April 2016

Independent Environmental Audit

Cowal Gold Operations

Photo courtesy of Cowal Gold Operations

Trevor Brown & Associates
APPLIED ENVIRONMENTAL MANAGEMENT CONSULTANTS

REPORT: CGO/REV1/JULY 2016

Independent Environmental Audit

Cowal Gold Operations

April 2016

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Independent Audit Certification Form

Development Name	Cowal Gold Operations
Development Consent No.	Development Consent 14/98
Description of Development	Gold Mine
Development Address	Lake Cowal Road, Lake Cowal NSW 2671
Operator	Evolution Mining – Cowal Gold Operations
Operator Address	Lake Cowal Road, Lake Cowal NSW 2671

Independent Audit

Title of Audit	Cowal Gold Operations Independent Environmental Audit April 2016

I certify that I have undertaken the independent audit and prepared the contents of the attached independent audit report and to the best of my knowledge:

• The audit has been undertaken in accordance with relevant approval condition(s) and in accordance with the auditing standard AS/NZS ISO 19011:2014 and Post Approval Guidelines – Independent Audits

• The findings of the audit are reported truthfully, accurately and completely;

• I have exercised due diligence and professional judgement in conducting the audit;

• I have acted professionally, in an unbiased manner and did not allow undue influence to limit or over-ride objectivity in conducting the audit;

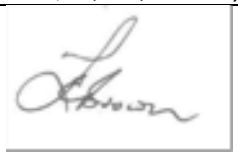
• I am not related to any owner or operator of the development as an employer, business partner, employee, sharing a common employer, having a contractual arrangement outside the audit, spouse, partner, sibling, parent, or child;

• I do not have any pecuniary interest in the audited development, including where there is a reasonable likelihood or expectation of financial gain or loss to me or to a person to whom I am closely related (i.e. immediate family);

• Neither I nor my employer have provided consultancy services for the audited development that were subject to this audit except as otherwise declared to the lead regulator prior to the audit; and

• I have not accepted, nor intend to accept any inducement, commission, gift or any other benefit (apart from fair payment) from any owner or operator of the development, their employees or any interested party. I have not knowingly allowed, nor intend to allow my colleagues to do so.

Note. a) The Independent Audit is an 'environmental audit' for the purposes of section 122B(2) of the Environmental Planning and Assessment Act 1979. Section 122E provides that a person must not include false or misleading information (or provide information for inclusion in) an audit report produced to the Minister in connection with an environmental audit if the person knows that the information is false or misleading in a material respect. The maximum penalty is, in the case of a corporation, $1 million and for an individual, $250,000. b) The Crimes Act 1900 contains other offences relating to false and misleading information: section 192G (Intention to defraud by false or misleading statement—maximum penalty 5years imprisonment); sections 307A, 307B and 307C (False or misleading applications/information/documents—maximum penalty 2years imprisonment or $22,000, or both).

Signature	
Name of Lead/Principal Auditor	Trevor Brown - Director Trevor Brown & Associates
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Date:	28 June 2016

DISTRIBUTION

Copies	Recipient
1 pdf copy	Cowal Gold Operations
6 Spiral Bound Copies	Evolution Mining - Cowal Gold Operations

This document was prepared for the sole use of Evolution Mining (Cowal) and the regulatory agencies that are directly involved in this project, as the only intended beneficiaries of our work. No other party should rely on the information contained herein without the prior written consent of trevor brown & associates.

by

trevor brown & associates

ABN: 65 850 181 279

136 Sanctuary Point Road, Sanctuary Point NSW 2540

28 June 2016

Trevor Brown

Principal Environmental Consultant/Auditor

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Abbreviations

AEMR	Annual Environmental Management Report
Annual Return	Annual Return required under the EPL No.11912
Annual Review	Review required under Development Consent 14/98 condition 9.1(b)
BCA	Building Code of Australia
BSC	Bland Shire Council
CEMCC	Community Environmental Monitoring and Consultative Committee
CGM	Cowal Gold Mine
CGO	Cowal Gold Operations
DEC	Department of Environment and Conservation
DECC	Department of Environment and Climate Change
DECCW	Department of Environment, Climate Change and Water
Department	Department of Planning and Environment
DII	Department of Industry and Investment
DITRIS	Department of Trade & Investment, Regional Infrastructure Services
Director-General	Director-General Department of Planning and Infrastructure, or delegate
DoP	Department of Planning
DP&E	Department of Planning and Environment (previously Department of Planning and Infrastructure)
DPI	Department of Primary Industries
DPI-Water	Department of Primary Industries-Water
DSC	Dam Safety Committee
EA	Environmental Assessment *Cowal Gold Mine Extension Modification* 12 Sep 2013
EP&A Act	*Environmental Planning and Assessment Act 1979*
EP&A Regulation	*Environmental Planning and Assessment Regulations*
EPL	Environment Protection Licence
IMP	Independent Monitoring Panel
INP	Industrial Noise Policy
ML	Mining Lease
NEPM	National Environmental Protection Measure
Minister	NSW Minister for Planning, or delegate
MOP	Mining Operations Plan
NOW	New South Wales Office of Water (now DPI-Water)
Secretary	Department of Planning and Environment, or delegate

Executive Summary

An independent environmental audit of the Cowal Gold Operations was conducted between the 26 and 29 April 2016 by Trevor Brown and Robert Drury of Trevor Brown & Associates, Michael Frankcombe of WPS Parsons Brinkerhoff (Rehabilitation) and Mathew Richardson of Niche Environmental (Ecology and Biodiversity), to assess the compliance status of the Cowal Gold Operations, in accordance with Consolidated Development Consent 14/98 condition 9.2(a). The independent environmental audit reviewed the status of compliance of the Cowal Gold Operations between May 2013 to April 2016.

The Cowal Gold Operations operated under Development Consent 14/98 MOD 10 until 22 July 2014 when Development Consent 14/98 MOD 11 was granted. The Cowal Gold Operations were conducted under the Development Consent 14/98 MOD 11 conditions between 22 July 2014 and April 2016.

The audit was undertaken generally in accordance with the Australian/New Zealand Standards AS/NZS ISO 19011:2014 - Guidelines for Auditing Management Systems and the Independent Audit Guideline (Department of Planning and Environment October 2015).

The documentation and files held at the Cowal Gold Operations site and interviews/discussions with relevant site personnel, provided the auditors with the required information for verification of compliance of the Cowal Gold Operations with Development Consent 14/98 and other statutory environmental approvals.

The Cowal Gold Operations have been developed generally in accordance with the environmental assessments prepared for project and the audit findings confirm an overall high standard of compliance with the Development Consent conditions, Environment Protection Licence and requirements of the environmental conditions attached to Mining Lease 1535.

Environmental Management Strategy

The Environmental Management Strategy approved by DP&E on the 28 November 2014 satisfies the requirements of Development Consent 14/98 MOD 11 condition 9.1 and provides a sound basis for the environmental management of the Cowal Gold Operations. The Environmental Management Strategy is supported by a suite of specific environmental aspect management plans that have been implemented as approved for the project under the Development Consent 24/98 conditions. Cowal Gold Operations are also ISO14001 certified for Mining and Ore Processing Operations and Support Services for Gold and Silver production.

Environmental Management Plans

All Cowal Gold Operations environmental management plans, strategies and monitoring programs were reviewed during 2015 to address the requirements in Development Consent 14/98 MOD 11. Revisions of the documents prepared where required were submitted to the relevant authorities for approval. All revised documents have been approved by the relevant authorities except for the Indigenous Archaeology and Cultural Heritage Management Plan, Rehabilitation Management Plan and Rehabilitation Strategy, Decommissioning Strategy for Water Management Structures & Long-term Management of Final Void and Lake Protection Bund Management Plan. Evolution Mining was still awaiting approval for these documents at the date of this audit (April 2016).

Annual Reviews

The annual reviews prepared for the Cowal Gold Mine Operations as Annual Environmental Management Reports (2013) and Annual Reviews (2014 and 2015), address the requirements of Development Consent 14/98 MOD 11 condition 9.1(b). The documents have been submitted to the relevant authorities and an annual presentation provided at the Cowal Gold Operations site for representatives of the authorities / stakeholders OEH/EPA, DPI-Water, DRE, DPI-Fisheries, Dam Safety Committee, Bland Shire Council and Community Environmental Monitoring and Consultative Committee.

Rehabilitation

The Rehabilitation and Biodiversity Offset Management Plan (in conjunction with the requirements of the Land Management Plan and Mining Operations Plan) provide a basis for the rehabilitation of the Cowal Gold Operations site. Progress with the application of the rehabilitation methods outlined in the management plans and MOP has been negatively affected due to the influence of the extreme weather conditions experienced (wet during 2010-2011 and dry in 2012-2016).

Rehabilitation trials on the Cowal Gold Operations site to determine suitable substrates and procedures for the stabilisation and revegetation have exhibited variability of results of vegetative establishment on the blends of rock, subsoil, gypsum and mulches. The rehabilitation targets outlined in the MOP and reported in the Annual Reviews were generally not met during the 2011 to 2015 due to the influence of the extreme weather conditions. The improvement in the rehabilitation of the Southern and Northern Waste Rock Emplacements noted during the 2015 and 2016 audit, indicated that Cowal Gold Operations are progressing towards conforming with the rehabilitation targets in the MOP. This audit noted a significant increase in the areas of rehabilitation that had been achieved between May 2015 and April 2016 since the full time bulldozer resource and dedicated operator had been introduced to the Environment team.

Heritage Management

The Indigenous Archaeology and Cultural Heritage Management Plan developed and implemented for the Cowal Gold Mine provides adequate management and controls for the protection of Aboriginal interests in the MLA. Archaeological investigations and collection of artefacts prior to disturbance of any area of the Cowal Gold Operations site have been managed by Dr Colin Pardoe and Dr Kamminga (Consultant Archaeologists) and Cultural Heritage Officers provided by Wiradjuri Condobolin Corporation. The surveys are conducted under Section 87 Permits and Section 90 Consents issued under the *National Parks and Wildlife Act*.

The Non-Indigenous Heritage Management Plan prepared for the Cowal Gold Mine site provided for management of the 'Cowal West Homestead Complex' components (including the living quarters and Shearing Shed). Demolition of the Homestead complex, as approved under Development Consent 14/98 MOD 9 March 2010 occurred during 2011-2012. The Shearing Shed was dismantled and relocated and re-constructed at the Lake Cowal Foundation Information Centre in April 2013.

Flora and Fauna

The Flora and Fauna Management Plan (2015) prepared for the Cowal Gold Operations is compliant with the requirements of Development Consent 14/98 MOD 10 condition 3.4 and Development Consent 14/98 MOD 11 condition 3.2, and provides an adequate basis for the management of flora and fauna on the project ML 1535 area and surrounding mine owned land. The implementation of the commitments in the Flora and Fauna Management Plan are supplemented by the commitments in the Compensatory Wetland Management Plan, Land Management Plan, Rehabilitation and Offset Management Plan, and Surface Water, Groundwater, Meteorological and Biological Monitoring Program.

The monitoring program reports prepared under the Flora and Fauna Management Plan have provided a comprehensive ongoing assessment of the status of flora, fauna, avifauna, fish and habitats of the Cowal Gold Operations project development and demonstrate that the project has not had a measurable negative impact on the surrounding environment or its flora and fauna.

Compensatory Wetland

The Compensatory Wetland Management Plan provides a comprehensive management and monitoring regime that is providing detailed reports on the status of the accessible compensatory wetland areas. The surveys and reports on the flora and fauna in the declared areas are indicating that the removal of livestock from grazing in the compensatory wetland areas and the climatic influences (particularly the heavy rainfall years and flooding of the Lake Cowal area), have had a significant influence on the structure and composition of the lake foreshore communities.

Biodiversity Offset

A Biodiversity Offset Strategy and Biodiversity Offset Management Plan was submitted to DP&E following consultation with OEH and approved by DP&E on 21 March 2016. A Conservation Bond was lodged with DP&E (to satisfy Development Consent 14/98 MOD 11 condition 3.4(d)), in December 2015. A Voluntary Planning Agreement (VPA) for the Offset Areas was prepared and submitted to DP&E on 28 April 2014. A decision on the Voluntary Planning Agreement (VPA) by DP&E in relation to the long term protection of the biodiversity offset areas was still under consideration by DP&E at the date of this audit (April 2016).

Erosion and Sediment Control

The erosion and sediment control strategies implemented under the Erosion and Sediment Control Plan have been implemented for the CGM project site and are considered to be effective in meeting the objectives of the Erosion and Sediment Control Plan, as demonstrated by the environmental performance indicators. The Erosion and Sediment Control Plan is generally consistent with requirements in *Managing Urban Stormwater: Soils and Construction (Volume 2E – Mines and Quarries) Manual* (EPA 2008) Appendix C.

Soil Stripping

The Soil Stripping Management Plan has been implemented and the separation of the topsoil and subsoil horizons stockpiles has occurred. Reuse of the topsoil and subsoil has occurred for rehabilitation trials and final constructed surfaces on the tailings storage facilities and waste rock emplacement areas. The Soil Stripping Management Plan and implementation is considered adequate and representative of mining best practice. The topsoil stockpile database is updated as new mining stockpile information is obtained from estimates determined from the site activities. Aerial photography and surveying of the soil stockpiles is conducted to accurately record soil stockpile locations and volumes.

Land Management

The Land Management Plan prepared to satisfy Development Consent 14/98 provides the basis for the long term management of the disturbed areas of ML 1535 and collates many of the commitments in other plans that also have associated long term management and rehabilitation strategies / processes for the project (e.g. Flora and Fauna Management Plan, Remnant Vegetation Enhancement Program, Rehabilitation and Offset Management Plan, Compensatory Wetland Management Plan etc.).

The monitoring surveys related land management conducted between 2013 and 2016 have shown the effects of the meteorological conditions (mainly associated with rainfall) on the diversity and establishment of species across the Cowal Gold Operations site and surrounding Evolution Mining (Cowal) owned land.

Water

The Water Management Plan prepared to satisfy Development Consent 14/98 conditions has provided an adequate program for the management of water and controlling the surface water quality from the disturbed areas of the Cowal Gold Operations site. The water monitoring program has been conducted in accordance with the Surface Water, Groundwater, Meteorological and Biological Monitoring Program and Erosion and Sediment Control Management Plan. The independent revision of surface water monitoring data (David McMahon of McMahon Earth Science - D M McMahon Pty Ltd) concluded that theresults of the surface water monitoring reported for 2014 did not exhibit any trend that indicated a connection between the closed catchment of the Cowal Gold operations and Lake Cowal waters and the independent review of groundwater monitoring data *(*Coffey Geotechnics) concluded that *"The monitoring data did not exhibit results that indicated a connection between the closed catchment of the CGM operations and the waters of Lake Cowal."*

Hazardous Waste and Chemical Management

The Hazardous Waste and Chemical Management Plan provides the processes and procedures on site for the management of all hazardous chemicals transported to, stored on, used in the process plant, and hazardous wastes generated on site. The handling of fuels, oils, and chemicals on site is managed in accordance with the plans, audits and reporting required under Development Consent 14/98 condition 5.4, the Emergency Response Management Plan and Safety Management System. All mine wastes (i.e. waste rock, tailings, contaminated material) generated on site are managed under a waste management plan. Recyclable wastes and administrative/putrescible wastes are managed under contract with JR Richards and Sons.

The Hazardous Waste and Chemical Management Plan has been revised regularly to address the changes in Cowal Gold Operations under the various Modifications to Development Approval 14/98. The management procedures and protocols have resulted in best practice for any mine waste materials, chemicals transported to, stored and/or used on the site.

Cyanide Management

The Cyanide Management Plan prepared to satisfy Development Consent 14/98 condition 5.3(b), and subsequent addenda prepared for the Plan were approved by DP&I. The management of cyanide at the Cowal Gold Operations site and process plant is representative of best practice. Cowal Gold Operations is a signatory to the *International Cyanide Management Code for the Manufacture, Transport, and Use of Cyanide in the Production of Gold.* Regular third party audits of the site practices and record keeping have confirmed compliance with the requirements of the *International Cyanide Management Code*.

Between May 2013 and April 2016 no cyanide results exceeded the 20mg CN_{WAD}/L or the maximum 30mg CN_{WAD}/L level. Donato Environmental Services reported on wildlife visitation to the tailings storage facilities and noted that deaths of avifauna attributable to cyanide in the tailings storage facilities had not occurred between May 2013 and April 2016. It was also noted that the monitored cyanide concentrations were all below the level that would be expected to cause mortality.

Dust

The Dust Management Plan (2009) / Air Quality Management Plan (2015) were prepared to satisfy Development Consent 14/98. The management plans were implemented for the Cowal Gold Operations and compliance with the dust impact assessment criteria was achieved at all residences and all bird-breeding areas. The dust data collected from the monitoring program has been independently reviewed annually by Dr Stephen Cattle of University of Sydney. No community complaints in relation to dust were received between May 2013 and April 2016.

Noise

The Noise Management Plan prepared to satisfy the requirements of Development Consent 14/98 MOD 10 condition 6.4(g) was implemented for the Cowal Gold Mine operations until March 2015. The revised Noise Management Plan prepared to satisfy Development Consent 14/98 MOD 11 condition 6.4(e) and approved by DP&E on 5 March 2015, was then implemented for the Cowal Gold Operations.

The implementation of the control strategies outlined in the Noise Management Plan have minimised noise emissions from the Cowal Gold Operations and are considered to be best practice and effective as demonstrated by the noise monitoring data and environmental performance indicators.

Operational noise surveys have demonstrated that Cowal Gold Operations is operating in compliance with the noise assessment criteria imposed in the Development Consent 14/98 and EPL conditions, and commitments made in the Environmental Assessments. No operator attended noise monitoring results exhibited exceedance of the noise impact assessment criteria, between the May 2013 and April 2016.

Blasting

The Blast Management Plan implemented for the Cowal Gold Operations provides a sound basis for the control of overpressure noise and vibration impacts from mining activities. Blast methodology procedures in the Blast Management Plan and Standard Operating Procedure conform to best practice as outlined in current regulatory guidelines.

Blast overpressure and vibration monitoring from May 2013 to April 2016 demonstrated compliance for all blasts conducted between Monday and Saturday with the criteria specified in the Development Consent/EPL/ML conditions.

Apparent non-compliance measurements that occurred between May 2013 and April 2016 were related to blast overpressure exceeding the 95 dB(L) level on Sundays and Public Holidays. These results were assessed by SAROS monthly and determined to have mainly occurred as a result of ambient wind speed and direction (as determined by meteorological data assessed). The majority of other instances where overpressure noise related events exceeded the 95 dB(L) criteria were due to local environmental factors, and were not able to be differentiated from background levels. The small number of overpressure events that were assessed to be blast related exhibited levels that were less than 2dBL above the Sunday and Public Holiday criteria. No community complaints were received.

Independent Monitoring Panel

The Independent Monitoring Panel (IMP) Reports prepared annually between 2013 and 2015 have provided a useful third party review of the status of the CGM activities in relation to environment and rehabilitation monitoring. Cowal Gold Operations have responded to the IMP recommendations in a timely manner and developed programs addressing the recommended requirements within the subsequent 12 month IMP review period where practicable.

1. Introduction

1.1 Background

The Development Consent 14/98 granted on 22 July 2014 for the Cowal Gold Operations (CGM) requires an Independent Third Party Audit of compliance in accordance with the Development Consent 14/98 MOD 11 condition 9.2(a) – Independent Environmental Audit:

> *"By the end of July 2016, and every 3 years thereafter, unless the Secretary directs otherwise, the Applicant shall commission and pay the full cost of an Independent Environmental Audit of the development. This audit must:*
>
> - *be conducted by a suitably qualified, experienced and independent team of experts whose appointment has been endorsed by the Secretary;*
> - *include consultation with the relevant agencies, BSC and the CEMCC;*
> - *assess the environmental performance of the development and assess whether it is complying with the requirements in this consent and any other relevant approvals (such as environment protection licences and/or mining lease (including any assessment, plan or program required under this consent);*
> - *review the adequacy of any approved strategy, plan or program required under this consent or the abovementioned approvals; and*
> - *recommend measures or actions to improve the environmental performance of the development, and/or any strategy, plan or program required under this consent."*

The Independent Environmental Audit site inspections and document review was conducted by Trevor Brown & Associates endorsed by the Department of Planning and Environment on 20 January 2016:

- Trevor Brown Principal Environmental Management Auditor, Trevor Brown & Associates
- Robert Drury Gold Mine Environmental Management Consultant, of Trevor Brown & Associates
- Michael Frankcombe Rehabilitation Expert, WP Parsons Brinkerhoff
- Matthew Richardson Biodiversity/Ecology, Niche Environmental and Heritage

1.2 Scope of Work

The audit was conducted generally in accordance with the Australian/New Zealand Standards AS/NZS ISO 19011:2014 - Guidelines for Auditing Management Systems and the Independent Audit Guideline (Department of Planning and Environment October 2015).

The Cowal Gold project operated under Development Consent 14/98 MOD 10 until 22 July 2014 when Development Consent 14/98 MOD 11 was granted. The Cowal Gold Operations have been undertaken in accordance with the MOD 11 conditions since 22 July 2014.

The scope of work for the independent environmental audit of the Cowal Gold Operations included the following components:

- review of the implementation of the requirements of the development consent conditions, and other environmental licences and approvals with environmental conditions for the operation of the Cowal Gold Operations;

- conduct site inspections and review on-site documentation and monitoring data relevant to the independent environmental audit;
- hold discussions with project staff in relation to the Development Consent conditions and implementation of the requirements;
- assess compliance of the Cowal Gold Operations with the Development Consent conditions and other environmental approval conditions; and
- prepare an Independent Environmental Audit Report providing assessment of compliance against the environmental approval conditions.

1.3 Structure of the Report

The report has been prepared to provide comment on each condition of approval in a tabulated form, with additional discussion in the main text of the document where required on specific matters. The tabulated comments are attached for the Development Consent conditions, Environmental Protection Licence (EPL) conditions and Mining Lease (ML) environmental conditions, with discussion of the status of compliance provided where relevant:

Abbreviations
Executive Summary
Section 1 Introduction
Section 2 Cow\al Gold Operations Development
Section 3 Environmental Consents, Approvals and Licences
Section 4 Agency Consultation
Section 5 Review of Environmental Management
Section 6 Conclusions
Attachment A Development Consent 14/98 Conditions of Approval
Attachment B Environment Protection Licence No. 11912 Conditions
Attachment C Mining Lease No. 1535 environmental conditions

1.4 Compliance Tables

This audit assessed the activities for compliance with the intent of the Development Consent Conditions of Approval, Environment Protection Licence and Mining Lease conditions via site inspections, document review and verification of relevant documentation related to the conditions of approval in Attachments A – C.

The compliance status is expressed in the Attachments to this report as:

Ranking	Compliance Status
Compliant	Where verifiable evidence demonstrates compliance with the intent of the elements of the Development Consent condition and appropriateness of implementation against the condition has occurred.
Compliant Ongoing	The intent and specific requirements of the condition have been met (as above) and the requirements are ongoing for the operation of the project.
Administrative Non-compliance	A technical non-conformance with a Project Approval condition that would not result in material harm to the environment (e.g. the submission of a report to government later than required under the approval conditions).

Ranking	Compliance Status
Non-Compliance – Low Risk	Non-compliance with the potential for moderate environmental consequences, that is unlikely to occur, or, potential for low environmental consequence but is likely to occur.
Non-Compliance – Moderate Risk	Non-compliance with the potential for serious environmental consequences but unlikely to occur, or, potential for moderate environmental consequence but likely to occur.
Non-Compliant – High Risk	Non-compliance with potential for significant environmental consequences, regardless of the likelihood of occurrence.
Not active / Not triggered	A regulatory approval requirement / condition that has an activation or timing that had not been triggered at the time of the audit.
Noted	A statement or note where no assessment of compliance is required.

Any Non-compliance (if identified) other than an Administrative Non-compliance, will be subject to a risk assessment in accordance with the *Draft Guidelines – Independent Environmental Audits of Mining Projects* section 7.2 and reported in Conclusions of this audit report.

1.5 Audit Protocol

The Independent Environmental Audit process involved the review of documentation and monitoring records provided by Cowal Gold Operations, site inspections and interviews with Cowal Gold Operations personnel. The information obtained from site inspections and document review was assessed for compliance status with the Development Consent 14/98 and other environmental approval conditions and environmental performance of the Cowal Gold Operations with the approval conditions. Information evaluation included:

- assessment of Cowal Gold Operations activities and environmental performance in relation to compliance with the Development Consent and other environmental approval conditions applicable to the project;
- as appropriate, confirmation of conformance with the criteria / standards against which the independent environmental audit has been conducted, where specified in conditions;
- review of relevant Cowal Gold Operations documentation and monitoring data and observations made during the site inspections was assessed and outcomes collated to ensure that audit findings can be verified and conclusions substantiated;
- risk level of any non-compliance identified (consistent with the *Independent Audit Guideline* section 4.1 Table 2 assessment) was conducted to rank the risk of issues in relation to environmental harm.

Relevant Government agencies were contacted prior to the audit to obtain an indication of any specific issues considered by the agency to require specific review and comment in the audit and findings. The audit team addressed any agency matters during the audit assessment process.

Government agencies contacted were:

- Department of Planning and Environment
- Environment Protection Authority
- Office of Environment and Heritage

- DPI- Water
- Division of Resources and Energy
- Bland Shire Council

A detailed site inspection of the Cowal Gold Operations was undertaken between 26 and 29 April 2016 by the audit team. The following locations were inspected:

- Open Cut mining operations;
- Rehabilitation of areas where surface disturbance was completed;
- Process plant area;
- Bulk fuel and chemical storages areas;
- Surface water management structures and systems;
- Waste rock emplacement areas, tailings storage facilities and general waste management areas.

1.5 Limitations of the Audit

The auditor received complete cooperation from Cowal Gold Operations staff during the audit. Any documentation not immediately available during the site visit / inspection was provided to the auditors for review subsequent to the site visit.

The findings of the audit are based upon visual observations on the Cowal Gold Operations site, interviews with site personnel and review of documents and records provided by Cowal Gold Operations. Opinions presented in this audit report apply to the site as observed at the time of the audit inspection and from information provided by Cowal Gold Operations personnel. Any changes to this information of which the Trevor Brown & Associates is not aware and has not had the opportunity to evaluate, cannot therefore be considered in this report. The auditor has taken due care to consider all reasonably available information provided during the audit and has taken this information to represent a fair and reasonable characterisation of the environmental status of the site.

The adequacy of strategy/ plans / programs required under the consent were assessed by reference to the requirements of the conditions of approval for Cowal Gold Operations.

2. Cowal Gold Operations Development

Barrick developed and operated the Cowal Gold Mine between 2004 to 2015 following receipt of the Development Consent 14/98 Conditions of Approval for the Cowal Gold Mine on 26 February 1999 and preparation and approval of the required environmental management plans in accordance with the Development Consent conditions, construction activities associated with the mine and process plant development commenced in January 2004.

Commissioning of the process plant began in March 2006. Operation of the mine and process plant continued between 2004 and April 2016 generally in accordance with the development described in the documents Environmental Impact Statement – *Cowal Gold Project* dated 13 March 1998 and approved Modifications 1-10, and Environmental Assessment *Cowal Gold Mine Extension Modification* dated 12 Sep 2013.

Cowal Gold Mine Pit

Modifications and approvals for the following related infrastructure components were also granted for the Cowal Gold Project:

- Upgrade of the mine access road from West Wyalong to the Cowal Gold Mine: Approval for the upgrade of the mine access road was granted by the Bland Shire Council on 21 April 1999 under Part 5 of the EP&A Act.
- Temora to Cowal 132 kV ETL: Approval for the ETL (Figure 1-2) was granted by the NSW Minister for Urban Affairs and Planning on 3 August 1999 under Part 5 of the EP&A Act.
- A Development Consent (DA 2011/64) for the operation of the eastern saline borefield was granted by the Forbes Shire Council on 20 December 2010. The approved operation of the eastern saline borefield includes the use of two production bores to extract water from the Cowra Formation aquifer and the use of existing associated works (including a pipeline) to deliver the saline water to the Bland Creek Palaeochannel Borefield pipeline.

- Modifications to Development Consent 14/98 occurred on 11 August 2003, 22 December 2003, 4 August 2004, 23 August 2006, 12 March 2008 (Mod 5), 11 February 2009 (Mod 7), 28 August 2009 (Mod 8), 10 March 2011 (Mod 6), 17 January 2011 (Mod 9), 6 July 2011 (Mod 10), and 22 July 2014 (MOD 11).

Development Consent 14/98 MOD 11, granted on 22 July 2014 for the Cowal Gold Mine Extension Modification, included:

- extension of the operational life of the Cowal Gold Operations. until 2024;
- continued development of open pit mining operations including expansion of the extent and depth of the open pit;
- continued and expanded development of the existing Northern and Southern waste rock emplacements within ML 1535 for waste rock over the life of the mine, including: - raising the maximum design height of the northern waste rock emplacement to 308 metres (m) Australian Height Datum [AHD];
  - raising the maximum design height of the southern waste rock emplacement to 283 m AHD; and
  - extension of the northern waste rock emplacement to the west with an additional disturbance area of approximately 39 hectares (ha);
- an increase in total gold production to approximately 3.8 million ounces;
- continued use of the existing tailings storage facilities for the deposition of tailings produced over the life of the CGM, including raising the maximum design height of:
  - the northern tailings storage facility (NTSF) to 248 m AHD; and
  - the southern tailings storage facility (STSF) to 255 m AHD;
- no change to the use of cyanide destruction in tailings prior to deposition in the tailings storage facilities, with no change to the approved cyanide concentration limits in the aqueous component of the tailings slurry stream specified in Development Consent 14/98;
- continued and expanded development of soil stockpiles, the relocation of existing soil stockpiles and stockpiling of mineralised material (i.e. potentially commercial ore) within ML 1535;
- no change to the use of currently approved external water supply sources (e.g. Bland Creek Palaeochannel Borefield, Eastern Saline Borefield and Lachlan River water entitlements via the Jemalong Irrigation Channel);
- additional internal surface water management infrastructure, including:
  - modification to the existing contained water storage D5 (including the potential for a new D5A water storage) to maintain the storage capacity of the existing D5; and
  - construction of a new water supply storage D10;
- construction of a new pump station on the eastern side of Lake Cowal to improve capacity/flow of the existing mine water supply pipeline, and associated diesel generator and access track; and
- a revised rehabilitation cover system to reflect the findings of ongoing rehabilitation trials at the site.

Evolution Mining acquired 100% interest in the Cowal Gold Project from Barrick Gold Corporation (Barrick) in 2015.

Figure 1:Cowal Gold Operations – April 2016

Northern Waste Emplacement Area shaped and rehabilitated (April 2016)

CGM Tailings Storage Facilities

CGM Pit (viewed from the east)

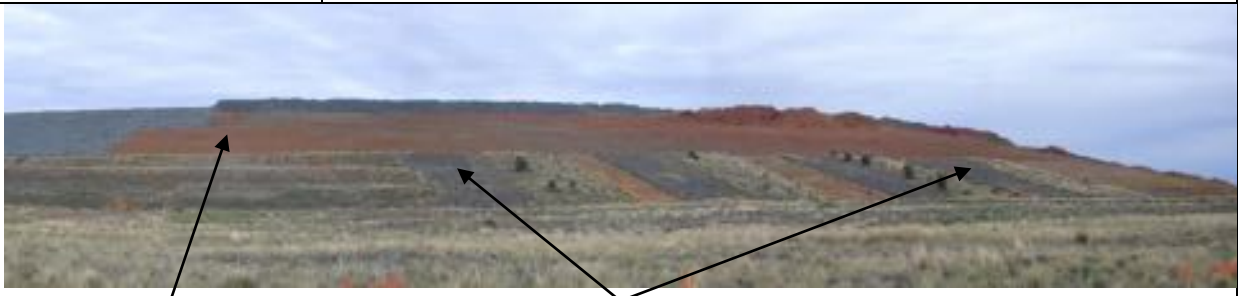
2.1 Mine Development May 2013 to April 2016

The Cowal Gold Operations development between May 2013 and April 2016 occurred in accordance with Development Consent 14/98 MOD 10 between May 2013 and July 2014, and Development Consent 14/98 MOD 11 between 14 July 2014 and April 2016. The Development Consent 14/98 MOD 11 requirements were implemented with new or revised/updated environmental management plans prepared to satisfy the MOD 11 conditions after 14 July 2014. Mine development that occurred between May 2013 and April 2016 are summarised in Table 2.1.

Table 2.1: Cowal Gold Operations Status April 2016

Infrastructure Component	Status May 2014 to April 2015
Northern Waste Rock Emplacement (NWRE)	No areal expansion of the NWRE occurred between May 2013 and April 2016. The NWRE emplacement continued to receive waste from the open pit development. Some reclamation and shaping of the outer northern batters occurred during 2013/2015 with rehabilitation trials established on the batters in 2015.
 **The Northern Waste Rock Emplacement (NWRE) continued to receive waste rock - May 2013 to April 2016.**	
Rehabilitation works on the northern face of NWRE adjacent to Pond D1	The south wall of Pond D1 was raised 0.50m in mid-February 2012 as a precaution against further heavy rainfall events. Replicate rehabilitation trials adjacent to Pond D1 on the northern face of NWRE were constructed using the rock-topsoil method as a basis. The rehabilitation of this area was progressed in 2014/2015 with re-contouring and placement of rock / topsoil surfacing prior to seeding and planting of tube-stock.
 **Rehabilitation works on NWRE (April 2016) with revegetation of the lower batters.**	
Southern Waste Rock Emplacement (SWRE)	The SWRE continued to receive waste rock with the north-west corner of the SWRE expanded in February 2015 into an area of the basal layer where the 'Cowal West' homestead stood until May 2012. The rehabilitation trials on the south side of the

	SWRE have continued. The vegetation establishment on the trial plots has continued to provide information on the most suitable rehabilitation procedure(s) for the waste rock emplacements, tailing storage facility bunds and other disturbed areas. The shaping, topsoil placement and progressive rehabilitation of the western end of the SWRE occurred during 2015 with revegetation of the finished batters commenced.



SWRE establishment of vegetative growth on the trial plots April 2015 and shaping topsoiling of the upper batters readied for revegetation of the upper slopes that have reached the finished RL. .

Perimeter Waste Emplacement (PWE)	No expansions occurred on the Perimeter Waste Emplacement between May 2014 and April 2015. Some trials and rehabilitation of the batters above the Lake Protection Bund roadway occurred during 2015 with contouring, rock and topsoil placement and seed and tube stock planting. The establishment of grass cover and successful growth of tube stock was observed during the April 2016 site inspection. The upper batters of the PWE were shaped and contoured and topsoil placed ready for revegetation when the weather conditions are suitable for germination of seed.

Perimeter Waste Emplacement rehabilitation trials of the outside lifts (above the Lake Protection Bund)

Southern Tailings Storage Facility (STSF)	The STSF was operational from April 2013 with tailings deposition occurring until mid-2014. A new lift was constructed on the STFS during 2014/15 and the TSF walls modified to meet the Tailings Management Standard for the TSF walls to withstand a 1:5000 earthquake event. To achieve this standard rehabilitated material was stripped from the TSF walls to allow rock buttressing to be placed.

STSF outer batter being strengthened with rock butress to meet the Tailings Management Standard for earthquake stability.

Northern Tailings Storage Facility (NTSF)	The NTSF was used from mid-2014 and 2015 (while the new lift was constructed on STFS) and a new lift was being constructed on the NTFS during 2015/16 with the TSF walls modified to meet the Tailings Management Standard for the TSF walls to withstand a 1:5000 earthquake event.

NTSF receiving tailings from mid-2014 to April 2015.

NTSF new lift construction during 2015/16 with TSF walls modified to meet the Tailings Management Standard for earthquake stability.

Temporary Isolation Bund and Lake Protection Bund	Lake Cowal waters reached the Temporary Isolation Bund in August 2010 and the Temporary Isolation Bund was overtopped by the waters of Lake Cowal in mid-February 2012. When Lake Cowal waters dried up, re-establishment of native vegetation occurred along the Temporary Isolation Bund. The outer faces on either side of the Lake Protection Bund road were stabilised using the rock-topsoil method from late-2011 to the start of the heavy rains of early 2012. The establishment of natural vegetation on the Temporary Isolation Bund batters provided protection of the outer bund wall from wind / wave erosion resulting from the waters of Lake Cowal.

Temporary Isolation Bund - establishment of natural vegetation providing protection and stabilisation of the outer bund wall from the waters of Lake Cowal (when the lake bed was inundated).

3. Consents, Approvals and Licenses

3.1 Development Consents and Project Approvals

Development Consent (DA14/98) was granted on 26 February 1999 under the *Environmental Planning and Assessment Act* 1979 (EP&A Act) with the Minister's Conditions of Approval for the Cowal Gold Mine Project. Modifications 1 to 10 for Development Consent 14/98 were granted between August 2003 and January 2011 for the development of the Cowal Gold Mine Project.

Notice of Modification (MOD 11, dated 22 July 2014) provided approval for:

- an increase in the area and depth of the existing open pit;
- consequential increases to the size of the waste rock emplacements,
- soil stockpiles and tailings storage facilities;
- an increase in the water storage capacity of the mine and the construction of a new pumping station on the eastern side of the lake to increase the pumping capacity of the water supply pipeline across the lake; and
- removing the life-of-mine water take cap (30,000ML) from the Bland Creek Paleochannel borefield and relying on the existing daily and annual caps.

Table 3.1: Recent Modifications to Development Consent DA14/98

Date of Modification	Modification Summary
Modification 12 16 May 2016 (section 75W	MOD 12 Application under the Environmental Planning and Assessment Act section 75W was submitted to DP&E on 24 March 2016 and the Determination for MOD 12 was received on 16 May 2016. MOD 12 involved a small number of minor amendments to the MOD 11 conditions.
Modification 11 22 July 2014 (Part3A Mod)	Cowal Gold Mine Extension Modification provides for the continuation of open cut mining operations at the CGM for an additional operational life of five years.
Modification 10 December 2010 (Part 3A Mod)	MOD 10 involved use of an increased proportion of saline water at the mine allowing for the operation of Stage 1 of the eastern saline bore-field.

Review of compliance with the Consolidated Development Consent 14/98 MOD 11 conditions is summarised in Attachment A.

3.2 Environment Protection Licence

Barrick (Cowal) Pty Limited received an Environment Protection Licence (EPL) 11912 under section 55 of the *Protection of the Environment Operations Act 1997* for the Cowal Gold Mine on 23 December 2003.

Notices of Variation of the Licence between 2013 and 2016 have been advised by the EPA and are summarised in Table 3.2.

Table 3.2: Recent Notices of Variation to Environment Protection Licence 11912

Date	EPL Notices of Variation
21 May 2014 1522063	c.L4.1 - Modify sensitive receptor noise monitoring locations, limits and frequency. c.M2.4 – Update to state that the monitoring at points 14, 15, 16, 17 and 18 - not required when the water level in Lake Cowal is at or below 204.5mAHD.
24 Jul 2014 1523564	The following variations have been made to the licence: • Update condition M7.1 to: - Include reference to blast monitor BM08.1; - Omit reference to blast monitor BM06; and - Replace blast monitor BM04 with BM04.1.
10 Oct 2014 1525458	The following variations have been made to the licence: • At monitoring point 3 (dust gauge DG5) and blast monitors identified as BM01, BM04.1, BM05 and BM09, monitoring is not required when the water level in Lake Cowal is below 204.5 metres Australian Height Datum and/or when the monitoring site is unable to be accessed safely. Monitoring is required to recommence when the outcome of a risk assessment determines a low or acceptable risk is associated with accessing the monitoring site
3 Feb 2015 1528088	The sensitive receptor noise monitoring locations have been reduced to acknowledge noise mitigation and acquisition rights assigned to three (3) receptors and noise limits at the remaining receptors have been reduced. The frequency of noise monitoring has been increased to quarterly as determined by the DP&E. The application of the noise limit criteria under certain meteorological conditions has been clarified.

Review of compliance with the EPL 11912 conditions is summarised in Attachment B.

3.3 Mining Lease

Mining Lease No.1535 was granted to Barrick under the *Mining Act 1992* on 13 June 2003.

A Mining Operations Plan (MOP) has been prepared by Barrick in accordance with the requirements of the Mining Lease 1535 condition 25, Development Consent 14/98 condition 2.1 and the latest NSW Department of Trade and Investment, Regional Infrastructure and Services – Division of Resources and Energy (DTIRIS-DRE) guideline - *ESG3: Mining Operations Plan (MOP) Guidelines, September 2013* (the MOP Guidelines). The MOP describes the proposed operational mining activities for the currently approved CGM for the period 30 April 2014 to 30 April 2016.

Compliance with the Mining Lease environmental conditions is summarised in Attachment C, Mining Lease Environmental Conditions Table.

3.4 Water Licences

Cowal Gold Operations have the required current Bore Licences issued under the Water Act 1912 for the operation of the Cowal Gold Mine and process plant. Cowal Gold Operations also have water entitlements under Water Access Licences for extraction of surface and groundwater from Regulated Sources and the Lachlan River Regulated -Water Sharing Plan, for water supply to the operations.

Licence	Authority	Date Granted	Conditions
Production Bore Licenses #70BL229248, #70BL229249, #70BL229250, #70BL229251	NOW & EPA	14 Sep 2012	WAL31864 expires 13 Sep 2025
Production bore licences#70BL232691 and #70BL232692, 70WA614090, AND 70AL615007	NOW & EPA	21 Mar 2014	WAL36615 expires 13 Sep 2025. Upper 10% (366 units. Upper Lachlan Alluvial Zone 7). Valid for the operation of three lake floor saline production bores when not inundated by Lake Cowal.
DA No. 2011/0064 #70BL233321 & 70BL233323	NOW & FSC	20 Dec 2010	WAL36569 expires 9 Jun 2016. Valid for the operation of the eastern saline bore-field.
Pit dewatering bore licences #70BL230233 – #70BL230234 and newer 70WA14090 and 70AL615007.	NOW & EPA	21 Mar 2014	WAL36615 expires 13 Sep 2025. Upper 10% (366 units. Upper Lachlan Alluvial Zone 7). Replacement de-watering bore licenses as exchanged for decommissioned bores.
Pit dewatering bore licences #70BL230233 – #70BL230234 and newer 70WA14090 and 70AL615007.	NOW & EPA	21 Mar 2014	WAL36615 expires 13 Sep 2025. Lower 90% (3294 units. Upper Lachlan Fold MDB). Replacement de-watering bore licenses as exchanged for decommissioned bores.
Supply Work Approval (prior Surface Licence 70SL090308)	NOW	12 Jan 2010	70W614805 expires 13 September 2025. Surface supply work Licence for TIB-LPB and buried bore-field poly pipeline under Lake Cowal.
High Security Title WAL13749 NOW Reference 70AL603333	LPI and NOW	21 Dec 2006	Title for allocation from Regulated River Source.
High Security Title WAL14981, NOE Reference 70WA603145	LPI and NOW	15 Sep 2011	Title for allocation from Lachlan River Regulated - Water Sharing Plan.
General Security WAL13748 DNR Reference 70AL603332	LPI and NOW	21 Dec 2006	Title for allocation from Regulated River Source.

3.5 Section 87 Permits and Section 90 Consents

Section 87 Permits and Section 90 Consents under the *National Parks and Wildlife Act 1974* were granted for the Cowal Gold Mine development:

Approval	Authority	Date Granted	Conditions
Permit #1361 under section 87(1) of *the National Parks and Wildlife Act 1974*	NPWS	23 May 2002	Valid for period of exploration drilling on the lots covered by the permit.
Consent #1467 under section 90 of the NPW Act	NPWS	27 Nov 2002	These approvals lapse when the Minister acknowledges that satisfactory rehabilitation work has been completed under ML1535 or 18 years after completion of construction works, whichever occurs first.
Permit #1468 under section 87(1) of the NPW Act	NPWS	27 Oct 2003	
Consent #1680 under section 90 of the NPW Act	NPWS	28 Jul 2003	
Permit #1681 under section 87(1) of the NPW Act	DECCW (NPWS)	28 Jul 2003	

4. Agency Consultation

Consultation with relevant agencies occurred prior to the conduct of the Independent Environmental Audit:

4.1 Department of Primary Industries – Water

The Department of Primary Industries-Water responded to the letter of 16 March 2016 from Trevor Brown & Associates requesting any additional information requirements for the proposed Independent Environmental Audit for Evolution Mining Cowal Gold Mine at Lake Cowal on the 7 April 2016 and advised:

DPI-Water Issue	IEA Audit Finding
Water monitoring, metering and reporting in accordance with the current Cowal Gold Mine - Water Management Plan.	**Water monitoring** is conducted by Cowal Gold Operations in accordance with the Water Management Plan section 4.3 and Surface Water, Groundwater, Meteorological and Biological Monitoring Program sections 5 and 6 to satisfy the requirements of the Development Consent 14/98 and Environment Protection Licence 11912. **Water Metering** – Daily recording of meter readings for each groundwater bore and water access licence point are recorded. **Quarterly Water Monitoring reports** are provided to DPI-Water and State Water Corporation of water metering, groundwater levels, for production bores, Jemalong Irrigation Extraction, West Trigalana and West Plains Bores, and Annual Reporting of water monitoring is presented in the Annual Review (under Development Consent 14/98 Condition 9.1(b)) and EPA Annual Reporting.
Compliance with water entitlements (Water Access Licences) for extraction from surface and groundwater sources.	Water entitlements for Water Access Licences have not exceeded allowable extraction limits from the groundwater and surface water sources. Annual Extraction Rates are reported to DPI-Water and State Water Corporation on a quarterly basis.
Contingency responses and mitigating measures have been implemented as appropriate (e.g. in accordance with the Groundwater Contingency Strategy).	Contingency/mitigation measures were not triggered between May 2013 and April 2016. (see **Groundwater Contingency Strategy** below)

Groundwater Contingency Strategy

In addition to the above, extraction from the Bland Creek Palaeochannel Borefield is managed in accordance with groundwater trigger levels developed in consultation with the NOW and other water users within the Bland Creek Palaeochannel, including stock and domestic users and irrigators.

The trigger levels are as follows:

- Bland Creek Palaeochannel Borefield area: Bore GW036553 (trigger levels of 137.5 m Australian Height Datum [AHD] and 134 m AHD).
- Billabong area: Bore GW036597 (trigger level 145.8 m AHD).
- Maslin area: Bore GW036611 (trigger level 143.7 m AHD).

Groundwater levels associated with the Bland Creek Palaeochannel Borefield are monitored on a continuous basis by the NOW's groundwater monitoring bore GW036553.

To date, the effect of the Groundwater Contingency Strategy is that pumping from the Bland Creek Palaeochannel Borefield ceases when required to meet the trigger levels described above, and water requirements at the Cowal Gold Operations are met by alternative internal or external water supplies, including Lachlan River Water Entitlements.

Extraction will continue to be managed to maintain groundwater levels above the established trigger levels (Barrick, 2013).

4.2 Environment Protection Authority

The Environment Protection Authority responded to the letter of 16 March 2016 from Trevor Brown & Associates requesting any additional information requirements for the proposed Independent Environmental Audit for Evolution Mining Cowal Gold Mine at Lake Cowal on the 24 March 2016 and advised:

"We have reviewed the proposed scope of the audit and do not have any additional matters for consideration in the audit."

4.3 Office of Environmental and Heritage

The Office of Environment responded to the letter of 16 March 2016 from Trevor Brown & Associates requesting any additional information requirements for the proposed Independent Environmental Audit for Evolution Mining Cowal Gold Mine at Lake Cowal on the 12 April 2016 and advised:

"We do not have any particular issues related to the Independent Environmental Audit for you to address."

4.4 Division of Resources and Energy

No response for any additional information requirements to be addressed for the Independent Environmental Audit for Evolution Mining Cowal Gold Operations was received from the Division of Resources and Energy in relation to the letter from Trevor Brown & Associates dated 16 March 2016.

4.5 Community Environmental Monitoring and Consultative Committee

A response from the Chairperson of the Community Environmental Monitoring and Consultative Committee (CEMCC) to the letter of 16 March 2016 from Trevor Brown & Associates requesting any additional information requirements for the proposed Independent Environmental Audit for Evolution Mining Cowal Gold Mine at Lake Cowal, was received on the 11 April 2016 and advised:

"The only response I have received is there are no concerns or specific requests, which confirms my observations at CEMCC meetings. On behalf of the CEMCC, thank you for the opportunity to comment."

5. Review of Environmental Management

5.1 Environmental Management Strategy

[Development Consent 14/98 MOD 11 condition 9.1(a)]

5.1.1 Environmental Management Strategy

The Environmental Management Strategy prepared to satisfy the requirements of Development Consent 14/98 MOD 11 condition 9.1 was approved on the 28 November 2014.

The objective of the EMS is to provide a strategic framework for environmental management at the Cowal Gold Operations including all relevant approvals and environmental management plans (EMPs), strategies, and programs prepared for the project.

The Environmental Management Strategy is relevant to all activities associated with operation of the Cowal Gold Operations within Mining Lease (ML) 1535 including the mining and process plant operations, operation of the Bland Creek Palaeochannel Bore-field and Eastern Saline Bore-field (and Eastern Pump Station).

5.1.2 Conclusion

The Environmental Management Strategy approved by DP&E on the 28 November 2014 satisfies the requirements of Development Consent 14/98 MOD 11 condition 9.1 and provides a sound basis for the environmental management of the Cowal Gold Operations.

The Environmental Management Strategy is supported by a suite of specific environmental aspect management plans that have been implemented as approved for the project under the Development Consent 24/98 conditions.

Cowal Gold Operations are also ISO14001 certified for Mining and Ore Processing Operations and Support Services for Gold and Silver production.

5.2 Environmental Management Plans

[Development Consent 14/98 MOD 11 condition 9.1(a)(vi)]

5.2.1 Status of Environmental Management Plans and Monitoring Programs

The Environmental Management Strategy is supported by the management plans, strategies and monitoring programs required under the Development Consent for environmental management at the Cowal Gold Operations.

The management plans, strategies and monitoring programs were reviewed during 2015 to address the requirements in Development Consent 14/98 MOD 11, with revisions of the documents prepared where required for submission to the DP&E for approval.

The current status of the management plans and monitoring program documents for the Cowal Gold Operations is summarised in Table 5.2.1.

Table 5.2.1: Status of Development Consent 14/98 MOD 11 Environmental Management Plans and Monitoring Program documents – April 2016

Condition	Document Title	Document Revision / Addendum and Approval Status
2.4(c)	Rehabilitation Management Plan (RMP)	RMP-C dated February 2015, prepared and submitted to DRE for approval on 13 April 2016.
3.1(a)(i)	Heritage Management Plan (EHMP)	EHMP01_0 dated September 2003. No revision required to meet MOD 11.
3.1(a)(ii)	Indigenous Archaeology and Cultural Heritage Management Plan (IACHMP)	IACHMP-Addendum dated February 2015 was submitted to DP&E on 2 April 2015.
3.2(b)	Flora and Fauna Management Plan (FFMP)	FFMP-I dated February 2015. Approved by DP&E on 21 March 2016.
3.3	Compensatory Wetland Management Plan (CWMP)	CWP01-I dated September 2003. No revision required to meet MOD 11.
3.4(a)	Biodiversity Offset Strategy (BOMP)	BOMP-A, dated May 2015
3.4(c)	Biodiversity Offset Management Plan (BOMP)	BOMP-A dated May 2015. Approved by DP&E on 21 March 2016
3.5(a)	Erosion and Sediment Control Management Plan (ESCMP)	ESCMP01_0, Addendum dated February 2015 Approved by DP&E on 21 March 2016.
3.5(b)	Soil Stripping Management Plan (SSMP)	SSMP-L dated February 2015. Approved by DP&E on 21 March 2016.
3.7	Land Management Plan (LMP)	LMP Addendum dated March 2015. Approved by DP&E on 21 March 2016.
3.8	Rehabilitation Strategy (RS_RMP)	RS_RMP prepared and submitted to DRE for approval on 22 April 2016
4.4	Water Management Plan (WMP)	WMP-T dated May 2015. Approved by DP&E on 19 November 2015
4.5	Water Monitoring (in Surface Water, Groundwater, Meteorological & Biological Monitoring Program (SWGWMBMP))	WMP and SWGMBMP dated May 2015. Approved by DP&E on 19 November 2015.
	Monitoring Program for Lake Protection Bund, Water Storages, Tailings Storage Facilities and Pit Walls (LPBMP)	LPBMP-01-L Addendum dated April 2015 Submitted to DP&E on 15 May 2015
5.3(b)	Cyanide Management Plan (CMP)	CMP Addendum dated July 2010. No revision required to meet MOD 11.
5.3(d)	Cyanide Monitoring Program	No revision required to meet MOD 11.
5.4	Hazardous Waste and Chemical Management Plan (HWCMP)	HWCMP01-T dated May 2011. No revision required to meet MOD 11.
6.1(c)	Air Quality Management Plan (AQMP)	AQMP-C, dated February 2015. Approved by DP&E on 18 February 2016

Condition	Document Title	Document Revision / Addendum and Approval Status
6.3(e)	Blast Management Plan (BLMP)	BLMP-L, dated January 2015. Approved by DP&E on 10 December 2015.
6.4(e)	Noise Management Plan (NMP)	NMP-S, dated November 2014 / Approved by DP&E on 5 March 2015
9.1	Environmental Management Strategy (EMS)	EMS-A, dated October 2014 / Approved by DP&E 28 November 2014

5.2.2 Conclusion

All Cowal Gold Operations environmental management plans, strategies and monitoring programs were reviewed during 2015 to address the requirements in Development Consent 14/98 MOD 11. Revisions of the documents prepared where required were submitted to the relevant authorities for approval. All revised documents have been approved by the relevant authorities except for the Indigenous Archaeology and Cultural Heritage Management Plan, Rehabilitation Management Plan and Rehabilitation Strategy, Decommissioning Strategy for Water Management Structures & Long-term Management of Final Void and Lake Protection Bund Management Plan. Evolution Mining was still awaiting approval for these documents at the date of this audit (April 2016).

5.3 Annual Review

[Development Consent 14/98 MOD 11 condition 9.1(b)]

5.3.1 Annual Environmental Management Reports

Development Consent 14/98 MOD 11 condition 9.1(b) requires an Annual Review *"by the end of July each year, or as otherwise agreed with the Secretary, the Applicant shall review the environmental performance of the development to the satisfaction of the Secretary".*

The DP&E issued a series of Guidelines related to the NSW Integrated Mining Policy to *"improve consistency and accountability for assessment decisions by helping proponents to develop applications and compliance reports that better communicate key issues to government and the community."*

The Annual Review Guideline brings together the annual reporting requirements of the Division of Resources and Energy and the Department of Planning and Environment into a single, concise document. The Guideline also refocusses the content of an annual review into a targeted compliance document, requiring concise self-reporting. (This Guideline does not integrate the reporting requirements of the Environment Protection Authority).

Annual Environmental Management Reports / Annual Reviews have been prepared for the Cowal Gold Operations and submitted to the DP&E each year between 2013 and 2015. The Annual Reviews addressed the requirements of Development Consent 14/98 MOD 11 condition 9.1(b), as summarised in Table 5.3.1.

Table 5.3.1: Annual Review Section addressing Development Consent 14/98 MOD 11 Condition 9.1(b) Requirement

Condition 9.1(b) Requirement	Annual Review Section addressing the Condition 9.1(b) Requirement	Compliance Status
This review must: (i) describe the development that was carried out in the previous calendar year, and the development that is proposed to be carried out over the next year;	Section 2 – Operations during the Reporting Period describes the development that was carried out in the previous 12 months; and Section 7 outlines the Activities Proposed for the Next Annual Review Period.	**Compliant**
(ii) include a comprehensive review of the monitoring results and complaints records of the development over the previous calendar year, which includes a comparison of these results against the: • the relevant statutory requirements, limits or performance measures/criteria; • the monitoring results of previous years; and • the relevant predictions in the EIS;	Section 3 – Environmental Management and Performance provides a comprehensive review of the monitoring results for the Cowal Gold Operations development over the previous year, including a comparison of results against the relevant statutory requirements, limits or performance measures/criteria. The comparison of monitoring results from previous years and relevant predictions in the EIS are commented on where required.	**Compliant**
(iii) identify any non-compliance over the last year, and describe what actions were (or are being) taken to ensure compliance,	Section 3 – Environmental Management and Performance reports any non-compliances under Reportable Incidents for each environmental aspect.	**Compliant**
(iv) identify any trends in the monitoring data over the life of the development;	Section 3 – Environmental Management and Performance comments on any trends in monitoring data, if identified.	**Compliant**
v) identify any discrepancies between the predicted and actual impacts of the development, and analyse the potential cause of any significant discrepancies; and	The predicted impacts identified in the Environmental Assessment for the Cowal Gold Extension Modification (MOD 11) and any significant discrepancies identified with the actual impacts (as monitored) would be reported in Section 3 of the Annual Review.	**Compliant**
((vi) describe what measures will be implemented over the next year to improve the environmental performance of the development.	Section 3 – Environmental Management and Performance provides Further Improvements proposed under each environmental aspect, for the next reporting period.	**Compliant**

5.3.2 Conclusion

The annual reviews prepared for the Cowal Gold Mine / Operations as Annual Environmental Management Reports (2013) and Annual Reviews (2014 and 2015), address the requirements of Development Consent 14/98 MOD 11 condition 9.1(b). The documents have been submitted to the relevant authorities and an annual presentation provided at the Cowal Gold Operations site for representatives of the authorities / stakeholders (i.e. OEH/EPA, DPI-Water, DRE, DPI-Fisheries, Dam Safety Committee, Bland Shire Council and Community Environmental Monitoring and Consultative Committee).

5.4 Reporting

[Development Consent 14/98 condition 9.3]

5.4.1 Incident Reporting

[Development Consent 14/98 condition 9.3(a)]

The Emergency Response Plan /Pollution Incident Response Management Plan prepared for the Cowal Gold Mine describes appropriate emergency response actions to be implemented should an emergency situation occur at the Cowal Gold Mine site. The Plan is subject to annual review and amendment as required and would also be reviewed following any incidents. The Pollution Incident Response Management Plan was required under the *Protection of the Environment Legislation Amendment Act 2011*. This *Amendment Act* introduced a new requirement under the *Protection of the Environment Operations Act 1997* Part 5.7A to prepare, keep, test and implement a Pollution Incident Response Management Plan.

The Emergency Response Plan section 12 describes the requirements for written reporting after an emergency incident / event. Immediately after the emergency the Emergency Controller is to arrange for an investigation and written report of the incident to be prepared. The investigation will include a detailed review of the sequence of events and communications and actions taken immediately prior to, during and after the emergency situation. Where available, instrument charts, plant logs etc. would be examined and retained. Personnel present during the emergency would be interviewed by the investigating team as soon as practicable after the emergency.

The Emergency Response Incident Report would contain the following information:

- Introduction
- Findings of the report
- Analysis and discussion of the findings including background and information on the details of the incident, identification of the root causes, discussion of any quick fixes to prevent recurrence while longer term corrective actions are identified, corrective actions proposed to prevent recurrence and how to review these corrective actions to ensure their effectiveness
- Any relevant operating history of the site
- Summary and Conclusions
- Recommendations including the ERP review and preventative measures
- References, Acknowledgments, Appendices as appropriate

5.4.2 Regular Reporting

[Development Consent 14/98 condition 9.3(b)]

The DP&E issued a series of Guidelines in October 2015 related to the NSW Integrated Mining Policy to *"improve consistency and accountability for assessment decisions by helping proponents to develop applications and compliance reports that better communicate key issues to government and the community."* The Guidelines describe the statutory requirements and document format to address the reporting of mining operations to the NSW government authorities.

- **Annual Review Guideline -** brings together the annual reporting requirements of the Division of Resources and Energy and the Department of Planning and Environment into a single, concise document. This Guideline also refocusses the content of an annual review into a targeted compliance

document, requiring concise self-reporting. This Guideline does not integrate the reporting requirements of the Environment Protection Authority. (see Development Consent 14/98 MOD 11 condition 9.2(b) and section 5.3 of this audit report).

- **Independent Audit Guideline -** provides a clear process that the Government expects will be followed during the conduct of an independent audit. This includes the determination of scope, criteria, auditors, audit process and report finalisation. Independent audits are one of several compliance tools utilised by the Government to ensure that approval conditions for mining operations are enforced. (refer to Development Consent 14/98 MOD 11 condition 9.2(a)).

- **Water Regulation Overview** provides a summary of existing water policy, legislation and regulation that applies to resources developments in NSW. The Overview provides industry and the community with a reasonable understanding of water regulation in NSW and summarises what each key instrument sets out to achieve. This Guideline would provide guidance for the management of surface and ground water sources and supplies.

- **Web-based Reporting Guideline -** encourages mine operators to publish appropriate operational and compliance information on their websites in a clear and transparent manner. This improves transparency and may also meet certain reporting obligations (e.g. if the provision of monitoring data is required as a condition on approval) it may be able to be reported online. (refer to Development Consent 14/98 MOD 11 condition 9.4). (This Guideline does not integrate the online reporting requirements of the Environment Protection Authority).

- **Mine Application Guideline** helps proponents describe their proposal in a way that highlights the key design features, key environmental considerations and how the mine design process has taken economic, social and environmental impacts into account with mitigation actions expected in the Environmental Impact Statement. This Guideline would be applicable to the preparation of any Modifications to the Cowal Gold Operations prepare for submission after October 2015.

5.5 Rehabilitation[1]

[Development Consent 14/98 MOD 10 condition 3.6(d)]
[Development Consent 14/98 MOD 11 conditions 2.4(a) to 2.4(c, and 3.8]

5.5.1 Rehabilitation Strategy

[Development Consent 14/98 MOD 11 condition 3.8]

A strategy for the long term land use of the ML 1535 area on decommissioning of the mine site for appropriate land uses is required to be submitted to the DP&E by Year 7 of mining operations or five years before mine closure. The Mining Operations Plan is regularly reviewed and updated to incorporate proposed rehabilitation concepts for approval prior to implementation.

[1] Michael Frankcombe, WPS Parsons Brinkerhoff

5.5.2 Rehabilitation Objectives

[Development Consent 14/98 MOD 11 condition 2.4(a)]

The rehabilitation of Cowal Gold Operations the site is to be to the satisfaction of DRE, to be generally consistent with the proposed rehabilitation in the EIS and to comply with the objectives in Development Consent 14/98 MOD 11 condition 2.4(a)Table 1.

Table 5.5.2: Rehabilitation Objectives Development Consent 14/98 MOD 11 condition 2.4(a)

Feature	Condition 2.4(a) Objective	Actions (April 2016)
Mine site (as a whole)	• Safe, stable and non-polluting. Final landforms designed to incorporate micro-relief and integrate with surrounding natural landforms. • Constructed landforms are to generally drain to the final void. • Minimise long term groundwater seepage zones. • Minimise visual impact of final landforms as far as is reasonable and feasible	• Rehabilitated waste dumps had rough surfaces from mixing of topsoil and rock and ripping. The waste dump landform design includes terraces but does not include large structural drainage control measures that assists integration of the waste dump into the natural landscape. • The water from landforms draining to the active mining void is pumped to water storage ponds for reuse in the process plant. • Progressive rehabilitation has been undertaken on the tailings dam outer batter and waste dumps to minimise visual impacts of the landforms. At the time of the audit geotechnical stability works were being undertaken on the outer batters of the Northern Tailings Storage Facility which has impacted on some of the existing rehabilitation works, however this is generally not visible outside of the mining lease boundary.
 **Rehabilitated waste dumps rough surfaces from mixing of topsoil and rock and ripping.**  **The waste dump landform design includes terraces.**  **Progressive rehabilitation of waste dumps to minimise visual impacts of the landforms.**		
Final void	• Minimise the size and depth of final void; drainage catchment of final void; and risk of flood interaction up to the Probable Maximum Flood; • To be permanently separated from Lake Cowal by the Lake Protection Bund. • Highwall to be long term stable.	Not yet triggered. These objectives will be addressed in the Rehabilitation Strategy that is required to be submitted to the DP&E by Year 7 of mining operations or five years before mine closure. Stability of the highwall of the Cowal Gold open pit exhibited some evidence of tunnel and gully erosion in the dispersive sub-soil in the upper sections of the void wall.

Feature	Condition 2.4(a) Objective	Actions (April 2016)
Surface infrastructure	• To be decommissioned and removed	Not yet triggered.
Agriculture	• Restore or maintain land capability generally as described in the EIS.	Not yet triggered.
Rehabilitation and other vegetated land	• Restore ecosystem function, including maintaining or establishing self-sustaining ecosystems	• Native ecosystems are being established on waste dumps and rehabilitation monitoring is being undertaken using Ecosystem Function Analysis to assess progression against key indicators.
Community	• Ensure public safety. • Minimise adverse socio-economic effects associated with mine closure	• Security fencing, signage and personnel are in place preventing unauthorised access to mining operations.

5.5.2 Rehabilitation and Offset Management Plan

[Development Consent 14/98 MOD 10 condition 3.6(d)]

A Rehabilitation and Offset Management Plan was prepared to satisfy Development Consent 14/98 MOD 10 condition 3.6(b) and submitted to the DoP on 30 July 2010 following consultation with DECCW, NoW and BSC. An addendum to the Rehabilitation and Offset Management Plan was submitted to DoP in December 2010 and comments were received by Barrick from DP&I on 14 August 2012. A further revision of the Rehabilitation and Offset Management Plan was then prepared in August 2013 and submitted to DP&I.

The Rehabilitation and Offset Management Plan addressed each of the requirements of Development Consent 14/98 MOD 10 condition 3.6(b) for the progressive rehabilitation of the mine site in accordance with conditions of ML 1535.

The Rehabilitation and Offset Management Plan also referenced rehabilitation requirements in the Land Management Plan, Erosion and Sediment Control Plan, Flora and Fauna Management Plan, Compensatory Wetland Management Plan, Remnant Vegetation Enhancement Program, Soil Stripping Management Plan, and Bushfire Management Plan, where relevant.

5.5.3 Rehabilitation Management Plan

[Development Consent 14/98 MOD 11 condition 2.4(c)]

A Rehabilitation Management Plan to satisfy the requirements of Development Consent 14/98 MOD 11 condition 2.4(c) was prepared in accordance with the DRE Guidelines EDG03 *Guidelines to the Mining, Rehabilitation and Environmental Management Process* (January, 2006) and ESG3: *Mining Operations Plan Guidelines*, September 2013. Consultation occurred with DP&E, NOW, OEH, DPI, BSC and the CEMCC, regarding the Rehabilitation Management Plan. The Plan was revised taking account of the comments from the agencies. The revised document was submitted to DRE for approval on 13 April 2015.

5.5.4 Environmental Impact Statement and Commitments (1998)

[Environmental Impact Statement 1998]

The rehabilitation philosophy for the Project is to create stable rehabilitated landforms which increase areas of endemic vegetation in the Project area and the conservation status of lake-land habitats in general. Rehabilitation would be progressive and in accordance with approved plans.

New Lake Foreshore would be rehabilitated as a series of zones (a flood zone around the fringe of the Lake and three Lake edge zones, viz. littoral zone, rush zone and depending, on Lake levels at the time, a water zone). Outer slopes of the mine waste rock emplacements would be covered with a layered system of soils and subsoils retrieved from stockpiles or direct from mine operations. Reverse grade berms together with the considerable depth of the cover proposed would have the effect of absorbing and storing rainfall in all but extreme events.

Drainage on the top surfaces of the waste rock emplacements would be managed by a series of small shallow drainage features (swales) which in combination with a deep cover and high absorption capacity would support a woodland vegetation community.

The final void is to leave its surrounds safe for humans, stock and wildlife and where feasible create habitat opportunities for waterbirds at the approximate level at which void water would reach its equilibrium. The volume of the void would be around 80,000 ML. Groundwater inflows, rainfall and site runoff are expected to gradually increase the level of water in the void over a period of 100 years. An evaluation of the likely geochemical characteristics of the water show that the long term scenario would be for the deep water to trend towards hypersalinity.

The outer embankments of the tailings storage facilities would be left grassed until the cessation of use (to minimise bird habitat potential) at which stage they would be revegetated using endemic shrub and woodland species with the embankments developed in the same reverse grade as proposed for the waste emplacements. Surfaces would receive a deep cover to allow rainfall to be absorbed and stored by the covers allowing a woodland vegetation with a relatively high demand for water to be established.

5.5.5 Environmental Assessment and Commitments (2009)

[Environmental Assessment - Cowal Gold Mine Extension Modification 11]

The Environmental Assessment - Cowal Gold Mine Extension Modification 11 - Appendix I Rehabilitation, described the rehabilitation principles, objectives, concepts and methods for the Modification and the rehabilitation and land use management strategy for the Cowal Gold Mine Operations. The rehabilitation and land use management strategy retains the approved final landform design concepts for the Cowal Gold Mine and integrates the results of rehabilitation investigations and trials conducted prior to MOD 11 approval into the rehabilitation program.

Consistent with the approved rehabilitation program, progressive rehabilitation and revegetating of final landforms with native and/or endemic species characteristic of remnant vegetation within the surrounding landscape will continue. The Cowal Gold Mine post-mining landform will include conservation areas (fenced to exclude grazing) to re-establish a greater extent of endemic vegetation within the former ML 1535 area, and would also include areas suitable for agricultural production.

Rehabilitation concepts for the waste rock emplacement and tailings storage facility would be refined (based on the results of the rehabilitation investigations and trials) and include:

- benign rock mulch on the slopes of these landforms to improve long-term slope stability; and
- hay mulch to minimise potential soil erosion from the slopes of these landforms.

Various soil amelioration methods would continue to be implemented for MOD 11 (e.g. gypsum application to sodic and dispersive stockpiled soils) to enhance the suitability of the soil for plant growth and improve revegetation outcomes for the Cowal Gold Operations final landforms.

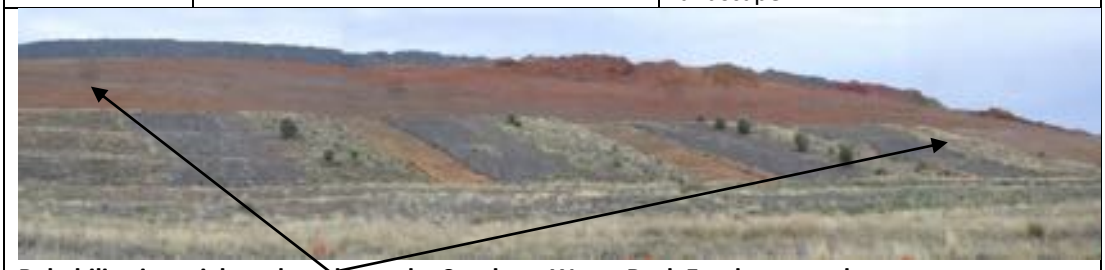
Rehabilitation investigations and trials will continue and the results from these investigations and trials would continue to inform and refine the Cowal Gold Operations rehabilitation program, consistent with current practices.

5.5.6 Rehabilitation and Offset Management Plan Commitments

Commitments in the Rehabilitation and Offset Management Plan 2013 are listed in Table 5.5.6.

Table 5.5.6: Rehabilitation and Offset Management Plan Commitments

Section /Page No.	Rehabilitation and Offset Management Plan Commitments	Comments
s.3.2.3 / p17	Access tracks outside disturbance areas will be kept to a minimum and be positioned so that they do not cause any unnecessary damage to the land. Temporary access tracks will be ripped, topsoiled and revegetated as soon as possible after they are no longer required for mining operations.	No new access tracks were constructed outside the ML 1535 area of disturbance between 2013 and April 2016.
s.3.2.4 / p17	Riparian vegetation will be used to stabilise the permanent drainage lines.  **Riparian vegetation establishment occurred on the temporary lake protection bund**	Management of drainage lines and establishment of riparian vegetation has been carried out on southern and northern low flow drainage structures within the ML 1535 area and on an ephemeral drainage line on mine owned land. The success of the riparian vegetation establishment has been dependent on the weather patterns in the Lake Cowal area. Some riparian vegetation establishment occurred on the temporary lake protection bund since 2011 following the regular rainfall during 2010 and 2013 with established cover including *Pilularia novae-hollandiae* (Austral Pillwort) and *Eucalyptus camaldulensis* (River Red Gum). 

Section /Page No.	Rehabilitation and Offset Management Plan Commitments	Comments
s.3.2.6 / p18	Management of soil stockpiles has been established in the Soil Stripping Management Plan (2003) and includes soil handling measures that optimise retention of soil characteristics (in terms of nutrients and micro-organisms) favourable to plant growth.	Management of topsoil stockpiles across the Cowal Gold Operations site occurs in accordance with the Soil Stripping Management Plan section 4.2.
s.3.2.7 / p19	A Vegetation Clearance Protocol (VCP) developed in the FFMP includes pre-clearance surveys. The Pre-clearance surveys include a preliminary habitat assessment the results of which will be utilised to determine appropriate secondary habitat assessment activities.	The Vegetation Clearance Protocol developed in the approved Flora and Fauna Management Plan is activated prior to any vegetation clearance on any undisturbed area on the Cowal Gold Operations site. The pre-clearance surveys are conducted as required by suitably qualified consultants. The Vegetation Clearance Protocol was used on 10 February 2015 for clearance of some Myall Woodland (adjacent to the old homestead that had been demolished) to accommodate the extension of the Southern Waste Storage Area.
s.3.2.9 / p20	Progressive rehabilitation of waste emplacements and the tailings storage facilities will be undertaken to reduce the contrast between the CGM landforms and the surrounding landscape.	Rehabilitation has occurred on the batters of the tailings storage facilities and waste rock emplacements to determine suitable rehabilitation methodology and to reduce contrast with the surrounding landscape.
 **Rehabilitation trials and works on the Southern Waste Rock Emplacement batters.**		
s.3.2.9 /p20	Earth mounds will be constructed on sections of the western and northern boundaries of ML 1535 to break up continuous views from Lake Cowal Road. These earth mounds and vegetation screen areas surrounding ML 1535 (including along Lake Cowal Road) are to be planted with endemic plants compatible with the existing surrounding vegetation.	Earth mounds constructed on the western and northern boundaries of ML 1535 to break up continuous views of the Cowal Gold Operations from Lake Cowal Road were planted with endemic species in 2005. The vegetative cover on the mounds was not successful because of the dry conditions. Plantings around the mounds have been established and are providing some screening of the mine areas from Lake Cowal Road.

