# Coastwatchers

**Eurobodalla's environment and climate action group**

**30 May 2012**

## Submission on Environmental Assessment for the Dargues Reef Gold Project : - Modification 1

Thank you for the opportunity to comment on the Environmental Assessment for Modification 1 to the Major Project Application 10_0054 which was granted for Dargues Reef Gold Project by the Land and Environment Court (LEC) on 9 February 2012. The extensive scrutiny of this Court led to placement of important safeguards for the environment which should not be diminished.

The Coastwatchers Association supports the objectives in modifying this application, in particular to reduce the overall environmental impacts of the project and to reduce risks associated with the tailings dam. However, our support for the use of pastefill process requires substantiation of the claim that there will be little potential to pollute the groundwater or damage the natural environment either on or downstream from the mine site.

The fact that "Pastefill is a type of back fill that is widely used in the mining industry in Australia and across the world" (Section 2.2.1) does not adequately substantiate this claim. Where is the recent data on the environmental impacts to surface and ground water quality over time associated with the application of paste backfill in underground mines in general?

### Longevity and stability of the pastefill

Of critical importance in determining the likely environmental impacts associated with the proposed operations is the long term stability of the pastefill. There is no mention of this in the EA.

How long do the proponents expect that the concrete pastefill will remain intact as a solid mass? If the concrete deteriorates over time then the infiltration of groundwater to the pastefill will increase along with the dissolution of metals and carbonates in the concrete. The Mine Environmental Neutral Damage (MEND) Program Report 10.2 (April 2006) investigates the quality of research on Paste Backfill Geochemistry and the Environmental Effects of Leaching and Weathering. The report concludes that the general theories associated with paste backfill characteristics and geochemical reactivity appear sound, but there is not much field validation on the actual influence of key parameters. There was little information on the influence of paste backfill on mine water quality. The report recognised the fact that any backfill has the potential to generate contaminant plumes in the long term, and potentially influence ground and/or surface water.

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**Alkalinity of leachate affecting the groundwater**

Concrete itself is not a stable substance and can present major alkaline leaching. The EA for the Modification states that the pH of the leachate (~9) is above the background pH of most of the groundwater (~7). The significance of this difference is not discussed in the EA or supplementary report in appendix 3 even though the consultant concludes that the pH of the groundwater will influence the concentrations of metals. The pH of the groundwater will also have potential effects on biota in the groundwater and receiving waters.
Recent research has suggested that even limited contact with concrete channels can influence the pH of stream water (Wright et al 2011) and dismissal of this issue by Cortona is premature. With longer residence times in groundwater compared to surface streams, it is likely that contact between groundwater and paste fill concrete will result in an increase in groundwater pH. The increased pH of the groundwater will also have potential affects on biota in the groundwater and receiving waters.

**Eurobodalla Residents as Stakeholders**

The Moruya Catchment is a major source of Eurobodalla's water supply, as evidenced by proceedings initiated in the Land and Environment Court by Eurobodalla Shire Council against the original DA. The EA for the Project DA acknowledges that the southern section of the project site occurs within the Moruya catchment.
This is why the Coastwatchers Association recently requested (by email to Sarah Wilson at Planning) advertisement of this modification for comment in the Eurobodalla newspapers. There are many Eurobodalla residents who are interested in how this project might affect their water supply, especially those who live along the Deua and Araluen rivers. As this request was refused, only a small fraction of stakeholders would have seen the advert in the Braidwood Times.

**Coastwatchers formally requests:**

1.Inclusion, by the Department of Planning, of Eurobodalla residents as regional stakeholders. This should be through adverts in the Eurobodalla local newspapers that inform of the opportunity to comment on proposed changes to the approved Major Project Application.
2. Inclusion of data on the expected long term stability of the pastefill in the EA.
3. Continuous testing for possible contaminant leaching over time
4. Inclusion of consideration of the buffering capacity of the groundwater to cope with the predicted change in pH in the EA
5. Continuous sampling and assessment of the pastefill material as it is produced so that there is little risk of leaching of toxics into groundwater. Details about how this will happen need to be specified .
6. Results from testing in points 3 and 5 be made available to the community on the Company web site within 28 days.

*Sheila Monahan*

Sheila Monahan
President

[1]Wright, I. A., Davies, P. J., Findlay, S. J., and Jonasson, O. J.
(2011).[1] A new type of water pollution: concrete drainage infrastructure and geochemical contamination of urban waters. Marine and Freshwater Research 62, 1355-1361.