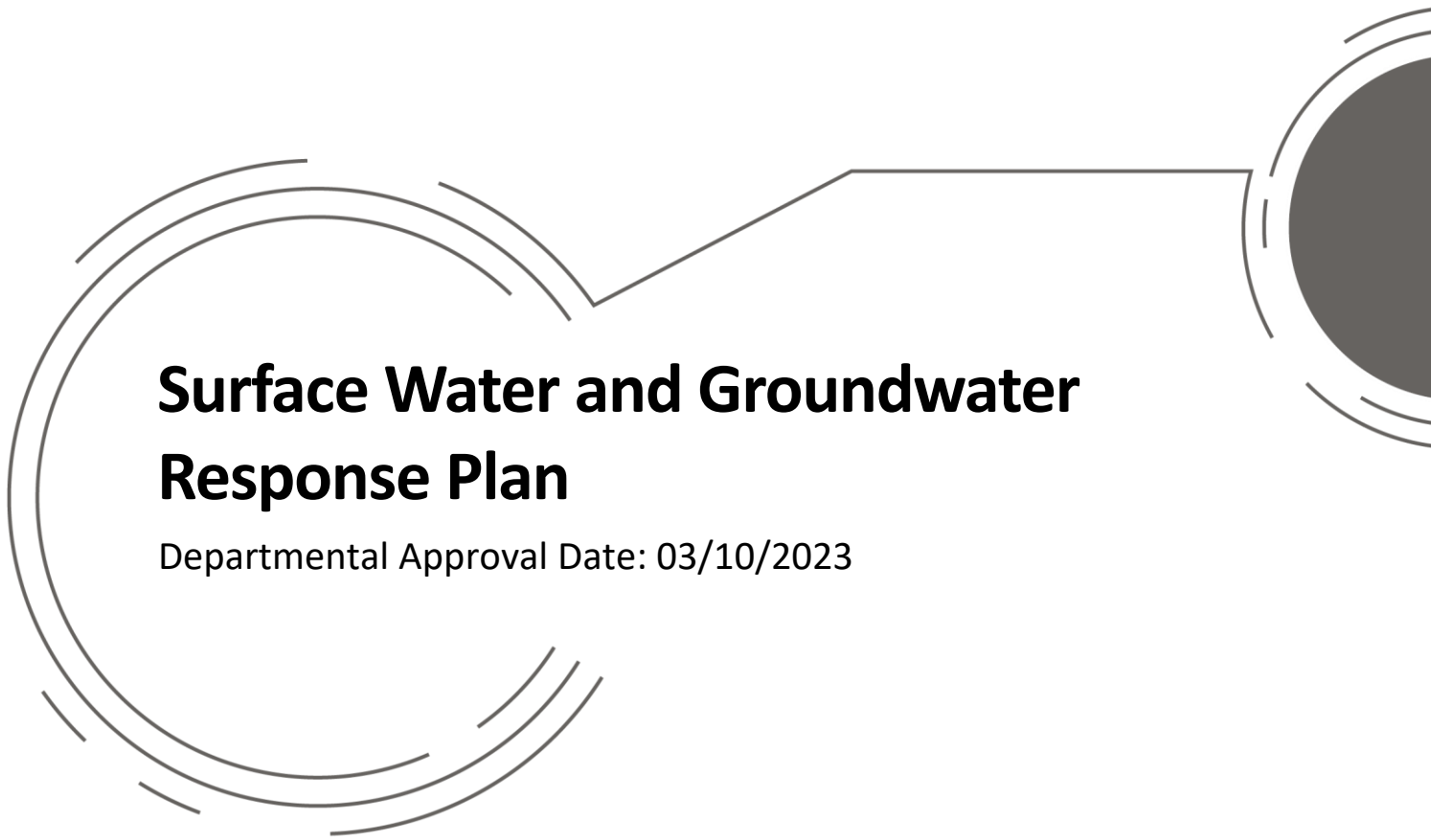


MGO
MT OWEN / GLENDELL

GLENCORE



Surface Water and Groundwater Response Plan

Departmental Approval Date: 03/10/2023

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1. Commitment and Policy

1.1 Background

This Surface Water and Groundwater Response Plan (SWGWRP) is part of a set of documents that together form the Water Management Plan for Mt Owen Glendell Operations (MGO) (refer to **Figure 1.1**). The Water Management Plan is one of a series of Environmental Management Plans that together form the Environmental Management Framework (EMF) for MGO. This plan is to be read in conjunction with MGO **Water Management Plan**.

MGO is located within New South Wales (NSW), approximately 20 kilometres north-west of Singleton. Mount Owen Pty Limited (Mt Owen), a subsidiary of Glencore Coal Pty Limited (formerly Xstrata Coal Pty Limited) currently owns the three open cut operations in MGO:

- Mount Owen (North Pit), approved under Development Consent SSD-5850;
- Ravensworth East (Bayswater North Pit), approved under Development Consent SSD-5850; and
- Glendell (Barrett Pit), approved by Development Consent DA – 80/952.

Mining operations at the MGO include the integrated use of the Mt Owen Coal Handling and Preparation Plant (CHPP), coal stockpiles and rail load-out facility. Mt Owen and Ravensworth East collectively comprise the Mount Owen Continued Operations (MOCO) Project.

MOCO operates under development consent SSD-5850 granted on 3 November 2016. Six modifications to the SSD-5850 have been approved, including:

- Modification 1 (MOCO MOD1), to facilitate the construction of a water pipeline to convey mine water from Integra Underground Mine to MGO (Hansen Bailey 2017), which was granted on 15 September 2017;
- Modification 2 (MOCO MOD 2), to maximise reserve recovery within the Glencore mining tenements, whilst minimising the overall project disturbance area (Umwelt 2018a). MOCO MOD 2 was approved by the then NSW Department of Planning and Environment (DP&E) on 4 September 2019;
- Modification 3 (MOCO MOD 3), an administrative modification as approved by the Department of Planning and Environment (DPE) on 30 January 2020. There were no changes to statutory conditions associated with MOCO MOD 3;
- Modification 5 (MOCO MOD 5), was approved by DPE on 15 January 2021 to amend the MGO Biodiversity Offset Strategy; and
- Modification 6 (MOCO MOD 6), as approved by DPE on 3 June 2021. MOCO MOD 6 allows the construction and operation of an additional pipeline between MGO and Ravensworth Operations to transfer water under the already approved Greater Ravensworth Area Water and Tailings Sharing Scheme (GRAWTS) (Umwelt 2020).
- Modification 7 (MOCO MOD 7), as approved by DPE on 15 May 2023. MOCO MOD 7 allows for operational efficiencies between Liddell Coal Operations and MGO by facilitating more efficient water and tailings transfers. This would enable additional tailings emplacement within the South Cut Void at Liddell Coal Operations to minimise the overall size and depth of the final void, as well as minimise the need to establish additional tailings emplacement areas at Mount Owen and Ravensworth Operations (JBA, 2023).

The SWGWRP was updated and submitted to DPE on 3 December 2019, following approval of MOCO MOD 2. The approval of the plan was put on hold, however, in anticipation of an impending approval of the Glendell DA 80/952 MOD 4 (GLD MOD 4).

