Munmorah Power Station Rehabilitation
Supplementary Submissions Report

Purpose

This Report provides additional information requested by the Department of Environment and Climate Change and Water (DECCW) in support of responses submitted by Delta in its Submissions Report of December 2009. The Submissions Report addressed issues raised in submissions received during the public exhibition of the Munmorah Power Station Rehabilitation Environmental Assessment from 21st October 2009 to 20th November 2009.

Report Content

In a meeting with Delta on 3 February 2010, DECCW sought clarification and further information regarding Delta's position with respect to the following issues:

- Air Quality - Hydrogen Fluoride Emissions
- Air Quality - Sulfur Dioxide Emissions
- Ecological Impacts - Ocean Cooling Pipeline

This Report provides a response with respect to each of these issues including individual reports or correspondence, submitted as Appendices.

Hydrogen Fluoride Emissions

Clarification was sought regarding the methodology adopted to predict ground level concentrations of Hydrogen Fluoride (HF) and the emission rates upon which the modelling was based.

Delta has provided a response to this enquiry in its letters of the 8 February 2010 and 15 February 2010 attached as Appendix A and Appendix B respectively.

As proposed in the Submissions Report and supported by this correspondence, Delta seeks an emission limit of 30mg/m3 for HF.

Sulfur Dioxide Emissions

As part of the Environmental Assessment (EA) potential air quality impacts were predicted using CSIRO's air pollution model, TAPM. The modelling was undertaken according to the Approved Methods for the Modelling and Assessment of Air Pollutants in NSW (DECC 2005).

In the Submissions Report the results of this modelling indicated that over the 8,784 hours in the modelled year (2004), on one hour only (12:00 hrs, 31 March,2004) the highest predicted sulphur dioxide concentration in the modelled domain exceeded the relevant assessment criterion of 570 $\mu g/m^3$ at sensitive receptors (residential area).

On a second occasion (11:00 hrs, 28 January, 2004) the highest predicted sulphur dioxide concentration in the modelled domain exceeded the relevant assessment criterion in an area of non-sensitive receptors.

In light of an earlier report on the performance the TAPM model and the results of this modelling where all other predictions were below, and in most cases not more

than half the assessment criterion, Delta arranged for Malfroy Environmental Services to examine the validity of the modelling results and in particular the likelihood of the two elevated predictions occurring.

At DECCW's request, this Malfroy February 2010 report "Assessment of elevated sulphur dioxide predictions" (Attached as Appendix C) was subjected to independent expert review by Bill Physick, Meteorologist and Air Quality Modeller. The Physick report of 19 February 2010 is attached as Appendix D.

The Malfroy Report, supported by independent expert review, included the following findings:

- While the predicted boundary layer conditions are physically possible, the TAPM predictions for a number of the critical boundary layer parameters probably resulted in plume dispersion being under estimated and hence maximum concentrations being over-estimated on two days.
- Relatively small, realistic changes to the predicted critical factors, based on the observational data on the days in question, could result in maximum concentrations less than the assessment criterion.
- The examination of the boundary layer meteorology on the days in question supports the earlier CSIRO conclusion that the predicted 100th percentile concentration is not appropriate for assessing the potential impacts from tall stacks under the diverse range of conditions occurring in the Central Coast region.
- The probability of the highest concentration predicted by TAPM occurring (irrespective of the veracity of that prediction) is estimated to be in the order of 1 in 350,000 (hours).

In reviewing the Malfroy Report, Bill Physick found the Report "is based on solid data and science, with conclusions that follow logically and are robust."

In view of these findings Delta proposes that the SO2 emission limit for Munmorah power station following rehabilitation be that used in the reviewed modelling, 1700mg/m^3.

Ocean Cooling Pipeline

In its submission in response to the EA, DECCW sought to have a Consent Condition requiring the Proponent to carry out an investigation into the feasibility of a pipeline from the ocean to supply cooling water, with a view to minimising thermal impacts of the project on Lake Budgewoi.

Delta in its Submissions Report outlined a number of technical, environmental and cost issues in rejecting this proposed Condition. Following further representations by DECC on this matter, Delta commissioned a high level review by Aurecon of the issues involved in ocean cooling for Munmorah. This Report is attached in Appendix E.

The Aurecon Report has examined five options for using one or more connections to the ocean for power station cooling. High level concept engineering has been carried out for each option, with ball park estimates of project costing provided. For each option the consequent potential impacts with respect to the ecology of lakes and ocean and the community have been identified.

The Report concludes that "while ocean cooling configurations could reduce the thermal loads on the lakes, the consequences of an ocean discharge and/or supply of cooling water could well have a far larger effect on the environment, ecosystems and the community than the existing system and would require considerable engineering works to minimise effects on the coastal environment."

Having regard to the findings of the Aurecon Report, both in potential environmental impact terms and in terms of the economic viability of the Munmorah Rehabilitation project, Delta submits that the ocean cooling option should not be examined further and the relevant proposed Condition of Consent 2.16 be withdrawn.

Rodney Ward 1/3/10

Rodney Ward
General Manager Development
Delta Electricity

Appendices - attached

Appendix A	-	Delta Letter 8 February 2010 - Munmorah Power station Rehabilitation: Hydrogen Flouride Modelling
Appendix B	-	Delta Letter 15 February 2010 - Munmorah Power station Rehabilitation: Hydrogen Flouride Modelling
Appendix C	-	Malfroy Environmental Strategies Report February, 2010 - Munmorah Power Station: Assessment of elevated sulphur dioxide predictions
Appendix D	-	Bill Physick Report 19 February 2010 - Expert Review of "Munmorah Power Station Rehabilitation Project Review of Elevated Sulfur Dioxide Emissions" Report.
Appendix E	-	Aurecon Report 25 February 2010 - Preliminary Feasibility Study of Ocean Cooling for Munmorah Power Station 3&4 Rehabilitation -Delta Electricity