

8 February 2010

Ref: A283404

Ms Josh Gibson
Head - Regional Operations Unit
Environment Protection and Regulation
Department of Environment, Climate Change and Water
PO Box 488G
NEWCASTLE 2300

Dear Ms Gibson,

Munmorah Power Station Rehabilitation: Hydrogen Fluoride Modelling

As discussed in our meeting of 3rd February, the following information is provided by way of clarification of the methodology adopted to predict ground level concentrations of Hydrogen Fluoride (HF) and the emission rates upon which the modelling was based.

Initial Assessment

In the initial assessment, HF emissions for the 24 hour, 7 day, 30 day and 90 day averaging periods were obtained by using a power law function in association with the TAPM 1 hour predictions, based on an assumed emission rate of 10mg/m^3 .

Monitored "background" HF concentrations were not included in the original assessment.

Revised Assessment

At the time of the revised assessment, the approach used for the initial assessment was reviewed and found to be overly conservative. Accordingly, the revised assessment was explicitly based on TAPM output data in conjunction with a more conservative (and appropriate) emission rate of 30mg/m^3 . The 1 and 24 hour concentrations were taken directly from TAPM, while the 7, 30 and 90 day concentrations were determined by segmentation and examination of the full suite of 365 modelled 24 hour concentrations. This approach is considered to be more appropriate than that used for the initial assessment and, in our opinion, consistent with the Approved Methods.

In addition, the revised assessment included background HF levels obtained from monitored levels in the region of Munmorah, enabling a cumulative assessment to be undertaken.

It is acknowledged that, in some cases, despite the use of different emission rates, the 2 sets of results are quite similar. However, any similarities between the data reported in the original and revised assessments are coincidental.



Rationale for Selection of 30mg/m³ Emission Rate

For this assessment, the relevant land use under the "Approved Methods" document is "General Land Use". Our modelling indicates that, in this case, HF emissions at the POEO limit of 50 mg/m³ would cause the Approved Methods ambient criteria to be exceeded. Accordingly, ambient criteria govern the maximum permissible emission concentration.

Recognising that:

- the proportion of fluorine in coal is variable and, historically, coal delivered to Munmorah has contained up to 180 mg/kg; and
- The proportion of the fluorine in the coal which is actually emitted to atmosphere is also variable,

the modelling (conservatively) assumed that 100% of the fluorine present in the coal was emitted.

Based on this modelling, coal with the current maximum fluorine content could lead to HF levels in the order of 20 mg/m³. (Highest monitored HF levels have been in the order of 15 mg/m³ at Munmorah. A level of 17mg/m³ has been recorded at Vales Point which burns similar coal.)

To enable coal to be sourced efficiently on the open market, it is necessary for power station operators to have the maximum flexibility in choice of coals, while still meeting environmental criteria. Scaling of the modelling results indicated that an emission limit for HF of 30 mg/m³ would give us flexibility in coal supplies while still enabling the relevant ambient criteria to be met comfortably and, on this basis, Delta Electricity is seeking a limit of 30 mg/m³.

I trust that the foregoing information addresses your queries.

Yours sincerely,

Rodney Ward
General Manager Development

cc - Ado Zanella – Department of Planning
- Scott Jeffries – Department of Planning