GLD MOD 4 was approved by DPE on 4 March 2020 for Glendell Mine. GLD MOD 4 allows for a minor extension to the approved pit shell in order to access an additional 2.5 million tonnes of run of mine (Mt ROM) coal from the Barrett Pit and access via a western haul road.

The SWGWRP has now been updated to incorporate the requirements of the approved MOCO modifications as well as Glendell MOD 4, and supersedes the previously approved SWGWRP (June 2021).

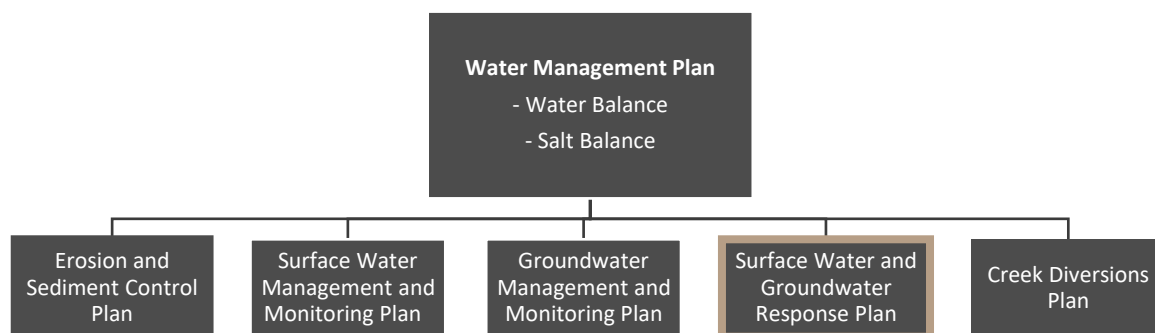


Figure 1.1 – MGO Water Management Plan Structure

1.2 Objectives of the Surface Water and Groundwater Response Plan

This SWGWRP outlines the appropriate response protocols to be undertaken in the event that adverse impacts associated with MGO mining operations on the surrounding surface water and groundwater are identified. The plan outlines measures to mitigate impacts on downstream water users, minimise groundwater seepage from intercepted alluvial aquifers into open cut pits and response procedures to be followed in the event of any unforeseen impacts.

The objective of this SWGWRP is to describe how MGO will respond to an incident regarding surface water or groundwater.

1.3 Requirements of the Surface Water and Groundwater Response Plan

1.3.1 Statutory Requirements

Both the MOCO (SSD-5850) and Glendell Mine (DA 80/952) development approvals stipulate requirements related to this SWGWRP (refer to **Table 1.1**). The Statement of Commitments for the MOCO and Glendell Mine development approvals relevant to this Plan are provided in **Table 1.2**.

Condition L1.1 of Environment Protection Licence (EPL) 4460 (Mt Owen Mine) and EPL 12840 (Glendell Mine) requires compliance with section 120 of the *Protection of the Environment Operations Act 1997*, which prohibits pollution of waters. The implementation of the management measures outlined in **Section 3** of this Plan facilitates achievement of this objective.

Table 1.1– Relevant Development Consent Conditions

Mt Owen Continued Operations (SSD-5850, Schedule 3)	Glendell Mine (DA 80/952, Schedule 4)	Condition	Relevant Section of Plan
22	–	The Applicant must provide a compensatory water supply to any landowner of privately-owned land whose rightful water supply is adversely and directly impacted (other than a negligible impact) as a result of the development, in consultation with DPE Water, and to the satisfaction of the Secretary. The compensatory water supply measures must provide an alternative long term supply of water that is equivalent, in quality and volume, to the loss attributable to the development. Equivalent water supply should be provided (at least on an interim basis) as soon as practicable after the loss is identified, unless otherwise agreed with the landowner. If the Applicant and the landowner cannot agree on the measures to be implemented, or there is a dispute about the implementation of these measures, then either party may refer the matter to the Secretary for resolution. If the Applicant is unable to provide an alternative long term supply of water, then the Applicant must provide compensation to the satisfaction of the Secretary. <i>Note: The Water Management Plan (see condition 26) is required to include trigger levels for investigating potentially adverse impacts on water supplies.</i>	Section 3.4 Appendix C
26 (c) (iv)	–	The Water Management Plan must include a Surface Water Management Plan, that includes: A Trigger Action Response Plan to respond to any exceedances of the performance criteria, and mitigate and/or offset any adverse surface water impacts of the development including a protocol to install a low permeability barrier in the event that the Main Creek alluvial aquifer is intercepted or a significant decline in alluvial water levels is detected which may be attributable to mining operations.	Section 2 Section 3 Appendix C
26 (c) (v)	–	The Water Management Plan must include a Groundwater Management Plan, that includes: A plan to respond to any exceedances of the groundwater assessment criteria, and mitigate any adverse groundwater impacts of the development.	Section 2 Section 3 Appendix C
–	35	The Surface and Ground Water Response Plan must include:	

Mt Owen Continued Operations (SSD-5850, Schedule 3)	Glendell Mine (DA 80/952, Schedule 4)	Condition	Relevant Section of Plan
–	35 (a)	A protocol for the investigation, notification and mitigation of any exceedances of the surface water, stream health and groundwater impact assessment criteria.	Section 3
–	35 (b)	Measures to mitigate and/or compensate potentially affected landowners for the loss of surface water flows in Bettys Creek, Swamp Creek and Bowmans Creek downstream of the development.	Section 3.4
–	35 (c)	Measures to minimise, prevent or offset groundwater leakage from the Bettys Creek and Swamp Creek alluvial aquifers.	Section 3.5
–	35 (d)	Measures to mitigate any direct hydraulic connection between the backfilled open cuts and the Bettys Creek and Swamp Creek alluvium if the potential for adverse impacts is detected.	Section 3.5
–	35 (e)	The procedures that would be followed if any unforeseen impacts are detected during the development.	Section 3.2

Table 1.2 – Relevant Statement of Commitments

Development Consent	Commitment	Relevant Section of Plan
Mt Owen Continued Operations (SSD-5850)	Within 12 months of Project Approval, Trigger Action Response Plans (TARPs) will be developed (or where already present, revised) to deal with the unlikely eventuality that the project impacts on water quality in all downstream creek systems (which have existing monitoring points located on it).	Appendix C
	MGO Groundwater Monitoring Program and Surface Water and Groundwater Response Plan will be updated within 12 months of project approval to include the additional management and monitoring requirements identified in the Environmental Impact Statement and Section 2.5 of the Response to Submissions Report B including: monitoring requirements for both alluvial groundwater levels and ecological condition of vegetation communities potentially impacted by changes in alluvial groundwater levels (i.e. Bettys and Main Creeks). Monitoring will include both hard rock and alluvial aquifers and include the installation of additional piezometers in area of maximum predicted drawdown in Main Creek and Bettys Creek and the identification of triggers that may indicate greater than predicted impacts.	Section 3.6 Groundwater Management and Monitoring Plan

Development Consent	Commitment	Relevant Section of Plan
	TARPs will be developed for any unexpected impacts on groundwater systems as well as impacts on riparian vegetation.	<i>Appendix C</i>

1.3.2 GCAA Requirements

The Glencore Coal Assets Australia (GCAA) **Water Management Protocol** (CAA HSEC PCL 0022 11.03) outlines the following principles, which focus on effective water management which is critical to supporting operations. Water management planning assists in managing a number of aspects, such that:

- Our environmental obligations are met;
- We can demonstrate to external stakeholders that the local and regional surface and groundwater water resources are used efficiently;
- Our operations are protected from flooding; and
- Adequate water supplies are available for mining and processing operations.