Section /Page No.	Rehabilitation and Offset Management Plan Commitments	Comments
 **View of Cowal Gold Operations site from Lake Cowal Road (April 2016) with vegetative establishment around the mounds and along the boundary of the ML 1535.**		
s.3.2.12/ p21	Weeds will be managed at the CGM in accordance with measures described in the Land Management Plan (LMP).	Weed management within the ML 1535 and other mine owned lands is undertaken in accordance with measures described in the approved Land Management Plan.
s.3.2.12 / p22	Pest control activities will be undertaken at the Cowal Gold Operations site in accordance with the procedures detailed in the FFMP and LMP.	Pest control activities described in the Land Management Plan are implemented across the mine owned properties.
s.3.2.13/ p23	Grazing and cropping activities will be excluded within ML 1535 during operation and rehabilitation of the Cowal Gold Operations site.	No grazing and cropping activities have occurred within ML 1535 since commencement of the mine development in 2004.
s.3.2.15/p23	Bushfire management strategies and procedures will be implemented during the life of the mine.	Bushfire preventative measure programs outlined in the Bushfire Management Plan are actioned by the Cowal Gold Operations Emergency Response Officers to manage fire hazard risk.
s.3.3 /p24	Performance criteria for mine site rehabilitation have been developed to reflect the measures for mine site rehabilitation.	Rehabilitation and Biodiversity Offset Management Plan Table 2 provides the performance criteria for mine site rehabilitation.
s.3.4 /p25	A rehabilitation monitoring program has been developed to monitor the effectiveness of the short, medium and long-term measures and progress against the performance and completion criteria.	DnA Environmental conduct an annual rehabilitation monitoring program and have developed completion criteria are consistent with conditions of approval, management plans, and aligns with the EDG03 *Rehabilitation and Environmental Management Plan (REMP) Guidelines, September 2013*. Monitoring occurs during spring to capture an accurate representation of species present in the area. A summary of the results of this monitoring is provided in the Annual Reviews.
s.3.4.2/p27	Monitoring will be conducted to determine whether vegetation planted within the New Lake Foreshore is establishing and to determine the need	Annual monitoring of the Lake Foreshore areas is conducted by DnA Environmental to assess

<table>
<tr><th>Section /Page No.</th><th>Rehabilitation and Offset Management Plan Commitments</th><th>Comments</th></tr>
<tr><td></td><td>for any maintenance and/or contingency measures (such as the requirement for supplementary plantings, erosion control or weed and pest control).</td><td>establishment of the lake foreshore vegetation.
Results of the surveys are reported in the Annual Reviews section 3.7.3.2 – Performance Outcomes</td></tr>
<tr><td>s.3.4.2/p27</td><td>Visual monitoring of revegetated landforms will be conducted to confirm that vegetation is establishing and to determine the need for any maintenance and/or contingency measures (such as supplementary plantings, erosion control and weed control).</td><td>Visual monitoring of revegetated landforms is conducted by DnA Environmental to assess establishment of the vegetation planted.
A comprehensive Weed Survey was conducted by ngh environmental in March 2015.
Results of the surveys are reported in the Annual Reviews section 3.7.3.2.</td></tr>
<tr><td>s.3.4.2/p 27</td><td>The effectiveness of the erosion and sediment control systems and the performance of those systems will be reported against the objectives contained in the ESCMP.</td><td>Performance of erosion and sediment control measures against the requirements in the Erosion and Sediment Control Management Plan is undertaken following significant, high intensity rainfall events. The performance of erosion and sediment control structures is reported in the Annual Reviews section 3.2.</td></tr>
<tr><td>s.3.4.2/p28</td><td>Monitoring of fauna usage of the New Lake Foreshore, waste emplacements, Tailings Storage Facilities and the Compensatory Wetland will be conducted in accordance with the FFMP and CWMP.</td><td>Twice daily monitoring of fauna usage of the tailings storage facilities (TSF) has been undertaken since the commissioning of the TSF in April 2006. Six-monthly reporting on fauna usage of the TSFs is conducted by Donato Environmental Services and the reports are appended to the Annual Reviews section 3.8.3.</td></tr>
<tr><td></td><td>Offset Areas</td><td></td></tr>
<tr><td>S4.1.1/p29</td><td>Locations of the northern and the southern offset areas are within the following mine owned properties:

Northern Offset Area
• 8/753097; and
• 1/530299.
Southern Offset Area
• 19/753083; and
• 18/753083.</td><td>Proposed Offset Areas including the Cowal Gold Mine Extension (long term protection arrangement yet to be agreed and approved by DP&E) are:
<table>
<tr><th>Offset Management Area</th><th>Minimum Size</th></tr>
<tr><td>Southern Offset Enhancement Area</td><td>260 ha</td></tr>
<tr><td>Southern Offset Area Extension</td><td>100 ha</td></tr>
<tr><td>(Northern Offset Revegetation Area)</td><td>80 ha</td></tr>
<tr><td>Total</td><td>440 ha</td></tr>
</table></td></tr>
<tr><td>s.4.3.1/p34</td><td>Within Offset Enhancement Areas the following revegetation activities will occur:</td><td>Existing fences around the offset areas are maintained by Barrick.
No access tracks within the offset areas have required revegetation.</td></tr>
</table>

Section /Page No.	Rehabilitation and Offset Management Plan Commitments	Comments
	• revegetation of unnecessary access tracks; • selective planting in other cleared areas where natural regeneration is not occurring. Annual inspections will identify areas within the Offset Enhancement Areas which will benefit from selective plantings.	Any other work commitments related to the offset areas are awaiting a response from DP&E in relation to the long term protection of the biodiversity offset areas submitted to DP&E on 28 April 2014.
s.4.3.1/ p35	Measures and procedures will be implemented to facilitate the natural regeneration of Myall Woodland remnant vegetation within the northern offset area of the Offset Enhancement Areas.	Measures and work commitments related to the proposed offset areas are on hold, awaiting a decision by DP&E. Pest control activities within the offset areas have been conducted in accordance with the Land Management Plan. Fox baiting has been undertaken within the offset areas in accordance with the Land Management Plan and Flora and Fauna Management Plan.
s.4.3.4/ p40	Barrick will undertake pest control operations within the offset areas in accordance with the Land Management Plan and Flora and Fauna Management Plan.	
s.4.3.5/p41	Grazing and cropping activities will be excluded within the offset areas.	Grazing and cropping have been excluded from the proposed Cowal Gold offset areas.
s.4.4/p42 (Table 8)	From Spring 2012, the performance of the offset areas will be measured against the following performance criteria: • Selective revegetation undertaken within Offset Revegetation Area and Offset Enhancement Areas. • Weed control and feral pest measures are effective. • Grazing and cropping activities excluded within the offset areas and perimeter fencing maintained. • Access to the offset areas restricted to authorised personnel and perimeter fencing maintained. • Bushfire management undertaken in accordance with the BMP.	Performance measure monitoring related to the proposed offset areas are on hold, awaiting a decision on the Voluntary Planning Agreement (VPA) by DP&E. Existing fences have been maintained. Weed control and feral pest monitoring and control has been conducted.
s.4.5.2/p44	Visual monitoring will be conducted regularly to evaluate the effectiveness of the implemented measures and determine the need for additional measures.	Visual monitoring of the proposed offset areas has been conducted by DnA Environmental. Other work commitments related to the proposed offset areas are on hold, awaiting a decision by DP&E.
s.4.5.3/p44	Permanent photo-points will be established within the offset areas to monitor the change in the offset areas over time. The method for	Permanent photo points have been established by DnA Environmental and are reported in the annual biological monitoring reports.

Section /Page No.	Rehabilitation and Offset Management Plan Commitments	Comments
	photographic monitoring described below reflects the NPWS (2003) *Conservation Management Note 9 – Photographic Monitoring.*	
s.4.5.4/p45	A number of permanent flora survey quadrats (20 x 20 m) will be established in the offset areas and at control sites to obtain quantitative data on plant species diversity and abundance. The control sites will serve as a reference point against which the performance of the offset areas can be assessed.	Permanent flora quadrats have been established by DnA Environmental and are reported in the annual biological monitoring reports.
s.4.7/p46	In accordance with Consent Condition 3.4(b), by the end of December 2011, Barrick will make suitable arrangements to provide appropriate long-term security for the offset areas to the satisfaction of the Director-General of the DoP. Options proposed to provide appropriate long-term security for the offset areas include: • a Voluntary Conservation Agreement; or • a Property Vegetation Plan; or • rezoning and/or re-conditioning of relevant landholdings to reflect conservation purposes in consultation with the BSC.	Barrick proposed a Voluntary Conservation Agreement (VCA) and consulted with the OEH in relation to the development of a VCA. The VCA was not agreed to by OEH in May 2012. A Voluntary Planning Agreement (VPA) for the Offset areas was submitted to DP&I on 28 April 2014. Commitments related to the proposed offset areas are on hold, awaiting a decision on the Voluntary Planning Agreement (VPA) by DP&E.
s.9/p51	An Annual Review will be prepared in accordance with the requirements of Development Consent Condition 9.1(b) and I&I NSW (Minerals and Petroleum) requirements (Condition of Authority 26) (Section 2.1) and submitted to the Director-General.	Annual Reviews have been prepared by Cowal Gold Operations and rehabilitation aspects are reported in section 5.

The rehabilitation of the Cowal Gold Mine disturbed areas is occurring in accordance with the Rehabilitation and Offset Management Plan prepared for Development Consent 14/98 MOD 10 condition 3.6(b). (The implementation of the Rehabilitation Management Plan will occur when the document submitted on 13 April 2015 is approved by DRE).

5.2.7 Rehabilitation Performance Criteria

Rehabilitation performance indicators and completion criteria were developed (based on monitoring data obtained from relevant reference sites) to assess rehabilitation performance at the approved Cowal Gold Operations site.

The performance indicators and completion criteria developed by DnA Environmental (2011) have been based on five major stages of ecosystem development consistent with the DRE's EDG03 *Rehabilitation and Environmental Management (REMP) Guidelines* (September 2013) and are provided in the Rehabilitation and Offset Management Plan section 3.6, Table 7. The performance criteria were developed to reflect the

measures for mine site rehabilitation and mine site rehabilitation will be measured against these performance criteria:

- Progressive rehabilitation undertaken within ML 1535.
- Selective revegetation has been undertaken within and outside the Cowal Gold Operations disturbance areas.
- Measures have been undertaken to protect vegetation and soil outside the Cowal Gold Operations disturbance areas (e.g. control of erosion and sedimentation, use of tree guards, supplementary plantings to replace losses, weed and feral animal control, limiting vehicular access).
- Planted riparian vegetation along permanent drainage lines is establishing and stabilisation methods (e.g. meshing, hydro-mulching) along permanent drainage lines are effective.
- Measures adopted for the Cowal Gold Operations to manage salinity are effective.
- Soil stockpile management and soil replacement undertaken in accordance with the Soil Stripping Management Plan.
- Pre-clearance surveys have been undertaken (as required) in accordance with the Vegetation Clearance Protocol.
- Impacts on terrestrial and aquatic fauna managed in accordance with the Flora and Fauna Management Plan and Compensatory Wetland Management Plan.
- Maintenance of the vegetation screens (e.g. addition and replacement of plants where required) has been undertaken on sections of the western and northern boundaries of ML 1535 to break up continuous views from Lake Cowal Road.
- Seed has been collected at the time of vegetation clearance activities.
- Habitat features (i.e. hollows, openings, cracks and/or loose bark) have been salvaged at the time of vegetation clearance activities.
- Weed control and feral pest measures are effective.
- Grazing and cropping activities excluded within ML 1535 and perimeter fencing maintained.
- Access to site restricted to authorised personnel and perimeter fencing maintained.
- Bushfire management has been undertaken in accordance with the Bushfire Management Plan.

5.2.8 Rehabilitation Trials

Extension of rehabilitation trials and research for the Cowal Gold Operations site have been conducted progressively based on results of previous trials and annual review by the Independent Monitoring Panel and recommendations made by the IMP that included:

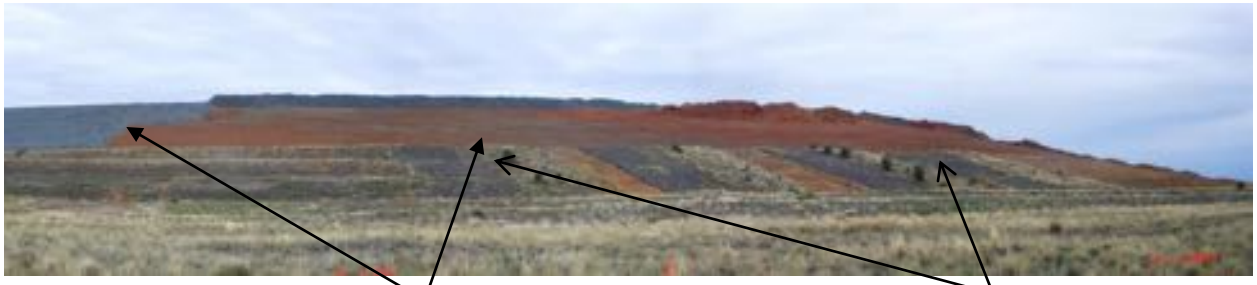
- Material Amelioration – Continued investigation into the optimal soil treatment measures for stockpiled topsoil and subsoil resources to improve their suitability for rehabilitation use, including research into the detailed design concepts for soil amelioration;
- Rehabilitation Media – Continued investigation into the effectiveness of various applications associated with the rock mulch, topsoil and hay cover system in stabilising landform slopes (i.e. controlling erosion) and providing a suitable medium for revegetation; and
- Revegetation – Ongoing and new vegetation growth trials relevant to revegetation species suited to the surface rehabilitation materials of Cowal Gold Operations area final landforms, including the tailings storage facilities and waste rock emplacements, to refine revegetation objectives.

Following discussions with DI&I (Minerals) on 2 July 2010 and the comments of the Independent Monitoring Panel, Barrick established replicate trials to determine the most suitable rehabilitation procedure(s) for the waste rock emplacements, tailing storage facility bunds and other disturbed areas. Decisions on the optimal blend of rock, subsoil, gypsum and mulches have occurred in consultation with the relevant authorities to determine the long term rehabilitation procedures for the Cowal Gold Operations site.

Rehabilitation of completed areas on the northern and southern waste rock emplacements commenced in the 2013 to 2015 period, with reshaping and placement of topsoil, rock, gypsum application and mulch, prior to seeding and some tube-stock planting. The rock and topsoil placement occurred in Q4 2014 and tube stock was planted on the perimeter waste rock emplacement areas. Observations between 2013 and 2016 have indicated a satisfactory establishment of the tube-stock on the majority of the completed batters of the waste rock emplacements.

Rehabilitation of overburden emplacement with shaping and vegetation establishment

DnA Environmental conducts an annual assessment of rehabilitation on the Lake Cowal Foreshore, Southern Waste Rock Emplacement, Northern Waste Rock Emplacement, and the Tailings Storage Facilities batters. The batters of the Southern Waste Rock Emplacement have been shaped and prepared in readiness for revegetation. The shaped batters did not show erosion on the completed batters at the date of this audit (April 2016).



Southern Waste Emplacement Area shaped batters along the southern wall and rehabilitation trials

Table 5.2.9: Summary of Mine Lease Areas Disturbed/Rehabilitated

	Area Disturbed / Rehabilitated (hectares)*			
	2012	2013	**2014**	**2015**
A MINE LEASE AREA				
A1 Mine Lease(s) Area	2,650	2650	2650	2650
B DISTURBED AREAS				
B1 Infrastructure Area[1]	355	355	355	355
B2 Active Mining Area[2]	107	107	107	107
B3 Waste Emplacements[3]	342	342	342	342
B4 Tailings Emplacements	342	342	342	342
B5 Shaped Waste Emplacement[4]	87	96	127	163
ALL DISTURBED AREAS[5]	1,168	1,173	1,173	1174

C	**REHABILITATION PROGRESS**				
C1	Total Rehabilitated Area[6]	110	118	278	315
D	**REHABILITATION ON SLOPES**				
D1	10 – 18 Degrees	110	118	110	147
D2	Greater than 18 Degrees	2	2	2	2
E	**SURFACE OF REHABILITATED LAND**				
E1	Pasture and Grasses	151	151	211	211
E2	Native Forest/Ecosystems	38	46	67	104
E3	Plantations and Crops	0	0	0	0
E4	Other	0	0	0	0

*Actual figures in ha for January to December each year

1 Includes areas such as ore and soil stockpiles, contained water storages, processing plant and roads.
2 Open pit area.
3 Areas of waste emplacements yet to be shaped and rehabilitated.
4 Areas of waste emplacements that have been shaped and rehabilitated.
5 Includes any area disturbed by mining activities including the Total Rehabilitation Area presented in C1.
6 Any areas that have been rehabilitated including areas of waste emplacements and tailings storage facilities progressively shaped and rehabilitated.

5.2.9 Rehabilitation Monitoring

A rehabilitation monitoring methodology was independently developed by DnA Environmental (2011) in consideration with the *Rehabilitation and Environmental Management Plan (REMP) Guidelines*, to assess the key performance indicators and completion criteria developed from relevant reference sites representative of the Cowal Gold Operations site final landforms and long-term land use strategy and includes a combination of:

- LFA indicators;
- accredited soil analyses indicators; and
- an assessment of ecosystem characteristics using an adaptation of methodologies derived by the CSIRO Methodology for the Grassy Box Woodlands Benchmarking Project in Southern NSW Murray-Darling Basin (Gibbons, 2002) and the associated Biometric Model Rapidly quantifying reference conditions in modified landscapes (Gibbons et al., 2008).

The monitoring methodology is also used to assess the performance of regeneration and revegetation activities undertaken within the RVEP Areas and Northern and Southern Offset Areas. The vegetation assemblages reported by DnA Environmental in the Annual Rehabilitation Monitoring Reports, are considered as representative of and consistent with the final land use and approved rehabilitation objectives for Cowal Gold Operations:

- **Lake:** Woodlands occurring within the lake and lake foreshores (RL 205 – 220m);
- **Slopes**: Woodland occurring on flat to gently undulating slopes (RL 210 – 225);
- **Hills:** Woodlands occurring on low ridges, hills and elevated land (RL220 – 245m); and
- **Grass: Cleared native grasslands, occurring on flat to gently undulating slopes (RL 210 – 225m).**

The DnA Environmental Reports on Rehabilitation Monitoring conducted between 2013 and 2015 presented the following conclusions:

5.2.9.1 Lake Foreshore

Since 2005 there has been an increasing trend in ecological function in the lake foreshore rehabilitation sites largely due to the increase in ground cover from plants that established as a result of natural regeneration from the topsoil stored seed bank and broadcasting of seed applied by hand. The inundation of Lake Cowal in 2010 resulted in a significant increase in floristic diversity. The remedial earthworks undertaken on the lake foreshore protection bund in 2012 addressed much of the gully erosion issues with protective ground covers or rock lining in some areas where sodic soils are particularly susceptible to wave action along the waterline.

The lake protection bund rehabilitation exhibiting ground cover from plants that established as a result of natural regeneration from the topsoil seed bank and broadcasting of seed applied by hand.

The ecological data obtained from the lake foreshore rehabilitation area indicated improved plant cover and increasing diversity with abundance of native species recorded.

During 2012 and 2014 the dry conditions had a negative impact on the perennial plant cover and in February 2014 most cover was provided by dead leaf litter. Overall there were significant changes occurring on the new lake foreshore area with sites progressing and beginning to stabilise despite the extreme climatic conditions (both wet and dry).

Vegetative cover of the area between the temporary lake protection bund and access road at the base of the lake protection bund.

5.2.9.2 Tailings Storage Facility trials

Rehabilitation trials on the Northern Tailings Storage Facility (NTSF) and Southern Tailings Storage Facility (STSF) walls were commenced during 2009.

NTSF trial sites were ecologically functional grasslands and in 2013 were consistent with the stability, infiltration and nutrient recycling targets of the rehabilitation performance criteria, provided by the local native grassland communities. The STSF site continued to improve.

All rehabilitation sites had moderate to strongly alkaline soils with a high Cation Exchange Capacity (CEC), sodic characteristics and were low in organic matter and phosphorous. In conclusion, sites situated on both the NTSF and STSF performed relatively well and demonstrated significant increases in many ecological attributes over the 2012 to 2015 period.

Areas of the NTSF and STSF batters were disturbed during 2014-2015 resulting from the modifications of the TSF walls required under a Barrick International standard to construct tailings storage facility walls to withstand a 1 in 5000year earthquake event. The finished, strengthened batter walls will be rehabilitated to the previous standard to meet the Cowal Gold Operations rehabilitation performance criteria.

5.2.9.3 Southern Offset Area

The two Cowal Gold Operations southern offset monitoring sites were ecologically very stable due to the relatively high levels of litter largely derived from dead annual plants. The soils were very hard and crusted and there was little evidence of erosion and deposition. However, the low levels of perennial vegetation combined with very hard crusted soils has resulted in sites with currently low infiltration and nutrient recycling capacity. The soil properties remained within the local levels but were both low in organic matter, and in monitoring site Offset-02 quadrant, the soils continue to be sodic.

5.2.9.4 Northern Offset Areas

The two Northern Offset monitoring sites demonstrated a decline in ecological function during 2013-15, however this reduction was also evident within the adjacent natural slope and floodplain communities, as a result of the dry conditions. Both Northern Offset sites fell within the stability, infiltration and nutrient recycling completion targets. The sites also demonstrated a decline in floristic diversity however site Offset-03 continued to have a higher diversity of native species than Offset-04.

5.2.9.5 Northern Waste Rock Emplacement Trials

Separate Northern Waste Rock Emplacement (NWRE) Rehabilitation Monitoring Reports were prepared by DnA for 2014 and 2015. The NWRE was dominated by a heavy cover of dead leaf litter derived largely from an abundance of exotic annual plants such as *Lolium rigidum* that had established from the soil seed bank. The prolonged dry conditions did not allow a true representation of floristic diversity which would be different under more favourable seasonal conditions.

While there were anomalies in soil characteristics even within replicated soil/rock/mulch treatments, it appears too early to tell which depth of topsoil and mulch application was more conducive to the establishment of a functional and diverse woodland community on NWRE, that would be representative of the hills and ridges of the Lake Cowal area.

5.2.9.6 Southern Waste Emplacement Rehabilitation Trials

On the Southern Waste Rock Emplacement (SWRE) there was extensive colonisation by exotic annual grasses that provided critical protection and accelerated the accumulation of litter cover, which has greatly assisted the functional capacity of this area. Soil crusts had begun to develop and the soil had become more coherent within the litter patches. There was however a lack of tree and shrub species and associated structure and habitat requirements in terms of meeting completion targets.

The overall better performing sites on the SWRE in terms of ecological sustainability and similarity to the hill reference sites, were those with a topsoil application (i.e. rock mulch + topsoil or topsoil only treatments).

The treatments compared in these trials have shown that initial erosion control measures such as the light-medium application of native pasture hay or other mulch treatments in rows along the contour and/or shallow ripping along the contour provide immediate soil protective cover and additional erosion control features.

The SWRE trial has confirmed that protective soil cover treatment should be applied, regardless of its type or combination. Better longer term ecological outcomes and achievement of completion goals may be obtained when there is good plant establishment, especially of native perennial vegetation.

Rehabilitation treatments with rock plus topsoil and with topsoil only, have reached more ecological targets compared to the other trial treatments. The success of these treatments has largely been derived by the comparably good cover of native and exotic plants.

5.2.10 Rehabilitation Audit Findings – April 2016

The audit determined that the Project was generally in compliance with the Development Consent 14/98 and Mining Lease 1535 conditions. Cowal Gold Operations have significantly modified their waste rock emplacement area rehabilitation practices based on the outcomes from the series of trials on the NWRE, SWRE and Tailings Storage Facility batters and expert advice including the Independent Monitoring Panel. The key change was the blending of competent waste rock with topsoil to:

- cover the dispersive subsoil following gypsum application;
- improve the erosion resistance of the surface of the waste rock emplacements;
- encourage deep drainage of run-off;
- reduce the reliance on structural drainage measures; and
- provide micro-relief to improve visual amenity and to provide habitat.

This methodology has proved successful on site and is understood to be adopted on site for all of the waste rock emplacements.

Site personnel demonstrated an excellent understanding of the rehabilitation constraints posed by the climate and site materials. A full time bulldozer resource and dedicated operator recently made available for rehabilitation purposes has resulted in an improved rate and quality of land profiling works for rehabilitation areas.

Subsoil on the Cowal Gold Operations site appears to be dispersive and therefore highly erodible. This material is evident in the upper sections of the open pit void, the Southern Waste Rock Emplacement and the Perimeter Waste Emplacement. Rill, gully and tunnel erosion is evident in the upper sections of the void and north-western side of the Perimeter Waste Emplacement.

The dispersive material in the Southern Waste Rock Emplacement has largely been capped with rock blended with topsoil. Cowal Gold Operations have adopted a stepped landform design on the waste rock emplacements to encourage the retention of run-off to help establish and maintain vegetation. Although not currently evident, such a design may create conditions that allows tunnel formation under the topsoil/rock matrix. However, it may be possible that the depth of the blended waste rock and topsoil is thick enough to cap the dispersive subsoil.

5.2.11 Conclusion

The Rehabilitation and Offset Management Plan (in conjunction with the requirements of the Land Management Plan and Mining Operations Plan) provide a basis for the rehabilitation of the Cowal Gold Operations site. The progress with the application of the rehabilitation methods outlined in the management plans and MOP have been negatively affected on site due to the influence of the extreme weather conditions experienced (wet during 2010-2012 and dry in 2012-2015).

Rehabilitation trials on the Cowal Gold Operations site to determine suitable substrates and procedures for the stabilisation and revegetation have exhibited variability of results of vegetative establishment on the blends of rock, subsoil, gypsum and mulches. The rehabilitation targets outlined in the MOP and reported in the Annual Reviews were generally not met during the 2011 to 2015 due to the influence of the extreme weather conditions. The improvement in the rehabilitation of the Southern and Northern Waste Rock Emplacements noted during the 2016 audit, indicated that Cowal Gold Operations were progressing towards conforming with the rehabilitation targets in the MOP. This audit noted a significant increase in the areas of rehabilitation that had been achieved between May 2015 and April 2016 since the full time bulldozer resource and dedicated operator had been introduced to the Environment team.

5.3 Heritage

[Development Consent 14/98 MOD 11 condition 3.1]

5.3.1 Environmental Assessment

[Environmental Impact Assessment - Cowal Gold Mine 1998]

5.3.1.1 Aboriginal Heritage

The Environmental Impact Assessment provided a background description of the proposed Cowal Gold Project area. Lake Cowal itself is named after the Aboriginal word “cowal” meaning “large water” while “nerang” (as in Nerang Cowal) means “little water” and historical information suggests that Wiradjuri was the language group occupying the region surrounding Lake Cowal.

Consultation with local and regional Aboriginal land councils recommended that management of sites to be disturbed by the Cowal Gold Project be directed towards enhancing local knowledge and appreciation of the cultural heritage of Lake Cowal. Sites not affected by the Project area would be fenced and signposted while artefacts on areas to be disturbed would be collected and stored.

The scarred tree within the open pit area would be removed and displayed at the West Wyalong Local Aboriginal Land Council offices. The most important identified site on the Project area (termed the “men’s site”) would be excavated to determine the chronology and function of the site, with a representative from the Land Council employed to oversee construction activities.

An archaeological site management program to protect, wherever possible, or salvage known sites within the Project area would be developed in consultation between the West Wyalong Aboriginal Land Council (WWALC), the Wiradjuri Regional ALC, the NSW ALC, NPWS and the Proponent. Site management would be directed towards protecting sites as well as enhancing local knowledge and appreciation of the cultural heritage of Lake Cowal

5.3.1.2 European Heritage

A study of the history of Lake Cowal was undertaken in 1993 by the Bland Historical Society (BHS, 1993) which addressed issues such as European settlement of the local area and the role of mining in the development of the area. Pastoral settlement began in the area around 1842. By the early 1900s, wheat growing had become well-established with some 11,900 acres of land devoted to wheat production. In addition to agricultural practices, gold mining was also a feature of the historic development of the region. Mining continued to around 1920 decreasing as deposits were discovered elsewhere in Australia. No significant heritage items within the Project area were identified during the 1993 survey. The Bland Shire Local Environment Plan 1993 (LEP) Schedule 1 does not list any items of local regional or state significance within the area to be disturbed by mining activities.

5.3.2 Environmental Assessment

[Environmental Assessment - Cowal Gold Mine Extension Modification 2013]

Environmental Assessment - Cowal Gold Mine Extension Modification Appendix G -Aboriginal Cultural Heritage Assessment was prepared by Bio-Anthropology & Archaeology in August 2013.

A number of Aboriginal heritage surveys and assessments previously undertaken in the Cowal Gold Mine area and surrounds and additional archaeological and cultural surveys, were assessed for the Modification.

The three previously registered sites in the Modification area were inspected, and in addition, 86 Aboriginal artefacts/objects were identified by the Modification surveys. These artefacts/objects were consistent with the types previously found around Lake Cowal.

The Modification layout has been designed to avoid and minimise potential impacts to Aboriginal heritage, including as follows:

- The soil stockpile in the north of ML 1535 has been designed to avoid known Aboriginal heritage sites.
- The expansions of the tailings storage facilities and the southern waste rock emplacement have been designed to maintain their existing surface disturbance footprints.
- The eastern pump station (and associated access track) would be located to avoid disturbance to the lunette associated with Lake Cowal, which is considered to be culturally significant (i.e. due to the potential for Aboriginal burials).
- Other additional soil or waste rock stockpiles have been designed as irregular shapes to minimise potential impacts to known Aboriginal heritage sites.

Notwithstanding the above, several previously registered sites are located within the Modification area and would be subject to direct disturbance. These sites are considered to be of limited archaeological significance.

It was also noted that comments provided by Aboriginal representatives during the consultation process for the Modification indicated that while cultural significance is difficult to rate, the sites and objects within the Modification area were considered to be typical of such settings.

It was considered there is very little potential for physical damage to individual in situ lithic artefacts not associated with the above sites (i.e. artefacts that are part of the background distribution). Salvage, excavation, monitoring and management measures relevant to Aboriginal heritage would continue to be conducted in accordance with the existing Indigenous Archaeology and Cultural Heritage Management Plan, and permits and consents under the *National Parks and Wildlife Act*.

5.3.3 Heritage Management Plan

[Development Consent 14/98 MOD 11 condition 3.1(a)(i)]

The Heritage Management Plan for non-indigenous heritage was prepared to satisfy Development Consent 14/98 and approved by DIPNR in 2003. The Heritage Management Plan was reviewed in 2008 and 2015 and no revision of the document was required.

Commitments in the non-indigenous Heritage Management Plan are listed in Table.5.3.3.

Table 5.3.3: Heritage Management Plan Commitments

Section/ Page No.	Heritage Management Plan Commitments	Comment	Implementation Status
s.7/p16	Monitor the effectiveness of the management measures outlined in the HMP.	The management of the heritage structures was undertaken in accordance with the HMP, prior to any demolition.	**Compliant COMPLETE**
s.7/p16	Dust and blast monitoring programs will be conducted in accordance with AS: Use of explosives (1993). If blast monitoring exceeds standards, a structural assessment of the quarters and shed will occur.	Dust and blast monitoring occurred as part of the Cowal Gold Mine and Operations dust and blast monitoring programs and the results assessed in relation to the prescribed levels. As the quarters and shearing shed have been dismantled and removed this condition is no longer applicable.	**Compliant COMPLETE**
s.7/p18	The non-indigenous heritage program will be revised / updated as required.	Demolition of the 'Cowal West Homestead Complex' approved by MOD 9 March 2010 occurred during 2011-2012 with reconstruction of the Shearing Shed at the Lake Cowal Foundation Information Centre in 2013. Review of the Heritage Management Plan for non-indigenous heritage items in 2015 did not identify any requirement for revision.	**Compliant**
 **Reconstrtced shearing shed April 2013 – internal structure with original components recovered from Cowal Gold Operations site.**			
s.9/p20	An Annual Review will be prepared in accordance with Development Consent 14/98 MOD 11 Condition 9.2.	The Annual Reviews prepared for the Cowal Gold Operations in accordance with Development Consent 14/98 condition 9.1(b) report on non-indigenous heritage components in section 3.14.	**Compliant**

5.3.4 Indigenous Archaeology and Cultural Management Plan

[Development Consent 14/98 MOD 11 condition 3.1(a)(ii)]

The Indigenous Archaeology and Cultural Heritage Management Plan prepared to satisfy Development Consent 14/98 condition 3.3(ii) was approved by the Wiradjuri Condobolin Corporation (WCC) in writing on 11 November 2003. Approval was given under the auspices of the Wiradjuri Condobolin Culture and Heritage Company (WCC&HC), to set up and manage the cultural and heritage component of an Agreement between Barrick and the Wiradjuri Condobolin People.

The Indigenous Archaeology and Cultural Heritage Management Plan is reviewed and revised as necessary to reflect the *Due Diligence Code of Practice for Protection of Aboriginal Objects in NSW*, dated 24 February 2010.

The Indigenous Archaeology and Cultural Management Plan required under Development Consent 14/98 MOD 11 condition 3.1(a)(ii) was reviewed and submitted to DP&E for approval on 2 April 2015.

The implementation of the management program for indigenous archaeology and cultural heritage has occurred in accordance with the Indigenous Archaeology and Cultural Heritage Management Plan:

- Surface archaeological surveys were conducted on small areas of new surface disturbance that occurred between May 2013 to April 2016, prior to any land disturbance or earthworks.
- Meetings of the Cowal Project Co-ordinating Committee (CPCC) and the Employment Training and Business Committee (ETBC) were held between May 2013 and May 2016.

Commitments in the Indigenous Archaeology and Cultural Heritage Management Plan are listed in Table 5.3.4.

Table 5.3.4: Indigenous Archaeology and Cultural Heritage Management Plan Commitments

Section/ Page No.	Indigenous Archaeology and Cultural Heritage Management Plan Commitments	Comments	Implementation Status
s.5.4/p20	In all areas within ML 1535, water pipeline and bore-field area where soil stripping occurs, the areas will be inspected after topsoil removal to identify "datable materials". Samples will be obtained and submitted for chronological analysis. ***(Permit 1682 Special Condition 11)***	All areas within the ML 1535 area, water pipeline alignment and bore-field area where soil stripping occurred, were resurveyed in accordance with this Special Condition.	**Compliant**
s.5.4/p20	A cultural heritage officer approved by the West Wyalong Aboriginal Land Council will be available on site to monitor construction earthworks. An archaeologist will also be on site to monitor the works to a depth at which Aboriginal objects are likely to exist.	Cultural Heritage Officers provided by Wiradjuri Condobolin Corporation, working under the Principal Consulting Archaeologist Dr Colin Pardoe and Dr Kamminga, have undertaken surface archaeological surveys prior to any land disturbance or earthworks at the Cowal Gold Operations mine lease site.	**Compliant**
s.5.4/p21	If an Aboriginal object (other than human skeletal remains) of a type that has not been previously identified during the archaeological works is identified during construction earthworks, the Aboriginal object will be	Archaeological surveys were carried out within the ML 1535 between May 2013 to April 2016 for any new areas of surface disturbance. No objects of a type that has not been previously identified were found.	**Compliant**

Section/ Page No.	Indigenous Archaeology and Cultural Heritage Management Plan Commitments	Comments	Implementation Status
	collected (Special Condition 10 in each of Permit 1468 / Consent 1467, and Special condition 11 of Permit 1681 / Consent 1681).		
s.5.4/p21	Construction works shall stop if human skeletal remains are identified and the DECC (OEH) will be immediately notified (Special Condition 1 of Permit 1468 / Consent 1467 and Permit 1681 / Consent 1680).	No skeletal remains have been identified during the Cowal Gold Operations development.	**Not triggered**
s.5.5/p21	With respect to all collected Aboriginal objects: • Sufficient data must be recorded to enable technological analysis to be undertaken for report purposes; • This information must form the basis of a master inventory; • Each object must be bagged and labelled detailing the specific area of collection. (Special Condition 12 of Permit 1468 and Special Condition 4 of Permit 1681).	Archaeological investigations and collection of artefacts from any areas proposed to be disturbed on the Cowal Gold Operations site have been conducted under Section 87 and 90 Consents issued for the project by NPWS.	**Compliant**
S5.6/p21	All collected Aboriginal objects must be kept in the existing temporary Keeping Place within the project compound.	All collected Aboriginal objects are kept in a temporary Keeping Place on the Cowal Gold Operations site. A permanent Keeping Place has been constructed at the Condobolin Community Centre but the objects have not been transferred to the permanent site.	**Compliant**
s.5.6/p21	Barrick must fund the design and construction of a Keeping Place for Aboriginal objects collected pursuant to Permit 1468, at a location to be agreed with the registered native title claimants for the ML Area and the West Wyalong Local Aboriginal Land Council. Barrick must reach an agreement with the registered native title claimants for the ML Area and the West Wyalong Local Aboriginal Land Council about the details and scope of the keeping place, but if no agreement is reached before the commencement of construction, the details and scope will be determined by OEH. (***Special (Consent 1467 condition 9***)	Barrick arranged for the design of a permanent Keeping Place at the Condobolin Aboriginal Community Centre for Aboriginal objects salvaged from the Cowal Gold Operations site. Construction of the building is complete but the objects have not yet been transferred.	**Compliant**
P22/s.5.7	Overall responsibility for the Cowal Gold Project lies with the General Manager of the Cowal Gold Project. The General Manager will ensure that the	Principal Consulting Archaeologist Dr Colin Pardoe and Dr Kamminga manage and supervise all archaeological investigations prior to	**Compliant**

Section/ Page No.	Indigenous Archaeology and Cultural Heritage Management Plan Commitments	Comments	Implementation Status
	management measures in this IACHMP are implemented, including by delegation. Permit 1468 and Permit 1681 are held by Barrick's consultant archaeologists Dr Pardoe and Dr Kamminga, and they are responsible for ensuring that the terms and condition of the permits are complied with.	any land disturbance or earthworks at the Cowal Gold Operations mine lease site.	
P225/s.6.3.1	The Wiradjuri Condobolin people (within 30 days of Board Approval for the project) would be briefed on matters including cultural heritage issues; annually, on matters including cultural heritage issues; and on any cultural heritage issues that Barrick reasonably believes they should or might wish to be informed of as soon as possible after they arise, and on any material changes in the circumstances which were the subject of a briefing.	Regular meetings are arranged and held with the Wiradjuri Condobolin people in relation to cultural heritage issues and project status. Meetings between Barrick/Evolution Mining and the Cowal Project Co-ordinating Committee (CPCC) and the Employment Training and Business Committee (ETBC) are held as required.	**Compliant**
P25/s.6.3.2	Evolution Mining will produce a Mining Operations Plan to give a detailed account of the proposed mine site activities for a nominated term. It will include all mining and rehabilitation operations and relevant environmental controls and procedures necessary for compliance with lease conditions. It will include the relevant Aboriginal heritage management measures to be included during works for the nominated MOP term.	Mining Operations Plans have been prepared for the Cowal Gold Operations development: • MOP January 2011 to September 2012 • A Variation to the January 2011 to September 2012 MOP was requested 5 April 2012. • MOP October 2012 to January 2014. • MOP extension to January 2015. • MOP for April 2014 to April 2016.	**Compliant**
P23/s.6.3.2	The Annual Review will annually report relevant cultural heritage management measures conducted for the previous year. Proposed management measures for the next year will also be reported.	Annual Reviews prepared for the Cowal Gold Mine and Operations in accordance with Development Consent 14/98 condition 9.2 report on Aboriginal Heritage matters in section 3.13.	**Compliant**

5.3.5 Conclusion

The Non-Indigenous Heritage Management Plan prepared for the Cowal Gold Mine site provided for management of the 'Cowal West Homestead Complex' components (including the living quarters and Shearing Shed). Demolition of the Homestead complex, as approved under Development Consent 14/98 MOD 9 March 2010 occurred during 2011-2012. The Shearing Shed was dismantled and relocated and re-constructed at the Lake Cowal Foundation Information Centre in April 2013.

The Indigenous Archaeology and Cultural Heritage Management Plan developed and implemented for the Cowal Gold Mine provides adequate management and controls for the protection of Aboriginal interests in the ML

1535 area. Archaeological investigations and collection of artefacts prior to disturbance of any area of the Cowal Gold Operations site have been managed by Dr Colin Pardoe and Dr Kamminga (Consultant Archaeologists) and Cultural Heritage Officers provided by Wiradjuri Condobolin Corporation. The surveys are conducted under Section 87 Permits and Section 90 Consents issued under the *National Parks and Wildlife Act*.

5.5 Flora and Fauna Management[2]

[Development Consent 14/98 MOD 10 condition 3.4]
[Development Consent 14/98 MOD 11 condition 3.2]

5.5.1 Environmental Assessment

[Environmental Impact Assessment – Cowal Gold Project 1998]

Flora

Native vegetation patterns in the Central Western Slopes region since European settlement, has undergone far-reaching changes (Goldney and Bowie, 1990), due primarily to the importance of the region for agricultural production. Up to 95% of the original native vegetation has been removed for cropping and grazing purposes (Murray-Darling Basin Ministerial Council, 1987).

Flora survey and reporting of the mining operations area (including the proposed water supply borefield and pipeline) was undertaken by Anne Clements and Associates (1995 and 1996) and the Charles Sturt University (1997). No rare or threatened Australian plants (ROTAP) were recorded during this survey however a single species listed as endangered in the *Threatened Species Conservation Act* 1995, Austral pilwort (*Pilularia novae-hollandiae*), was identified from gilgai south of the proposed process plant area and from the Bland Creek floodplain approximately 12 km south-east of the mining operations area.

Based on the flora survey and mapping, nine main plant communities were identified from the Project area and surrounds (Figure 3-13) (after Bower, 1997; Charles Sturt University, 1997). These communities were defined by the largest and most numerically dominant plant species as:

- Community 1 – Remnant Woodland (*Eucalyptus dwyeri – Acacia doratoxylon – Callitris endlicheri*)
- Community 2 – Eucalypt Woodland (*E. dwyeri – E. populnea – E. microcarpa – Callitris glaucophylla – Casuarina cristata*)
- Community 3 – Predominantly Cleared Agricultural Land with Scattered Bimble Box (*Eucalyptus populnea) Woodland)*
- Community 4 – Fringing River Red Gum (*Eucalyptus camaldulensis*)
- Community 5 – Lignum (*Muehlenbeckia florulenta*)
- Community 6 – Lakebed (*Eragrostis australasica – Medicago polymorpha*)
- Community 7 – Mixed Woodland (*Acacia pendula – Casuarina cristata*)
- Community 8 – Wilga Woodland (*Geijera parviflora Casuarina cristata*)
- Community 9 – Belah Woodland (*Casuarina cristata*)

The 1997 flora survey and reporting found the areas within the proposed mining operations area that would be disturbed/modified as a result of the proposed development are either:

(i) dominated by weeds (viz. the lakebed, shoreline and understorey of the woodland areas); or
(ii) extensively cropped (e.g. the southern tailings storage); or

[2] Matthew Richardson, Niche Environmental and Heritage

(iii) contain areas of relatively high species diversity even after many decades of grazing and cultivation (e.g. northern waste emplacement) however these species are common and not restricted to the Lake Cowal region.

Remnant vegetation would be left in place where possible during the development of the Project and new landforms would be progressively rehabilitated. The Project area would be rehabilitated by revegetating the new landforms with selected communities of endemic vegetation that are both suitable to the physiographic and hydrological features of each landform, whilst expanding the areas of remnant endemic vegetation that currently exist in the immediate region. It is proposed that regional seed collecting programs would commence in the construction phase, to allow sufficient time to commence rehabilitation of the new Lake foreshore at the completion of foreshore reconstruction activities.

The protection of remnant vegetation and the rehabilitation of disturbed areas of ML 1535 to conform with the Environmental Impact Statement objectives will be addressed in the Rehabilitation Management Plans and Mining Operations Plans.

Fauna

Based on previous habitat assessment (Vestjens, 1977), dominant vegetation types, density of hollow-bearing trees, occurrence of substratum (such as fallen tree limbs, logs, decorticated bark, leaf litter and suitably dense ground cover), levels of disturbance (historic, current and on-going), fire regime and abundance of water, four primary habitat types were delineated at the Project area and surrounds:

- Lakebed
- Riparian Zone
- Cleared farming and grazing land
- Vegetated slopes

A number of monitoring programs (noise, air quality, waterbird abundance and diversity) will be undertaken at the Project area and surrounds to assess and manage the mine development and its potential to impact terrestrial and wetland habitats. The commitments to the protection and management of the Project on fauna will be addressed in the management plans developed for the Project.

5.5.2 Environmental Assessment

[Environmental Assessment - Cowal Gold Mine Extension Modification 2013]

The Environmental Assessment - Cowal Gold Mine Extension Modification - Appendix D Threatened Species Assessment was prepared, and peer reviewed by Professor David Goldney (Cenwest Environmental Services) in September 2013.

A significant number of vegetation, flora and fauna surveys and monitoring programs have been conducted within ML 1535 and the broader Cowal Gold Operations area to characterise potential impacts to biodiversity associated the Modification.

The Modification layout has been designed to avoid and minimise additional surface disturbance as follows:

- The additional soil stockpiles and water storage dam D10 would avoid clearance of patches of Myall Woodland EEC within ML 1535.
- The eastern pump station and associated access track would be located within a grazed paddock to avoid clearing any trees, native flora species and fauna habitat.

- The eastern pump station would be powered by a diesel generator, rather than an electricity transmission line, negating the need for native vegetation clearance for the power supply.
- There would be no change to the existing surface disturbance footprints of the tailings storage facilities or the perimeter and southern waste rock emplacements.

Notwithstanding, there would be residual impacts to biodiversity associated with the disturbance of approximately 122 ha of land, comprising approximately:

- 100 ha of derived native grassland and 2 ha of other native vegetation (including 2.5 ha of Myall Woodland EEC); and
- 20 ha of cultivated land dominated by introduced flora species.

No threatened flora or fauna species listed under the *NSW Threatened Species Conservation Act*, 1995 were considered likely to be significantly adversely impacted by the Modification. The removal of existing habitat within the additional disturbance area is unlikely to substantially impact any threatened species given the small and disturbed nature of the area, and given this area is surrounded by approved mine disturbance areas with poor connectivity to habitats outside of ML 1535. Established vegetation clearance protocols would continue for the Modification to manage potential impacts to flora and fauna.

5.4.1 Flora and Fauna Management Plan

[Development Consent 14/98 MOD 11 condition 3.4]
[Development Consent 14/98 MOD 11 condition 3.2(b)]

A Flora and Fauna Management Plan prepared to satisfy Development Consent 14/98 condition 3.4 for the Cowal Gold Mine was approved by DIPNR on 30 October 2003. The Flora and Fauna Management Plan was revised and approved by DoP in October 2008. An addendum to the Flora and Fauna Management Plan to reflect the revised monitoring program for fish and aquatic invertebrates, to maintain consistency with the approved Surface Water, Groundwater, Meteorological and Biological Monitoring Program, was prepared in May 2010 and submitted to DoP for approval.

A revised Flora and Fauna Management Plan to meet the requirements of Development Consent 14/98 MOD 11 condition 3.2(b) was prepared and submitted to DP&E on 19 May 2015 and approved on 21 March 2016.

The Flora and Fauna Management Plan, provides general management strategies for the conservation of wildlife values within ML 1535 and the areas of Lake Cowal adjacent to the mine lease. The Threatened Species Management Protocol and Vegetation Clearance Protocol developed as part of the Flora and Fauna Management Plan have been implemented and the requirements of each Protocol completed prior to the disturbance of areas of the Cowal Gold Operations site.

Commitments included in the Flora and Fauna Management Plan (2015) are summarised in Table 5.4.1.

Table 5.4.1: Flora and Fauna Management Plan Commitments

Section/ Page No.	Flora and Fauna Management Plan Obligations	Comments	Implementation Status
s.3 /p.13	In accordance with Development Consent Condition 3.2(b)(v), effective mechanisms shall be developed to keep fauna and	The tailings storage facilities have been: • designed to minimise the area of open water in the tailings dams;	**Compliant**

Section/ Page No.	Flora and Fauna Management Plan Obligations	Comments	Implementation Status
	avifauna away from the tailings storages.	• fenced to prevent terrestrial fauna from entering the areas; • designed to maintain the area non-conducive to the establishment of wildlife habitats; and • designed using current best practice methods to deter avifauna.	
s.3.1/p.14	The area of open water in the tailings dams will be minimised by maximising the dry density of tailings and the re-use of water from the tailings dams (North Limited, 1998a).	A spigotted ring main is used to deposit tailings peripherally around the tailings storage facility to ensure supernatant water collects around the decant towers near the centre of the storage facility. The supernatant water is returned to the process plant for reuse.  **Spigotted ring main deposits tailings around the periphery of the tailings storage**	**Compliant**
s.3.1.2/p14	Water re-use will be maximised using an under-drainage pipe network, decant towers, reclaim water dam and water return pipeline to the process water storage pond. The tailings ponds will be maintained as small as possible through continual recycling of water through the processing plant.	Recovery of supernatant water from the tailings storage facilities for reuse in the process plant is maximised to reduce the area of surface water and deter fauna and avifauna from using the tailings storages. Reuse of this supernatant water reduces the requirement for water to be extracted from the Paleochannel bore-field and/or the Lachlan River Regulated Water Source.	**Compliant**
s.3.2/p.14	The perimeter of the tailings storages has been fenced to prevent medium to large terrestrial fauna (such as Echidnas, Emus and Kangaroos), as well as amphibians from entering the area. Gates have been constructed within the fence to provide mine personnel access to the tailings storage area. The fence is approximately 2 metres (m) high with holes no greater than 5 centimetres (cm) in diameter in	The tailings storage facilities have been fenced with access to the tailings storage facilities by CGO personnel gained through locked gates. The gates are closed immediately after entry or exit of vehicles. The area immediately adjacent to the fence is kept clear of tall vegetation so that fauna cannot use it to gain access to the tailings storage area.	**Compliant**

Section/ Page No.	Flora and Fauna Management Plan Obligations	Comments	Implementation Status
	accordance with Development Consent Condition 3.2(b)(v). The bottom metre of the fence includes mesh with holes of 2 cm in diameter.	 **Fencing around the Tailings Storage Facilities to prevent terrestrial fauna entering the TSF.**	
s.3.3/p.15	Rehabilitation of the tailings storage areas during operations will be such that minimal habitat opportunities will be created for terrestrial fauna. Rehabilitation of the tailings storage batters will achieve soil stabilisation yet will not create desirable habitat.	The batters of the tailings storage facilities are being rehabilitated with native or introduced grass and are maintained so that other vegetation (such as trees and shrubs) do not establish on the TSF batters. At the date of the 2016 audit, the walls of the TSF were being strengthened with rock buttresses for future lifts on the tailings storage areas.	**Compliant**
	 **Rehabilitation of tailings storage facility batters with grass cover to stabilise the walls.**		
	 **Northern Tailings Storage Facility (April 2016)– rock amouring to strengthen the walls for future lifts.**		
s.3.5/p.16	Hazing techniques employed to deter avifauna may include: • radar lobe systems that detect avifauna presence at the tailings facilities; • bird deterrent stations, activated remotely by either the radar or	Use of cannons at the tailings storage facilities and radar activated acoustic deterrents to scare birds off the tailings storage facilities, has been implemented.	**Compliant**

Section/ Page No.	Flora and Fauna Management Plan Obligations	Comments	Implementation Status
	timer mode which broadcast bird distress calls, barking dogs, gun shots etc; • gas cannons linked to the radar or timer-mode control station/s; • solar powered scattered laser light tripod station (held in safe storage to be used if required). Additional methods of avifauna deterrence will be considered as new technologies are developed.		
s.4/p.17	In accordance with Consent Condition 3.2(b)(i), the tailings storages will be monitored for daily and seasonal fauna usage, and to determine whether deaths or other effects or incidents are occurring.	Daily observational monitoring of the tailings storage facilities occurs for fauna and avifauna is conducted to identify any incidents or deaths within the tailings storage areas. Any impacts are recorded and recovery of any affected fauna occurs.	**Compliant**
s.4.1/p.17	In the event that native fauna incidents or deaths are recorded, the Protocol for reporting any deaths or other incidents within ML 1535 will be initiated.	The protocol for reporting any deaths or other incidents within ML 1535 has been implemented in accordance with the Flora and Fauna Management Plan section 6. Recording of any fauna incidents on the tailings storage areas are reported to the Environment Manager and actions initiated in accordance with the Protocol.	**Compliant**
s.4.1/p.17	Usage of the tailings dams by bat fauna will be monitored using an Anabat CF Zcam echolocation call detector system, controlled by a call-activated switching device. The Anabat detectors record from sunset to sunrise every night at the active tailings storage facility and at a control monitoring site (i.e. the farm homestead stock dam at the 'Hillgrove' (Evolution-owned residence).	Bat surveys (ANABAT) were undertaken each month during the audit period at the active tailings facility and a control site. Data from a random sample of four nights per month is analysed and control site reference data and tailings storage facility data is compared for similarity or variance. The Anabat Ultrasonic Bat Detectors are removed from site each six months and calibrated by expert technicians.	**Compliant**
s.4.2/p.18	Usage of the tailings dams by fauna will be reported to OEH on a six monthly basis, unless otherwise directed by the Secretary, in accordance with Development Consent Condition 3.2(b)(i).	Six Monthly Reports of usage of the tailings storage facility by fauna is prepared by Donato and provided to the OEH (EPA and NPWS), and monitoring results are also reported in the Annual Review section 3.8.	**Compliant**
s.5/p.19	In accordance with Development Consent condition 3.2(b)(vi), Sections 5.1 and 5.2 include plans for the rescue and rehabilitation of wildlife that may become	Wildlife rescue and rehabilitation plans were prepared in consultation with the Wildlife Information and Rescue Service (WIRES). The wildlife rescue procedures are provided in	**Compliant**

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	bogged/sick/trapped in the tailings dams or elsewhere within ML 1535.	the Flora and Fauna Management Plan sections 5.1 and 5.2.	
s.6.2/p.21	In accordance with Development Consent condition 3.4(a)(ii), any fauna deaths (except those attributable to physical trauma such as vehicle strike) are reported to the OEH, DRE and CEMCC) A record will be maintained of any wildlife deaths or other incidents and this record will be provided in the Annual Review (Section 17) in accordance with Development Consent condition 3.2(b)(ii).	Records of all fauna deaths are prepared by Cowal Gold Operations personnel and reported in the Annual Review 3.8. No fauna deaths attributable to TSF cyanide were reported between May 2013 and April 2016. Any fauna deaths that could be attributable to cyanide would be reported within 24 hours to the OEH, DRE and CEMCC.	**Compliant**
s.6.3/p.20	In accordance with Development Consent condition 3.2(b)(iii) fauna autopsy facilities will be provided to enable the cause of any fauna death(s) to be quickly determined. The Flora and Fauna Management Plan section 6.1 details the collection and recording procedures for any fauna found dead in the ML area, Section 6.2 outlines the reporting of native fauna deaths. Sections 6.3.1 and 6.3.2 provide an overview of the procedures and laboratory tests to be conducted on dead fauna recorded in the ML area and the reporting of autopsy results.	Fauna autopsies are undertaken by the West Wyalong Veterinary Clinic as required. The dead fauna requiring autopsy are delivered to the West Wyalong Veterinary Clinic by Cowal Gold Operations personnel and a report is provided by the veterinarian on the cause of death. The fauna autopsy results are provided to the OEH if required, when they are made available by the West Wyalong Veterinary Clinic.	**Compliant**
s.8/p.24	Contingency measures for reducing cyanide levels in the tailings dams in the event it is established that fauna deaths are occurring from cyanide in tailings dam water as required in Development Consent 14/98 MOD 11 condition 3.2(b)(iv).	Contingency measures for reducing cyanide levels in the tailings dams (as outlined in the Flora and Fauna Management Plan section 8.2) would be implemented if required.	**Not triggered**
s.9.1/p.25	In accordance with Development Consent 14/98 MOD 11 condition 3.2 (b)(vii), a number of methods will be utilised to protect, conserve and enhance wildlife values within ML 1535 and around Lake Cowal.	The Flora and Fauna Management Plan includes reference to other management plans and outlines of mitigation measures: • Compensatory Wetland Management Plan initiatives (Section 9.2); • Remnant Vegetation Enhancement Programme areas (Section 9.3); • the CGM offset areas (Section 9.4); rehabilitation of ML 1535 disturbance areas (Section 9.5);	**Compliant**

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		• CGM design (Section 9.6); • Threatened Species Management Protocol (Section 9.7); • Vegetation Clearance Protocol (Section 9.8); • Weed control (Section 9.9); • Pest control (Section 9.10); and • Other management measures (Section 9.11).	
s.9.3.1/p.26	In order to encourage the natural regeneration of native plant species, livestock will be controlled in the enhancement areas through fencing control and management, as outlined in the LMP.	Remnant vegetation and regeneration areas within ML 1535, on Evolution Mining owned land and around Lake Cowal, have been fenced to exclude livestock, as outlined in Land Management Plan section 4.3.	**Compliant Ongoing**
 **Northern Offset area fenced around Evolution Mining owned land to exclude livestock (April 2016).**			
 **Land adjacent to Northern Offset area (not Evolution Mining owned land) where grazing is not excluded and regeneration of native species is reduced by livestock grazing.**			
s.9.3.2/p. 32	Remnant vegetation monitoring will be conducted annually within the enhancement areas. A number of survey plots (50 x 20 m) will be established within each enhancement area to obtain quantitative data on species diversity and abundance.	Remnant vegetation monitoring within survey plots established in the enhancement areas, has been conducted annually by DnA Environmental. Reports are prepared describing the status of the vegetation in each survey	**Compliant**

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	The survey plots will be monitored annually (when not inundated) after Year 2 of mine operations. Control plots may also be established at sites outside of the enhancement areas to provide a reference point against which the management measures can be assessed.	plot, with photo points established for each quadrat to record annual status.	
s.9.5/p.33	Mine rehabilitation works will be undertaken progressively in accordance with a progressive rehabilitation works detailed in the CGM MOP in accordance with the requirements of DRE's MOP Guidelines and the Conditions of Authority for ML 1535 (Section 2.2). The status of progressive rehabilitation works will be reported annually within the CGM's Annual Review.	Mine rehabilitation is being undertaken generally in accordance with the approved MOP, although meeting the specific areal targets for rehabilitation in the MOP has been affected, due mainly to dry weather conditions between May 2013 and April 2016. Rehabilitation status is reported in the Annual Reviews in section 5.	**Compliant Ongoing**
s.9.6/p.38	In accordance with Development Consent 14/98 MOD 11 condition 3.2(a)(ii), topsoil stockpiles within ML 1535 will not be located within any area of remnant Wilga Woodland.	No soil stockpiles have been located in any area of Wilga Woodland.	**Compliant**
s.9.6/p.38	Fences will be constructed within ML 1535 and around the ML 1535 boundary in accordance with Development Consent 14/98 MOD 11 condition 2.3 which requires the mine site to be secured.	The Cowal Gold Operations site has a security fence around the boundary of ML 1535, with internal fencing around the tailings storage facility areas.	**Compliant**
s.9.7/p.39	The Threatened Species Management Protocol was developed to minimise potential impacts of the Project on threatened flora and fauna species known and/or considered possible occurrences in the Project disturbance areas and/or immediate surrounds. The Threatened Species Management Protocol will be implemented in accordance with Development Consent condition 3.2(c)	Flora and Fauna Management Plan Appendix A - Threatened Species Management Protocol has been implemented as required for the protection of threatened species when they were encountered on the Cowal Gold Operations site. The Threatened Species Management Protocol was not triggered between May 2013 and April 2016.	**Compliant**
s.9.8/p.41	In accordance with Development Consent condition 3.2(b)(vii) which requires the protection of retained habitats within the ML area and Development Consent condition 3.2(a)which requires the minimisation of the removal of trees and other	In accordance with Development Consent 14/98 MOD 11 condition 3.2(a) and the Flora and Fauna Management Plan, the Vegetation Clearance Protocol has been implemented where any vegetation	**Compliant**

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	vegetation from the mine site, a Vegetation Clearance Protocol (VCP) has been developed for the Project. All vegetation clearance activities required by the Project will be conducted in accordance with the VCP. The VCP will be implemented by suitably qualified person(s) and coordinated by the Environmental Manager.	clearance activities have been required within ML 1535. Vegetation clearance has been restricted to areas required for mine activities, buildings and paved surfaces, and areas necessary for fire control. The Vegetation Clearance Protocol is consistent with the JLWMP and LWMPLC to minimise vegetation clearance in the region.	
s.9.9/p.46	Weeds will be managed at the CGM in accordance with measures described in Section 6 of the LMP. The CGM's rehabilitation monitoring programme includes monitoring and recording weed presence within the rehabilitation areas. Rehabilitation monitoring results will be detailed in an annual rehabilitation monitoring report, and any weed control measures conducted will be reported in the Annual Review (Section 17). In addition, an annual weed survey is also conducted across ML 1535 and all Evolution Mining owned lands which includes a detailed description of any weeds present, its location (including a photographic record) and recommended management/control measures.	Annual weed surveys of the Cowal Gold Operations / Evolution Mining owned lands, was conducted by Carnegie Natives and involved recording the extent of weed occurrences, details of weed distribution and any new weed species infestation. Photographs, general descriptions and GPS coordinates have been taken of each of the surveyed areas of ML 1535 and the Cowal Gold Operations / Evolution Mining owned lands. Weeds of concern, those that are declared noxious in the Bland Shire Council Local Government Area, and environmental weeds are targeted with on-going weed control measures undertaken on a weekly basis or as required. The weed management program is reported in the Annual Review section 3.9.	**Compliant**
s.9.10/p.47	Pest control on ML 1535 will be conducted in accordance with the general procedures detailed in the Land Management Plan section 7 and in conjunction with adjacent landholders for more effective pest control.	Use of the NSW Agriculture Vertebrate Pest Control Manual for pest control activities occurs as necessary. A regular control program of baiting for foxes is conducted. Control of spiders and black crickets has also occurred at 3 to 6 monthly intervals as required.	**Compliant**
s.10/p.49	In the event that a threatened species is identified within a Cowal Gold Operations disturbance area, the Threatened Species Management Strategy phase of the Threatened Species Management Protocol that involves the identification of mitigation measures to ameliorate any potentially significant impacts on the threatened species, will be initiated.	No new threatened species were identified on the ML 1535 or other Evolution Mining owned land during the May 2013 to April 2016 period. In accordance with the Threatened Species Management Protocol, the management strategies developed would be subject to review and approval by the OEH, prior to implementation if threatened species were identified.	**Compliant**

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s.11/p.51	In accordance with Development Consent 14/98 MOD 11 condition 3.2(b)(viii), flora, fauna, fish and aquatic invertebrates will be monitored. The results of the monitoring programme will be reported in the Annual Review. .	The fauna, flora, fish and aquatic invertebrates monitoring has been conducted in accordance with the Surface Water, Groundwater, Meteorology and Biological Monitoring Plan (prepared to address the components of the Project EIS and SIS) and in accordance with Development Consent 14/98 MOD 11 condition 3.2(b)(viii).	**Compliant**
s.11.1.5/p. 54	The Blast Management Plan outlines a blast monitoring program that includes a network of six blast monitoring sites, two of which (sites BM04.1 and BM05) are located proximal to bird breeding areas. Evolution Mining is required to undertake remedial measures if blasting overpressure demonstrably disturbs bird breeding.	Bird breeding activity has been variable since the filling of Lake Cowal in 2011. Bird breeding activity reduced as Lake Cowal dried up and it was reported that blasting did not affect bird breeding activity between May 2013 and April 2016.	**Compliant**
s.11.1.6/p.55	Water-bird surveys within the Compensatory Wetland will be conducted annually during the main bird breeding periods. The monitoring program will utilise the existing waterbird survey transect within ML 1535.	Bird surveys were conducted in August and October 2013 and January, August and October 2014 on Lake Cowal by the Centre for Environmental Management, Federation University.	**Compliant**
s.11.2.1/p.56	Monitoring will be conducted to determine whether vegetation planted within the New Lake Foreshore is establishing and to determine the need for any maintenance and/or contingency measures (such as the requirement for supplementary plantings, erosion control or weed and pest control). Visual observations will be made on a regular basis to assess the health of planted vegetation. In addition, a number of survey plots (50 x 20 m) will be monitored annually following the commencement of revegetation activities (when the area is not inundated) to obtain quantitative data on species diversity and abundance. The quality of rehabilitation will be monitored using Ecosystem Function Analysis (EFA) or a similar systems-based approach.	The New Lake Foreshore had not been established at the time of the audit (April 2016). The DnA Environmental, *Compensatory Wetland Monitoring* Report January 2016 concluded: *"The data obtained presently do not indicate any adverse effects occurring within the compensatory (CW) wetland areas, rather the restriction of grazing has promoted extensive regeneration of M. florulenta growing within the lake environment. These shrubs had become well established and were able to provide habitat and nesting sites for range of migratory birds during the four years that Lake Cowal was inundated. In the remaining and grazed wetland areas the extent of M. florulenta regeneration has been lower due to a combination of a cultivation history and heavy grazing by livestock and this was more pronounced in the grazed wetland areas."*	**Not triggered**

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s.11.3.1/p.57	Biological monitoring, including fish and aquatic invertebrates, will be undertaken in accordance with Development Consent 14/98 MOD 11 condition 3.2(b)(viii). In accordance with Development Consent 14/98 MOD 11 condition 4.5(b), a biological monitoring program has been developed and implemented for the operational phase of the mine.	The biological monitoring program (for fish and aquatic invertebrates) was developed in consultation with and to the satisfaction of the DI&I-Fisheries. In addition, the Independent Monitoring Panel (Development Consent 14/98 MOD 11 condition 9.2(b)) were consulted during preparation of this monitoring program. Details of the program implemented are provided in the Surface Water, Groundwater, Meteorological and Biological Monitoring Program (SWGMBMP).	**Compliant**
s.11.3.2/p.57	As outlined in the Compensatory Wetland Management Plan, fish fauna surveys will be conducted within the New Lake Foreshore, Compensatory Wetland and remaining wetland areas within ML 1535, no more than annually, when the lake is full (i.e. at full storage level).	Fish and aquatic invertebrate surveys were conducted during July 2012, February 2013 and February 2014 when water in the lake was adequate to conduct the surveys, in accordance with the SWGMBMP. The primary findings of the survey conducted in February 2014 were that "*The community composition of fish in the surveys was similar to the community composition of fish recorded elsewhere in areas of the Murray-Darling Basin that experience adverse environmental conditions (i.e. ephemeral water-bodies, high water temperatures, low percent saturation of dissolved oxygen). The fish communities of the study area are species-poor and were dominated by exotic species (i.e. Eastern Gambusia) that accounted for 98% of the catch; goldfish and the common carp".*	**Compliant**
s.12.2.1/p.59	Water quality of Lake Cowal will be monitored in accordance with Development Consent 14/98 MOD 11 condition 4.5(b) for a number of parameters along the Lake Cowal transect and lake inflow sites.	Flora and Fauna Management Plan Table 6 outlines the monitoring locations, frequency of monitoring and surface water parameters that are monitored, and are consistent with the SGWMBMP.	**Compliant**
s.12.2.1/p.59	Bird breeding/behaviour monitoring will continue to be conducted by a suitably qualified person during the main bird breeding periods each year at the main bird breeding areas of Lake Cowal and will continue to include observations of bird behaviour during blast events.	Noise monitoring was conducted six monthly by SLR in accordance with the Noise Management Plan until July 2014. Since July 2014 monitoring has been carried out at quarterly intervals in accordance with Development consent	**Compliant**

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	Monitoring results from the Cowal Gold Operations noise and blast monitoring programs (as detailed in the Noise Management Plan and Blast Management Plan respectively) will also be used to monitor noise and blasting impacts.	MOD 11 condition 6.3(e)(iii) and the Noise Management Plan (2015). Monitoring results from the noise and blast monitoring programs (as detailed in the Noise Management Plan and Blast Management Plan) have been used to monitor noise and blast impacts. Results of waterbird behaviour monitoring conducted by Gell and Peake found that there was no abrupt change in the behaviour of any bird species to noise (or other effects) from blasts conducted at the Cowal Gold Operations.	
s.12.2.1/p.60	Dust deposition levels surrounding the CGM and Lake Cowal will continue to be monitored in accordance with the Air Quality Management Plan (AQMP). The air quality monitoring sites are located both proximal to and distant from the CGM on the lake's eastern shore near bird breeding areas.	Dust deposition monitoring has occurred in accordance with the Dust Management Plan / Air Quality Management Plan where access has been available. During the March to June 2012, the high water level of Lake Cowal resulted in the loss of some dust gauges located at sites within the inundated area of the lake. (Ref: Cattle, S. *Interpretation and Discussion of 2012 Air Quality Monitoring Results, Cowal Gold Mine*, University of Sydney). Modified dust gauge stands were installed in 2012 to replace the inaccessible dust gauges, enabling data collection from the submerged sites during inundation of Lake Cowal.	**Compliant**
s.12.2.2.1/p61	The occurrence of the Austral Pillwort within ML 1535 and immediate surrounds not disturbed by the CGM will be monitored annually. A Threatened Species Management Strategy has been developed for the Austral Pillwort and involves the identification of mitigation measures to ameliorate any potential impacts on the threatened species.	Annual targeted surveys for the Austral Pillwort within ML 1535 and immediate surrounds not disturbed by the Cowal Gold Operations, have been conducted between 2003 and 2015. No Austral Pillwort was found during the surveys conducted by DnA Environmental between 2013 and Q4 2015, (despite expanding the monitoring survey areas).	**Compliant**
s.12.2.2.2/p61	Dust deposition levels surrounding the CGM and Lake Cowal will continue to be monitored in accordance with the AQMP. The AQMP monitoring program includes sites located within ML 1535 and near the foreshore of Lake Cowal (i.e. proximal to potential habitat for the Austral Pillwort).	Dust monitoring sites surrounding the Cowal Gold Operations and Lake Cowal are identified Dust Management Plan, and the Air Quality Management Plan Table 6 and Figure 4.	**Compliant**

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s12.2.3.1/p62	Water quality of Lake Cowal will be monitored for a number of parameters along the Lake Cowal monitoring transects and at lake inflow sites in accordance with the SWGMBMP.	Water quality monitoring has been undertaken in Lake Cowal along the six transects used during the baseline monitoring program at monitoring sites located close to the Cowal Gold Operations, within central Lake Cowal, at sites distant from the Cowal Gold Mine and at Lake Cowal inflow sites.	**Compliant**
S12.2.3.4/p63	Dust deposition levels surrounding the CGM and Lake Cowal will continue to be monitored in accordance with the AQMP.	Dust monitoring sites surrounding the Cowal Gold Operations and Lake Cowal are identified in Air Quality Management Plan Table 6 / Figure 4.	**Compliant**
S12.2.3.6/p63	Incidental observations of fauna activity within ML 1535 will be documented during weekly inspections for any bird strike on electricity transmission lines on ML 1535. The monitoring program will record any deaths or other incidents involving native fauna.	Weekly inspections of fauna activity within ML 1535 are conducted and the observation / monitoring program records any deaths or other incidents involving native fauna.	**Compliant**
s.12.2.4.1/ p.64	Water quality of Lake Cowal will be monitored for a number of parameters along the Lake Cowal transect and lake inflow sites. Table 6 outlines the monitoring locations, frequency of monitoring and surface water parameters that will be monitored in accordance with the SWGMBMP. The default high conservation/ecological value protection level triggers (including the 99% protection level for toxicants) provided in ANZECC and ARMCANZ (2000) will be used to trigger surface water investigations, as described in Section 8 of the SWGMBMP.	Water quality monitoring of Lake Cowal occurred along the Lake Cowal transects and lake inflow sites identified in the Site Water Management Plan and Surface Water, Groundwater, Meteorological and Biological Monitoring Program between May 2013 and April 2016, when there was water in the lake. No monitoring results between May 2014 and April 2016 resulted in triggering of the high conservation/ecological value protection scheme.	**Compliant**
s.12.2.4.2/p.64	The impact of removal/modification of habitat on fish fauna and aquatic invertebrates will be monitored in accordance with the CWMP, as described via surface water monitoring programme outlined in Table 6 and described in Section 4.3 of the SWGMBMP.	Fish and aquatic invertebrate surveys were conducted between 2011 and February 2014 in accordance with the SWGMBMP. The primary findings of the survey conducted during February 2014 were that "*The community composition of fish in the surveys was similar to the community composition of fish recorded elsewhere in areas of the Murray-Darling Basin that experience adverse environmental conditions (i.e. ephemeral water-bodies, high water temperatures, low*	**Compliant**
s.12.2.4.2/p.60	The impact of removal/modification of habitat on fish fauna will be monitored in accordance with the surface water monitoring programme (as outlined in Table 6 and described		**Compliant**

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	in Section 4.3 of the SWGMBMP) and CWMP. A monitoring program will be implemented to assess the success of the wetland rehabilitation on the New Lake Foreshore and enhancement measures in the Compensatory Wetland areas (and remaining areas of wetland in ML 1535) in improving wetland habitats for fish fauna.	*percent saturation of dissolved oxygen).* The fish communities of the study area are species-poor and were dominated by exotic species (i.e. Eastern Gambusia) that accounted for 98% of the catch; goldfish and the common carp. Monitoring to assess the success of the wetland rehabilitation on the New Lake Foreshore and enhancement measures in the Compensatory Wetland areas (and remaining areas of wetland in ML 1535) will be part of the program outlined in the SWGMBMP.	
s.12.2.4.3/p64	Dust deposition levels surrounding the Cowal Gold Operations site and Lake Cowal will continue to be monitored in accordance with the AQMP.	Dust monitoring in accordance with the Air Quality Management Plan was conducted at dust monitoring sites identified in Air Quality Management Plan Table 6 and Figure 4, surrounding the Cowal Gold Operations and Lake Cowal.	**Compliant**
S12.2.4.4/p64	The sediment monitoring will be relevant to potential surface water quality and dust deposition impacts, and will be undertaken during lake "dry" and "wet" periods (when the lake level is at or above 204.5m AHD) where practicable. A detailed description of the sediment monitoring program is provided in the biological monitoring programme component of the SWGMBMP. Biological monitoring results will be interpreted and reported in the Annual Review.	Sediment monitoring conducted by DM McMahon was reported in the Lake Cowal *Surface Water and Sediment Sampling and Analysis Reports* between 2011 and 2014 when the lake level was at or above 204.5m AHD. The Lake Cowal sediment results were assessed against the ANZECC and ARMCANZ (2000) recommended trigger values and demonstrated that the extractable results were below the recommended trigger values.	**Compliant**
s.12.4/p.69	In the event that assessment of the monitoring results (Section 12.3) indicates that impacts are occurring on birdlife in bird breeding areas, threatened flora, threatened fauna, fish or aquatic invertebrates, contingency measures will be implemented.	No impact on birdlife in bird breeding areas, threatened flora, threatened fauna, fish or aquatic invertebrates that required contingency measures to be implemented, were identified in the annual surveys conducted between May 2013 and April 2016.	**Compliant**
s.13/p.77	Upon the cessation of mining operations, tenure of ML 1535 will be maintained by Evolution Mining until lease relinquishment criteria are satisfied.	Not activated until the cessation of mining operations.	**Not activated**

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s.17/p.82	An Annual Review will be prepared in accordance with the requirements of Consent Condition 9.1(b)	Annual Review prepared in accordance with Development Consent 14/98 MOD 11 condition 9.1(b) reported flora and fauna management in sections 3.7 and 3.8.	**Compliant**

5.4.2 Flora and Fauna Monitoring

[Development Consent 14/98 MOD 10 condition 3.4(a)]
[Development Consent 14/98 MOD 11 condition 3.2(b)(i)]

Flora and fauna monitoring has been conducted in accordance with the Development Consent 14/98 MOD 10 condition 3.4(a), Development Consent 14/98 MOD 11 condition 3.2(b)(i) and Flora and Fauna Management Plan (2014) section11.

The implementation of the Flora and Fauna Management Plan and monitoring of the status of the Cowal Gold Mine and Operations in relation to flora and fauna has been reported in the various programs and reports produced for the project between 2013 and 2016. A summary of the findings related to flora and fauna monitoring surveys during 2013 and 2016 are:

- No replanting or additional tree and shrub planting occurred in the four monitoring quadrants set up on Fellman's Hill Revegetation Enhancement Project between May 2013 and April 2016. Monitoring at Fellman's Hill Revegetation Enhancement Project was conducted annually by DnA Environmental.

- The Revegetation Enhancement Project reports prepared by DnA Environmental concluded that "*Macropods continue to graze the vegetation on Fellman's Hill. The fenced enclosures have demonstrated that heavy macropod preferentially take refuge within the dense woodland vegetation on the hills and ridges and their grazing can have significant effects of the recovery and health of the woodland vegetation. In the more open grassland areas the impacts appear to be relatively minor and macropod grazing in these grassland areas is likely to be desirable to encourage new plant growth and maintain species diversity".* During the Cowal Gold Operations site visit in April 2016, a large number of macropods were observed on or around the southern offset area. In the event that regeneration of the groundcover layer within the offset site is impeded by the grazing pressure from the macropod population, consideration should be given to controlling overabundant macropod numbers on the site.

- Bird surveys were conducted in August and October 2013 and January, August and October 2014 on Lake Cowal by the Centre for Environmental Management, Federation University, indicated that the continuing emptying of Lake Cowal and drying of survey transect areas had significant impacts on bird breeding activities and species diversity, due to the lowering water levels.

- *Compensatory Wetland Habitat and Fish Investigations* (by frc environmental) were conducted between 2011 and 2014. The final fish survey report dated February 2014 stated:

  "The diversity of fish species in Lake Cowal identified in the 2011 to 2014 fish surveys was low. Overall, only six species were caught in recent surveys, with three being native species (common carp-gudgeon, Australian smelt and bony bream), and three being introduced species (mosquito fish, goldfish and carp). Only two native species, the common carp gudgeon and bony bream, were caught in February 2014.

The community composition of fish in the surveys was similar to the community composition of fish recorded elsewhere in areas of the Murray-Darling Basin that experience adverse environmental conditions (i.e. ephemeral water-bodies, high water temperatures, low percent saturation of dissolved oxygen). The current fish surveys clearly showed the dominance of species that are resilient to harsh environmental conditions and that can rapidly colonise newly available habitat, especially introduced species recorded during the surveys, and only one native species (i.e. common carp-gudgeon)."

No fish species survey was conducted between February 2014 and April 2016 due to the low or absent water level of Lake Cowal.

