

HUNTER VALLEY OPERATIONS

Plan

Noise Management Plan

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1 Purpose

The purpose of this Noise Management Plan (NMP) is to describe reasonable and feasible measures to:

- address potential noise impacts at Hunter Valley Operations (HVO) as identified in the HVO North and HVO South Approvals; and
- satisfy the relevant conditions of the Approvals.

This NMP describes procedures required to help achieve compliance with the Approval conditions relating to noise impacts including the measures that HVO will use to manage noise impacts. It also details the management framework and noise mitigation actions.

2 Scope

This NMP applies to the area within HVO North and HVO South approval boundaries (refer to **Figure 4-1**), including:

- Operating Pits;
- Coal Preparation Plants (CPPs); and
- Loading Points.

This NMP is to be applied from the time of approval of this plan and during construction and operation activities at HVO.

3 Objectives

The objectives of this NMP are to:

- Set out the measures that will be used to minimise noise impacts of HVO;
- Describe how HVO will implement best management practice;
- Describe how HVO will endeavour to achieve compliance with the conditions of Approval (see Table 5-1);
- Describe how HVO intends to effectively manage operational noise from the project;
- Provide a program for:
 - monitoring performance;
 - evaluating noise compliance; and
 - measuring the effectiveness of controls undertaken by site to effectively manage noise;
- Describe how HVO intend to cooperate with neighbouring mines to minimise the cumulative noise impacts of those mines and HVO; and
- Provide a mechanism for assessing noise monitoring results against the relevant noise impact assessment criteria.

The key elements of the mitigation strategies will be:

- On-going noise monitoring to assess the performance of the mining operations against the predicted noise levels;
- Modification of operations where monitoring data indicates the need;
- Pro-active mine planning, such as the provision of alternative areas for overburden emplacement where practical or management and scheduling of mobile equipment, dependent on the prevailing meteorological conditions;
- Use of predictive meteorological forecasting to inform operational decision making
- Ongoing attended noise monitoring.

4 Background

HVO is an open cut mining complex located approximately 24 kilometres north-west of Singleton, New South Wales (NSW) and geographically divided by the Hunter River into HVO North and HVO South. HVO is managed as one operation, however HVO North and HVO South have separate planning approvals.

HVO North was granted Project Approval (DA 450-10-2003) on 12 June 2004 by the then Minister for Infrastructure and Planning and the Minister for Natural Resources (the HVO North Approval). The most recent modification was approved on 28 July 2017.

HVO South operates in accordance with the Project Approval (DA 06_0261) granted on 24 March 2009 by the Minister for Planning (the HVO South Approval). The most recent modification was approved on 28 February 2018.

HVO is generally bound by Lemington Road, Jerry’s Plains Road alongside its western boundary. The New England Highway is located to the north and east, with the Golden Highway to the south.

HVO occurs in an area where mining is already a feature of the landscape; it is located in the Hunter Valley coalfields with surrounding mines and infrastructure including, Mount Thorley Warkworth (MTW), Wambo and Ravensworth.



Figure 4-1– Hunter Valley Operations Approval Boundaries

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4.1 Existing Character

The HVO North complex comprises the:

- Carrington Pit;
- West Pit;
- North Pits;
- Hunter Valley Coal Preparation Plant (HVCPP);
- West Pit (Howick) Coal Preparation Plant (HCPP);
- Newdell Coal Preparation Plant (NCP);
- Hunter Valley Load Point (HVLP); and
- Newdell Loading Point (NLP).

HVO South comprises the:

- Cheshunt Pit;
- Riverview Pit; and
- Lemington South Pit.

4.2 Existing Approved Activities

HVO mining activities north of the Hunter River are comprised of:

- coal mining areas as outlined in Section 4.1,
- use of the coal preparation plants as outlined in Section 4.1;
- use of the NLP and the HVLP train loading facilities;
- use of two administration areas including bathhouses;
 - one adjacent to the HVCPP; and
 - one adjacent to the HCPP;
- two workshops;
 - one adjacent to the HVCPP; and
 - one adjacent to the HCPP;
- use of numerous internal haul roads and conveyors.

HVO mining activities south of the Hunter River are comprised of:

- open cut and highwall mining of coal reserves in the areas outlined in Section 4.1;
- mining by a combination of draglines, shovels, excavators and associated haul trucks;
- use of numerous internal haul roads; and
- use of infrastructure to facilitate transfer of product coal (a rail spur and loop, overland conveyor or trucks, or any combination).

4.3 Existing Infrastructure

The major infrastructure at HVO North includes:

- workshops to provide maintenance and repair services to the mining fleet;
- vehicle washing facilities for both heavy and light vehicles;
- bulk oil and fuel storages;
- bathhouse;
- general stores;
- administration and technical offices;
- HVCPP;
- HCPP; and
- NCPP.

Site infrastructure for HVO South includes:

- Lemington bathhouse;
- Lemington workshop;
- Lemington offices;
- Lemington store;
- Lemington Underground Bore facility; and
- other amenities, buildings, transmission lines, switchyards, sub stations, phone lines, pipelines, fuel and explosive magazine storage facilities, haul roads, mine access roads, stockpiles and bridges.

4.4 Meteorological Conditions

Meteorological conditions experienced at HVO are considered typical for the Upper Hunter. Wind patterns follow an annualised cycle predominantly blowing from the north-west during the cooler months, and from the south east during the warmer months.

Since 2003, average annual rainfall is 609.95mm.

Records of wind speed, wind direction and sigma-theta (used to calculate Pasquill Stability Classes) has been analysed for the purposes of noise assessment during the environmental assessment phase of the Project.

The combined occurrence of atmospheric stability class F and G indicates that temperature inversions are considered to be a feature of the region during autumn nights, with potential to enhance noise propagation.

4.5 Background Noise Levels

A detailed noise study has been undertaken as part of the environmental assessment phase of the HVO West Pit and minor modifications development, CWW, and the HVO South Modification 5.

The noise studies details key receptors and background noise levels, as well as modelled impacts under a range of meteorological scenarios at different stages of the life of the developments. Modelling has been undertaken in accordance with the requirements of the INP (now superseded by NPfl).

The modelling proposes noise limits for the development in accordance with the INP (now superseded by NPfl).