1.4 Consultation

1.4.1 Consultation with Internal (Mt Owen) Stakeholders

This SWGWRP has been reviewed by members of the Mt Owen EMS Committee and endorsed at the meeting of 28 November 2016. Details of Training and Communication arrangements are outlined in **Section 3.7**.

1.4.2 Consultation with External Stakeholders

This document represents a revision of the originally approved SWGWRP, which was submitted to the then Department of Environment and Climate Change and the then Department of Water and Energy in 2008.

The December 2016 revision of the SWGWRP was prepared following approval of the MOCO SSD-5850 in consultation with the Environment Protection Authority (EPA) and the NSW Department of Primary Industries – Water (DPE Water). A copy of the consultation records is provided in **Appendix A**.

The SWGWRP was updated following approval of MOCO MOD 2 and submitted to DPE on 3 December 2019, in consultation with the EPA and Water NSW.

The approval of the plan by DPE was put on hold in anticipation of impending approvals to GLD MOD 4 and MOCO MOD3. Following the receipt of these approvals, the SWGWRP has been reviewed and updated to incorporate these modifications. This has resulted in administrative changes only and therefore further consultation with external stakeholders was not considered necessary.

Update to the SWGWRP was completed in August 2020 with the revised plan subsequently approved by DPE in September 2020.

The SWGWRP was updated in June 2021 following the approval of MOCO MOD 6 and again in August 2023 following approval of MOCO MOD 7 in May 2023. This has resulted in administrative changes only and therefore further consultation with external stakeholders was not considered in accordance with Schedule 2 condition 18 of SSD-5850.

A copy of the most recent SWGWRP approval is provided in **Appendix B**.

Version and revision history of this document is provided in **Section 9**.

2. Planning

2.1 Management Response Actions

Appropriate response actions have been developed in the event that mining operations at MGO result in adverse impacts to the surrounding surface waters and groundwater. **Table 2.1** provides a summary of the potential water management issues that may arise and the appropriate response that is to be referred to by relevant staff.

Table 2.1 – MGO Water Management Response Actions

Potential Water Management Issues or Incidents	Response
Downstream surface water or groundwater quality monitoring results outside of the water quality triggers for at least two consecutive monitoring rounds (outlined in the Surface Water and Groundwater Management and Monitoring Plans respectively)	Surface water quality – Watercourses TARP and Groundwater – quality TARP (Appendix C) Criteria Exceedance Protocol (Section 3.1)
Water quality monitoring results for on-site water storages outside of historical range	Surface water quality – On-site water storages TARP (Appendix C)
Groundwater level monitoring results outside of the performance indicator/trigger range over more than two monitoring rounds (outlined in the Groundwater Management and Monitoring Plan)	Groundwater – level TARP (Appendix C)
Groundwater inflows to mining pits is observed to be at minimum >10% higher than predicted for three consecutive months	Groundwater – inflows TARP (Appendix C)
Receipt of community complaint (any surface or groundwater issue)	Complaints Management Protocol (Section 3.3)
On-site water storages do not capture events up to and including their design criteria	Surface water storage volume TARP (Appendix C) Unforeseen Impacts Protocol (Section 3.2)
Flooding	Flooding TARP (Appendix C) and Unforeseen Impacts Protocol (Section 3.2) (where relevant)
Unauthorised discharge	Surface water storage volume TARP (Appendix C) Unforeseen Impacts Protocol (Section 3.2)
Clean water becomes contaminated with dirty or mine water or causes flooding on site	Clean water diversion TARP (Appendix C)
Hydrocarbon spills	Hydrocarbon management TARP (Appendix C)
Erosion and sediment control issues leading to instabilities and/or sedimentation issues	Erosion and sediment control TARP (Appendix C) and

Potential Water Management Issues or Incidents	Response
within the onsite surface water management storages or watercourses	Unforeseen Impacts Protocol (<i>Section 3.2</i>) (where relevant) or Riparian Vegetation Impact Protocol (<i>Section 3.6</i>) (where relevant)
Watercourse channel instability issues	Channel stability TARP (<i>Appendix C</i>) Criteria Exceedance Protocol (<i>Section 3.1</i>) and Riparian Vegetation Impact Protocol (<i>Section 3.6</i>)
Impact on surface water availability for downstream water users	Downstream water users TARP (<i>Appendix C</i>) Response Protocol for Adverse Impacts on Existing Surface Water and Groundwater Bore Supplies (<i>Section 3.4.1</i>) and Complaints Management Protocol (<i>Section 3.3</i>) (where required)
Impact on groundwater availability at private licensed bore	Downstream water users TARP (<i>Appendix C</i>), Unforeseen Impacts Protocol (<i>Section 3.2</i>) (where relevant) Response Protocol for Adverse Impacts on Existing Surface Water and Groundwater Bore Supplies (<i>Section 3.4.2</i>) (where required) and Complaints Management Protocol (<i>Section 3.3</i>) (where required)
Increased seepage identified by changes in monitoring results or visual observations from the alluvial aquifers into open cut pits	Response Protocol for Increased Leakage from Alluvium into Pits (<i>Section 3.5</i>)
Any other surface or groundwater issue or incident	Unforeseen Impacts Protocol (<i>Section 3.2</i>)

The surface water quality – watercourses trigger was changed to be within the historical range. This was amended as being within a historical average is not practically achievable as an average is a single value, and secondly as there are no impact assessment criteria for on-site water storages, the historical range was considered to be appropriate as a trigger.

The water management system has been designed to an approved design standard to protect downstream watercourses and minimise potential impacts, as such it is considered that the historical range is suitable for on-site water storages as a water quality trigger.

Refer to Surface water quality – On-site water storages TARP (*Appendix C*).

3. Implementation

3.1 Criteria Exceedance Protocol

MGO will monitor surface water and groundwater in accordance with the **Surface Water Management and Monitoring Plan** and **Groundwater Management and Monitoring Plan**. If the surface water or groundwater monitoring reports/results are outside the impact assessment criteria outlined in the **Surface Water Management and Monitoring Plan** and **Groundwater Management and Monitoring Plan**, further investigations are required and MGO will refer to the associated Trigger Action Response Plans (TARP) in **Appendix C** and the following Criteria Exceedance Protocol.

As per the TARPs within **Appendix C**, if the criteria exceedance protocol is enacted, further investigations are required. MGO will:

- Confirm the timing and general location of the exceedance(s);
- Confirm the meteorological conditions at the time of and leading up to the exceedance(s) (where relevant);
- Visit the site and try to identify any potential contributing factors;
- Assess the monitoring results against background trends and relevant modelling predictions to identify any anomalies or causes;
- Where the exceedance is potentially attributable to MGO, appropriate mitigation and management strategies will be developed and implemented;
- Where mitigation and management strategies have been implemented, additional monitoring and regular reviews will be undertaken to measure the effectiveness of the strategies undertaken; and,
- The exceedance will be reported in accordance with the reporting mechanisms outlined in the **Surface Water Management and Monitoring Plan** and **Groundwater Management and Monitoring Plan**.

