Assessment Report

Cowal Gold Mine
Water Supply Modification (DA 14/98 Mod 10)

BACKGROUND

Barrick Cowal Limited (Barrick) owns and operates the Cowal Gold Mine near West Wyalong in central New South Wales (see Figure 1). The then Minister for Urban Affairs and Planning approved the mine following a Commission of Inquiry in February 1999 (See Appendix C). The mine has been operational since April 2005 when mining began. Processing of ore commenced in April 2006.

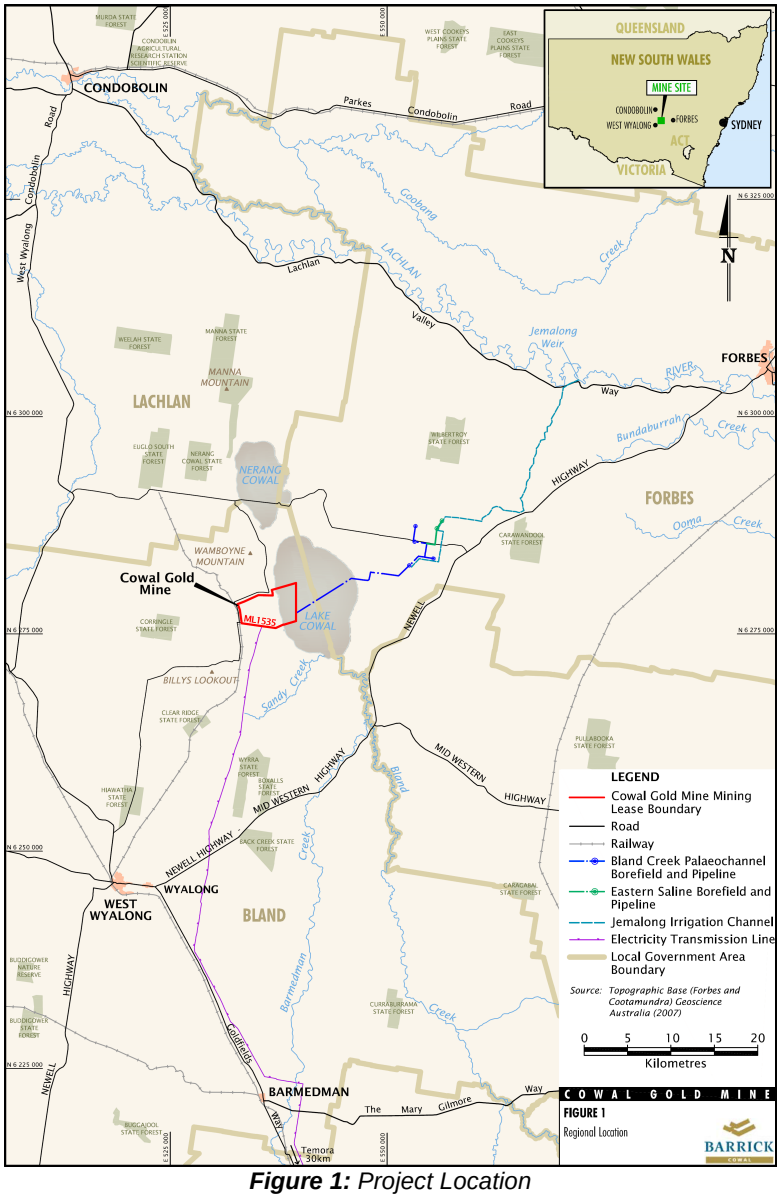

Figure 1: *Project Location*

The existing consent has been modified on 9 previous occasions (see Appendix D for a copy of the currently consolidated conditions of the development consent). Under the modified consent, Barrick is allowed to extract and process up to 7.5 million tonnes (Mt) of ore a year until 31 December 2019.

Water supply for the mining operations is currently sourced from three locations: a borefield in the Bland Creek Paleochannel; the Lachlan River; and a borefield in a separate, saline aquifer to the southeast of the open pit (see Figure 2 below). Saline groundwater draining into the open pit is also collected and used.