For full details, refer to:

- ‘Noise and Vibration Assessment’, Volume Two – Supporting Appendices, Carrington West Wing Environmental Assessment, EMGA Mitchell McLennan – October 2010;
- ‘Hunter Valley Operations South Coal Project Noise and Vibration Assessment’, Volume 2 – Environmental Assessment Report, Environmental Resource Management – January 2008;
- ‘Hunter Valley Operations South – Modification 5’ – Environmental Assessment EMM Volumes 1 and 2. February 2017; and
- ‘Hunter Valley Operations West Pit and Minor Modifications Noise Assessment’, Volume Three – Technical Reports, Environmental Resource Management – October 2003

5

Statutory Requirements and Guidelines

This NMP has been prepared to fulfil the requirements of:

- relevant legislation;
- the Approvals;
- EA commitments;
- Environment Protection Licence (EPL) conditions; and
- relevant standards and guidelines.

5.1

Project Approval

The current HVO North Approval was granted on 12 June 2004 and subsequently modified on the 28 July 2017.

The current HVO South Approval was granted on 24 March 2009, and was subsequently modified on 28 February 2018.

The requirement for this NMP arises from Condition 10, Schedule 3 of the HVO North Approval and Condition 6, Schedule 3 of the HVO South Approval. A list of the relevant conditions of the Approvals and the Statement of Commitments and where they are addressed in this NMP can be found in **Table 5-1** and **Table 5-2** – Statement of Commitments Addressed

Table 5-1 – Consent Conditions Addressed

Consent Condition	Environmental Performance Conditions	Section of NMP which addresses this requirement
HVO NORTH CONSENT (DA 450-10-2003)		

Sch. 3, Cond. 7 The Applicant must ensure that the noise generated by the development does not exceed the noise impact assessment criteria presented in Table 9 at any privately-owned land. **Section 8.2**

Table 9: Noise impact assessment criteria dB(A)

Day/Evening/Night $L_{Aeq}(15 \text{ minute})$	Night $L_{A1}(1 \text{ minute})$	Land Number
40	46	4 – Muller (from year 1 to year 7) 7 – Stapleton Jerrys Plains Village – represented by residence locations 13 and 14 on Figure 24, volume 4 of the EIS (years 20 & 21). 1 – Hayes (years 20 & 21) 18 – Bennet (years 20 & 21) 51 – Nicholls (years 20 & 21) 52 – Old – (years 20 & 21)
39	46	2 – Skinner 3 – Elsnore 11 – Fisher 19 – Biralee Feeds 31 – Cooper 36 – Garland 54 – Skinner
38	46	1 – Hayes (from year 1 to year 19) 18 – Bennet (from year 1 to year 19) 51 – Nicholls (from year 1 to year 19) 52 – Old (from year 1 to year 19)
36	46	4 – Muller (from year 8 to year 21)
35	46	All other residential or sensitive receptors, excluding the receptors listed in condition 1 above.

Notes:

(a) The years referenced in Table 9 are to be considered as the position of mining operations as set out in the EIS for that year. If mining operations are delayed or accelerated from the planned location as shown in the EIS for a particular year, then the noise assessment criteria will be adjusted in accordance with the location of actual mining operations. The location of actual mining operations in relation to locations predicted in the EIS, will be indicated in the Annual Review (see schedule 6, condition 5).

(b) The noise limits in Table 9 are for the noise contribution of the West Pit extension and all Hunter Valley Operations north of the Hunter River and coal haulage identified in the EIS from the south side of the Hunter River.

(c) Noise from the development is to be measured at the most affected point within the residential boundary, or at the most affected point within 30 metres of a dwelling (rural situations) where the dwelling is more than 30 metres from the boundary, to determine compliance with the $L_{Aeq}(15 \text{ minute})$ noise limits in the above table.

(d) To determine compliance with the $L_{Aeq}(15 \text{ minute})$ noise limits in the above table. Where it can be demonstrated that direct measurement of noise from the development is impractical, the EPA may accept alternative means of determining compliance (see Chapter 11 of the NSW Industrial Noise Policy). The modification

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Consent Condition	Environmental Performance Conditions	Section of NMP which addresses this requirement								
	factors in Section 4 of the NSW Industrial Noise Policy shall also be applied to the measured noise levels where applicable. (e) Noise from the development is to be measured at 1 metre from the dwelling façade to determine compliance with the $L_{A1(1\text{ minute})}$ noise limits in the above table. (f) The noise limits in Table 9 are to be applied in accordance with the limitations and requirements set out in Appendix 3.									
Sch. 3, Cond. 8	If the noise generated by the development exceeds the criteria in Table 10, the Applicant must, upon receiving a written request for acquisition from the landowner, acquire the land in accordance with the procedures in Conditions 6 and 7 of Schedule 5. <i>Table 10: Land acquisition criteria dB(A)</i> <table><tr><th>Day/Evening/Night $L_{Aeq}(15\text{ minute})$</th><th>Property</th></tr><tr><td>43</td><td>11 – Fisher</td></tr><tr><td>42</td><td>7 – Stapleton</td></tr><tr><td>41</td><td>All residential or sensitive receptors, excluding receptors listed in condition 1 above</td></tr></table>	Day/Evening/Night $L_{Aeq}(15\text{ minute})$	Property	43	11 – Fisher	42	7 – Stapleton	41	All residential or sensitive receptors, excluding receptors listed in condition 1 above	Section 8.2
Day/Evening/Night $L_{Aeq}(15\text{ minute})$	Property									
43	11 – Fisher									
42	7 – Stapleton									
41	All residential or sensitive receptors, excluding receptors listed in condition 1 above									
Sch. 3, Cond. 9(a)	The Applicant must: implement best management practice to minimise the operational, low frequency, road and rail traffic noise of the development; to the satisfaction of the Secretary.	Section 5.5								
Sch. 3, Cond. 9(a)	The Applicant must: operate a comprehensive noise management system on site that uses a combination of predictive meteorological forecasting and real-time noise monitoring data to guide the day to day planning of mining operations and the implementation of both proactive and reactive noise mitigation measures to ensure compliance with the relevant conditions of this approval; to the satisfaction of the Secretary.	Sections 7.1.1, 5.4 and 7.1								
Sch. 3, Cond. 9(b)	The Applicant must: maintain the effectiveness of any installed noise suppression equipment on plant at all times and ensure defective plant is not used operationally until fully repaired; to the satisfaction of the Secretary.	Section 7.1.2								
Sch. 3, Cond. 9(c)	The Applicant must: ensure that any noise attenuated plant on site is deployed preferentially in locations relevant to sensitive receivers; to the satisfaction of the Secretary.	Section 7.1.2								
Sch. 3, Cond. 9(d)	The Applicant must:	Section 7.1.4								