5.4.3 Conclusion

The Flora and Fauna Management Plan (2015) prepared for the Cowal Gold Operations is compliant with the requirements of Development Consent 14/98 MOD 10 condition 3.4 and Development Consent 14/98 MOD 11 condition 3.2, and provide an adequate basis for the management of flora and fauna on the project ML 1535 area and surrounding Mine owned land.

The implementation of the commitments in the Flora and Fauna Management Plan are supplemented by the commitments in the Compensatory Wetland Management Plan, Land Management Plan, Rehabilitation and Offset Management Plan, and Surface Water, Groundwater, Meteorological and Biological Monitoring Program.

The monitoring program reports prepared under the Flora and Fauna Management Plan have provided a comprehensive ongoing assessment of the status of flora, fauna, avifauna, fish and habitats of the Cowal Gold Operations project development and demonstrate that the project has not had a measurable negative impact on the surrounding environment or its flora and fauna.

Monitoring at Fellman's Hill Revegetation Enhancement Project concluded that "*Macropods continue to graze the vegetation on Fellman's Hill…. and their grazing can have significant effects of the recovery and health of the woodland vegetation."*

Recommendation:
It is recommended that consideration should be given to controlling overabundant macropod numbers on the site.

5.5 Compensatory Wetland Management

[Development Consent 14/98 MOD 11 condition 3.3]

5.5.1 Compensatory Wetland Management Plan

[Development Consent 14/98 MOD 11 condition 3.3]

The Compensatory Wetland Management Plan required under Development Consent 14/98 condition 3.10A(ii) was approved by DIPNR in 2003. The Compensatory Wetland Management Plan was reviewed in 2009 and as there had been no changes to the applicable guidelines, environmental requirements or operational practices no revision or update of the Plan was required.

The Compensatory Wetlands Management Plan was reviewed in 2015 against the requirements of Development Consent 14/98 MOD 11 condition 3.3. The 2015 review of the Compensatory Wetlands Management Plan concluded that there were no significant changes required to the currently approved Plan.

The objectives of the Compensatory Wetlands Management Plan outline the compensation measures to be implemented for the loss of the 120ha of wetland that occurred during the mine development, through the enhancement of existing wetland within the Cowal Gold Operations mining lease area during the project operation (and to continue following closure of the mine).

The Compensatory Wetland Management Plan includes Commitments that are listed in Table 5.5.1.

Table 5.5.1: Compensatory Wetland Management Plan Commitments

Section /Page No.	Compensatory Wetland Management Plan Commitments	Comments	Implementation Status
s.6.1/p18	Wetland enhancement measures will be implemented within the Compensatory Wetland areas including: • the prevention of stock entry onto the enhancement area to encourage the natural regeneration of native plants; • measures to minimise the spread of weeds and competition with native flora; • measures to minimise the occurrence of feral pests; • provision of structural habitat for aquatic fauna; and • limiting vehicular access.	The compensatory wetland areas are fenced to prevent stock entry. Weed management, fox baiting, rodent and locust management measures have been implemented as required, and vehicle access to the compensatory areas is limited by fencing and gated access points.	**Compliant**
s.6.1/p18	Planting of native wetland species within the compensatory wetland may be undertaken if monitoring indicates that doing so is necessary to enhance the regeneration of native vegetation within the area.	Monitoring of the wetland areas occurs to assess native vegetation succession, particularly along the lake foreshore as the water recedes following filling of the lake on 2010. Planting of native species in the compensatory wetland areas has not occurred, but will occur if the survey results indicate enhancement of the compensatory areas can be achieved.	**Compliant**
s.6.1.1/p19	Monitoring will be conducted to assess the regeneration of native vegetation within the compensatory wetland and to determine the need for any maintenance and/or contingency measures (such as the requirement for the planting of native species and weed/pest control).		**Compliant**
s.6.1.3/p19	Revegetation for the New Lake Foreshore will create a freshwater ecological community with a focus on the establishment of waterfowl habitat.	Filling of the lake in 2010-2012, followed by near drought conditions during 2012-2014 has compromised development of the establishment of waterfowl habitat.	**Compliant**
s.6.2.4/p25	The New Lake Foreshore will primarily be revegetated using native seedlings propagated on-site or obtained from a supplier	This has not been progressed as the New Lake Foreshore had not yet been established.	**Not triggered**
s.6.2.4/p26	Revegetation methods will be reviewed and revised annually in consideration of the results of revegetation trials.	Annual reviews of revegetation methods have been carried out by DnA Environmental and Carnegie Natives.	**Compliant**

Section /Page No.	Compensatory Wetland Management Plan Commitments	Comments	Implementation Status
s.6.2.5/p26	Revegetation species for the New Lake Foreshore will also be selected in consideration of the lake's hydrological regime (wetting and drying cycles), species performance during revegetation trials and suitability to substrate conditions. Species selection will be an iterative process, whereby revegetation trials and monitoring will provide information as to the most appropriate species for revegetation	Selection of suitable species for revegetation of the New Lake Foreshore is considered during the assessment of the rehabilitation and compensatory wetland area monitoring. Revegetation has not progressed as the New Lake Foreshore has not yet been established.	**Compliant**
s.6.2.6/p27	As a component of rehabilitation of the New Lake Foreshore, a number of revegetation trials will be undertaken. The revegetation trials will be drafted in the MOP and will include: evaluation of the relative revegetation establishment rates of native plant species; assessment of various establishment procedures and suitability of propagation methods; and determination of the New Lake Foreshores' suitability as revegetation media	Revegetation trials will be undertaken based on findings of annual DnA Environmental surveys.	**Compliant Ongoing**
s.7.2/p29	Weed control within ML 1535 wetland areas will be conducted in accordance with the applicable procedures detailed in the LMP to limit adverse weed effects at neighbouring private properties.	Annual weed surveys are conducted on ML 1535 and all Evolution Mining owned land. Weed control is conducted regularly to reduce potential for weed invasion to private properties.	**Compliant**
s.7.3/p31	Evolution Mining employees responsible for land management will implement pest control measures on mine-owned land, including wetland areas within ML 1535, in consultation with the CRLPB and NSW Agriculture, and in co-ordination with adjacent landholders. Pest control activities include: regular property inspections to assess the status of pest populations within Evolution Mining owned land, including wetland areas within ML 1535, and the need for the implementation of appropriate control strategies;	Weed control, spraying for control of locust (APLs) infestation, and fox baiting programs are conducted by Cowal Gold Operations.	**Compliant**
s.7.3/p31	Pest control for declared pests and foxes will occur in accordance with the RLP Act. Post control inspections to assess the effectiveness of the control measures implemented and review the need for alternative or additional control methods.	Pest control inspections to assess effectiveness of the control measures have been conducted in accordance with the Rural Land Protection Act.	**Compliant**
s.8.1/p33	Subsequent to the removal of livestock, monitoring will be conducted to determine whether natural regeneration is occurring within those areas subject to enhancement measures. The monitoring of natural	Annual monitoring of Evolution Mining owned land has been carried out by DnA Environmental to assess natural regeneration within areas subject to enhancement measures.	**Compliant**

Section /Page No.	Compensatory Wetland Management Plan Commitments	Comments	Implementation Status
	regeneration will be conducted annually following the removal of livestock.		
s.8.1.2/p34	Monitoring will be conducted to determine whether vegetation planted within the new lake foreshore is establishing and to determine the need for any maintenance and/or contingency measures	Annual monitoring of the lake foreshore areas has been carried out by DnA Environmental. Monitoring of the New Lake Foreshore has not occurred as no revegetation of this area has yet commenced.	**Compliant**
s.8.1.3/p34	Incidental observations of fauna activity within ML 1535 wetland areas will be documented during weekly inspections of ML 1535. Surveys will also be conducted to determine the usage of wetland areas by wildlife.	Incidental 'drive' around surveys are conducted weekly on the ML 1535 by Cowal Gold Operations Environmental staff and observations recorded.	**Compliant Ongoing**
s.8.1.3/p34	Waterbird surveys will be conducted by year 5 of mine operations within the compensatory wetland and remaining wetland areas within ML 1535, and thereafter, annually. A number of survey transects will be established within the compensatory wetland and remaining wetland areas within MML 1535 to survey waterbird diversity and abundance.	Lake Cowal Waterbird Monitoring Surveys were conducted three times per year (in January, August and October) when the lake contained water, by Peter Gel and Paul Peake from the Centre for Environmental Management University of Ballarat.	**Compliant**
s.8.1.3/p34	Fish fauna surveys will be conducted within the compensatory wetland and remaining wetland areas within ML 1535, no more than annually, when the lake is full.	Fish surveys were conducted by frc environmental in 2011, 2012 and 2014 since the filling of Lake Cowal in 2011. The surveys did not occur in 2015 or 2016 due to the drying up of the lake.	**Compliant**
s.8.1.3/p34	A survey of terrestrial fauna will also be conducted of the New Lake Foreshore once vegetation has established and before year six of mine operations. Survey may include visual and opportunistic observations, active searches, spotlighting, identification of bird calls, amphibian calls, Elliott trapping and electronic call detection.	Terrestrial fauna surveys have been included in the DnA Environmental reports. Specific monitoring of the New Lake Foreshore area has not yet been undertaken as the New Lake Foreshore area has not been established.	**Compliant**
s.8.2/p34	Maintenance activities may be undertaken to facilitate the enhancement of wetland habitats. Routine maintenance measures may include: • supplementary plantings to replace losses; • control of erosion and sedimentation; • the use of tree guards to provide protection against wind, frost, vermin and herbivores; • weed and pest control; and • limiting vehicle access	Maintenance activities in the wetland habitat areas around the lake foreshore temporary and permanent bunds, has occurred as required to reduce erosion and control weed infestation and pests.	**Compliant Ongoing**
s.9/p35	Prior to the cessation of mining operations, Evolution Mining will develop a strategy for the long-term land-use of its landholdings,	Noted. Yet to be commenced.	**Not triggered**

Section /Page No.	Compensatory Wetland Management Plan Commitments	Comments	Implementation Status
	including the wetland areas within ML 1535. The strategy for long-term land-use of the Project area and mine-owned land will be submitted five years before mine closure. The strategy will be developed in consultation with the DLWC, environmental protection authority, NPWS, BSC and to the satisfaction of the Director-General.		
s.12/p39	An Annual Review will be prepared in accordance with the requirements of Development Consent 14/98 MOD 11 condition 9.2 and submitted to the Secretary DP&E.	Annual Review documents prepared for the Cowal Gold Operations in accordance with Development Consent 14/98 MOD 11 condition 9.2, address compensatory wetland management.	**Compliant**

4.5.2 Compensatory Wetland Area Surveys

Surveys of the compensatory wetland area have been undertaken annually since 2005 by DnA Environmental during late spring (October/November). The latest report dated January 2015 concluded:

> *"Most changes in the wetlands have occurred as a result of climatic and biophysical factors and these were compounded in areas subjected to livestock grazing, especially during the dry conditions. Ongoing monitoring of these sites are (sic) likely to demonstrate further and significant changes with the drying of the lake and the development of the ephemeral wetland communities after a long agricultural history and significant flood event, especially in areas which are now restricted from grazing".*

5.5.3 Conclusion

The Compensatory Wetland Management Plan provides a comprehensive management and monitoring regime that is providing detailed reports on the status of the accessible compensatory wetland areas. The surveys and reports on the flora and fauna in the declared areas are indicating that the removal of livestock from grazing in the compensatory wetland areas and the climatic influences (particularly the heavy rainfall years and flooding of the Lake Cowal area), have had a significant influence on the structure and composition of the lake foreshore communities.

5.6 Biodiversity Offset

[Development Consent 14/98 MOD 11 condition 3.4]

5.6.1 Environmental Assessment

[Environmental Assessment - Cowal Gold Mine Extension Modification 2013]

An offset strategy for the MOD 11 proposes to extend the Southern Offset Area to include an additional 230 ha of native vegetation for the Modification. The vegetation communities in the proposed offset area are a good match for those proposed to be cleared for the MOD 11 and the areas of these vegetation communities are all larger in the proposed offset area. Two additional broad fauna habitat types/vegetation communities located within the proposed offset area provide potential habitat for threatened fauna species that have the potential to occur within the Modification area.

In summary, the proposed offset area for the Modification has the following attributes:

- The offset area is adjacent to an existing conserved area thereby potentially strengthening the integrity of the existing conserved area.
- It contains approximately 48 ha of the Myall Woodland EEC listed under the NSW *Threatened Species Conservation Act*, 1995.
- It contains approximately 143 ha of the Grey Box Grassy Woodlands and Derived Native Grasslands of South-eastern Australia (Grey Box EEC) listed under the Commonwealth Environment *Protection and Biodiversity Conservation Act*, 1999. No Grey Box EEC would be cleared by the Modification.
- It contains existing records of the Grey-crowned Babbler (eastern subspecies) (*Pomatostomus temporalis temporalis*), sightings and nests, thereby conserving known habitat for the local population.

Conservation of the proposed offset area would be secured to the satisfaction of the now DP&E and the existing Rehabilitation and Offset Management Plan would be revised to incorporate the proposed offset area.

5.6.2 Biodiversity Offset Strategy

[Development Consent 14/98 MOD 11 condition 3.4(a) and 3.4(b)]

The Biodiversity Offset Strategy required under Development Consent 14/98 MOD 11 condition 3.4 is included in the Biodiversity Offset Management Plan 2015. The Biodiversity Offset Management Plan was submitted to OEH on 25 February 2015 for comment and a response was received on 13 March 2015. The Biodiversity Offset Management Plan was approved by DP&E on 21 March 2016.

To address Development Consent 14/98 MOD 11 condition 3.4(b) a Voluntary Conservation Agreement (VCA) was proposed and consultation occurred with the OEH in relation to the development of a VCA. The VCA was ultimately not agreed to by OEH.

A Voluntary Planning Agreement (VPA) for the Offset Areas was then prepared and submitted to DP&E on 28 April 2014. A decision on the Voluntary Planning Agreement by DP&E in relation to the long term protection of the biodiversity offset areas was still under consideration by DP&E at the date of this audit (April 2016). (Correspondence with DP&E requesting an extension of time for obtaining an agreement with the government agencies re the finalisation of the Biodiversity Offset Strategy and the Biodiversity Offset Conservation Bond was granted by DP&E to 30 June 2016).

5.6.3 Biodiversity Offset Management Plan

[Development Consent 14/98 MOD 11 condition 3.4(c)]

The Biodiversity Offset Management Plan prepared to satisfy Development Consent 14/98 MOD 11 condition 3.4(c) was submitted to OEH on 25 February 2015 for comment and a response was received on 13 March 2015. The revised Biodiversity Offset Management Plan Revision B was submitted to the DP&E on 19 May 2015 and approved on 21 March 2016.

5.6.4 Conservation Bond

[Development Consent 14/98 MOD 11 condition 3.4(d)]

Development Consent 14/98 MOD 11 condition 3.4(d) required a Conservation Bond to be lodged with the DP&E by the end of July 2015 (or later with the agreement of the Secretary of DP&E). A request an extension of time

for securing the offset areas and lodging the conservation bond was submitted to DP&E and an extension was granted until 30 June 2016.

The calculation of the Conservation Bond and lodgement of the bond with DP&E required the approval of the proposed offset areas, Biodiversity Offset Strategy and Biodiversity Offset Management Plan by DP&E / OEH. The Biodiversity Offset Strategy and Biodiversity Offset Management Plan was submitted to the OEH for consultation on 25 February 2015 and OEH responded with comments on 13 March 2015. The Biodiversity Offset Strategy and Biodiversity Offset Management Plan Revision B was submitted to DP&E on 19 May 2015 and was approved on 21 March 2016.

Evolution Mining submitted the calculation of the Conservation Bond for the biodiversity areas to DP&E on 3 December 2015 and lodged the calculated Conservation Bond with DP&E in December 2015.

5.6.5 Conclusion

A Biodiversity Offset Strategy and Biodiversity Offset Management Plan submitted to DP&E following consultation with OEH, was approved by DP&E on 21 March 2016. A Conservation Bond was lodged with DP&E (to satisfy Development Consent 14/98 MOD 11 condition 3.4(d)), in December 2015.

A Voluntary Planning Agreement for the Offset Areas was prepared and submitted to DP&E on 28 April 2014. A decision on the Voluntary Planning Agreement by DP&E in relation to the long term protection of the biodiversity offset areas was still under consideration by DP&E at the date of this audit (April 2016).

5.7 Erosion and Sediment Control

[Development Consent 14/98 MOD 11 condition 3.5]

5.7.1 Erosion and Sediment Control

[Development Consent 14/98 MOD 11 condition 3.5(a)]

An Erosion and Sediment Control Management Plan required by Development Consent 14/98 condition 3.5(a) was approved by DIPNR in 2004. Review and amendment of the Erosion and Sediment Control Plan has occurred regularly as the project has progressed. The revised Erosion and Sediment Control Management Plans were submitted for approval when significant changes for the operational management of the site was proposed.

The Erosion and Sediment Control Management Plan presents general measures to be implemented to control erosion and sediment loss to the environment from the disturbed areas of the project site.

A revised Erosion and Sediment Control Management Plan required under Development Consent 14/98 MOD 11 condition 3.5(a) was prepared and submitted to DP&E on 24 February 2015 and approved on the 21 March 2016.

The commitments outlined in the Erosion and Sediment Control Management Plan are summarised in Table 5.7.1.

Table 5.7.1: Erosion and Sediment Control Management Plan Commitments

Section /Page No	Erosion and Sediment Control Management Plan Commitments	Comments	Implementation Status
s.4.2.2/p62	As the pipeline will be buried, no permanent erosion and sediment controls are necessary. The buried pipeline corridor will be progressively rehabilitated.	The pipeline construction across Lake Cowal and along the alignment to the east of the lake towards the production bores occurred in 2004 involved the burial of the pipe 1.5 metres below the surface and refilling of the trench with the original excavated material compacted to the original ground level.	**Compliant COMPLETE**
s.4.2.3/p63	Weekly inspections will be undertaken during the operational phase of the Project to ensure revegetation and planting areas along the buried pipeline corridor have properly established. Inspections will record condition of the erosion and sediment control structures; maintenance requirements (if necessary) including instructive actions; volume of sediment removed (e.g. from sediment basins to retain capacity requirements); and sediment disposal locations.	Inspection of the pipeline alignment occurred following completion of construction in 2004 until Lake Cowal filled with water in 2010-11. No erosion along the corridor was recorded during the period the lake bed was dry. The monitoring of the pipeline route, or rehabilitation did not occur during the period of inundation of Lake Cowal between 2010 and May 2014. Inspections had recommenced where access on the Lake bed was possible, following lowering of the water level in the Lake.	**Compliant**
s.4.2.3/p63	Maintenance activities, including; cleaning out of containment structures, diversion drains etc. where sediment/sand/soil/ vegetation builds up; repairing of areas of erosion (e.g. Lining with a suitable material which may include use of grasses, plastic, geotextile, rock, concrete); further application of seed/fertiliser in areas of minor soil erosion and/or inadequate vegetative establishment; and installation of additional erosion and sediment control structures.	Maintenance activities have occurred as required to ensure the erosion and sediment control structures retain their operational performance around containment structures, diversion drains with additional erosion and sediment control structures installed as required. The sediment control structure inspected during the audit were well maintained.	**Compliant**
s.5.2.3/p66	Regular inspections will be undertaken during the operational phase of the project to ensure revegetation and planting areas along the relocated Travelling Stock Route have properly established. Inspections will record condition of the erosion and sediment control structures; maintenance requirements (if necessary) including instructive actions; volume of sediment removed (e.g. from sediment basins to retain capacity requirements); and sediment disposal locations.	The new road and Travelling Stock Route (TSR) works were completed in Q1 2004. Barrick transferred Lot 100 DP 1059150 as the land for the new TSR to the Crown Lands in 2004. The TSR is regularly inspected and maintenance or repairs conducted to maintain the route and manage erosion.	**Compliant COMPLETE**

Section /Page No	Erosion and Sediment Control Management Plan Commitments	Comments	Implementation Status
s.6.1/p68	Salinity - Limit clearing of areas; clearly delineated, where appropriate, with barrier mesh and sediment fencing in accordance with 4.2.1 of Managing Urban Stormwater - soils and construction. Unrestricted vehicular plant access to undisturbed areas will not be permitted. Vegetation in close proximity to works areas will be demarcated with flagging tape so as to prevent disturbance. All employees will undertake an induction/training program.	Areas of surface disturbance where salinity may be a potential problem were defined prior to commencement of any land disturbance works and access limitations were imposed. All Cowal Gold Operations employees and contractors undertake induction training that includes restriction of access to demarcated areas.	**Compliant**
s.6.1/p68	Identification of saline soils (infill testing) and selective soil resource management.	Infill testing of soil profiles is undertaken when new areas of works are commenced.	**Compliant**
s.6.1/p68	Identification of low salinity construction material (construction fill testing) and selective resource management	Testing of soil profiles is undertaken prior to commencement of new areas of works.	**Compliant**
s.6.1/p68	Fencing ML 1535 to restrict stock and prevent overgrazing and erosion.	ML 1535 has been fenced to restrict stock entry and the fence is inspected monthly and maintenance works conducted if necessary.	**Compliant**
s.6.1/p68	Implementation of appropriate erosion and sediment control systems and ongoing monitoring and maintenance including water monitoring (suspended solids, EC and pH).	Monitoring and maintenance of erosion and sediment control structures occurs after rainfall events and water quality is tested.	**Compliant**
s.6.2/p69	Containment and management of saline surface water runoff. The surface water management strategy is contained in the SWMP.	Surface water management within ML 1535 occurs in accordance with the Water Management Plan.	**Compliant**
s.6.2/p70	During project operations, water will accumulate within open pit/final void due to surface water runoff. The final void will intercept a large proportion of runoff, preventing sediment from entering the Lake. As a result, salt loads entering the lake from the Project site are expected to marginally decrease post mining as salt will also be trapped by the void.	A strategy for the long term management of the final void will be developed in consultation with relevant agencies and stakeholders in accordance with Development Consent 14/98 MOD 11 Condition 4.4(b).	**Not triggered**
s.7/p71	Soil Management – the general strategy of soil resource management will be to strip soil resources from all proposed mine disturbance areas within ML 1535 and store these in dedicated stockpile areas for reuse during progressive rehabilitation works.	All topsoil resource is stripped from proposed mine disturbance areas within ML 1535 and placed in dedicated stockpile areas for reuse during rehabilitation works.	**Compliant**

Section /Page No	Erosion and Sediment Control Management Plan Commitments	Comments	Implementation Status
s.7.2/p72	Vegetation Clearance Protocol and Threatened Species Management Protocol will be implemented consisting of Pre-clearance survey for flora, including a targeted survey for any threatened species recorded in the mine site area; and preliminary and secondary fauna habitat assessments.	The Vegetation Clearance Protocol and Threatened Species Management Protocol are implemented and completed prior to any clearing of previously undisturbed areas of ML 1535.	**Compliant**
s.8/p74	Effective rehabilitation will be implemented by undertaking the rehabilitation programme in accordance with the general principles outlined in the EIS. These include the rehabilitation of project landforms is to be progressive and conducted in accordance with approved, verified plans which are to be updated annually.	Rehabilitation of disturbed areas is undertaken in accordance with the Rehabilitation and Offset Management Plan and the current Mining Operations Plan for ML 1535. The rehabilitation status is updated annually and reported in the Annual Reviews section 5.	**Compliant**
s.8/p74	The stability of newly prepared landforms prior to the establishment of long term vegetation is to be protected via the construction of moisture-retaining graded drains, water-holding structures (e.g. surface depressions) and, where appropriate, the use of authorised hybrid cover crops to provide initial erosion protection	Stability of newly prepared landforms is undertaken in accordance with the Rehabilitation Management Plan and the current Mining Operations Plan for ML 1535.	**Compliant**
s.8/p74	Rehabilitation of the outer embankments of the tailings storages to be grassed during processing operational years, reducing habitat opportunities for avifauna	The outer embankments of the tailings storage facilities have been progressively grassed for stability and to reduce potential habitat for avifauna. The tailings storage facility batters are inspected regularly.	**Compliant**
s.8/p74	Endemic groundcover, understorey and tree seed and seedlings will be cultivated and utilised	Endemic groundcover, understorey and tree seed and seedlings are utilised where practicable.	**Compliant**
s.8/p74	The annual rehabilitation program and budget is to be prepared by a site team incorporating the Project's senior management.	The annual rehabilitation program and budget is prepared by the site Environmental Section team and Cowal Gold Operations senior management.	**Compliant**
s.11/p78	Report on the effectiveness and performance of the sediment and erosion control systems against the objectives contained in the ESCMP to: control the movement of sediment and salinity migration from areas disturbed by mining and construction activities; and maintain downstream (Lake) water quality.	Effectiveness and performance of the sediment and erosion control systems against the objectives contained in the Erosion and Sediment Control Management Plan are reported annually in the Annual Reviews section 3.2.	**Compliant**

Section /Page No	Erosion and Sediment Control Management Plan Commitments	Comments	Implementation Status
s.12/p79	Annual Reviews prepared in accordance with Development Consent 14/98 MOD 11 condition 9.1(b).	Annual Reviews prepared in accordance with Development Consent 14/98 MOD 11 condition 9.1(b), addresses erosion and sediment control aspects in section 3.2.	**Compliant**

5.7.2 Erosion and Sediment Control Performance

Erosion and sediment control management has involved maintenance and inspection of erosion and sediment control structures after any trigger rainfall events.

The Cowal Gold Operations geotechnical department conducts monthly monitoring and assessment of all water holding ponds on site, waste rock emplacements and the lake protection bund for sediment movement and effectiveness of erosion control.

The ongoing management of erosion and sediment control on the batters of the lake protection bund has included rock armouring to ensure that the rehabilitation of the constructed surfaces is maintained for long term stability.

Soil erosion primarily due to the dispersive subsoils was observed in the upper sections of the mine void and the north-western end of the perimeter waste emplacement. Sediment and turbid run-off from these areas is captured by the site drainage system and therefore there is limited potential for off-site water quality impacts from this erosion. Cowal Gold Operations have implemented a program of works to stabilise the dispersive soils in this area that result in erosion by reshaping, gypsum treatment and rock mulching/blending of the soils on the batters of the perimeter waste emplacement where appropriate (pers.com. Bronwyn Flynn 27 April 2016).

The following observations are offered to assist Cowal Gold Operations in reducing the tunnel erosion risk on site.

Observation 1
Monitor rehabilitated areas of the waste rock emplacements for evidence of tunnel erosion (inlets and outlets) following rain events. If there is evidence of tunnel erosion, consider undertaking soil characterisation and erosion and landform evolution modelling to verify the current landform design or to develop an amended landform design.

Soil characterisation and landform evolution modelling using WEPP and SIBERIA has demonstrated that free draining concave landforms are often more appropriate for dispersive mine soils than traditional benched landforms that encourage water ponding on slopes. It is relatively cost effective process to characterise site soils and undertake erosion and landform evolution modelling compared with the cost of remediation works should tunnels form.

Observation 2
The risk of tunnel erosion can be reduced by incorporating sufficient Gypsum into the soil prior to capping with rock and topsoil, to reduce the Exchangeable Sodium Percentage to less than 6. Gypsum has very low solubility and must be incorporated into the soil (mixed) to be effective. Current site practice is to spread Gypsum over the subsoil prior to the placement of waste rock and topsoil. The Gypsum should be mixed into the soil via contour ripping to a depth of 0.5 m.

Observation 3
Ensure the design of any future void cut backs create gradients suitable for the incorporation of Gypsum into the dispersive subsoils or allows capping with suitable non-dispersive material.
The current gradient of the upper sections of the void walls are too steep to allow either ripping of Gypsum into the soil or to cap the exposed dispersive soil with suitable non-dispersive material. It is understood that future cut backs of the pit are being considered. This would be the appropriate time to modify the design to mitigate the dispersion. If left untreated it is possible that tunnels could extend into the Perimeter Waste Emplacement. It is recommended that advice be sought from an experienced soil scientist in this regard.

Contouring of areas of the Southern Waste Rock Emplacement to a slope of 1:5 has been carried out and the area rehabilitated with erosion control features included in the final surface configuration.

Contouring of areas of the Northern Waste Rock Emplacement and topsoil placement occurred during 2015 and rehabilitation including planting of tube stock and surface runoff and erosion control features included into the final surface configuration.

Lake Cowal has not been impacted by sediment inflow from the Cowal Gold Operations disturbed areas, due to the presence and effectiveness of the temporary isolation bund (TIB) and initial vegetation cover on the adjacent lifts of the waste emplacement areas.

Lake Cowal water quality results have not indicated any impact from the disturbed areas of the Cowal Gold Operations project site during the 2010-2014 period of inundation of the Lake Cowal bed. The erosion and sediment control structures have intercepted sediment laden runoff and retained the sediment on-site in pond D4 and a 'stilling basin', prior to any potential discharge of water from the site to Lake Cowal.

5.7.3 Conclusion

The erosion and sediment control strategies implemented under the Erosion and Sediment Control Plans have been considered effective in meeting the objectives of the Plans, as demonstrated by environmental performance indicators. The Erosion and Sediment Control Plans have been prepared to be generally consistent with requirements in *Managing Urban Stormwater: Soils and Construction (Volume 2E – Mines and Quarries) Manual* (EPA 2008) Appendix C.

5.8 Soil Stripping

[Development Consent 14/98 MOD 11 condition 3.5(b)]

5.8.1 Soil Stripping Management Plan

[Development Consent 14/98 MOD 10 condition 3.5(b)]
[Development Consent 14/98 MOD 11 condition 3.5(b)]

The Soil Stripping Management Plan required under Development Consent 14/98 condition 3.5(b) was approved by DIPNR in 2003. The Plan was reviewed in 2009 and the current details of soil stockpile location, stripping volumes and soil management measures are provided in the current *"Cowal Gold Project Mining Operations Plan."* The Soil Stripping Management Plan presents the processes and scheduling for the soil stripping activities in the Mining Operations Plan(s) (prepared in accordance with the Mining Lease requirements). A revision of the Soil Stripping Management Plan required by Development Consent 14/98 MOD 11 condition 3.5(b) was submitted to DP&E on 24 February 2015 and was approved by DP&E on 21 March 2016.

The Soil Stripping Management Plan includes the Commitments summarised in Table 5.8.1.

Table 5.8.1: Soil Stripping Management Plan Commitments

Section /Page No.	Soil Stripping Management Plan Commitments	Comments	Implementation Status
s.4/p9	Characterisation of the suitability of material for rehabilitation works is to be conducted prior to stripping (including both the EIS assessment and further infill testing - Section 4.1)	Infill testing of soil profiles is undertaken prior to commencement of each new area of works.	**Compliant**
s.4/p9	Strip and store soil resources on areas proposed for mine development. Store in a way that long term viability is ensured and maintained.	Soil resources are stripped and placed on specific stockpile emplacements for reuse in rehabilitation. The stockpiles are limited in height with time of storage in the stockpiles kept to a minimum to ensure viability of the soil characteristics.	**Compliant**
s.4/p9	Progressively rehabilitate final landforms as soon as soon as practical after completion of landforms or when areas are no longer required.	Final landforms are being progressively rehabilitated when areas are no longer required for mining activities, in accordance with the Rehabilitation Management Plan and MOP.	**Compliant**
s.4.1.1/p10	Ensure that soil moisture conditions are suitable for stripping by examining meteorological data. If conditions are unsuitable, stripping will be postponed until conditions are suitable.	Weather conditions and soil moisture are assessed prior to soil stripping to confirm suitable conditions for removal of the soil profile components for stockpiling.	**Compliant**
s.4.2/p11	Topsoil and subsoil will be stripped and stored in separate stockpiles comprising topsoil; low salinity subsoil; gypsum treated subsoil and native seeded subsoil.	Soil horizons are stripped and placed on separate stockpiles for storage to provide suitable topsoil and subsoil classes for rehabilitation.	**Compliant**
s.4.2/p12	Hard pedal red duplex upper sub soil material will be stripped as a priority and stored as the primary topsoil resource.	Red duplex upper subsoil material is stripped and stored as the primary topsoil resource.	**Compliant**
s.4.3/p12	Soil stripping activities (including infill soil testing) will comply with the requirements of the NPWS Section 87 permit and Section 90 consent granted under the *National Parks and Wildlife Act, 1974.* These allow collection of visible artefacts prior to soil stripping and also the collection of unknown artefacts that may be contained within the soil profile. In accordance with Condition 11 of the Section 87 permit, "*all areas where soil stripping occurs shall be inspected following this operation in the event that datable materials might be revealed*".	Aboriginal artefact surveys are conducted by the Archaeological Consultant and local Aboriginal Land Council representatives on any new area prior to disturbance to enable the collection of visible artefacts prior to soil stripping, in accordance with the conditions of the Section 87 permit and Section 90 consent, granted under the *National Parks and Wildlife Act, 1974.*	**Compliant**
s.4.3/p12	Vegetation Clearance Protocol and Threatened Species Management	The Vegetation Clearance Protocol and Threatened Species Management	**Compliant**

Section /Page No.	Soil Stripping Management Plan Commitments	Comments	Implementation Status
	Protocol will be implemented when stripping soil, including: • pre-clearance survey for flora; • targeted survey for any threatened species recorded in the mine site area; and • preliminary and secondary fauna habitat assessments.	Protocol are completed prior to any vegetation clearing or soil stripping of previously undisturbed areas of ML 1535	
s.4.3/p13	All vegetation clearance areas will be subject to a Vegetation Clearance Protocol to minimise the removal of trees and other vegetation to approved areas.	Development of the Cowal Gold Project on ML 1535 has occurred with removal of trees and other vegetation kept to the minimum required for the development.	**Compliant**
s.4.3.1/p13	No disturbance of Belah Woodland (as identified on Figure 3-13 of the EIS) is permitted and no soil stripping will be undertaken within these areas.	No disturbance of Belah Woodland has occurred during the development of the Cowal Gold Operations site.	**Compliant**
s.4.3.1/p13	Through all stages of soil stripping earthworks, soil stockpiling and re-application for rehabilitation, operations will be closely supervised to maintain correct recovery depths of suitable soils.	All stages of soil stripping earthworks, soil stockpiling and re-use of soils for rehabilitation, are supervised by Cowal Gold Operations personnel to maintain correct recovery depths of suitable soils.	**Compliant**
s.4.3.2/p13	Prior to initiation of soil stripping activities, site supervisor will ensure that the appropriate protocols (e.g. aboriginal heritage and land clearance requirements) have been followed and the recommended stripping depths are confirmed ahead of stripping (section 4.1)	The relevant Vegetation Clearance, Threatened Species Management, Aboriginal Heritage, and Land Clearance protocols are completed prior to any soil stripping activities occurring on undisturbed land within ML 1535.	**Compliant**
s.4.3.2/p14	The control of soil erosion and dust along the pipeline and bore-field areas will be in accordance with the DMP and ESCMP and will include the adoption of measures such as: • watering of works areas when necessary; • installation of soil/sediment control measures where necessary (e.g. the installation of silt fencing); • regular inspection of works and stockpile areas and enactment of any remedial or response measures with respect to dust and soil/sediment control.	The installation of the pipeline along the alignment from the Paleochannel bore-field was undertaken when the Lake bed was dry in 2004. The required mitigation measures in relation to dust generation and erosion and sediment control were implemented.	**Compliant**
s.4.3.2/p14	Works associated with the burial of the water pipeline will be in accordance with the general requirements of the DIPNR and in consultation with NSW Fisheries. Soil	The installation of the pipeline along the alignment from the Paleochannel bore-field to the Cowal Gold Project site was undertaken in 2004 when the Lake bed was dry a in accordance with	**Compliant**

Section /Page No.	Soil Stripping Management Plan Commitments	Comments	Implementation Status
	stockpiles will be short term features during pipeline burial and soils will be promptly replaced during the progressive rehabilitation of the pipeline burial route.	the regulatory requirements of DIPNR and NSW Fisheries.	
s.4.3.3/p14	A section of the existing TSR is to be relocated around the MLA area. Where soils are disturbed by public road construction works, soil stripping will comply with the general stripping procedures outlined in section 4.3.	The section of the Travelling Stock Route (TSR) was relocated around the MLA area and the works completed in Q1 2004 in accordance with the general procedures outlined in the Soil Stripping Management Plan.	**Compliant**
s.4.4/p14	Soil stockpiles will be located outside the Lake Cowal flood plain and will avoid the areas of Wilga Woodland.	All soil stockpiles have been located outside the Lake Cowal flood plain and have not imposed on areas of Wilga Woodland.	**Compliant**
s.4.4/p14	The surface of the completed soil stockpiles will be left in a 'rough' condition to help promote water infiltration and minimise erosion, prior to vegetation establishment.	Soil stockpiles surfaces are left in a rough condition to allow rainfall infiltration and reduce erosion from surface runoff.	**Compliant**
s.4.4/p14	Soil stockpiles will be fertilised and seeded to maintain soil organic matter levels, soil structure and microbial activity.	Long term soil stockpiles are managed to maintain soil structure and microbial activity.	**Compliant**
s.4.4/p15	Subsoil stockpiles may also be treated with gypsum to reduce dispersiveness during stockpiling.	Subsoil stockpiles are treated with gypsum if required to reduce dispersive soil reactions.	**Compliant**
s.4.4/p15	All soil stockpiles are to be signposted with the date of placement and type of soil/overburden for identification on drawings in the MOP and AEMR.	Soil stockpiles are signposted and locations, soil type and date of placement recorded on drawings in accordance with the MOP.	**Compliant**
s.4.4/p15	All soil stockpiles will be recorded on a site database that will detail the location and volume of each stockpile and the stockpile maintenance records in accordance with the requirements of the DIPNR and EIS.	All soil stockpiles are recorded on a site database that details the location and volume of each stockpile and the stockpile maintenance records.	**Compliant**
s.4.4/p15	Where practicable, soil will be stripped from one area and immediately transferred to an active rehabilitation area for direct placement. This will reduce the size of soil stockpiles and optimise soil fertility for rehabilitation.	Stripped soil is placed on active rehabilitation areas as soon as practicable after stripping.	**Compliant**
s.4.4/p15	Long term topsoil stockpiles will be constructed up to a maximum of 3 m in height with slopes at a maximum acceptable angle to resist erosion. The native seed topsoil stockpile will not exceed 2 m in height.	Long term topsoil stockpiles are constructed to a maximum of 3 m in height with slopes at an angle to resist erosion.	**Compliant**
s.4.4.1/p16	Soil conservation water management features will be implemented where practical and include the use of silt	Silt fences / sediment traps to minimise soil movement, use of diversion banks, channels and rip-rap	**Compliant**

Section /Page No.	Soil Stripping Management Plan Commitments	Comments	Implementation Status
	fences and sediment traps to minimise soil movement; use of diversion banks, channels and rip-rap structures to divert surface water around disturbed areas and control runoff velocity; constructing roads at appropriate slope along the contour.	structures to divert surface water around disturbed areas and control runoff velocity; and construction of roads at appropriate slope along the contour has occurred to manage water runoff.	
s.4.4.2/p17	Where required to improve structural and fertility characteristics prior to application, soil stockpiles will be deep-ripped to establish aerobic conditions. Soil stockpiles will have sediment control measures installed in accordance with the requirements of the ESCMP. The control measures used will depend on the size and location of each stockpile.	Management of the soil stockpiles to maintain soil structural characteristics occurs in accordance with the ESCMP, dependent on the size and location of each stockpile.	**Compliant**
s.5/p18	The rehabilitation of Project landforms is to be progressive and conducted in accordance with approved, verified plans which are to be updated annually.	The rehabilitation of the CGM project area is assessed annually and the rehabilitation works are progressed when conditions are suitable, in accordance with plans and predictions provided annually in the Annual Reviews and MOP and reporting required under the approved MOP.	**Compliant**
s.5/p18	The stability of newly prepared and topsoiled landforms is to occur via the construction of moisture-retaining graded drains, water-holding structures and, where appropriate, the use of authorised hybrid cover crops to provide initial erosion protection.	Stability of newly prepared landforms is undertaken in accordance with the Rehabilitation and Offset Management Plan and the MOP for ML 1535.	**Compliant**
s.5/p18	Rehabilitation of the outer embankments of the tailings storages to be grassed during processing operational years, reducing habitat opportunities for avifauna.	The outer embankments of the tailings storage facilities are progressively grassed for stability and to reduce habitat potential for avifauna. The tailings storage facility batters are inspected regularly for erosion and stability of the slopes.	**Compliant**
s.5/p18	Rehabilitation works will be described in the MOP in accordance with the requirements of the DMR.	Rehabilitation works as described in the MOP follow the requirements of the DMR guidelines.	**Compliant**
s.5/p19	Effective rehabilitation will be ensured by: • the implementation of the rehabilitation programme in accordance with the above general principles; • rehabilitation maintenance work; • rehabilitation monitoring activities and compliance with the DMR's Mining Rehabilitation and	Rehabilitation of disturbed areas is undertaken in accordance with the Rehabilitation and Offset Management Plan, the approved MOP for ML 1535, and in accordance with the *Mining Rehabilitation and Environmental Management Process* Guideline	**Compliant**

Section /Page No.	Soil Stripping Management Plan Commitments	Comments	Implementation Status
	Environmental Management Process.		
s.8.1/p22	Soil stripping will be reported in accordance with the MOP. The predicted annual soil stripping volumes and detailed soil stockpile locations and soil management measures will be provided in the Cowal Gold Project MOP.	Soil stripping and rehabilitation are reported annually in accordance with the MOP and in the Annual Reviews section 5.	**Compliant**
s.8.2.1/p23	Effectiveness of soil stripping methods will be recorded in a site soil database that will include soil stockpile locations, soil volumes, amelioration treatment, weed control, fertiliser application and date(s) of soil stripping.	Soil stripping is recorded in the site soil database, includes soil stockpile locations, soil volumes, amelioration treatment, weed control, fertiliser application and date(s) of soil stripping. This database is revised annually.	**Compliant**
s.8.2.1/p24	Soil stripping activities against the objectives of this SSMP and the soil management objectives/strategies of the EIS are reported in the AEMR.	Annual Reviews have been prepared in accordance with Development Consent 14/98 Condition 9.1(b) and the erosion and sediment control status is reported in section 5.	**Compliant**

5.8.2 Soil Stripping Activity

Soil stripping on the Cowal Gold Operations site where required for the development on the mine, has occurred in accordance with the Soil Stripping Management Plan. In total more than 1.7 million m^3 of topsoil and 2.0 million m^3 of subsoil are stored on site.

The topsoil stockpile database is updated annually as new mining stockpile information is obtained from estimates determined from the site activities. Aerial photography and surveying of the soil stockpiles is conducted to accurately record soil stockpile locations and volumes.

5.8.3 Conclusion

The Soil Stripping Management Plan has been implemented and the separation of the topsoil and subsoil horizons stockpiles has occurred. Reuse of the topsoil and subsoil has occurred for rehabilitation trials and final constructed surfaces on the tailings storage facilities and waste rock emplacement areas.

The Soil Stripping Management Plan and implementation is considered adequate and representative of mining best practice.

The topsoil stockpile database is updated as new mining stockpile information is obtained from estimates determined from the site activities. Aerial photography and surveying of the soil stockpiles is conducted to accurately record soil stockpile locations and volumes.

5.9 Bushfire Management

[Development Consent 14/98 MOD 11 condition 3.6]

5.9.1 Bushfire Management Plan

A Bushfire Management Plan was prepared for the Cowal Gold Operations site and approved by DMR and BSC on 24 July 2003. The Bushfire Management Plan has been regularly reviewed and no revision of the document has been required.

Cowal Gold Operations has two Category 7 fire tenders and two emergency firefighting units with approximately 1000L water tanks, each housed in an Emergency Response Station on the project site near the main maintenance workshop. Cowal Gold Operations has staff trained / active in the Bland-Temora Zone RFS and can assist local RFS brigades (Wamboyne, Clear Ridge and Blow Clear) with response to fire in the vicinity of the mine site. The Bushfire Management Plan (although not required by Development Consent 14/98 MOD 11) is kept as an internal management measure, and outlines fuel management and fire incident control measures implemented on ML 1535 and Evolution Mining owned properties to reduce fire risk to the immediate rural area. The Bushfire Management Plan also describes response procedures to fires including assessment, control and clean-up, generally guided by the NSW Rural Fire Service (RFS).

The commitments outlined in the Bushfire Management Plan are summarised in Table 5.9.1.

Table 5.9.1: Bushfire Management Plan Commitments

Section/ Page No.	Bushfire Management Plan Commitments	Comments	Implementation Status
s.5.2/p14	On-site "emergency firefighting unit" is located on the Cowal Gold Operations site. Bushfire management is undertaken to satisfy Development Consent 14/98 MOD 11 condition 3.6 with fuel management and hazard reduction works associated with the Project.	Two Category 7 fire tenders, two (2) trailer-mounted 1000L firewater tanks and fire hose units are housed in the Rescue Station located near the main maintenance area workshops, plus two spill response units available on site. A first aid/ambulance vehicle is also permanently based on site and a first aid room is located in the administration building adjacent to the process plant.	**Compliant**
	 **Cowal Gold Operations Category 7 fire tenders**	 **Cowal Gold Operations Emergency Response Rescue Station**	
s.5.3/p15	A trained and equipped fire response team is available at the	Permanent Cowal Gold Operations Emergency Response Officers are	**Compliant**

Section/ Page No.	Bushfire Management Plan Commitments	Comments	Implementation Status
	Cowal Gold Operations site within each shift at the project (section 4.1.1)	employed on-site on a rotational shift basis. The Cowal Gold Emergency Response Team undertakes regular training sessions in firefighting skills and fire appliance familiarization and also receive regular training as members of RFS. General Cowal Gold Operations staff fire training includes basic theory on the Emergency Response Plan, fire awareness theory and basic hose handling techniques.	
s.5.4/p15	The project will have a fully functional and approved fire water supply designated to supply the mine offices, workshops and ancillary infrastructure. RFS brigades will contact the Project Emergency Response Coordinator if reticulated water is required for bushfire purposes.	RFS are able to draw water from Pond D6 or fill tankers from the Pond D6 pump off-take manifold or any other hydrant on site, in the event of any fire incidents.	**Compliant**
s.5.6/p15	Data from the site meteorological station will be used to determine whether conditions are suitable for fire management activities and bushfire fighting activities.	Data from the site meteorological station is continually available to the Cowal Gold Emergency Response Officers for use during firefighting activities.	**Compliant**
s.5.7/p16	A register will be maintained to outline the following within the Project area and mine-owned lands: • records of maintenance works undertaken in fire trails and the date the work was undertaken; • records of any fuel management measures undertaken and the dates the work was undertaken; • details of the fire history of the project area, recorded as site observations.	A Fire Trail Register for the mine lease area is maintained on the Cowal Gold Operations computer network. The register lists the location of the fire trails and the trails are also marked on a site map, action planned for fire trail maintenance, date of action required and completion dates.	**Compliant**
s.6.2/p16	Strategies for fuel management will be adopted as appropriate and include: • grazing, slashing, pruning, mulching or other operations; • fuel management via burning where conventional fuel management strategies are inappropriate, impracticable or not successful; and • maintenance of designated firebreaks around the project	The bushfire management measures carried out include: • creation of firebreaks around the ML 1535 boundary by slashing and grading; • slashing of large open areas within ML 1535 with high fuel loads; • mowing and grounds maintenance of bore-field stations; • conducting regular inspections of the ML 1535 area to identify any significant fire risks.	**Compliant**

Section/ Page No.	Bushfire Management Plan Commitments	Comments	Implementation Status
	bore-field stations, the ML boundary and internally, around the mine.		
s.7.1/p19	A fire hazard reduction audit of mine-owned lands will be conducted annually, in consultation with the NSW RFS to identify hazard reduction methods to be adopted on mine-owned lands each season.	A review of fire hazard across the mine owned lands is conducted annually to identify hazard reduction works required.	**Compliant**
s.7.1/p19	A general hazard audit of the project will be conducted in accordance with hazardous industry planning and advisory paper no. 5 "Hazard Audit Guidelines" 12 months after commencement of operations and every three years thereafter.	A Hazard Audit has been conducted by Dean Shewring of Pinnacle Risk Management Pty Ltd each 3 years. The initial Hazard Audit was conducted 12 months after commencement of operation of process plant (i.e. April 2007), a second Hazard Audit was conducted in April 2010 and a third Hazard Audit was conducted on 8-12 April 2013. The fourth Hazard Audit was conducted in May 2016.	**Compliant**
s.7.2.1/p19	The width of firebreaks will be equivalent to adjoining tree height, where practicable, to account for the majority of short distance spotting for low and moderate fires. Firebreaks will be maintained by a combination of slashing or grading, and by spraying or cultivation. This approach to firebreak location and maintenance has been agreed by the BSC and NSW RFS and is considered adequate.	Firebreaks are established and maintained in accordance with the requirements of the BSC and RFS and are entered onto the firebreak location register for maintenance to the satisfaction of BSC and NSW RFS.	**Compliant**
s.7.2.1/p19	Firebreak maintenance will be undertaken as determined by monthly inspections and maintenance works will be recorded on the Fire Trail Register.	Regular inspection of firebreaks occurs by the Cowal Gold personnel and maintenance is conducted as required to ensure the fire breaks meet BSC and NSW RFS requirements.	**Compliant**
s.7.2.3/p20	General fuel management measures and fire hazard reduction (e.g. grazing, mulching, slashing etc.) will be implemented in accordance with the requirements of annual hazard reduction audit.	Fuel management by means other than burning have been implemented by CGM including grazing, slashing, pruning, mulching or other operations (e.g. ploughing, herbicide application and rolling).	**Compliant**
s.7.2.3/p20	The Fire Safety Study, Hazard and Operability Study and Final Hazard Analysis will be conducted to assess and manage "offsite risk to people and the biophysical environment"	A Fire Safety Study prepared by Pinnacle Risk Management for Cowal Gold Mine operations was submitted to the Commissioner of the NSW Fire Brigade and DIPNR for approval in Dec 2004 in	**Compliant**

Section/ Page No.	Bushfire Management Plan Commitments	Comments	Implementation Status
	(Development Consent 14/98 condition 5.4(a)).	accordance with Development Consent 14/98. A Hazard and Operability Study prepared by Aker Kvaerner Australia Pty Ltd for the main plant area was submitted to DIPNR in Dec 2004. The Final Hazard Analysis was submitted to DIPNR on 22 Dec 2004 and approved in March 2005.	
s.10/p23	An Annual Review will be prepared in accordance with the requirements of project Development Consent 14/98 condition 9.1(b) and DMR requirements and submitted to the director general. Bushfire related issues to be reported in the AEMR.	Annual Reviews prepared in accordance with Development Consent 14/98 condition 9.1(b), includes bushfire management and actions in section 3.16.	**Compliant**

5.9.2 Conclusion

The Bushfire Management Plan and Memorandum of Understanding with the NSW Rural Fire Service provide a sound basis for the management of Cowal Gold Operations ML 1535 area and mine owned land in relation to control of fuel sources and fire-fighting ability of the Cowal Gold Operations staff. Cowal Gold Operations has dedicated fire and hazard response equipment housed in the Emergency Response / Rescue Station located near the administration block, process plant and maintenance facilities on the site.

5.10 Land Management

[Development Consent 14/98 MOD 11 condition 3.7]

5.10.1 Land Management Plan

[Development Consent 14/98 MOD 11 condition 3.7]

A Land Management Plan was prepared to satisfy the Development Consent 14/98 conditions and approved by the Director-General in 2003. The Land Management Plan outlines the management strategies and measures for all of the mine land holdings and has been reviewed following each Modification to the Development Consent.

An addendum to the Land Management Plan (May 2015) to satisfy Development Consent 14/98 MOD 11 condition 3.7 was approved by DP&E on 21 March 2016. Cowal Gold Operations rehabilitation concepts and measures and rehabilitation monitoring program are described in detail in the Rehabilitation and Offset Management Plan and the Rehabilitation Management Plan. Progressive rehabilitation works and proposed soil stripping works and areas will be detailed in the MOP in accordance with the requirements of the Conditions of Authority for ML 1535 and the NSW Division of Resources and Energy (DRE) ESG3: *Mining Operations Plan (MOP) Guidelines* (2013).

The Commitments outlined in the Land Management Plan are summarised in Table 5.10.1.

Table 5.10.1: Land Management Plan Commitments

Section/ Page No.	Land Management Plan Commitments	Comments	Implementation Status
P11/s.3.2	Mine-owned land outside the project area will continue to be utilised for farming / agricultural production by Evolution (Cowal) and/or licensees that sign agreements to conduct agricultural activities on Evolution (Cowal) owned land.	Management of Evolution (Cowal) owned land outside the ML 1535 area is arranged through agreements with specific farmers and/or organisations.	**Compliant**
P13/s.4.1	The relocated TSR will be separated by fencing from the Cowal Gold Operations mining operations to ensure the unimpeded movement of stock in the relocated reserve. Pastures on the relocated TSR will be managed by the CRLPB.	The relocated Travelling Stock Route is separated from the ML 1535 boundary with fencing that restricts movement of stock onto the MLA but does not restrict stock movement on the relocated TSR.	**Compliant**
P14/s.4.3	Evolution (Cowal) will manage stock in enhancement areas in order to encourage the natural regeneration of native plant species as recommended by the LWMPLC, MLRVMP, JLWMP and the NSW Wetlands Management Policy through fencing control and the application of grazing management.	Four exclusion fences are established around the remnant vegetation areas on the Hillgrove property to assess the long term impact of kangaroos on pasture. Additional fencing has also been erected on the Thornton and Lake Cowal properties to reduce the impact of sheep grazing on remnant vegetation.	**Compliant**
P14/s.4.3	Evolution (Cowal) will require Licensees of each property to prepare a Farm Management Plan. If in the future Evolution (Cowal) intend to farm these properties the Evolution (Cowal) ESR-Land Officer would prepare plans, to cover each Evolution (Cowal) owned property.	A Farm Management Plan has been prepared for the 'Lake Cowal" property (dated 13 March 2013). Other Evolution (Cowal) owned properties are being rested and a Farm Management Plan will be prepared for each when they become active again for grazing or cropping.	**Compliant**
P15/s.4.4	Evolution (Cowal) owned land will be managed to avoid overgrazing and subsequent damage to native pastures. This will be achieved by implementing a Tactical Grazing approach as described in Section 4.3	Implementation of tactical grazing including 'crash grazing with sheep and cattle' is used as required to minimise fire risk at Hillgrove, Lakeside, Lake Cowal and Thornton.	**Compliant**
P15/s.4.5	Paddocks requiring pasture renovation or re-establishment and those paddocks suitable for harvesting of the aforementioned pasture seeds will be identified. Fertilisers and tillage techniques may be utilised on improved pastures. Direct drilling and minimum tillage techniques will be preferentially used to minimise soil disturbance and fertilisers may be applied periodically to improve soil fertility. The Tactical Grazing	Pasture renovation or re-establishment, and identification of paddocks suitable for crop harvesting has been implemented at Hillgrove and Corringle properties.	**Compliant**

Section/ Page No.	Land Management Plan Commitments	Comments	Implementation Status
	approach will be implemented for improved pastures on Evolution (Cowal) owned land.		
P15/s.4.6	Areas of Evolution (Cowal) owned land will continue to be available for pastures and other agricultural uses following mine closure. The areas available for different types of land-use will be determined by land ownership and consultation and agreements with regulatory agencies	To be determined following mine closure by land ownership and consultation and agreements with regulatory agencies.	**Not triggered**
P16/s.5.1	In accordance with Development Consent 14/98 MOD 11 condition 3.2(b)(vii) which requires the protection and enhancement of existing retained habitats within the mining lease area and condition 3.2(a)(i) which requires the minimisation of removal of trees and other vegetation from the mine site, a Vegetation Clearance Protocol (VCP) has been developed for the Project. All vegetation clearance activities required by the project will be conducted in accordance with the VCP.	The Vegetation Clearance Protocol is activated prior to any vegetation disturbance on any area within ML 1535 where clearance is proposed. Exclusion fences have been established around the remnant vegetation areas on the Hillgrove property to assess the long term impact of kangaroos on pasture, and additional fencing has also been erected on the Thornton and Lake Cowal properties to reduce the impact of sheep grazing on remnant vegetation.	**Compliant**
P16/s.5.2	In accordance with Development Consent 14/98 MOD 11 condition 3.2(a)(i) and the FFMP, topsoil stockpiles within the ML will not be located within any area of the remnant Wilga Woodland. Avoidance of Wilga areas within the ML will reduce the area of some soil stockpiles in comparison to the stockpiles shown on Figure 5-2 of the Project Environmental Impact Statement (EIS)	No soil stockpiles have been located within any area of remnant Wilga Woodland.	**Compliant**
P17/s.5.3	A number of management measures will be implemented within the compensatory wetland and remaining areas of wetland within ML1535 including: prevention of livestock from entering the enhancement areas to encourage the natural regeneration of native plants; measures to minimise the spread of weeds and competition with native flora; measures to minimise the occurrence of feral pests; and limiting vehicular access.	Management measures to protect the compensatory wetland areas have been implemented in accordance with the Compensatory Wetland Management Plan.	**Compliant**
P19/s.5.4.1	In order to encourage the natural regeneration of native plant species, livestock will be controlled in enhancement areas 1 to 4 through	Presence of livestock in enhancement areas is controlled with fencing and farm management practices.	**Compliant**

Section/ Page No.	Land Management Plan Commitments	Comments	Implementation Status
	fencing control and management. The management of livestock will vary between enhancement areas, as outlined in Table 1 (LMP).		
P20/s.5.4.1	Selective planting of native vegetation may be conducted in enhancement areas 1-4 to increase the quantity of remnant vegetation and to link areas of existing remnant vegetation, where practicable. Livestock will be prevented from entering any portions of the enhancement areas which have been revegetated with native plant species.	Livestock are prevented from entering any portions of the enhancement areas that have regenerated with native plant species, by fences erected by Cowal Gold Operations.	**Compliant**
P21/s.5.4.1	Revegetation activities will be implemented by a suitably qualified person(s) and coordinated by the Environmental Manager.	Revegetation activities in the remnant vegetation areas, is managed in co-operation with the Lake Cowal Foundation and DnA Environmental.	**Compliant**
P21/s.5.4.2	Remnant vegetation monitoring will be conducted within the enhancement areas to: assess the progress of natural regeneration; determine whether vegetation planted within the enhancement areas is establishing; and determine the need for any maintenance and/or contingency measure (such as the requirement for revegetation, supplementary plantings and weed control).	Remnant vegetation monitoring is conducted annually by DnA Environmental to assess the status of the vegetation and determine the need for any maintenance and/or contingency measures in relation to the regeneration.	**Compliant**
P21/s.5.4.2	A number of survey plots (50 x 20 m) will be established within each enhancement area to obtain quantitative data on species and abundance.	A research study of native grass recruitment utilising pasture cropping trials was set up on the Hillgrove property as a University of Sydney honours project. These trials were conducted and funded through the Lake Cowal Foundation.	**Compliant**
P21/s.5.4.2	Visual observations will be made on a regular basis of areas revegetated with native plants to assess the establishment and the health of planted vegetation. This information will be utilised to determine the need for any supplementary plantings that may be required.	Remnant vegetation monitoring is conducted annually by DnA Environmental. Reports have been prepared describing the status of the vegetation in each survey plot, with photo points established for each quadrat for recording the annual appearance.	**Compliant**
P24/s.6.2	In accordance with BSC advice, Evolution (Cowal) will control weed species (African Boxthorn, Johnston Grass, Scotch/Illyrian Thistle, Silverleaf Nightshade, Spiny Burrgrass, St. Johns Wort, Wild Rash) in accordance with the	Annual weed surveys and farm management assessment was conducted by Carnegie Natives until 2014, and by ngh environmental since March 2015. The latest survey showed Galvanised Burr to be the	**Compliant**

Section/ Page No.	Land Management Plan Commitments	Comments	Implementation Status
	Lachlan Valley Noxious Weeds Advisory Group weed management plans. The weed management plans are provided in LMP Appendix B.	predominant weed species with African Boxthorn appearing to be in decline. *Lippia*, a Class 4 noxious weed, has been observed on one of the leased farms. On-going weed control measures are carried out on regular basis as required.	
P24/s.6.4	Preventative measures will be implemented on Evolution (Cowal) owned land related to movement of stock, use of locally sourced stock feed, reduction of on-farm weed sources.	Restriction/management of stock movements, select stock feed purchases, and physical and/or chemical weed control measures are being employed within the ongoing regular weed control program.	**Compliant**
P25/s.6.5	Physical removal and chemical application are the main weed control measures to be applied.		**Compliant**
P26/s.6.6	Evolution (Cowal) owned land will be surveyed for weeds annually. Follow up inspections will also be made of specific areas following the implementation of weed control measures (to assess the success of the weed controls).	Annual weed surveys and farm management assessments have been conducted by Carnegie Natives to 2014 and by ngh environmental since March 2015.	**Compliant**
P26/s.6.6	The BSC will be consulted for the suitable control of any new noxious weed species if encountered in the protect area to meet the requirements of the Noxious Weeds Act, 1993.	Consultation with BSC would occur if any new noxious weed species are encountered on the mine owned properties. Consultation with BSC occurred following the recent discovery of *Lippia* on a leased farm (March 2015).	**Compliant**
P28/s.7.2	Evolution (Cowal) will undertake pest control operations in conjunction with adjacent landholders in accordance with CRLPB and NSW Agriculture recommendations and regular consultation with the CRLPB and NSW Agriculture (prior to and following annual pest inspections) and local landholders and landholder groups through the CEMCC process.	A regular control program for foxes is conducted. Rodent control was implemented during 2011-2012 on the ML 1535 area and mine owned land. Control of spiders and black crickets has also occurred at 3 to 6 monthly intervals.	**Compliant**
P28/s.7.2	Evolution (Cowal) personnel responsible for land management will use the Vertebrate Pest Control Manual Appendix C (NSW Agriculture, 2003b) as a guide for pest control activities on mine-owned land in consultation with the CRLPB and NSW Agriculture.	Use of the NSW Agriculture Vertebrate Pest Control Manual for pest control activities occurs as necessary.	**Compliant**
P30/s.8.2	Evolution (Cowal) will aim to prevent land degradation and rehabilitate previously degraded land or land affected by their activities where practicable. This aim is in accordance	Rehabilitation of previously degraded land or land affected by mine activities, occurs when practicable in accordance with the Land Management Plan.	**Compliant**

Section/ Page No.	Land Management Plan Commitments	Comments	Implementation Status
	with the principles of the MLRVMP, JLWMP and LWMPLC to reduce soil erosion and damage to soil characteristics.		
P30/s.9.1	Mine rehabilitation works will be undertaken progressively as construction activities and mining proceed, in accordance with EIS Section 5.	Rehabilitation trials as part of the progressive rehabilitation program have been undertaken on the disturbed areas of the ML 1535 site.	**Compliant**
P31/s.9.2	Evolution (Cowal) will develop a strategy for the long-term (i.e. post mine closure) land-use of its landholdings, including the project area. The strategy for long-term land-use of the project area and mine-owned land will be submitted by year 7 of mining operations or five years before mine closure, whichever is the earlier. The strategy will be developed in consultation with the DIPNR, EPA, NPWS, BSC, the CEMCC, and to the satisfaction of the D-G.	The long-term land-use strategy of the ML 1535 area and mine-owned land will be submitted five years before mine closure. The strategy will be developed in consultation with the DIPNR, EPA, NPWS, BSC, and CEMCC, with land owners and consultation and agreements with regulatory agencies.	**Compliant**
P35/s.12	An Annual Review will be prepared in accordance with the requirements of Condition 9.1(b) of the Development Consent (as modified on 22 July 2014) and will be submitted to the Secretary of the NSW Department of Planning and Environment by the end of July each year, or as otherwise agreed with the Secretary.	Annual Reviews have been prepared in accordance with Development Consent 14/98 condition 9.1(b). Land management issues are reported in sections: • Section 5 mine-owned land under license agreements • Section 3.9 weed and pest control • Section 3.7 – Flora - remnant vegetation management monitoring	**Compliant**

5.10.2 Remnant Vegetation Enhancement Program

DnA Environmental has conducted annual remnant vegetation enhancement monitoring on the Cowal Gold Operations site and surrounding Evolution (Cowal) owned land. Permanent monitoring sites were established in areas of remnant woodland to measure a range of ecological features and track any changes as part of the Remnant Vegetation Enhancement Program (RVEP). Many sites were inaccessible during the flooding of Lake Cowal in 2010-2013, so only six RVEP sites were assessed during November 2013 to 2015 surveys (Hill01, Hill02, Hill03, Hill04, RVEP3 and RVEP4).

The wet weather that commenced in 2010 resulted in the inundation of Lake Cowal and water levels in Lake Cowal remained high with a peak flood event occurring March 2012. Since March 2012 there has been limited rainfall and most of 2013 was very dry with only 341.6mm recorded. This low rainfall had a significant impact on the floristic diversity and composition in the remnant vegetation areas.

The DnA Environmental *Rehabilitation Monitoring Reports* on the surveys conducted between 2013 to 2015 period, concluded:

> *"In 2014 there was below average rainfall for much of the year. Subsequently the water in Lake Cowal receded significantly, with no ponded water between the CGM permanent and temporary isolation bunds and all gilgais were dry. In the months preceding the annual monitoring program, monthly rainfall was particularly low which resulted in limited active plant growth and low floristic diversity. This was reflected across the range of CGM monitoring sites this year.*
>
> *While in previous years many of the exotic species were also recorded in the reference sites, and are a reflection of the disturbance history of the Lake Cowal environment, the very dry conditions restricted the live plant diversity to those that are perennial and very hardy, with only a few exotic annuals persisting in moist depressions. This has resulted in an obscured representation of the diversity of species and which would be significantly different earlier in the year or under better seasonal conditions and in most cases vegetation on rehabilitation areas have germinated from seed stored in the soil seed bank."*
>
> *"In 2015 above average rainfall was received in January and April, but up until July 2015 rainfall was limited and well below the monthly averages. In July and August, there was 78mm and 49 mm of rainfall respectively with potentially higher rainfall received within the upper catchment areas again resulting in water reaching the lake. While the lake did not reach floods levels as it did in 2012, much of the lake bed within the MLA was inundated. These improved seasonal conditions preceding the annual monitoring program resulted in improved diversity and abundance of the vegetation which was typically reflected across the Cowal Gold Operations monitoring sites.*
>
> *There have been overall minor changes in the mature tree populations in the RVEP sites. Site Hill01 and Hill03 situated on Fellman's Hill medium density regrowth stands dominated by Eucalyptus dwyeri (Dwyer's Red Gum) contained a range of tree sizes and ages from a series of past recruitment events, but few could be considered to be old growth trees. Sites Hill02 and Hill04 contained remnant E. microcarpa (Grey Box) – E. sideroxylon (Ironbark) situated on the transition of the woodland and cleared grassland communities and both had been showing positive recovery trends, with extensive recruitment of Acacia deanei (Deane's Wattle) occurring in Hill02 with most individuals exceeding 2.0m in height."*

5.10.3 Conclusion

The Land Management Plan prepared to satisfy for the Cowal Gold Project provides the basis for the long term management of the disturbed areas of ML 1535 and collates many of the commitments in other plans that also have associated long term management and rehabilitation strategies / processes for the project (e.g. Flora and Fauna Management Plan, Remnant Vegetation Enhancement Program, Rehabilitation and Offset Management Plan, Rehabilitation Management Plan, Compensatory Wetland Management Plan etc.).

The monitoring surveys conducted during 2013 to 2016 have shown the effects of the meteorological conditions (mainly associated with rainfall) on the diversity and establishment of species across the Cowal Gold Operations site and surrounding Evolution Mining (Cowal) owned land.

5.11 Water Management

[Development Consent 14/98 MOD 10 condition 4.1/4.2]
[Development Consent 14/98 MOD 11 condition 4.1 to 4.6]

5.11.1 Regional Surface Hydrology

The Cowal Gold Operations site is located on the western side of Lake Cowal, an ephemeral, fresh water lake that forms part of the Wilbertroy-Cowal Wetlands that are located on the Jemalong Plain, in the lower reaches of the Bland Creek catchment. The area surrounding the Cowal Gold Operations site is drained by ephemeral drainage lines that flow to Lake Cowal. Lake Cowal is part of the wider Lachlan River valley. When full (at RL 205.65 m) Lake Cowal overflows into Nerang Cowal to the north which in turn overflows to Manna Creek, Bogandillon Creek and ultimately into the Lachlan River. Overflows from Lake Cowal to Nerang Cowal occurred in early 2012. When full the lake covers an area of approximately 105km^2 and holds 150 gigalitres of water.

Over the life of the Cowal Gold project, Lake Cowal remained dry until June 2010 when significant rainfall caused the lake to begin to receive water via two main breakout channels:

- Bland Creek, an ephemeral waterway drains into the lake at its southern end; and
- Lachlan-Lake Cowal floodway to the north-east; when breakout flows from the Lachlan River are directed (during floods) into the north-east section of Lake Cowal.

Breakout from the Lachlan River to Lake Cowal occurred in late 2010, in the first half of 2012 and in July/August 2015.

5.11.2 Environmental Assessment

5.11.2.1 Environmental Impact Statement

[Cowal Gold Project Environmental Impact Statement (EIS) (North, 1998]

Summary of findings in the initial Cowal Gold Project Environmental Impact Statement (1998) in relation to water impacts and management associated with the Cowal Gold Project were:

- Surface water on the mine site was to be permanently isolated from Lake Cowal by an up-catchment diversion system (UCDS), directing runoff from areas unaffected by mining around the perimeter of the site, and an Internal Catchment Drainage System (ICDS), capturing all site runoff and seepage for re-use in the processing plant. In the longer term the ICDS would direct site runoff to the final void which would become a permanent sink for groundwater and surface runoff.
- The long term final void water balance was such that the final void was predicted to not spill under any conceivable climate conditions.
- The operational water balance prediction was for a moderately negative site water balance. External water supply would be required from the Bland Creek Palaeochannel Borefield.
- Mine waste rock material was predicted to have the potential to generate moderately saline seepage, particularly during the active mining phase. During the active mining phase, all runoff and seepage from the waste rock emplacements would be contained within the ICDS.

- The tailings storages were designed to be able to contain runoff from a 1 in 1,000year average recurrence interval (ARI) rainfall event. Any spill or seepage would be contained within the ICDS, ultimately reporting to the open cut.
- It was predicted there would be little potential for movement of surface water or groundwater from the waste rock emplacements or of seepage from the tailings storages.
- Use of suitable soils and vegetation in rehabilitation of waste rock emplacements and the tailings storages was predicted to result in low salt fluxes in surface waters consistent with regional runoff water quality.

Commitments included in the Environmental Impact Statement (1998) were:

Environmental Impact Statement Commitments	Cowal Gold Mine Actions	Implementation Status
A comprehensive monitoring programme would measure water quality at various points within the water management system	A comprehensive monitoring program was developed and included in the Site Water Management Plan and Surface Water, Groundwater, Meteorological and Biological Monitoring Program.	**Compliant**
Drawdown effects would be monitored at the borefield.	Groundwater monitoring of the Bland Creek Palaeochannel bore-field was implemented in 2005 and has continued through to 2016, to assess drawdown effects on the groundwater resource.	**Compliant**
A continuous silt curtain would be installed around the construction zone of the temporary isolation bund.	During construction of the temporary isolation bund, the lakeside construction area was protected with silt/sediment fence. (Note: Lake Cowal was dry during the temporary isolation bund construction.)  **Temporary Isolation Bund construction when Lake Cowal was dry (2005).**	**Compliant**
Where possible it is proposed to bury the water supply pipeline from Bland Creek Palaeochannel borefield to the Project.	The water supply pipeline from Bland Creek Palaeochannel borefield to the Cowal Gold Project site was buried as the pipeline was constructed across the dry bed of Lake Cowal.	**Compliant**

Pipeline construction to the east of the lake above the flood levels July 2004.

Pipeline trench across Lake Cowal (July 2004)

Pipeline route January 2005 following trench rehabilitation

5.11.2.2 Environmental Assessment -

[Environmental Assessment - Cowal Gold Mine Extension Modification 2013]

The Hydrological Assessment for the Environmental Assessment - Cowal Gold Mine Extension Modification Appendix B was conducted by Gilbert & Associates, and peer reviewed by Emeritus Professor Tom McMahon in September 2013. The Hydrological Assessment indicated that the existing water management system designed for the Cowal Gold Operations would manage any project water potential impacts that may occur from the development of the Modification.

The Cowal Gold Mine was designed and developed to manage surface water runoff and quality with:

- Surface water on the mine site permanently isolated from Lake Cowal by an up-catchment diversion system (UCDS), directing runoff from areas unaffected by mining around the perimeter of the site, and an Internal Catchment Drainage System (ICDS), capturing all site runoff and seepage for re-use in the processing plant.
- The operational water balance predicted a moderately negative site water balance requiring an external water supply. The external water supply is primarily obtained from the Bland Creek Palaeochannel Borefield.
- Mine waste rock material that has the potential to generate moderately saline seepage and all runoff and seepage from the waste rock emplacements, is contained on site within the ICDS.
- Tailings storages designed to contain runoff from a 1 in 1,000year ARI rainfall event. Any spill or seepage would be contained within the ICDS, ultimately reporting to the open cut.
- Use of suitable soils and vegetation in rehabilitation of waste rock emplacements and the tailings storages are predicted to result in low salt fluxes in surface waters consistent with regional runoff water quality.

The key findings of the Hydrological Assessment were:

- The extension to the Cowal Gold Mine open pit would not change the existing lake isolation system that currently separates the open pit from Lake Cowal.
- The Modification would not change the design objectives of the ICDS and UCDS as described below:
  - The UCDS would continue to divert up-catchment runoff around the Cowal Gold Operations.
  - The ICDS would continue to control runoff from active mining areas and would be extended to include a dedicated sediment control system to manage surface water runoff from the additional soil stockpile located in the north of ML 1535.
- Water balance modelling concluded, no spills from contained water storages in ML 1535 are predicted.
- No causal link between the existing operations at the Cowal Gold Mine and water quality in Lake Cowal was identified and negligible impacts to surface water quality were predicted due to the Modification.
- Negligible additional impacts to the catchment and hydrology of Lake Cowal were predicted due to the Modification.
- It is expected there would be continued reliable supply of water available from the Lachlan River trading market.

- Consistent with the approved Cowal Gold Mine (i.e. pre- Modification 11), the final void water level would stabilise well below the pit spill level, and water captured in the final void would become hypersaline.

The Site Water Management Plan, Surface Water, Groundwater, Meteorological and Biological Monitoring Program and Erosion and Sediment Control Management Plan would be updated to incorporate the new site water management infrastructure for the Cowal Gold Mine Extension Modification 2013.

5.11.3 Water Management Plan

[Development Consent 14/98 MOD 10 condition 4.1/4.2]
[Development Consent 14/98 MOD 11 condition 4.4]

A Site Water Management Plan was prepared to satisfy the requirements of Development Consent 14/98 condition 4.1, and approved by DIPNR in 2003. The Site Water Management Plan was subsequently amended in November 2004 and December 2006. A further review of the Site Water Management Plan was undertaken in 2009 and revised to reflect the approved Modifications to the Development Consent. This revised Plan included changes to site water management, water supply and associated monitoring (e.g. water supply description, water supply schematic and groundwater monitoring, including the saline groundwater supply bore-fields); application of schematic programs to reflect the revised Surface Water, Groundwater, Meteorological and Biological Monitoring Programme (SWGMBMP) and incorporation of measures to evaluate water quality data obtained from monitoring as required by Development Consent MOD 10 condition 8.2(a)(iii).

A consolidated revision of the Site Water Management Plan was completed in November 2010 following receipt of comments from NOW and DECCW. Revised Site Water Management Plans were also submitted to DP&I on 17 February 2012 and August 2013 and the requirements of these revised plans were implemented for the operation of the mine.

The Water Management Plan prepared to satisfy Development Consent 14/98 MOD 11 condition 4.4 was prepared and submitted to DP&E in May 2015 and approved on 19 November 2015.

Commitments / obligations in the current Water Management Plan (2015) are listed in Table 5.11.3.

Table 5.11.3: Water Management Plan (2015) Commitments.

