



DOC16/574291-05
MP06_0228 MOD 11

Mr Chris Ritchie
Director - Industry Assessments
Department of Planning and Environment
GPO Box 39
SYDNEY NSW 2001

Attention: Ms Deana Burn

Dear Ms Burn

**RE: Modification 11 - MP 06_0228 - Shoalhaven Starches Ethanol Expansion Project -
Proposed Changes to DDG Driers**

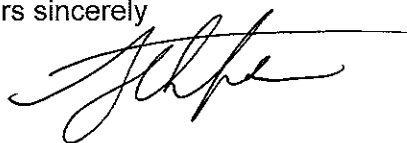
I refer to your letter of 10 November 2016 advising that the Department of Planning and Environment (DPE) has received a modification application from Shoalhaven Starches Pty Ltd to Major Project Approval 06_0228 (Ethanol Expansion Project Approval), and inviting the Environment Protection Authority (EPA) to provide comments as it regulates the premises via an Environment protection licence (No. 883). I apologise for the delay in responding.

The EPA understands that the current modification application (MOD 11), involves amongst other things, a reduction in the number of approved Dried Distillers Grain dryers from six to four, as well as relocating these dryers and associated cooling towers within the Shoalhaven Starches premises.

The EPA via DPE's website has accessed and reviewed the Environmental Assessment prepared for the proposed modification by Cowman Stoddard Pty Ltd and dated October 2016 for MOD 11, including a number of the specialist reports. To assist DPE with its consideration of MOD 11, the EPA has identified a number of issues within the air quality impact assessment that require further information and/or clarification. These issues are detailed in **Attachment 1** to this letter. It is recommended that DPE seek additional information from Shoalhaven Starches that addresses these issues identified by the EPA. This information is required before the EPA can provide a thorough assessment of the likely environmental impacts of the proposed modification.

We are happy to further review any additional information that is submitted by Shoalhaven Starches. Should you wish to discuss this matter, please contact Stefan Press on Ph: (02) 6229 7002.

Yours sincerely

A handwritten signature in black ink, appearing to read 'J Thompson', written over a horizontal line.

JULIAN THOMPSON
Unit Head - South East Region
Environment Protection Authority

16/02/2017

ATTACHMENT 1

Air Quality

The EPA has reviewed the Environmental Assessment prepared by Cowman Stoddard Pty Ltd and dated October 2016 as well as the specialist report titled "Odour and Air Quality Assessment – Shoalhaven Starches Expansion Project – Modification to Approved DDG Dryers, Cooling Towers and Biofilters" prepared by GHD Pty Ltd and dated May 2016 (the air quality impact assessment).

The EPA has identified a number of issues in relation to the air quality impact assessment and provides the following comments to assist DPE with its consideration of MOD 11.

1. Odour dispersion modelling was undertaken using average odour emissions data, not peak.

Issue: The EPA notes that the air quality impact assessment advises that existing odour emission sources at the premises were modelled using input source emission monitoring data averaged over the four quarters of the previous EPA annual return monitoring period (2015-2016). As discussed in the 2016 independent odour audit (Northstar, 2016), odour emissions are highly variable. Since the nose response time for detecting odours is approximately 1 second, taking the average odour emission rate, and not the peak, may underpredict odour impacts.

The use of average emission data is not consistent with the EPA's *Approved Methods for the Modelling and Assessment of Air Pollutants in NSW* (the Approved Methods) requirements to model maximum emissions. The use of average emissions may lead to an underestimation of impacts from the premises.

Recommendation: The air quality impact assessment should be revised to consider peak emissions, consistent with a worst case scenario for all emission sources at the premises.

2. Odour dispersion modelling is undertaken using monitoring data (based on 219 ML plant capacity), not the approved 300 ML ethanol plant capacity.

Issue: According to GHD, odour emission rates in the air quality impact assessment were scaled to account for Shoalhaven Starches approved ethanol plant capacity of 300 ML per year. The EPA notes however, the emissions inventory for the EPA licensed discharge points were derived from 2015-2016 annual return monitoring results, when plant capacity was approximately 219 ML, and do not appear to have been scaled up to account for Shoalhaven Starches approved 300 ML ethanol plant capacity.

Recommendation: The air quality impact assessment should be revised using odour emission rates, where relevant, that have been appropriately scaled to take account of the approved maximum yearly ethanol production rate of 300 ML.

3. Emissions in 2016 are estimated to be approximately 10% less than those in 2008, however, odour impacts at receptors are predicted to increase.

Issue: The EPA notes the air quality impact assessment details that the predicted increase in odour impacts, despite the decrease in odour emission rates, has been attributed to variations in the physical dispersion characteristics of a number of sources, and the substitution and/or replacement of some other odour sources at the Shoalhaven Starches premises. However, this explanation does not provide the EPA with sufficient enough detail to assess its validity.

Recommendation: Additional detail in the air quality impact assessment, including source characteristics and wake effects needs to be provided in order for the EPA to be able to make a more complete assessment of the odour modelling results.

4. Unclear as to why receptor heights were changed.

Issue: The EPA understands that subsequent to the issuing of the air quality impact assessment (May 2016), the receptor heights were adjusted and odour dispersion remodelled by GHD (June 2016) as part of the 2016 Independent Odour Audit process. This remodelling

included existing sources only, and did not include all sources that were included in the air quality impact assessment for MOD 11. Furthermore, there was no explanation or discussion as to why receptor heights were changed, and what the actual heights were pre and post adjustment.

