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## EMAIL TRANSMISSION

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

ORGANISATION: Department of Planning DATE: 2 March 2011

COPY: Sara Wilson REFERENCE: 752  
Kane Winwood

NO. OF PAGES (including attachments): 4

SUBJECT: Dargues Reef Gold Project – Response to DECCW Issues

Confidential  Please Reply  For Follow-up\_  Urgent  For your information

MESSAGE:

Greetings George

Thank you for your email dated 23 February 2011. In that email you requested a response to a number of issues raised by the DECCW in relation to the above Project. This email provides the requested response.

### Air Quality

DECCW is correct that no detailed assessment of the activities in the gold room is provided. The Proponent notes that these activities include the use of a small furnace/kiln approximately 1m x 1.2m in overall size, with a furnace holding volume of around 16 litres (less than two standard buckets in size). Operation of this furnace was referred to as “smelting” in the *Environmental Assessment*. The furnace operates on gas and is similar in size to a small metal furnace for say a sculpture studio or a “domestic” or “craft” level pottery kiln.

The furnace would be used to process the gravity concentrate to produce gold dore, or unrefined gold bars. The attached plan and operations specifications provide further details in relation to the design and operation of the furnace. Broadly, the furnace would operate for approximately 10 hours every 3 days to process approximately 23.5kg of gravity concentrate material which would contain approximately 40% to 50% pyrite (FeS). The pyrite would breakdown under heating to produce SO<sub>2</sub>. The Proponent anticipates that the likely emission concentration of SO<sub>2</sub> would be approximately 0.3% of emissions. Traces of oxides of nitrogen would also be produced from the combustion of gas to fire the furnace. No other significant pollutants are expected to be produced.

The Proponent would ensure that the plant is designed to comply with the relevant limits identified in the *Protection of the Environment (Clean Air) Regulation 2010*.

It is acknowledged that limited information in relation to this aspect of the Project was provided in the *Environmental Assessment*. However, it is the experience of RW Corkery & Co that the use of such a furnace to produce gold bars does not typically warrant a detailed assessment, and especially in this case given the small, intermittent scale of the proposed activities and the distance to sensitive receptors being at least 1km,

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meaning there is limited potential for any impact to arise. For comparison it is noted that a similar process, currently in use at the larger, recently approved Cadia East Project, was not assessed in detail.

We trust that the attached furnace specifications provide the Department with sufficient evidence to demonstrate that the proposed furnace is of no significant environmental risk.

### **Aboriginal Heritage**

DECCW raise four issues in relation to Aboriginal heritage. These are addressed in the numbered order provided by DECCW. In addition, a response to issues 2, 3 and 4 prepared by Mr John Appleton is attached.

#### **1. Literature Review**

Copies of Williams (1987) and Boot (1999) were requested from Eva Day of DECCW on 18 November 2011. An email chain in relation to this request is attached. That email indicates Boot (1999) is not relevant. We are advised by Mr Carlos Torres of DECCW that only two reports by Boot from 1999 are registered on the AHIMS database. One of these report addresses heritage issues at Tantangara Reservoir, located approximately 100km west of the Project Site, the other addresses heritage issues along the coast.

In addition, the attached email provides an AHIMS reference number for Williams (1987) (#1344). That report was provided by DECCW. However, the report was unsigned. It did, however, identify the field surveyors as Fearey and Dovey and the year of the survey as 1987. An assessment of that report is presented in Appendix 3 of the *Response to Submissions*.

As a result, the Proponent contends that the literature review is complete and that no further reports are required to be included.

#### **2. Regional significance of the sites identified**

The regional significance of the sites identified with the Project Site has been assessed in Section 2 of Appendix 3 of the *Response to Submissions*.

#### **3. Extent of identified sites**

The Proponent notes that the heritage assessment identified three open scatters comprising two or three artefacts each, and two isolated finds. As a result, the extent of these sites is likely to be limited. In addition, Section 4.6.6 of the *Environmental Assessment* states that the sites closest to areas of proposed disturbance, namely GT OS1 and GT OS2 would be re-identified in the field and an appropriate fence constructed to ensure that the sites are not disturbed. This would be done in consultation with and with the assistance of the local Aboriginal community.

Reference to a 20m buffer referred to by DECCW relates to sites that may be identified during construction operations, not sites identified during the heritage assessment

#### **4. Provision of site cards**

This issue is addressed in Section 3 of Appendix 3 of the *Response to Submissions*.

It is the Proponent's understanding that it is Mr Appleton's standard procedure that site cards are submitted only once the heritage report has been accepted by all relevant government agencies, namely once the application for project approval is determined. However, in light of DECCW's

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request, the Proponent will request that Mr Appleton submit the required site cards as a matter of urgency.