Section / Page No.	Water Management Plan Obligations (2013)	Comments	Implementation Status
s.4/p.19	The Up-catchment Diversion System provides for the diversion of upper catchment runoff and the Internal Catchment Drainage System ensures the containment of potentially contaminated water within the site.	The Internal Catchment Drainage System (ICDS), Up-Catchment Diversion System (UCDS), and settlement ponds were constructed in 2004 - 2005 in accordance with the Site Water Management Plan (2003).	**Compliant**
s.4/p.19	Surface waters that collect within the Internal Catchment Drainage System will be managed by a series of contaminated water storages, bunds and drains. Internal	Construction of the D1 and D4 water storages commenced during 2004 and were completed by January 2005. Water management pond D5 was completed adjacent to the process plant area in 2005.	**Compliant**

Section / Page No.	Water Management Plan Obligations (2013)	Comments	Implementation Status
	Catchment Drainage System contained water storages for CGM runoff comprise storages D1, D2, D3, D4, D5, D8A and D8B. Contained water storages D1 to D5, D8A and D8B will be used to contain runoff from the waste emplacements and general site area. Water will be pumped to contained water storages D6 or D9 (process water storages) for consumption during ore processing.	Toe drains and contained water storages, D2, D3, D8A and D8B were constructed in stages around the waste emplacements and ore stockpile areas between 2005 and 2007. Water storage D6 was constructed in 2006 and is the main source of make-up water for the process plant. Water management pond D9 for temporary storage of water to supplement the bore water supply, was completed in June 2007. D10 (approved under MOD 11) had not been constructed at the date of this audit (April 2016).	
s.4/p20	D9 will contain make-up water from the Jemalong irrigation channels and the Bland Creek Palaeochannel bore-field, groundwater, site catchment water, pit dewatering water and incidental rainfall, but will not contain supernatant water from the tailings storage facilities. Water within contained water storage D9 will be pumped to D6 as required.	Water management pond D9, commissioned in June 2007, contains make-up water from the Bland Creek Palaeochannel borefield and eastern saline borefield groundwater, site catchment water, pit dewatering water and incidental rainfall and Lachlan River water entitlements, but does not contain supernatant water from the tailings storage facilities. D9 is used for temporary storage of water to supplement the bore water supply for the project and provide certainty of water supply for the process plant needs. Pond D9 holds approximately 641.4 ML.	**Compliant**
s.4/p20	The contained water storages will be managed in such a manner to minimise potential water quality impacts. Containment storages will be sized to contain all water to at least a 1 in 100 year average recurrence interval (ARI) rainfall event (or a 1 in 1,000 year ARI rainfall event for those storages containing runoff from the plant site and tailings storage facilities).	The contained water storages have been constructed to contain all water to at least a 1 in 100 year average recurrence interval (ARI) rainfall event (or a 1 in 1,000 year ARI rainfall event for those storages containing runoff from the plant site and tailings storage facilities).	**Compliant**
s.4.1.2/p26	The lake protection bund, site water and tailings storage facilities will be constructed to the requirements of the NOW, OEH and DSC (Development Consent 14/98 conditions 4.1/4.2(c)(i) dated 2003).	The lake protection bund, site water and tailings storage facilities were constructed in accordance with the requirements of the DLWC, EPA and DSC during 2004.	**Compliant**

Section / Page No.	Water Management Plan Obligations (2013)	Comments	Implementation Status
s.4.1.1/p26	The Up-catchment Diversion System will be constructed to simulate endemic drainage features that are known to be stable in the prevailing hydrological regime.	The up-catchment diversion system is a permanent feature that has been developed as disturbed areas of mine site occurred and has been designed to convey upper catchment water around the western edge of the Cowal Gold Operations (near the tailings storage facilities) and into existing drainage lines to the north and south. The up-catchment diversion system was constructed with rock stabilisation barriers to control flow rates down the channel following rainfall events.	**Compliant**
s.4.1.2/p28	The lake isolation system was designed to hydrologically separate the open pit and Lake Cowal during development, mining and post-closure of the CGM.	The lake isolation system constructed in 2004, comprises an isolation embankment designed to prevent the inflow of water from Lake Cowal to the open pit development area during periods of high lake water levels. The lake isolation system comprises: • temporary isolation bund; • lake protection bund; and • perimeter waste emplacement.	**Compliant**
 **Cowal Gold Mine pit showing temporary isolation bund, lake protection bund and perimeter waste emplacement**.			
s.4.1.2/p31	The perimeter waste emplacement will be constructed to RL 223 m and will surround the pit to the north, east and south. The emplacement will be located behind the lake protection bund and will be constructed from oxide mine waste rock with the outer face constructed from low salinity topsoils/soils.	The perimeter waste emplacement was constructed to RL 223m to the north, east and south of the CGM pit. The emplacement is located behind the lake protection bund.	**Compliant**

Section / Page No.	Water Management Plan Obligations (2013)	Comments	Implementation Status
s.4.1.3/29	During the construction and operation of the CGM surface water collected within the limits of the Internal Catchment Drainage System will be directed to the process water storage dam (D6) for use (as raw water, dust suppression and conditioning of construction materials) in the process plant.	Surface water collected within the limits of the Internal Catchment Drainage System (ICDS) is directed to the process water storage dam (D6) for use in the process plant.	**Compliant**
s.4.1.4/p30	The Cowal Gold Operations integrated erosion, sediment and salinity control system is presented in the ESCMP and is designed to prevent the discharge of sediment-laden runoff from the mine site to the Lake Cowal.	The surface water runoff from disturbed areas of the MLA and mine landforms (waste emplacements, haul roads, stockpiles etc.) is managed through the sizing of sediment control structures (as described in the Erosion and Sediment Control Management Plan).	**Compliant**
s.4.2.1/p45	The saline ground water supply bore-field would be operated during times when the bore-field is not inundated by Lake Cowal.	Two saline groundwater supply bores (WB01 and WB20) established during 2008 were approved as production bores by NOW (Water Licenses No. 70BL233231 and 70BL233233) in 2010. No extraction from the saline groundwater bores has occurred since April 2010 during the inundation of Lake Cowal.	**Compliant**
s.4.2.2/p.49	Water that accumulates within the open cut will be managed, in consultation with NOW, in accordance with a pit dewatering program.	Surface Water management structures have been constructed collect pit face seepage from collection drains. In-pit sumps in the floor of the pit and water management structures have been installed to divert water from other areas outside the external bund around the pit to site runoff collection ponds. The installed in-pit sumps are sized with sufficient capacity to remove ponded water in the pit to the contained water storage D6 or D3 within 48 hours. The contained water storage D6 will have capacity to store runoff from the 1 in 1,000 year ARI, 48hour event above its normal operating level.	**Compliant**

Section / Page No.	Water Management Plan Obligations (2013)	Comments	Implementation Status
 **Cowal Gold Mine open pit dewatering sump. The dewatering borefield is located around the perimeter of the open pit.**			
4.2.4/p.51	Any runoff from the external face of the southern waste emplacement would report to the external contained water storage D4 which has been constructed below the external (south-eastern) toe of the southern waste emplacement area	Water storage D4 has been constructed below the external (south-eastern) toe of the southern waste emplacement area to collect surface runoff from the external face of the southern waste emplacement.	**Compliant**
S4.2.4/p53	The quantity of water in the process plant area will be managed in the following manner: the storage water level in D5 will be kept as low as possible by regularly transferring accumulated water to the process water storage (D6) for use in the process plant; and the process plant contained storage (D5) will be provided with sufficient storage for containment of the 1 in 1,000 year ARI, 48hour duration event.	The quantity of surface runoff water from the process plant area is managed by keeping the storage water level in D5 as low as possible by regularly transferring accumulated water to the process water storage (D6) for use in the process plant.	**Compliant**
s.4.2.5/p.53	The process plant area has been bunded and graded such that any surface runoff, accidental spills of processing water or other potentially hazardous liquids will report to contained water storage D5.	Contained water storage D5 contributes to the management of surface water quality in surrounding areas by collection of all surface runoff from the process plant area, minimising the potential for contamination of surrounding waters.	**Compliant**
s.4.2.7/p.54	The Up-catchment Diversion System will divert runoff from the catchment area upslope of the storages to drainage lines which flank both the northern and southern sides of the CGM.	The Internal Catchment Drainage System (ICDS), Up-Catchment Diversion System (UCDS), and settlement ponds were constructed in 2004 in accordance with the Site Water Management Plan and continue to flank both the northern and southern sides of the Cowal Gold Operations site.	**Compliant**

Section / Page No.	Water Management Plan Obligations (2013)	Comments	Implementation Status
s.4.2.7/55	Monitoring of EC and pH in the decant of the active tailings storage facility would be undertaken on a weekly basis.	Weekly monitoring of pH and EC occurs at the decant tower of the active tailings storage facility.	**Compliant**
s.4.2.8/p.55	In accordance with Development Consent 14/98 Condition 5.6, a site sewage treatment facility has been installed. Treated sewage and sullage will continue to be disposed of to the satisfaction of Bland Shire Council (BSC) and the EPA and in accordance with the requirements of the NSW Department of Health.	The permanent on-site sewage management system was installed west of the Mine Workshop in the 1st quarter 2006, in accordance with the requirements of Bland Shire Council (BSC),the EPA and Department of Health.  The management and treatment of sewage is addressed in the Hazardous Waste and Chemical Management Plan.	**Compliant**
S4.3.6/p66	Development Consent Condition 4.5(c) requires the preparation of a monitoring program for the detection of any movement of the lake protection bund, water storage and tailings structures and pit/void walls during the life of the CGM, with particular emphasis on monitoring after any seismic events. The *Monitoring Programme for the Detection of any Movement of Lake Protection Bund, Water Storage and Tailings Structures and Pit/Void Walls* was prepared prior to the commencement of construction of the CGM in consultation with the then DLWC and Department of Mineral Resources (DMR) and to the satisfaction of the Director-General of the then Department of Planning, Infrastructure and Natural Resources (DIPNR). This	A *Monitoring Program for the Detection of any Movement of Lake Protection Bund, Water Storage and Tailings Structures and Pit/Void Walls* was approved by the Director-General on 9 October 2003 and implemented. Monitoring points in the Lake Protection Bund (located each 200m on top of the banks) were installed in accordance with the program. No significant movement has been recorded at any of the monument survey points.	**Compliant**

Section / Page No.	Water Management Plan Obligations (2013)	Comments	Implementation Status
	programme will continue to be implemented during the operations and decommissioning phases of the CGM (Section 11).		
s.4.2.7/p53	Tailings storage facility water management at the CGM will continue to involve maximising water re-use through the under-drainage pipe network, decant towers and water return pipeline to the contained water storage (D6).	Reuse of supernatant water from the tailings storage facilities is maximised by recovery from the decant towers with the water returned to water storage D6 adjacent to the process plant, for reuse.	**Compliant**
s.4.3/p54	Sampling, handling and dispatch of all samples will be undertaken by suitably qualified and experienced staff or consultants to the satisfaction of the DP&I and OEH in accordance with Development Consent 14/98 MOD 10 condition 2(a)(iii). The type of sampling equipment and sample containers and the requirement for use of preservative will be in accordance with Section 4 of the relevant Part (Parts 4, 6, 10 and 11) of AS/NZS 5667: 1998.	Collection and transport of samples to ALS (NATA registered laboratory) for analysis is conducted using sample containers and preservation requirements in accordance with AS/NZS 5667: 1998 Section 4, Parts 4, 6, 10 and 11, relevant to the parameters to be measured. All samples are collected and transported to the NATA registered laboratory using Chain-of-Custody controls.	**Compliant**
s.6.1/p74	The overall objective of the CGM water management system is to contain all potentially contaminated water (contained water) generated within the CGM area while diverting all other water around the perimeter of the site.	The comprehensive water management system developed for the Cowal Gold Operations is based on the permanent isolation of surface waters and groundwater on the mine site with an Up-catchment Diversion System to divert runoff from areas unaffected by mining around the perimeter of the site and an Internal Catchment Drainage System and integrated erosion and sediment control system to capture of all site runoff and seepage for re-use in the process plant.	**Compliant**
s.6.1/p.74	Water from the Lachlan River would continue to be accessed for the CGM by purchasing temporary water available from the regulated Lachlan River trading market.	Water has been purchased from the Lachlan Regulated River Water Source under Water Access Licences (WAL) obtained for the Cowal Gold Operations.	**Compliant**

Section / Page No.	Water Management Plan Obligations (2013)	Comments	Implementation Status
s.6.2.2/p.77	Groundwater from the Bland Creek Palaeochannel would be used where make-up water from all other on-site sources (e.g. tailings storage facilities, pit dewatering, reuse of site runoff captured in the various site collection storages and pumping from the saline groundwater supply borefield) is inadequate.	Groundwater from the Bland Creek Palaeochannel is used where make-up water from all other on-site sources is inadequate. Groundwater levels in the Bland Creek Palaeochannel are managed in accordance with the Groundwater Contingency Strategy, with monitoring of groundwater levels.	**Compliant**
s.6.2.2/p74	The groundwater resource contained within the Bland Creek Palaeochannel is partially utilised by land holders in the area for irrigation and stock watering purposes. In the event that the groundwater level in GW036553 or GW036553 drop below the trigger levels in the Groundwater Contingency Strategy, contingency measures will be implemented in consultation with the NOW The groundwater level associated with the Bland Creek Palaeochannel Bore-field is monitored on a continuous basis at the NoW groundwater monitoring bore on Burcher Road (GW036553).	In the event that the groundwater level in GW036553 is below RL 137.5m AHD, one or more of the following contingency measures would be implemented in consultation with the NOW: • investigate the groundwater level in the Trigalana bore (GW702286) or any other impacted stock and domestic bores; • determine the pump setting in relevant stock and domestic bores; • determine the drawdown rate in GW702286 and other impacted stock and domestic bores; • develop an impact mitigation plan for impacted stock and domestic bores; and/or • set up an alternative water supply for the owner of GW702286 and other owners of stock and domestic bores, if necessary. In the event that the groundwater level in GW036553 was below RL 134 m AHD, one or both of the following contingency measures would be implemented in consultation with the NOW: • alter the pumping regime to maintain the water level in the impacted stock and domestic bores; or • maintain a water supply to the owner/s of impacted stock and domestic bores.	**Not triggered**
s.7.3/p82	Compensation will be provided to affected landholders based on an assessment of the economic impact of any additional inundation of productive land.	During 2010 Barrick met with landholders and developed short and medium to long term strategies for water management in the region. Components of the strategies were presented to the landowners, with	**Not triggered**

Section / Page No.	Water Management Plan Obligations (2013)	Comments	Implementation Status
	The long-term compensation package will be developed in consultation with the NOW and the OEH and to the satisfaction of the Director-General.	actions to be implemented agreed in consultation with the NOW. Empirical data (e.g. measured changes to the Nerang Cowal flood regime and the consequent measured effect of the inundation of productive land) obtained from investigations undertaken to determine appropriate event based compensation will be utilised to determine an appropriate one-off long-term compensation package.	
s.9/p.86	In accordance with Development Consent 14/98 MOD 11 Condition 4.4(a)(ii), waters that are captured behind the temporary perimeter bund will be dewatered to a process water storage for re-use.	Measures to manage and dispose of water captured behind the temporary perimeter bund are addressed in the Water Management Plan section 9.	**Compliant**
s.9/p86	In accordance with Development Consent 14/98 MOD 11 Condition 4.3, there will be no disposal of water from the Internal Catchment Drainage System to Lake Cowal.	No water from the Internal Catchment Drainage System enters Lake Cowal. All water in the Internal Catchment Drainage System is directed to storage ponds and reused on site in the process plant.	**Compliant**
s.11/p.89	In accordance with Development Consent condition 4.4(b), a strategy for decommissioning of water management structures, including water storages both in and around the mine site, the water pipeline and borefield infrastructure associated with the CGM, and the long-term management of the final void and lake protection bund A will be submitted five years before mine closure in consultation with NOW, OEH, DTIRIS-DRE and CEMCC and to the satisfaction of the Secretary.	The decommissioning plan for the water management structures, including water storages both in and around the mine site, the water pipeline and borefield infrastructure associated with the Cowal Gold Operations, and the long-term management of the final void and lake protection bund will be prepared five years before mine closure.	**Not triggered**
s.12.3/p.95	An Annual Review will be prepared in accordance with the requirements of Development Consent Condition 9.1(b) and will be submitted to the Secretary of the DP&E.	Annual Reviews prepared in accordance with Development Consent 14/98 MOD 11 condition 9.1(b), include reporting of site water components in section 3.3.	**Compliant**

5.11.4 Water Supply

[Development Consent 14/98 MOD 11 condition 4.1]
[Development Consent 14/98 MOD 11 condition 4.4]

5.11.4.1 Environmental Assessment

5.11.4.1.1 Environmental Impact Statement

[Cowal Gold Project Environmental Impact Statement (EIS) (North, 1998]

The proposed raw water supply scheme for the Cowal Gold Project will involve collecting internal site runoff and developing groundwater resources:

- Internal Runoff Collection - Project area runoff would be collected by a series of bunds and collection ponds. Runoff from the waste rock emplacement, open pit area and other disturbed areas would be collected during rainfall events and transferred to the process water pond or other retention ponds for re-use in the processing plant or to satisfy other operational requirements.
- Open Pit Dewatering Borefield - A dewatering borefield would be constructed around the pit during the construction phase. The predicted dewatering rates are approximately 10 ML/day over the first three months, reducing to approximately 5 ML/day over the life of mine. The groundwater to be dewatered is highly saline and is not suitable for uses such as dust suppression on roads or potable water. Water obtained from the open pit dewatering would initially exceed make-up demands and would be stored in two transient storages constructed within each tailings storage until consumed in providing make-up process water.
- Bland Creek Palaeochannel Borefield - A borefield of four production bores would be developed within the Bland Palaeochannel located approximately 20 km to the east-northeast of the Project site. Groundwater investigations and supply feasibility assessments by Coffey Partners International Pty Ltd (1995b) indicate that the borefield could maintain a supply of up to 10 ML/day……. The borefield reticulation system would include a break pressure/balancing storage after the final bore, a buried 600 mm (approx.) diameter pipeline to the Project site and power supply along existing road reserves. It is proposed to bury the pipeline, where possible, along its entire route.

5.11.4.1.2 Environmental Assessment - Cowal Gold Mine Extension Modification

[Environmental Assessment - Cowal Gold Mine Extension Modification 2013]

Water required for ore processing and related activities by the Cowal Gold Project would be predominantly sourced from recycled process and site catchment water and pit dewatering. Make-up water requirements over the life of the mine, would be sourced from the Bland Creek Palaeochannel borefield from the following geological formations:

- Cowra Formation: comprises isolated sand and gravel lenses in predominantly silt and clay alluvial deposits, with groundwater of generally higher salinity; and
- Lachlan Formation: comprises quartz gravel with groundwater of generally low salinity.

The main water usage for the Cowal Gold Operations is associated with ore processing. Other water supply requirements include water for dust suppression on haul roads and internal roads, TSF embankment construction, and potable and non-potable uses around the mine site.

The water requirements will be met by the use of waters from the following sources:

• Site water supply:
    - Return water from the tailings storage facilities.
    - Open pit sump and dewatering borefield.
    - Rainfall runoff from mine waste emplacements, and other areas, collected as part of the Internal Catchment Drainage System into on-site contained water storages.

• External water supply:
    - Bland Creek Palaeochannel borefield which comprises four production bores within the Bland Creek Palaeochannel located approximately 20 km to the east-northeast of the Cowal Gold Operations ML 1535.
    - Saline groundwater borefield located in the south-east of ML 1535.
    - Eastern saline borefield located approximately 10 km east of Lake Cowal's eastern shoreline.
    - Licensed water accessed from the Lachlan River, supplied via a pipeline from the Jemalong Irrigation Channel Bore 4 pump station.

5.11.4.2 Surface water sources within ML 1535

Mine infrastructure and landforms for the Cowal Gold Operations were constructed within a contained catchment (i.e. the Internal Catchment Drainage System (ICDS)) of the development area. The ICDS combines with the Up-Catchment Diversion System (UCDS) and the lake isolation bund system to protect Lake Cowal from the Cowal Gold Mine activities.

The lake isolation bund system comprises a temporary isolation bund and the permanent lake isolation protection bund. The lake protection bund comprises a large engineered embankment as a permanent barrier between the lake and the Cowal Gold Operations open pit. Runoff from areas upslope of the ICDS (i.e. areas undisturbed by mining) is diverted via the UCDS, around the Cowal Gold Operations to Lake Cowal.

The main water demand for the Cowal Gold Operations is water supply to the process plant. Since the commencement of primary ore processing in mid-2007, the water demand (total) has averaged 17.2 ML/day (of which up to approximately 8 ML/day has been supplied by on-site recycling of return water and incident rainfall from the Tailings Storage Facilities decant ponds).

The various Cowal Gold Operations water management system components and their linkages (via system transfers) are shown in schematic form in Figure 5.11.4.

The Water Management Plan (2015) was implemented for the Cowal Gold Operations, with all water management ponds and surface water drainage structures completed during initial construction of Cowal Gold Project development. A new process water supply pond D10 to provide storage of raw water for use in the Cowal Gold Operations process plant had not been constructed at the date of this audit (April 2016).

5.11.4.3 Bland Creek Palaeochannel

[Development Consent 14/98 MOD 11 condition 4.1(b)]

The Bland Creek Palaeochannel borefield supplies the majority of water required for the operation of the Cowal Gold Mine and process plant, with purchased water (delivery via the Jemalong irrigation channel), pit dewatering and captured surface run-off providing additional sources. The Bland Creek Palaeochannel borefield is located approximately 20 km to the east-northeast of the CGM site on the eastern side of Lake Cowal.

Development Consent 14/98 condition 4.1(b) permits maximum daily water extraction from the bores (PB1 to PB4) of up to 15 ML/day and maximum annual extraction of up to 3,650 ML/year.

The Groundwater Contingency Strategy (i.e. pumping from the Bland Creek Palaeochannel Borefield ceases when required to meet the trigger levels) was developed for the Cowal Gold Project. Groundwater levels in the Bland Creek Palaeochannel continue to be managed in accordance with the existing Groundwater Contingency Strategy, which involves the monitoring of groundwater levels, and the implementation of response measures should groundwater levels reach groundwater trigger levels developed in consultation with the NSW Office of Water and other groundwater users.

No additional impacts to other groundwater users were predicted due to the continued use of the Bland Creek Palaeochannel Borefield and eastern saline borefield for the MOD 11 development.

There would be no change to the existing daily or annual extraction limits from the Bland Creek Palaeochannel Borefield for the Modification, and no new Water Access Licenses would be required.

5.11.4.4 Eastern Saline Borefield

The Eastern Saline Borefield is located approximately 10 km east of the Lake Cowal eastern shoreline. Two (2) bores (SB01 and SB02) were drilled into the Cowra Formation within the Bland Creek Palaeochannel and are operated in accordance with Development Application (DA) 2011/0064 approved by the Forbes Shire Council. Building Certificates (No. 2010/0009) were issued by Forbes Shire Council for the two groundwater production bores and buried water supply pipeline associated with the Eastern Saline Borefield.

5.11.4.5 Saline Groundwater Supply Borefield

[Development Consent 14/98 MOD 8 condition 4.4A]

In July 2008, two of four approved production bores (1535WB01 and 1535WB39), were drilled in the Cowra Formation, forming the saline groundwater supply borefield within ML 1535 to the south-east of the CGM open pit. Bore 1535WB20 was drilled with NOW Licensing and decommissioned, as it failed to yield and the bore was capped well before inundation of Lake Cowal in August 2010.

Water extraction from the saline groundwater supply is licensed by Water Access Licence (WAL) 31904 under Water Sharing Plan for the Lachlan Unregulated and Alluvial Water Sources, 2012. WAL 31904 allows for an annual extraction limit of 3,660 units (~3,660 ML). (The two (2) existing saline groundwater supply bores were shut-down and capped when Lake Cowal became inundated in 2010).

The Water Management Plan prepared to satisfy Development Consent 14/98 MOD 11 condition 4.4, was prepared and submitted to DP&E in May 2015 and approved on 19 November 2015. Commitments in the Water Management Plan (2015) related to water storage are listed in Table 5.11.4.

Table 5.11.4: Water Management Plan – Water Supply Obligations / Commitments

Section / Page No.	Water Management Plan Obligations (2015)	Comments		Implementation Status
s.4.2.1/40	The quantity of water approved for extraction from the Bland Creek Palaeochannel is 15ML/d and 3,650 ML/annum	**Year**	**Annual Water extraction from Bland Creek Palaeochannel Bore-field**	**Compliant**
		2015	1385 ML	
		2014	1317 ML	

Section / Page No.	Water Management Plan Obligations (2015)	Comments	Implementation Status
	(Development Consent 14/98 condition 4.1(b)).	2013 | 1379 ML The water extraction from the Bland Creek Palaeochannel bore-field has not exceeded 15 megalitres (ML)/day or 3650 ML/year.	
s.4.2.1/p.40	All bores from the Bland Creek Palaeochannel borefield will be metered to ensure the quantity of groundwater extracted from the Bland Creek Palaeochannel borefield does not exceed the above limits.	All bores from the Bland Creek Palaeochannel borefield are metered to monitor the quantity of groundwater extracted from the Bland Creek Palaeochannel borefield.	**Compliant**
s.4.2.1/p.40	Groundwater levels associated with the Bland Creek Palaeochannel Borefield are monitored on a continuous basis by the NOW's groundwater monitoring bore GW036553.	Groundwater level monitoring data is available from the NOW bore GW036553 on a continuous basis for groundwater levels associated with the Bland Creek Palaeochannel Borefield.	**Compliant**
S4.2.1/p45	Monitoring of groundwater abstraction and water levels for the eastern saline borefield will be undertaken to allow the future yield of the Cowra aquifer system to be assessed as part of the mine's ongoing water supply strategy.	Groundwater quality monitoring for the eastern saline borefield would be undertaken on a quarterly basis in parallel with monitoring of groundwater quality in the Bland Creek Palaeochannel borefield, when extraction from the eastern saline borefield is occurring.	**Compliant**
s.4.2.1/ p.46	Surface water runoff within the CGM area will be collected by a series of bunds and collection ponds. Runoff from the waste emplacements, open pit area and other disturbed areas will be collected during rainfall events and transferred to the process water pond or other retention ponds for re-use in the process plant or other operational requirements.	The mine water management system currently includes nine (9) containment storages that provide for control of site water. A new process water supply pond D10 (yet to be constructed) has been approved in MOD 11 to provide storage of raw water for use in the Cowal Gold Operations process plant.	**Compliant**
s.6.2.2/p.77	Groundwater from the Bland Creek Palaeochannel would be used where make-up water from all other on-site sources (e.g. tailings storage facilities, pit dewatering, reuse of site runoff captured in the various site collection storages and pumping from the saline groundwater supply borefield) is inadequate.	Groundwater from the Bland Creek Palaeochannel is used where make-up water from other on-site sources is inadequate. Groundwater levels in the Bland Creek Palaeochannel are managed in accordance with the Groundwater Contingency Strategy, with monitoring of groundwater levels. Response measures would be implemented if groundwater levels reach trigger levels in the Groundwater Contingency Strategy that was developed in consultation with the NOW and other groundwater users	**Compliant**

Section / Page No.	Water Management Plan Obligations (2015)	Comments	Implementation Status
s.6.2.2/p79	The groundwater resource contained within the Bland Creek Palaeochannel is partially utilised by land holders in the area for irrigation and stock watering purposes. . In the event that the groundwater level in GW036553 or GW036553 drop below the trigger levels in the Groundwater Contingency Strategy, contingency measures will be implemented in consultation with the NOW. The groundwater level associated with the Bland Creek Palaeochannel Bore-field is monitored on a continuous basis at the NoW groundwater monitoring bore on Burcher Road (GW036553).	In the event that the groundwater level in GW036553 is below RL 137.5m AHD, one or more of the following contingency measures would be implemented in consultation with the NOW: • investigate the groundwater level in the Trigalana bore (GW702286) or any other impacted stock and domestic bores; • determine the pump setting in relevant stock and domestic bores; • determine the drawdown rate in GW702286 and other impacted stock and domestic bores; • develop an impact mitigation plan for impacted stock and domestic bores; and/or • set up an alternative water supply for the owner of GW702286 and other owners of stock and domestic bores, if necessary. In the event that the groundwater level in GW036553 was below RL 134 m AHD, one or both of the following contingency measures would be implemented in consultation with the NOW: • alter the pumping regime to maintain the water level in the impacted stock and domestic bores; or • maintain a water supply to the owner/s of impacted stock and domestic bores.	**Compliant**

5.11.5 Water Storage on Site

[Development Consent 14/98 MOD 10 condition 4.1/4.2(v)]
[Development Consent 14/98 MOD 11 condition 4.4(ii)]

The ICDS comprises a series of six internal drainage catchments (each served by a contained water storage for runoff collection) and two water supply storages (D6 and D9). With the exception of D5, the contained water storages are designed to collect runoff generated from their contributing catchment during a 1 in 100 year ARI rainfall event of 48hours duration.

All water storages with the exception of D1 and D4, would if overtopped ultimately spill to the open pit. Storages D1 and D4 are equipped with pumps to enable dewatering of these storages between rainfall events to D6 and/or D9. Runoff from the outer batters of the perimeter waste rock emplacement and ponds against the temporary isolation bund, would be pumped to D6 between rainfall events, if required.

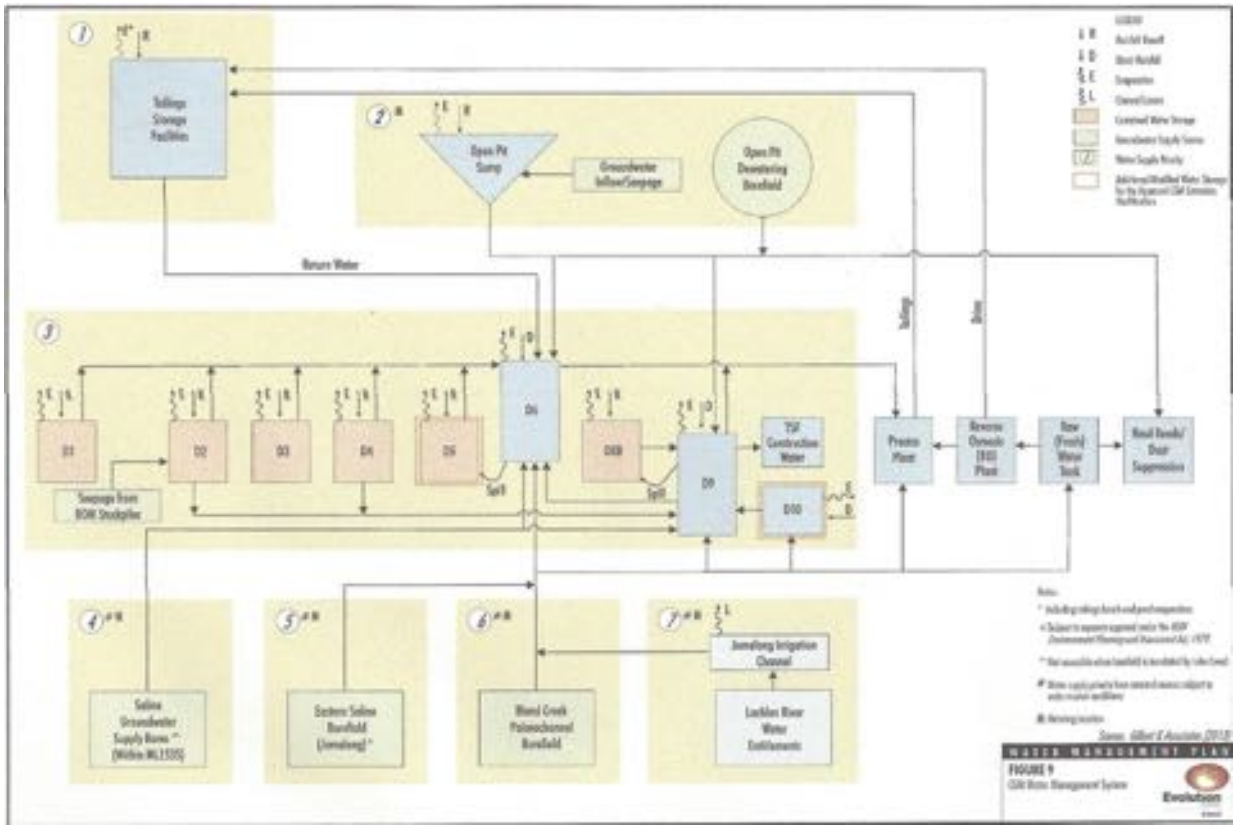

Figure 5.11.5: Cowal Gold Operations Water Management System and Linkages (via system transfers).

5.11.6 Water Monitoring Program

[Development Consent 14/98 MOD 11 condition 4.5(b)]

Water monitoring has been conducted in accordance with the Site Water Management Plan, Water Management Plan section 4.3 and Surface Water, Groundwater, Meteorological and Biological Monitoring Program section 4, in accordance with Development Consent 14/98 MOD 11 condition 4.5(b).

Commitments in the Water Management Plan related to water monitoring programs are provided in Table 5.11.6.

Table 5.11.6: Water Management Plan Commitments - Water Monitoring Programs

Section / Page No.	Water Management Plan Commitments (2015)	Comments	Implementation Status
s.4.3.1/p.57	Meteorological monitoring will continue for the duration of the Cowal Gold project to provide site specific meteorological data for the on-going assessment of the site's water balance and effectiveness of relevant impact mitigation strategies	The automatic weather station has been installed at the Cowal Gold Operations site in accordance with Development Consent 14/98 MOD 11 condition 6.2. Meteorological data is also available from several local Bureau of Meteorology Stations.	**Compliant**

Section / Page No.	Water Management Plan Commitments (2015)	Comments	Implementation Status
S4.3.2/p58	Surface water monitoring will be undertaken at specific areas within the ML area including the contained water storages, Up-catchment Diversion System, Internal Catchment Drainage System, open pit and tailings storage facilities.	Surface water monitoring is undertaken in accordance with the Surface Water, Groundwater, Meteorological and Biological Monitoring Program and the requirements of EPL 11912.	**Compliant**
S4.3.3/p62	Groundwater monitoring will continue to be undertaken at monitoring sites used during the baseline monitoring program (described in the SWGWBMP) (where those sites are still operational) and additional monitoring sites specifically related to CGM potential groundwater impacts.	Groundwater monitoring is undertaken at monitoring sites in accordance with the SWGWBMP and the requirements of EPL 11912. (The NOW and EPA were consulted regarding the location of the groundwater monitoring locations).	**Compliant**
S4.3.3/p64	Groundwater monitoring results will be interpreted and reported in the Annual Review (Section 12.3) which will be made available on project's website in accordance with Development Consent Condition 9.4(a)(vii).	Groundwater monitoring results are assessed / interpreted and reported in the Annual Review (Section 12.3). The Annual Reviews are available on Evolution Mining website.	**Compliant**
S4.3.4/p65	The biological monitoring program will be used to assess the potential impact on fish and aquatic invertebrates and will be undertaken by suitably qualified and experienced personnel to the satisfaction of DPI-Fisheries as required by Development Consent Condition 4.5(b).	Biological monitoring to assess the potential impact on fish and aquatic invertebrates were undertaken in the waters of Lake Cowal by frc environmental between 2011 and February 2014, when water was present in the lake.	**Compliant**
s.4.3.4/p.65	Analyses of sediment taken from lake monitoring points would be undertaken to assess the bio-availability of metals within the bed of Lake Cowal. The water quality monitoring program and sediment monitoring program will combine to provide data relevant to the bio-availability of metals.	Surface water and sediment monitoring of Lake Cowal was undertaken by David McMahon of McMahon Earth Science - D M McMahon Pty Ltd and reported in *"Surface Water and Sediment Sampling and Analysis Lake Cowal"* in 2013 and 2014.	**Compliant**
S4.3.6/p66	Development Consent Condition 4.5(c) requires the preparation of a monitoring program for the detection of any movement of the lake protection bund, water storage and tailings structures and pit/void walls during the life of the CGM, with particular emphasis on monitoring after any seismic events. This program will continue to be implemented during the operations	A *Monitoring Program for the Detection of any Movement of Lake Protection Bund, Water Storage and Tailings Structures and Pit/Void Walls* was approved by the Director-General on 9 October 2003. Monitoring points in the Lake Protection Bund (located each 200m on top of the banks) were	**Compliant**

Section / Page No.	Water Management Plan Commitments (2015)	Comments	Implementation Status
	and decommissioning phases of the Cowal Gold Operations.	installed in accordance with the program. No significant movement has been recorded at any of the monument survey points.	

The on-site surface water ponds within the closed catchment that physically separates any mine water from off-site waters in the upstream diversion drains and Lake Cowal, were engineered to contain all runoff from the mining lease with no discharge to the environment.

A general summary of the implementation and monitoring of the Cowal Gold Operations site water management system and monitoring during 2013 and 2016 period indicated that:

- the Operational Water Budget for the Cowal Gold Operations is subject to an annual review and revision by process plant staff based on the available water usage from the previous 12 months.
- a total of 1379 mega-litres (Ml) of water were extracted from the Bland Creek Paleochannel during January and December 2013, 1317Ml between January and December 2014 and 1385 Ml between January and December 2015.
- The open pit dewatering bore-field established external to the perimeter of the E42 Pit and water from the open pit de-watering sumps (including ponds D4, D3, D8A and heavy rainfall) are mainly used in the process plant ore treatment via Pond D6. Some water has also been used for dust control on E42 Pit and TSF haul roads.
- EPL trigger rainfall monitoring events (i.e. >20mm/24hrs) for the surface water monitoring program occurred on the following dates between May 2013 and April 2016 and surface water monitoring was conducted in accordance with the Water Management Plan monitoring program:

2 June 2013	26.6mm
12 June 2013	23.8mm
17 September 2013	54.4mm
1 March 2014	26.6mm
1 June 2014	44.8mm
5 January 2015	21.8mm

- Surface water and sediment monitoring of Lake Cowal was undertaken by David McMahon of McMahon Earth Science - D M McMahon Pty Ltd and reported in *"Surface Water and Sediment Sampling and Analysis Lake Cowal"* in 2013 and 2014.

    - The results of the surface water monitoring reported for 2013 and 2014 did not exhibit any trend that indicated a connection between the closed catchment of the Cowal Gold Operations and Lake Cowal waters. The comparison of the 2013 - 2014 Lake Cowal surface water quality results against the baseline water quality results from 1991 – 1992 indicated that the 2013-2014 monitoring results are generally similar to the baseline values. (It is noted that of the 34 lake surface water sample sites (plus the four lake inflow sites) sampled in the surface water and sediment monitoring program in 2011, only 22 were able to be sampled in January 2014 due to continuing decline in lake water levels resulting in the sampling sites being inaccessible or dry).

    - A comparison of the 2013 and 2014 Lake Cowal surface water quality results against the ANZECC and ARMCANZ (2000) default trigger values for surface water (lakes) indicated that the 2013 monitoring results (totals and dissolved) were below or marginally above the default trigger values. Nickel, Lead and Zinc levels all increased slightly from previous readings but this is a trend seen in

both the lake and inflow water results. Overall, the Turbidity and Suspended Solids are higher than previously recorded which is a trend seen across both the lake and inflow sites.

- A comparison of the 2013 and 2014 Lake Cowal sediment results against the ANZECC and ARMCANZ (2000) recommended trigger values for sediment undertaken by McMahon Earth Science - D M McMahon Pty Ltd indicated that the 2013 and 2014 extractable results were below the recommended trigger values and were similar in both monitoring surveys. Overall Lead and Zinc levels decreased slightly during 2014, when compared with data recorded in 2012-2013.

Summary comments on specific water monitoring is presented below:

5.11.6.1 Surface Water

[Development Consent 14/98 MOD 11 condition 4.5 (a)(i) and (b)]

The Water Management Plan and Surface Water, Groundwater, Meteorological and Biological Monitoring Programme and Erosion and Sediment Control Management Plan have been reviewed and revised to address Development Consent 14/98 MOD 11 conditions 4.5 (a)(i) and (b) and incorporate the new site water management infrastructure.

Surface water monitoring is conducted at specific areas within ML 1535 (including Internal Catchment Drainage Systems and contained water storages D1, D2, D3, D4, D5, D8A and D8B).

The surface water monitoring network was updated for MOD 11 to include water quality monitoring on the soil stockpile area sediment basin in the north of ML 1535 for parameters including pH, EC, suspended solids, at a frequency consistent with other sediment control structures on the Cowal Gold Operations site.

Surface water monitoring of Lake Cowal was conducted during 2013 and 2014 at the monitoring sites along the six transects used during the baseline monitoring program, when the water level in Lake Cowal was at or above 204.5 m AHD, for evaluation of water quality data against records of baseline monitoring undertaken prior to development of the Cowal Gold Project (1991 to 1995).

Review of the surface water monitoring program (including a review of the frequency of monitoring and program parameters) is conducted annually on the surface water monitoring data entered into the monitoring database when water quality trends are identified for reporting in the Annual Review and to validate the predicted performance of the site water management system.

5.11.6.2 Lake Cowal Water Quality

[Development Consent 14/98 MOD 11 condition 4.5(b)]

Baseline water quality reported in the *Environmental Impact Statement Cowal Gold Project 1998* was based on results of an intensive sampling program conducted between 1991 and 1995. The water monitoring program was supplemented by an additional monitoring campaign undertaken from November 2010 through to June 2014 when Lake Cowal was inundated and included sampling of inflow water to Lake Cowal from Sandy Creek and Bland Creek.

Review of available surface water quality monitoring data for the recent lake-fill event was undertaken by Gilbert & Associates (2013) and compared to the (pre-mining) baseline data.

Results from the recent lake-fill event monitoring program were compared with values obtained from sampling programs conducted in the baseline period (i.e. prior to commencement of mining operations) and to ANZECC/ARMCANZ (2000) guideline values.

Baseline water quality	Recent Lake-fill event Monitoring Results and Audit Comments
Baseline water quality in Lake Cowal ranged from pH 8.27 to 8.67 with low to moderate suspended solids concentrations of 24 to 222 mg/L (North Limited, 1998).	The average recorded pH level (pH 8.0) for the recent lake-fill event was lower than the average recorded for baseline conditions (pH 8.48), and slightly higher than the average pH level (pH 7.5) recorded at the Lake Cowal inflow sites (i.e. tributaries to Lake Cowal). The range of pH levels recorded at the lake transect sites was greater than that recorded at the lake inflow sample locations. The range measured at the lake transects during the baseline period in 1991 to 1995 was pH 7.72 to 9.8.
Electrical conductivity (EC) was also low, varying between 222 and 1,557 µS/cm (North Limited, 1998) and appeared to be inversely related to lake volume (i.e. solute concentrations increased as lake volumes decreased).	Average EC in the Lake Cowal water over the recent lake-fill event was lower than the average recorded for baseline conditions and is consistent with previous findings (i.e. conductivity is inversely related to lake volume). measured at the lake transect sites during the baseline period in 1991 to 1995 (881 µS/cm).
Average total nitrogen levels measured between 1991 and 1995 during the baseline period was 257 µg/L.	Average total nitrogen levels measured at the lake transect sites between November 2010 to June 2013 was 765 µg/L, and the average concentration in lake inflows from Bland Creek and Sandy Creek was (1,099 µg/L). The total nitrogen levels recorded during the recent lake-fill event were higher than the maximum level recorded during the baseline period (257 µg/L) and higher than the ANZECC/ARMCANZ (2000) default trigger value for fresh water lakes (350 µg/L).
The average recorded total phosphorus level for the baseline data collected between 1991 and 1995 (970 to 2,640 µg/L).	Average total phosphorous levels measured at the lake transect sites was 348 µg/L, and the average at the lake inflow sites in Bland Creek and Sandy Creek was 601µg/L. The average recorded total phosphorus level for the recent lake-fill event was lower than the average recorded for baseline data collected between 1991 and 1995 (970 to 2,640 µg/L).
Baseline cadmium, arsenic, lead, mercury and zinc levels were low, and mostly below detection limits (i.e. 5-10 µg/L),	The average recorded arsenic, cadmium, manganese, mercury and nickel concentrations for the recent lake-fill event were below ANZECC and ARMCANZ (2000) default trigger levels for the protection of slightly modified aquatic ecosystems (95% protection level).
Baseline lead levels were low, and mostly below detection limits (i.e. 10 µg/L),	The average recorded lead concentration (4.9 µg/L) for the recent lake-fill event was less than the average recorded concentrations for baseline conditions and at the Lake Cowal inflow sites.
Baseline copper concentrations were found to be higher than the ANZECC and ARMCANZ (2000) limit for the protection of aquatic ecosystems (Gilberts & Associates, 2013).	The average recorded copper (8.4 µg/L) concentration for the recent lake-fill were lower than average recorded concentrations at the Lake Cowal inflow sties. While the average recorded copper concentrations for the recent lake-fill event were elevated above average recorded concentrations for baseline conditions between 1991 and 1995, the recently recorded concentrations were similar at sites close to the Cowal Gold Operations on the western side of Lake Cowal and on the eastern side of Lake Cowal.
Baseline zinc levels were low, and mostly below detection limits (i.e. 5-10 µg/L),	The average recorded zinc (20.2 µg/L) concentration for the recent lake-fill were lower than average recorded concentrations at the Lake Cowal inflow sties.

Baseline water quality	Recent Lake-fill event Monitoring Results and Audit Comments
	While the average recorded zinc concentrations for the recent lake-fill event were elevated above average recorded concentrations for baseline conditions between 1991 and 1995, the recently recorded concentrations were similar at sites close to the Cowal Gold Operations on the western side of Lake Cowal and on the eastern side of Lake Cowal.

As surface runoff and water within the Cowal Gold Operations area is fully contained within the ICDS, there was no obvious link between the mining operations and the water quality in Lake Cowal, as groundwater including any seepage from on-site storages, would flow toward the mine pit (Coffey Geotechnics, 2013).

5.11.6.3 Lake Protection Bund

[Development Consent 14/98 MOD 11 condition 4.5 (c)]

Water monitoring of sites P1, P2 and P3, close to the Lake Protection Bund exhibited elevated pH values in February 2011 compared to sites on the opposite side of Lake Cowal. Elevated pH levels were also recorded near the Cowal Gold Operations in February 2012 although similar levels were measured on the opposite side of the lake at that time at site C1 which suggests that pH has been elevated at sites near and distant from the Cowal Gold Mine.

5.11.6.4 Other On-Site Water Quality Monitoring

Monitoring of pH, EC and TSS levels in the UCDS occurred from 2007 to 2016 when water was present in the UDCS. Recorded pH ranged from 6.1 to 9.7, EC ranged from 61 to 2,220 µS/cm and TSS from 4 to 1,300 mg/L.

pH, EC and TSS were also monitored at on-site contained water storages and the open pit from 2007 to 2016. Ranges of pH were recorded from 4.4 to 10.1, EC between 112 and 142,700 µS/cm and TSS from 1 to 1,630 mg/L. High recorded EC values reflect, at least in part, the use of water supplied from saline groundwater bores and saline groundwater inflow to the open pit. It should be noted that all this water is used on site (mainly in the process plant) and no discharge to the environment occurs from any of the contained water storages.

5.11.7 Groundwater

[Development Consent 14/98 MOD 11 condition 4.5 (a)(ii)]

5.11.7.1 Environmental Assessment

[Environmental Assessment - Cowal Gold Mine Extension Modification]

The Environmental Assessment - Cowal Gold Mine Extension Modification Appendix A - Hydrogeological Assessment was conducted by Coffey Geotechnics and peer reviewed by Dr Frans Kalf (Kalf and Associates) in September 2013. The key findings of the Hydrogeological Assessment relevant to potential impacts associated with continued mining operations at the CGM are as follows:

- Groundwater inflow to the open pit did not increase during the recent lake-fill event, which supports the predictions of previous assessments that Lake Cowal is hydraulically separated from the underlying aquifers and the CGM open pit.

- No significant change in groundwater inflow to the open pit is expected due to the Modification.
- Groundwater drawdown due to open pit mining and extraction from ML 1535 groundwater supply bores would generally be confined to the saline aquifers within ML 1535.
- The open pit would continue to act as a groundwater sink.
- There are no known users of the saline aquifers surrounding ML 1535.

Based on the above, negligible incremental impacts to Lake Cowal and other groundwater users were predicted from the open pit mining for the Modification.
In accordance with Development Consent 14/98 MOD 11 condition 4.5 (a)(ii), a groundwater monitoring program for the CGM has been developed. Groundwater monitoring is undertaken at monitoring sites used during the baseline monitoring program for the mine development area.
The groundwater monitoring program relates to aquifers beneath the ML area and regionally within the Bland Creek Palaeochannel aquifer.

Groundwater monitoring at and around the Cowal Gold Operations project area commenced as bore licences were obtained under the *Water Act, 1912* (NSW) Part 5.

5.11.7.2 Water Management Plan - Groundwater

Commitments / obligations in the current Water Management Plan (2015) are listed in Table 5.11.7.2.

Table 5.11.7.2: Water Management Plan (2015) Groundwater Commitments.

Section / Page No.	Water Management Plan Commitments (2015)	Comments Implementation Status	Implementation Status
s.6.2.2/p74	The groundwater resource contained within the Bland Creek Palaeochannel is partially utilised by land holders in the area for irrigation and stock watering purposes. In the event that the groundwater level in GW036553 or GW036553 drop below the trigger levels in the Groundwater Contingency Strategy, contingency measures will be implemented in consultation with the NOW. The groundwater level associated with the Bland Creek Palaeochannel Bore-field is monitored on a continuous basis at the NoW groundwater monitoring bore on Burcher Road (GW036553).	In the event that the groundwater level in GW036553 drops below RL 137.5mAHD, one or more of the following contingency measures would be implemented in consultation with the NOW: • investigate the groundwater level in the Trigalana bore (GW702286) or any other impacted stock and domestic bores; • determine the pump setting in relevant stock and domestic bores; • determine the drawdown rate in GW702286 and other impacted stock and domestic bores; • develop an impact mitigation plan for impacted stock and domestic bores; and/or • set up an alternative water supply for the owner of GW702286 and other owners of stock and domestic bores, if necessary. In the event that the groundwater level in GW036553 was below RL 134 m AHD, one or both of the following contingency	**Not triggered**

Section / Page No.	Water Management Plan Commitments (2015)	Comments Implementation Status	Implementation Status
		measures would be implemented in consultation with the NOW: • alter the pumping regime to maintain the water level in the impacted stock and domestic bores; or • maintain a water supply to the owner/s of impacted stock and domestic bores.	
s.6.2.2/p.77	Groundwater from the Bland Creek Palaeochannel would be used where make-up water from all other on-site sources (e.g. tailings storage facilities, pit dewatering, reuse of site runoff captured in the various site collection storages and pumping from the saline groundwater supply borefield) is inadequate.	Groundwater from the Bland Creek Palaeochannel is used where make-up water from all other on-site sources is inadequate. Groundwater levels in the Bland Creek Palaeochannel are managed in accordance with the Groundwater Contingency Strategy, with monitoring of groundwater levels. Response measures would be implemented if groundwater levels reach trigger levels in the Groundwater Contingency Strategy that was developed in consultation with the NOW and other groundwater users.	**Compliant**

Groundwater monitoring results are interpreted and reported annually to the NOW, OEH and DPI-Fisheries. Monitoring data is entered on to the Cowal Gold Operations monitoring database to enable trends to be identified.

Groundwater monitoring results have demonstrated:

- Electrical Conductivity (EC) and pH levels in groundwater within ML1535 generally remained stable between 2004 and 2015.
- Groundwater pH levels have been similar to baseline levels.

- Monitoring of groundwater commenced for the tailings storage facilities prior to placement of any tailings. The dewatering piezometers installed around the mine pit area have been sampled in accordance with the EPL and results reported to the DECCW/OEH in the EPL Annual Return and in the AEMR. The monitoring of groundwater quality has continued in piezometers that have been retained on the mine lease area to provide background data, in addition to the EPL specified monitoring points.

- Monitored pH levels near to the Tailings Storage Facilities generally ranged between 6.5 and 7, with the exception of MON01B (to the east of the northern TSF), that exhibited pH ranging between 4.5 and 6. (These results from MON01B may reflect a response to increased rainfall recharge during 2012). Groundwater results around the TSF have exhibited a pH of 6. While open pit dewatering is causing a localised reduction in groundwater levels, pH and EC appear to be unaffected by this drawdown.

- Monitoring results for cyanide in groundwater reviewed for September 2004 to December 2015 demonstrated that the concentrations over this period have generally been less than the four (4) micrograms per litre (µg/L) Limit of Reporting (LoR) at all groundwater monitoring locations.

- The groundwater monitoring results indicate that there is no trend that cyanide has leached from the TSF into the surrounding groundwater.

- Dissolved arsenic concentrations have been generally less than the laboratory LoR over the September 2004 to December 2015 period. Variations in metal concentrations were considered to reflect the natural heterogeneity in ground conditions, rather than direct impacts from mining, since the regional groundwater system is located in a naturally metalliferous geological terrain.

- Coffeys Geotechnics were commissioned to review the collected groundwater monitoring data between the 2012 and 2013 period. The groundwater quality results and trends reported in the assessment illustrated that the full containment of mine site water and water management control measures, and control of runoff from the TSF and waste rock emplacements, have been successful. Coffey's report for 2012-2013 concluded:

  "• The zone of influence after nine years of mine dewatering is small (around 1 km in radius), indicating low lateral permeability;
  • There has been a localised increase in groundwater levels south of the southern TSF and groundwater chemistry has remained relatively stable at monitoring bores MON02A and MON02B. A separate groundwater level investigation was conducted by Coffey to further assess the change in groundwater level in this area (Coffey, 2009b). It was concluded that increasing groundwater levels at bores MON02A and MON02B south of the southern TSF and northeast of the southern TSF at P412A-R are related to the movement of seepage from the TSF. The direction of seepage flow towards the open pit is consistent with the seepage flow direction predicted in the EIS and recent hydrogeological assessments (Coffey, 2011b and 2012); and
  • Water management control measures appear to have successfully prevented groundwater contamination. (Coffey, May 2014.)"
  and
  "The monitoring data did not exhibit results that indicated a connection between the closed catchment of the CGM operations and the waters of Lake Cowal."

5.11.7.3 Bland Creek Palaeochannel

The Bland Creek Palaeochannel monitoring bores (BLPR1 to BLPR7) have been monitored for water quality since 2004. The data show an average salinity of around 2000 µS/cm, except for BLPR 3 (about 5,000 µS/cm). BLPR3 has a higher salinity because it is screened higher in the profile of the Lower Cowra Formation.

Based on the groundwater data, EC has remained relatively stable at all locations within the Bland Creek Palaeochannel monitoring bores since the commencement of the Cowal Gold Mine operations.

Development Consent 14/98 permits maximum daily water extraction from the Bland Creek Palaeochannel bores (PB1 to PB4) of up to 15 ML/day and maximum annual extraction of up to 3,650 ML/year. Extraction of water from the Bland Creek Paleochannel bore-field has not exceeded the allowable extraction rates or volumes during the operation of the mine and process plant during May 2013 and April 2016.

5.11.8 Conclusion

The Water Management Plan prepared to satisfy Development Consent 14/98 conditions has provided an adequate program for the management of water and controlling the surface water quality from the disturbed areas of the Cowal Gold Operations site. The water monitoring program has been conducted in accordance with

the Surface Water, Groundwater, Meteorological and Biological Monitoring Program and Erosion and Sediment Control Management Plan. The independent revision of surface water monitoring data (David McMahon of McMahon Earth Science - D M McMahon Pty Ltd) concluded that "*The results of the surface water monitoring reported for 2014 did not exhibit any trend that indicated a connection between the closed catchment of the Cowal Gold operations and Lake Cowal waters*" and the independent review of groundwater monitoring data *(*Coffey Geotechnics) concluded that *"The monitoring data did not exhibit results that indicated a connection between the closed catchment of the CGM operations and the waters of Lake Cowal."*

5.12 Hazardous Materials and Tailings Management

[Development Consent 14/98 MOD 11 condition 5.1 to 5.7]

5.12.1 Hazardous Waste and Chemical Management Plan

[Development Consent 14/98 MOD 10 condition 5.7]
[Development Consent 14/98 MOD 11 condition 5.7]

A Hazardous Waste and Chemical Management Plan was prepared to satisfy Development Consent 14/98 condition 5.7 and approved by the Director-General in 2003. The Hazardous Waste and Chemical Management Plan was revised in March 2006 and regularly updated with addenda between 2006 and 2013:

- waste classification, treatment and/or disposal at Cowal Gold Operations for hydrocarbon contaminated soil occurs at the Bioremediation Facility constructed and approved on the Project site in January 2008;
- waste tracking requirements have been revised in accordance with the *Protection of the Environment Operations (Waste) Regulation,* 2005;
- revision of waste classifications and proposed management measures for the area of historic contamination was approved in May 2009; and
- the addition of a cyanide destruction method (i.e. the INCO process) as an alternative to Caro's Acid, and the associated introduction of sulphur dioxide (SO_2) as sodium metabisulphite (SMBS) to reflect the approved modification to the Development Consent MOD 8 was prepared and submitted to the DoP in December 2009 and approved in March 2010; and
- an updated and revised Consolidated Hazardous Waste and Chemical Management Plan was prepared and submitted to DoP on 27 April 2011.

The Hazardous Waste and Chemical Management Plan was reviewed following granting of Development Consent 14/98 MOD 11 and it was considered that the current document met the requirements of the MOD 11 approval, and no revision was proposed.

5.12.2 Hazardous Waste and Chemical Management Performance

The requirements of the Hazardous Waste and Chemical Management Plan were implemented (e.g. bunded fuel and lubricant storage, bunded chemical storage facilities) as the Cowal Gold Operations were developed.

The approved Operations Emergency Response Plan (OERP) now forms part of the hazardous waste and chemical management procedures. The OERP was revised and submitted to DoP on 19 November 2010.

The Emergency Response Team (ERT) and other members of the Cowal Gold Operations workforce receive training in emergency response procedures. Numerous training exercises have been carried out by ERT, including some with external emergency services personnel.

The Chem Alert III system is used for all existing chemicals on site and approval via the system applies to the acquisition of any new chemicals brought onto the Cowal Gold Operations site (by the Company or its contractors).

The management and recycling / disposal of all chemical and hazardous wastes are managed under contract by J R Richards and Sons through the Cowal Gold Operations waste storage and disposal area adjacent to the maintenance workshop area.

5.12.3 Waste Rock Emplacement

[Development Consent 14/98 MOD 10 condition 5.1]
[Development Consent 14/98 MOD 11 condition 5.1 0]

Waste rock from the open cut mining operation is placed on waste emplacement areas:

- The Northern Waste Rock Emplacement (NWRE) runoff from the external face reports to external contained water storage D1 that was constructed below the north-eastern toe of the NWRE area and is dewatered by pumping to storage D6.

- The Southern Waste Rock Emplacement (SWRE) runoff from the external face of reports to contained water storage D4 that was constructed below the south-eastern toe of the SWRE area and is dewatered by pumping to storage D6 or D9.

- The NWRE and SWRE are integral with the perimeter waste rock emplacement that is a component of the permanent lake isolation bund system. The outside faces of the NWRE and SWRE form part of the perimeter catchment limits of the Cowal Gold Operations area.

- The perimeter waste rock emplacement area forms part of the permanent lake isolation system. It provides a continuous elevated landform linking the NWRE and SWRE areas. Runoff from The perimeter waste rock emplacement reports to the water storage between the toe of the perimeter waste rock emplacement and the Temporary Isolation Bund. Water that accumulates in this area is returned to D6 for reuse on site.

5.12.4 Tailings Emplacement

[Development Consent 14/98 MOD 10 condition 5.2]
[Development Consent 14/98 MOD 11 condition 5.2]

The Northern Tailings Storage Facility (NTSF) and Southern Tailings Storage Facility (STSF) have been progressively constructed in accordance with the requirements of the relevant agencies. The STSF and NTSF initially received tailings between March 2006 and May 2007 respectively. The Dam Safety Committee (DSC) provided a response to the Construction Report for the Tailings Storage Facilities in January 2009 advising that the review satisfies the Committee's requirements. Additional lifts to the tailings storage facilities are being progressively constructed as required to receive the tailing material from the process plant.

Tailings material is deposited into the Tailings Storage Facilities (TSF) as a slurry. The Tailings Storage Facilities are raised above the surrounding natural surface and, as such, their catchment area comprises only the area inside the confining embankments. Tailings are discharged to only one TSF at any one time. Once the tailings level has reached the design level, discharge is switched to the other TSF while the embankment of the first TSF is raised.

Rainfall runoff and free water liberated during settling and consolidation of the tailings accumulate in an internal (central) decant pond. Water from the decant pond of the active TSF is pumped to storage dam D6 for re-use

in the processing plant. The TSFs have been designed to maintain a minimum freeboard sufficient to store at least the contingency 1 in 1,000 year ARI rainfall event at all times.

The Barrick Tailings Management Standard (adopted by Evolution Mining) required tailings storage facility walls to meet a 1:5 dynamic stability requirement for a 1:5,000year earthquake event. To achieve this standard, rehabilitated material is being stripped from the TSF walls to allow rock buttressing to be placed. Rehabilitation material from the second lift of the NTSF and third lift of the STSF was stripped and either stockpiled or moved to the Perimeter Waste Emplacement or Southern Waste Rock Emplacement for use in rehabilitation of those areas.

5.12.5 Conclusion

The Hazardous Waste and Chemical Management Plan provides the processes and procedures on site for the management of all hazardous chemicals transported to, stored on, used in the process plant, and hazardous wastes generated on site. The handling of fuels, oils, and chemicals on site is managed in accordance with the plans, audits and reporting required under Development Consent 14/98 condition 5.4, the Emergency Response Management Plan and Safety Management System. All mine wastes (i.e. waste rock, tailings, contaminated material) generated on site are managed under a waste management plan. Recyclable wastes and administrative/putrescible wastes are managed under contract with JR Richards and Sons.

The Hazardous Waste and Chemical Management Plan has been revised regularly to address the changes in Cowal Gold Operations under the various Modifications to the Development Approval 14/98. The management procedures and protocols have resulted in best practice for any mine waste materials, chemicals transported to, stored and/or used on the site.

5.13 Cyanide Management

[Development Consent 14/98 MOD 11 condition 5.3]

5.13.1 Cyanide Management Plan

[Development Consent 14/98 MOD 10 condition 5.3(b)]
[Development Consent 14/98 MOD 11 condition 5.3(b)]

The Cyanide Management Plan prepared to satisfy Development Consent 14/98 condition 5.3(b) was approved by DoP on 9 January 2006. Addenda to the Cyanide Management Plan subsequently prepared and submitted to the DoP related to:

- Cyanide monitoring and regular water quality sampling for CN_{WAD} levels was submitted to DoP in August 2007 and approved;
- Fauna death reporting requirements were revised in June 2008 and approved in October 2008 for changes approved in Modification to the Development Consent granted on 13 March 2008 under Section 96(1A) of the *Environmental Planning and Assessment Act, 1979*;
- Cyanide analysis method and on-line monitoring of CN_{FREE} submitted to DoP and DECCW and approved in October 2009;
- Location of tailings slurry stream CN_{WAD} monitoring within the process plant, submitted in July 2010 and approved by DoP in December 2010.
- The management of cyanide transport, storage and use in the process plant has been implemented in accordance with the Cyanide Management Plan. A variation to the transportation route from the

Queensland border to Dubbo was approved by the DoP Hazards Unit (dated 1 December 2010) and an emergency exemption was granted to allow use of the Cowra-Temora road whilst the Newell Highway was flooded in March 2012.

The Cyanide Management Plan was reviewed in 2015 in relation to the requirements of Development Consent 14/98 MOD 11 condition 5.3(b), and it was considered that no revision was required.

The management of cyanide at the Cowal Gold Operations is in accordance with the approved Cyanide Management Plan.

Development Consent Condition 5.3(a) establishes limits for the aqueous component of the tailings slurry (as monitored at the process plant via an automated sampler), such that cyanide levels do exceed 20 mg weak acid dissociable cyanide per litre ($CN_{WAD/L}$) (90percentile over six months) and 30 mg $CN_{WAD/L}$ (maximum permissible limit at any time). The Cyanide Management Plan also includes a cyanide monitoring program prepared in accordance with Development Consent Condition 5.3(b).

Commitments in the Cyanide Management Plan are listed in Table 5.13.1.

Table 5.13.1: Cyanide Management Plan Commitments

Section / Page No.	Cyanide Management Plan Commitments	Comments	Implementation Status
s.4.1/p.12	Delivery and storage of cyanide on site will take place in a controlled area. Cyanide delivery and storage will be within a concrete-bunded area located away from general work areas and incompatible reagents.	Delivery of cyanide on site takes place in a controlled area within a concrete-bunded area.  **Cyanide delivery on bunded concrete area with high visibility signage.**	**Compliant**
s.4.1/p.13	Storage areas, tanks, pipelines, pumps and valves will have high visibility labelling and will be inspected regularly for signs of leakage,presence of solution outside of the tanks in the bunded areas and integrity of the containment. Any aspects requiring maintenance or repair will be noted and records documenting the inspection and corrective measures will be kept.	Storage areas, tanks, pipelines, pumps and valves have high visibility labelling and are inspected regularly for any sign of leakage, presence of solution outside the tanks in the bunded areas and integrity of containment. Inspection of storage areas and bunding occurs daily by Cowal Gold Operations staff. Audits of the bunding are also conducted annually by an external consultant.	**Compliant**
s.4.2.2/p.13	In accordance with MCoA 5.3(b)(ii), CN_{WAD} levels of the aqueous component of the tailings slurry stream will be maintained so that they do not exceed 20 mg/L CN_{WAD}	Monitoring of the decant water quality and tailing discharge occurs twice daily with the samples analysed at the on-site laboratory. Check analyses are	**Compliant**

Section / Page No.	Cyanide Management Plan Commitments	Comments	Implementation Status
	(90 percentile over six months) and 30 mg/L CN_{WAD} (maximum permissible limit at any time) at the discharge point to the tailings storages. Cyanide destruction has been incorporated into the process to ensure CN_{WAD} levels at the discharge point to the tailings storages will be maintained to the levels stated above. Caro's Acid will be used to destroy cyanide.	conducted by an external NATA registered laboratory. All results have been compliant with the condition criteria and did not exceed 20 mg/L CN_{WAD} (90percentile over six months) or 30 mg/L CN_{WAD} (maximum permissible limit at any time) at the discharge point to the tailings storages.	
s.4.2.3.1p.14	Tanks holding process solutions (e.g. leach tanks) will be located on bunded concrete containments. The processing plant has been designed such that process water containing cyanide is recycled and therefore kept within the area encompassed by the processing plant run-off collection drain and storage. In the event of spillages, all solutions will be contained within the process plant bunding	All tanks holding process solutions (e.g. leach tanks) are located within bunded concrete containments. An annual audit of the process plant bunds is conducted to assess the status of the bunds and provide an action plan for the maintenance of each facility. Any leakage or spillage from the tanks or their fittings is contained within the plant bunds.	**Compliant**
s.4.2.3.2/p.14	The tailings delivery and return water lines will be contained within a bunded pipeline corridor that will run parallel to the service corridor between the processing plant and tailings storage facilities. The tailings slurry will be pumped to the tailings storages at ground level. The bunded corridor will drain back to the processing plant and will contain any spills in the event of pipeline rupture/failure.	 **Tailings delivery/return water lines in a bunded pipeline corridor between the process plant and tailings storage facilities**.	**Compliant**
s.4.2.3.3/p.15	As required by Development Consent 143/98 condition 4.4(c)(i) and 5.2(a) the tailings storages will be constructed to the requirements of DLWC, EPA, DMR and the NSW Dams Safety Committee (DSC). Further, the floor of the tailings storages will be constructed and compacted to a permeability acceptable to the DMR and EPA in consultation with DLWC, in accordance with	The northern and southern tailings storage facilities were constructed in accordance with the requirements of DLWC, EPA, DMR and the NSW Dams Safety Committee. The floor of the tailings storages was constructed and compacted to approved permeability criteria acceptable to the DMR and EPA in consultation with DLWC.	**Compliant**

Section / Page No.	Cyanide Management Plan Commitments	Comments	Implementation Status
	Development Consent 143/98 condition 5.2(b).		
s.4.2.3.3/p.15	Following tailings deposition, supernatant water will drain to the central pond and decant towers. The decant tower will be accessible via a causeway. An underdrainage pipe network will be installed to facilitate drainage of the tailings mass. The bulk of the water in each tailings storage will drain from the surface of the tailings and collect in the centre of each storage. This water as well as underdrainage water will be reclaimed and used within the processing plant. The decant system (including access causeway) will be progressively raised during the development of the tailings.	Following tailings deposition, supernatant water collects in a central pond with decant towers, accessible via a constructed causeway into the TSF. The supernatant water is reclaimed for reuse within the processing plant  **Causeway to the decant tower on Southern Tailings Storage Facility.**	**Compliant**
s.4.2.3.4/p.15	Monitoring will be conducted for any movement of the tailings storages as described in the Monitoring Program for Detection of any Movement of Lake Protection Bund, Water Storage and Tailings Structures and Pit/Void Walls, as follows: • Visual assessments of the tailings structures will be undertaken routinely (i.e. weekly), following review of surface and groundwater monitoring data and following seismic events to identify the initial signs of movement. • Survey assessment of the tailings structures will be routinely undertaken at six monthly intervals or following visual assessments that indicate movement of a structure and/or following seismic events to determine and quantify any movement of these structures.	Quarterly Movement Monitoring reports have been prepared for the Northern Tailings Storage Facilities and Southern Tailings Storage Facilities and infrastructure. The Tailings Storage Facilities had no significant visual erosion or subsidence issues from regular survey information. Minor remediation of cracks and small sinkholes has occurred as required. Substantial revegetation cover on all batters and augmentation lifts of the two tailings storage facilities has occurred. Rehabilitation of the outer batters of the tailings storage facilities has included native grass species trials (as requested by the Independent Monitoring Panel and review input by DII-MR and DII-Agriculture during the AEMR / MOP review process). Survey pillars were installed on the third and fourth augmentation crest of the STSF. Dr Neil Mattes of URS has provided independent oversight for the Cowal Gold Project Movement Monitoring Program of the Lake Protection Bund, Water Storage and Tailings Structures and Pit Void Walls.	**Compliant**
s.5/p.16	The Flora and Fauna Management Plan and Implementation Plan to Protect Fauna from Interactions	The Flora and Fauna Management Plan section 8 outlined contingency measures	**Compliant**

Section / Page No.	Cyanide Management Plan Commitments	Comments	Implementation Status
	with the Tailings Storage Facilities will outline measures relevant to cyanide and wildlife management.	relevant to cyanide and wildlife management.	
s.6.1/p.17	In accordance with Consent Condition 8.2(b) a summary of the cyanide monitoring results will be provided to EPA, DMR and the Director General for Planning, on a three monthly basis, unless otherwise agreed by the Director-General. All monitoring results will be included in the AEMR.	A summary of the cyanide monitoring results is provided to OEH (EPA), DT&I-DRE and DP&I, on a monthly basis. A summary of all monitoring results are also included in the Annual Review section 3.5.3.	**Compliant**
s.6.2.1/p.17	CN_{WAD} levels of the aqueous component of the tailings slurry stream will be monitored at the discharge point to the tailings storages twice daily (or as otherwise directed by the Director-General for Planning), in accordance with Development Consent 14/98 MOD 11 conditions 5.3(b). CN_{WAD} levels in the decant water of the tailings storages will be monitored twice daily (or as otherwise directed by the Director-General for Planning).	CN_{WAD} levels of the aqueous component of the tailings slurry stream are monitored in accordance with Development Consent 14/98 MOD 11 conditions 5.3(a) and EPL 11912 condition M2.3. The relocation of the automated sampler from the discharge point at the tailings storage facilities, to the process plant occurred in July 2010 to improve accessibility to the sampler for maintenance and sample collection.	**Compliant**
s.6.2.3.1/p.18	In accordance with Development Consent 14/98 MOD 11 conditions 5.3(b) which requires provision of an on-site laboratory for quickly establishing CN_{WAD} levels in the liquid at the discharge point to the tailings dams and in the decant ponds for monitoring purposes, CN_{WAD} samples collected twice daily in accordance with the USEPA (1999) Method OIA-1677 at the discharge point to the tailings storages and in the decant water of the tailings storages will be analysed at the on-site laboratory. The samples will be analysed for CN_{WAD} in the on-site laboratory using an Orion Instruments Analytical CN Solution TM FS 3100 analyser (or other instrumentation considered appropriate in consultation with DMR, EPA and the Director-General for Planning). The Orion FS 3100 analyser complies with US EPA (1999) Method OIA-1677 requirements.	Free cyanide monitoring within the process plant area is conducted as part of the daily workplace monitoring program (refer to Cyanide Management Plan section 6.3). VELP distillation method using the Orion FS 3100 analyser for analysis of CN_{WAD}, plus a picric acid method of analysis for analysis of cyanide at the on-site laboratory (was approved by the relevant agencies in 2007). The Cyanide Management Plan was amended in August 2007 to reflect the approval of the use of the picric acid method. CN results are verified by an off-site NATA registered laboratory in West Wyalong. Results are available to CGM within 24hours.	**Compliant**

Section / Page No.	Cyanide Management Plan Commitments	Comments	Implementation Status
	The results of the Orion Instruments Analytical CN Solution TM FS 3100 analyser will be verified by the off-site laboratory analysis.		
s.6.2.3.2/p.18	CN_{WAD} samples collected twice daily at the discharge point to the tailings storages and in the decant water of the tailings storages in accordance with AS/NZS 5667:1:1998 Water Quality – Sampling and APHA (1998 or subsequent version) Standard Methods for the Examination of Water and Wastewater will be analysed at an off-site NATA registered laboratory located in West Wyalong.	The samples of discharge from the process plant to the tailings storage facilities are collected in accordance with standard methods for cyanide analysis and transported on the same day to the NATA registered laboratory in West Wyalong for confirmatory analysis.	**Compliant**
s.6.2.3.2/p.19	For samples sent to laboratories, a sample chain-of-custody (CoC) form will be completed for each sample collected. A copy of the CoC will be provided to the laboratory with the samples. A copy of the CoC will be held on site.	Samples collected for cyanide analysis are forwarded to the NATA registered laboratory in West Wyalong with Chain-of-Custody forms. The results for analysis of cyanide at the external NATA registered laboratory provide confirmation of on-site laboratory testing with results available within 24 hours.	**Compliant**
s.6.2.4/p.19	Data obtained by the monitoring of CN_{WAD} levels at the discharge point to the tailings storages and in the decant water of the tailings storages will be maintained on site by the Environmental Manager.	Monitoring data for CN_{WAD} and CN_{FREE} is retained on site in the monitoring database.	**Compliant**
s.6.3/p.19	Development Consent 14/98 MOD 11 conditions 5.3(d)(iv) requires the on-line monitoring of CN_{FREE} levels at locations where employees are operating. The on-line (i.e. ambient) monitoring of HCN gas will be undertaken for employee safety.	The ambient monitoring of CN_{FREE} levels provides continuous readings and displays the results in the process plant control centre. In addition to the ambient monitors, employees may carry personal monitoring units in designated areas.	**Compliant**
s.6.4/p.20	Development Consent 14/98 MOD 11 conditions 5.3(d)(v) requires a monitoring program to be established for the detection of cyanide movement beneath and adjacent to the tailings storages. Monitoring of CN_{WAD} levels will be undertaken at a network of groundwater monitoring bores to monitor cyanide movement	A monitoring program for the detection of cyanide movement beneath and adjacent to the tailings storages has been implemented with a network of groundwater monitoring bores. Additional groundwater quality bores P415A, P415B, P416A, P416B, P417A and P417B are also monitored for CN_{WAD} in accordance with EPL 11912.	**Compliant**

Section / Page No.	Cyanide Management Plan Commitments	Comments	Implementation Status
	beneath and adjacent to the tailings storages, namely: • down-gradient bores P412 A & B, P414 A & B, P418 A & B; • up-gradient bores P555 A & B, P558; • tailings storage monitoring bores MON-01 and MON-02.		
s.6.4/p.20	In addition to the abovementioned bores, groundwater quality monitoring of bores P415A, P415B, P416A, P416B, P417A and P417B (Figure 3) will also be monitored for CN_{WAD} in accordance with EPL 11912. The CN_{WAD} results that are obtained for the groundwater bores will be recorded and retained as required by EPL 11912.	**Groundwater bores for monitoring Cyanide (CN_{WAD}).**	**Compliant**
s.7/p.22	Development Consent 14/98 MOD 11 condition 3.2(b)(iv)) requires the CMP to provide contingency measures for reducing cyanide levels.	The Cyanide Management Plan section 7.1 provides contingency measures for: • reduction of HCN levels in areas where employees are operating; • section 7.2 provides contingency measures for reducing CN_{WAD} levels in the event CN_{WAD} levels exceed 20 mg/L (90percentile over six months) or 30 mg/L (at any time) at the discharge point to the tailings storages, • section 7.3 outlines contingency measures for reducing cyanide levels in the tailings dams in the event it is established that fauna deaths are occurring from cyanide in tailings dam water, and • section 7.4 describes the process for EPA review of cyanide levels in the event of wildlife deaths occurring due to cyanide.	**Compliant**
s.8.2.2/p.28	EPL 11912 Condition M4 requires maintenance of a record of all complaints made in relation to pollution arising from any activity to which EPL 11912 applies.	CGM retain records of all complaints received on their community complaints line.	**Compliant**
s.9.1/p.28	An Annual Review will be prepared in accordance with the requirements of Condition of Authority 26 and Development Consent 14/98 MOD 11 condition 9.1(b)and submitted to the Director-General for Mineral	Annual Reviews have been prepared by CGM in accordance with Development Consent 14/98 MOD 11 condition 9.1(b). The cyanide management and monitoring program results are	**Compliant**

Section / Page No.	Cyanide Management Plan Commitments	Comments	Implementation Status
	Resources and the Secretary DP&E, respectively. The AEMR will report on cyanide management and use and the cyanide monitoring program. In accordance with Development Consent 14/98 MOD 11 condition 5.3	reported in the Annual Review section 3.5.	
s.9.3/p.29	In accordance with Consent Condition 8.2(b)(i), any CN_{WAD} measurements of the aqueous component of the tailings slurry stream at the discharge point to the tailings storages verified by the off-site laboratory in West Wyalong as exceeding 20 mg/L CN_{WAD} will be assessed daily (to ensure that CN_{WAD} levels do not exceed 20 mg/L [90 percentile over six months]) and reported monthly to the DMR and EPA, unless otherwise agreed by the Director-General.	The cyanide levels in the slurry stream did not exceeded <20mg CN_{WAD}/L (90%ile) between May 2013 and April 2016. Cyanide monitoring results were forwarded to the DP&I, DRE and OEH monthly, and to the CEMCC quarterly between May 2013 and April 2016.	**Compliant**
s.10.1/p.30	In accordance with Development Consent 14/98 condition 5.4(e), 12 months after the commencement of the Cowal Gold Operations, conduct a comprehensive hazard audit of the proposed development and submit a report of the audit to the Director-General. The audit will be carried out at by a duly qualified independent person or team approved by the Director-General prior to commencement of the audit. Further audits must be carried out every three years and a report of each audit will be submitted to the Director-General within a month of the audit. Hazard audits will be carried out in accordance with the Department's Hazardous Industry Planning Advisory Paper No. 5, "*Hazard Audit Guidelines*".	A Hazard Audit was conducted by Dean Shewring of Pinnacle Risk Management Pty Ltd, 12 months after commencement of operation of process plant (i.e. April 2007). The Hazard Audit was accepted by DoP on 6 August 2007. The second Hazard Audit of the Cowal Gold Operations was conducted on 19-22 April 2010. DoP received the Hazard Audit Report 2010 on 24 December 2010 and approved the report on 15 February 2011. A Third Hazard Audit was conducted between 8 and12 April 2013 and submitted to the DP&I. The next Hazard Audit was scheduled to be conducted by Pinnacle Risk Management in May 2016.	**Compliant**

5.13.2 Cyanide Criteria

[Development Consent 14/98 MOD 11 condition 5.3(a)

Cyanide levels of the aqueous component of the tailings slurry stream have not exceeded 20mg CN_{WAD}/L (90percentile over six months), and 30mg CN_{WAD} /L (maximum permissible limit at any time), at the discharge point to the Cowal Gold Operations tailings storages.