Consent Condition	Environmental Performance Conditions	Section of NMP which addresses this requirement
	minimise the noise impacts of the development during meteorological conditions when the noise limits in this approval do not apply; to the satisfaction of the Secretary.	
Sch. 3, Cond. 9(e)	The Applicant must: ensure that the site is only accessed by locomotives that are approved to operate on the NSW rail network in accordance with the noise limits in ARTC's EPL (No. 3142); to the satisfaction of the Secretary.	<u>Section 7.3</u>
Sch. 3, Cond. 9(f)	The Applicant must: use its best endeavours to ensure that the rolling stock supplied by service providers is designed, constructed and maintained to minimise noise; to the satisfaction of the Secretary.	<u>Section 7.3</u>
Sch. 3, Cond. 9(g)	The Applicant must: co-ordinate the noise management on site with the noise management at nearby mines (Mt Thorley Warkworth, Wambo, Ravensworth and HVO South mines) to minimise the cumulative noise impacts of these mines and the development, to the satisfaction of the Secretary.	<u>Section 6.2</u>
Sch. 3, Cond. 10(a)	The Applicant must prepare and implement a Noise Management Plan for the development to the satisfaction of the Secretary. This plan must: (be prepared in consultation with the EPA, and submitted to the Secretary for approval by the end of June 2013;	<u>Sections 6.1 and 2</u>
Sch. 3, Cond. 10(b)	The Applicant must prepare and implement a Noise Management Plan for the development to the satisfaction of the Secretary. This plan must: describe the measures that would be implemented to ensure: • best management practice is being employed; • the noise impacts of the development are minimised during meteorological conditions when the noise criteria in this consent do not apply; and • compliance with the relevant conditions of this consent.	This NMP
Sch. 3, Cond. 10(c)	The Applicant must prepare and implement a Noise Management Plan for the development to the satisfaction of the Secretary. This plan must: describe the proposed noise management system in detail, including: • nomination of the real-time noise monitoring locations and the noise levels that would trigger additional noise management actions; • a matrix of predetermined actions to be employed when trigger levels are exceeded; and	<u>Sections 7.1.4, 7.1.5 and 8.2</u>

Consent Condition	Environmental Performance Conditions	Section of NMP which addresses this requirement
	procedures for varying the rates and locations of attended monitoring should the real-time monitoring data suggest that the relevant noise limits are being exceeded;	
Sch. 3, Cond. 10(d)	The Applicant must prepare and implement a Noise Management Plan for the development to the satisfaction of the Secretary. This plan must: (d) include a risk/response matrix to codify mine operational responses to varying levels of risk resulting from weather conditions and specific mining activities;	<u>Section 7.1.2</u>
Sch. 3, Cond. 10(e)	The Applicant must prepare and implement a Noise Management Plan for the development to the satisfaction of the Secretary. This plan must: (e) include a noise monitoring program that: - uses attended monitoring to evaluate the performance of the development, including a minimum of four days attended monitoring per quarter at locations agreed to by the Secretary, or more regularly where required; - uses real-time monitoring to support the proactive and reactive noise management system on site; - evaluates and reports on the effectiveness of the noise management system on site; - provides for the annual validation of the noise model for the development	<u>Sections 8.1, 9.2, 7.1.4</u>
Sch. 3, Cond. 10(f)	The Applicant must prepare and implement a Noise Management Plan for the development to the satisfaction of the Secretary. This plan must: (f) include a protocol that has been prepared in consultation with the owners of nearby mines (Mt Thorley Warkworth, Wambo, Ravensworth and HVO South mines) to minimise the cumulative noise impacts of these mines and the development.	<u>Section 6.2</u>
Sch. 4, Cond. 3(a)	As soon as practicable after obtaining monitoring results showing: (a) an exceedance of any criteria in schedule 4, the Applicant must: - notify each affected landowner and/or tenant of the land (including the tenants of any mine-owned land) in writing of the exceedance; and - provide each affected party with regular monitoring results until the development is again complying with the relevant criteria; to the satisfaction of the Secretary.	<u>Section 8.2</u>
Sch. 5, Cond. 2(a)	The Applicant must ensure that the management plans required under this consent are prepared in accordance with any relevant guidelines, and include: detailed baseline data	Appendix B

Consent Condition	Environmental Performance Conditions	Section of NMP which addresses this requirement
Sch. 5, Cond. 2(b)	a description of: - the relevant statutory requirements (including any relevant consent, licence or lease conditions); - any relevant limits or performance measures/criteria; - the specific performance indicators that are proposed to be used to judge the performance of, or guide the implementation of, the development or any management measures;	<u>Sections 5, 8.2 and 8.1</u>
Sch. 5, Cond. 2(c)	a description of the measures that would be implemented to comply with the relevant statutory requirements, limits, or performance measures/criteria;	<u>Section 7.1</u>
Sch. 6, Cond. 2(d)	a program to monitor and report on the: - impacts and environmental performance of the development; and - effectiveness of any management measures (see (c) above)	<u>Sections 8.1 and 7</u>
Sch. 5, Cond. 2(e)	a contingency plan to manage any unpredicted impacts and their consequences and to ensure that ongoing impacts reduce to levels below relevant impact assessment criteria as quickly as possible;	<u>Section 7.2</u>
Sch. 5, Cond. 2(f)	a program to investigate and implement ways to improve the environmental performance of the development over time;	<u>Section 7.4</u>
Sch. 5, Cond. 2 (g)	a protocol for managing and reporting any: - incidents; - complaints; - non-compliances with statutory requirements; and - exceedances of the impact assessment criteria and/or performance criteria;	<u>Section 9.1</u>
Sch. 5, Cond. 2(h)	a protocol for periodic review of the plan; and	<u>Section 9</u>
Sch. 5, Cond. 2(i)	A document control table that includes version numbers, dates when the management plan was prepared and reviewed, names and positions of people who prepared and reviewed the management plan, a description of any revisions made and the date of the Secretary's approval.	Document Control
Sch. 5, Cond. 4	Revision of Strategies, Plans and Programs Within 3 months of: (a) the submission of an incident report under Condition 7 below; (b) the submission of an annual review under Condition 9 below; (c) the submission of an audit report under Condition 10 below; and (d) approval of a modification to this consent, the Applicant must review, and if necessary revise, the strategies, plans, and programs required under this consent to the satisfaction of the Secretary.	<u>Section 9.4</u>

