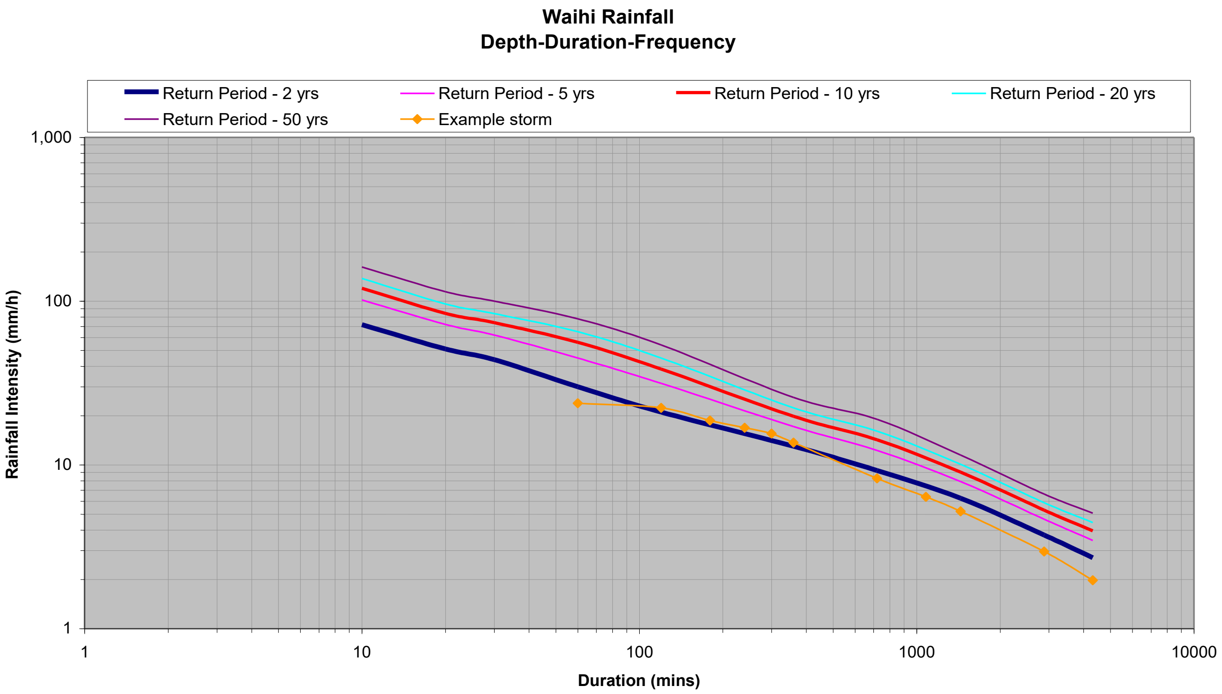

Figure C-1: Waihi Rainfall Depth-Duration-Frequency

C-3. POND CAPACITY AND COMPLIANCE CHECK

The calculation of pond design rain event, capacity and compliance is provided in a spreadsheet held by NWG's Environmental Department (Pond Criteria Check.xls). The basis of the calculations in that spreadsheet are set out below.

Catchment Areas

The catchment area contributing runoff to a pond needs to be determined by GIS or survey

Design Rainfall

There are four different design rainfall events used for sizing different types of ponds;

1. Conveyor silt ponds – 2 year-return period, 1-hour duration = 30mm (refer Table C-1).
2. All other silt ponds – 2 year-return period, 2-hour duration = 42mm (refer Table C-1).
3. Collection ponds – 10 year-return period, 24-hour duration = 217mm (refer Table C-1).
4. Collection ponds – 10 year-return period, 72-hour duration = 285mm (refer Table C-1).

Pond Design Capacity

Pond effective working volume is calculated by multiplying the catchment area by the design rainfall by a runoff coefficient.

The runoff coefficient accounts for the proportion of the incident rainfall that reports to the pond. Unless there are good reasons for adopting another value, the runoff coefficient, C, to be used in the calculation is 0.6.

Pond Capacity

Can be either the volume of the pond, as derived by survey or from as-built drawings, or the combined pond volume and pump capacity.

When the pump capacity is included, the total pond capacity is the pond volume plus the pump rate, expressed as m^3 per hour, multiplied by design rainfall duration (typically 2 hours for silt ponds and either 24 or 72 hours for collection ponds).