3.2 Unforeseen Impacts Protocol

Due to the low likelihood of surface water and groundwater incidents occurring, any associated impacts have been characterised as unforeseen impacts.

Surface water incidents which may be addressed by the unforeseen impacts protocol include mine water discharge, non-compliances with erosion and sediment control practices and generally any non-compliance to surface water conditions within the Project Approval conditions, not covered by an associated protocol or TARP.

Groundwater incidents which may be addressed by the unforeseen impacts protocol include impacts to groundwater dependant ecosystems and generally any non-compliance to groundwater conditions within the Project Approval conditions, not covered by an associated protocol or TARP.

Notification and incident response will be conducted in line with the **Pollution Incident Response Management Plan** (PIRMP).

All incidents (defined under the Project Approval) are reported to the Secretary and any other relevant agencies immediately after MGO becoming aware of the incident, as required by Schedule 5, Condition 9 of SSD-5850 and Schedule 5, Condition 9 of DA 80/952.

A detailed report shall be provided within 7 days of a non-compliance as required by Schedule 5, Condition 9A of SSD-5850 and Schedule 5, Condition 10 of DA 80/952.

In the event of unforeseen impacts associated with the surface water and groundwater management system at MGO, the following protocol will be implemented:

- Conduct a preliminary review of the nature of the impact, including:
 - Initial assessment of environmental harm;
 - Any relevant monitoring data; and
 - Current mine activities and land use practices.
- Commission an investigation by a suitably qualified expert into the unforeseen impact to confirm cause and effect and consider relevant options for amelioration of impact(s) as appropriate;
- Prepare an action plan in consultation with the relevant stakeholders;
- Mitigate causal factors where possible; and
- Implement additional monitoring as necessary to measure the effectiveness of the controls implemented.

The outcomes of the investigations into any unforeseen impacts and the controls / remediation actions implemented will be reported in the Annual Review.

3.3 Complaints Management Protocol

MGO operates a dedicated complaints hotline. The details of this hotline are advertised in local newspapers, MGO website and within the Annual Review. A procedure for handling complaints has been implemented as part of MGO EMF to ensure a consistent approach to handling any complaint.

All legitimate complaints will be thoroughly investigated by MGO Environment and Community (E&C) Manager.

With respect to complaints regarding surface water or groundwater the investigations will include, as a minimum:

- Records of the timing and general location of the issue initiating the complaint;
- Details of the meteorological conditions at the time of the issue initiating the complaint;
- Identification of any potential contributing factors; and
- A review of any monitoring results relevant to the complaint.

Where the complaint is potentially attributable to MGO, appropriate mitigation and management strategies will be developed, implemented and monitored for the effectiveness of the strategies undertaken.

Feedback to the complainant will be provided in a timely manner.

Details of complaints relating to groundwater or surface water will be provided to relevant mine planning and production personnel, to assist in the improvement of management practices, where relevant. A summary of the complaints received by the community will be reported in the Annual Review.

If a landowner considers the operation to be in exceedance of the impact assessment criteria, they may request an independent review of the effects of the operation on their land.

Such a request must be made in writing to the Secretary of the DPE. If the Secretary determines that an independent review is to be undertaken, MGO must follow the procedures outlined in the relevant development consent.

3.4 Response Protocol for Adverse Impacts on Existing Surface Water and Groundwater Bores Supplies

3.4.1 Surface Water

The surface water available to adjacent landowners or storm water runoff flow rates may be affected by mining activities associated with MGO. In the event that a complaint is received from a landowner regarding the loss of a surface water supply or of an unusual flooding event, the Complaints Management Protocol will be implemented.

If the initial investigations conclude MGO has potentially contributed to the event(s), the following steps will also be implemented:

- Provide a copy of the landowner complaint to DPE Water and DPE and inform both agencies of the intention to conduct independent review;
- Commission an independent review including investigation (if applicable) of:
 - Relevant surface water flow rates, surface water availability, meteorological conditions over the relevant period of record, storm events and/or flooding depths;
 - Any changes to land use that may have affected surface water flow rates and quality over time; and
 - Whether the event(s) is/are attributable solely to MGO operations.
- Provide a copy of the independent review report to the landowner and DPE Water;
- If the investigation concludes that the event(s) are attributable to MGO then appropriate mitigation and management strategies, where relevant, will be developed and implemented; and
- Where mitigation and management strategies have been implemented additional monitoring and regular reviews will be undertaken to measure the effectiveness of the strategies undertaken.

3.4.2 Groundwater

The groundwater available to adjacent landowners may be affected by a loss of pressure in underlying aquifers. Depressurisation may occur as a result of mining operations in the area including MGO.

In the event that a complaint is received from a landowner regarding de-pressurisation of a water supply or bore the following protocol will be implemented:

- Provide a copy of the landowner complaint to DPE Water and DPE and inform both agencies of the intention to conduct an independent review;
- Commission an independent review including investigation of:
 - Relevant groundwater levels and groundwater quality monitoring results;
 - Any changes to land use that may have affected groundwater levels and quality over time;
 - Meteorological conditions over the relevant period of record; and
 - Whether the loss of bore water is attributable solely to MGO operations.

- Provide a copy of the independent review report to the landowner and DPE Water;
- If the investigation concludes that the bores have been affected by mining at MGO then, depending on the most appropriate response, MGO will either:
 - Rehabilitate the bore/well supply by deepening; or
 - Replace the water supply with water of equivalent quality and quantity;
 - Develop and implement appropriate mitigation and management strategies, where relevant; and
 - Implement additional monitoring as necessary to measure the effectiveness of the strategies undertaken.

3.5 Response Protocol for Increased Seepage from Alluvium into Pits

Higher than predicted groundwater inflows from the alluvial aquifers into the Mt Owen, Bayswater North and Glendell open cut pits have the potential to inhibit mining operations as well as remove groundwater from the surrounding environment.

Continued monitoring of groundwater seepage from the alluvium will be undertaken as part of the ***Groundwater Management and Monitoring Plan***.

In the event that the monitoring programs identify increases in groundwater inflows from the interception of alluvials at MGO, in line with the performance criteria trigger, the following will be implemented:

- Initiate an investigation by suitably qualified personnel into the cause(s) and extent of the increase in groundwater inflow from the alluvium into the open-cut pits;
- Where appropriate, identify contingency measures such as:
 - Installation of a cut-off wall, grout curtain or measures performing a similar function to seal off areas of high permeability; and
 - Relocation of the pit boundary to avoid intersection of highly permeable areas.

It is understood that the approved mine plans and associated groundwater impact assessments did not indicate that a direct hydraulic connection would occur between the open cut pits and local alluvial systems. As such, if direct hydraulic connection occurs, it would be considered under the Unforeseen Impacts Protocol as per **Section 3.2** of this plan.

3.5.1 Response Protocol for Main Creek Alluvial Aquifer interference

As part of the continued groundwater monitoring program, MGO will also monitor drawdown within the Main Creek Alluvium.

In the event that the monitoring program identifies a significant decline in the alluvium water level, MGO will undertake further investigations to determine if drawdown is attributable to Approved Operations.