Consent Condition	Environmental Performance Conditions	Section of NMP which addresses this requirement
	Within 6 weeks of conducting any such review, the Applicant must advise the Secretary of the outcomes of the review, and provide any documents that have been revised to the Secretary for review and approval. <i>Note: This is to ensure the strategies, plans and programs are updated on a regular basis, and incorporate any recommended measures to improve the environmental performance of the development.</i>	
Sch. 5, Cond. 7	Incident Reporting The Applicant must immediately notify, the Secretary and any other relevant agencies of any incident. Within 7 days of the date of the incident, the Applicant must provide the Secretary and any relevant agencies with a detailed report on the incident, and such further reports as may be requested.	<u>Section 9.1</u>
Sch. 5, Cond. 8	Regular Reporting The applicant must provide regular reporting on the environmental performance of the development on its website, in accordance with the reporting arrangements in any plans or programs approved under the conditions of this consent.	<u>Section 9.1</u>
Sch. 5, Cond. 9	Annual Review By the end of March each year, or other timing as may be agreed by the Secretary, the Applicant must submit a report to the Department reviewing the environmental performance of the development to the satisfaction of the Secretary. This review must: (a) describe the development (including any rehabilitation) that was carried out in the previous calendar year, and the development that is proposed to be carried out over the current calendar year; (b) include a comprehensive review of the monitoring results and complaints records of the development over the previous calendar year, which includes a comparison of these results against the: - the relevant statutory requirements, limits or performance measures/criteria; - requirements of any plan or program required under this consent; - the monitoring results of previous years; and - the relevant predictions in the documents listed in condition 2 of Schedule 3; (c) identify any non-compliance over the past calendar year, and describe what actions were (or are being) taken to ensure compliance; (d) identify any trends in the monitoring data over the life of the development;	<u>Section 9.1.2</u>

Consent Condition	Environmental Performance Conditions	Section of NMP which addresses this requirement
	(e) identify any discrepancies between the predicted and actual impacts of the development, and analyse the potential cause of any significant discrepancies; and (f) describe what measures will be implemented over the current calendar year to improve the environmental performance of the development. The applicant must ensure that copies of the Annual Review are submitted to Council and are available to the Community Consultative Committee (see condition 6 of Schedule 6) and any intended person upon request.	
Appendix 3. Cond. 1	Applicable Meteorological Conditions	<u>Section 8.1</u>
	The criteria in Table 9 and 10 apply under all meteorological conditions except: a) during periods of rain or hail; b) when average wind speed at microphone height exceed 5 m/s; c) when wind speeds greater than 3 m/s are measured at 10m above the ground level; or d) during temperature inversion conditions greater than 3°C/100m.	
Appendix 3. Cond. 2	Determination of Meteorological Conditions	<u>Section 8.1</u>
	Except for wind speed at microphone height, the data to be used for determining meteorological conditions must be those recorded by the meteorological station located on the site.	
Appendix 3. Cond. 3	Compliance Monitoring	<u>Section 8.1</u>
	Attended monitoring is to be used to evaluate compliance with the relevant conditions of this approval.	
Appendix 3. Cond. 4	Unless otherwise agreed with the Secretary, this monitoring is to be carried out in accordance with the relevant requirements for reviewing performance set out in the NSW Industrial Noise Policy (as amended or replaced from time to time), including the requirements relating to:	<u>Section 8.1</u>
	a) monitoring locations for collection of representative noise data; b) meteorological conditions during which collection of noise data is not appropriate; c) equipment used to collect noise data, and conformation with relevant Australia Standards for such equipment; and d) modifications to noise data collected, including the exclusion of extraneous noise and/or penalties for modifying factors apart from adjustments for duration.	

Consent Condition	Environmental Performance Conditions	Section of NMP which addresses this requirement
	Where conditions of this approval require a document to be prepared in consultation with an identified party, the proponent must; - consult with the relevant party prior to submitting the subject document to the Secretary for approval; and - provide details of the consultation undertaken including: - a description of how matters raised by those consulted have been resolved to the satisfaction of both the Proponent and the party consulted; and details of any disagreement remaining between the party consulted and the Proponent, and how the Proponent has addressed the matters not resolved.	

Sch. 3, Cond. 2	The Proponent must ensure that the noise generated by the project does not exceed the noise impact assessment criteria in Table 2 at any residence on privately-owned land, or on more than 25% of any privately-owned land.	<u>Section 8.2</u>
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Table 2: Noise impact assessment criteria dB(A)

Land Number / Receiver	Day	Evening
	L _{Aeq} (15 minute)	L _{Aeq} (15 minute)
Hunter Valley Gliding Club (when in use)	55	55
7– Stapleton (Cheshunt East)	41	41
10 – Moses (Wandewoi)	37	37
Maison Dieu residences		
16 – Algie		
32 – Algie (Curlewis)	42	42
5 – Bowman, 47 – Moxey, 61 – Shearer and all other land on Shearer's Lane	41	41
34 – Ernst	40	40
50 – Nelson		
24 – Clifton and Edwards and residences located within 250 metres of this residence, not otherwise listed in this table	40	40
Maison Dieu residences within 1 kilometre of Shearers Lane, not otherwise listed in this table	39	39
127* – Riley	37	37
All other Maison Dieu residences	35	35
Jerrys Plains Road residences		