### **Impacts on EEC associated with groundwater drawdown**

The response to this issue has been prepared in conjunction with Mr Garry Daly and Mr Greg Stone who prepared the Ecology Assessment for the Project. In addition, advice was also provided by Dr Steven Douglas who has been engaged since the finalisation of the *Environmental Assessment* to assist with ecology-related matters.

Figure 4.19 of the *Environmental Assessment* provides a plan showing the measured groundwater level within the Project Site. In addition, further information is provided in Appendix 5 of the *Groundwater Assessment* presented as Part 3 of the *Specialist Consultant Studies Compendium*. That data indicate that with the exception of those monitoring bores constructed within Majors Creek, the standing water level in all measured monitoring bores and existing exploration drill holes is between 5.3m and 33.3m below surface, with approximately 70% of holes indicating that the standing water level is more than 10m below surface.

DECCW expressed concern that identified Endangered Ecological Communities (EEC) within and surrounding the Project Site may be phreatophytic or reliant on groundwater for at least part of the year.

Section 4.4.5.3 of the *Environmental Assessment* states that the Project would result in drawdown of groundwater levels within the area indicated on Figure 4.26 of that document. However, the Proponent disagrees with DECCW that this may have an adverse impact on EEC within or surrounding the Project Site for the following reasons.

1. Ability for vegetation to access groundwater

The Proponent's Exploration Manager for NSW, Mr Greg Cozens, notes that within and surrounding the Project Site, areas underlain by granodiorite material typically between 2m and 4m of unconsolidated or friable soil and weathered granodiorite. This is typically underlain by "saprock", or partially weathered granodiorite that increases in strength and competency with depth until a point, typically between 8m and 15m below surface, where it becomes unweathered granodiorite. As a result, it is unlikely that vegetation would be able to penetrate sufficiently deeply to reach groundwater. As a result, with the exception of vegetation within steeply incised creek lines (see following discussion), it is unlikely that any vegetation would be reliant on groundwater. As a result, reduced groundwater levels within and surrounding the Project Site would be unlikely to result in adverse impacts to EEC or other native vegetation.

2. Nature of vegetation within creek lines

As noted in Sections 4.4 of the *Environmental Assessment*, groundwater is discharged into Spring Creek and Majors Creek. However, both the Ecology and Groundwater Assessments note that creek lines within and surrounding the Project Site are highly disturbed by prior mining-related activities. As a result, not groundwater dependent ecosystems or EEC have been identified associated with these creek lines.

3. Natural Temperate Grassland EEC

It is noted that species within the Natural Temperate Grassland EEC are likely to be very shallow rooted and would be unlikely to be reliant on groundwater.

4. Tableland Basalt EEC

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As noted in Section 4.6 of the *Response to Submissions* amendments under consideration since finalisation of the *Environmental Assessment* to the broader classification of the Tableland Basalt Forest EEC incorporates several vegetation types, including Ribbon Gum – Snow Gum Grassy Open Forest (Ribbon Gum Forest), of which approximately 35.3ha was identified within the Project Site. That section of the *Response to Submissions* document provided an assessment of significance that concluded that the Project would not have an adverse impact on the community.

The Ribbon Gum Forest community is dominated by Ribbon Gum and Narrow-leaved Peppermint with occasional Snow Gum. These species typically have roots that penetrate to between 1m and 2m below surface only. It would be unusual for such species to develop root systems that would be deeper than this given the difficulties penetration the saprock identified above. In addition, there are no species within the community that may be considered outside their normal range which have indicated reliance on groundwater resources. Finally, it is noted that the understorey is typically sparse and includes shallow rooted species which would be unlikely to access groundwater.

As a result, the Proponent contends that this community would be unlikely to be adversely impacted by lowered groundwater levels within or surrounding the Project Site.

#### 5. Tableland Frost Hollow Grass Woodlands preliminary EEC

Mr Greg Stone confirms that this community does not occur within the extent of groundwater impacts as indicated on Figure 4.26 of the *Environmental Assessment*.

#### Identification of EEC

As indicated previously, Section 4.6 of the *Response to Submissions* document identifies the Ribbon Gum Forest and Fragmented Ribbon Gum Forest as potentially falling within the recently reclassified Tableland Basalt EEC. In accordance with the Precautionary Principle, the Proponent has assumed that this vegetation community **does** form part of the Tableland Basalt EEC and has undertaken the relevant assessments accordingly

Mr Greg Stone confirms that the Ribbon Gum Forest **does not** form part of the Tableland Frost Hollow Grass Woodlands preliminary EEC

Regards

Mitchell Bland

Attached: Furnace design drawings  
Furnace design specification  
Email in relation to document requests  
Letter report from Mr John Appleton

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