Should an investigation identify that a significant decline in the alluvium water level is attributable to or the alluvium is intercepted by Approved Operations, additional monitoring and mitigation measures, including the installation of a low permeability barrier may be required.

3.6 Riparian Vegetation Impacts Protocol

MGO monitors the ecological condition of vegetation communities potentially impacted by changes in alluvial groundwater levels, stream health and/or poor erosion and sediment control practices. In the event that erosion and sediment control monitoring, creek diversion monitoring or surface water monitoring identifies an observable impact on riparian vegetation that triggers a TARP response, the following Protocol may be required to be implemented:

- Confirm the timing and general location of the impact;
- Confirm the meteorological conditions at the time of the impact (where relevant);
- Identify any potential contributing factors;
- Inspect the area to confirm the condition of the vegetation, as well as the condition of reference sites;
- Where the impact is potentially attributable to MGO, appropriate mitigation and management strategies will be developed and implemented;
- Where mitigation and management strategies have been implemented, additional monitoring and regular reviews will be undertaken to measure the effectiveness of the strategies undertaken; and
- The impact will be reported in accordance with the reporting mechanisms outlined in the associated Management Plan.

3.7 Training and Communication

Generic training on the aspects of the SWGWRP is provided to all employees and contractors through the GCAA **Generic Surface Induction** and the **Site Familiarisation** process.

Regular workforce communication days and toolbox talks allow for discussion of the objectives and requirements of this and any other relevant Plans.

Selected site personnel whose duties directly involve the management of water at MGO will undertake specific training in regards to site Operational Procedures which incorporate water management measures.

4. Measurement and Evaluation

4.1 Monitoring and Maintenance Requirements

This SWGWRP relies upon surface and groundwater monitoring and inspections of the site which are documented in ***MGO Surface Water Management and Monitoring Plan*** and ***MGO Groundwater Management and Monitoring Plan***. MGO will complete an annual review which will detail TARP triggers (***Appendix C***) and related responses that occurred within the previous year. This information will be reported in the Annual Review.

5. Review and Improvement

5.1 Reporting

A summary of the effectiveness of the SWGWRP will be reported in the Annual Review. Where relevant, the Annual Review will include any incidents and complaints and initiatives for implementation in the following year.

5.2 Plan Review

This SWGWRP will be reviewed in accordance with MGO ***Environmental Management Framework*** and will occur within three months of:

- The submission of an Annual Review;
- The submission of an incident report;
- The submission of an independent environmental audit; or
- Any modification to the conditions of development consent for MOCO (SSD-5850) or Glendell Mine (DA 80/952).

Glencore will review and if necessary, revise this plan where required. Revisions to this plan will reflect any changes in environmental requirements, technology and operational procedures.

6. Commitments

All commitments outlined within this SWGWRP are detailed in **Table 6.1** below. Management commitments requiring actioning will be entered into MGO Compliance Management System (CMO) and actioned. Records of documentation associated with the management commitments will also be maintained within the CMO.

Table 6.1 – Groundwater Management and Monitoring Plan Commitments

No.	Commitment	Relevant Section of Plan
1	MGO will respond appropriately to any issues or incidents as identified in Table 2.1 .	Section 2.1
3	If the surface water or groundwater monitoring reports/results are outside the impact assessment criteria outlined in the Surface Water Management and Monitoring Plan and Groundwater Management and Monitoring Plan, further investigations are required and MGO will refer to the associated Trigger Action Response Plans (TARP) in Appendix C and the following Criteria Exceedance Protocol. Outcomes of these investigations will be reported in the Annual Review.	Section 3.1 Section 3.2
6	The implementation of any mitigation measures will be undertaken in consultation with DP&E, DPE Water and the EPA.	Section 3.2
9	An investigation will be undertaken in the event that the monitoring programs identify increases in groundwater inflows from the interception of alluvials at MGO.	Section 3.5
10	The Riparian Vegetation Impacts Protocol will be implemented if the event that erosion and sediment control monitoring, creek diversion monitoring or surface water monitoring identifies an observable impact on riparian vegetation that triggers a TARP response.	Section 3.6
11	Generic training on the aspects of the SWGWRP is provided to all employees and contractors through the GCAA Generic Surface Induction and the Site Familiarisation process.	Section 3.7
13	Selected site personnel whose duties directly involve the management of water at MGO will undertake specific training in regards to site Operational Procedures which incorporate water management measures.	Section 3.7
15	A summary of the effectiveness of the SWGWRP will be reported in the Annual Review. Where relevant, the Annual Review will include any incidents and complaints and initiatives for implementation in the following year.	Section 5.1

7. Definitions

Term	Definition
Alluvium	Sediment deposited by a flowing stream e.g. clay, silt, sand and gravel.
Aquifer	A water bearing rock formation
DA	Development Application
DPE	NSW Department of Planning and Environment (formerly DPIE - Department of Planning, Industry and Environment)
Water NSW	NSW Department of Planning and Environment – Water
E&C	Environmental and Community
EMF	Environmental Management Framework
EPA	Environment Protection Authority
EPL	Environment Protection Licence
GCAA	Glencore Coal Assets Australia
Groundwater	Sub-surface water which is within the saturated zone and can supply wells and springs. The upper surface of this saturated zone is called the water table
Incident	A set of circumstances that causes or threatens to cause material harm to the environment; and/or breaches or exceeds the limits or performance measures/criteria in the development consent
MGO	Mt Owen Glendell Operations
TARP	Trigger action response plan

8. Accountabilities

Table 8.1 outlines the accountabilities associated with this SWGWRP.

Table 8.1 – Accountabilities

Role	Accountabilities for this document
Operations Manager	Approve the SWGWRP. Provide adequate resources for the implementation of this Plan.
Environment and Community Manager	Implement the SWGWRP. Provide that the Training and Communication, Monitoring and Review and Improvement requirements of this Plan are met. Investigate and report all incidents involving the failure or damage to Water Management Structures.
Environment and Community Coordinator / Officer	Assist the E&C Manager as required in implementation of this Plan. Investigate and report all incidents involving the failure or damage to Water Management Structures.
Task Coordinators	Provide that the requirements of this Plan are met. Report all incidents involving the failure or damage to Water Management Structures.
All contractors	Undertake works in accordance with the objectives and principles of this Plan. Report all incidents involving the failure or damage to Water Management Structures.
All personnel	Undertake works in accordance with the objectives and principles of this Plan. Report all incidents involving the failure or damage to Water Management Structures.

9. Document Information

9.1 Relevant Legislation

The following legislation is relevant to this Plan:

- *Environmental Planning and Assessment Act 1979;*
- *Protection of the Environment Operations Act 1997;*
- *Water Act 1912;* and
- *Water Management Act 2000.*

9.2 Related Documents

Related documents, listed in **Table 9.2** below, are internal documents directly related to or referenced from this document. Internal procedures have not been reviewed or endorsed by DPE and Glencore is responsible for verifying these procedures are prepared in accordance with this management plan and generally in accordance with MGO approvals.