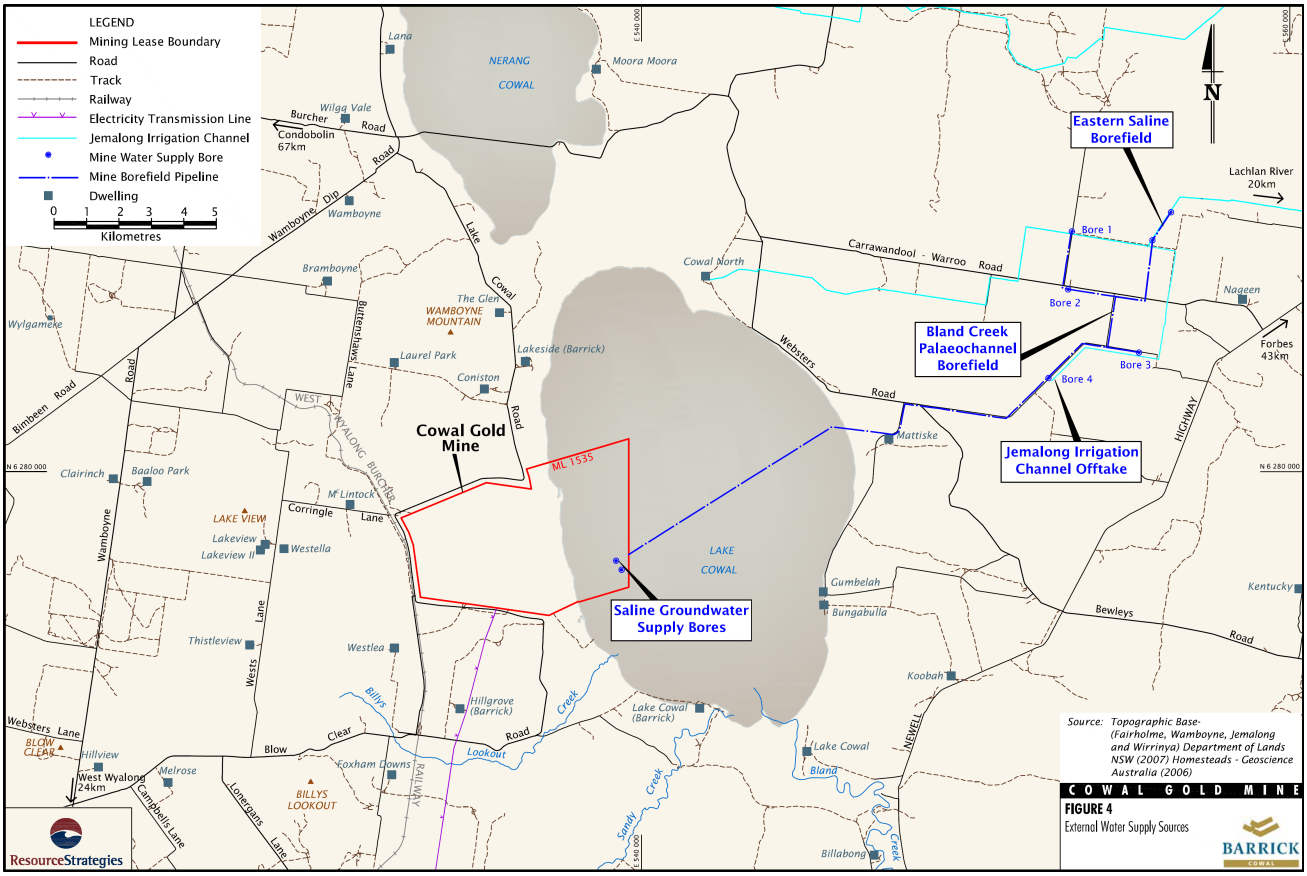

Figure 2: *Cowal Mine Water Supply*

Since the mine was approved, Barrick has investigated ways to reduce its reliance on the fresh water sources in the Bland Creek Paleochannel and Lachlan River, and has identified a saline aquifer northeast of the Paleochannel borefield.

On 20 December 2010, Forbes Shire Council granted development consent (DA 2011/0064) for the operation of a new borefield (known as the Eastern Saline Borefield, or ESB, see Figure 2), to extract water from this saline aquifer and deliver it into the existing pipeline which supplies water to the Cowal Gold Mine.

PROPOSED MODIFICATIONS

On 20 December 2010, Barrick applied to modify its development consent under section 75W of the *Environmental Planning & Assessment Act 1979* (EP&A Act). The proposed modification involves the transport of water from the ESB via the existing pipeline and the use of up to 1.8 million litres (ML) of this water per day. Barrick provided an environmental assessment (EA) in support of its application (see Appendix B).