5.13.3 Cyanide Monitoring

[Development Consent 14/98 MOD 11 condition 5.3(a)

Monitoring of cyanide in the discharges to the tailings storage facilities is conducted twice daily. During the May 2013 to April 2016 operational period, no cyanide results exceeded the 20mg CN_{WAD}/L level or the maximum 30mg CN_{WAD}/L level.

Donato Environmental Services prepare a six monthly report on wildlife visitation to the tailings storage facilities and no cyanide related wildlife deaths occurred on or near the tailings storage facilities during the May 2013 to April 2016 period. Recorded cyanide concentrations in the tailings facilities were below the level that would be expected to cause mortality throughout the reporting period.

Although not associated with cyanide in the tailings storage facilities, it was reported that five (5) Welcome Swallows died in process plant leach tails thickener tanks between November and December 2014. Netting was erected over the tanks to prevent reoccurrence of incident.

No other wildlife deaths attributable to cyanide were recorded between May 2013 and April 2016.

5.13.4 Conclusion

The Cyanide Management Plan prepared to satisfy Development Consent 14/98 condition 5.3(b), and subsequent addenda prepared for the Plan were approved by DP&I. The management of cyanide at the Cowal Gold Operations site and process plant is representative of best practice. Cowal Gold Operations is a signatory to the *"International Cyanide Management Code for the Manufacture, Transport, and Use of Cyanide in the Production of Gold"* and regular third party audits of the site practices and record keeping have confirmed compliance with the requirements of the *International Cyanide Management Code*.

Between May 2013 and April 2016 no cyanide results exceeded the 20mg CN_{WAD}/L or the maximum 30mg CN_{WAD}/L level. Donato Environmental Services reported on wildlife visitation to the tailings storage facilities and noted that deaths of avifauna attributable to cyanide in the tailings storage facilities had not occurred between May 2013 and April 2016. It was also noted that the monitored cyanide concentrations were all below the level that would be expected to cause mortality.

5.14 Air Management

[Development Consent 14/98 MOD 11 condition 6.1]

5.14.1 Environmental Impact Assessment

5.14.1.1 Environmental Impact Assessment – Cowal Gold Project

[Environmental Impact Assessment – Cowal Gold Project 1998]

Air quality modelling conducted for the Environmental Impact Assessment – Cowal Gold Project 1998 indicated that at all stages of development predicted levels of less than 0.5 g/m^2/month with a single small portion of land immediately adjacent to ML 1535 receiving greater than 2 g/m^2/month. Total Suspended Particulate (TSP) modelling showed that at all stages of the Cowal Gold Project development, TSP levels expected to be less than 10 $\mu g/m^3$. Investigations conducted concluded that dust emissions from the Cowal Gold Project would have no adverse influence on waterbirds, livestock or plants. Active management of dust generation through regular

watering of haul roads and active construction areas would occur to manage any fugitive dust generation from active project areas.

5.14.1.2 Environmental Assessment - Cowal Gold Mine Extension Modification

[Environmental Assessment - Cowal Gold Mine Extension Modification 2013]

An Air Quality Impact Assessment prepared for the Environmental Assessment - Cowal Gold Mine Extension Modification by Pacific Environment Limited, 2013 concluded no exceedances of the relevant air quality criteria were predicted at any privately-owned receiver around the Cowal Gold Operations. Existing mitigation, management and monitoring measures described in the Dust Management Plan would continue for MOD 11.

5.14.2 Air Quality Management Plan

[Development Consent 14/98 MOD 11 condition 6.1(c)]

A Dust Management Plan prepared to satisfy Development Consent 14/98 condition 6.1(a) was approved by DIPNR in 2003. The dust deposition monitoring sites were amended in August 2007 and an addendum to the Dust Management Plan, related to the location of monitoring site DG2, was submitted to DoP in December 2008 and approved in February 2009.

An Air Quality Management Plan prepared to satisfy the requirement of Development Consent 14/98 MOD 11 condition 6.1(c), was submitted to DP&E on 20 April 2015 and approved by DP&E on 18 February 2016.

The Dust Management Plan and Air Quality Management Plan have been implemented to suppress dust from the mining operations. Management of dust generation includes the use of water trucks for disturbed surface areas and internal haulage roads, speed restriction of vehicles on unsealed surfaces (to 20kph), and limiting soil stripping to areas to those required immediately for the development of the mine activities.

The management measures and commitments in the Air Quality Management Plan are summarised in Table 5.14.2.

Table 5.14.2: Air Quality Management Plan Management Measures

Section / Page No.	Air Quality Management Plan Management Measures	Audit Finding / Comment	Implementation Status
s.6.1/p15	Meteorological data (in particular, wind speed, wind direction and rainfall) will be used for the review of air quality management practices.	The on-site meteorological station located near the southern ML 1535 boundary provides meteorological data and measures real-time wind speed and direction, temperature (2m and 10 m), barometric pressure, humidity, solar radiation and rainfall (Development Consent 14/98 MOD 11 condition 6.2 and EPL 11912 condition M4). The meteorological data is available to Cowal Gold Operations personnel on the internal computer network.	**Compliant**
s.6.2/p15	Continue dust deposition monitoring for life of the mine.	The network of dust gauges agreed in consultation with the EPA and NWPS, that was established for the EIS baseline program and used to monitor dust	**Compliant**

Section / Page No.	Air Quality Management Plan Management Measures	Audit Finding / Comment	Implementation Status
		deposition in the vicinity of the Cowal Gold Operations has continued.	
s.6.2/p.18	All collection and analysis of dust gauge samples will be conducted in accordance with AS/NZS 3580.10.1:2003.	All dust samples are collected and analysed in accordance with AS/NZS 3580.10.1:2003 and the EPA *Guideline Approved Methods for the Sampling and Analysis of Air Pollutants in New South Wales*.	**Compliant**
s.6.2/p18	Dust deposition samples are analysed monthly for ash content, combustible matter and insoluble solids.	Dust samples collected monthly in the dust deposition gauges in accordance with the Air Quality Management Plan section 6.2 are analysed for ash content, combustible matter and insoluble solids. Dust deposition monitoring results are reported in the Annual Review.	**Compliant**
s.6.2.1/p18	Analyse composite dust samples for select metals at six monthly intervals for comparison to average crustal abundance levels.	The Lake Cowal surface water and sediment monitoring data has been assessed when the Lake as flooded as part of the Annual Review process. An independent consultant from the University of Sydney (Dr Stephen Cattle) has reviewed the dust monitoring data for the Cowal Gold. If the analysis of surface water and sediment monitoring data and dust gauge network data indicate adverse effects of dust on surface water or sediment quality within Lake Cowal, additional dust control measures would be implemented in accordance with the Air Quality Management Plan section 7.	**Compliant**
s.6.3/p18	Monitoring TSP by high volume sampler in accordance with procedures established with the EPA namely *Approved Methods for Sampling and Analysis of Air Pollutants in NSW* will continue for the life of the mine.	The TSP monitoring site (HV1) is located proximal to the 'Coniston' residence to the north of the ML 1535 and was located taking into consideration the prevailing meteorological conditions at the Cowal Gold Operation site. TSP is monitored in accordance with the EPA guideline *"Approved Methods for the Sampling and Analysis of Air Pollutants in NSW"*.	**Compliant**
s.6.2/p18	The dust deposition results will be compared with the criteria presented in Section 3 of the Air Quality Management Plan. All dust deposition monitoring results will be reported in the Annual Review (Section 14) prepared in accordance with the requirements of Development Consent 14/98 MOD 11 condition 9.1 and will be submitted to the Secretary of the DP&E.	The Annual Reviews have been prepared in accordance with the requirements of Development Consent 14/98 MOD 11 condition 9.1(b) and submitted to the DP&E each year. Results for dust management are presented in the Annual Review in section 3.1.	**Compliant**

Section / Page No.	Air Quality Management Plan Management Measures	Audit Finding / Comment	Implementation Status
Air Quality Management Plan Table 7: Management Measures for Mining Generated Dust Sources			
s.7.1/p.22	Haul Roads • All roads and trafficked areas will be watered (using Water trucks or other methods) and/or treated with an alternative dust suppressant and regularly maintained (using graders) to minimise the generation of dust. • Routes will be clearly marked. • Obsolete roads will be ripped and revegetated.	All internal haul roads and trafficked areas in the mine pit and surrounds are watered regularly using water tankers for dust suppression. Increased watering of exposed surfaces using water trucks occurs as required. Application of water emulsified bitumen (PetroTac) has also been used to reduce dust generation from light vehicle traffic on access roads around the administration area, process plant and maintenance areas. Obsolete haul roads and minor roads will be ripped and revegetated when no longer required for current mining activities.	**Compliant**
S7.1/p.22	Materials Handling • Regularly used minor roads will be watered and/or treated with an alternative dust suppressant (using water trucks or other methods) and regularly maintained. • Obsolete minor roads will be ripped and revegetated.		**Compliant**
s.7.1/p20	Materials Handling • Prevention of truck overloading to reduce spillage during ore loading/unloading and hauling. • Water spray dust suppression system will be used at the primary crusher bin during truck dumping of raw ore. • Freefall height during ore waste stockpiling will be limited.	• Loading of trucks at the mine pit face is managed to reduce spillage during ore loading/unloading and hauling from the open pit to the ore stockpiles and low grade ore emplacement areas. • A dust suppression system operates during truck dumping of raw ore at the primary crusher bin.	**Compliant**
s.7/p.20	Soil Stripping • Soil stripping will be limited to areas required for mining operations	Soil stripping only occurs on the Cowal Gold mine site as required for mining purposes.	**Compliant**
s.7 /p.20	Drilling • Dust aprons will be lowered during drilling for collection of fine dust. • Water injection or dust suppression sprays will be used when high levels of dust are being generated.	Drill rigs used for establishment of blast patterns in the mine pit or exploration drilling in ML1535, are fitted with dust aprons, water injection or dust suppression sprays for use as required to reduce dust generation during drilling activities.	**Compliant**
s.7.1/p.20	Blasting Mine material collected during drilling will not be used for blast stemming. • Adequate stemming will be used at all times. • Blasting will only occur following an assessment of weather conditions to ensure	The Blast Management Plan section 5 addresses stemming material type, adequacy of length and measures for blast overpressure management. Blast Management Plan Table 5 addresses use of a stemming length of no less than the burden dimension and use of aggregate of an appropriate size which “locks” in the blast hole to prevent the escape of the	**Compliant**

Section / Page No.	Air Quality Management Plan Management Measures	Audit Finding / Comment	Implementation Status
	that wind speed and direction will not result in excess dust emissions from the site towards adjacent residences.	gases from the explosives, and, orientation of the blast area face away from receivers where possible to minimise the forward movement of the blast face that generates the major component of airblast.	
s.7.1 /p27	Equipment Maintenance • Emissions from mobile equipment exhausts will be minimised by the implementation of a maintenance programme to service equipment in accordance with the equipment manufacturer specifications	All mobile equipment used at the Cowal Gold Operations site is maintained at the on-site Maintenance Workshops with checking of emissions from the exhausts undertaken in accordance with the equipment manufacturer specifications.	**Compliant**
Air Quality Management Plan Table 8 - Management Measures for Exposed Area Dust Sources			
s.7.4/p23	General Areas Disturbed by Mining • Only the minimum area necessary for mining will be disturbed. •Exposed areas will be reshaped topsoiled and revegetated as soon as practicable in accordance with Development Consent Condition 2.4(b) to minimise the generation of wind erosion dust.	The area disturbed for the Cowal Gold mining operations is all associated with the current mining operations. Rehabilitation measures described in the Rehabilitation Management Plan are implemented to minimise the area exposed for dust generation and includes establishment of a cover crop on newly rehabilitated landforms/areas and on long-term soil stockpiles to manage and reduce the potential for dust generation.	**Compliant**
S7.3/p23	Waste Emplacement Areas • Exposed active areas on waste emplacement surfaces will be watered to suppress dust where practicable. • Rehabilitation (i.e. reshaping topsoil placement and revegetation) of waste emplacement areas will be conducted progressively as soon as practicable following completion of landform in accordance with Development Consent Condition 2.4(b).	Waste emplacement areas that have been established to the final height are progressively reshaped, topsoiled and revegetated as soon as practicable to reduce potential for wind generated dust dispersion. Rehabilitation measures are described in detail in the Rehabilitation Management Plan and MOP. Interim rehabilitation measures are implemented to minimise the area exposed for dust generation and include establishment of a cover crop on newly rehabilitated landforms and long-term soil stockpiles.	**Compliant**
s.7.4/p24	Tailings Storage Facilities During nonoperational periods dust suppression measures will be undertaken to minimise dust emissions from dry exposed areas on the surface of the tailings storage facilities.	A review of suitable measures to minimise dust from dry tailings storage facility surfaces will occur based on available relevant literature, site personnel experience and specialist input. Rock mulch is applied as soon as practicable following the completion of shaping of the tailings storage facility batters to minimise the potential for windblown dust.	**Compliant**
s.7.3/p23	Soil Stockpiles Long-term soil stockpiles will be revegetated with a cover crop.	Long-term soil stockpiles have the application of seed, fertiliser, and mulch to promote vegetative cover and control dust generation, erosion and surface runoff.	**Compliant**

Section / Page No.	Air Quality Management Plan Management Measures	Audit Finding / Comment	Implementation Status
s.7.3/p23	Material Handling and Stockpiles • Prevention of truck overloading to reduce spillage during ore loading/unloading and hauling. • The coarse ore stockpile will be protected by a hood to prevent wind erosion of its surface. • The surface of all stockpiles will be sufficiently treated to minimise dust emissions. Such treatment may include application of a dust suppressant, regular dust suppression watering or establishment of vegetation on longer term stockpiles (e.g. the low grade ore stockpile).	• Loading of trucks at the mine pit face is managed to reduce spillage during ore loading/unloading and hauling from the open pit to the ore stockpiles. • The coarse ore stockpile is protected by a hood to prevent wind erosion from its surface. • Stockpiles are established to minimise dust emissions with establishment of vegetation on longer term stockpiles (e.g. topsoil and subsoil grade stockpiles).	**Compliant**
s.7/p19	Where practicable, seed disturbed areas and stabilise with groundcover immediately following construction.	The disturbed areas completed on the batters of the waste emplacement areas and TSF's have been the subjected to trials to determine groundcover rehabilitation requirements to stabilise the batters and reduce potential for dust generation.	**Compliant**
s.7/p19	Dust monitoring will include sites outside of the Project MLA area to assist in management of dust generated from mine operations.	Dust deposition gauges DG1 to DG10, DG15, and McLintock Shed are located outside the project MLA.	**Compliant**

5.14.2 Air Quality Criteria

[Development Consent 14/98 MOD 11 condition 6.1(a)]

Criteria for particulate matter emissions generated by the Cowal Gold Operations are specified in Development Consent 14/98 MOD 11 condition 6.1(a). The criteria are the maximum levels allowed to reach any residence on privately-owned land.

Long term impact assessment criteria for particulate matter

Pollutant	Averaging Period	Criterion
Total suspended particulate (TSP) matter	Annual	90 µg/m^3
Particulate matter <10µm (PM_{10})	Annual	30 µg/m^3

Short term impact assessment criterion for particulate matter

Pollutant	24hour	Criterion
Particulate matter <10µm (PM_{10})	24hour	50 µg/m^3

Long term impact assessment criteria for deposited dust

Pollutant	Averaging Period	Max increase in deposited dust level	Max total deposited dust level
Deposited dust	Annual	2g/m^2/mth	4g/m^2/mth

5.14.3 Meteorological Monitoring

[Development Consent 14/98 MOD 10 condition 8.1]
[Development Consent 14/98 MOD 11 condition 6.2]
[Environment Protection Licence condition P1.4 and M4]

An automated meteorological station is located near the exploration office on the southern boundary of ML 1535 and records rainfall, wind speed, wind direction and temperature in accordance with requirements in the *Approved Methods for Sampling of Air Pollutants in New South Wales* guideline. The meteorological station is equipped to provide 15minute continuous data to the Cowal Gold Operations site for the parameters in EPL condition M4. Data is available on a continuous basis for use at the site and downloaded and reported monthly by Sentinel with calibration of the meteorological station equipment quarterly by Sentinel Pty Ltd.

Parameter	Units of Measure	Continuous Averaging Period	Sampling Method
Rainfall	mm	24hr	AM-4
Temperature @ 2m	°C	15min	
Temperature @ 10m	°C		
Wind speed @ 10m	m/s		AM-2 & AM-4
Wind direction @ 10m	o		AM-2 & AM-4
Sigma theta @ 10m	o		AM-2 & AM-4
Solar radiation	W/m^2		AM-4
Siting Requirements			AM-1 &AM-4
Measurement Requirements			AM-2 & AM-4

5.14.4 Dust Monitoring Program

Dust monitoring is carried out in accordance with the Dust Management Plan / Air Quality Management Plan at depositional dust (static or gravimetric) monitoring sites within and surrounding the Cowal Gold Operations site. Fourteen (14) of the dust deposition gauges are located at residential locations and bird breeding sites, and four (4) gauges are located within the ML 1535. The high-volume air sampler (HV1) at 'Coniston' Homestead to the north of the Cowal Gold Operations monitors Total Suspended Particulate (TSP).

Table 5.14.4(a): Dust monitoring sites outside the CGM Mine Lease Area

Dust Gauge	Site Location Rationale
DG 1	Coniston residence
DG 2	Bird breeding area
DG 3	General Monitoring Site (proximal to bird breeding area)
DG 4	Native flora area and Bird Breeding Area (Lake Cowal)
DG 5	Lake Cowal
DG 6	Gumbelah residence
DG 7	Lake Cowal residence
DG 8	Native flora area
DG 9	Hillgrove residence, native flora area
DG 10	Native flora area
McLintock's Shed	General monitoring site
Geology Site Office and Lakeside	General monitoring site
DG I5	General monitoring site

Table 5.14.4(b). Dust monitoring sites within the CGM Mine Lease Area

Dust Gauge	Site Location Rationale
DG 11	General monitoring site (proximal to site infrastructure areas)
DG 12	General monitoring site (proximal to site infrastructure areas)
DG 13	General monitoring site (proximal to site infrastructure areas)
Site 52	Continuation of baseline monitoring prior to development consent

5.14.5 Review of Dust Monitoring Results[3]

A review of the air quality monitoring results for the Cowal Gold Project during 2014 was conducted by Associate Professor Stephen Cattle of the Faculty of Agriculture and Environment, University of Sydney. The conclusions of the review in relation to dust deposition and Total Suspended Particulates were:

- Temporal and spatial variation in dust deposition exhibited a moderate correlation between monthly dust deposition and seasons, with the spring and early summer months being distinctly more dusty than the late autumn and winter months. This indicates that regional æolian processes were more prominent than isolated local processes.

- Compliance with the assessment criterion of 4g/m^2/month average annual deposited dust was achieved during 2013 to 2016.

- A single gauge external to the ML 1535 exceeded the assessment criterion of 4g/m^2/month (DG7), due to more than 55% of the material being combustible, suggesting a large contribution of insects, bird droppings and vegetative matter. Exclusion of the combustible fractions of these dust deposits results in the annual average dust deposition rate for DG7 below the impact assessment criterion.

- The HVAS, located to the north of ML 1535, yielded TSP levels well below the relevant NSW EPA amenity criterion of 90 µg/m^3.

- No complaints about dust were received from surrounding land owners between May 2013 and April 2016.

5.14.6 Conclusions

The Dust Management Plan (2009) / Air Quality Management Plan (2015) were prepared to satisfy Development Consent 14/98. The management plans were implemented for the Cowal Gold Operations and compliance with the dust impact assessment criteria was achieved at all residences and all bird-breeding areas. The dust data collected from the monitoring program has been independently reviewed annually by Dr Stephen Cattle of University of Sydney. No community complaints in relation to dust were received between May 2013 and April 2016.

5.15 Blasting

[Development Consent 14/98 MOD 10 condition 6.3]
[Development Consent 14/98 MOD 11 condition 6.3]
[Environment Protection Licence condition L5]
[Mining Lease 1535 condition 27]

[3] Interpretation and Discussion of 2014 Air Quality Monitoring Results, Prof. Stephen Cattle University of Sydney

4.15.1 Environmental Assessment

4.15.1.1 Environmental Impact Statement – Cowal Gold Project

[Environmental Impact Statement – Cowal Gold Project 1998]

Modelling conducted by Richard Heggie and Associates for the Environmental Impact Statement – Cowal Gold Project 1998 showed that blast emission criteria would be met at all times. Blast levels at known wetland bird breeding areas were predicted to be many times lower than those levels considered or known to cause nuisance or disturbance to birds. Noise and ground vibration monitoring would be undertaken at nearby residences and key bird breeding areas.

5.15.1.2 Environmental Assessment - Blasting

[Environmental Assessment - Cowal Gold Mine Extension Modification]

The Environmental Assessment Appendix E – Noise and Blasting Impact Assessment was prepared by SLR in September 2013. The Noise and Blasting Impact Assessment section 8, predicted that the Cowal Gold Operations would continue to operate in compliance with relevant blast overpressure and vibration criteria at all privately-owned dwellings for MOD 11.

The predicted results in Environmental Assessment Appendix E – Noise and Blasting Impact Assessment section 8.4.2 indicate that the maximum air-blast level at the closest monitored bird breeding area (Bird Breeding Area South [NO3]) would be 110dB. Given the proposed continuation of blast and bird behaviour monitoring in accordance with the Flora and Fauna Management Plan as well as the contingency measures in place by Cowal Gold Operations, the assessment and monitoring results indicated that *"adverse blast impacts would be unlikely to significantly affect any fauna species".*

5.15.2 Blast and Vibration Management Plan

[Development Consent 14/98 MOD 10 condition 6.3(b)]
[Development Consent 14/98 MOD 11 condition 6.3(e)]

The Blast Management Plan May 2010 prepared to satisfy Development Consent 14/98 MOD 10 condition 6.3 was implemented for the management of blasting at the Cowal Gold Operations until February 2015.
.
The Blast Management Plan prepared to satisfy Development Consent 14/98 MOD 11 condition 6.3(e) was submitted to DP&E on 29 January 2015 and approved on 4 February 2015.

The Blast Management Plan provides a sound basis for the control of noise and vibration impacts from the mining activities and the procedures and blast methodology conform with best practice as outlined in current regulatory guidelines (*Technical Basis for Guidelines to Minimise Annoyance due to Blasting Overpressure and Ground Vibration*, ANZECC, *Assessing Vibration: a technical guideline* DECCW, and Australian Standards). Blasting activities at the Cowal Gold Operations site are undertaken in accordance with the Blasting Standard Operating Procedure, that includes control procedures for priming, loading and stemming operations to minimise blast emissions. These procedures involve conducting a review of risk factors by the Blasting Supervisor prior to blasting including meteorological conditions (e.g. prevailing winds or heavy rain) and ground conditions (e.g. presence of heavily rain affected ground).

The airblast overpressure management measures implemented at the Cowal Gold Mine (as necessary) are included in the Blast Management Plan section 5 and are generally consistent with AS 2187.2-2006 *Explosives – Storage and Use.* The management measures are summarised in Table 5.15.2(a).

Table 5.15.2(a): Airblast Overpressure Management Measures (Blast Management Plan 2015 section 5)

Airblast Overpressure Management Measure	Summary Description of Effect
Reduce the Maximum Instantaneous Charge (MIC) or charge mass per delay, to the lowest possible level.	The level of airblast is inversely proportional to the MIC, the lower the MIC the lower the airblast.
Keep face heights to a practical minimum.	As the face height determines the blast hole depth and therefore in turn the MIC, reducing the bench height consequently reduces the MIC.
Ensure stemming type and length is adequate.	Detonating cord has a very high velocity of detonation generating high airblast levels. NONEL initiation "burns internally" and does not contribute to the airblast level from blasting.
Eliminate exposed detonating cord. Investigate alternative initiation methods.	Detonating cord has a very high velocity of detonation generating high airblast levels. NONEL initiation "burns internally" and does not contribute to the airblast level from blasting.
Eliminate secondary blasting (, use rock breaker or drop hammer).	Secondary blasting of oversize rock should be minimised as the explosives are less confined and may result in high airblast levels.
Reduce the need for toe shots (e.g. better contrl of drill patterns).	Drill the blast holes below the level of the bench floor (subdrill) so that no rock is left at the base of the blast bench (toe).
Orientate faces where possible so that they do not face directly towards residences.	Orientate faces where possible so that they do not face directly towards residences
Ensure that all delays are designed to eliminate wave front reinforcement.	Design the detonator delay sequence to provide at least 8 ms between the blast holes on a given delay time to avoid overlap.
Vary the direction of initiation.	Airblast levels are reinforced in the direction of initiation of the detonators. Orientate initiation direction away from receivers
Exercise strict control over the burden, spacing and orientation of all blast drill holes.	Less than design burden and spacing (i.e. reduced rock cover) facilitates "blow outs" resulting in high airblast levels.
Take particular care where the face is already broken or where it is strongly jointed, sheared, or faulted.	This requires either "lighter" charging or "decking" with an inert material across the respective zones in order to avoid blowouts resulting in high airblast levels.
Consider deck loading where appropriate to avoid broken ground or cavities in the face.	Decking refers to separating explosives within a blast hole using an inert material, usually stemming (see above).

Commitments outlined in the approved Blast Management Plan are summarised in Table 5.15.2(b).

Table 5.15.2(b): Blast Management Plan Commitments (January 2015)

Section/ Page No.	Blast Management Plan Commitments	Comments	Implementation Status
s.3.1/p.8	In accordance with Development Consent Condition 6.3(a), Evolution Mining will comply with the blast impact assessment criteria in Table 2, as part of best management practice, which is required to be implemented in	Blast overpressure and vibration monitoring conducted at the Cowal Gold Operations has demonstrated compliance with the blast impact assessment criteria for all blasts conducted Monday to Saturday.	**Compliant**

Section/ Page No.	Blast Management Plan Commitments	Comments	Implementation Status
	accordance with Development Consent Condition 6.3(d)(i).	Exceedance of the 95dBL criteria imposed for Sundays and Public Holidays has occurred as a result of weather conditions, with a small number of blasts exceeding the criteria by less than 2dBL during the 2013 to 2016 period.	**Non-Compliant (low Risk)**
s.4.1 /p.12	Monitoring of bird breeding behaviour will continue to be conducted and the contingency measures outlined in the Flora and Fauna Management Plan will be implemented should impacts be identified, in accordance with Development Consent Condition 3.2(b).	Independent observations of bird breeding areas have been conducted annually by Professor Peter Gell and Paul Peake when water was present in Lake Cowal. Monitoring and reporting on waterbird populations and breeding activities at Lake Cowal has found that there was no abrupt change in the behaviour of any bird species to any blast and no discernible reaction to the noise (or other effects) associated with the blast have been observed by Dr Gell.	**Compliant**
s.4.2/p.12	AS 2187.2:2006 details general operating practices that provides guidance of the various options available for controlling ground vibration and airblast. The Cowal Gold Operations Blasting Standard Operating Procedure 'Blasting MIN-SOP-35' has been prepared in consideration of the AS 2187.2:2006 general operating practices.	The Cowal Gold Operations Blasting Standard Operating Procedure 'Blasting MIN-SOP-35' has been prepared in consideration of the AS 2187.2:2006 general operating practices (Refer to Table 5.15.1 for the Airblast Overpressure Management Measures included in the Blast Management Plan 2015 section 5).	**Compliant**
s.5/p.15	Blasting activities at the CGM will be undertaken in accordance with CGM's Blasting SOP which includes control procedures for priming, loading and stemming operations to minimise blast emissions.	Blasting is undertaken in accordance with the Blasting SOP with a review of risk factors including meteorological conditions and ground conditions, conducted by the Blasting Supervisor prior to blasting. Where risk factors are known to increase the likelihood of a blast producing unacceptable dust or fume emissions, the blast design is modified, and management measures implemented to minimise blast emissions, where practicable.	**Compliant**
s.6.3/p.16	Protection of livestock - Blasting operations at the Cowal Gold Operations are restricted to within the open pit.	No livestock grazing is permitted within ML 1535. The perimeter Travelling Stock Reserve and agistment of any livestock on mine-owned land (outside ML 1535), are located approximately 2 km from the open pit, so livestock would not be affected by flyrock.	**Compliant**
s.6.4/p.16	The Blasting SOP details the procedures that will be	The exclusion zone of greater than 400m is enforced for all blasts within	**Compliant**

Section/ Page No.	Blast Management Plan Commitments	Comments	Implementation Status
	undertaken to control personal safety during blasting with implementation of a minimum 400 m exclusion zone for all blasts in addition to personal protective equipment requirements and emergency and evacuation procedure	the Cowal Gold Mine open pit. The Blast Supervisor ensures no personnel are within the exclusion zone before the blast is initiated.	
s.7.1/p.17	Each blast monitoring unit will be fitted with suitable equipment to monitor all blasts. As required by EPL Condition M7.1(b), blast monitoring units/instrumentation will comply with the requirements of AS 2187.2/2006.	Each blast monitoring unit /instrumentation complies with the requirements of AS 2187.2/2006. Blast monitoring occurs for all blasts at each monitoring location: • BM01 – 'Gumbelah' residence; • BM02 – 'Hillgrove' residence; • BM03 – 'Coniston' residence; • BM08.1 – 'Cowal North' residence; • BM10 – CGM open pit (reference).	**Compliant**
s.7.1/p.17	Detailed climatic and atmospheric conditions including temperature, wind speed and direction at the time of blasting will be monitored at the CGM meteorological station and will be recorded for each blast. Periodic calibration of all monitoring units including the meteorological station will be undertaken in accordance with the manufacturer's specifications.	Temperature, wind speed and direction at the time of blasting are monitored at the Cowal Gold Operations meteorological station and are recorded for each blast. Calibration of all blast monitoring units is undertaken by SAROS in accordance with the manufacturer's specifications. Calibration of the meteorological station equipment occurs quarterly by Sentinel Pty Ltd.	**Compliant**
s.7.2.2/p.17	Meteorological conditions will be examined as soon as practicable prior to blasting and a prediction made as to whether air blast overpressure levels (and dust and/or fume emissions) outside of the ML 1535 area (i.e. at non-company owned residences) are likely to be increased. If an exceedance of the blast impact assessment criteria is predicted blasting will be rescheduled until more favourable weather conditions prevail.	The Blast Supervisor (and ESR Manager if required) assess meteorological conditions prior to each blast. If an exceedance of the blast impact assessment criteria is predicted, blasting would be rescheduled until more favourable weather conditions prevail. The recording and interpretation of blast overpressure data is assessed by SAROS for each blast and interpretation of any exceedance(s) reported to Cowal Gold Operations for notification to the relevant authorities if required.	**Compliant**
s.7.3/p.19	Blast monitoring results will be reviewed on a monthly basis and an annual Blast Monitoring Report will be prepared by an independent specialist which includes a summary of the annual monitoring results and a	All blast monitoring results have been reviewed monthly and an annual Blast Monitoring Report that includes a summary of the annual monitoring results and a review and analysis of the results against the blast impact	**Compliant**

Section/ Page No.	Blast Management Plan Commitments	Comments	Implementation Status
	review and analysis of the results against the blast impact assessment criteria.	assessment criteria, is prepared by SAROS.	
s.8.2/p.20.	In the event the compliance assessment protocol determines a non-compliance with the blast impact assessment criteria the incident notification protocol will be implemented.	The Compliance Assessment Protocol described in section 8.1 has been triggered when exceedance of the blast impact assessment criteria has occurred, to exclude non-mine related or external factors that may have resulted in the exceedance including consideration of the meteorological conditions at the time of the blast.	**Compliant**
s.8.2/p.21	In accordance with Development Consent Condition 9.3(a) and EPL 11912 condition R2.2, written details of the incident to the Secretary of the DP&E and the EPA within seven days of the date the incident occurred, will be provided including details of measures taken or proposed to be taken to prevent or mitigate recurrence of the incident.	Reporting to the Secretary, EPA and other relevant agencies of any exceedance of the blast impact assessment criteria with details of measures taken to prevent or mitigate recurrence of the incident has occurred and the monthly compliance summary prepared. SAROS provides results and interpretation of the blast overpressure exceedance(s) in relation to meteorological effects and/or blasting practices.	**Compliant**
s.13/p.27	An Annual Review will be prepared in accordance with the requirements of Development Consent Condition 9.1 and will be submitted to the Secretary of the DP&E.	Annual Reviews prepared in accordance with Development Consent MOD 11 condition 9.1(b) address Blast Management and overpressure/ vibration in section 3.10.	**Compliant**

5.15.2 Blast and Vibration Criteria

[Development Consent 14/98 MOD 10 condition 6.3(a)]
[Development Consent 14/98 MOD 11 condition 6.3(a)]
[Environment Protection Licence condition L5]
[Mining Lease 1535 condition 27]

Blasts impact assessment criteria are specified in Development Consent 14/98 MOD 10 condition 6.3(a) and Development Consent 14/98 MOD 11 condition 6.3(a).

Table 5.15.2: Blasting impact assessment criteria

Location	Time of Blasting	Air-blast over pressure dBL	Ground Vibration mm/s	Allowable exceedance
Residence on privately owned land	Any time	120	10	0%
	Monday to Saturday during day	115	5	5% of total number of blasts over a period of 12 months
	Monday to Saturday during evening	105	2	
	Monday to Saturday at nights	95	1	
	Sundays and Public Holidays	95	1	

The Sunday and Public Holiday overpressure level of 95dB(L) is a significant reduction to the normal Monday to Saturday limit of 115dB(L). The 20dB(L) reduction is equivalent to reducing the Monday to Saturday limit by 90% for Sunday and Public Holiday blasting (The SAROS Group Report, section 3.2, March 2015).

5.15.3 Review of Blast Overpressure Monitoring

All blasts were monitored for overpressure and vibration at the following fixed locations, with one mobile/portable monitor available for random checks.

Table 5.15.3a: Fixed blast monitoring locations

Blast Monitor No.	Blast Monitor Location	Blast Location Classification
BM01 BM02 BM03 BM08.1	Gumbelah residence Hillgrove Residence Coniston Residence Cowal North	Locations categorised as '*residence on privately owned land'* [Development Consent 14/98 MOD 11 condition 6.3(a)]
BM04.1 BM05 BM06	Northern Bird Breeding area Southern Bird Breeding area, General	*'Lake monitoring'* locations positioned to assess the impacts on and around Lake Cowal.
BM09 BM10	Southern Lake Near Field Monitor	'*Reference monitoring'* location

Enhanced technology has been installed in the land-based cabinets of blast monitoring units around Lake Cowal. Inundated blast monitoring units in Lake Cowal (i.e. BM04, BM05 and BM06) were replaced in mid-2012, due to access related to Lake Cowal inundation, with the enhanced technology units mounted on taller tripod stands.

The Annual Review of Blast Monitoring Results (conducted by SAROS) concluded that all blast overpressure and vibration levels were compliant with the Development Consent 14/98 MOD 11 condition 6.3(a), EPL conditions L7.3 and L7.4, and Mining Lease condition 27 (i.e. less than 5% of total blasts must not exceed 115dBL or vibration levels must not exceed 2mm/sec) for the total number of 382 blasts between May 2013 and April 2016 for the Monday to Saturday daytime hours.

The Sunday and Public Holiday criterion of 95 dB(L) was exceeded on ten (10 occasions) between January 2014 and December 2014 when the exceedance was assessed as being blast related.

The 2014 SAROS Annual Review concluded:

- No blast related events exceeded the maximum compliance level of 120dB(L);
- Less than 5% of blasts exceeded 115dB(L) on normal weekdays and Saturdays;
- Ten (10) blast related events exceeded the 95 dB(L) level on Sundays and Public Holidays resulting from ambient wind speed and direction (as determined by meteorological data assessed by SAROS).

The SAROS Report for 23 December 2014 to 22 December 2015 identified a total of 20 events as having a peak overpressure level above the Sunday and Public Holiday criteria of 95dB(L). Of the 20 events that exceeded compliance levels, only one (1) was assessed to be related to blasting practices, with the other 19 of these identified as resulting from localised environmental factors such as wind.
The SAROS Report for 23 December 2014 to 22 December 2015 concluded that of a total of 230 blasts:

- No blast related events exceeded the maximum compliance level of 120dB(L);

- Blast exceeding the 115dB(L) criteria occurred less than 5% of the total blasts on normal weekdays and Saturdays; and
- One (1) blast related event exceeded the 95dB(L) level on Sundays and Public Holidays - BM01 – Gumbelah Residence, BM02 – Hillgrove Residence, BM04.1 – Northern Bird Breeding, BM05 – Southern Bird Breeding and BM08.1 – Cowal North. Maximum overpressure level of 111.2dB(L) was recorded at BM05 Southern Bird Breeding area.

Between 23 December 2015 and 30 April 2016 blast monitoring demonstrated:

- No blast related events exceeded the maximum compliance level of 120dB(L);
- Blast exceeding the 115dB(L) criteria occurred less than 5% of the total blasts on normal weekdays and Saturdays; and
- One blast on 13 March 2016 at BM02-Hillgrove residence recorded as 95.9dBL and one blast on 26 March 2016 recorded 95.9dBL at BM01-Gumbelah residence, exceeding the 95.0dBL criteria for Sundays and Public Holidays.

5.15.4 Review of Vibration Results

Based on the monitoring data and blasting information available, recorded levels of ground vibration from blasting activities conducted at the Cowal Gold Mine were compliant with respect to the ground vibration criteria.

100% of ground vibration results were compliant with Development Consent 14/98 MOD 10 condition 6.3(a), Development Consent 14/98 MOD 11 condition 6.3(a), [Environment Protection Licence condition L5, and Mining Lease 1535 condition 27 to be less than 5mm/s).

5.15.5 Blast Complaints

No blast complaints were received between May 2013 and April 2016.

5.15.5 Conclusion

The Blast Management Plan implemented for the Cowal Gold Operations provides a sound basis for the control of overpressure noise and vibration impacts from the mining activities and the procedures and blast methodology in the Blast Management Plan and Standard Operating Procedure conform to best practice as outlined in current regulatory guidelines.

Blast overpressure and vibration monitoring from May 2013 to April 2016 demonstrated compliance for all blasts conducted between Monday and Saturday with the criteria specified in the Development Consent/EPL/ML conditions.

Non-compliance related to blast overpressure that exceeded the 95 dB(L) level on Sundays and Public Holidays that occurred between May 2013 and April 2016, were assessed by SAROS monthly and determined to have mainly occurred as a result of ambient wind speed and direction (as determined by meteorological data assessed), with the majority of other instances where the overpressure noise related events exceeded the 95 dB(L) criteria due to local environmental factors, and were not able to be differentiated from background levels.

The small number of overpressure events that were assessed to be blast related exhibited levels that were less than 2dBL above the Sunday and Public Holiday criteria, but no community complaints were received.

5.16 Noise

[Development Consent 14/98 MOD 11 condition 6.4]

5.16.1 Environmental Assessment

5.16.1.1 Environmental Impact Statement – Cowal Gold Project

[Environmental Impact Statement – Cowal Gold Project 1998]

Noise modelling conducted by Richard Heggie and Associates for the Environmental Impact Statement – Cowal Gold Project (1998) showed that noise contributions during day and night time meet noise level design goals set by the EPA, even under adverse conditions. In terms of traffic movements, noise levels set by the EPA would be met at all residences during day time and night time except for five residences situated within 30m of the road near West Wyalong where a small exceedance of the night time design goal was predicted. Noise levels at known wetland bird breeding areas were predicted to be lower than those levels considered or known to cause nuisance or disturbance to birds.

Noise monitoring would be undertaken at nearby residences and key bird breeding areas. Bland Shire Council advised that they would relocate the 60 km/h zone further north along Ungarie Road where it exits West Wyalong to reduce traffic noise levels.

5.16.1.2 Environmental Assessment - Cowal Gold Mine Extension Modification

[Environmental Assessment - Cowal Gold Mine Extension Modification 2013]

A Noise and Blasting Assessment was prepared by SLR Consulting for the Environmental Assessment - Cowal Gold Mine Extension Modification - Appendix E in September 2013. No increase in the approved noise levels at privately-owned dwellings were assessed as expected due to the Modification. In summary, it was predicted:

- seven (7) privately-owned dwellings would be within the MOD 11 Noise Management Zone (i.e. 1 to 5 dBA above the project specific noise limit); and
- one (1) privately-owned dwelling would be within the MOD 11 Noise Affectation Zone (i.e. greater than 5 dBA above the project specific noise limit).

Noise management measures would continue to be implemented by Cowal Gold Operations and the noise monitoring program would continue as detailed in the Noise Management Plan.

Noise mitigation agreements to all privately-owned dwellings predicted to be within the Noise Management and Noise Affectation Zones, would continue to be available to affected property owners in accordance with Development Consent (DA 14/98) condition 6.4(b).

5.16.2 Noise Management Plan

[Development Consent 14/98 MOD 11 condition 6.4(e)]

The Noise Management Plan was prepared to satisfy the requirements of Development Consent 14/98 condition 6.4(b) in consultation with the DEC, and approved by DIPNR in November 2004.

A Noise Management Plan prepared to satisfy condition Development Consent 14/98 MOD 11 condition 6.4(e) was submitted to DP&E on 14 November 2014 and approved on 5 March 2015.
The Noise Management Plan provides the procedures to be implemented for the management and monitoring of noise from the Cowal Gold Operations activities.

Commitments in the Noise Management Plan are listed in Table 5.16.2.

Table 5.16.2: Noise Management Plan Commitments

Section/ Page No.	Noise Management Plan Commitments	Comments	Implementation Status
s.6.1/p20	Monitoring will be conducted at the above locations to evaluate, assess and report the LAeq(15 minute) noise emission levels due to normal operations of the mine. Noise generated by the CGM will be measured in accordance with the relevant requirements and exemptions (including meteorological conditions) of the INP.	Monitoring has been carried out by SLR and Spectrum Acoustics and reported quarterly between 2013 and 2016 at near-by residences and bird breeding areas to evaluate noise emissions from the CGM: • N01 – New Lake Foreshore (ref); • NO5 – "Gumbelah" residence; • N13 – "Bungabulla" residence; • NO9 – "Lakeview III" residence; • N10 – "Bramboyne" residence; • N11 – "Laurel Park" residence; • N12 – "The Glen" residence; and • N14 – "Hillgrove" (mine-owned) (ref site).	**Compliant**
s.6.2.2/p21	Operator attended noise monitoring will be conducted at quarterly intervals at the locations identified in Noise Management Plan section 6.1.	Operator attended noise monitoring has been conducted quarterly each year by SLR or Spectrum Acoustics and reported to Cowal Gold Operations. Monitoring was on 21-24 July 2014 (last SLR report), 22-24 October 2014, 21-22 January/ 14-15 April / July and October 2015; and January 2016 by Spectrum Acoustics.	**Compliant**
s.6.2.3/p21	Data from the on-site meteorological station will be used for predicting noise impacts on nearby residences.	The on-site meteorological station is located near the southern ML 1535 boundary and provides meteorological data and measures real-time wind speed and direction, temperature (2m and 10 m), barometric pressure, humidity, solar radiation and rainfall in accordance with Development Consent 14/98 MOD 11 Schedule 4 condition 6.2) and EPL 11912 condition M4.	**Compliant**
s.6.2.7 /p23	Compliance will assessed against noise criteria given in the Noise Management Plan section 3. Exceedances of the noise criteria will be determined in consideration of the meteorological conditions under which they apply in accordance with the INP	The quarterly noise reports prepared by SLR and Spectrum Acoustics between 2013 and 2016 have assessed compliance against the noise impact assessment criteria in Development Consent 14/98 MOD 11 condition 6.4(c) and EPL 11912 condition L4.	**Compliant**
s.6.3/24	An operational noise monitoring report will be prepared following the quarterly operational noise monitoring surveys.	The quarterly operational noise monitoring reports prepared by SLR or Spectrum Acoustics for the operational noise monitoring surveys, contain details of	**Compliant**

Section/ Page No.	Noise Management Plan Commitments	Comments	Implementation Status
		monitoring methodology, monitoring results, a summary of the key findings and any recommended mitigation measures (if necessary).	
s.8.1/p26	In the event that monitoring indicates an exceedance of the noise impact assessment criteria, mitigation measures will be implemented.	Mitigation measures have been implemented in accordance with the Industrial Noise Policy (INP) section 7.4 for noise reduction at the receiver following receipt of a written request from the owner of an affected residence (Development Consent 14/98 MOD 11 condition 6.2(b)). Mitigation measures may include insulation; double glazing of windows; installation of air conditioning; construction of noise bunding and/or tree screening at any affected dwelling(s).	**Compliant**
s.9/p28	A complaints register will be maintained by the Community Relations Manager (EPL Cond. M5.1).	A 24hour complaints line (02) 6975 3454 and a Complaints Register maintained under the External Communications component of the Responsibility Information Management System (RIMS), tracks community complaints.	**Compliant**
s.12/p32	A CEMCC has been established for the Cowal Gold Operations in accordance with Development Consent 14/98 MOD 11 condition 9.1(d).	The CEMCC was established in 2003 and the inaugural meeting of the CEMCC occurred on 15 October 2003. The CEMCC has continued meeting quarterly since October 2003.	**Compliant**
s.14/p53	The Annual Review will be prepared (Development Consent Schedule condition 9.1).	The Annual Review prepared in accordance with Development Consent 14/98 MOD 10 condition 9.2, includes noise management and monitoring results in section 3.11.	**Compliant**

5.16.2 Noise Criteria

[Development Consent 14/98 MOD 11 condition 6.4(c)]

Noise impact assessment criteria specified in Development Consent 14/98 MOD 11 condition 6.4(c) requires that noise emitted from the Cowal Gold Mine activities does not exceed the following levels at any residence on privately-owned land:

Land	Day/Evening/Night
Laurel Park	37 dB(A) $L_{Aeq\ (15\ min)}$
Bramboyne, Bungabulla, The Glen and Gumbelah	36 dB(A) $L_{Aeq\ (15\ min)}$
All other privately-owned land	35 dB(A) $L_{Aeq\ (15\ min)}$

5.16.3 Noise Monitoring Program

[Development Consent 14/98 MOD 11 condition 6.4(e)(iii)]

Quarterly attended noise monitoring surveys conducted in accordance with Noise Management Plan section 6 – Noise Monitoring Program. The noise monitoring has been conducted to assess potential impact of noise on residences and wildlife.

The noise monitoring program (Development Consent 14/98 MOD 11 condition 6.4(e)(iii) - Noise Management Plan section 6.1) has been conducted at the following locations:

Location No.	Location	Monitoring Source	Noise Assessment Criteria dB(A) $L_{Aeq\ (15\ min)}$	Noise Monitoring Results, May 2013 - April 2016
N01	New Lake Foreshore	NMP (reference site)	44	All <44
N05	Gumbelah residence (SE)	EPL condition L4.1	36	All < 36
N09	Lakeview residence (W)	NMP (reference site)	36	All <36
N10	Bramboyne residence (NW)	EPL condition L4.1	36	All < 36
N11	Laurel Park (NW)	EPL condition L4.1	37	All <37
N12	The Glen (N)	EPL condition L4.1	36	All <36
N13	Bungabulla (SE)	EPL condition L4.1	36	All <36
N14	Hillgrove" (mine-owned) (SW)	NMP (reference site)	35	All <35

5.16.4 Review of Noise Monitoring Results

The results from noise monitoring surveys conducted in 2013 to July 2014 (SLR) and October 2014 January 2016 (Spectrum Acoustics), demonstrated that at the times under the operating and meteorological conditions, the mine noise dB(A) $L_{Aeq\ (15\ min)}$ did not exceed the operational noise criteria at any monitoring location.

Data from monitoring when Cowal Gold Operations were audible at the monitoring location were analysed using the *"Evaluator"* software. This analysis showed the noise did not contain any tonal, impulsive or low frequency components as per definitions of *"modifying factor corrections"* in the NSW Industrial Noise Policy.

The dB(A) $L_{1eq\ (1\ min)}$ noise results under the operating and meteorological conditions did not exceed the sleep disturbance criterion at any monitoring location during the night time measurement periods.

A summary of attended noise monitoring surveys between May 2013 and April 2016 indicated:

- The SLR Report July 2014 concluded: *All operator attended noise recordings were measured to be below the Consent criteria during all periods of the day at all locations monitored. Consequently, the CGM was observed to be in compliance with the relevant noise requirements during all periods of the operator-attended noise monitoring and Digital Audio Recorder noise monitoring*.

- The results from the Spectrum Acoustics October 2014 to January 2016 surveys reported that: "*under the operating and meteorological conditions at the times, for the 15 minute compliance measurement periods, the mine noise did not exceed the operational noise criterion at any monitoring location at any time*."

- It was advised by Cowal Gold Operations (pers. comm. B Flynn) that the April 2016 noise monitoring report from Spectrum Acoustics indicated that the Cowal Gold Operation was again compliant with the

Development Consent conditions.

- No noise impact assessment criteria exceedances were recorded between the May 2013 and April 2016 audit period.

- Noise Mitigation Agreements were settled with "Gumbelah", "Laurel Park" and "Cowal North" land owners in accordance with Development Consent 14/98 MOD 10 condition 6.4(c) during 2014. No new agreements were negotiated in 2015/2016.

5.16.5. Complaints

No noise related complaints were received during the audit period (May 2014 to April 2016).

5.16.6 Conclusions

The Noise Management Plan prepared to satisfy the requirements of Development Consent 14/98 MOD 10 condition 6.4(g) was implemented for the Cowal Gold Mine operations until March 2015. The revised Noise Management Plan prepared to satisfy Development Consent 14/98 MOD 11 condition 6.4(e) and approved by DP&E on 5 March 2015, was then implemented for the Cowal Gold Operations.

The implementation of the control strategies outlined in the Noise Management Plan have minimised noise emissions from the Cowal Gold Operations and are considered to be best practice and effective as demonstrated by the noise monitoring data and environmental performance indicators.

Operational noise surveys have demonstrated that Cowal Gold Operations is operating in compliance with the noise assessment criteria imposed in the Development Consent 14/98 and EPL conditions, and commitments made in the Environmental Assessments. No operator attended noise monitoring results exceeded the noise impact assessment criteria, between the May 2013 and April 2016.

5.17 Independent Monitoring Panel

The Independent Monitoring Panel (IMP) established in accordance with Development Consent 14/98 has prepared an Annual Report for the Cowal Gold Project between 2005 and 2015. Each IMP Report provides an overview of the annual reviews and independent audits required by Development Consent 14/98 conditions 9.1(b) and 9.2(a) and reviews the environmental monitoring procedures and results of monitoring undertaken by Cowal Gold Operations.

The IMP reviewed the Independent Environmental Audits prepared under Development Consent 14/98 condition 9.2(a) and has made the following comments in relation to the audits:

"*In its report of August 2007, the IMP recognised that the template-based approach, that had been used by Trevor Brown and Associates applied environmental management consultants (aemc) was well-structured for addressing complex environmental compliance requirements, and was a good example of best practice for easily accessible and updated environmental compliance information. Thus the IMP made the recommendation that "Barrick consider continuing use of the template-based approach established by aemc for environmental auditing of operations in order to regularly and systematically update progress on each of the environmental management and monitoring components. This approach would greatly assist the IMP in its annual review."* (IMP Report 2015).

Responses to the IMP Reports 2013 to 2015 recommendations and subsequent assessment by the IMP of the Cowal Gold Operations to the actions in are presented in the following Tables.

Table 5.17a: Ninth IMP Report Recommendations and Cowal Gold Responses

IMP Recommendation	Cowal Gold Response to IMP Recommendations	IMP Assessment of Response to Recommendations
2013 IMP Recommendation 1: CGM should complete the layout and planting of the Northern Waste Emplacement Trials as soon as possible and ensure that appropriate native species are included as direct seeded, tube stock, or fascine treatments.	Barrick, with DnA Environmental, finalised the design for the Northern Waste Rock Emplacement Trial and implementation of the trial has been completed. The DnA Environmental report, Northern Waste Rock Emplacement Rehabilitation Trials (February 2014), details the specific native tree and shrub species recommended to be tested in the trial (and provides a list of species recommended as suitable for revegetation of the CGM waste rock emplacements).	The IMP noted that CGM had moved forward with the design and planting of the Northern Waste Rock Emplacement Trials, and it was able to view the trials during the site visit. It was noted that, to reduce the complexity of the trial, direct-seeded plots were deleted. While this was of concern, the IMP believes the commitment to direct seed (and monitor) approximately 12 ha of the inner batters of the Perimeter Waste Rock Emplacement in late 2014/early 2015 should provide a good test of the efficacy of this revegetation technique.
2013 IMP Recommendation 2: CGM will need to plan well ahead for collection of native pasture hay and native shrub and tree seed or fascines sufficient to meet the needs of large-scale rehabilitation.	In May 2014, Barrick engaged Greening Australia to assist with the development of a long-term seed and tube-stock supply strategy for the CGM on-site rehabilitation program and offset revegetation and enhancement program. The Greening Australia strategy addresses propagation methods, site preparation, planting procedures and post-planting maintenance measures. The Greening Australia draft strategy was expected to be available for Barrick review by November 2014.	Enlistment of Greening Australia's input in this area is to be commended and should provide complementary support to that available from local contractors.
2013 IMP Recommendation 3: CGM should continue to monitor existing rehabilitation trials (and those planned for 2013) with a view to better define its approach to achieving sustainable, post-mining landscapes. Sampling and monitoring should be such as to provide more information on the benefits or otherwise of subsoil as a component of the root zone.	Barrick continued to monitor existing rehabilitation trials (and future rehabilitation trials) to determine appropriate depths of cover/plant growth media that assist to achieve the project rehabilitation objectives. With regard to the measures being undertaken to determine the benefits or otherwise of subsoil as a component of the plant root zone, Barrick has:	The IMP noted that CGM had taken three specific actions to better define the benefits or otherwise of saved subsoil as a component of the root zone, viz. (1) additional root growth assessments of tube-stock previously planted into plots of the Southern Waste Rock Emplacement Trial,

IMP Recommendation	Cowal Gold Response to IMP Recommendations	IMP Assessment of Response to Recommendations
	• engaged DnA Environmental to design a 'substrate profile' trial to replicate the proposed cover systems for the top surfaces of the CGM waste rock emplacement and tailings storage facilities (of which subsoil is component); • engaged DnA Environmental to undertake additional plant root growth assessments of tube-stock planted directly in substrates including oxide waste, subsoil and topsoil in the Southern Waste Rock Emplacement Trial area; and • engaged McKenzie Soil Management to characterise all soil resources (subsoil and topsoil) stockpiled at the CGM and develop measures to improve the suitability of the soil resources for re-use in the rehabilitation program.	(2) design of a substrate trial in large boxes and (3) engagement of a soil science consultant to characterise all topsoil and subsoil resources stockpiled at the mine. CGM is to be commended for commissioning the report on Soil Stockpile Characterisation Assessment by McKenzie Soil Management (in conjunction with Carnegie Natives Pty Ltd). The report is comprehensive and fulfils recommendation 1 made by the IMP in its 2011 report. Information in the soil report will allow CGM to more accurately assess its usable soil resources and determine the gypsum requirements for each of the different soil resources.
2013 IMP Recommendation 4: CGM should continue with its efforts to improve the process of dust sample preparation and metal analysis (including liaising with the University of Sydney where necessary) to ensure valid results.	Barrick will continue to the conduct additional dust sampling and analysis procedures to improve the process of dust sample preparation and metals analysis. These measures involve: • continuing to collect depositional dust samples at three monthly intervals from five replicate dust gauges located immediately adjacent to existing dust gauges DG1, DG3, DG4, DG5 and DG13 for comparison to results from depositional dust samples collected monthly from the existing dust gauges; • continuing to dispatch duplicate dust samples at random to two independent laboratories (ALS and NMI) for metals analysis to review/compare the procedures, sensitivities, sample size thresholds and results provided by each laboratory; • continuing to engage Dr Cattle from the University of Sydney to analyse the results from the CGM existing dust monitoring program and the replicate dust gauge samples; and • reporting all dust monitoring program results in the AEMR.	The IMP is satisfied with these measures

Recommendations made by the IMP during the September 2014 site inspection and Tenth IMP Report are presented in Table 5.17b.

Table 5.17b: Tenth IMP Report Recommendations and Cowal Gold Responses

IMP Recommendation September 2014	Cowal Gold Response to IMP Recommendations	IMP Assessment of Response to Recommendations
2014 IMP Recommendation 1: CGM should continue to monitor all existing rehabilitation trials and those to be established in 2014/2015 (direct- seeded native species areas) with a view to continually refine its approach to achieving large-scale sustainable rehabilitation. Particular attention should be paid to the landform design, rehabilitation materials, rehabilitation cover system and revegetation concepts defined in the 2014 CGM Rehabilitation Risk Assessment (draft of May 2014).	Barrick will continue to engage independent specialists, DnA Environmental, to monitor all existing rehabilitation trial areas, in particular the NWE rehabilitation trial area, to determine the most effective applications of the rock mulch, topsoil and hay cover system, and to assess the performance of the selected Eucalypt and Acacia revegetation species.	Annual monitoring of all existing rehabilitation trials during 2014/2015 (direct- seeded native species areas) was continuing by DnA Environmental.
2014 IMP Recommendation 2: That watering over summer be continue until seedlings have established their roots, and that plant available water in the soil be monitored to guide watering if above average dry conditions continue.	Barrick will engage DnA Environmental to incorporate the assessment of plant available water in the soil into the rehabilitation monitoring programme for the NWE trial to guide the future requirement for watering.	Barrick watered the tubestock planted on the NWE rehabilitation trial area in August 2014 for an 8month period (over summer) through to April 2015.
2014 IMP Recommendation 3: That raising of the TIB is conducted in a manner that ensures protection of the naturally recruited river red gum saplings and swale habitats.	Barrick, will review the approach for works to raise the height of the TIB by 0.5 m to protect the naturally recruited vegetation and swale habitats as far as practicable	Raising of the temporary isolation bund had not occurred at the date of the IMP Report in September 2015.
2014 IMP Recommendation 4: That the requirement to deconstruct or breach the Temporary Isolation Bund (TIB) be reconsidered based on an assessment of the naturally developing habitat and biodiversity values of the structure.	As part of the next rehabilitation risk assessment undertaken for the CGM and any future mine closure planning activities, Barrick will review the currently approved rehabilitation strategy for the Temporary Isolation Bund in consideration of the naturally developing habitat and biodiversity value that has developed surrounding the bund.	Raising of the temporary isolation bund had not occurred at the date of the Independent Environmental Audit (April 2015) or IMP Report in September 2015.

Response from Evolution Mining to recommendations made in the Eleventh IMP Report (received by Evolution Mining on 27 October 2015) are presented in Table 5.17c.

Table 5.17c: Eleventh IMP Report Recommendations and Cowal Gold Responses

IMP Recommendation September 2015	Evolution Mining Response to IMP Recommendations (dated 15 January 2016)
2015 IMP Recommendation 1: CGM should establish a research trial to investigate the most efficient method of controlling rye grass allowing for the successful establishment of native plant species by direct seeding.	Evolution, with assistance from DnA Environmental, has prepared a preliminary design for a trial to investigate the most efficient method of controlling rye grass allowing for the successful establishment of native plant species by direct seeding. The final trial design is anticipated to commence in May 2016, subject to suitable weather conditions. The trial will be established on the southern slopes of the Southern Waste Rock Emplacement adjacent to the existing surface treatment trial. Advice has been sought from a local agronomist regarding a suitable pre-emergent herbicide that will not affect native species.
2015 IMP Recommendation 2: Every effort should be made to commence the waste rock component of the Substrate Profile Trial as soon as weather conditions permit in order to gain additional information about the value of including subsoil in future rehabilitation.	Evolution is finalising the design of the waste rock component of the Substrate Profile Trial with DnA Environmental and anticipates commencing the trial in June 2016. Commencement of the trial will be subject to availability of the select tubestock and Evolution has commissioned Jayfields Nursery to propagate the tubestock required for the trial.
2015 IMP Recommendation 3: CGM should obtain an analysis of the gypsum product from the suppliers and additionally send a representative sample to an analytical laboratory for (1) a Ca and S analysis to confirm the percentage of gypsum in the product and (2) an X-ray diffraction analysis to identify any mineral contaminants.	Evolution will obtain an analysis of the gypsum product from ECO-Gypsum (the CGO's existing gypsum supplier) by ALS Minerals in Brisbane for: • Calcium (Ca) and Sulphur (S) analysis to confirm the percentage of gypsum in the product; and • an X-ray diffraction analysis to identify any mineral contaminants.
2015 IMP Recommendation 4: CGM should calculate, for the current spacing between berms on the waste rock dumps, the runoff for different recurrence intervals and compare this with the estimated berm capacity to provide confidence in the current design parameters for erosion control and dump stability.	The final landform design concepts for the outer batter slopes of the waste rock emplacements include: • wide, reverse graded berms and berm bunds to reduce the potential for longitudinal runoff downslope; • rock armouring of slopes (and berms) to stabilise the slope, reduce runoff velocity downslope and reduce erosion potential in the long-term: • cross-ripping the rock mulch and gypsum-treated soil along the contour of the slope to create 'troughs and banks' to minimise the potential for erosion downslope and enhance vegetation establishment within the troughs • revegetation with native and/or endemic Eucalypt woodland, shrub land and grassland species suited to slope and elevated positions similar to remnant vegetation in the surrounding landscape. Monitoring results of rehabilitation trial plots and rehabilitated areas on waste rock emplacement slopes using the final landform design concepts above, have demonstrated that this landform design is likely to stabilise landform slopes and provide a suitable plant growth medium.
2015 IMP Recommendation 5: CGM should continue to liaise with Assoc Prof Stephen Cattle, University of Sydney, who	To resolve the matter of apparently high metal analyses in dust samples, Evolution will engage Dr Barry Noller, Principal Research

IMP Recommendation September 2015	Evolution Mining Response to IMP Recommendations (dated 15 January 2016)
conducts the dust analyses for the mine, to ensure that the matter of apparently high metal analyses in dust samples is resolved.	Fellow with the Centre for Mined Land Rehabilitation at the University of Queensland, to conduct an expert review of: • the effectiveness of the dust sample collection procedures and dust sample analysis procedures in the determination of metal concentrations in dust samples; and • the metal concentrations in depositional dust samples collected by the CGO to date against metal concentrations of regolith materials, geochemical test work results of CGO waste rock material and Lake Cowal surface water and sediment monitoring results.

5.17.2 Conclusion

The Independent Monitoring Panel Reports prepared annually between 2013 and 2015 have provided a useful third party review of the status of the Cowal Gold Operations activities in relation to environment and rehabilitation. Cowal Gold Operations have responded to the Independent Monitoring Panel recommendations in a timely manner and developed programs addressing the recommended requirements within the subsequent 12 month Independent Monitoring Panel review period where practicable.

6. Conclusions and Recommendations

The independent environmental audit conducted between 26-29 April 2016 to satisfy Development Consent 14/98 MOD 11 condition 9.2(a), assessed compliance of the Cowal Gold Operations for the period of 1 May 2013 to 30 April 2016.

The Cowal Gold Operations operated under Development Consent 14/98 MOD 10 until 22 July 2014 when Development Consent 14/98 MOD 11 was granted. The Cowal Gold Operations were undertaken under the MOD 11 conditions after 22 July 2014.

Site inspections, document review and discussions with relevant Cowal Gold Operations personnel were undertaken during 26 and 29 April 2016 with additional information for verification of compliance with Development Consent 14/98 provided as requested by the auditor following the site visit.

The files held at the Cowal Gold Operations site and information from Cowal Gold Operations personnel on site provided the auditors with the required documentation for verification of implementation of the commitments in the environmental management plans and compliance with the Development Consent 14/98 and other statutory approvals.

The Cowal Gold Operations have been developed generally in accordance with the environmental assessments prepared for project and the audit findings confirm an overall high standard of general compliance with the Development Consent conditions, Environment Protection Licence and requirements of the environmental conditions attached to the Mining Lease 1535.

Annual Review – Administrative Non-Compliance

The 2014 Annual Review was prepared by the 31 July 2015 and submitted to the Secretary of DP&E until 7 September 2015. The Annual Review was required to be submitted to the Secretary by the end of July. This non-compliance with Development 14/98 MOD 11 condition 9.1(b) was an Administrative Non-Compliance only and did not result in any risk of environmental harm.

Rehabilitation – Administrative Non-Compliance

The Rehabilitation Management Plan prepared to address Development Consent 14/98 MOD 11 condition2.4(c) was submitted to DRE for approval on 13 April 2015. Cowal Gold Operations was still awaiting approval from DRE at the date of this audit (April 2016).

Flora and Fauna

During the Cowal Gold Operations site visit in April 2016, a large number of macropods were observed on or around the southern offset area. In the event that regeneration of the groundcover layer within the offset site is impeded by the grazing pressure from the macropod population.

Recommendation:
It is recommended that consideration should be given to controlling overabundant macropod numbers on the revegetation enhancement site at Fellman's Hill to encourage new plant growth and maintain species diversity".

Biodiversity Offsets Strategy – Administrative Non-Compliance

A Voluntary Planning Agreement (VPA) for the Biodiversity Offset Areas was prepared and submitted to DP&E on 28 April 2014. A decision on the Voluntary Planning Agreement by DP&E in relation to the long term protection of the biodiversity offset areas was still under consideration by DP&E at the date of this audit (April 2016).

Blasting – Non-Compliance (Low Risk)

Blast monitoring conducted at the fixed monitor locations around the Cowal Gold Operations site demonstrated compliance with the overpressure and vibration Day and Evening criteria in Development Consent 14/98 6.3(a). Blast related events that resulted in exceedance of the Development Consent 14/98 6.3(a) Sundays and Public Holidays criteria of 95dB(L) occurred from five (5) blasts between May 2013 and May 2014; ten (10) blasts between May and December 2014; one (1) blast between January and December 2015; and two blast events between January and April 2016.

The majority of the non-compliances related to blast overpressure that exceeded the 95 dB(L) level on Sundays and Public Holidays were assessed by The SAROS Group as generally a result of ambient wind speed and direction or due to local environmental factors that were not able to be differentiated from background levels.

No complaints were received in relation to the Sundays and Public Holidays blast overpressure results.

Erosion and Sediment Control – Non-Compliance ML 1535 condition14

Soil erosion primarily due to the dispersive subsoils was observed in the upper sections of the mine void and the north-western end of the perimeter waste emplacement. (Sediment and turbid run-off from these areas is captured by the site drainage system and therefore there is limited potential for off-site water quality impacts from this erosion). Following the site inspection of the Cowal Gold Operations, recommendations resulting from the site observations related to tunnel erosion on site provided to reduce the risk of further tunnel erosion were:

Observation 1
Monitor rehabilitated areas of the waste rock emplacements for evidence of tunnel erosion (inlets and outlets) following rain events. If there is evidence of tunnel erosion, consider undertaking soil characterisation and erosion and landform evolution modelling to verify the current landform design or to develop an amended landform design.
Soil characterisation and landform evolution modelling using WEPP and SIBERIA has demonstrated that free draining concave landforms are often more appropriate for dispersive mine soils than traditional benched landforms that encourage water ponding on slopes. It is relatively cost effective process to characterise site soils and undertake erosion and landform evolution modelling compared with the cost of remediation works should tunnels form.

Observation 2
Incorporate Gypsum into the site soil prior to capping with rock and topsoil.
The risk of tunnel erosion can be reduced by incorporating sufficient Gypsum into the soil to reduce the Exchangeable Sodium Percentage to less than 6. Gypsum has very low solubility and must be incorporated into the soil (mixed) to be effective. Current site practice is to spread Gypsum over the subsoil prior to the placement of waste rock and topsoil. The Gypsum should be mixed into the soil via contour ripping to a depth of 0.5 m.

Observation 3:

Ensure the design of any future void cut backs create gradients suitable for the incorporation of Gypsum into the dispersive subsoils or allows capping with suitable non-dispersive material.

The gradient of the upper sections of the void walls are too steep to allow either ripping of Gypsum into the soil to reduce the Exchangeable Sodium Percentage to less than 6 or to cap the exposed dispersive soil with suitable non-dispersive material. It is understood that future cut backs of the pit are being considered. This would be the appropriate time to modify the design to mitigate the dispersion. If left untreated it is possible that tunnels could extend into the Lake Protection Bund.

It is recommended that advice be sought from an experienced soil scientist in this regard.