Recommendation: The air quality impact assessment (GHD May 2016) should be updated to include a clear explanation as to why receptor heights were subsequently adjusted, and what heights they were pre and post adjustment. The modelling should also be updated to include both the existing and proposed sources that were assessed in the original air quality impact assessment report (GHD May 2016).

5. Errors in the emissions for No. 3 starch dryer and No. 5 starch dryer should be revised and remodelled.

Issue: The EPA has identified an apparent error in the air quality impact assessment with an erroneous odour emission rate for the No. 3 starch dryer being modelled. The EPA considers the air quality impact assessment needs to be revised using the corrected odour emission rate (OER) of 5588 OUV/s, instead of the incorrect value of 4189 OUV/s.

Further, the EPA understands the No. 5 starch dryer can be used interchangeably for starch or gluten. The EPA notes the original odour modelling conducted for the ethanol expansion approval (GHD 2008) assumed gluten drying, which is more odorous. However, in the current air quality impact assessment (GHD May 2016) the less conservative assumption of starch drying was used in the odour modelling.

Recommendation: No 3 starch dryer and No 5 starch dryer emissions should be revised and remodelled in the air quality impact assessment and clarity provided around the use of No. 5 dryer and its odour emission rate.

6. Difficult to compare emission inventories between GHD (2008) and GHD (2016).

Issue: It is understood that the MOD 11 proposal includes most sources in the 2009 ethanol expansion approval using recent monitoring data, with the addition of the following sources:

- Silos at the proposed packing plant;
- Pellet plant (including pellet plant exhaust stack and fugitives from the pellet plant building);
- Substantially increased No 3 and No 4 gluten dryer baghouse emissions;
- No 6 gluten dryer (approved in the original EA but mistakenly not modelled);
- No 7 gluten dryer (approved in the original EA but mistakenly not modelled);
- Four biofilters (2 existing and 2 proposed);
- Substantially increased emissions from Fermenters 10-16; and
- No 5 ring dryer starch.

and the removal of the following sources:

- Boiler No. 2 (now operating as a wood fired boiler and not coal fired, hence no longer considered an odour source);
- Most DDG sources (ducted to existing biofilters);
- Cooling towers for the DDG building (substantially reduced);
- Cooling towers from the ethanol plant (moved to an area away from odour sources so cannot cause wake effects. Use fresh water so not a source of odour themselves);
- Grain retention tanks E8 (converted to yeast propagation tank);
- Propagator tanks 1,2,3 (the configuration has now changed, and odour is ducted to propagator tanks 4 and 5);
- Starch kesner dryer; and
- Fugitives from DDG building (ducted to boilers 5, 6).

The EPA notes odour emissions from the wastewater storage dams at the environment farm were considered in both assessments.

However, the EPA has found it difficult to assess the impacts from the proposed MOD 11 relative to the original approved ethanol expansion project without a side by side comparison of emission sources. In a pre-lodgement meeting with the EPA to discuss the MOD 11 proposal, the EPA requested that a comparative analysis of the odour results/modelling between the 2016 Modification 11 proposal and the original 2008 proposal be included in the air quality impact assessment.

Recommendation: The air quality impact assessment needs to be revised to provide a clear comparison between sources that were modelled for the 2009 approval of the ethanol expansion project (GHD 2008), and those that have been modelled as part of the MOD 11 proposal (GHD May 2016), and those that have been modelled in the Independent Odour Audits. This will provide greater clarity in the assessment of odour impacts of the proposed MOD 11 and permit the EPA to accurately determine whether or not the modified proposal accords with the 2009 'base case' in terms of odour performance.

7. Odour impacts should be reported in integers, not as decimals

Issue: Odour units are a measure of the number of dilutions an odour sample requires before 50% of an odour panel can no longer detect the odour. It therefore makes no sense to report odour units in terms of decimal numbers. By this definition, there is no difference between 6.1 OU and 6 OU, for example.

Recommendation: The predicted odour concentrations detailed in the air quality impact assessment should be reported in integers.

8. No additional controls are proposed to mitigate the increased odour impacts

Issue: The EPA notes the predicted odour impacts exceed the odour criterion (Stage 1 odour controls) established by the 2009 ethanol expansion project approval at sensitive receiver sites R3 (Nowra) and R4 (Terara). The EPA has also identified that the air quality impact assessment and EA do not however propose any additional odour mitigation measures, including implementation of the additional odour controls contained in Appendix 3 of the 2009 ethanol expansion project approval that would ensure compliance with the odour criterion.

Further, the NSW EPA *Technical Framework for the Assessment and Management of Odour from Stationary Sources* publication requires the identification of feasible odour controls should adverse odour impacts occur once a facility is operational.

Recommendation: The air quality impact assessment should be revised to include:

- a. An assessment of additional controls, included those contained in Appendix 3 of the 2009 approval that will be implemented to enable the premises to comply with the odour criterion; and
- b. Further additional control measures that could be implemented should adverse odour impacts occur once the plant and equipment as part of MOD 11 becomes operational.