



Mr Dean Kent
Group Engineer
Baiada (Tamworth) Pty Ltd
642 Great Western Highway
GIRRAWEEEN NSW 2145

07/10/2020

Dear Mr Kent

Baiada Integrated Poultry Processing Facility (SSD-9394)
Request for Additional Information

I refer to the additional Response to Submissions for the Baiada Integrated Poultry Processing Facility (SSD-9394). Further to the Department's letters to you dated 23 July, 27 July, 3 August and 7 August 2020, the Department has identified additional matters that need to be addressed. The Department is also seeking additional information in response to correspondence received from Fire and Rescue NSW.

You are requested to submit additional information that effectively addresses the issues identified in Attachment 1 and Attachment 2.

You are requested to provide the information, or notification that the information will not be provided, to the Department by Wednesday 21 October 2020. If you are unable to provide the requested information within this timeframe, you are requested to provide, and commit to, a timeframe detailing the provision of this information.

If you have any questions, please contact Ania Dorocinska, who can be contacted on 9274 6225 or at ania.dorocinska@planning.nsw.gov.au.

Yours sincerely,

A handwritten signature in black ink, appearing to read 'J. Bakopanos'.

Joanna Bakopanos
Team Leader
Industry Assessments

Enclosed/Attached:
Attachment 1: Request for Further Information

Attachment 1 Request for Further Information

The Preliminary Hazard Analysis (PHA) comprises of the following documents:

[PHA – A] SEPP 33 Preliminary Risk Screening & Hazard Analysis, Proposed Baiada Oakburn Poultry Processing Facility, 1154 Gunnedah Road, Westdale NSW 2340, SSD-9394 (document number 6.10.19171-R02, version -v1.2, dated 18 September 2020, prepared by SLR Consulting); and

[PHA – B] Risk Assessment, 1154 Gunnedah Road, Westdale, NSW 2340 (document number 370593-LoteRA-BaiadaPoultryPlant-RevB, revision B, dated 17 September 2020, prepared by Lote Consulting).

1. PHA – A

Table 3 indicates storage of 10,000 Litres (L) of “oxygen gas”. Although oxygen is generally understood to be dangerous goods (DG) Class 2.2, it is also understood to be classified with subsidiary risk 5.1. As such, the preliminary risk screening must also compare the storage quantity of oxygen against the 5 tonne threshold quantity for DG Class 5.1, specified in Table 3 of the Department’s Applying SEPP 33. Notwithstanding, the development has already determined to be potentially hazardous under SEPP on the basis of other DG exceeding the relevant thresholds in Applying SEPP 33.

However, in noting the 10,000 L oxygen storage in context of overall site operations, it is likely that the on-site storage and handling of oxygen may involve the use of a bulk storage tank capable of storing at least 11 tonnes of liquid oxygen (LOX). The PHA did not specify the reason for using oxygen on-site nor identify the hazards and relevant safeguards associated with the oxygen gas or LOX system. Moreover, PHA – B Figure 5.1 indicates that 14 kPa overpressure overlaps the 10,000 L oxygen storage area indicated in PHA – A Figure 4. An overpressure of 14 kPa may cause sufficient impact to plant and may result in accident propagation.

Please provide:

- a. clarification on whether the development will involve the use of LOX and if so, clarify the storage arrangements and maximum storage quantity of LOX
- b. reasons for using oxygen gas or LOX on-site, given that this material is generally not associated with poultry related facilities. If oxygen gas is utilised for boilers, please provide the flame temperatures for these boilers and reasons why such flame temperatures are necessary for the development
- c. in view of item 1b above and in considering Section 2.2a of the Department’s HIPAP 4 (i.e. all ‘avoidable’ risk should be avoided), verify whether the use of oxygen gas or LOX on-site is necessary when alternatives are considered

- d. if item 1c above is verified, identify the hazards and relevant safeguards associated with the oxygen gas or LOX system, including and not limited to verification that the storage and handling of these materials would be able to comply with all relevant Australian Standards
- e. in view of item 1d above, analyse the consequences and risks associated with oxygen gas or LOX, including and not limited to incidents leading to and from accident propagation
- f. in view of item 1e above, assess that the cumulative risk from the development, inclusive of the oxygen gas or LOX system, can comply with the Department's HIPAP 4 land use safety risk criteria, including the childcare facility (HIPAP 4 sensitive land use) as part of the development.