Attachment A **Consolidated Development Consent 14/98 Conditions**

Attachment B **Environment Protection Licence 11912 Conditions**

Attachment C **Mining Lease 1535 Environmental Conditions**

Attachment A

Consolidated Development Consent 14/98 MOD 11

Attachment A
Consolidated Development Consent 14/98 MOD 11

Light blue type represents May 2016 modification – MOD 12

No.	DA 14/98 Minister's Condition of Approval	Verification	Comments	Compliance
1.1	Adherence to terms of DA, EIS, SIS, etc.			
	The Development is to be carried out generally in accordance with: (i) EIS; and (ii) conditions of this consent. *Note: The general layout of the development is shown in Appendix 1.*	• EIS, North Gold (WA) Ltd, prepared by Resource Strategies, 13 Mar 1998; • Environmental Assessment - Cowal Gold Mine Extension Modification 12 September 2013, Resource Strategies • Modification Application (MOD 12), Evolution Mining, 24 Mar 2016	The Cowal Gold Operations project has been developed generally in accordance with the 1998 EIS, Commission of Inquiry submissions, supporting documentation, the Development Consent 14/98 Conditions of Approval and Modifications to the Development Consent granted under the *Environment Planning and Assessment Act 1979*. MOD 12 Application was submitted to DP&E on 24 March 2016 and draft Notice of Modification was received by Evolution Mining on 22 April 2016 and the Determination was received on 16 May 2016.	**Compliant Ongoing**
1.1(b)	If there is any inconsistency between the above documents, the latter document shall prevail over the former to the extent of the inconsistency. However, the conditions of this consent shall prevail over all such documents to the extent of any inconsistency.			**Noted**
1.1(c)	The Applicant shall comply with any reasonable requirements of the Secretary arising from the Department's assessment of: (i) any strategies, plans, programs, reviews, reports, audits or correspondence that are submitted in accordance with this consent (including any stages of these documents); (ii) any reviews, reports or audits commissioned by the Department regarding compliance with this consent; and (iii) the implementation of any actions or measures contained in these documents.			**Noted**

No.	DA 14/98 Minister's Condition of Approval	Verification	Comments	Compliance
1.2	***Period of Approval/Project Commencement***			
	(i) Mining operations may take place until 31 December 2024. *Note: Under this approval, the Applicant is required to rehabilitate the site and perform additional undertakings to the satisfaction of the D-G and DII (Minerals). Consequently, this approval will continue to apply in all other respects other than the right to conduct mining operations until the site has been properly rehabilitated.*	• Letter from DMR Mining Application No. 45 – Cowal Gold Project, 18 June 2003	Mining Lease (ML 1535) was granted on 13 June 2003 and mining operations commenced on 21 April 2005. The development consent will continue to apply until the site has been properly rehabilitated.	**Noted**
	(a) The Applicant shall not process more than 7.5 million tonnes of ore on site in any calendar year.			**Compliant**
	The Applicant shall comply with the following maximum heights: (i) Northern Rock Emplacement - 308 m AHD; (ii) Southern Rock Emplacement - 283 m AHD; (iii) Southern Tailings Storage Facility - 255 m AHD; (iv) Northern Tailings Storage Facility - 248 m AHD; and (v) Perimeter Rock Emplacement - 233 m AHD.		The development of the Cowal Gold Mine under Development Consent 14/98 MOD 11 will occur in accordance with the requirements of the Development Consent 14/98 MOD 11 conditions.	**Noted**
	(b) The Applicant shall not carry out any construction work on the Tailings Storage Facility embankments outside of the hours of 7 am to 6 pm.		Construction work on the Tailings Storage Facility(s) embankments are only conducted between 7 am to 6 pm.	**Compliant Ongoing**
1.3	**Structural Adequacy**			
	The Applicant shall ensure that all new buildings and structures on site, and any alterations or additions to existing buildings and structures, are constructed in accordance with the relevant requirements of the BCA.	• Final Occupation Certificate OCC/2015/041, BSC 5 Mar 2015	A Final Occupation Certificate OCC/2015/04.for a new Industrial storage shed (BCA Classification 8) was granted by BSC on 5 March 2015.	**Compliant**
1.4	**Demolition**			
	The Applicant shall ensure that all demolition work undertaken on site is carried out in accordance with AS 26012001: The Demolition of Structures, or its latest version.	• Letter from BSC re Demolition and Removal of Structures, 25 May 2015 • BSC Consent (ACDC/2015/007) for Demolition and Removal of Derelict Structure, 419 Uncle Bills Road, Lake Cowal (Lot 64 DP753083, 4 Jun 2015 • Email re Demolition of Derelict Buildings at Corringle, 15 Sep 2015	Bland Shire Council issued ACDC/2015/007 for the demolition and removal of derelict structure at 419 Uncle Bills Road, Lake Cowal (Lot 64 DP753083, on 4 Jun 2015. Approval to proceed with the demolition of derelict buildings at "Corringle" Bonehams Lane was received from BSC on 21 September 2015.	**Compliant**
1.5	**Protection of Public Infrastructure**			

No.	DA 14/98 Minister's Condition of Approval	Verification	Comments	Compliance
	Unless the Applicant and the applicable authority agree otherwise, the Applicant shall: (a) repair, or pay the full costs associated with repairing, any public infrastructure that is damaged by the development; and (b) relocate or pay the full costs associated with relocating, any public infrastructure that needs to be relocated as a result of the development. *Note: This condition does not apply to any damage to roads caused as a result of general road usage.*		No public infrastructure was damaged or relocated between May 2013 and April 2016.	**Noted**
1.6	**Operation of Plant and Equipment**			
	The Applicant shall ensure that all plant and equipment used on site, or to monitor the performance of the development, is maintained and operated in a proper and efficient manner.		Plant and equipment used on site, and equipment and instruments used to monitor the performance of the Cowal Gold Operations development, is maintained and operated in a proper and efficient manner.	**Compliant Ongoing**
1.7	**Staging and Updating Strategies, Plans or Programs**			
	To ensure the strategies, plans and programs under this consent are updated on a regular basis, and that they incorporate any appropriate additional measures to improve the environmental performance of the development, time submit revised strategies, plans or programs to the Secretary for approval with the agreement of the Secretary, the Applicant may also submit any strategy, plan or program required by this consent on a staged basis. The Secretary may approve a revised strategy, plan or program required under this approval, or the staged submission of any of these documents, at any time. With the agreement of the Secretary, the Applicant may prepare a revision of or a stage of a strategy, plan or program without undertaking consultation with all parties nominated under the applicable condition in this consent *Note: While any strategy, plan or program may be submitted on a staged basis, the Applicant will need to ensure that the existing operations on site are covered by suitable strategies, plans or programs at all times. If the submission of any strategy, plan or program is to be staged, then the relevant strategy, plan or program must clearly describe the specific stage to which the strategy, plan or program applies, the relationship of this stage to any future stages, and the trigger for updating the strategy, plan or program.*		The strategies, plans and programs under Development Consent 14/98 have been revised and updated on a regular basis as necessary. The strategies, plans and programs to meet the requirements of Development Consent 14/98 MOD 11 were revised and updated as required in May 2015. The revised documents were submitted to the relevant agencies for approval.	**Compliant**
1.8	**Dispute Resolution**			
	In the event that the Applicant and the BSC or any Government agency, other than the Department, cannot			**Noted**

No.	DA 14/98 Minister's Condition of Approval	Verification	Comments	Compliance
	agree on the specification or requirements applicable under this consent, the matter shall be referred by either party to the Secretary for resolution. The Secretary's determination on the dispute shall be final and binding on the parties.			
2	**MINE MANAGEMENT**			
2.1	***Mine Management Plan, Operations and Methods***			
	The Applicant shall prepare and implement a Mining Operations Plan for the development to the satisfaction of DRE. This plan must be prepared in accordance with any current guidelines issued for such plans by DRE, and should include a geotechnical analysis and review of ongoing open pit development, the management of waste rock emplacements, and continued monitoring of the lake protection bund.	• Letter from DI&I re Approval of MOP Jan 2011 to Sep 2012, 30 Mar 2011 • Letter to DTIRIS re Variation to MOP, 5 Apr 2012 • MOP Oct 2012 to Jan 2014 • Letter to DT&I- DRE re Extension of MOP to 31 Jan 2015, 27 Sep 2013 • Letter from DT&I-DRE re Approval of MOP Extension, 4 Oct 2013 • Draft MOP April 2014 to April 2016	A MOP for January 2011 to September 2012 was submitted to DI&I and accepted on 30 March 2011. A Variation to the MOP was requested in a letter to DTIRIS on 5 April 2012 for the Southern Tailings Storage Facility (fourth lift) and the Northern Waste Rock Emplacement (storage volume elevation increase). On 4 October 2013, the D-G of the DTIRIS-DRE granted an extension to the term of the previous *Cowal Gold Mine Mining Operations Plan (ML 1535) October 2012 – January 2014*) to 31 January 2015 to align with the resubmission of the Modification before DP&I. The Mining Operations Plan (MOP) was prepared in accordance with the requirements of the Mining Lease 1535 condition 25, Development Consent 14/98 condition 2.1 and the NSW Department of Trade and Investment, Regional Infrastructure and Services – Division of Resources and Energy (DTIRIS-DRE) *ESG3: Mining Operations Plan (MOP) Guidelines, September 2013* (the MOP Guidelines) (DTIRIS-DRE, 2013). This MOP describes the proposed operational mining activities for the approved Cowal Gold Operations for the period 30 April 2014 to 30 April 2016.	**Compliant**
2.2	***Ore, Waste and Concentrate Production***			
	The Applicant shall not transport ore or other excavated materials not required for either construction or maintenance works from other mines or locations to the mine site without the written approval of the relevant councils.		No ore or excavated materials from other mines or locations have been transported to the Cowal Gold Operations site between May 2013 and April 2016.	**Compliant**
2.3	***Mine and Public safety***			
	The Applicant shall secure the mine site as described in section 2.10.5 of the EIS. The fence for the MLA boundary shall be designed to minimise the impact on water birds and aquatic species.		A 1.3m wire strand fence was erected around the Mining Lease Area in 2004 in accordance with the design requirements. The ML 1535 boundary fence is maintained by Cowal Gold Operations.	**Compliant**
2.4	**Rehabilitation**			
(a)	**Rehabilitation Objectives**			

<table>
<tr><th>No.</th><th>DA 14/98 Minister's Condition of Approval</th><th>Verification</th><th>Comments</th><th>Compliance</th></tr>
<tr>
<td>2.4(a)</td>
<td>The Applicant shall rehabilitate the site to the satisfaction of DRE. This rehabilitation must be generally consistent with the proposed rehabilitation in the EIS (which is depicted in the Figure in Appendix 2) as amended by the approved rehabilitation strategy (see condition 3.8), and comply with the objectives in Table 1.

Table 1: Rehabilitation objectives
<table>
<tr><th>Feature</th><th>Objective</th></tr>
<tr><td>Mine site
(as a whole)</td><td>• Safe, stable and non-polluting. Final landforms designed to incorporate micro-relief and integrate with surrounding natural landforms.
• Constructed landforms are to generally drain to the final void.
• Minimise long term groundwater seepage zones.
• Minimise visual impact of final landforms as far as is reasonable and feasible</td></tr>
<tr><td>Final void</td><td>• Minimise to the greatest extent practicable: - the size and depth of final void;
- the drainage catchment of final void;
- risk of flood interaction for all flood events up to and including the Probable Maximum Flood;
• To be permanently separated from Lake Cowal by the Lake Protection Bund.
• Highwall to be long term stable</td></tr>
<tr><td>Surface infrastructure</td><td>• To be decommissioned and removed, unless DRE agrees otherwise</td></tr>
<tr><td>Agriculture</td><td>• Restore or maintain land capability generally as described in the EIS</td></tr>
<tr><td>Rehabilitation and other vegetated land</td><td>• Restore ecosystem function, including maintaining or establishing self-sustaining ecosystems</td></tr>
</table>
</td>
<td>• Rehabilitation and Offset Management Plan, Dec 2010

 
Rehabilitated waste dumps rough surfaces
 
Progressive rehabilitation to minimise visual impacts of the landforms</td>
<td>The Rehabilitation and Offset Management Plan (dated December 2010) was prepared to satisfy Development Consent 14/98 MOD 10 condition 3.6(b).
The overall objectives of the rehabilitation program to meet the requirements of Development Consent 14/98 MOD 11 condition 2.4(c) are:
<table>
<tr><th>Feature</th><th>Objective</th></tr>
<tr><td>Mine site
(as a whole)</td><td>• Rehabilitated waste dumps had rough surfaces from mixing of topsoil and rock and ripping. The waste dump landform design includes terraces but does not include large structural drainage control measures that assists integration of the waste dump into the natural landscape.
• The void is being actively mined and being dewatered for operation reasons
• Progressive rehabilitation has been undertaken of tailings dam outer batter and waste dumps to minimise visual impacts of the landforms. At the time of the audit geotechnical stability works were being undertaken on the outer batters of the Northern Tailings Storage Facility which has impacted on some of the existing rehabilitation works however this is generally not visible outside of the mining lease boundary.</td></tr>
<tr><td>Final void</td><td>Not yet triggered.</td></tr>
<tr><td>Surface infrastructure</td><td>Not yet triggered</td></tr>
<tr><td>Agriculture</td><td>Not yet triggered</td></tr>
<tr><td>Rehabilitation areas and other vegetated land</td><td>Native ecosystems are being established on waste dumps and rehabilitation monitoring is being undertaken using Ecosystem Function Analysis to assess progression against key indicators.</td></tr>
<tr><td>Community</td><td>Security fencing, signage and personnel are in place preventing</td></tr>
</table>
</td>
<td>Compliant
Ongoing</td>
</tr>
</table>

<table>
<tr><th>No.</th><th>DA 14/98 Minister's Condition of Approval</th><th>Verification</th><th>Comments</th><th>Compliance</th></tr>
<tr><td></td><td><table><tr><td>Community</td><td>• Ensure public safety.
• Minimise adverse socio-economic effects associated with mine closure</td></tr></table></td><td></td><td><table><tr><td></td><td>unauthorised access to mining operations.</td></tr></table></td><td></td></tr>
<tr><td>2.4(b)</td><td>Progressive Rehabilitation</td><td></td><td></td><td></td></tr>
<tr><td>2.4(b)</td><td>The Applicant shall rehabilitate the site progressively as soon as reasonably practicable following disturbance. All reasonable and feasible measures must be taken to minimise the total area exposed for dust generation at any time. Interim stabilization and rehabilitation strategies shall be employed when areas prone to dust generation cannot be permanently rehabilitated.
Note: It is accepted that some parts of the site that are progressively rehabilitated may be subject to further disturbance at some later stage of the development.</td><td></td><td>Progressive rehabilitation of disturbed areas of the Cowal Gold Operations MLA is occurring as soon as reasonably practicable in accordance with the MOP.
Progressive rehabilitation of waste dumps, tailings storage facility outer slopes and the Lake Protection Bund has been undertaken. The mine reported the following progressive rehabilitation areas for 2013 to 2015:<table><tr><th>Year</th><th>2013</th><th>2014</th><th>2015</th></tr><tr><td>Rehabilitation</td><td>118ha</td><td>110ha</td><td>37ha</td></tr></table>The mine has modified their rehabilitation techniques to take into the results from site rehabilitation trials and expert advice (Landloch, 2009). As such waste rock and topsoil are now blended to form an erosion resistant surface that encourages deep infiltration of water. Waste rock is placed over dispersive subsoil and then topsoil is placed over the waste rock and deep ripped. The placement of waste rock over the dispersive subsoil significantly reduces the potential for dust generation from waste dumps.</td><td>Compliant Ongoing</td></tr>
<tr><td>(c)</td><td>Rehabilitation Management Plan</td><td></td><td></td><td></td></tr>
<tr><td>2.4(c)</td><td>The Applicant shall prepare and implement a Rehabilitation Management Plan for the development to the satisfaction of DRE. This plan must:
(i) be prepared in consultation with the Department, NOW, OEH, DPI, BSC and the CEMCC;
(ii) be prepared in accordance with any relevant DRE guideline;
(iii) describe how the rehabilitation of the site would be integrated with the biodiversity offset strategy for the development;
(iv) include detailed performance and completion criteria for evaluating the performance of the rehabilitation of the site, and triggering remedial action (if necessary);
(v) describe the measures that would be implemented to ensure compliance with the relevant conditions of this consent, and address all aspects of rehabilitation including mine closure, final landform (including final voids) and final land use;</td><td>• Rehabilitation Management Plan, Feb 2015
• Letter to OEH re Rehabilitation Management Plan, 13 Feb 2015
• Letter to NOW re Rehabilitation Management Plan, 13 Feb 2015
• Letter to DP&E re Rehabilitation Management Plan, 24 Feb 2015
• Letter from DP&E re of Rehabilitation Management Plan, 24 Feb 2015
• Letter to DRE re Rehabilitation Plan for Approval, 13 April 2015</td><td>A Rehabilitation Management Plan to satisfy Development Consent 14/98 MOD 11 condition 2.4(c) was prepared in accordance with DRE guidelines in February 2015 and submitted for consultation to the relevant agencies on 13 February 2015:<table><tr><th></th><th colspan="2">Rehabilitation Management Plan</th></tr><tr><th>Agency for comments</th><th>Date Submitted for Comment</th><th>Date Response Received</th></tr><tr><td>DP&E</td><td>13 Feb 2015</td><td>24 Feb 2015</td></tr><tr><td>OEH</td><td>13 Feb 2015</td><td>13 Mar 2015</td></tr><tr><td>NOW</td><td>13 Feb 2015</td><td>18 Feb 2015</td></tr><tr><td>DPI(Fisheries)</td><td>13 Feb 2015</td><td>26 Feb 2015</td></tr><tr><td>BSC</td><td>13 Feb 2015</td><td>18 Feb 2015</td></tr><tr><td>CEMCC</td><td>13 Feb 2015</td><td>27 Mar 2015</td></tr></table></td><td>Compliant</td></tr>
</table>

No.	DA 14/98 Minister's Condition of Approval	Verification	Comments	Compliance
	(vi) include interim rehabilitation where necessary to minimise the area exposed for dust generation; (vii) include a program to monitor, independently audit and report on the effectiveness of the measures, and progress against the detailed performance and completion criteria; and (viii) build to the maximum extent practicable on the other management plans required under this consent.	• Letter to DRE re Revised MOP and Rehabilitation Management Plan, 2 Oct 2015	The Rehabilitation Management Plan was revised to address the responses from the agencies and the revised Rehabilitation Management Plan submitted to DRE for approval on 13 April 2015. Cowal Gold Operations amended the MOP (2014-2016) and submitted the MOP with the revised Rehabilitation Management Plan to DRE on 2 October 2015. Cowal Gold was awaiting approval from DRE at the date of this audit (April 2016).	**Administrative Non-compliance**
2.5	**Security Deposits and Bonds**			
	Security deposits and bonds will be paid as required by DRE under mining lease approval conditions.	• DPI Tax Invoice for Area 2636ha, 10 Jul 2015	Security deposits and bonds required under Mining Lease 1535 have been lodged with DRE as required. Annual Rent for ML 1535 lodged with DPI on 21 July 2015 was sighted during the audit.	**Compliant**
3	**HERITAGE, FLORA AND FAUNA AND LAND MANAGEMENT**			
3.1	**Heritage Management**			
3.1(a)	The Applicant shall: (i) prepare and implement a Heritage Management Plan for the development to the satisfaction of the Secretary. The plan shall be prepared in consultation with Bland District Historical Society, BSC, and Lake Cowal landholders/residents and address non-indigenous cultural heritage issues associated with the development; (ii) prepare and implement an Indigenous Archaeology and Cultural Management Plan for the development to the satisfaction of the Secretary. The plan shall be prepared in consultation with NPWS, the Local Aboriginal Land Council, a consultant archaeologist, any other stakeholders identified by NPWS; and identify future salvage, excavation and monitoring of any archaeological sites within the DA area prior to and during development, and to address Aboriginal cultural heritage issues; and (iii) retain a Cultural Heritage Officer approved by the West Wyalong Local Aboriginal Land Council who is to be available on site during construction earthworks.	• Heritage Management Plan Sept 2003 • Letter from BSC re European Heritage Management Plan, 25 Sep 2003 • Letter from DIPNR re Approval of the Indigenous Archaeology and Cultural Heritage Management Plan, 11 Nov 2003 • Letter to DP&E re Indigenous Archaeology and Cultural Heritage Management Plan, 2 Apr 2015 • Letter from DP&E re Indigenous Archaeology and Cultural Heritage Management Plan, 10 Mar 2015 • Letter to DP&E re Indigenous Archaeology and Cultural Heritage Management Plan, 2 Apr 2015	(a)(i) A Heritage Management Plan was prepared and approved on 25 September 2003 in consultation with the Bland District Historical Society, BSC, and Lake Cowal landholders/ residents. The Heritage Management Plan was reviewed during 2015 and DP&E was advised on 10 March 2015 no revision was necessary. (a)(ii) The Indigenous Archaeology and Cultural Management Plan prepared in consultation with the NPWS, Wiradjuri-Condobolin Cultural Heritage Company. Dr Colin Pardoe (Principal Consulting Archaeologist) was approved by DoP on 11 November 2003. The Indigenous Archaeology and Cultural Management Plan was reviewed in 2015 and a letter to DP&E provided to advise no revision was required. DP&E responded on 10 March 2015 with comment that "*reference to approvals, and requirement for monitoring results to be published on the company website.*" (a)(iii) Cultural Heritage Officers provided by WCC, (under the guidance of the Principal Consulting Archaeologist) undertake archaeological site survey/ investigations prior to any land disturbance or earthworks at the Cowal Gold Operations ML 1535 site, as required.	**Compliant**
3.1(b)	The Applicant shall monitor the effectiveness of measures outlined in the Heritage Management plan and Indigenous Archaeology and Cultural Management Plan to the	• Indigenous Archaeology and Cultural Heritage Management Plan 2003	The management of Aboriginal heritage has been undertaken in accordance with the Indigenous Aboriginal and Cultural Heritage Management Plan.	**Compliant**

No.	DA 14/98 Minister's Condition of Approval	Verification	Comments	Compliance
	satisfaction of the Secretary. A summary of the monitoring results is to be published annually on the Applicant's website for the development.	• 2012 AEMR • 2013 AEMR • 2014 Annual Review	The monitoring of management actions and registered sites/items have been reported in the AEMR section 3.13.	
3.2	**Flora and Fauna Management**			
3.2(a)	The Applicant shall: (i) minimise the removal of trees and other vegetation from the mine site and restrict any clearance to the areas occupied by the mine activity, buildings and paved surfaces, and those areas necessary for fire control in accordance with BSC's requirements, and have regard to the draft Mid-Lachlan Regional Vegetation Management Plan (or its final version); (ii) not locate topsoil stockpiles within any area of Wilga Woodland in the DA area as identified in Figure 3-13 in the 1998 EIS (Appendix 3); and (iii) not disturb any area of Belah Woodland in the DA area as identified in Figure 3-13 in the 1998 EIS.	• Letters from DECC, DPI-Minerals and DoP re Acceptance of the Vegetation Clearance Protocols (related to the Inland Grey Box Woodland), August 2007, and Myall Woodland, August/ September 2007 • Letter from DoP re Inland Greybox Woodland, 10 Aug 2007 • Letter from DECC re Inland Greybox Woodland, 27 Aug 2007 • Letter from DECC re Myall Woodland, 29 Aug 2007 • Letter from DECC re Aquatic Ecological Community, 21 Sep 2007 • Letter from DoP re Myall Woodland, 24 Sep 2007 • Letter from DoP re Aquatic Ecological Community, 12 Oct 2007	(i) Flora and Fauna Management Plan (2015) section 9.8 outlines the procedures to avoid removal of vegetation within the ML including delineating vegetation that shall not be cleared prior to any works occurring on site. The Vegetation Clearance Protocol includes the management of enhancement of remnant vegetation. The Flora and Fauna Management Plan (2015) section 9.3, outlines the Remnant Vegetation Enhancement Program for the Cowal Gold Operations. The Vegetation Clearance Protocol (VCP) has ensured that clearance of vegetation has been restricted to areas on ML 1535 required for mine activity, buildings, paved surfaces and areas necessary for fire control. (ii) No topsoil stockpiles have been located on Wilga Woodland areas. Cowal Gold Operations avoids stockpiling topsoil within the areas of vegetation, (that include the areas of Weeping Myall – Belah – Poplar Box Shrubland and Woodland within the Cowal Gold Operations site; (iii) Belah Woodland areas within the ML 1535 have not been disturbed.	**Compliant**
3.2(b)	The Applicant shall prepare and implement a Flora and Fauna Management Plan for the development to the satisfaction of the Secretary. The shall be prepared in consultation with DPI (Fisheries) and OEH, and cover the mining lease area and monitoring of bird breeding areas as identified by the Applicant in consultation with OEH. The plan shall include, but not be limited to:	• Flora and Fauna Management Plan Nov 2012 • Letter from OEH re Flora and Fauna Management Plan, 8 May 2015 • Letter to OEH re Revisions to Flora and Fauna Management Plan as per OEH's comments in earlier correspondence (8 May 2015). 19 May • Email from NSW DPI-Fisheries re Flora and Fauna Management Plan, 6 May 2015.	The Flora and Fauna Management Plan was approved by the Director General on 30 October 2003. An amended Flora and Fauna Management Plan was approved on 30 October 2008. A revised Flora and Fauna Management Plan for Development Consent 14/98 MOD 10, including a Threatened Species Management Strategy was submitted to DP&I in 13 November 2012. The Flora and Fauna Management Plan to satisfy the requirements of Development Consent 14/98 MOD 11 condition 3.2(b) was approved by DP&E on 21 March 2016. The implementation of the Threatened Species Management Protocol is reported in the Annual Reviews in sections 3.7.	**Compliant**

No.	DA 14/98 Minister's Condition of Approval	Verification	Comments	Compliance
		• Letter to DP&E Finalised Flora and Fauna Management Plan,19 May 2015 • Letter from DP&E re Approval of the Flora and Fauna Management Plan, 21 March 2016 • Flora and Fauna Management Plan, May 2015		

3.2(b)(i)	methods for monitoring daily and seasonal fauna usage of tailings dams (e.g. species, number, location, habits), and whether deaths or other effects or incidents are occurring. Usage of the tailings dams shall be reported to the OEH on a six monthly basis, unless otherwise directed by the Secretary;	• Seasonal Wildlife Use Pattern of the CGM Tailings Facility, Donato Environmental Services:
		  • Apr 2013 to Sep 2013
		  • Oct 2013 to Mar 2014
		  • Jul to 31 Dec 2014
		  • Jan to Jun 2015
		  • Jul to Dec 2015
		  • Jan to Apr 2016 (in preparation)
		• Letter to EPA re Seasonal Wildlife Use Pattern of the CGM Tailings Facility, Donato Environmental Services, 13 Feb 2015
		• Letter to DP&E re Seasonal Wildlife Use Pattern of the CGM Tailings Facility, Donato Environmental Services, 13 Feb 2015
			(i) Flora and Fauna Management Plan Section 4 prepared for Development Consent 14/98 MOD 11 has the protocol for the reporting of any native fauna deaths or other incidents involving native fauna on the mining lease.
			Twice daily patrols of the perimeter of the dams to observe and record fauna usage, fence integrity and or maintenance requirements. Patrols occur after dawn and in late afternoon. Patrols will check for dead animals or other effects or incidents occurring. A range of data is collected during each patrol including the behaviour of fauna on/near/over the dams, fauna effects and incidents (as defined in the Flora and Fauna Management Plan) and fauna deaths.
			The six-monthly Donato reports on seasonal wildlife use of the tailings facility have been submitted to EPA/OEH and the reports conclude:
			"No deaths on the tailings storage facilities have been recorded and cyanide concentrations have been consistently below the level that would expected to cause mortality" (Donato 2013- 2014).
				Compliant Ongoing

3.2(b)(ii)	development of a protocol for the reporting of any native fauna deaths or other incidents involving native fauna on the mining lease to the OEH, DRE, CEMCC and in the case of fish, DPI (Fisheries). Native fauna deaths (except those attributable to physical trauma such as vehicle strike) must be reported as per this protocol within 24 hours (or next working day). The Applicant shall maintain a record of any native fauna deaths or other incidents and this record must be published annually on the Applicant's website for the development;	• Seasonal Wildlife Use Pattern of the CGM Tailings Facility, Donato Environmental Services:
		  • April 2013 to Sep 2013
		  • Oct 2013 to Mar 2014
		  • Jul 2014 to Dec 2014
		  • Jan to Jun 2015
		  • Jul to Dec 2015
		  • Jan to Apr 2016 (in preparation)
		• Flora and Fauna Management Plan, section 6, May 2015
			(ii) the development of a protocol for the reporting of any native fauna deaths or other incidents involving native fauna on the mining lease to satisfy the requirements of Development Consent 14/98 MOD 11 condition 3.2(b) has been included in the Flora and Fauna Management Plan section 6, approved by DP&E on 21 March 2016.
			Animal deaths and incidents at Cowal Gold Operations site are reported in the Annual Reviews.
				Compliant

No.	DA 14/98 Minister's Condition of Approval	Verification	Comments	Compliance
3.2(b)(iii)	provision for fauna autopsy facilities to enable the cause of any deaths to be quickly determined. The protocol required in sub clause (ii) above shall also detail collection and autopsy of fauna. This shall include but not be limited to collection and recording procedures, autopsy procedures and laboratory tests;	• Flora and Fauna Management Plan Section 6.3, May 2015 • Letters to DPI/DECC/DoP re Native Fauna Incident Notifications, July 2008 to February 2009 • West Wyalong Veterinary Clinic Reports 2010 to Mar 2012 • West Wyalong Veterinary Clinic Incident Report 11142, Mar 2015	(iii) arrangements for the conduct of fauna autopsies to determine the cause of death have been arranged with the West Wyalong Veterinary Clinic. Any fauna for autopsy are transported to the West Wyalong Veterinary Clinic on the same day as they are recorded/found or on the morning following their discovery. Autopsy reports are prepared by the West Wyalong Veterinary Clinic and the reports provided to Evolution Mining and relevant reportable deaths are notified to the relevant government authorities.	**Compliant**
3.2(b)(iv)	provision of contingency measures for reducing cyanide levels in the tailings dams in the event it is established that fauna deaths are occurring from cyanide in tailings dam water;	• Flora and Fauna Management Plan Section 8, May 2015 • Monthly Cyanide Monitoring Data, Jan 2014 to Apr 2015 • 2010 to April 2011 • 2013 AEMR • 2014 Annual Report	(iv) Cyanide levels in the discharge to the tailings storage facilities have been compliant with the approved concentration criteria for all samples collected between May 2013 and April 2016. One cyanide related death was reported from the audit period and this death was reported to the appropriate authorities. OEH did not require any changes to any mine site protocols.	**Compliant**
3.2(b)(v)	development of effective mechanisms to keep fauna and avifauna away from the tailings storages, which shall include, but not be limited to: • minimising the area of open water in the tailings dams; • fencing to prevent both medium and large fauna, terrestrial and amphibians, from entering the area. Mesh will have holes no greater than 5cm in diameter; • making the area non conducive to the establishment of wildlife habitats, as far as possible; • use of netting where practical; and • use of current best practice methods for avifauna deterrence;	• Flora and Fauna Management Plan Section 3, May 2015 • Implementation Plan to Protect Fauna from Interactions with the Tailings Storage Facilities, Feb 2005 • Seasonal Wildlife Use Pattern of the CGM Tailings Facility, Donato Environmental Services: • Nov 2012 to Mar 2013 • April 2013 to Sep 2013 • Oct 2013 to Mar 2014 • Jul 2014 to Dec 2014 • Jan to Jun 2015 • Jul to Dec 2015	(v) Flora and Fauna Management Plan section 3 outlines the mechanisms to keep fauna and avifauna away from the tailings dams. The mechanisms include: a. Fencing to prevent fauna accessing the tailings dam. b. Making the area non-conducive to establishment of wildlife habitat. c. Use of netting; d. Avifauna deterrence mechanisms. A security fence was erected around the tailings storage facilities prior to tailings being discharged in 2005, to restrict the entry of terrestrial fauna. The security fence entrance gate to the TSF is closed except during entrance of vehicles and equipment to the tailings facilities. Deterrent devices have been installed at the tailings storage facilities with radar activated audio units, sonic gas guns and other passive devices to scare any avifauna approaching or landing on the tailings water. The monitoring of wildlife visitation to the tailings storage facilities has indicated no wildlife deaths due to cyanide and cyanide levels have been consistently below the level that would be expected to result in mortality. The six monthly Donato reports monitoring wildlife visitation to the tailings storage facilities have been prepared to assess the	**Compliant**

No.	DA 14/98 Minister's Condition of Approval	Verification	Comments	Compliance
			implementation of measures to protect fauna from interaction with the Tailings Storage Facilities.	
3.2(b)(vi)	development of plans for the rescue and rehabilitation of wildlife that may become bogged/sick/trapped in the tailings dams or elsewhere within the mining lease area;	• Flora and Fauna Management Plan Section 5, May 2015	(vi) Flora and Fauna Management Plan section 5 outlines plans for the rescue and rehabilitation of wildlife from the tailings storage facilities and elsewhere within the mining lease area. A small number of fauna have been rescued from the tailings storage facilities between May 2013 and April 2016. Management of water on the tailings storage facilities has kept the area of exposed water to a minimum (by returning supernatant water to the process plant). The number of birds attracted to the tailings has been small because of the lack of water on the storages.	**Compliant Ongoing**
3.2(b)(vii)	methods to conserve and enhance wildlife values around Lake Cowal, within the mine lease area, including: protection and enhancement of existing retained habitats;	• Flora and Fauna Management Plan Section 9, May 2015	(vii) Flora and Fauna Management Plan section 9 outlines the methods employed by the Cowal Gold Operations to conserve and enhance wildlife values around Lake Cowal and within the mining lease area. Methods used include: a. Compensatory Wetland Management Plan initiatives. b. Remnant vegetation enhancement program. c. Rehabilitation of ML 1535 disturbance areas. d. Threatened species management protocol. e. Vegetation clearance protocol. f. Weed management. g. Pest control. Protection of habitat around the Lake Cowal foreshore within ML 1535 has resulted in establishment of native tree species following the inundation of Lake Cowal in 2010-2012.	**Compliant Ongoing**
3.2(b)(viii)	provision to continue fauna and flora, fish, and aquatic invertebrate monitoring of the Lake Cowal region as documented in the EIS including investigation of fauna deaths off site if requested by the Secretary where it is considered the deaths are attributable to activities on the site;	• Surface, Groundwater, Meteorological and Biological Monitoring Program	(viii) Biological monitoring has occurred on Lake Cowal during the period of inundation of the water in the lake when the water level was above the 204.5 AHD trigger level. Fish and aquatic invertebrate monitoring was not undertaken between May 2013 and April 2016, as the lake was dry throughout. The last fish and aquatic habitat monitoring period was in February 2013 which is outside of the audit period.	**Compliant Ongoing**
3.2(b)(ix)	details to relocate any threatened species and/or its habitat away from disturbed areas that are created by mine operations. This will include placement and maintenance of suitable types and numbers of artificial roosting boxes for bats such as the Greater Long-eared	• Flora and Fauna Management Plan Section 10, Oct 2008 • Flora and Fauna Management - Plan Threatened Species Management Protocol Nov 2012	(ix) Flora and Fauna Management Plan Section 9.3.1 outlines the commitment to provide habitat for herpetofauna, install nest boxes and the provision of bat roosts. Flora and Fauna Management Plan Section 9.7.3 also describes short and long term	**Compliant Ongoing**

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	Bat and other animals (eg birds/possums) in undisturbed areas of the mine site; and	• Flora and Fauna Management Plan Section 9, May 2015	management strategies for fauna on the site including the installation of nest boxes and bat boxes and the relocation of habitat features salvaged from felled trees. The Threatened Species Management Protocol was initiated during 2006 and 2007 for the relocation of active Grey-Crowned Babblers (a threatened species under the NSW *Threatened Species Conservation Act*) nesting sites in an area where vegetation clearance was required. A revision of the Threatened Species Management Protocol for the Inland Forest Bat, Sloanes Froglet and Woodland birds was accepted by the DECCW on 23 February 2011 and submitted to DoP on 13 November 2012. The Threatened Species Management Protocol was not triggered between May 2013 and April 2016.	
3.2(b)(x)	details of monitoring the mine's impacts particularly on birdlife in bird breeding areas identified by the Applicant in consultation with OEH, threatened fauna and flora, and fish and aquatic invertebrates around Lake Cowal, and outline contingency measures should impacts be identified as occurring.	• Flora and Fauna Management Plan Section 11, Oct 2008 • Seasonal Wildlife Use Pattern of the CGM Tailings Facility, Donato Environmental Services, Jul 2013 to Apr 2016 • Waterbird Monitoring Survey Progress Report, Centre for Environmental Management University of Ballarat, Jan 2011 • Waterbird Monitoring Survey Progress Report, Centre for Environmental Management University of Ballarat, Aug 2011	(x) Flora and Fauna Management Plan section 12 outlines the program to monitor impacts of the mine on birdlife in bird breeding areas, threatened flora and fauna and fish and aquatic invertebrates The fauna, flora, fish and aquatic invertebrates monitoring has been conducted in accordance with the Surface Water, Groundwater, Meteorology and Biological Monitoring Program. Monitoring surveys of waterbirds and bird breeding areas has been conducted around the mine site and Lake Cowal area by Dr Peter Gell and Paul Peake, Centre for Environmental Management University of Ballarat, three times a year since the lake filled in 2010. The reports provide survey results of species and estimates of numbers of individual species identified at the monitoring locations. A fish and aquatic invertebrate survey was conducted during February 2011 - the primary findings of the survey were that the fish communities in the study area were species-poor and were dominated by eastern *Gambusia* that accounted for 98% of the catch, with the remaining 2% comprising goldfish and common carp. The Donato reports on seasonal wildlife use patterns at the Cowal Gold Operations site have not provided evidence that any impacts from the mine operations have occurred on any threatened fauna on the site.	**Compliant Ongoing**

No.	DA 14/98 Minister's Condition of Approval	Verification	Comments	Compliance
3.2(c)	The Applicant shall implement a Threatened Species Management Protocol for the development to the satisfaction of the Secretary, which will include provisions for targeted searches prior to construction and proposed mitigation measures where threatened flora or fauna species are found.	• Flora and Fauna Management Plan Appendix A - Threatened Species Management Protocol, Oct 2003 • Letter from DECCW re Threatened Species Management Strategies for Inland Forest Bat, Sloanes Froglet and Woodland Birds, 23 Feb 2011 • Flora and Fauna Management Plan May 2015	(c)A Threatened Species Management Protocol was prepared as part of the Flora and Fauna Management Plan and approved by the Director General on 30 October 2003. DECC, DPI (Minerals) and DoP accepted the Threatened Species Management Strategy for the Aquatic Ecological Community in the natural drainage system of the Lowland Catchment of the Lachlan River in September 2007. The threatened species management strategies for the Inland Forest Bat, Sloanes Froglet and Woodland Birds were submitted to and accepted by DECCW without objections on 23 February 2011 and submitted to DP&I. The Threatened Species Management Protocol and Vegetation Clearance Protocol are current in the Flora and Fauna Management Plan (2015) and would be implemented for any new areas where clearance of vegetation and/or disturbance of threatened species would occur.	**Compliant Ongoing**
3.2(d)	The Applicant shall monitor the effectiveness of measures outlined in the Flora and Fauna Management Plan and Threatened Species Protocol to the satisfaction of the Secretary. A summary of these monitoring results shall be published annually on the Applicant's website for the development.		The monitoring of fauna, flora, fish and aquatic invertebrates is conducted in accordance with the Flora and Fauna Management Plan and Surface Water, Groundwater, Meteorology and Biological Monitoring Program can be accessed on the company website: http://www.evolutionmining.com.au/cowal/.	**Compliant**
3.3	**Compensatory Wetland Management Plan**			
	The Applicant shall prepare and implement a Compensatory Wetland Management Plan for the development to the satisfaction of the Secretary. The plan shall be prepared in consultation with OEH and DPI(Fisheries), Lake Cowal Landowners Association, and Lake Cowal Environmental Trust, and detail compensation measures for the loss of 120 hectares of wetland, through the enhancement of at least the equivalent area of existing wetland within the mine lease area during operation and following closure of the mine. The plan shall include, but not be limited to: (a) a definition of wetland which shall be all land up to the high water mark of Lake Cowal recognising that river red gum habitat is below high water mark; (b) measures to manage the enhanced wetlands without adversely impacting adjoining private properties; and	• Compensatory Wetland Management Plan,25 Sep 2003 • Compensatory Wetland Management Plan, Oct 2008	A Compensatory Wetland Management Plan was submitted and approved by the Director-General on 25 September 2003. The Plan was reviewed in 2008 and 2015 and no revision was required. The Compensatory Wetland Management Plan addressed the requirements of this condition: (a) section 3 of the Compensatory Wetland Management Plan defines a wetland in accordance with the NSW Wetlands Management Policy; (b) section 7 addresses the measures to manage the enhanced wetlands without adversely impacting adjoining private properties; and (c) section 6 addresses the measures to improve habitats for wildlife in the wetlands covered by the plan. Compensatory Wetland Management Plan Section 6.1 notes that the compensatory wetland area covers	**Compliant**

<table>
<tr><th>No.</th><th>DA 14/98 Minister's Condition of Approval</th><th>Verification</th><th>Comments</th><th>Compliance</th></tr>
<tr><td></td><td>(c) measures to improve habitats for wildlife including waterbirds, fish, aquatic organisms etc, in the wetlands covered by the plan.</td><td></td><td>approximately 140 ha of wetland. Annual vegetation monitoring of the compensatory wetland area has been undertaken annually.</td><td></td></tr>
<tr><td>3.4</td><td>Biodiversity Offset Strategy</td><td></td><td></td><td></td></tr>
<tr><td>3.4(a)</td><td>The Applicant shall implement the biodiversity offset strategy summarised in Table 2, shown conceptually in Appendix 4, and described in detail in the EIS to the satisfaction of the Secretary.
Table 2: Summary of Biodiversity Offset Strategy<table><tr><th>Area</th><th>Minimum Size</th></tr><tr><td>Northern Offset Area</td><td>80 ha</td></tr><tr><td>Southern Offset Area</td><td>260 ha</td></tr><tr><td>Southern Offset Area Extension (Mod 11)</td><td>100 ha</td></tr><tr><td>Total</td><td>440 ha</td></tr></table></td><td rowspan="2">• Rehabilitation and Offset Strategy, Dec 2010
• Letter to DP&I re Long Term Security of Offset Areas (VCA Application), 19 Jun 2012
• Letter to DP&I re VPA, 28 Apr 2014</td><td rowspan="2">The proposed offset land is owned by Evolution Mining (part of the 'Lakeview' and 'Hillview' properties) and is secured for long term use as offset areas.
Cowal Gold proposed preparation of a Voluntary Conservation Agreement in consultation with OEH in December 2011. The OEH responded on 17 May 2012 stating that "from a preliminary assessment the proposed Northern Offset Area appears to be of low conservation value and is not likely to be suitable for a Conservation Agreement." Barrick suggested to DP&I a Voluntary Planning Agreement (VPA) as an appropriate mechanism for securing the offset areas and submitted a draft Voluntary Planning Agreement for the offset areas to DP&I on 28 April 2014.
Evolution Mining was awaiting a response from DP&E (at the date of this audit April 2016) in relation to the VPA for the long term protection of the biodiversity offset areas submitted to DP&E on 28 April 2014.</td><td>Compliant Ongoing</td></tr>
<tr><td>3.4(b)</td><td>By the end of July 2015, unless the Secretary agrees otherwise, the Applicant shall make suitable arrangements for the long term protection of the biodiversity offset areas in Table 2 to the satisfaction of the Secretary.</td><td>Administrative Matter</td></tr>
<tr><td>3.4(c)</td><td>The Applicant shall prepare and implement a Biodiversity Offset Management Plan for the development to the satisfaction of the Secretary. This plan must be prepared in consultation with OEH, and include:
(i) a description of the short, medium, and long term measures that would be implemented to:
• implement the biodiversity offset strategy; and
• manage the remnant vegetation in the offset areas; and
• integrate the implementation of the biodiversity offset strategy to the greatest extent practicable with the rehabilitation of the site.
(ii) -
(iii) detailed performance and completion criteria for evaluating the performance of the biodiversity offset strategy, and triggering remedial action (if necessary);
(iv) a detailed description of the measures that would be implemented for: enhancing the quality of existing vegetation and fauna habitat in the biodiversity offset areas; creating native vegetation and fauna habitat in the biodiversity offset areas; o maximising the salvage of resources from the disturbance areas on site, including</td><td>• Letter to OEH re Biodiversity Offset Management Plan, 25 Feb 2015
• Letter from OEH re Comments on Biodiversity Offset Management Plan,13 Mar 2015
• Letter to DP&E re Biodiversity Offset Management Plan Rev B, 19 My 2015
• Letter from DP&E re Approval of Biodiversity Offset Management Plan, 21 March 2016</td><td>A Biodiversity Offset Management Plan was prepared to satisfy Development Consent 14/98 MOD 11 condition 3.4(c) and submitted to the DP&E in May 2015. Approval was provided by DP&E on 10 September 2015. The Biodiversity Offset Management Plan included:
(i) section 4.3 provides a description of the short, medium, and long term measures to implement the biodiversity offset strategy and manage remnant vegetation in the offset areas. Section 4.4 addresses integration of the biodiversity offset strategy with the rehabilitation of the site.
(ii) –
(iii) detailed performance and completion criteria for evaluating the performance of the biodiversity offset strategy, and triggering remedial action (if necessary);
(iv) a detailed description of the measures that would be implemented for: enhancing the quality of existing vegetation and fauna habitat in the biodiversity offset areas; creating native vegetation and fauna habitat in the biodiversity offset areas and includes detailed descriptions of measures that will be implemented for the Biodiversity Offset Areas;</td><td>Compliant</td></tr>
</table>

No.	DA 14/98 Minister's Condition of Approval	Verification	Comments	Compliance
	the vegetative and soil resources - for beneficial use in the biodiversity offset areas; collecting and propagating seed; controlling weeds and feral pests; controlling erosion; managing any grazing; controlling access; and bushfire management; (v) a seasonally-based program to monitor and report on the effectiveness of these measures, and progress against the detailed performance and completion criteria; (vi) a description of the potential risks to successful implementation of the biodiversity offset strategy, and the contingency measures that would be implemented to mitigate against these risks; and (vii) details of who would be responsible for monitoring, reviewing, and implementing the plan.		○ Remnant vegetation enhancement; ○ Revegetation implementation; ○ Collection and propagation of seed for revegetation works; ○ Weed and feral pest control; ○ Erosion control; ○ Management of grazing; ○ Access control; ○ Bushfire management; ○ Bushfire management; ○ Salvage and re-use of material for habitat. (v) section 4.5 outlines the seasonally-based monitoring program that is conducted annually to report on the effectiveness of the measures, and progress against the performance and completion criteria; (vi) Section 5 addresses potential risks to implementation of the biodiversity offset strategy, and section 8 addresses contingency measures to mitigate against these risks (None of the contingency measures were required to be implemented between May 2013 and April 2016); (vii) monitoring, reviewing, and implementing the plan are addressed in section 17. DnA Environmental were engaged by Cowal Gold Operations to develop the detailed rehabilitation and offset area monitoring program.	
3.4(d)	By the end of July 2015, unless otherwise agreed by the Secretary, the Applicant shall lodge a Conservation Bond with the Department to ensure that the biodiversity offset strategy is implemented in accordance with the performance and completion criteria in the Biodiversity Offset Management Plan. The sum of the bond shall be determined by: (i) calculating the full cost of implementing the biodiversity offset strategy (other than land acquisition costs); and (ii) employing a suitably qualified and experienced person to verify the calculated cost to the satisfaction of the Secretary. The calculation of the Conservation Bond must be submitted to the Department for approval at least 1 month prior to the lodgement of the bond. If the offset strategy is completed generally in accordance with the completion criteria in the Biodiversity Offset Management	• Letter from DP&E Approval of Quantity Surveyor, 12 Nov 2015 • Email to DP&E re Conservation Bond Estimation, 30 Nov 2015 • Letter from DP&E re Lodgement of Conservation Bond, 3 Dec 2015 • Letter from Evolution Mining re Timing for Securing Biodiversity Offset Security and Lodgement of Conservation Bond, 8 Dec2015 • Letter from DP&E re Biodiversity Offset Area	A proposed total offset bond amount of $339,570.00 for implementation for the offset strategy within the mine closure security bond was submitted to DII Titles as part of the MOP Rehabilitation bond (dated April 2010). The VPA submitted to DP&I on 28 April 2014 included a calculation of $1.7M determined by Greening Australia for an offsets bank guarantee to be lodged with DP&I. Evolution Mining submitted the calculation of the Conservation Bond for the biodiversity areas to the DP&E on 3 December 2015. The calculated Conservation Bond was lodged with DP&E on 3 December 2015. DP&E provided for an extension of time for securing the offset areas and lodging the conservation bond to 30 June 2016.	**Compliant**

No.	DA 14/98 Minister's Condition of Approval	Verification	Comments	Compliance
	Plan to the satisfaction of the Secretary, the Secretary will release the bond. If the offset strategy is not completed generally in accordance with the completion criteria in the Biodiversity Offset Management Plan, the Secretary will call in all, or part of, the conservation bond, and arrange for the completion of the relevant works. *Note: Alternative funding arrangements for long-term management of the biodiversity offset strategy, such as provision of capital and management funding as agreed by OEH as part of a Biobanking Agreement or transfer to conservation reserve estate can be used to reduce the liability of the conservation and biodiversity bond. The sum of the bond may be reviewed in conjunction with any revision to the Biodiversity Offset Management plan.*	Security and Bond, 18Dec 2015		
3.5	***Prevention of Soil Erosion***			
3.5(a)	The Applicant shall prepare and implement the following plans to the satisfaction of the Secretary: (a) an erosion and sediment control management plan for the site which shall include, but not be limited to: (i) details of temporary and permanent sediment and erosion control systems to be used during both mine construction and operation, including for earthworks associated with landscaping; (ii) details of salinity management; and (iii) a program for reporting on the effectiveness of the sediment and erosion control systems and performance against objectives contained in the approved erosion and sediment control management plan, and EIS; and	• Amended Erosion and Sediment Control Management Plan, 2004 • Revised and Amended Erosion and Sediment Control Plan Dec 2009 • Letter from DoP re Revised Erosion and Sediment Control Plan, 10 March 2010 • Letter to DP&E re Addendum to Erosion and Sediment Control Plan, 24 Feb 2015	(a)The Erosion and Sediment Control Plan prepared for the Cowal Gold Operations site development was approved in 2003, amended in 2004, and revised in December 2009. DoP approved the Plan on 10 March 2010. A further Addendum to the Erosion and Sediment Control Plan was provided to DP&E on 24 February 2015 and approved in March 2016. (i) Erosion and Sediment Control Plan section 3 addresses temporary and permanent sediment and erosion control systems to be used during both mine construction and operation; (ii) Erosion and Sediment Control Plan section 6 addresses details of salinity management; (iii) Erosion and Sediment Control Plan section 11 addresses reporting on the effectiveness and performance of sediment and erosion control systems.	**Compliant**
3.5(b)	a soil stripping management plan for the site which shall include, but not be limited to: (i) details of the management of soil stockpiles, soil stripping techniques and scheduling; (ii) any further requirements of DRE; and (iii) a program for reporting on the effectiveness of the soil stripping methods and performance against objectives contained in the soil stripping management plan, and EIS.	• Soil Stripping Management Plan Aug 2003 • Topsoil-Subsoil Stockpile Map Apr 2012 • Topsoil-Subsoil Stockpile Map Mar 2013 • Topsoil-Subsoil Stockpile Map Mar 2014 • Letter to DP&E re Revised Soil Stripping Management Plan, 4 Feb 2015	A Soil Stripping Management Plan was approved by DPNIR in 2003 and the requirements of the Soil Stripping Management Plan have been implemented for any new areas of clearance (e.g. northern and southern waste emplacement areas and tailings storage facilities in 2010-2014. (i) Soil stripping techniques and schedules are described in section 4.1, 4.2 and 4.3 of the Soil Stripping Management Plan. Stockpile management is described in section 4.4. Cowal Gold Operations site topsoil stockpile database is maintained for recording topsoil clearance activities on site. The location and volume of	**Compliant**

No.	DA 14/98 Minister's Condition of Approval	Verification	Comments	Compliance
		• Letter from DP&E re Approval of the Soil Stripping Management Plan, 21 Mar 2016	topsoil present on each of the stockpiles is recorded and the locations shown on stockpile maps for the site. (ii) DRE requirements for stripping of topsoil and stockpiles are addressed in Soil Stripping Management Plan section 1. (iii)The program for reporting the effectiveness of the soil stripping methods and performance against objectives contained in the soil stripping management plan, are addressed in section 8 and the topsoil stockpile database is updated as new stockpile information is obtained, with a location map developed for the site. The segregation of topsoil and other infill material occurs as the material is stripped.	
3.6	**Bushfire Management**			
	The Applicant shall: (a) ensure the development is suitably equipped to respond to any fires on site; and (b) assist the RFS and emergency services as much as practicable if there is a fire in the vicinity of the site	• Bushfire Management Plan, Aug 2003 • Letter from BSC re Bushfire Management Plan, 5 Aug 2003 • Memorandum of Understanding, Bland-Temora Rural Fire Zone NSW Rural Fire Service and Cowal Gold Mine, 20 Feb 2007	(a) A Bushfire Management Plan was prepared for the Cowal Gold Operations site and approved by DMR and BSC on 24 July 2003. The Bushfire Management Plan has been regularly reviewed and no revision of the document has been required. (b) Cowal Gold Operations has two Category 7 fire tenders and two emergency firefighting units of approximately 1000L each, housed in an Emergency Response Station near the main maintenance workshop. Cowal Gold Operations can assist RFS brigades (Wamboyne, Clear Ridge and Blow Clear) with response to fire in the vicinity of the Cowal Gold site.	**Compliant**
3.7	**Land Management**			
	The Applicant shall prepare and implement a Land Management Plan for all its land holdings to the satisfaction of the Secretary. The plan shall be prepared in consultation with OEH, NOW, DPI(Agriculture) and BSC, be consistent with the Flora and Fauna Management Plan, provide for proper land management including, but not limited to: (a) pastures and remnant vegetation management; (b) control of vermin and noxious weeds as required by the Local Lands Services, BSC and other relevant authorities; (c) integration of the latest versions of the Jemalong Land and Water Management Plan and the Lake Cowal Land and Water Management Plan; and (d) feral animal control.	• Land Management Plan Oct 2008 • Compensatory Wetland Management Plan Oct 2008 • Compensatory Wetland Regeneration Monitoring Results Report, DnA Environmental, 2013 • Compensatory Wetland Regeneration Monitoring Results Report, DnA Environmental, Feb 2014 • Land Management Plan (draft revised) 2015	A Land Management Plan was prepared and approved by the Director General in October 2003. The Land Management Plan was reviewed in 2008 and no revision was required. A Land Management Plan to satisfy Development Consent 14/98 MOD 11 condition 3.7 was prepared and submitted to DP&E in May 2015 and was approved on 21 March 2016. The current Land Management Plan includes: (a) sections 4 and 5 address pasture and remnant vegetation management; (b) sections 6 and 7 address control of vermin and noxious weed control; and (c) section 2 integration of the Jemalong and Lake Cowal Land and Water Management Plan; and	**Compliant**

<table>
<tr><th>No.</th><th>DA 14/98 Minister's Condition of Approval</th><th>Verification</th><th>Comments</th><th>Compliance</th></tr>
<tr><td></td><td></td><td>• Latter from DPI-Water re Land Management Plan Addendum, 27 Apr 2015</td><td>(d) section 7 addresses feral animal control.</td><td></td></tr>
<tr><td>3.8</td><td>Rehabilitation Strategy</td><td></td><td></td><td></td></tr>
<tr><td></td><td>The Applicant shall develop a strategy for the long term land use of the DA area on decommissioning of the mine site. The strategy shall include, but not be limited to appropriate land uses within the DA area, which may include areas for conservation, agriculture or recreation, long term management of the area, environmental impacts of any uses and maintenance of necessary drainage characteristics and other features provided on the site.
The strategy for long term land use of the DA area shall be submitted by Year 7 of mining operations or five years before mine closure, whichever is the sooner, in consultation with NOW, OEH, BSC, CEMCC, and to the satisfaction of the Secretary.</td><td>• Consultation correspondence related to the Rehabilitation Strategy:
○ DTI, 20 Aug 2013
○ DPI-NOW, 11 Jun 2013
○ NSW EPA, 11 Jun 2013
○ OEH, 13 Jul 2013
○ Bland Shire Council 11 Jun 2013.
○ CEMCC, 13 June 2013.
• Land Management Plan, 21 Mar 2015</td><td>The Rehabilitation Strategy developed for the Cowal Gold Operations has been prepared and is included in the Land Management Plan section 9.2, Rehabilitation and Offset Management Plan section 3.3 and draft Rehabilitation Plan section 3.2.
The Rehabilitation Strategy includes land uses within the ML 1535 area, that may include areas for conservation, agriculture or recreation, long term management of the area, environmental impacts of any uses and maintenance of necessary drainage characteristics and other features provided on the site</td><td>Compliant</td></tr>
<tr><td>4</td><td>Water Management</td><td></td><td></td><td></td></tr>
<tr><td>4.1</td><td>Water Supply</td><td></td><td></td><td></td></tr>
<tr><td>4.1(a)

4.1(b)</td><td><u>General</u>
The Applicant shall ensure that it has sufficient water for all stages of the development, and if necessary, adjust the scale of operations on site to match its available water supply.
Note: Under the Water Act 1912 and/or the Water Management Act 2000, the Applicant is required to obtain any necessary water licences for the development.

<u>Bland Creek Palaeochannel Borefield</u>
The maximum daily extraction of water from the Bland Creek Palaeochannel Borefield shall not exceed I5ML/day or 3650Ml/year.</td><td>• Bore Licence Certificates No. 70BL229248, 70BL229249, 70BL229250, and 70BL229251 (production bores)</td><td>Bore License Certificates were granted under Section 115 of the Water Act 1912 for water supply from the Bland Creek Palaeochannel in 2003.
Water extraction from the Bland Creek Palaeochannel bore-field has not exceeded 15ML/day or 3650 ML extracted in any year. Calendar year Bland Creek Palaeochannel bore-field extraction was:
<table><tr><th>Year</th><th>Bland Creek Palaeochannel bore-field Extraction</th></tr><tr><td>Jan-Dec 2015</td><td>1385.38 ML</td></tr><tr><td>Jan-Dec 2014</td><td>1317.45ML</td></tr><tr><td>Jan-Dec 2013</td><td>1376.85 ML</td></tr></table></td><td>Compliant Ongoing</td></tr>
<tr><td>4.2</td><td>Pipeline & Borefield Infrastructure</td><td></td><td></td><td></td></tr>
<tr><td>4.2(a)</td><td>All pipeline and borefield infrastructure for the development shall be:
(i) constructed in consultation with DP| (Fisheries), and in accordance with the requirements of NOW;
(ii) laid in such a way so as not to impede the passage of fish or other animals, or interfere with flood behaviour or the passage of boats and vehicles; and
(iii) equipped with an automatic shutdown device so water pumping is immediately stopped in the event of any</td><td></td><td>(i) The pipeline and borefield infrastructure constructed for the Cowal Gold Operations was designed and constructed in accordance with the requirements of DPI (Fisheries and NOW;
(ii) The pipelines have been buried in a trench below the lake bed;
(iii) Automatic shutdown devices are fitted to the water pipeline from the production bores to the process plant, and were tested prior to commencement of</td><td>Compliant Ongoing</td></tr>
</table>

No.	DA 14/98 Minister's Condition of Approval	Verification	Comments	Compliance
	pipe rupture. The water supply shall not be restarted until the rupture is located and repaired.		processing. No pipe ruptures had occurred between May 2014 and April 2016.	
4.3	**Disposal of Excess Water**			
	There shall be no disposal of water from the internal catchment drainage system on site to Lake Cowal under any circumstances.	• Site Water Management Plan, Feb 2012 • Water Management Plan, May 2015	The Site Water Management Plan (2012) section 4.2.1 and Water Management Plan (2015) section 4.1.2 describe the lake isolation system for water management on the ML 1535 site. The water management system is constructed to collect all water from the mine operations area and direct it to holding ponds for reuse within the process plant or on site for the mine operations (dust control etc). No release of water to Lake Cowal from the Cowal Gold Operations internal catchment system occurred between May 2013 and April 2016.	**Compliant Ongoing**
4.4	**Water Management**			
4.4(a)	The Applicant shall prepare a Water Management Plan for the development to the satisfaction of the Secretary. This plan must: (i) be prepared in consultation with NOW and EPA; (ii) include, but not be limited to, the following matters: • management of the quality and quantity of surface and ground water within and around the mine site, including water in the up catchment diversion system, internal catchment drainage system, dewatering bores, Bland Creek Palaeochannel borefield and water supply pipeline from the borefield, which shall include preparation of monitoring programs (see below); • measures to prevent the quality of water in Lake Cowal or any surface waters being degraded below the relevant ANZECC water quality classification prior to construction due to the construction and/ or operation of the mine; • identification of any possible adverse effects on water supply sources of surrounding land holders, and land holders near the Bland Creek Palaeochannel Borefield as a result of the mining operations, and implementation of mitigation measures as necessary; • identification of changes in flood regime on productive agricultural land in Nerang Cowal as a result of the mine perimeter bund intruding into Lake Cowal, and provision of appropriate compensation measures for affected landholders based on inundation of productive land caused by the changed flood regime; • construction and operation of water storages D1 and	• Letter from DECCW re Site Water Management Plan, 1 July 2010 • Letter from NoW re Site Water Management Plan, 24 Aug 2010 • Site Water Management Plan revision, dated Nov 2010 • Site Water Management Plan revision, dated Jul 2011 • Site Water Management Plan revision, dated Feb 2012 • Letter to DP&I re Addendum to Site Water Management Plan, 17 Feb 2012 • Letter from EPA re Revised Site Water Management Plan, 27 Jan 2012 • Letter from NoW re Site Water Management Plan Revision, 14 Feb 2012 • Letter from NoW re Site Water Management Plan Revision, 6 Jun 2013 • Site Water Management Plan revision, dated Aug 2013	The Site Water Management Plan was approved by DoP in 2003. Amendments to the original plan were approved in December 2004 and December 2006. Revisions of the Site Water Management Plan occurred in February 2012, and August 2013 and submitted to DP&I. The Water Management Plan prepared to satisfy Development Consent 14/98 MOD 11 was submitted to DP&E in May 2015 and approved on 19 November 2015. (i) The Water Management Plan was prepared in consultation with the NOW and EPA; (ii) The current Water Management Plan includes: • Water Management Plan section 4 addresses management of the quality and quantity of surface and ground water within and around the mine site; • Water Management Plan section 5 addresses measures to prevent the quality of water in Lake Cowal or any surface waters; • Water Management Plan section 6 addresses identification of any possible adverse effects on surrounding land holders water supply sources; • Water Management Plan section 7 addresses identification of changes in flood regime on productive agricultural land in Nerang Cowal; • Water Management Plan section 8 addresses construction and operation of water storages;	**Compliant**

No.	DA 14/98 Minister's Condition of Approval	Verification	Comments	Compliance
	D4 as first flush systems with initial captured run-off waters from the outer batters of northern and southern emplacement dumps reporting to water storage D6; • measures to manage and dispose of water that may be captured behind the temporary perimeter bund during construction of that bund; • integration of the latest versions of the Jemalong Land and Water Management Plan and the Lake Cowal Land and Water Management Plan; • measures-to evaluate water quality data obtained from monitoring under this consent against records of baseline monitoring undertaken prior to the consent; and • a program for reporting on the effectiveness of the water management systems and performance against objectives contained in the approved site water management plan, and EIS.	• Surface Water, Groundwater, Meteorological and Biological Monitoring Program – Mining Operation Phase, Mar 2010 • Letter from DoP re Approval of Revised Surface Water, Groundwater, Meteorological and Biological Monitoring Program, Mar 2010 • Water Management Plan revision, May 2015 • Letter from DP&E re Approval of Water Management Plan, 19 Nov 2015 • Surface Water, Groundwater, Meteorological and Biological Monitoring Program – Mining Operation Phase, May 2015 • Letter from DoP re Approval of Revised Surface Water, Groundwater, Meteorological and Biological Monitoring Program, Nov 2015	• Water Management Plan section 9 addresses measures to manage and dispose of water captured behind the temporary perimeter bund; • Water Management Plan section 10 addresses integration of the Jemalong Land and Water Management Plan and the Lake Cowal Land and Water Management Plan into the Site Water Management Plan; • Water Management Plan section 12 addresses measures to evaluate water quality data obtained from monitoring; and • Water Management Plan section 12 addresses program for reporting the effectiveness of the water management systems and performance.	
4.4(b)	The Applicant shall develop a strategy for the decommissioning of water management structures, including water storages both in and around the mine site, the water pipeline and borefield infrastructure associated with the development, and long term management of final void and Lake protection bund. The strategy shall include, but not be limited to, long term monitoring of the water quality in the final void and stability of Lake protection bund and void walls, and options for alternate uses of the water pipeline. The strategy for the final void shall be submitted by Year 7 of mining operations or five years before mine closure, whichever is the sooner, in consultation with NOW, EPA, DRE and CEMCC, and to the satisfaction of the Secretary.	• Water Management Plan Nov 2015 • Strategy for Decommissioning of Cowal Gold Operations Water Management Structures, May 2013	This matter will be addressed in the Mine Closure Plan for the project, when it is developed. A draft strategy for the decommissioning of the Cowal Gold water management structures was distributed to the DTIRIS, OoW, EPA, DPI-Fisheries and CEMCC. Comments were then collated and submitted to the DP&I on 8 August 2013. The Water Management Strategy is not required until Year 7 of the mining operations or five (5) years before mine closure.	**Not triggered**
4.4(c)(i) **4.4(c)(ii)**	The Applicant shall: (i) construct the Lake protection bund and site water and tailings storages to the requirements of NOW, EPA and DSC; and (ii) provide a geotechnical report on pit/void wall construction/stability to DRE prior to commencement of mining operations and construct pit/void in accordance with the requirements of DRE.	• Site Water Management Plan Apr 2013 • Lake Protection Bund Operation and Maintenance Manual, Jun 2005 • 2006 Surveillance Report for Lake Protection Bund, URS, 11 Dec 2006	A geotechnical report on the pit/void wall construction/ stability was prepared by URS and submitted to DPI in March 2005. A Lake Protection Bund Operation and Maintenance Manual was produced by URS in June 2005. Remedial maintenance works on the Lake Protection Bund to repair any eroded areas and the stabilisation of the access track have been undertaken and rock armouring of	**Compliant Ongoing**

No.	DA 14/98 Minister's Condition of Approval	Verification	Comments	Compliance
		• Rock Amour Suitability Geotechnical Assessment for the Cowal Gold Mine, Geo-Environmental Management, Dec 2008 • Geotechnical Assessment of Bund and Pit Walls, Dr Neil Matte URS, 2013-2015	the bund walls occurred to stabilise and reinforce the walls of the bund. Several reports were commissioned to investigate the stabilisation, rehabilitation and revegetation of the reactive surface materials on the bunds. The conclusions and recommendations in these reports were assessed and the optimal actions taken for the long term stabilisation of the bunds. A geotechnical assessment of the bund and pit walls is conducted annually by Dr Neil Mattes of URS to assess stability.	
4.4(c)(ii)	• management of the quality and quantity of surface and ground water within and around the mine site, including water in the up catchment diversion system, internal catchment drainage system, dewatering bores, Bland Creek Paleochannel bore-field and water supply pipeline from the bore-field, which shall include preparation of monitoring programs as provided by condition 8.2.;	• Surface, Groundwater, Meteorological and Biological Monitoring Program, 10 Mar 2010 • Letter from DoP re Approval of the SGMBP, 10 Mar 2010 • Letter to DP&I re Addendum to Surface Water, Groundwater, Meteorological and Biological Monitoring Program, 20 Feb 2012 • Letter from DP&I re Approval of Surface Water, Groundwater, Meteorological and Biological Monitoring Program, 14 Aug 2012 • Surface, Groundwater, Meteorological and Biological Monitoring Program, May 2015	The quality and quantity of surface and groundwater in and around the Cowal Gold Operations site has been monitored for the up-catchment diversion system, internal catchment drainage system, dewatering bores, and Bland Creek Palaeochannel bore-field and water supply pipeline, in accordance with the Surface, Groundwater, Meteorological and Biological Monitoring Program. Results are reported in the Annual Reviews Appendix C. The Surface, Groundwater, Meteorological and Biological Monitoring Program was reviewed in 2008 by Professor Fox (as a recommendation of the IMP). The Surface, Groundwater, Meteorological and Biological Monitoring Program was revised and approved by DoP on in July 2011. A further Addendum to the Surface, Groundwater, Meteorological and Biological Monitoring Program was submitted to DP&I on 20 February 2012 to address the groundwater monitoring program for the eastern saline bore-field to maintain consistency with the revised Site Water Management Plan dated 17 February 2012. This revision was approved by DP&I on 14 August 2012. The Surface, Groundwater, Meteorological and Biological Monitoring Program was revised in May 2015 to address Development Consent 14/98 MOD 11 and was approved by DP&E on19 November 2015.	**Compliant**
4.4(c)(ii)	• measures to prevent the quality of water in Lake Cowal or any surface waters being degraded below the relevant ANZECC water quality classification prior to construction due to the construction and/ or operation of the mine;	• Water Management Plan Nov 2015 • Surface, Groundwater, Meteorological and Biological Monitoring Program, May 2015	Minimal water was present in Lake Cowal prior to April 2010, and no discharge of water from the mine site operational areas had occurred. Some runoff from undisturbed lease areas outside the operational bunds did enter the Lake, south of D4 water storage.	**Compliant**

No.	DA 14/98 Minister's Condition of Approval	Verification	Comments	Compliance
			Monitoring of the water quality in accordance with the Surface, Groundwater, Meteorological and Biological Monitoring Program occurred monthly with in-situ monitoring between April 2010 and October 2014 following filling of the Lake. Quarterly water quality monitoring for full parameter suite analysis and sediment monitoring in Lake Cowal was conducted in accordance with the Surface Water, Groundwater, Meteorological and Biological Monitoring Program when the Lake Cowal water level was above 204.5M AHD.	
	• identification of any possible adverse effects on water supply sources of surrounding land holders, and land holders near the Bland Creek Palaeochannel Bore-field as a result of the mining operations, and implementation of mitigation measures as necessary;	• Water Management Plan Section 6 Nov 2015	Meetings have been held with the agencies and local landowners in relation to water levels and pumping from the Palaeochannel bores. Discussions with the West Trigilana Group have occurred since 2006 in relation to possible effects of the mine on groundwater resource and a Short Term and Medium/Long Term Strategy was agreed with the DNR. Discussions and consultation continues with the agencies and landholders re water usage from the bore-field and implementation of the agreed strategies will occur as required for ongoing water management.	**Compliant**
4.4(c)(ii)	• identification of changes in flood regime on productive agricultural land in Nerang Cowal as a result of the mine perimeter bund intruding into Lake Cowal, and provision of appropriate compensation measures for affected landholders based on inundation of productive land caused by the changed flood regime	• Water Management Plan Section 7, Nov 2015	As there was no water in Lake Cowal between 2003 and February 2010, no assessment of changes to the flood regime was possible during this period. Rain events in December 2009, February and March 2010 resulted in some shallow water collecting in the lake-bed and this resulted in growth of low vegetation in the 'wet' areas. The perimeter bund had not affected the flood regime nor had any impact on the productive agricultural land. Discussions have continued between 2010 and 2016 with the land owners, and no requirement for compensation measures had been requested in relation to flood impacts. The perimeter bund has not resulted in any changes to the flood regime that would affect productive land use.	**Compliant**
4.4(c)(ii)	• construction and operation of water storages D1 and D4 as first flush systems with initial captured run-off waters from the outer batters of northern and southern emplacement dumps reporting to water storage D6;	• Preliminary Earthworks for Mine Development, URS, 23 Apr 2004 • Contained Water Storage Facilities, URS 10 Jun 2004	Construction of the water storages D1 and D4 was completed by January 2005. Surface runoff from the disturbed areas around the waste emplacement dumps is captured in D1 and D4 and the water collected is recovered for use in the process plant or on site for dust suppression.	**Compliant**

No.	DA 14/98 Minister's Condition of Approval	Verification	Comments	Compliance
4.4(c)(ii)	• measures to manage and dispose of water that may be captured behind the temporary perimeter bund during construction of that bund;	• Water Management Plan Section 9, Nov 2015	Water collected in the temporary perimeter bund between April 2007 and April 2010 was runoff from the waste emplacements and lake protection bund. No release of water to Lake Cowal occurred from the temporary perimeter bund, with any collected water pumped to D4 for recovery and use in the process plant. The water collected behind the temporary lake protection bund had encouraged vegetative growth within the bunded area and this controlled erosion of the bund walls and floor. The filling of Lake Cowal after 2010 resulted in water being trapped behind the temporary perimeter bund and the temporary bund protected the main mine bund from potential erosive action of wind and waves.	**Compliant**
4.4(c)(ii)	• integration of the latest versions of the Jemalong Land and Water Management Plan and the Lake Cowal Land and Water Management Plan	• Water Management Plan Section 10, Nov 2015	The Water Management Plan Section 10 considers the requirements of the Jemalong and the Lake Cowal Land and Water Management Plans.	**Compliant**
4.4(c)(ii)	• measures to evaluate water quality data obtained from monitoring as required by condition 8.2(a)(iii) against records of baseline monitoring undertaken prior to development consent; and	• Surface, Groundwater, Meteorological and Biological Monitoring Program, Section 4.2 and 5.2, May 2015 • Groundwater Monitoring Review 2013, Coffey, 26 May 2014	Evaluation of water quality data collected between May 2010 and April 2016 with the EIS baseline data has been conducted for inclusion in the Annual Reviews. Independent assessment of the water quality data was also conducted by Coffey as part of the Part 3A assessment for Cowal Gold Mine Modification (2013). In general, the water quality has exhibited similar results to the EIS baseline/ background data with pH demonstrating slightly alkaline values (pH 8.6 to 9.3) that were not significantly different to the results collected in 1991/92 for the EIS when the lake last contained water (pH during the 1991-92 period, ranged from 8.27 to 8.67).	**Compliant**
4.4(c)(ii)	• a program for reporting on the effectiveness of the water management systems and performance against objectives contained in the approved site water management plan, and EIS.	• Notice of Modification, DoP, 23 Aug 2007 • Surface, Groundwater, Meteorological and Biological Monitoring Report, Appendix B AEMR 2007. • Site Water Management Revised, Nov 2010 • Site Water Management Plan Revised, Feb 2012 • Water Management Plan section 12, Nov 2015	The production dewatering bore-field was established external to the perimeter of the open cut pit in 2005. A detailed water budget for the processing phase of the project was developed and the water budget is revised annually for the process plant operation. An amendment to the use of Jemalong water source was approved by a Notice of Modification granted on 23 August 2006. The Cowal Gold Operations water management systems are monitored and assessed annually and reported in the Annual Reviews. Revisions of the Site Water Management Plan occurred in 2010-14, were submitted to the relevant authorities for approval. The Water Management Plan (2013) prepared for MOD 11 was approved by DP&E in November 2015	**Compliant**

No.	DA 14/98 Minister's Condition of Approval	Verification	Comments	Compliance
			Water management has occurred in accordance with the general objectives contained in the EIS and Water Management Plan.	
4.4(b)	The Applicant shall develop a strategy for the decommissioning of water management structures, including water storages both in and around the mine site, the water pipeline and borefield infrastructure associated with the development, and long term management of final void and Lake protection bund. The strategy shall include, but not be limited to, long term monitoring of the water quality in the final void and stability of Lake protection bund and void walls, and options for alternate uses of the water pipeline. The strategy for the final void shall be submitted by Year 7 of mining operations or five years before mine closure, whichever is the sooner, in consultation with NOW, EPA, DRE and CEMCC, and to the satisfaction of the Secretary.	• Site Water Management Plan Apr 2013 • Strategy for Decommissioning of Cowal Gold Operations Water Management Structures, May 2013 • Water Management Plan, Mar 2015	The strategy for the decommissioning water management structures will be addressed in the Mine Closure Plan for the project, when it is developed. A draft strategy for the decommissioning of the Cowal Gold Operations water management structures was distributed to the DTIRIS, NOW, EPA, DPI-Fisheries and, CEMCC members in2013. Comments received were collated and submitted to the DP&I on 8 August 2013. The finalisation of the Strategy is not required until Year 7 of the mining operations or five (5) years before mine closure.	**Not triggered**
4.4(c)	The Applicant shall: (i) construct the Lake protection bund and site water and tailings storages to the requirements of NOW, EPA and DSC; and (ii) provide a geotechnical report on pit/void wall construction/stability to DRE prior to commencement of mining operations and construct pit/void in accordance with the requirements of DRE.	• Site Water Management Plan Apr 2013 • Lake Protection Bund Operation and Maintenance Manual, Jun 2005 • 2006 Surveillance Report for Lake Protection Bund, URS, 11 Dec 2006 • Rock Amour Suitability Geotechnical Assessment for the Cowal Gold Mine, Geo-Environmental Management, Dec 2008 • Geotechnical Assessment of Bund and Pit Walls, Dr Neil Matte URS, 2010-2013	A geotechnical report on the pit/void wall construction/ stability was prepared by URS and submitted to DPI in March 2005. A Lake Protection Bund Operation and Maintenance Manual was produced by URS in June 2005. Remedial maintenance works on the Lake Protection Bund to repair any eroded areas and the stabilisation of the access track have been undertaken and rock armouring of the bund walls occurred to stabilise and reinforce the walls of the bund. Several reports have been commissioned to investigate the stabilisation, rehabilitation and revegetation of the reactive surface materials on the bunds. The conclusions and recommendations in these reports were assessed and the optimal actions taken for the long term stabilisation of the bunds. A geotechnical assessment of the bund and pit walls is conducted annually by Dr Neil Mattes of URS to assess stability.	**Compliant Ongoing**
4.5	**Water Monitoring**			
4.5(a)	The Applicant shall construct and locate: (i) surface water monitoring positions in consultation with NOW and EPA, and to the satisfaction of the Secretary, at least three months prior to the commencement of construction works unless otherwise directed by the Secretary; and (ii) groundwater monitoring positions in consultation with NOW and EPA, and to the satisfaction of the	• Surface Water, Groundwater, Meteorological & Biological Monitoring Program May 2015	Surface and groundwater monitoring locations were selected and constructed following consultation with the relevant agencies: (a)(i) Surface water monitoring locations were approved by the Director-General in March 2003. (a)(ii) Groundwater monitoring has been conducted in accordance with the EPL conditions P1.3 and M2.1.	**Compliance Ongoing**

No.	DA 14/98 Minister's Condition of Approval	Verification	Comments	Compliance
	Secretary at least six months prior to the commencement of construction works unless otherwise directed by the Secretary.			
4.5(b)	The Applicant shall prepare and implement a detailed monitoring program for the development to the satisfaction of the Secretary. This plan must be prepared in consultation with NOW, EPA, DPI(Fisheries), and be directed towards monitoring the potential water impacts of the mine, including water in the up catchment diversion system, internal catchment drainage system, dewatering bores, all borefields associated with the development, and water supply pipeline, pit/void, Lake Cowal, and any other waters in and around the mine site for all stages of the development. The monitoring program will include the development of adequate chemical and biological monitoring in the waters of Lake Cowal, when water is present, by suitably qualified and experienced staff or consultants to the satisfaction of the NOW and EPA, and in the case of biological monitoring DPI(Fisheries), NOW and EPA must be satisfied as to sampling design, including sample locations, sample frequency, sample handling, transport and analysis, sampling parameters and reporting of analysis results. The results and interpretation of surface and ground water monitoring (including biological monitoring) are to be published on the Applicant's website for the development on a regular basis, or as directed by the Secretary.	• Letter re DoP Approval of Surface Water, Groundwater, Meteorological & Biological Monitoring Program, 10 Mar 2010 • Letter from DPI-NoW re Post-Mine Surface Water, Groundwater, Meteorological and Biological Monitoring Program, 6 Jun 2013 • Letter from DPI-NoW re Post-Mine Surface Water, Groundwater, Meteorological and Biological Monitoring Program, 16 Sep 2013 • Monitoring Data Reports to DECC, DoP and DPI - Jan to Mar, Apr-Jun, Jul-Sep, Oct-Dec 2007 to 2016 • Monthly Cyanide Monitoring Reports to DECC, DoP and DPI (Minerals), May 2013 to Mar 2016	The Surface Water, Groundwater, Meteorological & Biological Monitoring Program dated March 2010. An independent review of the Surface Water, Groundwater, Meteorological & Biological Monitoring Program as recommended by the Independent Monitoring Panel concluded: *"it provides a robust program of monitoring that will contribute to the assessment of the effectiveness of environmental impact mitigation measures during the operations phase of the Project".* The Surface Water, Groundwater, Meteorological & Biological Monitoring Program to satisfy the monitoring requirements in Development Consent 14/98 MOD 11 condition 4.5 was prepared and submitted to DP&E in May 1015 and approved on 19 November 2015. Conformance with the water monitoring program has occurred between May 2013 and April 2016 with water sampling on the mine site and in the Lake Cowal area conducted in accordance with the revised Surface Water, Groundwater, Meteorological and Biological Monitoring Program. The surface and groundwater monitoring results have been provided to the agencies in accordance with this condition. Reporting of all monitoring results (including cyanide monitoring) also occurs to the relevant authorities in the Annual Reviews and EPA Annual Return.	**Compliant Ongoing**
4.5(c)	The Applicant shall prepare and implement a monitoring program for the detection of any movement of the Lake protection bund, water storage and tailings structures and pit/void walls during the life of the mine, with particular emphasis on monitoring after any seismic events prior to commencement of construction works, in consultation with NOW and DRE, and to the satisfaction of the Secretary. The results and interpretation of surface and ground water monitoring (including biological monitoring) are to be published on the Applicant's website for the development on a regular basis, or as directed by the Secretary.	• Monitoring Program Results for the Detection of any Movement of the Lake Protection Bund, Water Storage and Tailings Structures and Pit/Void Walls, Dec 2009 to Mar 2016	The program for the detection of any movement in the lake protection bund, water storage and tailings structures and pit/void walls was approved by the Director-General on 9 October 2003. Monitoring points in the Lake Protection Bund (located each 200m on top of the banks) were installed in accordance with the program. No significant movement has been recorded at any of the monument survey points. The Monitoring Program was reviewed for MOD 11 and submitted to DP&E on 15 May 2015.	**Compliant Ongoing**
4.6	**Catchment Areas and Watercourses**			
	The Applicant shall as a landowner have on-going regard for the provisions of the latest versions of the Jemalong Land and Water Management Plan, Lake Cowal Land and Water Management Plan, Mid-Lachlan Regional Vegetation	• Site Water Management Plan, Apr 2013	The provisions in the Jemalong Land and Water Management Plan, Lake Cowal Land and Water Management Plan, and Mid-Lachlan Regional Vegetation Management Plan were considered and have been	**Compliant**