STATUTORY CONTEXT

Part 3A

Under Clause 8J(8)(b) of the *Environmental Planning and Assessment Regulation 2000*, a development consent granted under Part 4 of the EP&A Act is taken to be an approval under Part 3A of the Act for the purposes of modification, if the development consent was granted by the Minister under the now-repealed *State Environmental Planning Policy No 34 — Major Employment-Generating Industrial Development* (SEPP 34).

Development consent DA 14/98 was granted by the then-Minister under SEPP 34. Consequently, section 75W of the EP&A Act is the appropriate statutory provision under which the Minister may determine the modification application.

Consent Authority

The Minister was the consent authority for the original development application and is therefore the consent authority for the modification application. Consequently, the Minister is the consent authority for the modification application. However, the Deputy Director-General, Development Assessment and Systems Performance may determine the application under the former Minister's delegation of 25 January 2010. The Minister's delegation dated 28 May 2011 confirmed that this delegation would continue to operate in circumstances where the local council has not objected to the proposal, less than 25 public submissions in the nature of objections had been received, and where there had been no reportable political donations, which is the present case. Consequently, the Deputy Director-General can determine the application.

Modification

The proposed modification involves the transport, receipt and use of an increased proportion of saline water in processing operations at the mine, using existing infrastructure. As this would be a minor change to the approved mining operations, the Department is satisfied that it can appropriately be considered under section 75W as an application to modify the consent.

CONSULTATION

The Department is not required to notify or exhibit applications under section 75W of the EP&A Act. Nevertheless, the Department referred the application to the then NSW Office of Water (NOW, now part of the Department of Primary Industries), Department of Environment, Climate Change and Water (now the Office of Environment and Heritage, or OEH), Industry & Investment NSW (now the Division of Resources and Energy (DRE) within the Department of Trade and Investment, Regional Infrastructure and Services) and Forbes Shire Council for comment. No objections to the proposal were raised in responses from NOW, OEH or DRE. A submission was not received from Council.

ASSESSMENT

The proposed modification involves the transport of saline water in an existing pipeline, and the use of that water in existing mine processes. The proposed modification would not disturb any land, increase water demand, or require changes to existing mining or ore processing activities at the mine. The EA has reviewed the potential environmental impacts of the proposed modification, and considers that the key environmental issues relating to the proposal are the potential risk of accidental saline water discharge from the pipeline and salinity increases in the tailings, and includes an assessment of the potential impacts of these issues. The Department concurs with these findings.

Water Supply and Potential Leakage

The potential impacts of a leak or rupture in the buried pipeline involve the release of saline water into the soil around the pipeline, and if sufficient water is released, its migration to the surface, which includes the bed of Lake Cowal. The maximum anticipated salinity, or electrical conductivity (EC), of water in the pipeline is 4,170 microsiemens per centimetre (μS/cm). If saline water leaked into the Lake when it contained water, then any localised salinity increase would quickly be diluted to the Lake's normal range (between 200 and 1,557 μS/cm).

In accordance with condition 4.4(c) of the development consent, the pipeline has been installed with measures to detect a leak in the pipeline and to automatically shut down pumping to minimise the volume of water potentially lost from the system. Pumping would then not recommence until the leak has been found and repaired. Barrick has also developed, and

implements, a Site Water Management Plan (SWMP)[1] which includes response measures for dealing with pipeline failure.

The Department is satisfied that the likelihood of a significant leak from the pipeline is low and that, with the implementation of the measures in Barrick's SWMP to respond to any leakage event, the overall impacts of importing this saline water supply to the mine are likely to be minimal.

Saline Water Use and Disposal

Up to 365 megalitres (ML) of saline water is already approved for use at the mine on an annual basis, as part of the average 6,574 ML/year of water used in mining processes. The proposed modification would increase the amount of saline water used at the mine by up to 1.8 ML per day, or an average of 548 ML per year to an annual total of 913 ML. The proportion of saline water used at the mine following the proposed modification would rise from approximately 5.5% to approximately 14%.

