

AUSTRALIAN DEFENCE
FORCE ACADEMY



THE UNIVERSITY OF
NEW SOUTH WALES



**Review of
Environmental Noise Management Proposal for
Wagerup Unit Three Expansion
Part 2 Ore Transport System
and Bunbury Port**

AVU 01005-2

**for
Alcoa Australia
Wagerup Expansion Team**

by

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March 2005

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1.0 Introduction

This report has been prepared by the Acoustics and Vibration Unit (AVU) of the University of New South Wales at the Australian Defence Force Academy, following the request from the Wagerup 3 expansion Team as part of the community consultation associated with the Environmental Impact Assessment. This desk top review supplements report AVU 01005-1 which was undertaken before the reports on the noise impact from the conveyor and at the Bunbury Port were available. As for Part 1 this report is required to address the following issues:

- the completeness of the information presented;
- the suitability of the measurements performed for assessing the project impacts;
- the correctness of the analysis performed on the data presented;
- the suitability of methodology used to make predictions.
- conclusions reached in the report being reviewed.

The following documents have been provided for this part of the review:

- Environmental Noise Management Strategy for the Wagerup 3 Expansion project, SVT Engineering report A/05/01/010, version D of 8/3/05 with identification of the parts which have been added to the document since the time of the review AVU 01005-1
- Summary of Wagerup Noise Propagation Model Validation Process, Herring Storer Acoustics report 4373-2-05029-4-2-8
- Figure A2 Noise Contours for Existing Ore Transport System
- email from Ian Butland clarifying the various components of the conveyor systems both for the existing and the proposed situations.

This review should be read as a supplement to AVU 01005-1 as it only addresses the new material which has been incorporated in SVT Engineering report A/05/01/010. In common with the previous report it does not include investigation of the accuracy of the data used in the noise modelling nor the detail of the noise modelling program.

2.0 Background

The new sections in SVT Engineering report A/05/01/010 are

- Section 2.1 - second paragraph of the scope
- Section 3 - final paragraph which refers to Appendix Figure A2 which presents the noise contours for the ore transport system only. Figure A2 was not in the main document and was provided separately.
- Section 5.2 - whole section which deals with the ore transport system
- Table 8.1 – sound power allocation table which includes the additional allocations for the ore transport system
- Noise contours in appendices - Figures B2, B3, C2 and C3

- Section 7 – noise impacts at Bunbury Port

3.0 Completeness of the Information Presented

3.1 Ore Transport System

The sections in the SVT report on the ore transport system provide identification of the sources of additional noise impact of changes to the existing conveyer and two options for the extension. The two options would be easier to understand if a sketch identifying the key points ie Larego, Orion and Arundel plus the conveyor numbers was provided.

Concern is expressed about the increased noise impact from the increase in speed and belt width for the existing portion of #371 and this is considered to be the '*most significant noise impact*'. Yet from comparison of Figure A2, noise contours for existing transport system and Figures B2 and B3 it is not easy to see what residents would be exposed to increase noise levels. There only appear to be very minor changes in the location of the contours. Perhaps this is because of the reduced scale necessary to show the entire conveyor system. It would be valuable to have an expansion of the contour map showing just the portion of the conveyor from Wagerup to Arundel, to a similar scale as Figure B1, and also showing the locations of the residents. The three figures to be provided would be the existing and for the increased capacity conveyor with and without noise reduction. Similarly a diagram is required to identify the location of the modules referred to in Table 5.1.

There appears to be very little difference on the figures between the contour lines for Option A and C yet the text indicates a clear preference for option A. Are there other details on the predicted noise levels which could justify this preference? The maps for Option C include the point source for the additional drive station at the junction of #371 and # 373. Is there a missing point source at the Larego end of #373 which is the termination of this conveyor? Is it just missing from the figures or has it been omitted from the modelling?

Now that the estimation for the noise impact from the conveyor has been determined there should be new additional figures showing the noise impact from the expansion including the conveyor ie a combination of noise impacts shown on Figure C1 and Figure C2.

3.2 Bunbury Port

It would seem that the additional operations following on from the expansion will not have an adverse impact on the surrounding area. It is understood that the impact of the rail operations was not within the scope of the SVT study but is the subject of another study that considers the noise impact of the additional trains entering the dock and the noise impact of those trains along their route.

3.3 Summary of noise validation model

This report by Herring Storer Acoustics summarises the validation of the noise model. Figures 1 and 2 should have 'wind direction' on the horizontal axis.

The sentences using wording similar to this

"the L_{A95} value was a reasonably true indication of the refinery L_{A10} value"

are somewhat confusing. Although it is stated that the L_{A10} is

"heavily influenced by background noise and generally do not represent refinery noise contribution"

there should be some explanation of the nature of the 'background noise' and perhaps it should be referred to as "foreground noise" as background noise normally influences the L_{A90} and not the L_{A10} . As this paragraph sets the basis for the validation it is essential it is explained clearly.

It is not clear why at location 3 the L_{A99} data is used. Figure 3 shows the modelled noise levels under downwind propagation to be greater than the L_{A99} . As L_{A95} usually has a greater magnitude than L_{A99} it is puzzling why L_{A99} has been chosen for the comparison at this location only.

4.0 Suitability of the Measurements Performed for Assessing the Project Impacts

No reference is made to any noise measurements relative to the ore transport system.

5.0 Correctness of the Analysis Performed on the Data Presented

At this stage of the process it is difficult to be too precise as many details for accurate analysis are still unknown. Overall the approach taken thus far appears to be correct.

6.0 Suitability of Methodology Used to Make Prediction

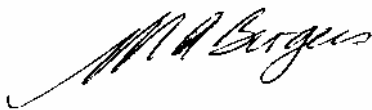
It would appear that the noise model is appropriate and the summary of the validation of the model appears to support this

7.0 Conclusions Reached in the Report Being Reviewed

The conclusions seem to be relevant and well supported by the modelling data.

8.0 CONCLUSION

Some suggestions for inclusion of additional information and for the presentation of the information have been given in this review. Overall it would appear that the noise assessment, the determination of sound power allocations has been undertaken in a careful and appropriate manner.



Marion Burgess
March 2005