MEMORANDUM

27 June 2024

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Re: CGO Open Pit Continuation Project (SSD-42917792) geotechnical peer review response

Introduction

This memo has been prepared in response to requests for additional information received from the Department of Planning, Housing and Infrastructure (DPHI), including:

- a request for additional information dated 12 June 2024 in relation to additional advice received from the Resources Regulator.
- a request for additional information dated 28 May 2024 in relation to the independent review report completed by Dr Stephen Fityus of Douglas Partners (Douglas review report) on the geotechnical stability assessments prepared in support of the Cowal Gold Operations (CGO) Open Pit Continuation (OPC) Project.

Background

The CGO pre-feasibility study (PFS) was completed to enable CGO to evaluate future open pit mining options, and to determine the best option to carry forward into a feasibility study (FS). The outcomes of the PFS informed the OPC Project Environmental Impact Statement (EIS). The PFS found that CGO could viably expand the current operations by excavating four new areas of at CGO including:

- Endeavour 42 Stage-I cutback (E42I), a new cutback on the existing Endeavour 42 Stage-H pit (E42H).
- Endeavour 41 (E41), a new open pit to the south of the current E42H.
- Endeavour 46 (E46), a new open pit to the north of the current E42H, and backfilled during LOM.
- Galway Regal Pit (GR), a pit that shares walls with both E42 and E46 and sits directly above the underground mine.

An overview of the OPC Project layout proposed in the EIS is presented in **Figure 1**.

