DOC17/610402-10; EF14/502

Department of Planning and Environment
GPO Box 39
SYDNEY NSW 2001

Attention: Mr Anthony Barnes

By email: anthony.barnes@planning.nsw.gov.au

19 January 2018

Dear Mr Barnes

PROPOSED MODIFICATION TO SALT ASH SAND QUARRY PROJECT- MP 07_0094 MOD 4 FURTHER COMMENTS FROM THE ENVIRONMENT PROTECTION AUTHORITY

I refer to your email to the Environment Protection Authority (EPA) received 7 December 2017 inviting the EPA to submit comments including any advice on recommended conditions of approval in relation to the Salt Ash Sand Quarry Project modification application. The modification is applied for under DA MP07_0094 MOD 4 (Modification 4), and relates to a proposed increase in transportation rate of excavated material from 201,000 to 400,000 tonnes per annum; increased truck movements from 30 to 42 per day. The proposal also seeks an extension of the operational hours of 7:00am to 5:00pm, to 6:00am to 6:00pm (Monday to Friday); and a minor change to the sequence of extraction stages.

The EPA reviewed the Environmental Assessment (EA) supplied with the modification application, and provided a response to the Department of Planning and Environment on 12 January 2018.

The EPA has further comment in relation to the assessment of potential impacts to the air environment which were conducted with reference to guidance in *'Approved Methods for the Modelling and Assessment of Air Pollutants in NSW (2016)'.* The report fails to show these guidelines were followed. The proponent has not provided enough information to demonstrate these requirements have been met. Further information is required regarding emissions inventory, choice of model used, model parameters, and ratio of $PM_{2.5}$ to PM_{10} in the emissions, and should include reference to the following:

- The method used to estimate emissions from each source needs to be stated along with assumptions made and the value chosen for any variable parameters within the method. Where emissions for one particle fraction are scaled from another, reasoning is required to justify the scaling used. This should refer to observational evidence or consideration of the processes generating the emission.

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- Further detail is required justifying the approach to modelling, detailing modelling assumptions, providing key parameters used for the CALMET modelling, and describing observational data sets.

Approach to dispersion modelling

Reasoning has been provided to show meteorology for calendar year 2010 is suitably representative. The AQIA uses AUSPLUME to simulate dispersion of emissions from the proposal. Hourly meteorology data was generated by running CALMET in hybrid mode using the MM5 model and surface observations from three sites – Nobby's Head, Williamtown, and Tomago. This methodology is inadequate due to the following items below:

- Section 6.2 of *'Approved Methods for the Modelling and Assessment of Air Pollutants in NSW (2016)'* states that AUSPLUME is not suitable for modelling complex terrain or coastal effects. As the proposal is in a coastal environment, strong reasoning is needed to show AUSPLUME is suitable.
- Key CALMET model parameters controlling the merging of modelled (MM5) and observed winds have not been specified.
- Section 5.4 (p14) states wet deposition has been chosen. AUSPLUME requires rainfall to be included in the hourly data files to run this option. The source of hourly rainfall data must be specified and if taken from modelling, shown to reasonably match observed rainfall frequency and duration.
- Wind roses (figure 4) of the data supplied to AUSPLUME from CALMET show very few calms. Equivalent wind roses for the observational data sets used by CALMET are needed to verify this result.

Further detail is required justifying the approach to modelling, detailing modelling assumptions, providing key parameters used for the CALMET modelling, and describing observational data sets. Clarification is needed regarding topography – section 5.2 states AUSPLUME is suitable in "relatively flat" terrain, yet section 5.4 (p13) states topography is "not flat".

Estimation of emissions

Emission estimates are listed in table 5 of AQIA (p15). No detail is provided regarding how these emissions were estimated.

The assumptions listed in section 5.4 (pp13-14) include using a $PM_{2.5}$ to PM_{10} ratio for emission sources of 0.35 based on observations at Beresfield. This assumption has not been justified. ATASU advises that ambient monitoring may not reflect the character of the emissions sources. Justification is needed for assumptions used in estimating emissions.

Emissions were assumed to occur for 12 hours per day every day in the year. This is a conservative assumption.

If you require any further information regarding this matter please contact Genevieve Lorang on (02) 4908 6809.

Yours sincerely

19.1.18

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