Compliance

Compliance for pond capacity can be checked for pond volume with and without the pump capacity included. For compliance, the pond capacity needs to be more than or equal to the pond design capacity.

APPENDIX B – OceanaGold Standards Requirements

Background

In 2025, OceanaGold updated its Water Management standards. This appendix details how OceanaGold Waihi addresses requirements of the standard (Table 1).

OceanaGold Environmental Standard 3 Water Management applies to the Waihi site. The purpose of this standard is "to establish the minimum OGC requirements in relation to responsible water management to ensure water abstraction, use and discharge complies with relevant legislation, permits, covenants, licences and OceanaGold's Water Management Framework, and ensures risks are appropriately assessed and managed." The Water Management Standards are outlined in Table 2 below.

OceanaGold standards are audited internally by the site auditing team and externally by OceanaGold Corporate every three years. Any non-compliances or opportunities for improvement that are identified get entered and actioned in INX InControl.

The objectives of this standard are to:

- Maintain compliance with relevant legislation within each jurisdiction.
- Ensure all risks (operational, environmental) relating to water management are appropriately assessed and managed.
- Optimize water efficiency and promote re-use / recycle opportunities.
- Minimize negative impacts to water dependent ecosystems and communities.
- Ensure transparent reporting of water performance.

Risk Assessment

Water related risks are identified in the site risk register available on SharePoint.

APPENDIX C – Waihi Site Water RACI

Waihi Water Management RACI - Oct 2025	Site Water Lead	GMO/SSE	Environment Lead	Processing Mgr	Processing Specialist	Maintenance Superintendent	Construction supervisor	Underground Mgr	EASP Manager	Geology Manager	Snr Geological Services Coordinator	Project Study Manager	Dunedin Legal	Emergency Response
Leadership														
Risk identification and management		A	R	C	C	C	C	C	C					
Site Water Management Team	A	C	R	C	C	C	C	C	C					
Water Management Plan		A	R	C	C									
External Engagement														
Regulator - WRC		A	R	C	C		C			C		C	I[*1]	I[*1]
Regulator - HDC		A	R	C	C		C			C			I[*1]	I[*1]
Iwi		A							R				I	I
Community and other stakeholders		A							R					
Industry Representation - RPS / Regional Plan		C											A	
Water Reform		C											A	
Regulatory Compliance														
Environmental - ops		I	A	R		C		C					I[*2]	I[*2]
Maintenance (pumps, pipelines, flowmeters etc)				A	C	R	C							
Maintenance related to pit/conveyor (earthworks related/pond cleaning)				A	C	R								
Exploration			C							A	R			
Monitoring (Quality & Quantity)														
Groundwater		A	R	I			I							
Surface water		A	R	I			I							
Dewatering		A	R	I	R			I				I		
Treated Water Discharge			R	A	R									
Collection/Silt Pond Discharge			R	A										
Underdrainage system		A	R	I			I							
Biomonitoring		A	R	I										
Reporting														
Consent Reporting		A	R											
Annual Peer Review		A	R									C		
Site Water Balance Model														
Developing, Updating and Calibration	A			R										
Operations	A	I	I	R	C									
Closure Planning	A	I	R					I	C			C		
Project Management														
Project Planning		I		R				C				A	I[*3]	
Implementation	A	I		R					I					
Operational Management														
Collection & Silt Ponds (not cleaning)				A		R								
Dewatering			I			R		A						
River Water Take				A		R								
Water Treatment Plant				A		R								
Drilling Operations			C							A	R			
Backfill Liming							R	A						
Weather Station			A			R								
Washdown Area - Mill				A		R								
Washdown Area - Pit						R	A							
Washdown Area - Underground							R	A						
Site Water Services														
Sewerage Systems			I	A			R							
Potable Water Use			I	A		R								
Fixed System Fire Water			I	R		A		C						C
Process Site Fire Water			I	A		R								C

Definitions:

Accountable (A) = the person ultimately accountable for the completion of the task - there must be exactly <u>one A</u> specified for each task.

Responsible (R) = those who do work to achieve the task, there can be multiple resources responsible.

Consulted (C) = those whose opinions are sought. Two way communication.

Informed (I) = those that are kept up-to-date on progress. One way communication.