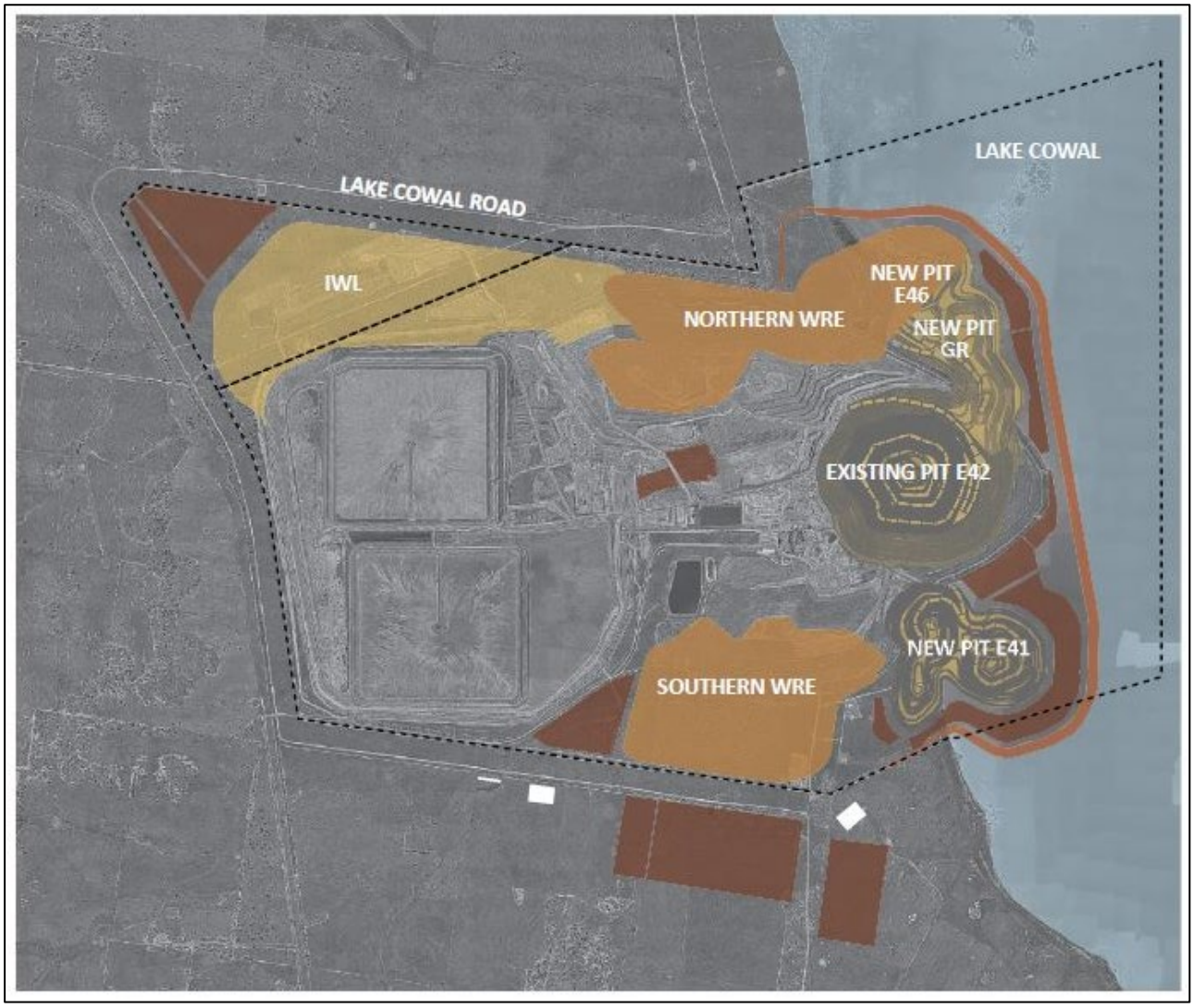

Figure 1 – CGO Project layout

The PFS determined that a business-as-usual approach to mining would be the most suitable way to mine the new areas, meaning that the current practice of utilising drill, blast, load and haul with the existing fleet would be adopted.

The PFS is considered an early phase of study, but is not for execution, as the level of confidence in this work is generally +/- 30% confidence. A program of works was identified as part of the PFS to inform the FS, which has since been completed, with ongoing work being undertaken to support the development of detailed designs for construction.

Response to Request for Additional Information (Dated 12 June 2024)

The DPHI Request for Additional Information dated 12th June refers to the advice from the Resources Regulator, dated 29 May 2024, which identified four (4) key recommendations to address the issue of establishing stable surface water management structures across the final landform associated with the OPC Project. The key issues included:

1. Stable surface of final landforms across the IWL and WRE – Specifically, design of surface water management structures.
2. Final landform for final voids – slope stability considerations: The Regulator notes that the independent peer review commissioned by DPHI and conducted by Douglas Partners has identified deficiencies regarding how the Design Acceptance Criteria takes into account the need to achieve long term stability of final void landforms. It is therefore the view of the Regulator that an appropriate FoS is applied to the final landform, specifically the oxides adjacent to the LPB. This is required to demonstrate these areas achieve long-term stability.
3. Final Landforms for final voids – erosion considerations: Whilst the Regulator's preference is that erosion modelling is done upfront to inform the final void design, our position is that the modelling is undertaken to inform erosion control/mitigation works as the pit is developed. This will be critical in the oxide areas exposed in the upper geological units adjacent to the LPB.

Detailed responses to the recommendations to address these issues are provided below.

Recommendation 1

> DPHI to specify a condition in the approval that the final landform and surface water management structures are designed to remain stable during significant rainfall events (volume and scour). This will need to meet ANCOLD requirements for the IWL facility.

The OPC project has engineered final landform and surface water structures to remain stable during significant rainfall events, these structures are a significant part of this response and include:

- Waste Rock Emplacements (WRE): There is a Northern and Southern WRE, these have been designed to accommodate the waste rock that will be generated by the expanded mining area of the OPC project. The OPC will maintain the final slope angle on these dumps at an angle of 1:5, this is in line with CGO's current practice which have demonstrated successful rehabilitation trials and erosion control.
- Integrated Waste Landform (IWL): The IWL is a tailings storage facility. CGO currently operates the IWL, and the OPC under its 'business as usual' approach, intends to expand the footprint of the IWL to the north of the existing IWL so that the additional tailings generated by OPC can be accommodated within the existing mining lease. The OPC IWL will not be required until after 2030 and the work undertaken to date has been completed with the intention of providing adequate information to inform the requirements of expanding the footprint of the dam as well as provide confidence in meeting the ANCOLD requirements.

WRE Approach to Design.

The Northern WRE is designed to height of 308 mAHD and the Southern WRE is designed to a height of 313 mAHD, with both structures designed to store waste material from the open pit voids that will be required for the OPC project. The E46 pit will be backfilled and then the WRE extended over the top of the footprint of the pit to reduce the disturbance area of the project.

Existing WREs at site have been designed to a 1:5 final slope angle. CGO has demonstrated that these slopes provide a suitable foundation upon which to rehabilitate, with a number of WRE surfaces being successfully rehabilitated. OPC adopted this historical approach to design and had additional erosion modelling undertaken to support this decision. Erosion modelling was undertaken on the OPC design which demonstrated that a final landform at a 1:5 would remain stable against erosion. Testing of 1:5 was extended above the design heights and surficial erosion was within targeted limits.