Analysis of the saline aquifer in the ESB indicates an EC range between 10,600 and 14,250 μS/cm. Testing of the tailings currently generated at the mine found that EC ranges from 11,070 to 16,740 μS/cm, with an average of 14,400 μS/cm. The EA includes consideration of the effect of the proposed increase in saline water use, and predicts an average increase in EC in the tailings of 1,335 μS/cm (an average increase of 9% over recently-recorded levels). The EA found that, relative to existing levels and fluctuations, this increase in salinity in tailings as a result of the proposed modification would be minor.

The use of saline water was considered in the EIS for the original development application, and was considered to be beneficial in respect of cyanide decay and faster neutralisation of tailings pH. Further, the E42 Modification assessment concluded that the elevated salinity in tailings is largely due to the sulphates produced by the processing of sulphidic ore, rather than the chloride ions primarily associated with saline water used in processing.

The EIS and E42 Modification assessments also found that tailings pore water would infiltrate beneath the tailings storage facilities into an already hypersaline aquifer, which would slowly migrate towards the open pit. Given the existing elevated salinity of the aquifer, the relatively minor increase in tailings salinity, and migration in the aquifer towards the open pit, the Department is satisfied that the impacts of the proposed modification on groundwater quality would be negligible.

The EA addresses potential impacts of the increase in tailings salinity on fauna. The tailings storage facilities are isolated by a 2 m high perimeter fence and the wildlife most likely to visit or interact with the ponds are therefore birds and bats. Since April 2006, the mine has recorded in excess of 35,000 wildlife visitations, and no wildlife deaths have been attributed to cyanide (or other chemical hazards) at the tailings storage facilities. The assessment found that the existing tailings storage facilities represented "no measureable risk to wildlife" and that, due to the lack of recorded fauna fatalities attributable to cyanide or other chemicals, lack of food resources for fauna in the tailings ponds, and existing preventative measures, the risk of impact to fauna due to the proposed modification would not increase from the existing level of "no measurable risk".

The Department also notes that the modification is proposed to reduce the mine's reliance on, and use of, fresh water supplies. Although the modification does not seek to reduce the mine's maximum entitlements for fresh water, the Department considers that reducing daily or annual fresh water extraction would be beneficial for other water users and the environment.

[1] *Prepared by Barrick in accordance with conditions 3.2 and 4.1(a) of the development consent and initially endorsed by the Director-General in 2003.*

Although not formally required under its consent or outlined in its management plans, Barrick has undertaken EC testing in the mine's tailings (as outlined above). The Department considers that the mine's water management plan should be revised to refer to this testing, and that all results should be reported in the mine's annual environmental review. Barrick has agreed to revise the water management plan in these respects. The consent currently provides for the review and revision of management plans at the direction of the Director-General, which could also be utilised for the proposed revision, if required.

CONCLUSION

The Department has assessed the application in accordance with the relevant objects and requirements of the EP&A Act, including the principles of ecologically sustainable development. Based on the EA's assessment, and its own consideration, the Department is satisfied that the impacts of the proposed increase in saline water use at the mine would be negligible.

The Department has also considered previous environmental assessments for the mine, including the EIS and the Commission of Inquiry Report for the original development consent and documents associated with subsequent modification applications and requests. The Department is satisfied that these documents and previous assessments do not have any significant direct bearing on this modification application (other than as considered above) and that sufficient information to enable the application to be determined has been considered and is either provided or referred to within this assessment report.

The Department is satisfied that the impacts of the modification would be negligible, and the benefits of a reduced reliance on fresh water outweigh the potential risks of saline water supply and use at the mine.

CONDITIONS

The Department is satisfied that the proposed modification requires no other conditions than that the consent be modified to require that the development must be carried out generally in accordance with the modification application and the documentation provided in its support (see Appendix B). This is a standard element of conditions, which has been applied in respect of the original development consent and all subsequent modifications. It is also proposed to correct a minor error in the description of the relevant company name for a previous modification application. Barrick has considered the proposed conditions and has agreed to them.

RECOMMENDATION

It is recommended that the Deputy Director-General, as delegate of the Minister:

- **consider** the findings and recommendations of this report;
- **determine** that the proposed modification falls within the scope of section 75W of the EP&A Act;
- **approve** the application under section 75W, subject to conditions;
- **sign** the notice of modification in Appendix A.

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3.7.11
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Director, Mining & Industry Projects

Approved 06/07/11
~~Richard Pearson~~ MARCUS RAY
A/ **Deputy Director-General, DASP**