2. PHA – A

Section 4.5.3 and Table 6 identified the hazards and relevant safeguards associated with the storage and use of ~7 tonnes of anhydrous ammonia as part of refrigeration systems for this development, along with specifying that the refrigeration system will be designed and operated in accordance with AS 5149. The risk assessment in PHA – A Table 6 adopted a qualitative approach, generally aligning with a Level 1 Qualitative Analysis as per the Department's Multi-level Risk Assessment (MLRA). This approach would generally be appropriate for this storage quantity if applied in certain settings such as an industrial facility in remote locations, away from residential, sensitive and populated land uses.

However, in noting that the development includes a childcare facility, the Department considers at least a Level 2 Semi-quantitative Analysis as per MLRA to be the appropriate approach to assess the risk exposure to the childcare facility (HIPAP 4 sensitive land use) against the Department's HIPAP 4 land use safety criteria. This semi-quantitative approach was applied in PHA – B to analyse and assess the risks involving the storage and use of LNG on-site.

As such, please revise the PHA to include a Level 2 Semi-quantitative Analysis to analyse the risks involving the storage and use of anhydrous ammonia on-site to align with the similar approach already adopted to analyse LNG risks. In revising the PHA, please ensure the cumulative risk exposure (i.e. sum of LNG, anhydrous ammonia and oxygen gas, LOX, accident propagation-related risks) are carefully assessed against all relevant quantitative risk criteria specified in the Department's HIPAP 4 (i.e. fatality, injury, accident propagation) especially at the childcare facility.

3. PHA – B

PHA – B as a whole focuses only on the risks associated with the storage and use of LNG as part of the development. Having reviewed PHA – B, PHA – B appropriately identified the LNG hazards, identified suitable LNG scenarios and estimated the extent of the consequences from these scenarios. In estimating the consequences, PHA – B verified that radiative heat impacts from LNG scenarios will not reach off-site nor the childcare facility,

but verified that explosion overpressure impacts from LNG vapour cloud explosion (VCE) extends beyond the development boundary, inclusive of the childcare facility (PHA – B Table 6-1 indicating explosion overpressures of 13 kPa at the site boundary and 9 kPa at the childcare centre). From these results, it is understood that the impacts from LNG VCE will largely be contained within the development boundary and significant impacts beyond the development boundary is considered not likely.

However, the Department does not agree with the use of probit relations to reduce the mortality of 9 kPa explosion overpressure impacts at the childcare centre to 0% when Section 2.4.2.2 of the Department's HIPAP 4 clearly states "7 kPa be the appropriate level above which significant effects to people and property damage may occur". Although the Department acknowledges that the 7 kPa injury criteria is generally conservative, the Department confirms that this injury criteria remains appropriately conservative for PHAs, especially when blast fragmentations are generally not included in PHAs due to a high degree of uncertainties associated with blast fragmentation analysis.

Please revise:

- a. the location of the LNG tanks or childcare facility in an appropriate manner to reduce the potential exposure at the childcare facility to be below 7 kPa explosion overpressure with due consideration of off-site risks; or
- b. revise the LNG VCE risk analysis to show that the cumulative injury risk (refer to item 2 above) at the childcare centre do not exceed 50 pmpy risk criteria specified in HIPAP 4. In performing this revision, the UK HSE's *Failure Rate and Event Data for use within Risk Assessments* (06/11/17) [<https://www.hse.gov.uk/landuseplanning/failure-rates.pdf>] should be compared.

4. PHA – B

Noting from PHA – B Figure 5-1 that the 14 kPa covers a significant portion of the development, please verify:

- a. that accident propagation risks which may involve anhydrous ammonia, oxygen gas or LOX have been appropriately addressed as part of the PHA
- b. a cumulative risk assessment has been performed as the sum of the risks associated with anhydrous ammonia, LNG, oxygen gas and LOX.