The slope angles of the WREs have been established to meet the erosion criteria and as a result the WREs demonstrate robust factors of safety.

IWL Approach to Design

The OPC will develop a northern IWL cell to accommodate the life of mine tailings; tailings material will continue to be deposited into the IWL as a slurry under sub-aerial conditions. The maximum height of the IWL will remain at 246 mAHD consistent with the current IWL approved height.

CGO has developed a comprehensive design for the new IWL that has been reviewed by subject matter experts including:

- Derrick McKenzie (Evolution Group Head of Tailings).
- Neil Mattis – AECOM Technical Lead (Dams) & Subsidence Expert.

The Douglas review report noted that the design stability analysis carried out to support the IWL conforms to the ANCOLD performance criteria for the design life of the facility being 10 years, however a Factor of Safety (FoS) of only 1.35 is demonstrated post closure.

CGO accepts the recommended condition of approval by the Resources Regulator that the IWL be designed and constructed to achieve the ANCOLD performance criteria for the IWL facility. The 1.35 FoS was determined using conservative estimates and CGO is confident that a FoS of 1.5 to meet ANCOLD can be delivered within the footprint outlined within the EIS submission.

As is detailed in the EIS, the expansion of the existing IWL is not required until after year 5 of the Project (currently anticipated to be 2030). A detailed program of works to further develop the design for construction of the expanded IWL is proposed to be completed by CGO prior to this date. This works program includes:

- Quantifying material erodibility (for material to be used in the construction and design of the expanded IWL) using an industry recognised method of erosion modelling.
- Undertaking a consequence category assessment of the IWL design in accordance with ANCOLD's *Guideline on the consequence category for dams* (2012, revised 2015).
- Development of detailed construction designs for the IWL with consideration to ANCOLD guidelines and with a minimum long-term FoS of 1.5.
- Development of a final landform design for the IWL including long term erosion control structures in accordance with the requirements of the Mining Regulation 2016 and with consideration to the Resources Regulator *Form and Way: Rehabilitation management plan for large mines* (dated 24 February 2024).

All works will be detailed within the Rehabilitation Management Plan developed in accordance with the requirements of the Mining Regulation 2016 and with consideration to the Resources Regulator *Form and Way: Rehabilitation management plan for large mines* (dated 24 February 2024). CGO is committed to responsible tailings management aligned with global best practice for; safety, the environment, and communities.

CGO's current and proposed tailings management approach is based on compliance with the site's Tailings Storage Facility Sustainability Performance Standard that is aligned with the Global Industry Standard on Tailings Management (GISTM) 49, and relevant guidelines to ensure structural stability and support risk mitigating actions. The IWL will continue to be operated in accordance with a Tailings Operations Manual and employ monitoring and surveillance systems to monitor the tailings storage facility performance over time. Where applicable, real-time monitoring will be utilised, and satellite monitoring adopted for all facilities. This information is integrated into a management system that outlines triggers and response requirements by all sites for active facilities. This is in line with CGO's current IWL management practices.

CGO will review, and where necessary update, the Tailings Operations Manual for the IWL throughout the life of the Project. Formal dam safety inspections are conducted at least annually by and independent Designer / Engineer of Record, and reports are issued to CGO for action of recommendations.

As a part of CGO's closure, final landform assessments will be undertaken to ensure that the IWL is rehabilitated in a manner that provides long term integrity of the tailings structure against rainfall and seismic events.

Recommendation 2

An updated final landform plan is provided within the Rehabilitation Management Strategy document showing the location of conceptual significant water management structures, including the 'open rock drain' structure that allows the flow of surface water over oxide material and into the E42 pit.

A key concern from the Douglas review report, and reiterated by the Resources Regulator, is the need to undertake detailed closure investigations to inform the geotechnical uncertainties related to long term stability of the pit walls during the detailed design phase rather than deferring these investigations to an unspecified time in the future. CGO acknowledges that although the work completed as part of the PFS, and used to inform the EIS satisfies many of the life of mine requirements for key infrastructure aspects, the detail and level of assessment to support long term stability post mine closure remains ongoing. CGO is committed to continue with a program of works to address current uncertainties, and to support detailed engineering designs for establishment of the pits that ensure long term risks to safety and the environment, post mine closure are adequately managed.

To support the ongoing and iterative design process, CGO will develop and maintain a detailed Final Void Management Plan as a part of the Site Rehabilitation Management Strategy. The purpose of the Final Void Management Plan will be to integrate planning and design for closure early in the Project life and will include a process that CGO will adopt in the development of the final landform.