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	<table> <tr> <th>Land Number / Receiver</th><th>Day L_{Aeq}(15 minute)</th><th>Evening L_{Aeq}(15 minute)</th></tr> <tr> <td>36 – Smith (ex Garland)</td><td>40</td><td>40</td></tr> <tr> <td>4 – Muller</td><td></td><td></td></tr> <tr> <td>31 – Cooper (Kilburnie)</td><td></td><td></td></tr> <tr> <td>310* – Northcote</td><td>39</td><td>39</td></tr> <tr> <td>312* – Carmody</td><td></td><td></td></tr> <tr> <td>463* – Carter</td><td></td><td></td></tr> <tr> <td>3 – Elisnore</td><td></td><td></td></tr> <tr> <td>317* – Gee</td><td>38</td><td>38</td></tr> <tr> <td>434* – Murphy</td><td></td><td></td></tr> <tr> <td>436* – Skinner</td><td>37</td><td>37</td></tr> <tr> <td>321* – Hayes</td><td>36</td><td>36</td></tr> <tr> <td>All Jerrys Plains Road residences, not otherwise listed in this table</td><td>35</td><td>35</td></tr> <tr> <td>Warkworth residences</td><td></td><td></td></tr> <tr> <td>38 - Henderson</td><td>48</td><td>48</td></tr> <tr> <td>23 – Hawkes (Springwood)</td><td>43</td><td>43</td></tr> <tr> <td>45 – Kelly and all other privately-owned land in Warkworth village</td><td>43</td><td>43</td></tr> <tr> <td>All other privately-owned land</td><td>35</td><td>35</td></tr> </table>	Land Number / Receiver	Day L _{Aeq} (15 minute)	Evening L _{Aeq} (15 minute)	36 – Smith (ex Garland)	40	40	4 – Muller			31 – Cooper (Kilburnie)			310* – Northcote	39	39	312* – Carmody			463* – Carter			3 – Elisnore			317* – Gee	38	38	434* – Murphy			436* – Skinner	37	37	321* – Hayes	36	36	All Jerrys Plains Road residences, not otherwise listed in this table	35	35	Warkworth residences			38 - Henderson	48	48	23 – Hawkes (Springwood)	43	43	45 – Kelly and all other privately-owned land in Warkworth village	43	43	All other privately-owned land	35	35	
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However, if the Proponent has a written negotiated noise agreement with any landowner of the land listed in Table 2, and a copy of this agreement has been forwarded to the Department and EPA, then the Proponent may exceed the noise limits in Table 2 in accordance with the negotiated noise agreement.

Notes:

- Noise impacts at HVGC are to be assessed in the immediate vicinity of its residential facilities and/or clubhouse. Noise impact assessment limits are only applicable during times of use that have been notified by HVGC to the Proponent.
- The receiver references are as described in the EA, except those with an asterisk which are described in the EA (Mod 5), and as shown in Appendix 4.
- Noise generated by the project must be measured in accordance with the relevant requirements and exemptions (including certain meteorological conditions) of the NSW Industrial Noise Policy (2000, or its latest version).
- The noise limits in Table 2 are to be applied in accordance with the limitations and requirements set out in Appendix 4A.
- Receivers 7, 10, 16, 32, 38, 23 are now mine-owned.

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Consent Condition	Environmental Performance Conditions	Section of NMP which addresses this requirement

Sch. 3, Cond. 4

Additional Noise Mitigation Measures

Section 8.2

Upon receiving a written request from:

- An owner of land listed in Table 1 (unless the landowner has requested acquisition or where a negotiated noise agreement established under this approval is in place); or
- An owner of land listed in Table 4 (except where a negotiated noise agreement established under this approval is in place); or
- Any residence on privately-owned land where subsequent noise monitoring show the noise generated by the project is greater than or equal to the equivalent criteria in Table 5 (except where a negotiated noise agreement established under this approval is in place)

The Proponent must implement reasonable and feasible noise mitigation measured (such as double glazing, insulation, and/or air conditioning) at any residence on the land in consultation with the landowner. These measure must be consistent with the measures outlined in the *Voluntary Land Acquisition and Mitigation Policy for State Significant Mining, Petroleum and Extractive Industry Development* (NSW Government, 2014), as amended, and proportionate to the level predicted impact.

If within 3 months of receiving this request from the landowner, the Proponent and the landowner cannot agree on the measures to be implemented, or there is a dispute about the implementation of these measures, then either party may refer the matter to the Secretary for resolution.

Within 3 months from the date of this approval, the Proponent must notify all applicable landowners that they are entitled to receive noise mitigation measures, to the satisfaction of the Secretary.

Table 4: Land subject to additional noise mitigation upon request

7– Stapleton (Cheshunt East)
Maison Dieu residences
17 – Algie
5 – Bowman, 47 – Moxey, 61 – Shearer and all other land on She
34 – Ernst

Consent Condition	Environmental Performance Conditions	Section of NMP which addresses this requirement
	50 – Nelson 24 – Clifton and Edwards and residences located within 250 metres otherwise listed in this table Maison Dieu residences within 1 kilometre of Shearers Lane Jerrys Plains Road residences 36 – Smith (ex Garland) 3 – Elisnore, 4 – Muller, 31 – Cooper (Kilburnie) 310* – Northcote, 312* – Carmody, 317* – Gee and 463* – Carter Warkworth residences All privately-owned Warkworth residences	

Notes:

- The land numbers and receiver references are described in the EA, except those with an asterisk which are as described in EA (Mod 5), and as shown in Appendix 4.
- Land numbers 7 and 17 are now mine-owned and the remaining privately-owned Warkworth residence (45) is now listed in Table 1.

Sch. 3, Cond. 5

Operating ConditionsSection 5.5

The Proponent must:

- take all reasonable steps to minimise construction, operational, low frequency, road and on-site rail noise of the project;
- take all reasonable steps to minimise the noise impacts of the project during meteorological conditions when the noise criteria in this approval do not apply (see Appendix 4);
- operate a comprehensive noise management system that uses a combination of predictive meteorological forecasting and real-time noise monitoring data to guide the day to day planning of mining operations, and the implementation of both proactive and reactive noise mitigation measures to ensure compliance with relevant conditions of this approval;
- carryout regular noise monitoring to determine whether the project is complying with the relevant conditions of this approval; and
- regularly assess the noise monitoring data, and modify or stop operations on the site to comply with the relevant conditions of this approval, to the satisfaction of the Secretary.

Sch. 3, Cond. 6

Noise Management PlanSection 8.1, 8.2 and 9

The Proponent must prepare a Noise Management Plan for the project to the satisfaction of the Secretary.

