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EMAIL TRANSMISSION

TO: George Mobayed EMAIL: George.mobayed@planning.nsw.gov.au

ORGANISATION: Department of Planning DATE: 20 April 2011

COPY: Sara Wilson REFERENCE: 752
David Kitto

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SUBJECT: Dargues Reef Gold Project – Response to Submission received 15 April 2011

Confidential Please Reply For Follow-up_ Urgent For your information

MESSAGE:

Greetings George

This email has been prepared in response to further submission provided by Ms Jackie French to the Department of Planning in relation to the Dargues Reef Gold Project (the Project). The Proponent notes that the submission was provided to the Proponent, Big Island Mining Pty Ltd, on 15 April 2011, five and one half months after the closing date for submissions, namely 1 November 2010. In addition, the Proponent notes that the information provided in the submission has largely been provided previously and responses provided at that time.

The submission comprises three documents:

- a covering letter;
- a document entitled *Proposed Dargues Reef Mine Supporting Documentation: Request for further Assessment – 28 March 2011*; and
- a range of scanned documents dating from the mid 1980's.

Where text has been extracted from the above documents, it is presented below in italics.

Finally, reference is made to the following documents prepared to support the Project. These documents provide detailed information in relation to the Project and address all significant issues raised in the above submission

- *Environmental Assessment* for the Dargues Reef Gold Project dated September 2010 (EA).
- A two volume *Specialist Consultant Studies Compendium* dated September 2010 (SCSC).
- *Response to Government Agency and Public Submissions* dated December 2010 (Agency and Public Response Document).
- *Response to NSW Office of Water Submission* dated December 2010 (NOW response document).
- Two emails to George Mobayed of the Department of Planning dated 16 December 2010.

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- *Response to Request for Further Information in relation to the Dargues Reef Gold Project prepared in relation to a referral under the Environment Protection and Biodiversity Conservation Act 1999 and dated April 2011.*

In addition, further information has been made publicly available by the Proponent in response to inaccurate information in the media in a question and answer format on the Project website (www.darguesreef.com.au).

Issues Raised in the Submission

We are deeply concerned that the proposal has been assessed on such inaccurate and incomplete data provided by the proponent, with no real time on-site assessment by any government authority, or time given in the initial assessment period for local landowners to commission such reports. No time has been allowed for the current independent assessments of the complex hydrology of the area to be completed. It is essential that such investigation be undertaken, completed and evaluated for any accurate assessment to be made,

All environmental assessment information provided by the Proponent has been prepared by independent specialists. That information has been provided in a manner that is consistent with the requirements of Part 3A of the *Environmental Planning and Assessment Act 1979* and the Department of Planning. The Proponent contends that all information provided is, to the best of its knowledge, accurate and complete.

A matter of further concern is the department's apparent failure to take account of the misgivings of other government authorities such as the Office of Water, the Southern Area Catchment Authority and Department of Environment, even when they, too, are reliant solely upon data supplied by the developer.

The Proponent understands that relevant government agencies support the Project with the implementation of the identified control measures and draft conditions of approval.

Proposals to mine the Dargues Reef site have been rejected twice before, in 1982, and by the Land and Environment Court in 1984-87.

No evidence has been provided indicating that development consent for the development of the Dargues Reef deposit has been refused by the NSW Land and Environment Court at any time or that any application for such consent has been refused. It is also noted that the *Environmental Impact Statement* prepared in the mid 1980s was for a different operation with significantly fewer controls and management measures than the current Project.

Neither proposal included the major processing facility proposed by Cortona, which in effect places an 800,000 cubic metre toxic waste dump on a waterway at the head of a unique series of public and private nature reserves and a agriculturally productive valley. The greater risks of pollution to the creeks, rivers and aquifer are no less significant than the extreme and real risk posed to the agriculture, businesses and fragile and endangered species and bio-regions directly downstream by loss of water to processing.

This issue is addressed in the *Agency and Public Response Document*.