Table 9.2 – Related Documents

Number	Title
GCAA	
CAA HSEC PRO 0009	11.01 Annual Environment and Community Risk Assessments
CAA HSEC PCL 0022	11.03 Water Management
MGO	
MGOOC-1779562647-11480	Water Management Plan
MGOOC-1779562647-10974	Erosion and Sediment Control Plan
MGOOC-1779562647-11190	Surface Water Management and Monitoring Plan
MGOOC-1779562647-11186	Groundwater Management and Monitoring Plan
MGOOC-1779562647-11191	Environmental Management Framework
MGOOC-1779562647-10971	Creek Diversion Management Plan
MGOOC-1779562647-10978	Pollution Incident Response Management Plan

9.3 Change Information

A summary of the document history is provided in **Table 9.3** below.

Table 9.3 – Change Information

Version	Date	Review team (consultation)	Change Summary
1	November 2008	E&C Coordinator, HSEC Manager	Development of the Document
2	November 2011	E&C Coordinator, MGO E&C Manager	Updated the document in line with current practises and requirements
3	November 2012	MGO E&C Manager; MGO Operations Manager; Glendell Operations Manager	Updated the document in line with current practises and requirements
4	September 2013	MGO E&C Manager	Removed references to Xstrata.
5	July 2014	MGO E&C Manager, Glendell ECC, Mt Owen & Glendell ECOs	Updated document in line with comments received from DP&I and current practices.
New SharePoint			
1	December 2016	MGO EMS Steering Committee	Updated to address the Mt Owen Continued Operations development consent (SSD-5850) conditions and revised development consent for Glendell Mine (DA 80/952 MOD 3).
2	March 2018 – February 2019	E&C Manager	Updates to commitment register and associated plan text to streamline commitments. Updated in line with GWMMP updates. Updated to incorporate feedback from regulators (DPE).
2.1	December 2019	MGO E&C Department	Review and revision following approval of Mt Owen Continued Operations MOD 2.
3	March 2020	MGO E&C Department	Minor update following approval of Glendell MOD 4, for submission to DPE.
4	October 2020	Officer - Environmental	DPE approved revision post MOCO MOD 2 & 3 and GLD MOD 4.
5	August 2021	MGO E&C Department	Minor update following approval of MOCO Mod 5 and MOCO Mod 6.

Version	Date	Review team (consultation)	Change Summary
6	October 2023	MGO E&C Department	Update following approval of MOCO Mod 7.

Appendix A - Surface Water and Groundwater Response Plan Consultation (2018)

Feedback from Department of Planning and Environment

<i>Surface Water and Groundwater Response Plan, Mt Owen Complex</i>			
Glendell Open Cut Coal Mine and Associated Infrastructure DA 80/952, Surface and Ground Water Response Plan – Schedule 3, Condition 35	Satisfactory (Yes/No)	Comment	Action Required
35. The Surface and Ground Water Response Plan must include:			
(a) a protocol for the investigation, notification and mitigation of any exceedances of the surface water, stream health and groundwater impact assessment criteria;	See previous comments	See previous comments under SSD-5850 regarding Surface water quality and groundwater quality investigation triggers and exceedance response (including clarifying procedure for reporting to DPE).	See previous comments
(b) measures to mitigate and/or compensate potentially affected landowners for the loss of surface water flows in Bettys Creek, Swamp Creek and Bowmans Creek downstream of the development;	See previous comments	See previous comments under SSD-5850 26(v) regarding baseline data for privately owned bores and monitoring to confirm predicted "no impact" on privately owned bores and clarifying predicted impacts on privately owned bores.	See previous comments
(c) measures to minimise, prevent or offset groundwater leakage from the Bettys Creek and Swamp Creek alluvial aquifers.	Yes	Addressed in SWGWRP Section 3.4	
(d) measures to mitigate any direct hydraulic connection between the backfilled open cuts and the Bettys Creek and Swamp Creek alluvium if the potential for adverse impacts is detected; and	Yes	Addressed in SWGWRP Section 3.4	
(e) the procedures that would be followed if any unforeseen impacts are detected during the development.	Yes	Addressed in SWGWRP Section 3.6	

Appendix B - Surface Water and Groundwater Response Plan Approval

Department of Planning and Environment



Our ref: SSD-5850-PA-86

Sebastien Moreno
Environment and Community Manager
Mt Owen Pty Ltd
158 Hebden Road
Ravensworth NSW 2330

03/10/2023

Subject: Approval of Surface Water and Groundwater Response Plan

Dear Mr Moreno

I refer to the revised Surface Water and Groundwater Response Plan which has been submitted in accordance with condition 26(c) of Schedule 3 of the development consent for the Mt Owen Mine (SSD-5850) and condition 29(c) of Schedule 3 of the development consent for the Glendell Mine (DA 80/952).

The Department has carefully reviewed the document and is satisfied that it meets the requirements of the relevant conditions of SSD-5850 and DA 80/952, noting the conditions were mostly administrative in nature.

Accordingly, as nominee of the Planning Secretary, I approve the revised Surface Water and Groundwater Response Plan (version 6.0, dated October 2023). In addition, the Planning Secretary agrees, in accordance with condition 18 of Schedule 2 of SSD-5850 and condition 17 of Schedule 2 of DA 80/952, that consultation with the relevant parties listed in the development consents is not required given the administrative nature of the changes.

You are reminded that if there are any inconsistencies between the Surface Water and Groundwater Response Plan and the conditions of approval, the conditions prevail.

Please ensure you make the document publicly available on the project website at the earliest convenience.

If you wish to discuss the matter further, please contact me on (02) 4908 6896.

Yours sincerely

A handwritten signature in black ink, appearing to read "Joe Fittell".

Joe Fittell
Team Leader
Resource Assessments
As nominee of the Planning Secretary

4 Parramatta Square, 12 Darcy Street, Parramatta NSW 2150
Locked Bag 5022, Parramatta NSW 2124

www.dpie.nsw.gov.au

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Appendix C - Trigger Action Response Plan

Aspect	Normal	Trigger 1	Trigger 2	Notifications
Surface water storage volume	Storages capture events up to and including the design criteria.	Trigger: Spill of dirty water from sediment dam to downstream watercourse. Response: Investigate cause for overflow and whether the appropriate procedures were followed. Undertake dewatering of relevant storages to areas where water storage capacity exists. Undertake water quality sampling at the sediment dam as well as upstream and downstream of the spill to assess any potential impact. Review adequacy of storage design, pumping and inspection schedule. Training for staff.	Trigger: Emergency discharge from mine water storage to downstream watercourse. Response: Investigate cause for emergency discharge and whether the appropriate procedures were followed. Undertake dewatering of relevant storages to areas where water storage capacity exists. Undertake water quality sampling at the dam as well as upstream and downstream of the spill to assess any potential impact Review adequacy of storage design and inspection schedule. Training for staff.	Trigger 1: Notify E&C Coordinator/Manager. Trigger 2: Notify external agencies in accordance with PIRMP requirements. Submit a detailed report to DPE within seven days regarding the incident as per Schedule 5, Condition 9 of Mt Owen Mine (SSD-5850) or Glendell Mine (DA 80/952) development consent. Report in Annual Review.