The Final Void Management Plan would be developed within 6 months of approval and will include:

- collation of a knowledge base for the Project with detailed data such as:
    - chemical and physical properties of the regolith strata in the oxide and transition zone of the pit walls.
    - pit wall mapping – use geological and geotechnical data to increase the mapping from oxide, transition and fresh rock.
    - hydro-geological aspects including operational dewatering data.
- an overview of anticipated rehabilitation risks including technical gaps and proposed treatments, investigations, and controls to be investigated to minimise and manage any risks.

- development of a schedule for undertaking additional technical scopes which will include as a minimum:
    - a mining study to quantify final landform of the mining areas.
    - dewatering study to evaluate operational, transitional and closure plans for (active / passive) dewatering of the erodible pit walls.
    - quantifying material erodibility using an industry recognised method of modelling.
    - material assessment study to verify final pit wall chemical and physical properties and available materials for stabilising the erodible pit walls.
    - revegetation studies to determine which plants may be most effective for long term dewatering within final pit walls – these could be pot and/or in-pit trials.
    - hydraulic design studies to verify flow rates, velocities, and management controls for the final landform design.
- a program of data collection and validation throughout the construction of the Project.
- an outline of opportunities to refine and improve the final landform and final void outcomes over time.

Recommendation 3

Further information is required on how this FoS will be applied where any changes are required to the final landform design to achieve long term stability, this will need to be shown in an updated final landform plan.

As noted above, CGO proposes to develop a Final Void Management Plan as a component of the Rehabilitation Strategy. The Final Void Management Plan will detail a program of works that will be undertaken by CGO to support the design and final landform stability of pit walls. Whilst the Resources Regulator's preference is that erosion modelling is done upfront to inform the final void design, CGO proposes that a detailed program of works be implemented, including erosion modelling, that can be used to inform the final landform design and any long term erosion control and mitigation works that will be required. A key focus of the investigations that will be detailed within the Final Void Management Plan will be on the oxide areas exposed in the upper geological units, adjacent to the Lake Protection Bund. CGO proposes to develop the Final Void Management Plan in consultation with DPHI and the Resources Regulator, to ensure investigations and program schedules align with regulatory expectations and to ensure a safe and long term stable final landform design is achieved supported by scientifically robust information.

The investigations undertaken as part of the Final Void Management Plan will be used to inform a final landform design and minimum FoS in line with industry practice for long term stability. The Final Landform Design will be detailed within the site's Rehabilitation Management Strategy that will be reviewed regularly throughout the life of the Project as more information becomes available and investigation outcomes are considered.

Recommendation 4

> Should DPHI proceed with the approval, the Regulator recommends that specific conditions be included in the development consent to require erosion control measures to be implemented progressively as the pit is constructed to facilitate long term stability. For example, construct the final landform slope and implement erosion control measures as part of the pit construction.

CGO agrees that the implementation of progressive erosion controls throughout the staged development of the Project can be used to effectively manage erosion and stability risks, while investigations on developing a final landform design and long-term erosion control systems are further developed. As noted above, an operational Erosion and Sediment Control Plan will be prepared by CGO as a component of the site's operational Water Management Plan developed in accordance with the requirements of the Mining Regulation 2016 and with consideration to the Resources Regulator *Form and Way: Rehabilitation management plan for large mines* (dated 24 February 2024).

Response to Request for Additional Information (Dated 28 May 2024)

The Douglas review report was received by CGO on 28 May 2024. The report represents a desktop review of all geotechnical work carried out to support the original PFS which included:

- Geotechnical investigation for all open pit mining areas.
- The Integrated Waste Landform (IWL) tailings facility, and
- The Lake Protection Bund (LPB) which separates Lake Cowal from all new open pit mining areas.

In addition to the PFS work were several supporting geotechnical documents that were prepared subsequent to the PFS, which were reviewed as part of the Douglas review report, including:

- Geotechnical appendices from the OPC FS.
- An Independent Peer Review (IPR) of the OPC FS study undertaken by Australian Mining Consultants (AMC), and
- An operational Memo which was independent of the OPC work which was prepared to investigate a geotechnical event that occurred in E42H at a time approximating the conclusion of the FS (*Mining One Memo_3173_G_Final*).

The Douglas review report provides a sound overview of many geotechnical elements of the work that has been undertaken to support the preparation of the EIS and provides additional insight to the ongoing geotechnical work being prepared by CGO. Many of the recommendations made in the Douglas review report are reflective of the CGO studies' observations, and form part of a detailed program of works that will be implemented by CGO to inform detailed design and construction of key OPC Project elements.