The Dargues Reef region is an area of extreme weather events, with severe land slumpage associated with extreme rainfall events, and extreme lowering of the water table in dry periods. The local agricultural businesses have been able to survive these periods due to rigorous water conservation measures. The endangered species have survived due to continued deep waterholes in Major's Creek, fed by seepage from the Major's Creek fault. Neither is likely to survive the added burden of the removal of 130 mega litres of water a year for ore processing.

This issue is addressed in Section 5.2.11 of the *Agency and Public Response Document* and below.

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As you may or may not be aware, the level of community disquiet continues to mount and build on the ground swell of local, state, national and international opposition, as clearly evidenced, not only in the submissions generated by the public exhibition, but by growing media interest, letters to local newspapers, and the continuing volume of petition documents being received calling for more stringent conditions and independent assessment of the Dargues Reef project.

The Proponent has engaged community consultation consultants to ensure that the community has access to information and an avenue to provide feedback. This includes managing an enquiries and feedback email account and a 24 hour per day, 7 day per week information phone line. The consultation team has actively sought out Community opinions and feedback, holding public meetings, setting up information stalls in the main street of Braidwood and knocked door to door in Majors Creek, Araluen and Braidwood. All feedback is captured in a central database.

The feedback from all consultation avenues does not indicate a mounting level of community disquiet or a groundswell of opposition. Incoming feedback from the community makes up only 15% of interactions with the community, indicating Cortona has had to actively seek community feedback rather than receiving a large number of objections from stakeholders. Also, 11% of consultation interactions indicated unqualified support for the Project, with the majority of those who raised concerns early during the consultation phase indicating that they would support the Project should appropriate management measures be implemented. Finally, it is noted that comments objecting to the Project in the media, principally through letters to the editor of local newspapers, typically come from three individuals.

The proponent's response to the submissions has further entrenched our concern with the proposal. Despite minor concessions by the proponent and reflected to large part in revised commitments, there remain glaring inaccuracies inadequacies that militate against any contemplation of approval the Department may nurture. Cortona appears unwilling to make any of the substantial changes necessary to ensure the safety of this proposal, nor to undertake the more detailed hydrological study of areas downstream.

The Proponent contends that it has designed the Project with community feedback and environmental constraints in mind and that wherever practicable these concerns have been taken into account. Finally, as indicated in Section 6 of the EA, the Proponent contends that the Project may be developed with acceptable levels of environmental risk.

The areas of major concern that the AVPEEC Coalition still harbours include, in summary:

Local Geology and Hydrology

Cortona's assertion that there will be no harmful outcomes caused by the extraction of water from the aquifer and that their activities will not result in any pollution of the aquifer is entirely based on their claim that the underlying rock is homogenous granite. Independent and government assessment, however, provides evidence that the area directly below Dargues Reef is not homogenous granite, but contains various anomalies including fractured sandstone bands through which water percolates from the development site into the Majors Creek Gorge and Araluen Valley.

Section 4.1.4 and Figure 4.5 of the EA identifies that the Project Site occurs within the Braidwood Granodiorite, a pluton with an area of approximately 1 000 square kilometres. In addition, the Proponent and its predecessors have drilled over 350 drill holes in the vicinity of the Dargues Reef deposit for a total of more than 30 000m of drilling. That drilling indicates that rocks surrounding the deposit are invariably intrusive rocks with no sedimentary units observed. In addition, all relevant information collected during that drilling and exploration program has been included in the groundwater assessment.

There is no evidence provided by those objecting to the Project to substantiate their claim that exposures of other rock types within the pluton are anything more than xenoliths (a raft of rock that is different in origin

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from the igneous rock in which it occurs, typically incorporated during emplacement of the host intrusive) or roof pendants with no continuity or significance for the hydrogeological setting of the Project.

In addition, the Majors Creek fault line is directly adjacent to the proposed development, substantiated and detailed in a government survey (see Araluen Geological Map, BMR 1984). Cortona has studied neither the fault nor its importance to local water movements, despite its prominence in the Government geological map.