Aspect	Normal	Trigger 1	Trigger 2	Notifications
Clean water diversion	Clean water diverted around dirty water areas.	Trigger: Clean water bypass through dirty water areas: Response: Review catchment plan and design capacity of clean water drains. Appropriately treat and manage dirty water. Facilitate works to resolve clean water flow diversion failure.	Trigger: Clean water creates flooding problems through site. Response: Establish temporary bunding around clean water source. Utilise earthworks machinery to cut appropriate channel to manage clean water appropriately. Protect equipment and infrastructure. Utilise portable pumps to dewater flooded areas into sediment basins. Evacuate site if danger exists.	Trigger 1: Notify E&C Coordinator/Manager. Trigger 2: Notify E&C Coordinator/Manager.

Aspect	Normal	Trigger 1	Trigger 2	Notifications
Erosion and sediment control	All controls are appropriately in place and well maintained. Site inspections do not identify any unstable disturbance areas or migration of sediment away from designated development areas.	Trigger: Controls are in place, however are not maintained. One or more areas have indicated surface erosion in the form of rilling, bank erosion or other movement of sediment from an area of disturbance. Response: Seek to stabilise the area to stop the erosion process. Investigate works undertaken prior to the disturbance activities. Review adequacy of controls and inspection/maintenance schedule.	Trigger: Stage 1 trigger or other incident leading to sedimentation of a watercourse or off-site. Response: Isolate the problem area through diverting contributing surface flows to another appropriate storage, while the cause for the water quality exceedances are determined. Review adequacy of controls and inspection/maintenance schedule.	Trigger 1: Notify E&C Coordinator/Manager. Trigger 2: Notify external agencies in accordance with PIRMP requirements. Submit a detailed report to DPE within seven days regarding the incident as per Schedule 5, Condition 9 of Mt Owen Mine (SSD-5850) or Glendell Mine (DA 80/952) development consent. Report in Annual Review.

Aspect	Normal	Trigger 1	Trigger 2	Notifications
Hydrocarbon management	All hydrocarbon supplies are stored appropriately.	Trigger: Minor hydrocarbon spill occurs. Response: Apply spill kit. Contain, Control and Clean up spill. Remove soil to bioremediation area. Complete incident investigation and store details in CMO.	Trigger: Major spill occurs outside operational areas. Response: Isolate area and contain spill. Clean up spill and dispose of waste accordingly. Review any potential contamination.	Trigger 1: Notify E&C Coordinator/Manager. Trigger 2: Notify external agencies in accordance with PIRMP requirements. Submit a detailed report to DPE within seven days regarding the incident as per Schedule 5, Condition 9 of Mt Owen Mine (SSD-5850) or Glendell Mine (DA 80/952) development consent. Report in Annual Review.

Aspect	Normal	Trigger 1	Trigger 2	Notifications
Surface water quality – Watercourses	Surface water quality within impact assessment criteria for all parameters.	Trigger: Surface water quality concentrations outside of the adopted trigger value (refer <i>Surface Water Management and Monitoring Plan</i>) for any water quality parameter, for 2 consecutive monitoring events Response: Note exceedance.	Trigger: Surface water quality concentrations trending outside of the adopted trigger value (refer <i>Surface Water Management and Monitoring Plan</i>) for at least one water quality parameter for 3 or more consecutive monitoring rounds. Response: Implement Criteria Exceedance Protocol (<i>Section 3.1</i>). Review water quality exceedance relative to upstream water quality parameters. Review water quality exceedance location relative to overburden emplacement areas, tailings storage facilities, mine water dams, sediment dams, to determine impacts could be mining related. Undertake fortnightly monitoring until water quality improves or source/cause is identified.	Trigger 1: Notify E&C Coordinator/Manager. Trigger 2: Assess risk of environmental harm and enact PIRMP if required. Submit a detailed report to DPE within seven days regarding the incident as per Schedule 5, Condition 9 of Mt Owen Mine (SSD-5850) or Glendell Mine (DA 80/952) development consent. Report in Annual Review.

Aspect	Normal	Trigger 1	Trigger 2	Notifications
Surface water quality – On-site water storages	Surface water quality within historical range for all parameters.	Trigger: Water quality parameter is outside of historical range of monitoring results for relevant water system (i.e. dirty or mine). Response: Note exceedance.	Trigger: Two consecutive water quality parameters are outside of historical range of monitoring results for relevant water system (i.e. dirty or mine). Response: Investigate the source for the change in surface water quality and whether it was caused by mining-related activities.	Trigger 1: Notify E&C Coordinator/Manager. Trigger 2: Notify E&C Manager. Report in Annual Review.

Aspect	Normal	Trigger 1	Trigger 2	Notifications
Groundwater quality	Ground water quality within impact assessment criteria for all parameters.	Trigger: Groundwater quality concentrations outside of the adopted trigger value (refer Groundwater Management and Monitoring Plan) for any water quality parameter for 2 consecutive monitoring rounds. Response: Note exceedance.	Trigger: Groundwater quality concentrations trending outside of the adopted trigger values (refer Groundwater Management and Monitoring Plan) for at least one water quality parameter for 3 or more consecutive monitoring rounds. Response: Implement Criteria Exceedance Protocol (Section 3.1). Review water quality exceedance relative to surrounding water quality monitoring data to determine if isolated or regional change. Review surface water quality data in surrounding area to determine if any links between the surface water and groundwater data. Review water quality exceedance location relative overburden emplacement areas, tailings storage, mine water dams, sediment dams, to determine if the source for the change is mining-related. Undertake additional monitoring until water quality improves or source/cause is identified.	Trigger 1: Notify E&C Coordinator/Manager. Trigger 2: If environmental harm has been caused, notify external agencies in accordance with PIRMP requirements. Conduct an investigation and if an incident has deemed to occur, submit a detailed report to DPE within seven days as per Schedule 5, Condition 9 of Mt Owen Mine (SSD-5850) or Glendell Mine (DA 80/952) development consent. Report in Annual Review.

Aspect	Normal	Trigger 1	Trigger 2	Notifications
Groundwater level – alluvial aquifers (not inclusive of Main Creek)	Groundwater level within historical range, based on climatic variation.	Trigger: Depth to groundwater increased outside of trigger range for 2 consecutive monitoring periods. Response: Note exceedance	Trigger: Depth to groundwater increased outside of trigger range for three consecutive monitoring rounds. Groundwater levels do not recover after six months. Response: Review climatic history and if related to extreme drought conditions. Implement appropriate mitigation and management measures, which may include advice from independent groundwater specialists. Undertake additional monitoring of mitigation and management measures. Review of hydrogeological modelling predictions.	Trigger 1: Notify E&C Coordinator/Manager. Trigger 2: If environmental harm has been caused, notify external agencies in accordance with PIRMP requirements. Conduct an investigation and if an incident has deemed to occur, submit a detailed report to DPE within seven days as per Schedule 5, Condition 9 of Mt Owen Mine (SSD-5850) or Glendell Mine (DA 80/952) development consent. Report in Annual Review.

