



DOC17/392562

Ms Deana Burn
NSW Department of Planning & Environment
GPO Box 39
SYDNEY NSW 2001

Attention: Ms Deana Burn

Dear Ms Burn

Re: Shoalhaven Starches - Modification 13 (MP 06_0228 MOD 13) - Modification of Boilers No. 2, 4, and 6

I refer to the email received by the Environment Protection Authority ("EPA") on 8 September 2017 requesting advice and recommended conditions of consent regarding a Modification Application (MP 06_0228 MOD 13) for the Shoalhaven Starches premises located on Bolong Road, Bomaderry. I also refer to our telephone conversation on 27 September regarding the application.

The Modification Application proposes to modify three of the existing boilers; to convert Boiler No. 2 from woodchips back to coal fired, to convert Boiler No. 4 from gas to coal fired, and to modify Boiler No. 6 to construct a new baghouse and associated ducting to increase steam production. The Modification Application is supported by an Environmental Assessment ("EA"), which includes an Air Quality Assessment and Noise Assessment.

The EPA has reviewed the air quality impact assessment for the proposal, and has identified a number of issues which inhibit the EPA from utilising the results within the report to inform a robust planning decision. The EPA recommends that Planning consider seeking a revised air quality impact assessment from the proponent which addresses the issues identified in this correspondence. As discussed on the phone, the EPA extends an invitation to meet with the proponent to facilitate discussion on the issues raised in this correspondence.

I trust this information is of assistance. Should you have any further questions, please contact me on (02) 6229 7002.

Yours sincerely

A handwritten signature in black ink, appearing to read 'Janine Goodwin', with a long horizontal stroke extending to the right.

JANINE GOODWIN
Acting Unit Head, South East Region
Environment Protection Authority

27.9.17

Attachment A:

1. Insufficient justification for the use of AERMOD

SEMA (2017) states that AERMOD was used in the air quality impact assessment as it is 'now the model of choice recommended by EPA NSW/OEH in the Approved Methods for the Modelling and Assessment of Air Pollutants in NSW (Approved Methods) because AUSPLUME is no longer supported'.

The Approved Methods states that AUSPLUME v 6.0 is the approved dispersion model for use in most simple, near field applications where coastal effects and complex terrain are of no concern. AERMOD is not stated to be the model of choice recommended by the EPA. The Approved Methods acknowledges there are a variety of dispersion models and that some may be more scientifically sound than others in certain applications. The Approved Methods requires it to be demonstrated that the chosen dispersion model is scientifically sound for the proposed application.

Recommendation:

The EPA recommends the proponent is requested to demonstrate AERMOD is scientifically sound for the Shoalhaven Starches modelling application.

2. Inadequate emissions inventory

The air emissions inventory is the foundation of the air quality impact assessment. It is a priority task that requires the collation of a significant amount of data.

The EPA has identified numerous issues with the air emissions inventory in SEMA (2017). These include:

- Not all pollutants of concern for the project have been identified and included in the inventory.
 - The pollutants of concern for the project are those that will change as a result of the proposal. The EPA considers this should include, but not be limited to, the following: particles, SO₂, NO_x, sulfuric acid mist/sulfur trioxide, Type 1 and Type 2 substances, cadmium and mercury.
- All sources of all pollutants of concern are not included in the inventory.
 - The inventory and therefore the air quality impact assessment, must include all sources at Shoalhaven Starches of the pollutants of concern for the project. For example, emissions from Boiler No. 6 are excluded from the inventory as the emissions are not changing from the existing due to the proposal. Emissions from Boiler No. 6 must be included in the inventory as it emits pollutants of concern for the proposal. Further, the emissions from the gas fired boilers must also be included in the inventory as NO_x is a pollutant of concern for the proposal.
- Emission estimates are not in accordance with the Approved Methods. The EPA's preferred methods are direct measurement for existing sources and manufacturers' design specifications for proposed sources.
 - SEMA (2017) implies the emission concentrations were derived from emission tests conducted at various times. The stack sampling results are not included in SEMA (2017). A justification for the use of a particular stack sampling result is also not provided.
 - Assumed emission concentrations for the proposal appears to be the relevant limit from the *Protection of the Environment (Clean Air) Regulation 2010*. SEMA (2017) makes no reference to the manufacturers' design specification for the proposed fuel change.

Recommendation:

The EPA recommends the proponent is requested to provide a revised emissions inventory for the proposal. The emissions inventory must:

- ***be prepared in accordance with the Approved Methods (refer to Section 3 of the Approved Methods)***
- ***include all pollutants of concern for the proposal***

- **include all sources at Shoalhaven Starches of all pollutants of concern for the proposal**
- **estimate emission rates using the EPA's preferred methods of direct measurement for existing sources and manufacturers' design specifications for proposed sources.**

All supporting information such as stack testing results must be provided together with a detailed discussion justifying their appropriateness.

3. Cumulative impacts have not been predicted

The impact assessment results presented in SEMA (2017) are only for the boilers that are proposed to be modified. It is claimed that these predictions are conservative and cumulative as the 'predictions are for the total emission from the boilers and not just the incremental increase'.

The predictions in SEMA (2017) are not conservative and are not cumulative. For air quality impact predictions to be cumulative they must include:

- the impact of all emissions of a pollutant from the site. As discussed in point 2, the assessment has excluded other sources at the site of the pollutants of concern for the proposal. For example, Boiler No. 5/6 and the gas boilers have been excluded from the assessment; **and**
- an estimate of background air quality.

The proponent is referred to Section 5 of the Approved Methods regarding the inclusion of background air quality in an assessment.

Recommendation:

The EPA recommends the proponent presents a revised cumulative impact assessment for the proposed Boiler No. 2 and Boiler No. 4 modification in accordance with the Approved Methods.

4. Lack of clarity regarding method to model transformation of NO to NO₂

After emission from the stack, NO is transformed to NO₂ through oxidation with atmospheric ozone. The Approved Methods details a number of methods for assessing the oxidation of NO to NO₂ in the atmosphere. SEMA (2017) does not indicate which method was used to assess the oxidation of NO to NO₂ in the atmosphere.

Recommendation:

The EPA recommends the proponent is requested to provide the method used to model transformation of NO to NO₂.

5. Model domain does not include all areas of peak impacts

Figure 6-5 and Figure 6-7 in SEMA (2017) are the 1 hour average NO₂ and SO₂ contour plots respectively. It can be seen in both figures that there is an area of maximum impact in the north-west corner that extends beyond the model domain. The model domain must be increased to include all areas of peak impacts.

Recommendation:

The EPA recommends the proponent is requested to revise the model to include a domain which includes all areas of peak impacts.

6. Location of tabulated predicted concentrations unclear

Table 6-1 in SEMA (2017) lists the maximum predicted ground level concentrations. It is unclear, however, if this is on the model domain or at the discrete receptor locations. It is recommended to present both the model domain maximum and the maximum at discrete sensitive receptor locations in a tabulated format.

Recommendation:

The EPA recommends the proponent is requested to revise Table 6-1 in SEMA (2017) to include predicted concentrations at all sensitive receptors and maximum predicted concentration on the model domain.