This issue is addressed above and in Section 5.2.34 of the *Agency and Public Response Document*.

Pollution.

Cortona have yet to substantiate claims that use of Xanthate and other chemical processing is safe when sited on a waterway, directly above steep and vulnerable orchard and conservation areas, as well as within half a kilometre of households that depend on that water for domestic use.

This issue is addressed on the Project website (www.darguesreef.com.au).

There have also been contradictory accounts about the likely amounts of lead involved in the project. Cortona's recent assertion that the percentage of lead is only slightly above normal background levels are contradicted by the 1.83% lead content of ore, stated in a November 2010 press release by Cortona.

Extensive test work on the Dargues Reef gold deposit has confirmed that lead values in the ore are insignificant, averaging just 0.0025% which is barely above natural background levels.

In an area outside the Project Site, exploration drilling intercepted higher lead values (1.8% Pb over 1m) in a narrow geological seam. This very unusual finding lies well outside the mining proposal that the EA relates to, and indicates lead is a natural constituent in the region's geology.

Water Management

Extreme Weather Events: Cortona's use of misleading and inaccurate rainfall data omits the recurrent extreme weather events that have led to major land slumps and even avalanches in the area. Over the past thirty years these intermittent but severe downpours have caused land slump and erosion at the development site itself.

This issue is addressed in Sections 4.8.5, 5.2.13, 5.2.34, 5.4 and 5.5 of the *Agency and Public Response Document*. In addition, further information is provided below in the section entitled "Analysis of Rainfall".

No data has been provided, nor studied commissioned, on how the downstream nature reserves and the orchards downstream will be affected by the removal of 130 mega litres of water per annum in the dry years.

This issue is addressed in Section 5.2.11 of the *Agency and Public Response Document*.

Agriculture

The downstream impacts on the immediate Araluen Valley community, and in particular its rural enterprises (with annual revenue exceeding \$4 million), and its further employment potential, have been ignored. Potential for heavy metal pollution from manganese and lead would destroy the downstream orchard that relies of water taken from potentially polluted water waterways. Cortona's plan proposes to remove 130 mega litres of water a year from the Majors Creek and Araluen River water tables alone will be devastating on an aquifer already stress. This plan is in no way mitigated by their proposed release of water from on site dams, as these dams, too, would have removed water from the downstream aquifer.

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This issue is addressed in Section 5.2.11 of the *Agency and Public Response Document*.

Tailings Dam/Processing Plant

It is inappropriate in the extreme to site a tailings dam and processing centre, using chemicals such as Xanthates, on a waterway such as Spring Creek, especially one that leads into the waterways of Major's Creek, Araluen, Deua and Moruya rivers. The tailings dam and processing plant should be re-sited in more risk-averse settings, away from the headwaters of the identified waterways. Such a site is easily accessible, over the ridge to the north, in an area that Cortona has identified as being their major area of expansion.

This issue is addressed in Sections 5.2.23 and 5.2.24 of the *Agency and Public Response Document*.

There is no detailed data relating to the permeability of the proposed linings neither for the tailings dam/processing centre nor on the expected effective life span of those linings.

This issue is addressed in Section 5.2.23 of the *Agency and Public Response Document*.

Given the hazardous nature of sodium ethyl xanthate and its persistence in the soil and groundwater, it can be assumed that the tailings dam and its contents will remain hazardous for many decades to come, if not indefinitely.

This issue is addressed on the Project website (www.darguesreef.com.au).

Cortona has failed to substantiate claims that this tailings dam and its contents of processing residue will be leak- and erosion-free in the long term. It is difficult to see how any such substantiations could realistically be made, given that this is such a steep area subject to climatic extremes of both temperatures and precipitation.

This issue is addressed in Section 5.2.23 of the *Agency and Public Response Document*.