Aspect	Normal	Trigger 1	Trigger 2	Notifications
Groundwater level – Main Creek alluvial aquifer	Groundwater level within historical range, based on climatic variation and/or Main Creek Alluvial Aquifer is not intercepted.	Trigger: Depth to groundwater increased outside of trigger range for 2 consecutive monitoring periods. OR Monthly geotechnical inspections of the North Pit highwall identify seepage. Response: Note monitoring results. Undertake more frequent geotechnical inspections of the highwall.	Trigger: Depth to groundwater increased outside of trigger range for three consecutive monitoring rounds. Groundwater levels do not recover after six months. OR Three consecutive months of geotechnical inspections of the North Pit highwall identify seepage. Implement appropriate mitigation and management measures, which may include advice from independent groundwater specialists. Undertake additional monitoring of mitigation and management measures, including the installation of a low permeability barrier. Review of hydrogeological modelling predictions.	Trigger 1: Notify E&C Coordinator/Manager. Trigger 2: If environmental harm has been caused, notify external agencies in accordance with PIRMP requirements. Conduct an investigation and if an incident has deemed to occur, submit a detailed report to DPE within seven days as per Schedule 5, Condition 9 of Mt Owen Mine (SSD-5850) or Glendell Mine (DA 80/952) development consent. Report in Annual Review.

Aspect	Normal	Trigger 1	Trigger 2	Notifications
Groundwater level – Hard Rock	Groundwater level within groundwater assessment prediction impact ranges.	Trigger: Depth to groundwater outside of trigger ranges for two consecutive monitoring rounds. Response: Note exceedance.	Depth to groundwater outside of trigger ranges for three consecutive monitoring rounds. Groundwater levels do not recover after six months. Response: Repeat sampling and compare to levels predicted by hydrogeological modelling. Identify any potential contributing factors. Implement appropriate mitigation and management measures, which may include advice from independent groundwater specialists. Review of hydrogeological modelling predictions.	Trigger 1: Notify E&C Coordinator/Manager. Trigger 2: If environmental harm has been caused, notify external agencies in accordance with PIRMP requirements. Conduct an investigation and if an incident has deemed to occur, submit a detailed report to DPE within seven days as per Schedule 5, Condition 9 of Mt Owen Mine (SSD-5850) or Glendell Mine (DA 80/952) development consent. Report in Annual Review.

Aspect	Normal	Trigger 1	Trigger 2	Notifications
Groundwater inflows	Groundwater inflows consistent with modelled predictions and within Water Access Licence (WAL) limits	Trigger: Groundwater inflow volume exceeds predictions by more than 10% for three consecutive months. Response: Review monitoring/in flow estimation methodology and validate inflow data. Identify any potential contributing factors. Investigate the source for the change in groundwater inflows and whether it is sourced from aquifers or a contribution from seepage through spoils.	Trigger: Groundwater inflow volume likely to exceed WAL limits. Response: Review water balance for associated groundwater pit, including consideration of seepage through spoils. Implement appropriate mitigation and management measures, which may include advice from independent groundwater specialists. Undertake additional monitoring of mitigation and management measures. Review of hydrogeological modelling predictions.	Trigger 1: Notify E&C Coordinator/Manager. Trigger 2: Notify DPE Water in accordance with conditions of WAL. Submit a detailed report to DPE within seven days regarding the incident as per Schedule 5, Condition 9 of Mt Owen Mine (SSD-5850) or Glendell Mine (DA 80/952) development consent. Report in Annual Review.

Aspect	Normal	Trigger 1	Trigger 2	Notifications
Channel stability	Watercourse monitoring indicates no areas of instabilities from visual inspections.	Trigger: Channel stability monitoring indicates degradation of watercourse stability relative to previous inspection. Response: Determine if degrading areas are active. If active, seek to stabilise the instabilities, which may include advice from a geomorphic specialist. Investigate cause for instabilities and whether recent construction works or mining-related activities have created the instability.	Trigger: Channel stability monitoring indicates one or more areas of degradation of watercourse stability, causing sediment loads to migrate and/or impact to riparian vegetation. Response: Implement Criteria Exceedance Protocol (Section 3.1). Seek to stabilise the instabilities, which may include advice from a geomorphic specialist. Investigate cause for instabilities and whether recent construction works or mining-related activities have created the instability.	Trigger 1: Notify E&C Coordinator/Manager. Trigger 2: If environmental harm has been caused, notify external agencies in accordance with PIRMP requirements. Report in Annual Review.

Aspect	Normal	Trigger 1	Trigger 2	Notifications
Downstream water users	No complaints from downstream water users regarding loss of surface water or groundwater availability (quality and/or quantity).	Trigger: Complaint from downstream water user regarding loss of water availability (quality and/or quantity). Response: Implement Complaints Management Protocol (Section 3.3). Review of relevant historical monitoring results (water quality and/or flow). Identification of any potential contributing factors. Investigate whether the change in water availability is due to mining-related activity. Provide feedback to complainant.	Trigger: Investigation into Trigger 1 identifies that change in downstream water availability is due to mining-related activity. Response: Implement Response Protocol for Adverse Impacts on Existing Surface Water and Groundwater Bore Supplies (Section 3.4). Implement appropriate mitigation and management measures, which may include advice from independent water resource specialists. Undertake additional monitoring of mitigation and management measures. Provide compensatory water supply to any landowner whose water supply has been adversely and directly impacted.	Trigger 1: Notify E&C Coordinator/Manager. Provide a timely response to complainant. Trigger 2: Notify NRAR (formerly DPE Water). Submit a detailed report to DP&E within seven days regarding the incident as per Schedule 5, Condition 9 of Mt Owen Mine (SSD-5850) or Glendell Mine (DA 80/952) development consent. Report in Annual Review.

Aspect	Normal	Trigger 1	Trigger 2	Notifications
Flooding	No forecast severe weather event. Surface water system managed appropriately, with sufficient freeboard in all surface water storages.	Trigger: Forecast severe storm event Surface water system managed appropriately, with sufficient freeboard in all surface water storages. Response: Inspection of flood management structures to ensure integrity and absence of flow obstructions. Utilise portable pumps to dewater flooded areas into sediment basins. Evacuate site if danger exists.	Trigger: Forecast severe storm event. Insufficient freeboard in surface water storages. Severe damage to flood management structures identified. Response: Undertake dewatering of relevant storages to areas where water storage capacity exists. Inspection of flood management structures to ensure integrity and absence of flow obstructions. Protect equipment and infrastructure. Utilise portable pumps to dewater flooded areas into sediment basins. Evacuate site if danger exists.	Trigger 1: Notify E&C Coordinator/Manager. Trigger 2: Notify emergency services as required. Report in Annual Review.

Aspect	Normal	Trigger 1	Trigger 2	Notifications
Riparian vegetation	Watercourse monitoring indicates no significant change in riparian vegetation quality or extent when compared with historical results and/or references sites.	Trigger: Monitoring indicates significant change in riparian vegetation quality or extent. Response: Identify any potential contributing factors. Investigate the source for the change in riparian vegetation and whether it was caused by mining-related activities.	Trigger: Investigation into Trigger 1 identifies that change in riparian vegetation is due to mining-related activity. Response: Implement appropriate mitigation and management measures, which may include advice from independent specialists. Undertake additional monitoring of mitigation and management measures.	Trigger 1: Notify E&C Coordinator/Manager. Trigger 2: Notify external agencies in accordance with PIRMP requirements. Submit a detailed report to DPE within seven days regarding the incident as per Schedule 5, Condition 9 of Mt Owen Mine (SSD-5850) or Glendell Mine (DA 80/952) development consent. Report in Annual Review.