



22 December 2006

Freehills
101 Collins Street
MELBOURNE VIC 3000

Our ref: 32/12970/127046
Your ref:

Attn: Mr Tim Power
Partner

Dear Tim,

Proposed Pulp Mill - Gunns Ltd Response to submission - Construction Dust Air Quality Impacts

As requested, GHD provide the following comments in response to the queries you highlighted in your letter of 16 November 2006 summarising the submissions relating to the air quality assessment for construction dust impacts for the proposed pulp mill at Bell Bay.

For clarity, we respond under the same section headings as used in your letter.

1 Relevance to Air NEPM

With reference to pages 15, 18 and 19 of the submissions, GHD submit that the National Environment Protection Measure¹ details a set of monitoring standards and goals that apply to population centres such as townships. The NEPM does not detail design criteria to be met at site boundaries. In this case, this is the preserve of the Tasmanian Environment Protection Policy (Air Quality) 2004. The corresponding design criterion within the EPP (Air) for particulate matter, for particle size of 10 microns aerodynamic equivalent diameter or less, or PM10, is 150 micrograms per cubic metres, expressed as a maximum predicted 24-hour average.

GHD also points out that the DTAE reference to Section D.3.10 of the Emission Limit Guidelines as a basis for DTAE's assertion that the Air NEPM PM10 standard must be met (p18) is not relevant to **construction** activities. This is because emission sources in these activities are classed as non-point (ie distributed, area) sources – whereas Section D.3.10 is explicitly referenced to **point** source activities. Hence under Section D.3.10 the Air NEPM PM10 criterion **is** relevant to the Mill point source emissions during operations, but **not** relevant to the area sources emissions during construction.

In fact the same limitation of application also applies to the EPP (Air) criteria as well. The preamble to Schedule 2 - Design Criteria makes it clear that the criteria apply to "emissions from a stationary source", and there is no subsequent extension to cover mobile or area sources. Nevertheless GHD has used the EPP (Air) PM10 criterion by which to assess the construction dust emissions.

The selection of a background concentration for PM10 of 50 microgram per cubic metre, as a 24 hour average, was made for discussion purposes. The value was deliberately selected as a conservative (high) measure of background levels for this site, as no direct measurements were available. GHD note from the collected ambient air monitoring data at the Gunns Air Quality Monitoring Site (AQMS) that the

¹ National Environment Protection (Ambient Air Quality) Measure, as amended, July 2003, under Section 20 of the National Environment Protection Council Act 1994.



maximum recorded 24-hour average PM10 concentration was 34.2 micrograms per cubic metre (for the period July 2004 to June 2006). The Gunns AQMS is located west of the mill site at ~2 km range, and is the nearest PM10 monitoring station.

Therefore the selection of 50 micrograms per cubic metre, as a constant time-invariant background is a conservative assumption. The maximum predicted concentration of PM10 associated with the bulk earth works decreases rapidly with distance from the works area as can be seen in Figure 6.1. Based on this pattern of impacts it was noted in the assessment report that the higher impacts occur in the area of Big Bay and Dirty Bay. Impacts overland decrease rapidly towards the site boundary and no impacts greater than 100 micrograms per cubic metre (i.e. 150 micrograms per cubic metre if a conservative maximum background was to occur simultaneously) are incurred by emissions from the proposed civil works at sensitive receivers, or dwellings.

It should be noted that the **construction** civil works associated with the elevated dust emissions are scheduled to occur for a period of 6 months (i.e. less than one year) during which the bulk earthworks will be completed. These earthworks, and the overall mill construction, will not to be an ongoing activity. The pulp mill **operational** impacts, which will be ongoing, have been assessed separately, and the RPDC "Emission Limit" for PM10 of 50 micrograms per cubic metre has been used as the appropriate PM10 criterion for localities representative of population centres in that study.

2 Environment Protection (Air Quality) Policy

The maximum predictions show that the 100 micrograms per cubic metre contour (or, say, 150 micrograms per cubic metre if a conservative peak background was to occur simultaneously) are contained within the proposed site boundary over land. There is a minor incursion of the 100 microgram per cubic metre contour over the waters of Dirty Bay, however Dirty Bay is not the site of a dwelling, hospital, hospice, or other definition of a sensitive receiver. Note that predictions of dust impacts from the works in this area are typically much lower than 100 micrograms per cubic metre, and the existing level of PM10 in the background ambient air will also be below the assumed conservative maximum of 50 micrograms per cubic metre.

Therefore, having regard to the overestimate of PM10 background level used, and the fact that the limited off-site exceedances were confined to a small zone of the Tamar Estuary, GHD considers that the actual construction bulk earthwork phase PM10 impacts will be acceptable.

3 Other Issues

- » Submission by the Greens that dust emission during construction will exceed the DPIWE 24-hour average criterion level.

Discussed above in Sections 1 and 2 (note that GHD has not been provided with a copy of the Green's submission).

- » The 75% abatement of uncontrolled dust emissions from haul route was made on the assumption that > 2 L/square metre of water would be applied to haul routes per hour, inclusive of natural precipitation². This is to maintain surface moisture content in the

² Particulate Matter and Mining (Interim Report), NSW Minerals Council and Holmes Air Sciences, July 2000.



order of 3.5 %, which has been demonstrated, through field trials in the United States, to reduce dust emissions to 25% of uncontrolled emissions³.

- » GHD received from Jaakko Poyry an indicative equipment inventory, based on the perceived needs at that stage of the design and construction sequencing process. GHD understand that this inventory is Poyry's considered assessment of what would be adopted by a contractor commissioned to conduct the bulk earthworks. There are two types of emissions estimates:
 - § Those based on the mass or volume of material either extracted, loaded, hauled or dumped - which is independent of the number of excavators or haul trucks. For example, the dust emissions from a haul truck traversing a haul route is derived from the number of required journeys to move a given amount of material, rather than the number of haul trucks required to do the job. GHD adopted an approach to maximise the number of required haul truck movements, and therefore dust emissions, based on the assumption of smaller capacity haul trucks within the range typically used by civil contractors. In this sense, the number of haul vehicles used is irrelevant.
 - § Those based on the number of vehicles that do not transport material, eg, bulldozers or graders which in this case are extracting or levelling material. Jaakko Poyry provided numbers of these vehicles that were considered typical for the scale of this operation. In this case Jaakko Poyry have estimated 2 bulldozers and a grader for each of the extraction and infilling areas on the site (total 4 dozers, 2 graders). In this case, GHD agree that if the numbers of these types of plant increase, then the dust emissions will also increase. However, the adoption of a proactive dust management regime, whereby visible sources of dust are promptly remediated, will minimise emissions from these types of activities.
- » GHD agrees with the submission comments from CSIRO that compliance with the modelled impacts depends strongly on ensuring that the dust emission rates remain within the values assumed in the modelling. In this regard, compliance with the dust management component of the Environmental Management Plan during the bulk earth works will be an important responsibility of the works manager. This will take the form of planning the works so as to avoid the potential for significant dust emissions, and to ensure that any ensuing visible dust emission are promptly remediated.

Yours faithfully
GHD Pty Ltd

Tim Pollock

Principal Environmental Engineer
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³ Air Pollution Engineering Manual, U.S. Air and Waste Management Association, Ed. Buonicore, A. J. and Davis, W. T. (1992).