Riparian Rights/Domestic Beneficiaries

The downstream water evaluation inadequately addresses the riparian impacts upon the major agricultural enterprises in the Araluen Valley (and beyond). Further, it fails to appropriately address the impacts upon local domestic water supplies in the Valley (and beyond). Once again, the removal of 130 mega litres of water a year will have a devastating effect in dry years.

This issue is addressed in Section 5.2.11 of the *Agency and Public Response Document*.

Lack of Systems/Catchment Focus

The overarching focus upon the site and immediate Majors Creek community is particularly "insular" and one-dimensional. It fails to address the natural systems and community of interest from a broader catchment focus – including in particular Araluen Creek and the Araluen community.

As noted in the preamble to Section 4, information within the EA is presented in sufficient detail to enable readers to fully understand the potential impacts of the Project. As a result, as adverse impacts on users of groundwater or surface water downstream of the Project Site are not anticipated, there would be little value in undertaking detailed assessments of areas at significant distance from the Project Site.

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Economic/Social Impact

The relevant analysis is particularly introverted and Majors Creek/Braidwood focused. The potential negative impacts upon rural production and tourism are ignored.

This issue is addressed in Sections 5.2.34 and 5.5.6 of the *Agency and Public Response Document*.

Rare and Endangered species

Apart from on short and cursory study of one species, which did not take into account the areas most likely to be affected by extreme water loss or pollution, Cortona have made no study of the many endangered and critically endangered species in what is an extraordinarily diverse and preserved area directly downstream, with proved extreme resilience despite other pressures.

A detailed ecology assessment is presented as Part 2 of the SCSC and Section 4.3 of the EA. In addition, further information is presented in Section 5.2.6 of the *Agency and Public Response Document* and in documentation prepared for the referral under the *Environmental Protection and Biodiversity Conservation Act 1999* available from the Project website (www.darguesreef.com.au).

Mining and Geological Instability

A failure to address the proposed mine and moreover mining methods in an area of noted geological instability is a potentially negligent act.

The Proponent contends that the Project Site is an area of high geological stability. No evidence to the contrary has been provided.

Risk Analysis

The risk analysis fails to adequately address possible impacts upon downstream systems, activities and communities, as referred to above.

The Proponent contends that the risk analysis adequately assesses the environmental risks associated with the Project, both unmitigated (Section 3.3 of the EA) and mitigated (Section 6.1.1 of the EA). There has been no information presented indicating in what way the assessments are inadequate.

Previous Refusal to Mine (1982-7)

Previous attempts to develop the gold-mining site at Dargues Reef were refused by authorities at the time. The case files, which include reports from various experts, highlight very similar concerns as expressed in this letter and attachments. In addition, a substantial assessment was also carried out on the social cost of a mine failure resulting in pollution of the water flows to the Araluen Valley, the Deua River, and on to Moruya. We have only just obtained these files and hence require more time to seek a review by independent experts as to their significance.

No information has been provided suggesting that the previous development consent in relation to the Dargues Reef deposit dating from the mid-1980s was ever refused. In addition, the Proponent contends that the current application has been prepared to the stringent standards that apply in 2010 and that the proposed design safeguards and management and mitigation measures applicable to the Project would be significantly more robust than those that would have been implemented 25 to 30 years ago.

Conclusion

We also ask that time is permitted for:

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- *The completion and submission of the necessary independent hydrological assessment now being carried out on behalf on landowners downstream;*
- *Further monitoring of the endangered species; and*
- *A complete cost benefit analysis of the Dargues Reef proposal versus the other commercial opportunities documented and on hold due to the uncertainties of the development's impact on the Araluen aquifer.*
- *An assessment of the social cost to the hundreds of people and related enterprises downstream of the proposed mine site.*

The Proponent notes that each of these issues has been addressed previously and that the period for submissions closed on 1 November 2010. The Proponent has undertaken extensive formal and informal consultation in relation to the Project since November 2008. Should those objecting to the Project have had concerns, it would have been appropriate to have raised them during that consultation process. As a result, notwithstanding that fact that all issues identified have been addressed previously, the Proponent contends that the request for further time to address the identified issues is not reasonable.