No.	DA 14/98 Minister's Condition of Approval	Verification	Comments	Compliance
	Management Plan, and any future catchment/land and water management plans that may become relevant to the area.	• Water Management Plan, Nov 2015	included where relevant in the Site Water Management Plan and its revisions.	
5	**HAZARDOUS MATERIALS AND TAILINGS MANAGEMENT**			
5.1	**Waste Rock Emplacement and Management**			
	The Applicant shall construct and manage the waste rock emplacement as set out in the EIS, and to the satisfaction of DRE.	• MOP Oct 2012 to Jan 2014 • Letter to DT&I- DRE re Extension of MOP to 31 Jan 2015 • Letter from DT&I-DRE re Approval of MOP Extension, 4 Oct 2013 • MOP (revised) 31 January 2014 to 31 January 2015 • MOP (draft) Apr 2014 to Apr 2016, dated Apr 2014 • Letter from DRE re Approval of MOP Apr 2014 to Apr 2016, 9 Oct 2014	The waste rock emplacements are being established and managed in accordance with the MOP.	**Compliant**
5.2	**Tailings Emplacement and Management**			
	The Applicant shall: (a) construct the tailings dams to the requirements of, DRE, OEH, EPA and DSC and in consultation with NOW; (b) construct and compact the floor of the tailings storages as required to a permeability acceptable to the DRE, OEH and EPA in consultation with NOW;	• Letter to DEC re Permeability Test Report for STSF, Dec 2005 • Letter from Dam Safety Committee re STSF Stage 2 Construction, 9 Jan 2009 • NTSF Surveillance Report 2013, URS, 18 Dec 2013 • STSF Surveillance Report, URS, 18 Mar 2014	(a) The NTSF and STSF were constructed in accordance with the requirements of the DECC (EPA) /DSC and DPI (Minerals). The STSF initially received tailings between March 2006 and April 2007. Tailings disposal then occurred to the NTSF while construction of the first lift of the STSF walls was occurring during 2008. Subsequent lifts of the tailings storage activities have continued in accordance with the construction requirements of the relevant agencies. The Dam Safety Committee provided a response to the Construction Report in January 2009 advising that the review of the NTSF and STSF satisfies the Committee's requirements. (b) Permeability Test Reports have been submitted to EPA, DRE, DSC and DP&E.	**Compliant**
5.3	***Cyanide Management***			
5.3(a)	**Cyanide levels** The Applicant shall ensure that cyanide levels of the aqueous component of the tailings slurry stream do not exceed: 20mg CN_{WAD}/L (90percentile over six months), and 30mg CN_{WAD}/L (maximum permissible limit at any time), at the process plant.	• Letters and Data to DoP/DII-Minerals/DECC re Monthly Cyanide Monitoring, April 2007 to Mar 2010 • Letters to DII/DoP/DECCW re Monthly Cyanide Monitoring	The cyanide levels in the slurry stream have not exceeded <20mg CN_{WAD}/L (90 percentile) or 30mg CN_{WAD}/L (maximum permissible limit) between May 2013 and April 2016. CN_{WAD} levels at the Cowal Gold Operations STSF and NTSF have been forwarded to DP&I/DI&I-Minerals/OEH	**Compliant**

No.	DA 14/98 Minister's Condition of Approval	Verification	Comments	Compliance
		Results, April 2014 to March 2016	and the CEMCC quarterly between May 2013 and April 2016.	
5.3(b)	**Cyanide management** The Applicant shall prepare and implement a cyanide management plan for the development to the satisfaction of the Secretary. The plan is to be prepared in consultation with DRE, EPA and NOW, and include monitoring and reporting on cyanide use on the site. The plan shall make provision for, but is not limited to: containing cyanide contaminated waters entirely within the mine site; (i) maintaining weak acid dissociable (WAD) cyanide levels at the process plant to the levels stated in condition 5.3(a); (ii) contingency measures for cyanide reduction.	• Cyanide Management Plan, Jan 2006 • Letter from DECC re Addendum to Cyanide Management Plan, 24 Aug 2007 • Letter from DoP re Amendments to Cyanide Management Plan, 24 Mar 2010 • Letter from DECCW re Proposed Change to Cyanide Monitoring Point, 11 Jun 2010 • Letter from NoW re Addendum to Cyanide Management Plan, 23 Aug 2010 • Letter from DoP re Proposed Amendments to Cyanide Management Plan, 20 Dec 2010	The Cyanide Management Plan prepared in accordance with Development Consent 14/98 condition 5.3(b) was approved by the Director-General of DoP on 9 January 2006. Amendments to the Cyanide Management Plan monitoring program in relation to the analysis method (i.e. use of the picric acid analysis procedure) was agreed with the DPI in December 2006, and DECC in January 2007. Amendments to the Cyanide Management Plan were also accepted by DWE on 21 July 2008, approved by DoP on 30 October 2008 and accepted by DECC on 9 October 2009. Further amendments to the Cyanide Management Plan were approved by DoP on 24 March 2010. A change to the cyanide monitoring point was accepted by the DECCW on 11 June 2010 and approved by DoP on 20 December 2010. The cyanide levels in the slurry stream have not exceeded 20mg CN_{WAD}/L (90 percentile) or 30mg CN_{WAD}/L (maximum permissible limit) between May 2013 and April 2016.	**Compliant**
5.3(c)	**Wildlife Deaths** In the event of wildlife deaths occurring due to cyanide, review of cyanide levels shall occur by the OEH and EPA in consultation with the Applicant and DRE. Any decision to require cyanide reduction shall include, but not be limited to, consideration of the number of fauna deaths, the species involved, antecedent condition of species, methods employed at the time to prevent use of tailings dams by fauna, and antecedent climatic and surface water conditions of the Lake and surrounding area. The Applicant shall notify the CEMCC of any reductions in cyanide levels as soon as practicable.	• Letter from DECC re Fauna Reporting Protocol, Feb 2009 • Environmental Incident Register, Jan 2014 to Apr 2015 • Seasonal Wildlife Use Pattern of the CGM Tailings Facility, Donato Environmental Services: ○ Oct 2013 to Mar 2014 ○ Jul 2014 to Dec 2014 ○ Jan to Jun 2015 ○ Jul to Dec 2015 ○ Jan to Apr 2016 (in preparation)	Cowal Gold Operations Environmental and Process plant personnel attended avifauna training workshops presented by Donato Environmental Services on Wildlife Monitoring and the International Cyanide Management Code. The training module provided procedures, reporting requirements, observation records and species list/reference images. No wildlife deaths attributable to the tailings storage facilities occurred between May 2013 and April 2016.	**Compliant**
5.3(d)	**Cyanide Monitoring**	•		
	The Applicant shall prepare and implement a cyanide monitoring program for the development to the satisfaction of the Secretary. The plan must be prepared in consultation with EPA and DRE, and shall include, but not be limited to, provision for: (i) monitoring of CN_{WAD} levels of the aqueous component of the tailings slurry stream at the process plant twice	• Cyanide Management Plan, section 6.2 • Process Plant Cyanide Monitoring Data, Cyanide Management Plan, section 6.2	(i) The cyanide monitoring program was approved as part of the Cyanide Management Plan (Development Consent 14/98 5.3(b) by DoP on 9 January 2006. (ii) Monitoring of the aqueous component of the tailings slurry stream at the process plant occurs twice daily with the samples analysed at the on-site laboratory.	**Compliant Ongoing**

<table>
<tr><th>No.</th><th>DA 14/98 Minister's Condition of Approval</th><th>Verification</th><th>Comments</th><th>Compliance</th></tr>
<tr><td></td><td>daily or as otherwise directed by the Secretary, with any increases above 20mg CN_{WAD}/L to be assessed daily to ensure compliance and reported in the Annual Review, unless otherwise agreed by the Secretary. If the CN_{WAD} levels of 30mg/L are exceeded in the liquid at any time, discharge to the tailings dams shall cease until CN_{WAD} levels can be achieved below the levels stated in condition 5.3(a) and such exceedance shall be reported to the EPA within 24 hours;
(ii) monitoring CN_{WAD} levels in the decant water of the tailings dams twice daily or as otherwise directed by the Secretary;
(iii) an on-site laboratory for quickly establishing CN_{WAD} levels in the liquid at the process plant and in the decant ponds for monitoring purposes;
(iv) on-line monitoring of $CN_{(FREE)}$ at locations where employees are operating;
(v) establishing a monitoring regime for detection of cyanide movement beneath and adjacent to the tailings impoundments.
A summary of the cyanide monitoring results shall be provided on the Applicant's website for the development on a regular basis, or as directed by the Secretary.</td><td>• Cyanide Monitoring Results, Monthly Reports, April 2011 to March 2015
• 2009 AEMR 19 Apr 2010
• Letters to DoP, DECCW, DII re Monthly Cyanide Monitoring Results, May 2011 to April 2015</td><td>The number of cyanide results >20mg CN_{WAD}/L between May 2013 and April 2016 were:
<table><tr><th>Period</th><th>>20mg CN_{WAD}/L</th><th>>30mg CN_{WAD}/L</th></tr><tr><td>Jan- Mar 2014</td><td>0</td><td>0</td></tr><tr><td>Mar-Jun 2014</td><td>0</td><td>0</td></tr><tr><td>Jun-Sep2014</td><td>0</td><td>0</td></tr><tr><td>Sep–Dec 2014</td><td>0</td><td>0</td></tr><tr><td>Jan-Mar 2015</td><td>0</td><td>0</td></tr><tr><td>Mar-Apr 2015</td><td>0</td><td>0</td></tr><tr><td>Jun-Sep2015</td><td>0</td><td>0</td></tr><tr><td>Sep–Dec 2015</td><td>0</td><td>0</td></tr><tr><td>Jan-Mar 2016</td><td>0</td><td>0</td></tr></table>(iii) on site analysis for CN_{WAD} levels is conducted on the liquid at the process plant and in the decant ponds for monitoring purposes;
(iv) Free cyanide monitoring within the process plant area is conducted as part of the daily workplace monitoring program (refer to section 6.3 of the Cyanide Management Plan).
(v) Cyanide Management Plan section 6.4 describes the quarterly groundwater monitoring program designed to detect cyanide movement beneath and adjacent to the tailings storage facilities. No cyanide has been detected in the groundwater monitoring bores between May 2013 and April 2016.
The reporting of the cyanide monitoring results occurs on a monthly basis and results are provided on the Evolution Mining website. All results have demonstrated compliance with the criteria.</td><td></td></tr>
<tr><td>5.4</td><td colspan="3">Hazards Management
Note: The development consent conditions under 5.4(a)-(f) are related to offsite risk to people and the biophysical environment. The safety of all persons and operations on onsite is the responsibility of the DRE under the Mines Inspection Act and Dangerous Goods Act</td><td></td></tr>
<tr><td>5.4(a)</td><td>Pre-Construction Studies</td><td></td><td></td><td></td></tr>
<tr><td></td><td>The Applicant shall prepare and submit for the approval of the Secretary, the studies set out under subsections 5.4(a(i) to 5.4(a)(iii) (the pre-construction studies), at least one month prior to the commencement of construction of the proposed development, (except for construction of those preliminary works that are outside the scope of the</td><td></td><td>Construction related to Development Consent 14/98 MOD 11 had not commenced at the date of this audit (April 2016).</td><td>Not triggered</td></tr>
</table>

No.	DA 14/98 Minister's Condition of Approval	Verification	Comments	Compliance
	hazard studies), or within such further period as Secretary may agree. Construction, other than of preliminary works, shall not commence until approval has been given by the Secretary and, with respect to the fire safety study, approval has also been given by the Commissioner of the NSW Fire Brigades.			
5.4(a)(i)	*(i) Fire Safety Study* This study shall cover all aspects detailed in the Department's Hazardous Industry Planning Advisory Paper No. 2, "Fire Safety Study Guidelines" and the New South Wales Government's Best Practice Guidelines for Contaminated Water Retention and Treatment Systems. The study shall also be submitted for approval to the New South Wales Fire Brigades. The study should, in particular, address the fire related issues associated with the storage and use of Ammonium Nitrate, Sodium Isobutyl xanthate, and Cyanide.	• Letter to NSW Fire Brigades – Submission of Fire Safety Study for approval, 22 Dec 2004 • Letter to DIPNR – Submission of Fire Safety Study, 22 Dec 2004 • Letter from NSW Fire Brigades re Satisfaction with the Fire Safety Study, 15 September 2005	Fire Safety Study prepared by Pinnacle Risk Management for Cowal Gold Mine was submitted to the Commissioner of the NSW Fire Brigade for approval and then submitted to DIPNR in December 2004 in accordance with Development Consent 14/98 condition 5.4. The NSW Fire Brigades provided a letter expressing satisfaction with the fire safety measures within the study in September 2005. The Final Hazard Analysis was approved by DIPNR in March 2005 and a Fire Hazard Audit of the CGM site and facilities was carried out in November 2008. Construction related to Development Consent 14/98 MOD 11 had not commenced at the date of this audit (April 2016).	**Compliant** **Not triggered**
5.4(a)(ii)	*(ii) Hazard and Operability Study* The study is to be chaired by an independent qualified person approved by the Director-General prior to the commencement of the study. The study shall be carried out in accordance with the Department's Hazardous Industry Planning Advisory Paper No. 8, "HAZOP Guidelines". The HAZOP shall in particular address the monitoring, control, alarm and shutdown systems associated with xanthate and cyanide process streams.	• Letter to DIPNR – Submission of HAZOP Study, 22 Dec 2004 • Letter from DoP re HAZOP Supplementary Studies, Sep 2005 • Letter to DoP re HAZOP Study Action Closeout Status, 16 Jan 2006HAZOP Supplementary Studies	The Hazard and Operability Study for the main plant area was prepared and submitted to DIPNR in Dec 2004 and the HAZOP Study Action Item Closeout Status Report (Action Program) prepared by Aker Kvaerner Australia Pty Ltd, was submitted in Dec 2004. Supplementary HAZOP Studies for the oxygen system, LPG system and cyanide leach package were notified to be to the satisfaction of the Director-General in Jan 2006. Construction related to Development Consent 14/98 MOD 11 had not commenced at the date of this audit (April 2016).	**Compliant** **Not triggered**
5.4(iii)	*(iii) Final Hazard Analysis* The analysis should be prepared in accordance with the Department's Hazardous Industry Planning Advisory Paper No. 6, "Guidelines for Hazard Analysis".	• Final Hazard Analysis, 2004 • Letter to DIPNR – Submission of Final Hazard Analysis, 22 Dec 2004 • Letter from DIPNR re Fire Hazard Analysis, 30 Mar 2005	The Final Hazard Analysis was prepared by CGM and submitted to DIPNR on 22 December 2004. The Final Hazard Analysis was approved by DIPNR in March 2005. Construction related to Development Consent 14/98 MOD 11 had not commenced at the date of this audit (April 2016).	**Compliant** **Not triggered**
5.4(b)	**(b) <u>Pre-Commissioning Studies</u>**			
	The Applicant shall prepare and submit for the approval of the Director-General the studies set out under subsections	See references below	The pre-commissioning studies were conducted and reports prepared and submitted to the Director-General.	**Compliant**

No.	DA 14/98 Minister's Condition of Approval	Verification	Comments	Compliance
	5.4(b)(i) to 5.4(b)(iii) (the pre-commissioning studies), no later than two months prior to the commencement of commissioning of the proposed development, or within such period as the Director-General may agree. Commissioning shall not commence until approval has been given by the Director-General.		Approval of the studies and plans by the D-G was obtained prior to commencement of the plant commissioning. Any pre-commissioning studies required under MOD 11 will be undertaken prior to plant commencement of operations.	
5.4(b)(i)	(i) *Transport of Hazardous Materials* The study comprises arrangements covering the transport of hazardous materials including details of routes to be used for the movement of vehicles carrying hazardous materials to or from the proposed development. The study shall be carried out in accordance with the Department's draft "Route Selection" guidelines. Suitable routes identified in the study shall be used except where departures are necessary for local deliveries or emergencies. The study should also address: (1) the issues associated with spills, clean-up procedures, training of clean-up teams, communication, and liaison with organisations such as the fire brigades, District Emergency Management Coordinator (and Committee), Local Emergency Management Committee(s), and state emergency services; (2) inspection and monitoring procedures for chemicals such as explosives, xanthates and cyanides prior to commencement of a trip, to verify the integrity of the packaging; and (3) measures to be taken to ensure that the temperature of the materials does not rise above safe levels.	• Transport of Hazardous Material Study, 2006 • Letter from DoP re Approval of Transport of Hazardous Materials Plan, 9 Jan 2006 • Letter from DoP re Approval for Transport of Flotation Chemicals, 28 Feb 2007 • Letter re Interim Approval from DoP re Transport of SIBX, 20 Sep 2007 • Letter from DoP re Addendum to Transport of Hazardous Materials Study, 13 Oct 2010 • Letter from DoP re Addendum to Transport of Hazardous Materials Study, 1 Dec 2010 • Letter from DP&I re Notification of Change to Transport of Hazardous Chemicals (Ammonium Nitrate), 13 Jan 2012 • Emails to DP&I re Emergency Routing of Sodium Cyanide to CGM due to Road Conditions, Mar 2012	Route evaluation for hazardous materials studies conducted and consultation with the affected Councils occurred in accordance with Guideline No.9. The Transport of Hazardous Materials Study was approved by the D-G on 9 January 2006 and transport of flotation chemicals was approved by DoP in February 2007. A temporary amendment to the Transport of Hazardous Materials Study to allow the substitution of SiBX for PAX (due to an unexpected short supply of PAX) was approved by DoP on 20 September 2007. An amendment of the Transport of Hazardous Materials Study in relation to an alternative storage transfer location at Botany Bay commenced, and consultation with the relevant Council(s) and government departments occurred in 2009. An amendment to the route for the transport of hydrogen peroxide from the Solvay Interox Banksmeadow facility to CGM was proposed and accepted by DoP on 13 October 2010. Approval for a variation to the transport route for hydrogen peroxide from the Queensland border to Dubbo (via Goondiwindi) was granted by DoP on 1 December 2010. Approval for a change to the transport route for Ammonium Nitrate by road from Maxam Australia Depot Goulburn to CGM endorsed by DP&I on 13 January 2012. Emergency route change permission was sought and granted by DP&I in November 2011, and in January and March 2012 due to road conditions following heavy rainfall events.	**Compliant Ongoing**
5.4(b)(ii)	(ii) *Emergency Plan* A comprehensive emergency plan and detailed emergency procedures for the proposed development. This plan shall include detailed procedures for the safety of all people outside of the development who may be at risk from the development. The plan should be in accordance with the Department's Hazardous Industry Planning Advisory Paper	• Letter from DoP re Approval of the Operations Emergency Management Plan, 14 Dec 2005 • Emergency Response Plan Cowal Gold Project, Mar 2007 • Letter from DoP re updated Emergency Plan, 18 Jun 2008	The Operations Emergency Plan was approved by DoP on 14 December 2005. A comprehensive review of the Emergency Response Plan was undertaken in February 2007 and the revised plan was submitted to DoP on 23 March 2007.	**Compliant**

No.	DA 14/98 Minister's Condition of Approval	Verification	Comments	Compliance
	No. 1, "Industry Emergency Planning Guidelines", and include procedures for spillage, cleanup, control and protection, and rescue of wildlife during the emergency.	• Emergency Response Plan, 4 Oct 2013 • Letter to DP&I re Emergency Response Plan Revision, 4 Oct 2013	The CGM Emergency Plan was revised and updated in April 2008 and DoP approved the updated plan on 18 June 2008. No revisions of the Emergency Response Plan occurred during May 2014 and April 2016.	
5.4(b)(iii)	*(iii) Safety Management System* A document setting out a comprehensive safety management system, covering all operations on-site and associated transport activities involving hazardous materials. The document shall clearly specify all safety related procedures, responsibilities and policies, along with details of mechanisms for ensuring adherence to procedures. Records shall be kept on-site and should be available for inspection by the Director-General upon request. The safety management system should be developed in accordance with the Department's Hazardous Industry Planning Advisory Paper No. 9, "Safety Management".	• Safety Management System Oct 2005 • Letter from DoP re Approval of the Safety Management System, 14 Dec 2005 • Revised Safety Management System Feb 2007 • Letter from DoP re Revised Safety Management System, 18 Jun 2009	The Safety Management System for CGM was approved by DoP on 14 December 2005 and a major review of the Safety Management System was conducted in February 2007 and submitted to DoP. The Safety Management System was updated and DoP approved the updated plan on 18 June 2009. No further updates to the Safety Management System occurred between May 2013 and April 2016.	**Compliant**
5.4(c)	Hazard Audit Twelve months after the commencement of operations of the proposed development or within such further period as the Secretary may agree, the Applicant shall carry out a comprehensive hazard audit of the proposed development and submit a report of the audit to the Secretary. The audit shall be carried out at the Applicant's expense by a duly qualified independent person or team approved by the Secretary prior to commencement of the audit. Further audits shall be carried out every three years or as determined by the Secretary and a report of each audit shall within a month of the audit be submitted to the Secretary. Hazard audits should be carried out in accordance with the Department's Hazardous Industry Planning Advisory Paper No. 5,"Hazard Audit Guidelines".	• Pre-Operation Compliance Report, Feb 2006 • Hazard Audit Report, Cowal Gold Project, Pinnacle Risk Management Pty Ltd, 6 Jun 2007 • Letter from DoP re Approval of the 2010 Hazard Audit Report, 15 Feb 2011 • Hazard Audit Report Cowal Gold Project, Pinnacle Risk Management Pty Ltd, 11 Apr 2013	A Hazard Audit was conducted by Dean Shewring of Pinnacle Risk Management Pty Ltd, 12 months after commencement of operation of process plant (i.e. April 2007). The Hazard Audit was accepted by DoP on 6 August 2007. The second Hazard Audit of the CGM operations was conducted on 19-22 April 2010. The third Hazard Audit Report of the CGM operations was conducted on 11 April 2013. The fourth Hazard Audit of the Cowal Gold Operations will be conducted on 20 May 2016.	**Compliant**
5.5	***Domestic Waste***			
	The Applicant shall dispose of all solid waste and putrescible matter from the site to the satisfaction of BSC.		All solid waste and putrescible matter from the site activities is collected by JJ Richards waste contractor, for disposal at an approved landfill.	**Compliant**
5.6	***Sewage and Associated Waste Management***			
	The Applicant shall install the site sewage treatment facility, and dispose of treated sewage and sullage to the satisfaction of BSC and EPA, and in accordance with the requirements of the Department of Health.	• Construction Certificate No.6, 4 Apr 2005 for Package Sewage Treatment Plant, DIPNR	The permanent on-site sewage management system was installed west of the Mine Workshop and Administration Complex in the 1st quarter 2006 in accordance with the requirements of the Department of Health, BSC and EPA.	**Compliant**

No.	DA 14/98 Minister's Condition of Approval	Verification	Comments	Compliance
			 **Cowal Gold Operations Package Sewage Treatment Plant**	
5.7	***Asbestos and Other Hazardous or Toxic Waste Management***			
	The Applicant shall prior to commencement of construction works prepare a Hazardous Waste and Chemical Management Plan as set out in section 6.4.1 of the EIS in consultation with EPA and BSC, and to the satisfaction of the Secretary.	• Letter from DECCW re Hazardous Waste and Chemical Management Plan, 23 Feb 2011 • Letter from DP&I re Update to Hazardous Waste and Chemical Management Plan, 13 May 2011 • Letter from BSC re Update to Hazardous Waste and Chemical Management Plan, 19 Apr 2011	The Hazardous Waste and Chemical Management Plan approved by the Director General in October 2003, was revised and the changes were accepted by DECC/DECCW in December 2007, and April and December 2009. Further Amendments to the Hazardous Waste and Chemical Management Plan were approved by DoP on 10 March 2010. BSC accepted the revised Hazardous Waste and Chemical Management Plan on 19 April 2011 and DP&I approved the revised document on 13 May 2011. Revision of the Hazardous Waste and Chemical Management Plan in May 2015 did not identify any changes required.	**Compliant**
6	**AIR QUALITY, BLAST, NOISE AND LIGHT MANAGEMENT**			
6.1	**Air Management**			
6.1(a)	**Impact Assessment Criteria**			
	The Applicant shall ensure that all reasonable and feasible avoidance and mitigation measures are employed so that particulate matter emissions generated by the development do not cause exceedances of the criteria listed in Tables 3, 4 and 5 at any residence on privately-owned land. *Table 3: Long term impact assessment criteria for particulate matter*	• Interpretation and Discussion of Air Quality Monitoring Results, CGM, Prof. Stephen Cattle Uni of Sydney, 2012 • Interpretation and Discussion of Air Quality Monitoring Results, CGM, Prof. Stephen Cattle Uni of Sydney, 2013	Dust management from the Cowal Gold Operations continues to control emissions from the site in accordance with the Dust Management Plan to within the criteria specified in Development Consent 14/98 6.1(c). Monitoring of dust deposition and PM_{10} as outlined in the Dust Management Plan and the Surface Water, Groundwater, Meteorological and Biological Monitoring Program continues with review of the data annually by Dr	**Compliant Ongoing**

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<tr><th>No.</th><th>DA 14/98 Minister's Condition of Approval</th><th>Verification</th><th>Comments</th><th>Compliance</th></tr>
<tr><td></td><td>
<table>
<tr><th>Pollutant</th><th>Averaging Period</th><th>Criterion</th></tr>
<tr><td>Total suspended particulate (TSP) matter</td><td>Annual</td><td>90 µg/m^3</td></tr>
<tr><td>Particulate matter <10µm (PM_{10})</td><td>Annual</td><td>30 µg/m^3</td></tr>
</table>
Table 4: Short term impact assessment criterion for particulate matter
<table>
<tr><th>Pollutant</th><th>24 hour</th><th>Criterion</th></tr>
<tr><td>Particulate matter <10µm (PM_{10})</td><td>24 hour</td><td>50 µg/m^3</td></tr>
</table>
Table 5: Long term impact assessment criteria for deposited dust
<table>
<tr><th>Pollutant</th><th>Averaging Period</th><th>Max increase in deposited dust level</th><th>Max total deposited dust level</th></tr>
<tr><td>Deposited dust</td><td>Annual</td><td>2g/m^2/mth</td><td>4g/m^2/mth</td></tr>
</table>
</td><td>• Interpretation and Discussion of Air Quality Monitoring Results, CGM, Prof. Stephen Cattle Uni of Sydney 2014
• Dust Management Plan Feb 2009
• 2013 AEMR, May 2014
• 2014 Annual Return, Sep 2015</td><td>Stephen Cattle, University of Sydney and reported in the AEMR.

The dust monitoring results have generally been compliant with the criteria in Development Consent 14/98 6.1(d).

The eight dust gauges external to the mine lease area have exhibited significant proportion of contamination from insects, bird droppings and vegetative matter that when removed from the total deposition data demonstrate annual average dust deposition results that are less than the assessment criterion of 4g/m^2/mth.

The HVAS located north of the mine lease area demonstrated TSP levels below the criterion in Table 2 (i.e. less than 90µg/m^3) between May 2013 and April 2016.</td><td></td></tr>
<tr><td></td><td>Notes to Tables 3-5: a Total impact (i.e. incremental increase in concentrations due to the development plus background concentrations due to all other sources). b Incremental impact (i.e. incremental increase in concentrations due to the development on its own). c Deposited dust is to be assessed as insoluble so/ids as defined by AS/NZS 3580.10.1:2003: Methods for Sampling and Analysis of Ambient Air - Determination of Particulate Matter - Deposited Matter - Gravimetric Method. d Excludes extraordinary events such as bushfires, prescribed burning, dust storms, fire incidents or any other activity agreed by the Secretary.</td><td></td><td></td><td></td></tr>
<tr><td>6.1(b)</td><td><u>Operating Conditions</u>
The Applicant shall:
(i) implement best management practice to minimise the off-site odour, fume, spontaneous combustion and dust emissions of the development;
(ii) implement all reasonable and feasible measures to minimise the release of greenhouse gas emissions from the site;
(iii) minimise any visible off-site air pollution generated by the development;
(iv) minimise the surface disturbance on the site;</td><td>• Dust Management Plan Feb 2009
• 2012 AEMR Apr 2013
• 2013 AEMR May 2014
• 2014 Annual Review Sep 2015
• Interpretation and Discussion of Air Quality Monitoring Results, Uni of Sydney, Dr Stephen Cattle, 2012, 2013 and 2014</td><td>Air quality management at the Cowal Gold Operations has controlled emissions from the site to within the criteria specified in Development Consent 14/98 6.1(c).

The area of the site disturbed is restricted to the area required for the active mining activities.

Monitoring data of dust deposition and PM_{10} as outlined in the Dust Management Plan, Air Quality Management Plan and the Surface Water, Groundwater, Meteorological and Biological Monitoring Program continues is reviewed annually by Dr Stephen Cattle, University of Sydney and</td><td>Compliant Ongoing</td></tr>
</table>

No.	DA 14/98 Minister's Condition of Approval	Verification	Comments	Compliance
	(v) minimise the air quality impacts of the development during adverse meteorological conditions and extraordinary events; and (vi) carry out regular monitoring to determine whether there is compliance with the relevant conditions of this consent, to the satisfaction of the Secretary.		reported in the Annual Reviews. The dust monitoring results have generally been compliant with the criteria in Development Consent 14/98 6.1(a).	
6.1(c)	**Air Quality Management Plan** The Applicant shall prepare and implement an Air Quality Management Plan for the development to the satisfaction of the Secretary. This plan must: (i) be prepared in consultation with the EPA; (ii) describe the measures that would be implemented to ensure compliance with the relevant air quality criteria and operating conditions of this approval: (iii) include an air quality monitoring program that: • evaluates and reports on the: - the effectiveness of the air quality management system; - compliance with the air quality criteria; - compliance with the air quality operating conditions; and • defines what constitutes an air quality incident, and includes a protocol for identifying and notifying the Department and relevant stakeholders of any air quality incidents.	• Dust Management Plan Feb 2009 • 2012 AEMR, Apr 2013 • 2013 AEMR, May 2014 • 2014 Annual Return, Sep 2015 • Interpretation and Discussion of Air Quality Monitoring Results, Uni of Sydney, Dr Stephen Cattle, 2012, 2013 and 2014 • Revised Air Quality Management Plan, Feb 2015 • Letter to EPA re Revised Air Quality Management Plan, 20 Feb 2015 • Letter from EPA re Comments on Air Quality Management Plan, 6 Mar 2015 • Letter to EPA re Revised Air Quality Management Plan, 10 Apr 2015 • Letter to DP&E re Air Quality Management Plan, 20 Apr 2015 • Letter from DP&E re Approval of Air Quality Management Plan, 18 Feb 2016	A Dust Management Plan was approved by the Director-General in August 2003. Amendments to the Dust Management Plan were approved by DoP in August 2007 and February 2009. An Air Quality Management Plan to satisfy Development Consent 14/98 MOD 11 condition 6.1(c) was submitted to DP&E on 20 April 2015 and approved on 18 February 2016. (i)Dust deposition gauges were installed at the locations identified in the Dust Management Plan. A high volume air sampler operates at the nearest residences (sensitive receptor) and operates on a 6 day cycle for TSP. Baseline monitoring of dust has continued with the dust deposition gauges maintained and samples collected each month. Dust monitoring has continued at the sites specified in EPL condition P1.1. (ii)Dust deposition and TSP monitoring related to Lake Cowal water quality was not activated from 2007 to 2010 as there was no water in the lake. Dust monitoring around the Cowal Gold Operations area is reported in the Annual Reviews. Dust deposition monitoring at six sites and PM_{10} monitoring at the locations specified in the EPL condition P1.1, has continued. (iii) The dust monitoring results are reviewed annually by Dr Stephen Cattle, University of Sydney and results are presented in the Annual Reviews.	**Compliant Ongoing**
6.2	**Meteorological Monitoring**			
	For the life of the development, the Applicant shall ensure that there is a meteorological station in the vicinity of the site that complies with the requirements in the Approved Methods for Sampling of Air Pollutants in New South Wales guideline.	• Cowal Quarterly Calibration Reports, Sentinel Pty Ltd, 2013 to 2015 • Monthly Weather Station Reports – January 2013 to March 2016, Sentinel Pty Ltd	The permanent meteorological station installed on the southern side of the mine lease in June 2004 continues to operate provides continuous monitoring results for use by the site operators. The meteorological station is checked and calibrated quarterly by Sentinel Pty Ltd and a monthly summary report of the meteorological data is provided to Cowal Gold Operations.	**Compliant Ongoing**

<table>
<tr><th>No.</th><th>DA 14/98 Minister's Condition of Approval</th><th>Verification</th><th>Comments</th><th>Compliance</th></tr>
<tr><td>6.3</td><td>Blast Management</td><td></td><td></td><td></td></tr>
<tr><td>6.3(a)</td><td>Impact Assessment Criteria</td><td></td><td></td><td></td></tr>
<tr><td></td><td>The Applicant shall ensure that blasting at the project does not exceed the criteria in Table 6.
Table 6: Blasting impact assessment criteria for Residences on privately owned land
<table>
<tr><th>Time of Blasting</th><th>Air-blast over pressure dBL</th><th>Ground Vibration mm/s</th><th>Allowable exceedance</th></tr>
<tr><td>Any time</td><td>120</td><td>10</td><td>0%</td></tr>
<tr><td>Mon to Sat during day</td><td>115</td><td>5</td><td rowspan="4">5% of total number of blasts over a period of 12 months</td></tr>
<tr><td>Mon to Sat during evening</td><td>105</td><td>2</td></tr>
<tr><td>Mon to Sat at night</td><td>95</td><td>1</td></tr>
<tr><td>Sundays& Public Holidays</td><td>95</td><td>1</td></tr>
</table>
However, these criteria do not apply if the Applicant has a written agreement with the relevant owner to exceed the limits in Table 6, and the Applicant has advised the Department in writing of the terms of this agreement.</td><td>• Blast Monthly Reports – January, February and March 2014
• Review of Blast Monitoring Report 2013, The Saros Group, Mar 2014
• Review of Blast Monitoring Report 2012, The Saros Group, Mar 2013
• Review of Blast Monitoring Results 2014, The Saros Group, 6 Mar 2015</td><td>Blast monitoring conducted at the fixed monitor locations around the Cowal Gold Operations site has demonstrated compliance with the overpressure and vibration Day and Evening criteria in Development Consent 14/98 6.3(a).
No blast overpressure results exceeded 120dBL, and less than 5% of the total blasts overpressure results were greater than 115dBL.
No night time blasts have occurred between May 2013 and April 2016.
Exceedance of the 95dB(L) criteria (Development Consent 14/98 6.3(a)) on Sundays and Public Holidays occurred:
• Five (5) blast related events between May 2013 and May 2014.
• Ten (10) blast related events level between May and December 2014;
• One (1) blast related event level on Sundays and Public Holidays between January and December 2015; and
• Two blast events on 13 March 2016 between January and April 2016.
<table>
<tr><th rowspan="2">Total No. of Blasts</th><th colspan="3">Blast Overpressure Results (dBL)</th></tr>
<tr><th>>115dBL</th><th>>120dBL</th><th>>95dBL*</th></tr>
<tr><td colspan="4">May 2013 to Dec 2013</td></tr>
<tr><td>239</td><td>>5%</td><td>0</td><td>5</td></tr>
<tr><td colspan="4">Jan 2014 to Dec 2014</td></tr>
<tr><td>281</td><td>>5%</td><td>0</td><td>10</td></tr>
<tr><td colspan="4">Jan 2015 to Dec 2015</td></tr>
<tr><td>230</td><td><5%</td><td>0</td><td>1</td></tr>
<tr><td colspan="4">Jan to April 2016</td></tr>
<tr><td>196</td><td>>5%</td><td>0</td><td>2</td></tr>
</table>
* Sundays and Public Holidays blast overpressure criteria the 95dB(L) criteria (Development Consent 14/98 6.3(a)). No complaints were received in relation to the Sundays and Public Holidays blast overpressure results.</td><td>Compliant

Non-Compliant (Low Risk)</td></tr>
<tr><td>6.3(b)</td><td><u>Blast Frequency</u>
The Applicant may carry out a maximum of 1 blast a day on site. This condition does not apply to blasts required to ensure the safety of the mine or its workers.</td><td>• Revised Blast Management Plan 2015</td><td>A maximum of 1 blast event per day occurs on the Cowal Gold Operations site. Occasional two blast events occur if required to ensure the safety of the mine or its workers</td><td>Compliant Ongoing</td></tr>
</table>

No.	DA 14/98 Minister's Condition of Approval	Verification	Comments	Compliance
	Note: For the purposes of this condition a blast refers to a single blast event, which may involve a number of individual blasts fired in quick succession in a discrete area of the mine.	• Review of Blast Monitoring Results 2014, The Saros Group, 6 Mar 2015 • Review of Blast Monitoring Results 2015, The Saros Group, Feb 2016		
6.3(c)	**Property Investigations** If the owner of any privately-owned land claims that buildings and/or structures on his/her land have been damaged as a result of blasting on the site, and the Secretary agrees an independent investigation of the claim is warranted, then within 2 months of receiving this claim the Applicant shall: (¡) commission a suitably qualified, experienced and independent person, whose appointment is acceptable to both parties to investigate the claim; and (ii) give the landowner a copy of the property investigation report. If this independent property investigation confirms the landowner's claim, and both parties agree with these findings, then the Applicant shall repair the damage to the satisfaction of the Secretary. If there is a dispute over the selection of the suitably qualified, experienced and independent person, or the Applicant or the landowner disagrees with the findings of the independent property investigation, then either party may refer the matter to the Secretary for resolution.			**Noted**
6.3(d)	**Operating Conditions** The Applicant shall: (i) implement best management practice to: • protect the safety of people and livestock in the areas surrounding blasting operations; • protect public or private infrastructure/property in the surrounding area from damage from blasting operations; and • minimise the dust and fume emissions of any blasting; (ii) operate a suitable system to enable the public to get up-to-date information on the proposed blasting schedule on site; and (iii) carry out regular monitoring to determine whether the development is complying with the relevant conditions of this approval, to the satisfaction of the Secretary.	• Revised Blast Management Plan 2015 • Letter to DP&E re Blast Management Plan, 9 Feb 2015 • Letter from EPA re revised Blast Management Plan, 4 Feb 2015	(i)The blasting practices outlined in the Blast Management Plan are consistent with best management practice. (ii)Notification of the blasting schedule at the Cowal Gold Mine is provided to potentially affected residents. (iii)All blasts are monitored for overpressure and ground vibration and the data reviewed to assess compliance.	**Compliant**

No.	DA 14/98 Minister's Condition of Approval	Verification	Comments	Compliance
6.3(e)	**Blast Management Plan** The Applicant shall prepare and implement a Blast Management Plan for the development to the satisfaction of the Secretary. This plan must: (i) be prepared in consultation with the EPA; (ii) describe the measures that would be implemented to ensure compliance with the blast criteria and operating conditions of this approval; and (iii) include a monitoring program for evaluating and reporting on compliance with the blasting criteria and operating conditions of this approval	• Revised Blast Management Plan Jan 2015 • Letter to DP&E re Blast Management Plan, 9 Feb 2015 • Letter from EPA re revised Blast Management Plan, 4 Feb 2015 • Letter from DP&E re Approval of Blast Management Plan, 10 Dec 2015	The Blast Management Plan revised to satisfy Development Consent MOD 11 condition 6.3(e) and dated January 2015 was submitted to the relevant authorities, and approved by DP&E on 12 December 2015.	**Compliant**
6.4	**Noise Management**			
6.4(a)	**Acquisition Upon Request** Upon receiving a written request for acquisition from the owner of any land listed in Table 7, the Applicant shall acquire the land in accordance with the procedures in condition 8.3. *Table 7: Land subject to acquisition upon request* Coniston McLintock West Lea.		Acquisition of the Coniston property has been negotiated with the owner in accordance with the procedures described in MOD 11 condition 8.3. No request for acquisition had been received from West Lea or McLintock owners at the date of this audit (April 2016).	**Compliant In progress**
6.4(b)	**Additional Noise Mitigation** Upon receiving a written request from the owner of the residences listed in Table 7, the Applicant shall implement additional noise mitigation measures (such as double-glazing, insulation, and/or air conditioning) at the residence in consultation with the landowner. These measures must be reasonable and feasible, and directed towards reducing the noise impacts of the development on the residence. If within 3 months of receiving this request from the owner, the Applicant and the owner 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.	• Communication with DP&I (Executive Director Sam Haddad) and Shane Goodwin Barrick (Cowal) • COW.400.05.2885SG, 5 Sept 2012 • Letter to DP&I re Terms of Agreement, 3 Sep 2012	No written requests to activate this condition have been received by Evolution Mining at the date of this audit (April 2016). (Agreements were entered to with residents affected by traffic noise in September 2012 and notified DP&I of the terms of agreement on 3 September 2012.)	**Not triggered**
6.4(c)	**Impact Assessment Criteria** The Applicant shall ensure that the noise generated by the development does not exceed the noise impact assessment criteria in Table I at any residence on privately-owned land. *Table 8: Noise Assessment Criteria* **Land** | **Day/Evening/Night** Laurel Park | 37	• Cowal Gold Mine – Mine Operations Noise Monitoring, Jul 2012, SLR • Noise Mitigation Deed – 'Laurel Park', 13 Aug 2012 • Cowal Gold Mine – Mine Operations Noise Monitoring, Jan-Feb 2013, SLR	The quarterly SLR monitoring reports for mine operation noise between 2010 and 2014 concluded that: *"The CGM was observed to be in conformance with the relevant noise requirements during all periods of the operator attended monitoring at all measurement locations."* The quarterly monitoring results reported by Spectrum Acoustics have concluded that:	**Compliant Ongoing**

No.	DA 14/98 Minister's Condition of Approval	Verification	Comments	Compliance
	<table><tr><td>Bramboyne, Bungabulla, The Glen and Gumbelah</td><td>36</td></tr><tr><td>All other privately-owned land</td><td>35</td></tr></table> *Note: To identify the land referred to in Table 8 see map in Appendix 6.* Noise generated by the development is to be measured in accordance with the relevant requirements of the NSW Industrial Noise Policy (as may be updated from time-to-time). Appendix 5 sets out the meteorological conditions under which these criteria apply, and the requirements for evaluating compliance with these criteria. However, these criteria do not apply if the Applicant has an agreement with the owner/s of the relevant residence or land to generate higher noise levels, and the Applicant has advised the Department in writing of the terms of this agreement.	• Attended Noise Monitoring Cowal Gold Operations, Jan 2015 to Jan 2016, Spectrum Acoustics • Noise Mitigation Deed – 'Gumbelah', 9 Dec 2013 • Letter to DP&I re Noise Mitigation Deed- Gumbelah', 16 Dec 2014 • Noise Mitigation Deed – 'Cowal North', 16 Jan 2014 • Letter to DP&I re Noise Mitigation Deed- Cowal North, 17 Jan 2014 • Letter to DP&I re Noise Mitigation Deed – Laurel Park, 3 Feb 2014	*"the mine noise did not exceed the operational noise criterion at any monitoring location at any time (i.e. daytime, evening or night)."* Noise Mitigation Deeds were agreed and signed with the owners of "Laurel Park' (dated 13 August 2012), 'Gumbelah' (dated 6 December 2013), and "Cowal North' (dated 16 January 2014).	
6.4(d)	**Operating Conditions** The Applicant shall: (i) implement best management practice, including all reasonable and feasible mitigation measures, to minimise the operational, low frequency, and road noise of the development, including mitigation measures to: (ii) minimise the noise impacts of the development during meteorological conditions when the noise limits in this approval do not apply (see Appendix 5); and (iii) carry out regular attended monitoring to determine whether the development is complying with the relevant conditions of this approval, to the satisfaction of the Secretary.		(i)The noise management practices outlined in the Noise Management Plan are consistent with best management practice. (ii) noise management during abnormal meteorological conditions is implemented to reduce potential impact to surrounding residents. (iii) Quarterly attended noise monitoring occurs to determine whether the development is complying with the relevant conditions and the data reviewed to assess compliance.	**Compliant**
6.4(e)	**Noise Management Plan** The Applicant shall prepare and implement a Noise Management Plan for the development to the satisfaction of the Secretary. This plan must: (i) be prepared in consultation with the EPA, and submitted to the Secretary for approval prior to carrying out any development under this approval, unless the Secretary agrees otherwise; (ii) describe the measures that would be implemented to ensure compliance with the noise criteria and operating conditions in this approval; and (iii) include a monitoring program that: • evaluates and reports on:	• Letter from DoP re Amendments to Noise Management Plan, August 2007 • Letter from DECC re Addendum to Noise Management Plan, 21 Sep 2009 • Letter from DP&E re Approval of Noise Management Plan, 5 March 2015 • Letter from DoP re Amendment to the Noise Management Plan, 8 April 2010	The Noise Management Plan approved in 2003 was revised and amended in 2007 and 2009. The 5 year revision of the Noise Management Plan was submitted to the DoP on 28 September 2009 and approved on 8 April 2010. Further revision of the Noise Management Plan related to the Modification granted in March 2010 and inclusion of traffic noise management was submitted to DoP on 30 July 2010. Comments were received from DP&I at on 14 August 2012. A revised Noise Management Plan addressing the DP&I comments was submitted to DP&I on 24 December 2012.	**Compliant**

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	- compliance with the noise criteria in this approval; and - compliance with the noise operating conditions, • defines what constitutes a noise incident, and includes a protocol for identifying and notifying the Department and relevant stakeholders of any noise incidents.	• Noise Management Plan, July 2010 • Letter from EPA re Revised Noise Management Plan,21 Nov 2014 • Noise Management Plan, Mar 2015 • Letter from DP&E re Approval of Noise Management Plan, 5 Mar 2015	The Noise Management Plan prepared to satisfy Development Consent 14/98 MOD 11 condition 6.4(e): (i)was prepared in consultation with the EPA, submitted to the Secretary DP&E and approved on 5 March 2015; (ii)describes the measures that would be implemented to ensure compliance with the noise criteria and operating conditions in this approval in section 8; and (iii)includes a monitoring program in section 6 that: • section 6.2 evaluates and reports on compliance with the noise criteria; and compliance with the noise operating conditions, • sections 7 and 8 define what constitutes a noise incident, and includes a protocol for identifying and notifying the Department and relevant stakeholders of any noise incidents.	
6.5	**Visual Management**			
6.5(a)	**<u>Additional Visual Impact Mitigation</u>** Upon receiving a written request from the owner of any residence on privately-owned land which has, or would have, significant direct views of the mining operations and infrastructure on-site during the development, the Applicant shall implement additional visual impact mitigation measures (such as landscaping treatments or vegetation screens) to reduce the visibility of the mining operations and infrastructure from the residences on the privately-owned land. These mitigation measures must be reasonable and feasible, and must be implemented within a reasonable timeframe. If the owner of the residence and the Applicant cannot agree whether there are significant direct views from the residence, then either party may refer the matter to the Secretary for resolution. If within 3 months of receiving this request, the Applicant and the owner 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. *Notes: a The additional visual impact mitigation /measures must be aimed at reducing the visibility of the mining operations on site from affected residences, and do not require measures to reduce the visibility of the mining operations from other locations on the affected properties. The additional visual impact mitigation /measures do not*	• Letter from DP&E re DAC Conditions 6.5 and 8.1, 19 Sep 2014	No requests for additional visual impact mitigation measures were received between May 2014 and April 2016.	**Not triggered**

No.	DA 14/98 Minister's Condition of Approval	Verification	Comments	Compliance
	necessarily have to include the implementation of measures on the affected property itself (i.e. the additional measures could involve the implementation of measures outside the affected property boundary that provide an effective reduction in visual impacts).			
6.5(b)	**Operating Conditions** The Applicant shall: (i) implement all reasonable and feasible measures to minimise the visual and off-site lighting impacts of the development; (ii) ensure no fixed outdoor lights shine directly above the horizontal or above the building line or any illuminated structure; (iii) ensure no in-pit mobile lighting rigs shine directly above the pit wall and other mobile lighting rigs do not shine directly above the horizontal; (iv) ensure that all external lighting associated with the development complies with relevant Australian Standards including Australian Standard A54282 (INT) 1997 - Control of Obtrusive Effects of Outdoor Lighting, or its latest version; and (v) take all reasonable and feasible measures to shield views of mining operations and associated equipment from users of public roads and privately-owned residences, to the satisfaction of the Secretary.		(i) measures to minimise the visual and off-site lighting impacts from the Cowal Gold Operations have been implemented; (ii) no fixed outdoor lights shine directly above the horizontal or above the building line; (iii) no in-pit mobile lighting rigs shine above the pit wall; (iv) external lighting associated with the development complies with Australian Standard A54282 (INT) 1997 - Control of Obtrusive Effects of Outdoor Lighting; and (v) measures to shield views of mining operations and associated equipment from users of public roads and privately-owned residences are implemented where practicable.	**Compliant**
7	**TRANSPORT MANAGEMENT**			
7.1	**Road Transport**			
	Mine site access road The Applicant shall use its best endeavours to ensure that the preferred mine access road routes as described in the EA are the only routes used by employees and contractors travelling to and from the mine site.	• Bland Shire Council Decision - Notification of Approval of CGM Access Rd Upgrade, 21 Apr 99 • Letter to BSC re Mine Access Road Routed, 31 Jan 05	The access road route to the mine site from West Wyalong was approved by the Bland Shire Council in 1999 and road works completed and in use in 2006. Access to the Cowal Gold Operations site by employees and contractors only occurs along this new road completed in 2006.	**Compliant**
8	**ADDITIONAL PROCEDURES**			
8.1	**Notification of Landowners/Tenants**			
8.1(a)	By the end of September 2014, unless the Secretary agrees otherwise, the Applicant shall notify in writing the owners of; (i) the land listed in Table 7 that they have the right to ask the Applicant to: acquire their land at any stage during the development; and install additional noise mitigation measures at any residence on their land;	• Letter to Westlea re Notification in Accordance with Conditions 6.4 and 8.1/8.3, 18 Sep 2014 • Letter to Westlea Property re Notification in Accordance with	Owners of the land listed in Table 7 were notified that they have the right to ask the Applicant to acquire their land at any stage during the development, and/or install additional noise mitigation measures at any residence on their land. No requests were received between May 2013 and April	**Compliant**

No.	DA 14/98 Minister's Condition of Approval	Verification	Comments	Compliance
8.1(b)	(ii)any residence on privately-owned land which has, or would have, significant direct views of the mining operations and infrastructure on-site during the development, that they have the right to ask the Applicant to implement additional visual impact mitigation measures (such as landscaping treatments or vegetation screens) to reduce the visibility of the mining operations and infrastructure from the affected residences on the land. (b) As soon as practicable after obtaining monitoring results showing: (i) an exceedance of any relevant criteria in this consent, the Applicant shall notify the affected landowners in writing of the exceedance, and provide regular monitoring results to the landowner until the development is again complying with the relevant criteria; and (ii) an exceedance of the relevant air quality criteria in this consent, the Applicant shall send a copy of the NSW Health fact sheet entitled "Mine Dust and You" (as may be updated from time to time) to the affected landowners and/or existing tenants of the land.	Conditions 6.4 and 8.1/8.3, 18 Sep 2014 • Letter to McClintock Property re Notification in Accordance with Conditions 6.4 and 8.1/8.3, 18 Sep 2014	2016 to acquire any property listed in Table 7.	
8.2	**Independent Review**			
	If an owner of privately-owned land considers the development to be exceeding the criteria in this consent, then he/she may ask the Secretary in writing for an independent review of the impacts of the development on his/her land. If the Secretary is satisfied that an independent review is warranted, then within 2 months of the Secretary's decision, the Applicant shall: (a) commission a suitably qualified, experienced and independent expert, whose appointment has been approved by the Secretary, to: o consult with the landowner to determine his/her concerns; r conduct monitoring to determine whether the development is complying with the relevant impact assessment criteria in condition 6 of this consent; and ¡ if the development is not complying with these criteria then: o determine if more than one mine or development is responsible for the exceedance, and if so the relative share of each mine or development regarding the impact on the land; and o identify the measures that could be implemented to ensure compliance with the relevant criteria; and (b) give the Secretary and landowner a copy of the independent review.			**Not triggered**
8.3	**Land Acquisition**			
8.3(a)	Within 6 months of receiving a written request from a			**Not triggered**

No.	DA 14/98 Minister's Condition of Approval	Verification	Comments	Compliance
	landowner with acquisition rights, the Applicant shall make a binding written offer to the landowner based on: (i) the current market value of the landowner's interest in the property at the date of this written request, as if the property was unaffected by the development, having regard to the: . existing and permissible use of the land, in accordance with the applicable planning instruments at the date of the written request; and . presence of improvements on the property and/or any approved building or structure which has been physically commenced at the date of the landowner's written request, and is due to be completed subsequent to that date, but excluding any improvements that have resulted from the implementation of any additional noise and/or visual mitigation measures under this consent; (ii) the reasonable costs associated with: . relocating within the same local government area, or to any other local government area determined by the Secretary; . obtaining legal advice and expert advice for determining the acquisition price of the land, and the terms upon which it is to be acquired; and (iii) reasonable compensation for any disturbance caused by the land acquisition process. However, if at the end of this period, the Applicant and landowner cannot agree on the acquisition price of the land and/or the terms upon which the land is to be acquired, then either party may refer the matter for resolution. Upon receiving such a request, the Secretary shall request the President of the NSW Division of the Australian Property Institute to appoint a qualified independent valuer to: (1) consider submissions from both parties; (2) determine a fair and reasonable acquisition price for the land and/or the terms upon which the land is to be acquired, having regard to the matters referred to in paragraphs (i)-(iii) above; (3) prepare a detailed report setting out the reasons for any determination; and (4) provide a copy of the report to both parties. Within 14 days of receiving the independent value/s report, the Applicant shall make a binding written offer to the landowner to purchase the land at a price not less than the independent value/s determination However, if either party disputes the independent valuer's determination, then within 14 days of receiving the independent valuer's report, they may refer the matter to the Secretary for review. Any request for a review must be accompanied by a detailed report setting out the reasons why the party disputes the independent valuer's determination. Following consultation with the independent			

No.	DA 14/98 Minister's Condition of Approval	Verification	Comments	Compliance
	valuer and both parties, the Secretary shall determine a fair and reasonable acquisition price for the land, having regard to the matters referred to in paragraphs (i)-(iii) above, the independent value/s report, the detailed report of the party that disputes the independent valuer's determination and any other relevant submissions. Within 14 days of this determination, the Applicant shall make a binding written offer to the landowner to purchase the land at a price not less than the Secretary's determination. If the landowner refuses to accept the Applicant's binding written offer under this condition within 6 months of the offer being made, then the Applicant's obligations to acquire the land shall cease, unless the Secretary determines otherwise. (b) The Applicant shall pay all reasonable costs associated with the land acquisition process described in condition 8.3(a) above. (c) If the Applicant and landowner agree that only part of the land shall be acquired, then the Applicant shall also pay all reasonable costs associated with obtaining Council approval for any plan of subdivision (where permissible), and registration of the plan at the Office of the Registrar-General.			
9	**ENVIRONMENTAL MANAGEMENT, AUDITING AND REPORTING**			
9.1	**Environmental Management**			
9.1(a)	**<u>Environmental Management Strategy</u>** The Applicant shall prepare and implement an Environmental Management Strategy for the development to the satisfaction of the Secretary. This strategy must: (i) be submitted to the Secretary for approval by the end of October 2014, unless the Secretary agrees otherwise; (ii) provide the strategic framework for environmental management of the development; (iii) identify the statutory approvals that apply to the development; (iv) describe the role, responsibility, authority and accountability of all key personnel involved in the environmental management of the development; (v)describe the procedures that would be implemented to: . keep the local community and relevant agencies informed about the operation and environmental performance of the development; receive, handle, respond to, and record complaints; resolve any disputes that may arise; respond to any non-compliance; respond to emergencies; and **(vi)** Include copies of any strategies, plans and	• Environmental Management Strategy, Oct 2014 • Letter from DP&E re Approval of Environmental Management Strategy, 28 Nov 2014	The Environmental Management Strategy was prepared in October 2014 to satisfy Development Consent 14/98 MOD 11: (i) The Environmental Management Strategy was submitted to the Secretary on 30 October 2014 and approved on 28 November 2014; (ii) Section 1 addresses purpose and scope of the Environmental Management Strategy; (iii) Section 2 identifies statutory requirements; (iv) Section 3 provides site environmental management structure; (v) Section 5 presents environmental management plans and monitoring programs; section 7 information dissemination; section 8 complaints and dispute resolution; section 9 non-compliances; and section 10 emergency or incident response. (vi) Appendix C provides Environmental Management Plans, Strategies and Programs.	**Compliant**

No.	DA 14/98 Minister's Condition of Approval	Verification	Comments	Compliance
	programs approved under the conditions of this consent, and. a clear plan depicting all the monitoring to be **carried out in relation to** the development.			
9.1(b)	**Annual Review** By the end of July each year, or as otherwise agreed with the Secretary, the Applicant shall review the environmental performance of the development to the satisfaction of the Secretary. This review must: (i) describe the development that was carried out in the previous calendar year, and the development that is proposed to be carried out over the next year; (ii) include a comprehensive review of the monitoring results and complaints records of the development over the previous calendar year, which includes a comparison of these results against the: ¡ the relevant statutory requirements, limits or performance measures/criteria; ¡ the monitoring results of previous years; and the relevant predictions in the EIS; (iii) identify any non-compliance over the last year, and describe what actions were (or are being) taken to ensure compliance, (iv) identify any trends in the monitoring data over the life of the development; (v) identify any discrepancies between the predicted and actual impacts of the development, and analyse the potential cause of any significant discrepancies; and (vi) describe what measures will be implemented over the next year to improve the environmental performance of the development.	• 2013 AEMR • 2014 Annual Review • 2015 Annual Review • Letters to EPA/OEH, NoW, DTIRIS (Mineral Resources), DPI(Fisheries), DSC, BSC and CEMCC re 2012 AEMR, 20 Aug 2013 • Letters to EPA/OEH, NoW, DTIRIS (Mineral Resources), DPI(Fisheries), DSC, BSC and CEMCC re 2013 AEMR, 7 Aug 2014 • Letters to EPA/OEH, NoW, DRE DPI(Fisheries), DSC, BSC and CEMCC re 2014 AEMR, 31 Jul 2015	The Annual Review prepared for the Cowal Gold Operations is prepared by the end of July each year and submitted to the Secretary DP&E. The Annual Returns address the requirements of the condition 9.1(b): (i) Section 2 Operations during the Reporting Period describes the development carried out in the previous 12 months, and section 7 outlines the development proposed over the next year; (ii) Section 3 Environmental Management and Performance provides a comprehensive review of the monitoring results and complaints records over the previous calendar year, with a comparison of these results against the relevant statutory requirements, limits or performance measures/criteria, monitoring results of previous years and the relevant predictions in the EIS; (iii) Section 3 Environmental Management and Performance identifies any non-compliance over the last year, and describe actions taken to ensure compliance, and identify any trends in the monitoring data over the life of the development; (iv) Section 3 Environmental Management and Performance also identifies any discrepancies between the predicted and actual impacts of the development; and (v) Section 7.1 outlines environmental management targets and strategies/measures to be implemented to improve the environmental performance of the development.	**Compliant Ongoing**
9.1(c)	**Revision of Strategies, Plans and Programs** Within 3 months of: (i) the submission of an annual review under condition 9.1(b) above; (ii) the submission of an incident report under condition 9.3(a) below; (i) the submission of an audit under condition 9.2 (a) below; (ii) the submission of an Annual State of the Environment Report under condition g.2(b) below; (iii) the approval of any modification to the conditions of this consent; or	• Letter to DP&E re Revision of Strategies, Plans and Programs, 20 Oct 2014 • Letter from DP&E re Revision of Strategies, Plans and Programs, 1 Dec 2014 • Letter to DP&E re Status of Revision of Environmental Management Plans, 26 Feb 2015	The revision/development of the Strategies, Plans and / or Programs for Development Consent 14/98 MOD 11 are progressively being developed for the Cowal Gold Mine Extension Project. The requirement for submission to DP&E within 3 months of the approval of the modification (i.e. October 2014) was granted an extension to the timeframe on 1 December 2014. The Environmental Management Strategy, Noise Management Plan, and Indigenous Aboriginal Heritage Management Plan were submitted to DP&E in October 2014 and the revised documents approved by DP&E.	**Compliant Ongoing**

No.	DA 14/98 Minister's Condition of Approval	Verification	Comments	Compliance
	(iv) a direction of the Secretary under condition 1 .1 (c) of this consent; the Applicant shall review and, if necessary, revise the strategies, plans, and programs required under this consent to the satisfaction of the Secretary. Where this review leads to revisions in any such document, then within 4 weeks of the review the revised document must be submitted to the Secretary for approval, unless otherwise agreed with the Secretary. *Note: This is to ensure the strategies, plans and programs are updated on a regular basis, and incorporate any recommended measures to improve the environmental performance of the development*.	• Letter from DPI-Water re Management Plan Reviews, 15 May 2015	The status of the revision of the remaining Environmental Management Plans was provided to DP&E on 26 February 2015, with the consultation process for the remaining EMP"s to be complete by end of May 2015. The review of the required management plans for MOD 11 was completed in May 2015 and the documents submitted to DP&E for approval. All Plans were approved by DP&E prior to this audit (April 2016), except for the Rehabilitation Management Plan that requires approval by DRE.	
9.1(d)	**Community Environmental Monitoring and Consultative Committee** (i) The Applicant shall establish and operate a Community Environmental Monitoring and Consultative Committee (CEMCC) for the development to the satisfaction of the Secretary. This CEMCC must: r be comprised of an independent chair and at least 2 representatives of the Applicant, 1 representative of BSC, 1 representative of the Lake Cowal Environmental Trust (but not a Trust representative of the Applicant), 4 community representatives (including one member of the Lake Cowal Landholders Association); . be operated in general accordance with the Guidelines for Establishing and Operating Community Consultative Committees for Mining Projects (Department of Planning, 2007, or its latest version). . monitor compliance with conditions of this consent and other matters relevant to the operation of the mine during the term of the consent. *Note: The CEMCC is an advisory committee. The Department and other relevant agencies are responsible for ensuring that the Applicant complies with this consent*. (ii)The Applicant shall establish a trust fund to be managed by the Chair of the CEMCC to facilitate the functioning of the CEMCC, and pay $2000 per annum to the fund for the duration of gold processing operations. The annual payment shall be indexed according to the Consumer Price Index (CPI) at the time of payment. The first payment shall be made by the date of the first Committee meeting. The Applicant shall also contribute to the Trust Fund reasonable funds for payment of the independent Chairperson, to the satisfaction of the Secretary (iii)At least four years prior to mine closure the Applicant shall, in consultation with the CEMCC, identify and discuss	• Charter of the CEMCC • CEMCC Minutes 6 Mar 2013 • CEMCC Minutes 5 Jun 2013 • CEMCC Minutes 5 Sep 2013 • CEMCC Minutes 5 Dec 2013 • CEMCC Minutes 5 Mar 2014 • CEMCC Minutes Sep 2014 • CEMCC Minutes Dec 2014 • CEMCC Minutes Mar 2015 • CEMCC Minutes Jun 2015 • CEMCC Minutes Sep 2015 • CEMCC Minutes Dec 2015 • CEMCC Minutes Mar 2016	(i)The Community Environmental Monitoring and Consultative Committee (CEMCC) was established in 2003 and the inaugural meeting of the CEMCC occurred on 15 October 2003. The CEMCC meets quarterly and the meeting minutes are made available at Bland Shire Council library for public inspection. • Chair of CEMCC Margaret MacDonald-Hill. • Garry Pearson (Environment Manager), Bronwyn Flynn (Environmental Co-ordinator) and Shane Goodwin (Community Relations Manager until 2015) nominated Evolution Mining CGO representatives. • Copies of complaints and other relevant documentation is provided as required to the CEMCC. • CGO supplies information to the Committee as requested, on environmental performance. • Site inspections are arranged as requested by the CEMCC • The CEMCC Meetings are held at the Cwal Gold Operations offices. (ii) An annual contribution of $2000 (plus CPI) is paid to Bland Shire Council, and the funds are held in trust for the purpose of the CEMCC. (iii)and (iv) are not yet applicable.	**Compliant Ongoing**

No.	DA 14/98 Minister's Condition of Approval	Verification	Comments	Compliance
	post-mining issues, particularly in relation to reduced employment and consequent impacts on West Wyalong, and develop a mine workforce phase out plan. This plan shall be reviewed and updated in consultation with the CEMCC at the commencement of the final year of mining operations. (iv) The Applicant shall, in consultation with the CEMCC, develop appropriate strategies to support activities which promote special interest tourism related to the co-existence of mining and the Lake Cowal environment.			
9.2	**Independent Auditing and Review**			
9.2(a)	**Independent Environmental Audit** By the end of July 2016, and every 3 years thereafter, unless the Secretary directs otherwise, the Applicant shall commission and pay the full cost of an Independent Environmental Audit of the development. This audit must: • be conducted by a suitably qualified, experienced and independent team of experts whose appointment has been endorsed by the Secretary; • include consultation with the relevant agencies, BSC and the CEMCC; • assess the environmental performance of the development and assess whether it is complying with the requirements in this consent and any other relevant approvals (such as environment protection licences and/or mining lease (including any assessment, plan or program required under this consent); • review the adequacy of any approved strategy, plan or program required under this consent or the abovementioned approvals; and • recommend measures or actions to improve the environmental performance of the development, and/or any strategy, plan or program required under this consent. *Note: This audit team must be led by a suitably qualified auditor, and include ecology and rehabilitation experts, and any other fields specified by the Secretary.* Within 3 months of commissioning this audit, or as otherwise agreed by the Secretary, the Applicant shall submit a copy of the audit report to the Secretary, together with its response to any recommendations contained in the audit report, and a timetable for the implementation of these recommendations as required. The Applicant must implement these	• Independent Environmental Audit, Trevor Brown & Associates, April 2013 • Independent Environmental Audit, Trevor Brown & Associates, April 2014 • Independent Environmental Audit, Trevor Brown & Associates, April 2015 • Letter from DP&E re Approval of Audit Team, 20 Jan 2016	Independent Environmental Audits were conducted for the periods April 2007 to April 2010, and May 2010 to April 2013, to satisfy Development Consent 14/98 condition 8.8(a). This current Independent Environmental Audit has been conducted to satisfy Consolidated Development Consent 14/98 MOD 11 condition 9.2(a) for the period May 2013 to April 2016. This Independent Environmental Audit was: • conducted by suitably qualified, experienced and independent team of experts whose appointment has been endorsed by the Secretary Trevor Brown, Audit Leader Robert Drury, Environmental Expert - Gold Projects Matthew Richardson, Ecology and Biodiversity expert Michael Frankcombe, Rehabilitation expert • include consultation with the relevant agencies, BSC and the CEMCC; • assess the environmental performance of the development and assess whether it is complying with the requirements in this consent and any other relevant approvals (such as environment protection licences and/or mining lease (including any assessment, plan or program required under this consent); • review the adequacy of any approved strategy, plan or program required under this consent or the abovementioned approvals; and • recommend measures or actions to improve the environmental performance of the development, and/or any strategy, plan or program required under this consent.	**Compliant Ongoing**

No.	DA 14/98 Minister's Condition of Approval	Verification	Comments	Compliance
	recommendations, to the satisfaction of the Secretary.			
9.2(b)	**Independent Monitoring Panel**			
	(i) The Applicant shall at its own cost establish an Independent Monitoring Panel prior to commencement of construction. The Applicant shall contribute $30,000 per annum for the functioning of the Panel, unless otherwise agreed by the Secretary. The annual payment shall be indexed according to the Consumer Price Index at the time of payment. The first payment shall be paid by the date of commencement of construction and annually thereafter. Selection of the Panel representatives shall be agreed by the Secretary in consultation with relevant government agencies and the CEMCC. The Panel shall at least comprise two duly qualified independent environmental scientists and a representative of the Secretary. (ii) The panel shall: • provide an overview of the annual reviews and independent audits required by conditions 9,1(b) and 9.2(a) above; • regularly review all environmental monitoring procedures undertaken by the Applicant, and monitoring results; and • provide an Annual State of the Environment Report for Lake Cowal with particular reference to the on-going interaction between the mine and the Lake and any requirements of the Secretary. The first report shall be prepared one year after commencement of construction. The report shall be prepared annually thereafter unless otherwise directed by the Secretary and made publically available on the Applicant's website for the development within two weeks of the report's completion.	• Ninth Independent Monitoring Panel Report, Oct 2013 (received by Barrick 2 Jun 2014) • Tenth Independent Monitoring Panel Report, 1 Dec 2014 • Letter from DP&E re Independent Monitoring Panel Report, 27 Oct 2015 • Eleventh Independent Monitoring Panel Report, Sep 2015	(i)The Independent Monitoring Panel was established by Barrick with two independent environmental scientists nominated by the Director-General. The current members are: Dr Craig Miller CSIRO Sustainable Ecosystems Emeritus Prof. Clive Bell University of Queensland; and NSW Department of Planning and Infrastructure (DP&E) The IMP prepares a report for the DP&E annually: • Ninth IMP Report provided on 2 June 2014 • Tenth IMP Report provided on 1 December 2014; and • Eleventh IMP Report provided in September 2015 (b)(ii)(a) The Independent Monitoring Panel has commented on the Independent Environmental Audit in each of the annual reports; (b)(ii)(b) environmental monitoring procedures and monitoring results are commented on in the annual reports; (b)(ii)(c) The IMP have prepared an Annual Report for the Cowal Gold Project. The report is submitted to the Director-General and agencies that receive the Annual Reviews. The report is also made publically available at the Bland Shire Council and on the Project website.	**Compliant**
9.3	**Reporting**			
9.3(a)	**Incident Reporting** The Applicant shall immediately notify the Secretary and any other relevant agencies of any incident related to the development. Within 7 days of the date of the incident, the Applicant shall provide the Secretary and any relevant agencies with a detailed report on the incident, and such further reports as may be requested.	• Emergency Response Plan, 5 Jul 2015 • Pollution Incident Response Management Plan, Jul 2015	Reporting of any incident including details of measures taken or proposed to be taken to prevent or mitigate recurrence of the incident has occurred to the Secretary, EPA and other relevant agencies within 7 days of the date of the incident.	**Compliant Ongoing**

No.	DA 14/98 Minister's Condition of Approval	Verification	Comments	Compliance
9.3(b)	**Regular Reporting** The Applicant shall provide regular reporting on the environmental performance of the development on its website, in accordance with the reporting arrangements in any plans or programs approved under the conditions of this consent.		The AEMR / Annual Review provides regular reporting on the environmental performance for the Cowal Gold Operations in accordance with the reporting arrangements in the environmental management plans and programs approved under the Development Consent 14/98 conditions. Monitoring results related to environmental performance are also posted on the company website.	**Compliant Ongoing**
9.4	**Access to Information** The Applicant shall: (a)make the following information publically available on its website: (i) the EIS; (i.e. current statutory approvals for the development) (iii) approved strategies, plans or programs required under the conditions of this consent; (iv) a comprehensive summary of the monitoring results of the development, which have been reported in accordance with the various plans and programs approved under the conditions of this consent; (v) a complaints register, which is to be updated on a monthly basis; (vi) minutes of CEMCC meetings; (vi} the last five annual reviews; (i) any Independent environmental audit, and the Applicant's response to the recommendations in any audit; and (ii) (ix) any other matter required by the Secretary; and (b) keep this information up to date, to the satisfaction of the Secretary.	• **www.evolutionmining.com.au /cowal/**	The following information has been publically available on the project website between 2013 and 2016: • Extension Modification Environmental Assessment, Sep 2013 • Environmental Management Plans • Annual Reviews 2010-2015 • Environment Monitoring Data 2012-2016 • Complaints Register • Independent Environmental Audits • Independent Monitoring Panel Reports • CEMCC Minutes • Statutory Approvals – Consolidated Development Consent MOD 11	**Compliant Ongoing**
	APPENDIX 5 NOISE COMPLIANCE ASSESSMENT			
1	**Applicable Meteorological Conditions** The noise criteria in the conditions are to apply under all meteorological conditions except the following (a) during periods of rain or hail; (b) average wind speed at microphone height exceeds 5 m/s; or wind speeds greater than 3 m/s measured at 10 m above ground level.			**Noted**
2	**Determination of Meteorological Conditions** Except for wind speed at microphone height, the data to be used for determining meteorological conditions shall be that recorded by the meteorological station located on	• Noise Management Plan, Mar 2015	The meteorological conditions at the time of noise surveys is reported in the Noise Monitoring Reports, as recorded by the meteorological station located on the site.	**Compliant**

No.	DA 14/98 Minister's Condition of Approval	Verification	Comments	Compliance
	the site.			
3	**Compliance Monitoring** Attended monitoring is to be used to evaluate compliance with the relevant conditions of this approval	• Noise Management Plan, Mar 2015	Attended noise monitoring surveys are conducted quarterly.	**Compliant**
4	This monitoring must be carried out quarterly, unless the Secretary directs otherwise. *Note: The Secretary may direct that the frequency of attended monitoring increase or decrease at any time during the life of the development.*	• Noise Management Plan, Mar 2015	Noise monitoring is conducted quarterly in accordance with Development Consent 14/98 MOD 11 condition 6.4(e).	**Compliant**
5	Unless the Secretary agrees otherwise, this monitoring is to be carried out in accordance with the relevant requirements for reviewing performance set out in the NSW Industrial Noise Policy (as amended from time to time), in particular the requirements relating to: (a) monitoring locations for the collection of representative noise data; (b) meteorological conditions during which collection of noise data is not appropriate, (c) equipment used to collect noise data, and conformity with Australian Standards relevant to such equipment; and (d) modifications to noise data collected, including for the exclusion of extraneous noise and/or penalties for modifying factors apart from adjustments for duration.	• Noise Management Plan, Mar 2015	Noise monitoring is carried out in accordance with the relevant requirements for reviewing performance set out in the NSW Industrial Noise Policy.	**Compliant**

Attachment B Environment Protection Licence No. 11912

Attachment B - Environment Protection Licence No. 11912

<table>
<tr><th>EPL No.</th><th>EPL Condition</th><th>Audit Evidence</th><th>Comments</th><th>Compliance</th></tr>
<tr><td>A1</td><td>What the licence authorises and regulates</td><td></td><td></td><td></td></tr>
<tr><td>A1.1</td><td>This licence authorises the carrying out of the scheduled activities listed below at the premises specified in A2. The activities are listed according to their scheduled activity classification, fee-based activity classification and the scale of the operation.
Unless otherwise further restricted by a condition of this licence, the scale at which the activity is carried out must not exceed the maximum scale specified in this condition.
<table>
<tr><th>Scheduled Activity</th><th>Fee Based Activity</th><th>Scale</th></tr>
<tr><td>Concrete works</td><td>Concrete works</td><td>0-13000m^3 produced</td></tr>
<tr><td>Crushing, grinding or separating</td><td>Crushing, grinding or separating</td><td>>2000000 T processed</td></tr>
<tr><td>Extractive activities</td><td>Land-based extractive activity</td><td>> 2000000 T extracted, processed or stored</td></tr>
<tr><td>Mineral processing</td><td>Mineral processing</td><td>> 2000000 - T processed</td></tr>
<tr><td>Mining for minerals</td><td>Mining for minerals</td><td>> 5000000 - T produced</td></tr>
</table></td><td></td><td>Scheduled activities undertaken at the Cowal Gold Mine are in accordance with the maximum scale specified in this condition.