This plan must:

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Consent Condition	Environmental Performance Conditions	Section of NMP which addresses this requirement
	a) be submitted to the Secretary for approval within 3 months of the determination of Modification 5, unless otherwise agreed by the secretary; b) be prepared in consultation with the EPA by a suitably qualified and experienced person/s; c) describe the measures to be implemented to ensure • compliance with the noise criteria and operating conditions in this approval; • best practice management is being employed; and • the noise impacts of the project are minimised during meteorological conditions under which the noise criteria in this approval do not apply; d) describe the noise management system in detail; and e) include a monitoring program that; • uses a combination of real-time and supplementary attended monitoring to evaluate the performance of the project • includes a program to calibrate and validate the real-time noise monitoring results with the attended monitoring results over time; • adequately supports the noise management system; and • includes a protocol for identifying noise incidents and notifying the Department and relevant stakeholders of any such incident; and f) include a protocol that has been prepared in consultation with the owners of nearby mines to minimise cumulative noise impacts. The Proponent must implement the Noise Management Plan as approved by the Secretary.	
Sch. 4, Cond. 2	Notification of Landowners If the results of monitoring required in Schedule 3 identify that impacts generated by the project are greater than the relevant impact assessment criteria in Schedule 3, except where this is predicted in the documents listed in condition 2 of Schedule 2 or where a negotiated agreement has been entered into in relation to that impact, then the Proponent must, within 2 weeks of obtaining the monitoring results, notify the Secretary, the affected landowners and tenants (including tenants of mine-owned properties) accordingly, and provide quarterly monitoring results to each of these parties until the results show that the project is again complying with the criteria in Schedule 3.	<u>Section 9.1.2</u>
Sch.4 Cond. 4	Independent Review If a landowner considers the project to be exceeding the impact assessment criteria in Schedule 3, then he/she may ask the Secretary in writing for an independent review of impacts of the project on his/her land. If the Secretary is satisfied that an independent review is warranted, the Proponent must within 3 months of the Secretary's decision: a) consult with the landowner to determine his/her concerns; b) commission a suitably qualified, experience and independent person, whose appointment has been approved by the Secretary, to conduct monitoring on the land, to:	<u>Section 8.3</u>

Consent Condition	Environmental Performance Conditions	Section of NMP which addresses this requirement
	- determine whether the project is complying with the relevant impact assessment criteria in Schedule 3; and - identify the source(s) and scale of any impact on the land, and the project's contribution to this impact; and give the Secretary and landowner a copy of the independent review.	
Sch.4 Cond. 5	If the independent review determines that the project is complying with the relevant impact assessment criteria in Schedule 3, then the Proponent may discontinue the independent review with the approval of the Secretary. If the Independent review determines that the project is not complying with the relevant impact assessment criteria in Schedule 3, and the project is primarily responsible for this non-compliance, then the Proponent must: - implement all reasonable and feasible measure, in consultation with the landowner, to ensure that the project complies with the relevant criteria, and conduct further monitoring to determine whether these measures ensure compliance: or - secure a written agreement with the landowner to allow exceedances of the relevant impact assessment criteria, to the satisfaction of the Secretary. However, if the further monitoring referred to under paragraph (a) above determines that the project is complying with the relevant impact assessment criteria, the Proponent may discontinue the independent review with the approval of the Secretary.	<u>Section 8.3</u>
Sch.5 Cond. 1A (a)	Management Plan Requirements The Proponent must ensure that the management plans required under this approval are prepared in accordance with any relevant guidelines, and include: summary of relevant background or baseline data;	Appendix B
Sch.5 Cond. 1A (b)	- a description of: - the relevant statutory requirements (including any relevant approval, licence or lease conditions); - any relevant limits or performance measures/criteria; and - the specific performance indicators that are proposed to be used to judge the performance of, or guide the implementation of, the project or any management measures;	Table 5-1 <u>Section 8.2</u>
Sch.5 Cond. 1A (c)	a description of the measures that would be implemented to comply with the relevant statutory requirement, limits, or performance measures/criteria;	<u>Section 7.1</u>
Sch.5 Cond. 1A (d)	- a program to monitor and report on the: - impacts and environmental performance of the project; and effectiveness of any management measures (see paragraph (c) above);	<u>Section 8.1, 8.2</u>

Consent Condition	Environmental Performance Conditions	Section of NMP which addresses this requirement
Sch.5 Cond. 1A (e)	e) a contingency plan to manage any unpredicted impacts and their consequences and to ensure that ongoing impacts reduce to levels below relevant impact assessment criteria as quickly as possible;	<u>Section 7.2</u>
Sch.5 Cond. 1A (f)	f) a program to investigate and implement ways to improve the environmental performance of the project over time	<u>Section 7.4</u>
Sch.5 Cond. 1A (g)	g) a protocol for managing and reporting any: - Incidents; - Complaints; - Non-compliances with statutory requirements; and - Exceedances of the impact assessment criteria and/or performance criteria;	<u>Section 8, 9</u>
Sch.5 Cond. 1A (h)	h) a protocol for periodic review of the plan; and	<u>Section 9</u>
Sch.5 Cond. 1A (i)	i) a document control table that includes version number, dates when the management plan was prepared and reviewed, names and positions of the person/s who prepared and reviewed the management plan, a description of any revisions made and the date of the Secretary's approval.	Document Control Table
Sch. 5, Cond 2	Incident Reporting As soon as practicable after the Proponent becomes aware of any incident associated with the project, the Proponent must notify the Secretary and any other relevant agencies of the incident. Within 7 days of becoming aware of the incident, the Proponent must provide the Secretary and any relevant agencies with a detailed report on the incident.	<u>Section 9.1.2</u>
Sch. 5, Cond 3	Regular Reporting The Proponent must provide regular reporting on the environmental performance of the project on its website, in accordance with the reporting arrangements in any plans or programs approved under the conditions of this approval.	<u>Section 9.1</u>
Sch. 5, Cond 4	Annual Review By the end of March each year, the Proponent must review the environmental performance of the project to the satisfaction of the Secretary This review must: (a) describe the development that was carried out in the previous calendar year, and the development that is proposed to be carried out over the next year; (b) include a comprehensive review of the monitoring results and complaints records of the project over the previous calendar year, which includes a comparison of these results against: the relevant statutory requirements, limits or performance measures/criteria;	<u>Section 9.1</u>