Analysis of Rainfall

It has been suggested that the rainfall data from Braidwood which was used for the surface water and groundwater assessments was not appropriate for the purposes of the EA, and that data from Majors Creek or Araluen should have been used instead. This issue has been previously addressed in Section 3 of the *NOW Response Document*, and is clarified further below.

Rainfall data used in the EA was used for the purposes of establishing a water balance and for estimating rates of groundwater infiltration. **Table 1** presents an overview of the time spans and completeness of rainfall records for each of the relevant Bureau of Meteorology stations surrounding the Project Site, and the average annual rainfall recorded at each station. It is noted that rainfall data from Araluen has been collected from three different stations since 1891 and that rainfall data from Majors Creek included significant gaps in the data.

Table 1
Comparison of Rainfall Data Records

Station	Station Number	Period Open	Completeness of the rainfall record	Elevation	Average Annual Rainfall
Wallace St Braidwood	69010	1887 - 2010	98%	643m AHD	718.8mm
Majors Creek	70061	1898 – 2010	68%	670 m AHD	934.0mm
Araluen PO	69000	1891 – 1970	99%	160 m AHD	905.8mm
North Araluen	69102	1969 – 1980	99%	168 m AHD	1030.0mm
Araluen Lower	69127	1980 – 2010	99%	145 m AHD	847.38mm
Source: Bureau of Meteorology, 2010					

The Proponent contends that the rainfall data from the Wallace St Braidwood Bureau of Meteorology Station (Station No. 69010) is the most appropriate data set to be used in the EA for the following reasons.

- The rainfall data from Majors Creek is only 68% complete, with significant gaps in the data from 1919 to 1948, 1966 to 1970 and 1986 to 1988. As a result, this data cannot be considered to be representative of the long-term average rainfall within the Project Site, particularly as the inter-world war and depression droughts are not included in the record.

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- The elevation differential of approximately 500m between Araluen and both Majors Creek and Braidwood makes the elevation of the Braidwood station more representative of the Project Site. In addition, Araluen lies within an enclosed valley and therefore likely to be subject to a different rainfall pattern from both Braidwood and Majors Creek, which have similar 'table top' settings.

Furthermore, the SEEC (surface water specialist consultant) and AGE (Groundwater specialist consultant) contend that use of data with a higher average rainfall would have resulted in the following:

- More water flowing into the harvestable rights dams and therefore being available for the environmental flow program. Preliminary modelling using rainfall data from Majors Creek suggests that the harvestable right dams would supply the demand for environmental flows over 98% of the time. This compares with the water availability presented in the EA based on the Braidwood rainfall data of 97%.
- Marginally increased infiltration rates, resulting in marginally reduced groundwater impacts.

Both SEEC and AGE state that the use of the Majors Creek rainfall data cannot be justified because of the incomplete nature of the data and that the use of data from the Wallace St Braidwood station is likely to result in conservative assessments of water-related impacts.

The Proponent therefore contends that the use of the Braidwood rainfall data provides the most complete and conservative dataset, and is therefore more appropriate for the purposes of the EA.

With regards to the design of the Tailings Storage Facility and water management structures, standard engineering practices required that where structures are designed to a nominated rainfall event (e.g. the 100-year rainfall event), an 'Intensity – Frequency – Duration' table would be derived for the Project Site using the a tool available on the Bureau of Meteorology's website. That tool is based on the Australian Rainfall and Runoff guidelines and ensures that relevant rainfall graphs are used during the detailed design of relevant structures. As a result, the criticism that the Proponent has not or would not take into account appropriate rainfall data when designing and constructing relevant aspects of the Project is not justified.

Finally, it is noted that the Tailings Storage Facility would be constructed in accordance with the requirements of the NSW Dams Safety Committee, including taking into account relevant rainfall data.

I trust that this provides the Department with sufficient information at this stage. Please do not hesitate to contact me if required.

Regards

Mitchell Bland
Principal Environmental Consultant

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