Cowal Gold Mine has not exceeded the scale of minerals mined or mineral processed between May 2013 and April 2016.</td><td>Compliant</td></tr>
<tr><td>A1.2</td><td>The licensee may carry out scheduled development works necessary for the activity of mineral processing to be undertaken at the premises</td><td></td><td></td><td></td></tr>
<tr><td>A2</td><td>Premises to which this licence applies</td><td></td><td></td><td></td></tr>
<tr><td>A2.1</td><td>Cowal Gold Project 38km North East of West Wyalong.
Lake Cowal Road, West Wyalong NSW 2671
Premises include the land defined by ML 1535.</td><td></td><td></td><td>Noted</td></tr>
<tr><td>A3</td><td>Other activities</td><td></td><td></td><td></td></tr>
<tr><td>A3.1</td><td>This licence applies to all other activities carried on at the premises, including:
Chemical storage, contaminated soil treatment, sewage treatment, waste disposal (application to land)</td><td></td><td></td><td>Noted</td></tr>
<tr><td>A4</td><td>Information supplied to the EPA</td><td></td><td></td><td></td></tr>
<tr><td>A4.1</td><td>Works and activities must be carried out in accordance with the proposal contained in the licence application, except as expressly provided by a condition of this licence.
In this condition the reference to "the licence application" includes a reference to:</td><td></td><td></td><td>Noted</td></tr>
</table>

<table>
<tr><td></td><td>(a) the applications for any licences (including former pollution control approvals) which this licence replaces under the Protection of the Environment Operations (Savings and Transitional) Regulation 1998; and
(b) the licence information form provided by the licensee to the EPA to assist the EPA in connection with the issuing of this licence.</td><td></td><td></td><td></td></tr>
<tr><td>A4.2</td><td>For the purposes of condition A4.1, the licence application includes:
1) Development Consent Cowal Project
2) Cowal Gold Project EIS
3) List of Initial development activities associated with the construction of the Cowal Gold Project.
4) Cowal Gold Project – SIS
5) Modifications to the Cowal Gold Project approved by the DoP.</td><td>• Development Consent Cowal Project and Modifications to the Cowal Gold Project
• Cowal Gold Project – EIS
• Cowal Gold Project – SIS
• Modifications 1-11 to Cowal Gold Project EIS</td><td></td><td>Noted</td></tr>
<tr><td colspan="5">Discharges to air and water and applications to land</td></tr>
<tr><td>P1</td><td>Location of monitoring/discharge points and areas</td><td></td><td></td><td></td></tr>
<tr><td>P1.1</td><td>The following points referred to in the table are identified in this licence for the purposes of monitoring and/or the setting of limits for the emission of pollutants to the air from the point.
<table>
<tr><td>1</td><td>Dust Monitoring</td><td>Dust gauge located approximately 1km west of ML1535 boundary, labelled as "McLintock's Shed" in Figure 5 'Dust Monitoring Locations' of the addendum to the "Cowal Gold Project Dust Management Plan" dated August 2007.</td></tr>
<tr><td>2</td><td>Dust Monitoring</td><td>Dust gauge located south of the southern waste emplacement, labelled as "Site Office" in Figure 5 'Dust Monitoring Locations' of addendum to the "Cowal Gold Project Dust Management Plan" dated August 2007.</td></tr>
<tr><td>3</td><td>Dust Monitoring</td><td>Dust gauge located approximately 1.5km east of ML1535 boundary, labelled as "DG5" in Figure 5 'Dust Monitoring Locations' of the addendum to the "Cowal Gold Project Dust Management Plan" dated August 2007.</td></tr>
<tr><td>4</td><td>Dust Monitoring</td><td>Dust gauge located approximately 3.5km south of ML1535 boundary, labelled as "DG9" in Figure 5 'Dust Monitoring Locations' of the addendum to the "Cowal Gold Project Dust Management Plan" dated August 2007.</td></tr>
<tr><td>5</td><td>Dust Monitoring</td><td>Dust gauge located within ML1535 and north of the open pit, labelled as "Site 52" in Figure 5 'Dust Monitoring Locations' of the addendum to the "Cowal Gold Project Dust Management Plan" August 2007.</td></tr>
<tr><td>6</td><td>Dust Monitoring</td><td>Dust gauge and high volume sampler located approximately 3.5 km north of ML1535 boundary, labelled as "DG1" and "HV1" in Figure 5 'Dust Monitoring Locations' of the addendum to the "Cowal Gold Project Dust Management Plan" dated August 2007.</td></tr>
</table></td><td>• Quarterly Monitoring Reports
• 2012 AEMR
• 2013 Annual Review
• 2014 Annual Review
• 2015 Annual Review
• Dust Management Plan, 2008
• Air Quality Management Plan, 2015</td><td>The dust deposition gauges and high volume sampler monitoring has continued between May 2013 and April 2016 in accordance with the requirements of the EPL conditions at the locations nominated in EPL condition P1.1and the CGM Dust Management Plan.

Directional dust deposition gauges (Frisbees) were added to the dust monitoring program in September 2009 to provide directional data and supplement the existing University of Sydney depositional dust gauges.

Due to the increase in water levels in Lake Cowal between May 2011 and April 2012, monitoring of twelve (12) of the depositional dust gauges and six (6) dust Frisbees was suspended in the lake area due to inundation and access problems.

Modification to the dust deposition gauge installation has ensured that the gauges remain above the the lake fill level of 205.7m AHD.</td><td>Compliant</td></tr>
</table>

<table>
<tr>
<td>P1.2</td>
<td>The points referred to in the table are identified in this licence for the purposes of the monitoring and/or the setting of limits for discharges of pollutants to water from the point.</td>
<td>• Quarterly Monitoring Reports</td>
<td>Cowal Gold Operations water monitoring was conducted at the EPL nominated locations and in accordance with the Water Management Plan and Surface Water, Groundwater, Meteorological and Biological Monitoring Program.</td>
<td>Compliant</td>
</tr>
<tr>
<td></td>
<td>Water and Land
<table>
<tr><td>12</td><td>Stormwater quality monitoring</td><td>Northern waste emplacement contained water storage labelled as "D1" in Figure 8 'Water Management Plan Operations Phase Year 3' of the "Cowal Gold Project Addendum to Site Water Management Plan" dated December 2006.</td></tr>
<tr><td>13</td><td>Stormwater quality monitoring</td><td>Southern waste emplacement contained water storage labelled as "D4" in Figure 8 'Water Management Plan Operations Phase Year 3' of the "Cowal Gold Project Addendum to Site Water Management Plan" dated December 2006.</td></tr>
<tr><td>14</td><td>Ambient Water quality monitoring</td><td>Surface water point within Lake Cowal labelled as "P1" in Figure 6 'Lake Monitoring Sites' of the "Cowal Gold Project Surface Water, Groundwater, Meteorological and Biological Monitoring Programme – Mine Operations" dated April 2005.</td></tr>
<tr><td>15</td><td>Ambient Water quality monitoring</td><td>Surface water point within Lake Cowal labelled as "P2" in Figure 6 'Lake Monitoring Sites' of the "Cowal Gold Project Surface Water, Groundwater, Meteorological and Biological Monitoring Programme - Mine Operations" dated April 2005.</td></tr>
<tr><td>16</td><td>Ambient Water quality monitoring</td><td>Surface water point within Lake Cowal labelled as "P3" in Figure 6 'Lake Monitoring Sites' of the "Cowal Gold Project Surface Water, Groundwater, Meteorological and Biological Monitoring Programme - Mine Operations" dated April 2005.</td></tr>
<tr><td>17</td><td>Ambient Water quality monitoring</td><td>Surface water point within Lake Cowal labelled as "B1" in Figure 6 'Lake Monitoring Sites' of the "Cowal Gold Project Surface Water, Groundwater, Meteorological and Biological Monitoring Programme - Mine Operations" dated April 2005.</td></tr>
<tr><td>18</td><td>Ambient Water quality monitoring</td><td>Surface water point within Lake Cowal labelled as "B5" in Figure 6 'Lake Monitoring Sites' of the "Cowal Gold Project Surface Water, Groundwater, Meteorological and Biological Monitoring Programme - Mine Operations" dated April 2005.</td></tr>
<tr><td>19</td><td>Groundwater monitoring</td><td>Piezometer located up gradient of southern tailings storage labelled as "P555A-R" in Figure 14 "Surface and Groundwater Monitoring Locations - Project ML Area" dated 30 March 2009.</td></tr>
</table></td>
<td>• Quarterly Monitoring Reports
• Cowal Gold Project Site Rainfall Records
• Surface Water Event Monitoring Field Sheets (for rainfall events of 20mm or greater).
• Water Management Plan, 2015
• Surface Water, Groundwater, Meteorological and Biological Monitoring Program, 2015
• 2013 AEMR
• 2014 Annual Review
• 2015 Annual Review</td>
<td>Surface water monitoring occurred following EPL trigger rainfall events (i.e. >20mm rainfall/24hrs) for the surface water monitoring program. Trigger events occurred on the following occasions between May 2013 and April 2016:

2 June 2013 26.6mm
12 June 2013 23.8mm
17 September 2013 54.4mm
1 March 2014 26.6mm

Groundwater monitoring has been conducted from piezometers listed in P1.2 as EPA Identification Points 19-40, in accordance with the EPL requirements.</td>
<td>Compliant</td>
</tr>
</table>

	20	Groundwater monitoring	Piezometer located up gradient of southern tailings storage labelled as "P555B" in Figure 14 "Surface and Groundwater Monitoring Locations - Project ML Area" dated 30 March 2009.			
	21	Groundwater monitoring	Piezometer located up gradient of northern tailings storage labelled as "P558A and R" in Figure 14 "Surface and Groundwater Monitoring Locations - Project ML Area" dated 30 March 2009.			
	22	Groundwater monitoring	Piezometer located down gradient of southern tailings storage labelled as "P412A-R" in Figure 14 "Surface and Groundwater Monitoring Locations - Project ML Area" dated 30 March 2009.			
	23	Groundwater monitoring	Piezometer located down gradient of southern tailings storage labelled as "P412B" in Figure 14 "Surface and Groundwater Monitoring Locations - Project ML Area" dated 30 March 2009.			
	24	Groundwater monitoring	Piezometer located down gradient of southern tailings storage labelled as "P414A" in Figure 14 "Surface and Groundwater Monitoring Locations - Project ML Area" dated 30 March 2009.			
	25	Groundwater monitoring	Piezometer located down gradient of southern tailings storage labelled as "P414B" in Figure 14 "Surface and Groundwater Monitoring Locations - Project ML Area" dated 30 March 2009.			
	26	Groundwater monitoring	Piezometer located near the process plant area labelled as "PP03" in Figure 14 "Surface and Groundwater Monitoring Locations - Project ML Area" dated 30 March 2009.			
	27	Groundwater monitoring	Piezometer located near the process plant area labelled as "PP04" in Figure 14 "Surface and Groundwater Monitoring Locations - Project ML Area" dated 30 March 2009.			
	30	Groundwater monitoring	Piezometer located down gradient of southern tailings storage labelled as "P417A" in Figure 14 "Surface and Groundwater Monitoring Locations - Project ML Area" dated 30 March 2009.			
	31	Groundwater monitoring	Piezometer located down gradient of southern tailings storage labelled as "P417B" in Figure 14 "Surface and Groundwater Monitoring Locations - Project ML Area" dated 30 March 2009.			
	32	Groundwater monitoring	Piezometer located down gradient of northern tailings storage labelled as "P418A" in Figure 14 "Surface and Groundwater Monitoring Locations - Project ML Area" dated 30 March 2009.			
	33	Groundwater monitoring	Piezometer located down gradient of northern tailings storage labelled as "P418B" in Figure 14 "Surface and Groundwater Monitoring Locations - Project ML Area" dated 30 March 2009.			

	34	Groundwater monitoring	Piezometer located down gradient of northern tailings storage labelled as "TSFNA", "TSFNB" and "TSFNC" in Figure 14 "Surface and Groundwater Monitoring Locations - Project ML Area" dated 30 March 2009.			
	36	Groundwater monitoring	Pit dewatering bore labelled as "PDB1A and B" in Figure 14 "Surface and Groundwater Monitoring Locations - Project ML Area" dated 30 March 2009.			
	38	Groundwater monitoring	Pit dewatering bore labelled as "PDB3A and B" in Figure 14 "Surface and Groundwater Monitoring Locations - Project ML Area" dated 30 March 2009.			
	40	Groundwater monitoring	Pit dewatering bore labelled as "PDB5A and B" in Figure 14 "Surface and Groundwater Monitoring Locations - Project ML Area" dated 30 March 2009.			
	41	Northern waste emplacement leachate quality monitoring	Northern waste emplacement external toe drain. Exact site to be determined upon commencement of waste rock dump. Site will be designated by EPA monitoring point signage and will move as required with waste rock dump extensions.			
	42	Southern waste emplacement leachate quality monitoring	Southern waste emplacement external toe drain. Exact site to be determined upon commencement of waste rock dump. Site will be designated by EPA monitoring point signage and will move as required with waste rock dump extensions.			
	43	Perimeter waste emplacement leachate quality monitoring.	Perimeter waste emplacement external toe drain point. Exact site to be determined upon commencement of waste rock dump. Site will be designated by EPA monitoring point signage and will move as required with waste rock dump extensions.			
	44	Groundwater quality monitoring	Groundwater monitoring bore located to the east of the northern tailings storage labelled as "MON-01A and B" in Figure 14 "Surface and Ground water Monitoring Locations - Project ML Area" dated 30 March 2009.			
	45	Groundwater quality monitoring	Groundwater monitoring bore located to the south of the southern tailings storage labelled as "MON-02A and B" in Figure 14 "Surface and Ground water Monitoring Locations - Project ML Area" dated 30 March 2009.			
	48	Water quality monitoring point	Automated sampler at the process plant labelled as "Monitoring Point 48" on Figure 1 "Monitoring Location for CNwad levels in Tailings Slurry Stream at the Process Plant" submitted to the DECCW on 3-12-2010 held on file LIC07/2610-08			
P1.3	The utilisation areas referred to in the table if identified in this licence are for the purposes of the monitoring and/or the setting of limits for any application of solids or liquids to the utilisation area.					**Noted**

<table>
<tr><td>P1.4</td><td>The following points in the table are identified in this licence for the purposes of the monitoring of weather parameters at the point.</td><td></td><td></td><td></td></tr>
<tr><td></td><td><table>
<tr><th>EPA No.</th><th>Type of Monitoring Point</th><th>Description of location</th></tr>
<tr><td>7</td><td>Weather analysis</td><td>Weather station labeled as "Meteorological Station" in Figure 5 'Dust Monitoring Locations' of the "Cowal Gold Project Dust Management Plan" August 2003.</td></tr>
</table></td><td>• Dust Management Plan,
• Monthly Weather Station Reports – May 2013 to April 2016, Sentinel P/L
• Cowal Calibration Report, Sentinel Pty Ltd, Mar/Jun/ Sep/Nov 2014
• Cowal Calibration Report, Sentinel Pty Ltd, Jan/Apr/ Jun/Sep 2015
• Cowal Calibration Report, Sentinel Pty Ltd, Jan/Apr/ Jul/Oct 2015</td><td>The meteorological station installed at the CGM site provides continuous 15-minute data recording for each parameter, and this data is downloaded daily to the CGM computer system.

The meteorological station is checked quarterly for calibration and maintenance by Sentinel Pty Ltd and a monthly summary report of the meteorological data is provided to CGM by Sentinel.</td><td>Compliant</td></tr>
<tr><td colspan="5">3 Limit conditions</td></tr>
<tr><td>L1</td><td>Pollution of waters</td><td></td><td></td><td></td></tr>
<tr><td>L1.1</td><td>Except as may be expressly provided in any other condition of this licence, the licensee must comply with section 120 of the Protection of the Environment Operations Act 1997.</td><td>• Protection of the Environment Operations Act 1997 section 120</td><td></td><td>Noted</td></tr>
<tr><td>L2</td><td>Concentration limits</td><td></td><td></td><td></td></tr>
<tr><td>L2.1</td><td>For each monitoring/discharge point or utilisation area specified in the tables the concentration of a pollutant discharged at that point or applied to the area, must not exceed the concentration limits specified for that pollutant in the table.</td><td></td><td></td><td>Noted</td></tr>
<tr><td>L2.2</td><td>Where a pH quality limit is specified in the table, the specified percentage of samples must be within the specified ranges.</td><td></td><td></td><td>Noted</td></tr>
<tr><td>L2.3</td><td>To avoid any doubt, this condition does not authorise the pollution of waters by any pollutant other than those specified in the table/s.</td><td></td><td></td><td>Noted</td></tr>
<tr><td></td><td>Point 48<table>
<tr><th>Pollutant</th><th>Units of measure</th><th>90percentile concentration limit</th><th>100 percentile concentration limit</th></tr>
<tr><td>CN_{WAD}</td><td>mg/l</td><td>20</td><td>30</td></tr>
</table></td><td>• Cyanide Management Plan 2010, (revision)
• Cyanide Management Plan, revision, Dec 2010
• Monthly Cyanide Monitoring Results, May 2013 to May 2014</td><td>Monitoring of the discharge to the tailings storage facilities is conducted twice daily. All results of the cyanide monitoring have been < 20mg CN_{WAD}/L (90 percentile) and no CN_{WAD} results have exceeded the 30mg CN_{WAD}/L for the May 2013 to April 2016 period.

The cyanide results are reported to the EPA (and DRE and DP&E) on a monthly basis.</td><td>Compliant</td></tr>
<tr><td>L3</td><td>Waste</td><td></td><td></td><td></td></tr>
</table>

L3.1	The licensee must not cause, permit or allow any waste generated outside the premises to be received at the premises for storage, treatment, processing, reprocessing or disposal or any waste generated at the premises to be disposed of at the premises, except as expressly permitted by the licence.		No waste material from any outside premises has been received onto the Cowal Gold Operations site.	**Compliant**
L3.2	For the purposes of condition L3.1: (a) Effluent, waste rock and tailings generated at the premises are not defined as "waste".			**Noted**
L3.2	(b) Waste generated at the premises described in Attachment A 'Cowal Gold Project Proposed Bioremediation Facility' of the licence variation application supplementary material received by DECC on 16 June 2008 and classified as general solid waste (putrescible) in accordance with the *Waste Classification Guidelines* (DECC, 2008) is permitted by this licence to be disposed of at the premises. Disposal of this waste must be undertaken in accordance with the methods described in Attachment A of the licence variation application supplementary material received by DECC on 16 June 2008, and the *Cowal Gold Project - Hazardous Waste and Chemical Management Plan*.	• Email to DECC/DPI-Minerals re Bioremediation Facility, 10 Dec 2008 • *Waste Classification Guidelines* (DECC, 2008) • EPL Variation 6 Apr 2009 • Waste Classification Report – Bioremediation Area, Barson, Mar 2012	The location co-ordinates and layout plans for the on-site bioremediation treatment area were provided to DECC/DPI-Minerals in December 2008 following Cultural Heritage Clearance of the proposed area in November 2008. The Cowal Gold Operations bioremediation bed involves contaminated soil being mixed with straw to promote biological breakdown of hydrocarbons. The bioremediation treatment area continues to be used for treatment and management of minor amounts of hydrocarbon contaminated soils from the site. A Waste Classification Report – Bioremediation Area (Barson, dated March 2012) concluded that: "*Based on the findings of this waste classification, tested soils collected from cell A and cell C on the 14 February 2012 are suitable for on-site disposal at Cowal Gold Mine, in accordance with all relevant disposal conditions and practices".*	**Compliant**
L3.2	(c) Waste generated at the premises described in Attachment B 'Cowal Gold Project Proposed Trash Screen Oversize Waste Management' of the licence variation application supplementary material received by DECC on 16 June 2008 and classified as general solid waste (putrescible) in accordance with the *Waste Classification Guidelines* (DECC, 2008) is permitted by this licence to be disposed of at the premises. Disposal of this waste must be undertaken in accordance with the methods described in Attachment B of the licence variation application supplementary material received by DECC on 16 June 2008, and the *Cowal Gold Project - Hazardous Waste & Chemical Management Plan*.	• Waste Classification Report – Bioremediation Area, Barnson, Mar 2012	All waste described in Attachment B of the licence variation application received by DECC on 16 June 2008 has been managed at the Cowal Gold Operations premises in accordance with EPL condition L3.2(c).	**Compliant**
L3.3	(d) Waste generated at the premises described in Attachment D 'Cowal Gold Project Proposed On-site Waste Management' of the licence variation application supplementary material received by DECC on 16 June 2008 and classified as general solid waste (putrescible) and/or general solid waste (non-putrescible) in accordance with the *Waste Classification Guidelines* (DECC, 2008) is permitted by this licence to be	• Waste Classification Report – Bioremediation Area, Barson, Mar 2012	All waste described in Attachment D of the licence variation application received by DECC on 16 June 2008 has been disposed of at the Cowal Gold Operations premises in accordance with EPL condition L3.2(d).	**Compliant**

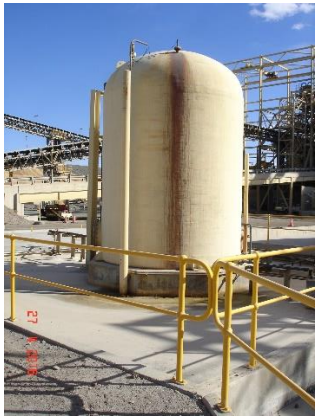
<table>
<tr><td></td><td>disposed of at the premises. Disposal of this waste must be undertaken in accordance with the conditions of this licence and within the waste rock emplacements only.</td><td></td><td></td><td></td></tr>
<tr><td>L3.4</td><td>(e) Waste generated at the premises as described in Attachment A 'Cowal Gold Mine Proposed On-Site Waste Tyre Management' of the licence variation application supporting documentation received by the DECC on the 4 February 2009 and classified as special waste in accordance with the Waste Classification Guidelines (DECC 2008), is permitted by this licence to be disposed at the premises.
Disposal of this waste must be undertaken in accordance with the conditions of this licence and within the waste rock emplacements only.</td><td></td><td>Disposal of waste generated at the Cowal Gold Operations premises is undertaken in accordance with the conditions of this licence within the waste rock emplacements.</td><td>Compliant</td></tr>
<tr><td>L4</td><td>Noise Limits</td><td></td><td></td><td></td></tr>
<tr><td>L4.1</td><td>Noise generated from the premises must not exceed criteria outlined in Table 1 at any residence on privately owned land, as shown on the plan Appendix 6 of the Cowal Gold Mine development consent DA 14/98, as modified on 22 July 2014.
Table 1
<table>
<tr><th>Location</th><th>Day/Evening/Night dB(A) LAeq(15 minute)</th></tr>
<tr><td>Laurel Park</td><td>37</td></tr>
<tr><td>Bungabulla</td><td>36</td></tr>
<tr><td>Bramboyne</td><td>36</td></tr>
<tr><td>The Glen</td><td>36</td></tr>
<tr><td>Bungabulla</td><td>36</td></tr>
<tr><td>All other residences</td><td>35</td></tr>
</table>
Note: • The noise impact assessment criteria do not apply if the Licensee has an agreement with the owner/s of the relevant residence or land to generate higher noise levels, and the Licensee has advised the NSW Department of Planning and Environment in writing of the terms of the agreement. • The noise impact assessment criteria do not apply to property and land subject to acquisition upon request as iL4.1dentified in Table 7 of Development Consent DA 14/98.
Note: LAeq means the equivalent continuous noise level – the level of noise equivalent to the energy-average of noise levels occurring over a measurement period</td><td>• Noise Management Plan, November 2004
• Operating Noise Monitoring, SLR, Jan 2014
• Operating Noise Monitoring, SLR, Jul 2014
• Operating Noise Monitoring, Spectrum Acoustics, Oct 2014
• Operating Noise Monitoring, Spectrum Acoustics, Jan 2015 Operating Noise Monitoring, Spectrum Acoustics, Oct 2015
• Operating Noise Monitoring, Spectrum Acoustics, Jan 2016</td><td>The Noise Management Plan prepared to satisfy Development Consent 14/98 MOD 10 and MOD 11 Condition 6.4(e) was implemented with six monthly mine operating noise monitoring conducted in January-February and July each year in accordance with the approved Noise Management Plan.

Results from the day-time, evening and night-time operator attended survey showed that the measured noise levels were reported to be compliant with the relevant noise assessment criteria at all measurement locations. The SLR Report March 2014 concluded that "All operator attended noise recordings were measured to be below the consent criteria during all periods of the day at all locations monitored. Consequently, the CGM was observed to be in compliance with the relevant noise requirements".

The Spectrum Acoustics Operating Noise Monitoring Report, January 2016 concluded that "The results in show that, under the operating and meteorological conditions at the times, for the 15minute compliance measurement periods, the mine noise did not exceed the operational noise criterion at any monitoring location at any time."</td><td>Compliant</td></tr>
<tr><td>L4.2</td><td>Noise generated from the premises is to be measured in accordance with the relevant requirements and exemptions of the "NSW Industrial Noise Policy".</td><td></td><td>The noise monitoring procedures developed were consistent with and in accordance with the NSW Industrial Noise Policy.</td><td>Compliant</td></tr>
<tr><td>L4.3</td><td>The noise criteria identified in condition L4.1 apply under meteorological conditions of temperature inversion conditions of up</td><td>• Operating Noise Monitoring, SLR, Jan 2014</td><td>Weather conditions are noted during noise surveys and reported in each monitoring reports.</td><td>Compliant</td></tr>
</table>

	to 8.0°C/100 metres and wind speed up to 1 metre per second at 10 metres above ground level. The 1 metre per second drainage-flow wind applies where the development is at higher altitude than the residential receiver, with no intervening higher ground. These criteria will not apply during rainfall. The noise criteria identified in condition L4.1 do not apply during: a) periods of rain or hail; b) average wind speeds at microphone height that exceed 5 metres per second; or c) average wind speeds that exceed 3 metres per second measured at 10 metres above ground level.	• Operating Noise Monitoring, SLR, Jul 2014 • Operating Noise Monitoring, Spectrum Acoustics, Oct 2014 • Operating Noise Monitoring, Spectrum Acoustics, Jan 2015 • Operating Noise Monitoring, Spectrum Acoustics, Jul 2015 • Operating Noise Monitoring, Spectrum Acoustics, Oct 2015 • Operating Noise Monitoring, Spectrum Acoustics, Jan 2016		
L4.4	Attended monitoring is to be used to evaluate compliance with conditions L4.1 to L4.3.		Operating noise surveys are conducted by attended monitoring.	**Compliant**
L4.5	Monitoring is to be carried out quarterly unless otherwise directed by the Secretary of NSW Department of Planning and Environment.		Noise monitoring was conducted each six months under MOD 10 and quarterly since granting of MOD 11.	**Compliant**
L5	**Blasting**			
L5.1	The airblast overpressure level from blasting operations at the premises at residences on privately owned land, when measured at the locations defined in condition M7.1 must not exceed 120 dB(Lin Peak) at any time at any noise sensitive locations. Error margins associated with any monitoring equipment used to measure this are not to be taken into account in determining whether or not the limit has been exceeded.	• Blast Management Plan, August 2003 • Review of Blast Monitoring Report 2010, The Saros Group, Feb 2013 • Review of Blast Monitoring Report 2011, The Saros Group, Mar 2014 • Review of Blast Monitoring Report 2012, The Saros Group, Mar 2015 • Review of Blast Monitoring Report 2012, The Saros Group, Apr 2016	Monitoring of blasts between January 2013 and March 2016 demonstrated compliance of all blasts with the overpressure and vibration for the Monday to Saturday Day and Evening criteria. No blasts occurred at night.	**Compliant**
L5.2	The overpressure level from blasting operations at the premises at residences on privately owned land, when measured at the locations defined in condition M7.1 must not exceed 115dB (Lin Peak) during the day for more than five per cent of the total number of blasts over a period of 12 months. The overpressure level from blasting operations at the premises at residences on privately owned land, when measured at the locations defined in condition M7.1 must not exceed 105dB (Lin Peak) during the evening for more than five per cent of the total number of blasts over a period of 12 months. The overpressure level from blasting operations at the premises at residences on privately owned land, when measured at the locations defined in condition M7.1 must not exceed 95dB (Lin Peak) at night or on Sundays and public holidays (24 hours) for more than five per cent of the total number of blasts over a period of 12 months. Error margins associated with any monitoring equipment used to measure this are not to be taken into account in determining whether or not the limit has been exceeded.		Overpressure exceedances identified between May 2013 and April 2016 assessed by SAROS related to the Sunday and Public Holiday compliance limit of 95dB(L): • Five (5) blast events exceeded the 95dBL criteria on Sundays and Public Holidays, during January 2013 to December 2015. • One (1) non-compliant overpressure event was recorded on privately owned land as blast related between January and April 2016. .	**Non-Compliant (Low Risk)**
L5.3	Ground vibration peak particle velocity from the blasting operations at the premises at residences on privately owned land, when measured at the locations defined in condition M7.1 must not exceed 10 mm/sec at any time at any noise sensitive locations.	• Blast Management Plan, August 2003	No blast monitoring results between May 2013 and April 2016 exceeded the ground vibration (ppv) criteria at any of the fixed monitor locations.	**Compliant**

	Error margins associated with any monitoring equipment used to measure this are not to be taken into account in determining whether or not the limit has been exceeded.	• Review of Blast Monitoring Report 2010, The Saros Group, Feb 2013 • Review of Blast Monitoring Report 2011, The Saros Group, Mar 2014 • Review of Blast Monitoring Report 2012, The Saros Group, Mar 2015 • Review of Blast Monitoring Report 2012, The Saros Group, Apr 2016		
L5.4	Ground vibration peak particle velocity from the blasting operations at the premises at residences on privately owned land, when measured at the locations defined in condition M7.1 must not exceed 5 mm/sec during the day for more than five per cent of the total number of blasts over a period of 12 months. Ground vibration peak particle velocity from the blasting operations at the premises at residences on privately owned land, when measured at the locations defined in condition M7.1 must not exceed 2 mm/sec during the evening for more than five per cent of the total number of blasts over a period of 12 months. Ground vibration peak particle velocity from the blasting operations at the premises at residences on privately owned land, when measured at the locations defined in condition M7.1 must not exceed 1 mm/sec at night and on Sundays and public holidays (24 hours) for more than five per cent of the total number of blasts over a period of 12 months. Error margins associated with any monitoring equipment used to measure this are not to be taken into account in determining whether or not the limit has been exceeded.			**Compliant**
L6	**Potentially Offensive Odour**			
L6.1	No condition of this licence identifies a potentially offensive odour for the purposes of section 129 of the *Protection of the Environment Operations Act 1997*. *Note: Section 129 of the Protection of the Environment Operations Act 1997, provides that the licensee must not cause or permit the emission of any offensive odour from the premises but provides a defence if the emission is identified in the relevant environment protection licence as a potentially offensive odour and the odour was emitted in accordance with the conditions of a licence directed at minimising odour.*		No odour complaints have been received in relation to the operation of the Cowal Gold process plant.	**Compliant**
Operating conditions				
O1	**Activities must be carried out in a competent manner**			
O1.1	Licensed activities must be carried out in a competent manner. This includes: (a) the processing, handling, movement and storage of materials and substances used to carry out the activity; and (b) the treatment, storage, processing, reprocessing, transport and disposal of waste generated by the activity.		The processing, handling, movement and storage of materials and substances used on the Cowal Gold Operations site and the treatment, storage, processing, reprocessing, transport and disposal of waste generated by the activity have been carried out in a competent manner.	**Compliant**
O2	**Maintenance of plant and equipment**			
O2.1	All plant and equipment installed at the premises or used in connection with the licensed activity:	• CGM Bund Audit, Extrin, Jul 2014	All equipment used for the mining operations is maintained by Cowal Gold Operations in the onsite Maintenance Workshops, with noise and vehicle	**Compliant**

	(a) must be maintained in a proper and efficient condition; and (b) must be operated in a proper and efficient manner.	• CGM Bund Audit, Extrin, 10 Jul 2015 **Hydrochloric acid tank bunded area resurfaced in Q2 2015** 	emission controlled to meet the vehicle and equipment specifications. Blast monitoring equipment undergoes maintenance and annual calibration in February/March by the Saros Group. Calibration of the meteorological station equipment occurs quarterly - Sentinel Pty Ltd. Annual audits of the bunded areas are conducted by Cowal Gold Operations and the floor of the of the hydrochloric acid tank bunded area was resurfaced in response to the actions identified in the Extrin Bund Audit July 2014.	
O2.2	All persons associated with the licensee including employees, agents' licensee, contractors and subcontractors must be advised of their responsibilities and liabilities under the *Protection of the Environment Operations Act* 1997.	• Induction Training package • Training Course Register for Cowal Gold personnel • Training Course Summary for Cowal Gold Operations • CGM Environmental Awareness Handbook • CGM Oil and Chemical Spill Response Awareness Handbook	Training of Cowal Gold personnel in the responsibilities and liabilities under the *Protection of the Environment Operations Act* is conducted annually. Induction occurs for all CGM personnel and contractors and the Environmental Awareness Handbook and Oil and Chemical Spill Response Awareness Handbook, prepared by the CGM, are provided to all CGM personnel.	**Compliant**
O3	**Dust**			
O3.1	Activities occurring in or on the premises must be carried out in a manner that will minimise the generation, or emission from the premises, of wind-blown or traffic generated dust		Activities occurring at the Cowal Gold Operations site are carried out in a manner that minimises the generation or emission of wind-blown or traffic generated dust from the premises.	**Compliant Ongoing**
O4	**Waste Management**			
O4.1	The waste rock emplacements areas and the perimeter waste emplacement must be located on a base drainage control zone with a minimum slope towards the open pit of 1 (vertical):200 (horizontal) and be designed to ensure all seepage from beneath the waste rock emplacement areas and the perimeter waste emplacement is directed towards the open pit.		The waste rock emplacements areas are located on a base drainage control zone with a minimum slope towards the open pit to ensure all seepage from beneath the waste rock emplacement areas is directed towards the open pit. Any seepage from the northern and southern waste emplacement areas is directed to the internal water collection system and water storage ponds. The waste emplacement areas have been designed to ensure that runoff and seepage is directed and collected in the site	**Compliant Ongoing**

			water management ponds for reuse in the process plant or for onsite dust control.	
O4.2	The tailings storage facilities and contained water storage facilities must have a basal barrier or impermeable liner with an equivalent permeability of 1x10-9 metres per second over a thickness of 1 metre.	• Letter from Dam Safety Committee re STSF, Jun 2010 • Tailings Storage Facility Surveillance Report, URS, Mar 2013 • NTSF Surveillance Report, URS, Dec 2013 • STSF Surveillance Report, URS, Mar 2014 • NTSF Surveillance Report, URS, Dec 2014 • STSF Surveillance Report, URS, Mar 2015	The approved design of the tailings storage facilities and contained water storage facilities, have included a basal barrier or impermeable liner that has been the subject of geotechnical reports following construction. Surveillance Reports have been prepared by URS for the Tailings Storage Facilities (TSF) in accordance with the Dams Safety Committee requirements for the High C category TSF. The Construction Report for the Stage 2 lifts of the STSF and NTSF were submitted to the NSW Dam Safety Committee (DSC) and the DSC provided a response in June 2010 advising that the review satisfies the Committee's requirements. The NTSF and STSF continue to be assessed annually by Dr Neil Matte of URS to satisfy the requirements of the DSC and annual reports are prepared and sub mitted to the DSC.	**Compliant**
O5	**Other operating conditions**			
O5.1	All above ground storage facilities containing flammable and combustible liquids must be bunded in accordance with Australian Standard AS 1940-2004.		All above ground storage facilities containing flammable and combustible liquids are bunded in accordance with Australian Standard AS 1940-2004.	**Compliant**
5	**Monitoring and Recording Conditions**			
M1	**Monitoring records**			
M1.1	The results of any monitoring required to be conducted by this licence or a load calculation protocol must be recorded and retained as set out in this condition.	• Environmental Management File 5.09 - Monitoring		**Noted**
M1.2	All records required to be kept by this licence must be: a) in a legible form, or in a form that can readily be reduced to a legible form; b) kept for at least 4 years after the monitoring or event to which they relate took place; and c) produced in a legible form to any authorised officer of the EPA who asks to see them.	• Environmental Management File 5.09 - Monitoring • RIMS database	All monitoring data collected by Cowal Gold Operations is entered into a database system where the data is retained for reporting and filing. This system also generates reports for the EPA/, DRE, DP&E and any other agencies as required.	**Compliant**
M1.3	The following records must be kept in respect of any samples required to be collected for the purposes of this licence: a) the date(s) on which the sample was taken; b) the time(s) at which the sample was collected; c) the point at which the sample was taken; and d) the name of the person who collected the sample.	• RIMS database	All monitoring data collected by Cowal Gold Operations to meet the requirements of the EPL is entered into the computerised database and includes all information required by this condition.	**Compliant**
M2	**Requirement to monitor concentration of pollutants discharged**			

<table>
<tr><td>M2.1</td><td>For each monitoring/discharge point or utilisation area specified below (by a point number), the licensee must monitor (by sampling and obtaining results by analysis) the concentration of each pollutant specified in Column 1. The licensee must use the sampling method, units of measure, and sample at the frequency, specified opposite in the other columns:</td><td></td><td></td><td>Noted</td></tr>
<tr><td>M2.2</td><td>Air Monitoring Requirements</td><td></td><td></td><td></td></tr>
<tr><td></td><td>Point 1,2,3,4,5
<table>
<tr><th>Pollutant</th><th>Unit of Measure</th><th>Frequency</th><th>Sampling Method</th></tr>
<tr><td>Aluminium</td><td>mg/kg</td><td>Every 6 mths</td><td>Rep. sample</td></tr>
<tr><td>Arsenic</td><td>mg/kg</td><td>Every 6 mths</td><td>Rep. sample</td></tr>
<tr><td>Cadmium</td><td>mg/kg</td><td>Every 6 mths</td><td>Rep. sample</td></tr>
<tr><td>Copper</td><td>mg/kg</td><td>Every 6 mths</td><td>Rep. sample</td></tr>
<tr><td>Lead</td><td>mg/kg</td><td>Every 6 mths</td><td>Rep. sample</td></tr>
<tr><td>Particulates – Deposited Matter</td><td>g/m^2/month</td><td>Monthly</td><td>AM-19</td></tr>
<tr><td>Selenium</td><td>mg/kg</td><td>Every 6 mths</td><td>Rep. sample</td></tr>
<tr><td>Zinc</td><td>mg/kg</td><td>Every 6 mths</td><td>Rep. sample</td></tr>
</table>
Point 6
<table>
<tr><th>Pollutant</th><th>Unit of Measure</th><th>Frequency</th><th>Sampling Method</th></tr>
<tr><td>Aluminium</td><td>mg/kg</td><td>Every 6 mths</td><td>Rep. sample</td></tr>
<tr><td>Arsenic</td><td>mg/kg</td><td>Every 6 mths</td><td>Rep. sample</td></tr>
<tr><td>Cadmium</td><td>mg/kg</td><td>Every 6 mths</td><td>Rep. sample</td></tr>
<tr><td>Copper</td><td>mg/kg</td><td>Every 6 mths</td><td>Rep. sample</td></tr>
<tr><td>Lead</td><td>mg/kg</td><td>Every 6 mths</td><td>Rep. sample</td></tr>
<tr><td>Particulates – Deposited Matter</td><td>g/m^2/month</td><td>Monthly</td><td>AM-19</td></tr>
<tr><td>Selenium</td><td>mg/kg</td><td>Every 6 mths</td><td>Rep. sample</td></tr>
<tr><td>Total suspended Particles</td><td>µg/m^3</td><td>6 days</td><td>AM-18</td></tr>
<tr><td>Zinc</td><td>mg/kg</td><td>Every 6 mths</td><td>Rep. sample</td></tr>
</table></td><td>• Monthly Weather Reports, Apr 2013 to May 2014, Sentinel Pty Ltd
• Monthly Weather Reports, Jun 2014 to May 2015, Sentinel Pty Ltd</td><td>All monitoring conducted by Cowal Gold Operations is generally undertaken in compliance with the requirements of the EPL. All sampling occurred in accordance with the frequency specified in EPL condition M2.1/2.2 using standard methods and analysis is conducted by NATA registered laboratories using the latest edition of the USEPA.

Monitoring data is reported in the Annual Returns to the EPA, and interpretation of monitoring results data is reported in the Annual Reviews submitted to DP&E and EPA Annual Return.

Any instances when monitoring of dust samples was not conducted or reported in accordance with the condition was notified to the EPA. These instances did not result in environmental harm.</td><td>Compliant

Administrative Non-compliance</td></tr>
</table>

<table>
<tr><td>M2.3</td><td>Water and/ or Land Monitoring Requirements</td><td></td><td></td><td></td></tr>
<tr><td></td><td>
POINTS 12,13
<table>
<tr><th>Pollutant</th><th>Units</th><th>Frequency</th><th>Sampling Method</th></tr>
<tr><td>Conductivity</td><td>µS/cm</td><td>Monthly</td><td>In situ</td></tr>
<tr><td>Total suspended particles</td><td>mg/l</td><td>Quarterly</td><td>Representative sample</td></tr>
<tr><td>pH</td><td>pH units</td><td>Monthly</td><td>In situ</td></tr>
</table>
POINTS 14,15,16,17,18
<table>
<tr><th>Pollutant</th><th>Units</th><th>Frequency</th><th>Sampling Method</th></tr>
<tr><td>Alkalinity (as $CaCO_3$)
Antimony
Arsenic
Cadmium</td><td>mg/l</td><td>Quarterly</td><td>Representative sample</td></tr>
<tr><td>Conductivity</td><td>µS/cm</td><td>Monthly</td><td>In situ</td></tr>
<tr><td>Copper
Lead
Mercury
Selenium</td><td>mg/l</td><td>Quarterly</td><td>Representative sample</td></tr>
<tr><td>Total suspended particles
Zinc</td><td>mg/l</td><td>Quarterly</td><td>Representative sample</td></tr>
<tr><td>pH</td><td>pH units</td><td>Monthly</td><td>In situ</td></tr>
</table>
POINTS 19,20,21,22,23,24,25,30,31,32,33,44,45
<table>
<tr><th>Pollutant</th><th>Units</th><th>Frequency</th><th>Sampling Method</th></tr>
<tr><td>Alkalinity (as $CaCO_3$)
Antimony
Arsenic
Cadmium
Calcium
Chloride</td><td>mg/l</td><td>Quarterly</td><td>Representative sample</td></tr>
<tr><td>Conductivity</td><td>µS/cm</td><td>Monthly</td><td>In situ</td></tr>
<tr><td>Copper</td><td>mg/l</td><td>Quarterly</td><td>Representative sample</td></tr>
<tr><td>Cyanide (weak acid dissociable)</td><td>mg/l</td><td>Quarterly</td><td>WAD cyanide from water samples - CN-1 recovery by 20th Ed APHA 4500-CN-1 method
Alternative method and analysis by 20th Ed. APHA 4500-CN-1 method E, D or F</td></tr>
<tr><td>Lead
Magnesium
Potassium
Selenium
Sodium</td><td>mg/l</td><td>Quarterly</td><td>Representative sample</td></tr>
</table>
</td><td>
• Water Management Plan, 2015
</td><td>
Surface water monitoring occurred following EPL trigger (i.e. >20mm rainfall/24hrs) for the surface water monitoring program during May 2013 and April 2016.

• 2 June 2013 26.6mm
• 12 June 2013 23.8mm
• 17 September 2013 54.4mm
• 1 March 2014 26.6mm
• 1 June 2014 44.8mm
• 5 January 2015 21.8mm
</td><td></td></tr>
</table>

Standing water level	metres	Monthly	In situ
Sulfate Total Hardness Total suspended particles Zinc	mg/l	Quarterly	Representative sample
pH	pH units	Monthly	In situ

POINTS 34,36,38,40, 41,42,43

Pollutant	Units	Frequency	Sampling Method
Alkalinity (as $CaCO_3$) Antimony Arsenic Cadmium Calcium Chloride	mg/l	Quarterly	Representative sample
Conductivity	µS/cm	Monthly	In situ
Copper Lead Magnesium Potassium Selenium Sodium	mg/l	Quarterly	Representative sample
Standing water level	metres	Monthly	In situ
Sulfate Total Hardness Total suspended particles Zinc	mg/l	Quarterly	Representative sample
pH	pH units	Monthly	In situ

POINT 48

Pollutant	Units	Frequency	Sampling Method
Cyanide (total)	mg/l	Weekly	Total cyanide from water samples CN-1 recovery by 20th Ed APHA 4500-CN-1 method B3.1 Alternative method and analysis by 20th Ed APHA 4500 - CN-1 method E, D or F
Cyanide (weak acid dissociable)	mg/l	2x daily during discharge	WAD cyanide from water samples CN-1 recovery by 20th Ed. APHA 4500-CN-1 method Alternative method and analysis by 20th Ed.

VELP distillation method using the Orion FS 3100 analyser for analysis of CNWAD, plus a picric acid method of analysis for analysis of cyanide at the on-site laboratory (was approved by the relevant agencies in 2007). Amendments to the Cyanide Management Plan monitoring program in relation to the analysis method was agreed with the DPI in December 2006, and DECC in January 2007.

		APHA 4500-CN-1 method E, D or F		
M2.4	*For the purposes of the table(s) above* *• Special Frequency 1 means the collection of samples weekly and following rainfall events of 20mm or greater in a 24hour period.* *• At Monitoring Points 14, 15, 16, 17, and 18, monitoring is not required when the monitoring site is dry or if the water level of Lake Cowal is at or below 204.5 metres Australian Height Datum.* *• At Monitoring Points 34, 36, 38 and 40, monitoring is not required where a piezometer is lost or destroyed as a result of mine growth.* *• At Monitoring Point 3 (dust gauge DG5), monitoring is not required when the water level in Lake Cowal is below 204.5 metres Australian Height Datum and/or when the monitoring site is unable to be accessed safely. Monitoring is required to recommence when the outcome of a risk assessment determines a low or acceptable risk is associated with accessing the monitoring site.*	• Weekly Cowal Mine surveyor m AHD level readings for Lake Cowal (whilst water is across ML1535 boundary fence). • EPL Variation: 21 May 2014 Notice Number 1522063 • EPL Variation: 24 July 2014 Notice Number 1523564. • EPL Variation: 10 Oct 2014 Notice Number 152458.	The surface water monitoring program occurred with collection of water samples along transects in the Surface Water, Groundwater, Meteorological and Biological Monitoring Program, when the water levels in Lake Cowal have been above 204.5 m AHD. EPL11912 was varied on 21 May 2014 to align condition M2.4 for Points 14, 15, 16, 17 and 18 to Lake level of 204.5 m AHD. Where practical surface water samples continued to be collected when the Lake Cowal water level dropped below 204.5 m AHD.	**Compliant**
M3	**Testing methods - concentration limits**			
M3.1	Monitoring for the concentration of a pollutant emitted to the air required to be conducted by this licence must be done in accordance with: (a) any methodology which is required by or under the Act to be used for the testing of the concentration of the pollutant; or (b) if no such requirement is imposed by or under the Act, any methodology which a condition of this licence requires to be used for that testing; or (c) if no such requirement is imposed by or under the Act or by a condition of this licence, any methodology approved in writing by the EPA for the purposes of that testing prior to the testing taking place.	• Approved Methods for the Sampling and Analysis of Air Pollutants in NSW • USEPA Method 29 (2000) and 201 (1997) • Interpretation and Discussion of 2012 Air Quality Monitoring Results, Prof Stephen Cattle, University of Sydney, 12 Apr 2013 • Interpretation and Discussion of 2013 Air Quality Monitoring Results, Prof Stephen Cattle, University of Sydney, 31 May 2014 • Interpretation and Discussion of 2014 Air Quality Monitoring Results, Prof Stephen Cattle, University of Sydney, (draft) May 2015	Dust samples for 'Total Suspended Particles' are collected from the high volume sampler in accordance with Australian Standard AS 3580.9.3- 2003. Ecowise Environmental Pty Ltd supply a high volume air sampler for the TSP program. Analysis of dust deposition samples has been carried out by NATA registered laboratories (Australian Laboratory Services (ALS) between 2013 and 2016, for analysis of the elements required to be tested to meet the regulatory requirements, based on the latest editions of APHA and USEPA methods using ICP-MS for metals. Dust data is reviewed annually by Dr Stephen Cattle of University of Sydney. The results of the monitoring and dust analysis program are reported in the Annual Reviews and EPA Annual Report.	**Compliant**
M3.2	Subject to any express provision to the contrary in this licence, monitoring for the concentration of a pollutant discharged to waters or applied to a utilisation area must be done in accordance with the Approved Methods Publication unless another method has been approved by the EPA before any tests are conducted.		ALS conducts the majority of the analysis for water samples required by Cowal Gold Operations. ALS is NATA registered for the analysis of metals and the methods used by ALS are based on the current updated editions of APHA and USEPA documentation	**Compliant**

<table>
<tr><td></td><td></td><td></td><td>(e.g. Standard Methods for Water and Wastewater. 22nd Edition, 2012).</td><td></td></tr>
<tr><td>M4</td><td>Weather Monitoring</td><td></td><td></td><td></td></tr>
<tr><td></td><td>For each monitoring point specified in the table below, the licensee must monitor (by sampling and obtaining results by analysis) the parameters specified in Column 1. The licensee must use the sampling method, units of measure, averaging period and sample at the frequency, specified opposite in the other columns.</td><td>• Monthly Weather Station Reports – May 2013 to April 2016, Sentinel P/L
• Cowal Calibration Report, Sentinel Pty Ltd, Mar/Jun/ Sep/Nov 2014
• Cowal Calibration Report, Sentinel Pty Ltd, Jan/Apr/ Jun/Sep 2015
• Cowal Calibration Report, Sentinel Pty Ltd, Jan/Apr/ Jul/Oct 2015</td><td>The meteorological station installed at CGM is equipped with the required instrumentation to provide 15minute continuous data to the CGM site for the parameters in EPL condition M4.
Data is downloaded and reported monthly to Cowal Gold Operations, by Sentinel.
Calibration of the meteorological station equipment occurs quarterly by Sentinel Pty Ltd.</td><td>Compliant</td></tr>
<tr><td></td><td>Point 7
<table>
<tr><th>Parameter</th><th>Units</th><th>Continuous Averaging Period</th><th>Method</th></tr>
<tr><td>Rainfall</td><td>mm</td><td>24hr</td><td rowspan="3">AM-4</td></tr>
<tr><td>Temperature @ 2m</td><td></td><td rowspan="6">15min</td></tr>
<tr><td>Temperature @ 10m</td><td></td></tr>
<tr><td>Wind speed @ 10m</td><td>m/s</td><td>AM-2 & AM-4</td></tr>
<tr><td>Wind direction @ 10m</td><td>o</td><td>AM-2 & AM-4</td></tr>
<tr><td>Sigma theta @ 10m</td><td>o</td><td>AM-2 & AM-4</td></tr>
<tr><td>Solar radiation</td><td>W/m^2</td><td>AM-4</td></tr>
<tr><td>Siting</td><td colspan="2"></td><td>AM-1 &AM-4</td></tr>
<tr><td>Measurement</td><td colspan="2"></td><td>AM-2 & AM-4</td></tr>
</table></td><td></td><td>The meteorological station installed at Cowal Gold Operations site is equipped with the required instrumentation for the parameters in EPL condition M4, and provides 15minute continuous data to the CGM site.</td><td>Compliant</td></tr>
<tr><td>M5</td><td>Recording of pollution complaints</td><td></td><td></td><td></td></tr>
<tr><td>M5.1</td><td>The licensee must keep a legible record of all complaints made to the licensee or any employee or agent of the licensee in relation to pollution arising from any activity to which this licence applies.</td><td>• Responsibility Information Management System (RIMS)</td><td>A complaints register, including responses to complainants, is maintained in accordance with the EPL condition. A summary of the complaints is provided in the Annual Reviews and the EPL Annual Returns.</td><td>Compliant</td></tr>
<tr><td>M5.2</td><td>The record must include details of the following:
(a) the date and time of the complaint;
(b) the method by which the complaint was made;
(c) any personal details of the complainant which were provided by the complainant or, if no such details were provided, a note to that effect;
(d) the nature of the complaint;
(e) the action taken by the licensee in relation to the complaint, including any follow-up contact with the complainant; and
(f) if no action was taken by the licensee, the reasons why no action was taken.</td><td>• Letters to DP&E, DPI/DII, DECC/OEH, BSC and CEMCC re Complaints Register:
○ Jan and Jul 2013
○ Jan to May 2014
○ May to Dec 2014
○ Jan to Jun 2015
○ Jul to Dec 2015
○ Monthly Reporting on website</td><td>Complaints are recorded in the Cowal Gold Operations Complaints register that includes the information in accordance with each of the requirements of this condition. A summary of the Complaints has been submitted to the relevant authorities each 6 months and a full summary included in the Annual Reviews. As per MOD 11, the Complaints Register is posted at Cowal Gold Operations website.

Complaints are also discussed quarterly at CEMCC meetings.</td><td>Compliant</td></tr>
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M5.3	The record of a complaint must be kept for at least 4 years after the complaint was made.		All complaints received are retained on the site computer system Complaints Register.	**Compliant**
M5.4	The record must be produced to any authorised officer of the EPA who asks to see them.			**Noted**
M6	**Telephone complaints line**	•		
M6.1	The licensee must operate during its operating hours a telephone complaints line for the purpose of receiving any complaints from members of the public in relation to activities conducted at the premises or by the vehicle or mobile plant, unless otherwise specified in the licence.	• Responsibility Information Management System (RIMS) • Letters to DECC/OEH re Complaints Register: o Jan and Jul 2013 o Jan to May 2014 o May to Dec 2014 o Jan to Jun 2015 o Jul to Dec 2015	(a)A 24hour complaints line (02) 6975 3454 for Cowal Gold operations was established in 2003. (b)Six monthly reports of complaints received by Cowal Gold are prepared and submitted to EPA /BSC / CEMCC and DP&E.	**Compliant**
M6.2	The licensee must notify the public of the complaints line telephone number and the fact that it is a complaints line so that the impacted community knows how to make a complaint.		The complaints line is advertised in the West Wyalong Advocate on a regular basis and is available on the Cowal Gold Operations website and any community newsletters.	**Compliant**
M6.3	Conditions M6.1 and M6.2 do not apply until 3 months after: (a) the date of the issue of this licence or (b) if this licence is a replacement licence within the meaning of the Protection of the Environment Operations (Savings and Transitional) Regulation 1998, the date on which a copy of the licence was served on the licensee under clause 10.			**Noted**
M7	**Blasting monitoring**			
M7.1	To determine compliance with condition(s) L7.1, L7.2, L7.3 and L7.4: a) Airblast overpressure and ground vibration levels must be measured at nearby residences labelled as "BM01", "BM02" and "BM03", at bird breeding areas labelled as "BM04" and "BM05", and at the general monitoring site "BM06" in Figure 2 'Blast Monitoring Locations' of the revised "Cowal Gold Project Blast Management Plan" received by DECCW on the 01.06.2010 and on DECCW file LIC07/2610-08 for all blasts carried out in or on the premises; and b) Instrumentation used to measure the air-blast overpressure and ground vibration levels must meet the requirements of Australian Standard AS 2187.2-2006. (c) Monitoring at blast monitors BM01, BM04.1, BM05 and BM09 is not required when the water level in Lake Cowal is below 204.5 metres Australian Height Datum and/or when the monitoring site is unable to be accessed safely. Monitoring is required to	• Blast Management Plan August 2003 • Review of Blast Monitoring Report 2012, The Saros Group, Mar 2013 • Review of Blast Monitoring Report 2013, The Saros Group,	(a) All blasts were monitored for overpressure and vibration at the following fixed locations, with one mobile/portable monitor available for random checks. Blast monitoring locations are: o BM01 - Gumbelah residence and BM03 - Coniston Residence are categorised as 'residence *on privately owned land*' . o BM02, BM04.1, BM05, BM06 and BM09 are positioned to assess the impacts on and around Lake Cowal. o BM07 – Administration and BM10 Near Field Monitor in the Blast Management Plan. (b) Blast monitoring equipment undergoes maintenance and annual calibration in February/March by the Saros Group.	**Compliant**

	recommence when the outcome of a risk assessment determines a low or acceptable risk is associated with accessing the monitoring site			
	Reporting Conditions			
R1	**Annual return documents**			
R1.1	**What documents must an Annual Return contain?** The licensee must complete and supply to the EPA an Annual Return in the approved form comprising: (a) a Statement of Compliance; and (b) a Monitoring and Complaints Summary. Before the end of each reporting period, the EPA will provide to the licensee a copy of the form that must be completed and returned to the EPA.	• Annual Return to EPA 23 Dec 2011to 22 Dec 2012, submitted 20 Feb 2013 • Annual Return to EPA 23 Dec 2012 to 22 Dec 2013, submitted 17 Feb 2014 • Annual Return to EPA 23 Dec 2013 to 22 Dec 2014	(a) The Annual Returns have been prepared for the Cowal Gold Operations on the approved EPA forms and submitted to the EPA in accordance with condition R1.1 complete with a Statement of Compliance. (b) The Monitoring and Complaints summaries have been included on the Annual Returns.	**Compliant**
R1.2	**Period covered by Annual Return** An Annual Return must be prepared in respect of each reporting period, except as provided below. Note: The term "reporting period" is defined in the dictionary at the end of this licence. Do not complete the Annual Return until after the end of the reporting period.	• Annual Return to EPA 23 Dec 2011to 22 Dec 2013, submitted 17 Feb 2014 • Annual Return to EPA 23 Dec 2013 to 22 Dec 2014, submitted to EPA 23 Feb 2015 • Annual Return to EPA 23 Dec 2014 to 22 Dec 2015, submitted to EPA 17 Feb 2016	The Annual Returns for Cowal Gold Operations cover the period of 23 December to 22 December in accordance with EPL condition R1.2. The Annual Return for 23 December 2013 to 22 December 2014 was submitted to the EPA on 4 March 2015 complete with the monitoring and complaints summary, in accordance with EPL condition R1.2.	**Compliant**
R1.5	**Deadline for Annual Return** The Annual Return for the reporting period must be supplied to the EPA by registered post not later than 60 days after the end of each reporting period or in the case of a transferring licence not later than 60 days after the date the transfer was granted (the 'due date').		The Annual Returns for the CGM for the period 23 December to 22 December have been submitted to the EPA in accordance with the requirement of EPL condition R1.5 for 2013 to 2015.	**Compliant**
R1.7	**Licensee must retain copy of Annual Return** The licensee must retain a copy of the Annual Return supplied to the EPA for a period of at least 4 years after the Annual Return was supplied to the EPA.		A copy of each Annual Return is retained within the Cowal Gold Operations document system in the EPA files.	**Compliant**
R1.8	**Certifying of Statement of Compliance and Signing of Monitoring and Complaints Summary** Within the Annual Return, the Statement of Compliance must be certified and the Monitoring and Complaints Summary must be signed by: (a) the licence holder; or		The Annual Returns have been completed and certified by senior Cowal Gold Managers as required by EPL R1.8.	**Compliant**

	(b) by a person approved in writing by the EPA to sign on behalf of the licence holder.			
R1.9	The licensee must report any exceedance of the licence blasting limits to the regional office of the EPA as soon as practicable after the exceedance becomes known to the licensee or to one of the licensee's employees or agents. *Note: The term "reporting period" is defined in the dictionary at the end of this licence. Do not complete the Annual Return until after the end of the reporting period.* *Note: An application to transfer a licence must be made in the approved form for this purpose.*		Any exceedance of the blasting limits has been reported to the regional office of the EPA as soon as practicable after the exceedance is known to have occurred.	**Compliant**
R2	**Notification of environmental harm**			
R2.1	*Note: The licensee or its employees must notify the EPA of incidents causing or threatening material harm to the environment as soon as practicable after the person becomes aware of the incident in accordance with Part 5.7 of the Act.* *Notifications must be made by telephoning the EPA's Pollution Line service on 131 555.*			**Noted**
R2.2	The licensee must provide written details of the notification to the EPA within 7 days of the date on which the incident occurred.	• Letter from EPA re New Requirements for All Licensees, 16 Jan 2012 • Pollution Incident Response Management Plan (PIRMP) submitted to the EPA in Sep 2012 • PIRMP placed on website Feb 2014	Changes to the environment protection legislation in relation to notification of pollution incidents, was advised to Cowal Gold on 16 January 2012. The changes required the preparation of a Pollution Incident Response Management Plan. The Plan was submitted to the EPA in September 2012.	**Noted**
Written report				
R3.1	Where an authorised officer of the EPA suspects on reasonable grounds that: (a) where this licence applies to premises, an event has occurred at the premises; or (b) where this licence applies to vehicles or mobile plant, an event has occurred in connection with the carrying out of the activities authorised by this licence, and the event has caused, is causing or is likely to cause material harm to the environment (whether the harm occurs on or off premises to which the licence applies), the authorised officer may request a written report of the event.		Not triggered	**Noted**
R3.2	The licensee must make all reasonable inquiries in relation to the event and supply the report to the EPA within such time as may be specified in the request.		Not triggered	**Noted**

R3.3	The request may require a report which includes any or all of the following information: (a) the cause, time and duration of the event; (b) the type, volume and concentration of every pollutant discharged as a result of the event; (c) name, address, business hours telephone, number of employees or agents of the licensee, or a specified class who witnessed the event; (d) the name, address and business hours telephone number of every other person (of whom the licensee is aware) who witnessed the event, unless the licensee has been unable to obtain that information after making reasonable effort; (e) action taken by the licensee in relation to the event, including any follow-up contact with any complainants; (f) details of any measure taken or proposed to be taken to prevent or mitigate against a recurrence of such an event; (g) any other relevant matters.		Not triggered	**Noted**
R3.4	The EPA may make a written request for further details in relation to any of the above matters if it is not satisfied with the report provided by the licensee. The licensee must provide such further details to the EPA within the time specified in the request.		Not triggered	**Noted**
R4.2	The licensee must report any exceedance of the licence blasting limits to the regional office of the EPA as soon as practicable after the exceedance becomes known to the licensee or to one of the licensee's employees or agents.	•	Any exceedance of the blasting limits has been reported to the regional office of the EPA as soon as practicable after the exceedance is known to have occurred.	**Compliant**
7	**General conditions**			
G1	**Copy of licence kept at the premises**			
G1.1	A copy of this licence must be kept at the premises to which the licence applies.		A copy of the EPL is kept in the Environment Section at the Cowal Gold Project site administration offices and workplace copies are in Crib Rooms and Office areas.	**Compliant**
G1.2	The licence must be produced to any authorised officer of the EPA who asks to see it.			**Noted**
G1.3	The licence must be available for inspection by any employee or agent working at the premises.			**Noted**

ATTACHMENT C MINING LEASE 1535 CONDITIONS

Attachment C Mining Lease 1535 Conditions

No.	ML 1535 Condition	Audit Evidence	Comments	Compliance
1	**Notice to Landholders**			
	The lease-holder must serve on each landholder of the land a notice in writing indicating that this lease has been granted / renewed and whether the lease includes the surface.		Evolution Mining is the registered proprietor of all the land on which the mining lease is located.	**Not applicable**
6	**Reports**			
	The lease holder shall provide within a period of 28 days after each anniversary of the date this lease has effect …. a progress report to the satisfaction of D-G……..		Progress Reports have been prepared for submission to DPI/DTIRIS-DRE annually and the Annual Reviews also include rehabilitation reporting in accordance with Development Consent 14/98 MOD 11 condition 9.2(b).	**Compliant**
11	**Safety**			
	Operations are to be carried out in a manner that ensures safety of persons or stock in the vicinity of the operations…….		Protective fences have been constructed around the active mine areas, tailing storage facilities, process plant, and the mine lease boundary to restrict entry of persons and stock.	**Compliant**
12	**Rehabilitation**			
12 (a)	Land disturbed must be rehabilitated to a stable and permanent form suitable for a subsequent land use acceptable to the Director-General and in accordance with the Mining Operations Plan so that: • there is no adverse environmental effect outside the disturbed area and that the land is properly drained and protected from soil erosion • the state of the land is compatible with the surrounding land and land use requirements. • the landforms, soils, hydrology and flora require no greater maintenance than that in the *surrounding land.* • in cases where revegetation is required and native vegetation has been removed or *damaged, the original species must be re-established with close reference to the flora survey included in the Mining Operations Plan. If the original vegetation was not native, any re-established vegetation must be appropriate to the area and at an acceptable density.* • the land does not pose a threat to public safety	• MOP Jan 2011 to Sep 2012 • Letter from DTIRIS re MOP Oct 2012 to Jan 2014, 19 Dec 2012 • MOP Oct 2012 to Jan 2014 • Letter to DT&I- DRE re Extension of MOP to 31 Jan 2015, 27 Sep 2013 • Letter from DT&I-DRE re Approval of MOP Extension, 4 Oct 2013 • MOP (revised) 31 January 2014 to 31 January 2015 • MOP (draft) Apr 2014 to Apr 2016, dated Apr 2014 • Letter from DRE re Approval of MOP Apr 2014 to Apr 2016, 9 Oct 2014	The proposed rehabilitation activities during each MOP term are described in section 4 of the MOP's. The MOP October 2012 to January 2014 was approved by the DTIRIS-DRE on 19 December 2012. An extension to the MOP to 31 January 2015 was requested in September 2013, and approved on the 4 October 2013. Current MOP April 2014 to Apr 2016, approved by DRE 9 October 2014. • there is no adverse environmental effect outside the disturbed area and that the land is properly drained and protected from soil erosion • the state of the land is compatible with the surrounding land and land use requirements. • the landforms, soils, hydrology and flora require no greater maintenance than that in the *surrounding land* • ML1535 prior to mining had largely been cleared of native vegetation for grazing purposes. CGM have committed in the ROMP to improve biodiversity by establishing Eucalypt Woodlands on the Northern and Southern Waste Rock Emplacements, Riverine and Eucalypt Woodland on the Northern and Southern Tailings Storage Facilities and Wetland and Riverine Species on the new lake foreshore. • ML 1535 is fully fenced and does not currently pose a threat to public safety	**Compliant** **Not triggered** **Compliant**

No.	ML 1535 Condition	Audit Evidence	Comments	Compliance
12(b)	Any topsoil that is removed must be stored and maintained in a manner acceptable to the Director-General.	•		
13	The lease holder must comply with any direction given by the D-G regarding the stabilisation and revegetation of any mine residues, tailing or overburden dumps situated on the lease area.		No additional direction was provided to Cowal Gold by the Director General during the audit period.	**Noted**
14	**Prevention of Soil Erosion and Pollution**			
	Operations must be carried out in a manner that does not cause or aggravate air pollution, water pollution (including sedimentation) or soil contamination or erosion, unless otherwise authorised by a relevant approval, and in accordance with an accepted Mining Operations Plan. For the purpose of this condition, water shall be taken to include any watercourse, waterbody or groundwater. The lease holder must observe and perform any instructions given by the Director-General in this regard.	• Erosion and Sediment Control Management Plan, revised Dec 2009 • Dust Management Plan, revised Feb 2009 • Erosion and Sediment Control Management Plan (revised) submitted to DP&E 24 Feb 2015 • Air Quality Management Plan, revised submitted to DP&E 20 Apr 2015	The operations were observed as being undertaken in accordance with the Erosion and Sediment Control Management Plan and other environmental management plans, Mining Operations Plan and Addenda. Soil erosion primarily due to the dispersive subsoils was observed in the upper sections of the mine void and the north-western end of the perimeter waste emplacement. Sediment and turbid run-off from these areas is captured by the site drainage system and therefore there is limited potential for off-site water quality impacts from this erosion. Cowal Gold Operations have implemented a program of works to stabilise the dispersive soils in this area that result in erosion by reshaping, gypsum treatment and rock mulching/blending of the soils on the batters of the perimeter waste emplacement where appropriate (pers.com. Bronwyn Flynn 27 April 2016).	**Compliant** **Non-compliant**
15	**Transmission lines, Communication lines and Pipelines**			
	Operations must not interfere with or impair the stability or efficiency of any transmission line, communications line or pipeline or other utility on the area ……		Relocation of Telstra cables and power lines within the ML boundary occurred during construction in the 1st quarter of 2004.	**Compliant**
16	**Fences and gates**			
	(a) Activities on the lease must not interfere with or damage fences without the prior written approval of the owner …..		Evolution Mining is the registered proprietor of the all land on which the mining lease is located.	**Not applicable**
17	**Roads and Tracks**			
	Operations must not affect any road unless in accordance with an accepted Mining Operations Plan or with the prior approval of the Director-General…… The lease holder must pay the local council, DLWC or the RTA the cost incurred in fixing any damage to roads caused by the operations carried out under this lease……		The external road access route to the CGM site from West Wyalong as approved in the Development Consent, is complete and in use for all traffic to and from the mine site.	**Compliant**
18	Access tracks must be kept to a minimum and be positioned so that they do not cause any unnecessary damage to the land……		Access tracks within the mining lease area have been established in accordance with the mine plan development and any temporary access tracks are rehabilitated when they are no longer required.	**Noted**
19	**Trees and Timber**			

No.	ML 1535 Condition	Audit Evidence	Comments	Compliance
	The lease holder must not cut, destroy, ringbark or remove any timber or other vegetative cover on the lease except such as directly obstructs or prevents the carrying out of operations…..	• Vegetation Clearance Protocol Nov 2008 • Letter from DoP re Inland Greybox Woodland, 10 Aug 2007 • Letter from DECC re Inland Greybox Woodland, 27 Aug 2007 • Letter from DECC re Myall Woodland, 29 Aug 2007	Evolution MIning is retaining any trees within the mining lease not in the path of the project development. Approval to remove any trees or vegetative cover within the mining lease area is obtained from the Environmental Manager prior to removal of any vegetation. DECC, DPI and DoP accepted the implementation of the Vegetation Clearance Protocols related to the Inland Grey Box Woodland, dated 9 August 2007, and Myall Woodland dated 20 August 2007.	**Compliant**
24	**Mine Safety Plan**			
	Prior to commencement of any construction activities on the lease area and as required by the Director-General the lease holder must prepare a Mine Safety Plan to ensure the Mine Safety General Rule 2000 is adhered to.	• CGM Mine Safety Plan, Jun 2009 • Letter from DoP re Revised CGM Mine Safety Plan, 18 Jun 2009	The Safety Management System for CGM was approved on 14 December 2005 and a major review of the Safety Management System was conducted in February 2007 and the Safety Management System updated and approved on 18 June 2009. No further updates to the Safety Management System occurred between May 2010 and April 2013.	**Compliant**
25	Mining Rehabilitation, Environmental Management Process (MREMP) Mining Operations Plan (MOP)	• Letter from D&I re MOP Jan 2011 - Sep 2012, 30 Mar 2011 • MOP Jan 2011-Sep 2012 • Letter to DTIRIS re Variation to MOP, 5 Apr 2012 • Letter from DTI-DRE re Approval of Variation to MOP, 14 May 2012 • MOP Oct 2012-Jan 2014 • Letter from DTI-DRE re Approval of MOP for Oct 2012 to Jan 2014, 19 Dec 2012 • Letter to DT&I- DRE re Extension of MOP to 31 Jan 2015, 27 Sep 2013 • Letter from DT&I-DRE re Approval of MOP Extension, 4 Oct 2013 • MOP (revised) 31 January 2014 to 31 January 2015 • MOP (draft) Apr 2014 to 2016, dated Apr 2014 • Letter from DRE re Approval of MOP Apr 2014 to Apr 2016, 9 Oct 2014	An annual meeting is held of the Mining, Rehabilitation and Environmental Management Process Committee (MREMP) to discuss the Annual Environmental Management Report (AEMR). The participants include DPI (Minerals), DECC, DWE, Councils, and Dam Safety Committee representatives. Mining Operations Plans for the CGM operations have been prepared and approved by Division of Resources and Energy during the 2013 to 2014 period.	**Compliant**
	(1) Mining operations, including mining purposes, must be conducted in accordance with the MOP satisfactory to the Director-General……		An extension of the 2009-2010 MOP until 31 March 2011 was granted by DI&I on 23 November 2010. A MOP for January 2011 to September 2012 was submitted to DI&I and accepted on 30 March 2011. A Variation to the MOP was requested in a letter to DTIRIS on 5 April 2012 for the Southern Tailings Storage Facility (fourth lift), temporary isolation bund by 0.5m to provide for future lake filling events and the Northern Waste Rock Emplacement (storage volume elevation increase). Response from DTIRIS approved the STSF fourth lift but not the increase in height of the Northern Waste Rock Emplacement. The October 2012 to January 2014 MOP was approved by the DTIRIS-DRE on 19 December 2012. An extension to the MOP to 31 January 2015 was requested to align the MOP with the resubmission of the Modification to DP&I in September 2013. A MOP for April 2014 to April 2016 was submitted to DRE and approved.	**Compliant**
	(2) An Initial Mining Operations Plan must be submitted prior to commencement of construction on the site ……..	• Initial Mining Operations Plan Cowal Gold Project Mar 2004	The Initial Mining Operations Plan was submitted to DMR prior to commencement of construction of the mine on the CGP site.	**Compliant**

No.	ML 1535 Condition	Audit Evidence	Comments	Compliance
26	**Annual Environmental Management Report (AEMR)**			
	(1) Within 12 months of the commencement of mining operations and thereafter annually the lease holder must lodge an AEMR with the Director-General.	• 2009 AEMR, April 2010 • 2010 AEMR, April 2011 • 2011 AEMR, April 2012 • 2012 AEMR April 2013 • 2013 AEMR (draft)	The AEMR's for the CGP have been prepared in accordance with the agency Guidelines. A presentation of the AEMR has been provided to the relevant government authorities each year.	**Compliant**
27	**Blasting**			
	(a) Ground Vibration The lease holder must ensure that ground vibration peak particle velocity generated by any blasting within the lease area does not exceed 10mm/sec and does not exceed 5mm/sec in more than 5% of the total number of blasts over a period of 12 months at any dwelling or occupied premises, not owned by the lease holder or a related corporation, unless determined otherwise by the EPA.	• Blast Management Plan 2009 • Review of Blast Monitoring Report 2013, The Saros Group, Mar 2014 • Blast Monthly Monitoring Reports, January, February and March 2014	Blast overpressure and vibration monitoring has demonstrated compliance of all blasts with the Day and Evening criteria specified in the MCoA/EPL/ML conditions. Exceedance of the 95dB(L) criteria (Development Consent condition 6.3(a)) occurred from ten (10) blasts on Sundays and public Holidays between January 2013 and March 2014. The ten (10) blast results greater than 95dB (Lin peak) overpressure criteria between May 2014 and April 2015, was less than 5% of the total blasts.	**Compliant**
	(b) Blast Overpressure The lease holder must ensure that the blast overpressure noise level generated by any blasting within the lease area does not exceed 120dB (linear) and does not exceed 115 db(linear) in more than 5% of the total number of blasts over a period of 12 months, at any dwelling or occupied premises, not owned by the lease holder or a related corporation, unless determined otherwise by the EPA.		The total number of blast results between May 2013 and May 2014 indicated that less than 5% of the blasts exceeded the 115dB (Lin peak) overpressure criteria for the 12month period.	**Compliant**
28	**Use of Cyanide**			
	The lease holder must not use cyanide or any solution containing cyanide for the recovery of minerals on the lease area without the prior written approval of the Minister and subject to any conditions he may stipulate.	• Letter from DPI re Approval of Cyanide Use on Mining Lease 1535, Cowal Gold Mine, 17 Jan 2006	Letter of approval received from DPI in January 2006 for use of cyanide in the CGP process plant.	**Compliant**
29	**Control of Operations**			
	(a) If an Environmental Officer of the DMW believes that the lease holder is not complying with any provision of the Act or any condition of this lease relating to the working of the lease, he may direct the lease holder to: (i) cease working the lease; (ii) cease that part of the operation not complying with the Act or conditions;			**Noted**

No.	ML 1535 Condition	Audit Evidence	Comments	Compliance
	Until in the opinion of the Environmental Officer the situation is rectified. The lease holder must comply with any written direction given. The Director-General may confirm, vary or revoke any such direction. A written direction referred to in this condition may be served on the Mine Manager.			