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Consent Condition	Environmental Performance Conditions	Section of NMP which addresses this requirement
	- the requirements of any plan or program required under this approval; - the monitoring results of previous years; and - the relevant predictions in the documents listed in condition 2 of Schedule 2; (c) identify any non-compliance over the last year, and describe what actions were (or are being) taken to ensure compliance; (d) identify any trends in the monitoring data over the life of the project; (e) identify any discrepancies between the predicted and actual impacts of the project, and analyse the potential cause of any significant discrepancies; (f) describe what measures will be implemented over the next year to improve the environmental performance of the project; and g) evaluate and report on the effectiveness of environmental management of the project.	
Sch. 5, Cond 9	Access to Information The Proponent must, for the life of the project: (a) make the following information publicly available on its website: - the documents listed in condition 2 of Schedule 2; - current statutory approvals for the project; - approved strategies, plans or programs required under the conditions of this approval; - a comprehensive summary of the monitoring results of the project, which have been reported in accordance with the various plans and programs approved under the conditions of this approval; - a summary of the current stage and progress of the project; - contact details to enquire about the project or to make a complaint; - a complaints register, which is to be updated on a monthly basis; - minutes of CCC meetings; - the last five annual reviews; - any independent environmental audit, and the Proponent's response to the recommendations in any audit; - any other matter required by the Secretary; and (b) keep this information up to date, to the satisfaction of the Secretary.	<u>Section 9.1</u>
Appendix 4A	Applicable Meteorological Conditions	<u>Section 7, 8</u>
Cond. 1	The noise criteria in Table 2 are to apply under all meteorological conditions except the following: a) where 3°C/100 metres (m) lapse rates have been assessed, then: - wind speeds greater than 3 metres/second (m/s) measure at 10m above ground level; - temperature inversion conditions between 1.5°C and 3°C/100 m and wind speeds greater than 2 m/s measure at 10 m above the ground level; or - temperature inversion conditions greater than 3°C/100 m. b) where Pasquill Stability Classes have been assessed, then: - wind speeds greater than 3 m/s at 10 m above ground level;	

Consent Condition	Environmental Performance Conditions	Section of NMP which addresses this requirement
	- stability category F temperature inversion conditions and wind speeds greater than 2 m/s at 10m above ground level; or - stability category G temperature inversion conditions.	
Appendix 4A	Determination of Meteorological Conditions	<u>Section 8</u>
Cond. 2	Except for wind speed at microphone height, the data to be used for determining meteorological conditions shall be that recorded by the meteorological station required under condition 24 of schedule 3.	
Appendix 4A	Compliance Monitoring	<u>Section 8.2</u>
Cond. 3	Attended monitoring is to be used to evaluate the compliance with the relevant conditions of this approval. Note: The Secretary may direct that the frequency of attended monitoring increase or decrease at any time during the life of the project.	
Appendix 4A	Compliance Monitoring	<u>Section 8.2</u>
Cond. 4	Unless otherwise agreed by the Secretary, this monitoring must be carried out in accordance with the relevant requirements for reviewing performance set out in the NSW industrial Noise Policy (2000, or its latest version) in particular the requirements relating to: - monitoring locations for the collection of representative noise data; - meteorological conditions during which collection of noise data is not appropriate; - equipment used to collect noise data, and conformity with the Australia Standards relevant to such equipment - modifications to noise data collected, including for the exclusion of extraneous noise and/or penalties for modifying factor for low-frequency noise to be applied during compliance testing at any individual residence if low frequency noise is present (in accordance with the NSW Noise Policy for Industry (2017, or its latest version) Fact Sheet C) and before comparison with the specified noise levels in this approval.	

Table 5-2 – Statement of Commitments Addressed

SOC reference	Commitments	Section of Noise Management Plan which addresses this requirement
HVO NORTH CONSENT (DA 450-10-2003)		
Noise and vibration	Permanent real time directional noise monitoring will be undertaken at Jerrys Plains with back-to-base feed of data. The system will include trigger alarms, which are set to an appropriate trigger level for Jerrys Plains. In the event of an alarm, the Open Cut Examiner will be notified and operational	<u>Section 8</u>

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SOC reference	Commitments	Section of Noise Management Plan which addresses this requirement
	practices reviewed to minimise the potential for noise increasing beyond compliance levels.	
Noise and vibration	HVO will participate in ongoing research towards the use of predictive weather forecast data as a definitive tool to manage noise.	Section 7.1.2
Noise and vibration	The system of mining and overburden emplacement permission rules being developed at HVO South will be extended to HVO North, once these have been developed and implemented. This system will feed real time site weather data into an information system. The operator of the system will be provided with instructions on whether mining or emplacement is to be allowed or restricted during certain wind conditions.	Section 7.1.2
Noise and vibration	Pro-active contingency mine planning will be used to plan for events such as prevailing wind conditions that have the potential to increase noise beyond acceptable levels. The management and scheduling of mobile equipment will also be undertaken with consideration to prevailing meteorological conditions.	Sections 7.1.2 and 7.1.3.2
Noise and vibration	Attended noise monitoring will be undertaken quarterly and as required due to community requests.	Sections 8.1 and 9.2

5.2 Environment Protection Licence

The *Protection of the Environment Operations Act 1997 (NSW)* (PoEO Act) is the principal piece of legislation regulating pollution (including noise pollution) emissions in NSW. EPL 640 for HVO was issued on 29 September 2000 by the EPA under the PoEO Act.

Consent Condition	Environmental Performance Conditions	Section of NMP which addresses this requirement
EPL640		
P1.4	The following points referred to in the table below are identified in this licence for the purposes of weather and/or noise monitoring and/or setting limits for the emission of noise from the premises.	Figure 8-1

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Consent Condition	Environmental Performance Conditions	Section of NMP which addresses this requirement																											
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L5.1	Noise limits	Section 8.1
	Noise generated at the premises must not exceed the noise limits presented in the table below.	Section 8.1.2

Location	Day LAeq(15min)	Evening LAeq(15min)	Night LAeq(15min)	Night LA1(1min)
EPA Point 36 in NMG 1A			41	46
EPA Point 37 in NMG 1B			40	46
EPA Point 38 in NMG 1C			39	46
EPA Point 39 in NMG 2			37	46
EPA Point 40 in NMG 3			39	46
EPA Point 41 in NMG 4			39	46
EPA Point 42 in NMG 5			40	46
EPA Point 43 in NMG 6			40	46
Residence 160 - Bowman in NMG 1A	41	41	41	45
Residence 256 - Moxey in NMG 1A	41	41	41	45
Residence 161 - Shearer in NMG 1A	41	41	41	45
Residence 162, 163, 258, 260 & 261 on Shearers Lane in NMG 1A	41	41	41	45
Residence 121 - Ernst in NMG 1B	40	40	40	45
Residence 123 - Nelson in NMG 1B	40	40	40	45
Residence 120 - Clifton and Edwards in NMG 1B and residences within 250m of this residence, not otherwise listed in this table	40	40	40	45
Maison Dieu residences 244, 245, 246 & 247 in NMG 1C within 1km of Shearers Lane, not otherwise listed in this table	39	39	39	45
Residence 127 - Riley in NMG 2	37	37	37	45
All other Maison Dieu residences not listed in this table	35	35	35	45
Residence 323 - Bennett in NMG 4	40	40	40	46
Residence 322 - Nichols in NMG 4	40	40	40	46
Residence 308 - Cooper in NMG 4	39	39	39	46
Residence 310 - Northcote in NMG 4	39	39	39	45
Residence 311 - Elisnore in NMG 4	39	39	39	46
Residence 317 - Gee in NMG 4	39	39	39	46
Residence 434 - Murphy in NMG 4	39	39	39	46
Residence 436 - Skinner in NMG 4	39	39	39	46
Residence 321 - Hayes in NMG 4	40	40	40	46