The Douglas review report makes a number of references to insufficient geotechnical data being available to support execution of the Project. CGO notes that a detailed program of works, currently being undertaken, will continue to be progressed, to obtain a sufficient level of data to support detailed engineer designs for construction, and ensure long term risks to safety and the environment from the construction of mining pits and associated OPC Project infrastructure are adequately managed.

In correspondence from DPHI dated 12 June 2024, the Department requested further information in relation to the ability and implications to the Project in providing a higher level of flood protection from the LPB, including constructing the LPB to achieve the probable maximum flood extent (PMF) level, consistent with the current approved design.

A response to this specific aspect raised in the Douglas review report is provided below.

Lake protection bund.

Considerable effort has been made by CGO to design the LPB to meet needs of the business to meet a number of metrics including:

- Practicality of design, ensuring the LPB does not impact crown land and native title areas.
- Safety - meets or exceeds the current lake protection bund height and flood modelling demands.
- Material timing, minimise the use of materials from outside the existing mining area as to minimise impacts and emissions on the project.
- Minimise timing of construction to minimise risk of release from construction area.
- Flexibility to seamlessly deliver in either wet or dry conditions as presented at the time of construction.

The LPB is currently designed at an annual exceedance probability (AEP) of 0.1% which delivers a design that is approximately 1.0 m higher than the highest recorded level of Lake Cowal.

The currently proposed design is a balance between meeting functional requirements and minimising material movement through materials handling efficiency. The design of the LBP has been assessed to be geotechnically stable, supported by material testing that was conducted during the FS. The engineering specification already sets out the requirement that during construction, ongoing testing and geotechnical oversight be maintained to ensure the required engineering quality is delivered in the LPB design.

The Douglas review report has highlighted that there is potential for a future flood event to exceed the current 0.1% AEP. In response to concerns raised in the Douglas review report, CGO will commit to include in the final landform an LPB structure that exceeds the PMF level as determined by flood modelling. This final landform design consideration will be taken into account during detailed design and construction of the LPB.

During operation of the Project, the LPB will be constructed consistent with current designs (AEP of 0.1%) with the risks associated with rising lake levels managed under a trigger action response plan (TARP) as per the current Lake Isolation System. The increase in the height of the bund, using mined material to achieve the PMF for post closure, will be undertaken progressively as suitable material becomes available. The staging of this work to a post closure PMF design level will be detailed within the Rehabilitation Strategy.

The LPB will be designed and constructed to remain stable from scour during significant rainfall events, notably during high water events in Lake Cowal. The landform will include adequate allowance for wave motion and freeboard contingency.

Conclusion

The approach to design and implementation of the Project is an iterative process with ongoing input and refinement throughout the Project's execution and operation. CGO is committed to ensuring all aspects of the Project are designed with consideration to long term geotechnical stability based on robust data and analysis. CGO continues to invest in the OPC with ongoing work being prepared for many elements of the Project including IWL, LPB and pit designs. To provide confidence to DPHI and

the Resources Regulator that the Project will be constructed and operated with minimal long-term risk to stability, CGO proposes to document and implement a detailed program of works which will be used to inform final landform designs.

These programs of work will be prepared in consultation with DPHI and the Resources Regulator and documented as part of the development of the site's Rehabilitation Management Strategy and Rehabilitation Management Plan. The Rehabilitation Management Plan will be developed in accordance with the requirements of the Mining Regulation 2016 and with consideration to the Resources Regulator *Form and Way: Rehabilitation management plan for large mines* (dated 24 February 2024). CGO will continue to detail its planned three-year rehabilitation schedule (as well as other statutory requirements) through the Forward Plan, as required under clause 16 of Schedule 8A to the Mining Regulation 2016.

The detailed program of works will be developed within 6 months of approval being obtained and reviewed and refined throughout the life of the Project. The outcomes and progress of works will be documented in the site's Annual Rehabilitation Report that will be prepared and submitted to the Resources Regulator in accordance with the requirements of the Mining Regulation 2016 and various mining leases. The outcomes of the investigations completed as part of these works program will inform the final landform design which may evolve throughout the life of the Project as more information becomes available.

I trust this information is sufficient for your purposes. If you require any further information or wish to discuss these issues in more detail, please contact me on 0499 091 666 or email Pierre.Miquel@evolutionmining.com.

Yours sincerely,

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