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Consent Condition	Environmental Performance Conditions				Section of NMP which addresses this requirement
Jerrys Plains Village and Jerrys Plains West residences 399, 379, 376, 378, 380-383, 387-409, 411, 413-415, 419-423, 362 - 375, 377, 384, 385, 417, 418, 424, 354, 339-353, 355-361, 334, 328, 329, 331-333, 335-338, 326, 327, 330, 437 & 438	40	40	40	46	
All Jerrys Plains Road residences not otherwise listed in this table	35	35	35	46	
All other privately owned land in Warkworth Village	43	43	43	45	
All other privately owned land	35	35	35	45	

L5.2	For the purposes of Condition L5.1:	<u>Table 8-4</u>
	a) Day is defined as the period from 7am to 6pm Monday to Saturday and 8am to 6pm Sundays and Public Holidays, b) Evening is defined as the period from 6pm to 10pm; and c) Night is defined as the period from 10pm to 7am Monday to Saturday and 10pm to 8am Sundays and Public Holidays.	
L5.3	The noise limits set out in condition L5.1 apply under all meteorological conditions except for the following:	<u>Section 8.1.2</u>
	d) Wind speeds greater than 3 metres/second at 10 metres above the ground level; e) Stability category F temperature inversion conditions and wind speeds greater than 2 metres/second at 10 metres above ground level; f) Stability category G temperature inversion conditions; or g) During periods of rain or hail.	
L5.4	For the purposes of condition L5.3:	<u>Section 8.1.2</u>
	a) Data recorded by the meteorological station installed on the premises at EPA Identification Point 19 or 22, which ever is more representative, must be used to determine meteorological conditions; and b) Temperature inversion conditions (stability category) are to be determined by the methods referred to in Fact Sheet D of the Noise Policy for Industry (2017).	
M1.2	All records required to be kept by this licence must be:	<u>Section 8.4</u>

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Consent Condition	Environmental Performance Conditions	Section of NMP which addresses this requirement								
	a) In a legible form, or in a form that can be readily be reduced to a legible form; b) Kept for at least 4 years after the monitoring or event to which they relate took place; and c) Produced in a legible form to any authorised officer of the EPA who asks for them.									
M1.3	The following records must be kept in respect of any samples required to be collected for the purposes of this licence: a) The date(s) on which the sample was taken; b) The time(s) at which the sample was collected; c) The point at which the sample was taken; and d) The name of the person who collected the sample.	<u>Section 8.4</u>								
M10.1	To assess compliance with the noise limits specified within this licence, the licensee must undertake operator attended noise monitoring at each specified noise monitoring point in accordance with the table below. POINT 36,37,38,39,40,41,42,43 <table><tr><th>Assessment period</th><th>Minimum frequency in a reporting period</th><th>Minimum duration within assessment period</th><th>Minimum number of assessment period</th></tr><tr><td>Night</td><td>Monthly</td><td>15 minutes</td><td>1 operation day</td></tr></table>	Assessment period	Minimum frequency in a reporting period	Minimum duration within assessment period	Minimum number of assessment period	Night	Monthly	15 minutes	1 operation day	<u>Section 8.2.5</u>
Assessment period	Minimum frequency in a reporting period	Minimum duration within assessment period	Minimum number of assessment period							
Night	Monthly	15 minutes	1 operation day							
M10.2	To assess compliance with condition L5.1, attended noise monitoring must be undertaken in accordance with Conditions L5.2 to L5.4: a) At EPA points 36, 37, 38, 39, 40, 41, 42 and 43 identified in P1.4; and b) Occur every calendar month in a reporting period; and c) Occur during one niht time period as defined in the Noise Policy for Industry 2017 for a minimum of 15 minutes at each location from a).	<u>Section 8.2.5</u>								
M10.3	Where required in writing by the EPA, the Licensee must carry out attended monitoring at any sensitive receivers referred to in condition L5.1 in addition to the monitoring required by Condition M10.1.	<u>Section 8.2.5</u>								
R4.5	The Licensee must report any exceedance of Licence noise limits to the EPA by telephoning the Environment Line service on 131555 or emailing info@epa.nsw.gov.au as soon as practicable after the exceedance becomes known to the Licensee or to one of the Licensee’s employees or agents.	<u>Section 9.1.2</u>								
R4.6	Within 7 days of notifying the EPA of an exceedance of Licence noise limits, the Licensee must provide the EPA a report in writing that explains the cause of the exceedance and the actions taken to prevent future exceedance of noise limits.	<u>Section 9.1.2</u>								
R4.7	An authorised officer of the EPA may make a written request for further details in relation to any of the above matters if it is not satisfied with the report provided by the Licensee at Condition R4.6. The Licensee must provide such further details to the EPA within the time specified in the request.	<u>Section 9.1.2</u>								

Consent Condition	Environmental Performance Conditions	Section of NMP which addresses this requirement
R5.4	Noise Monitoring Report	<u>Section 9.2</u>
The Licensee must provide the EPA with its Annual Return an annual noise compliance assessment report prepared by an appropriately qualified acoustic consultant. The report must include an assessment of any exceedance of noise limits and justification that the noise monitoring points identified in Condition P1.4 are still representative of the sensitive receivers within the noise monitoring groups on Figure 2.		

5.3

Relevant Standards and Guidelines

Guidelines and standards applying to noise at HVO include:

- Noise Policy for Industry (NSW EPA, 2017) superseding the New South Wales Industrial Noise Policy (INP, 2000); and
- Australian Standard AS 1055 ‘Acoustics, Description and Measurement of Environmental Noise’.

5.4

Principles and Framework

- Noise management on-site is governed by a framework - policy, plan, do, measure, review;
- “Plan” component of framework – undertake risk analysis of noise impacts;
- Complaints management;
- Dynamic improvement/evolution;
- Reactive and proactive;
- Co-ordination/cumulative impact management;
- “Measure” component of framework – regular monitoring; and
- “Review” component of framework - reporting and analysis. Best Management Practice

Best management practice in this NMP is defined as practices used to manage noise impacts that are consistent with the following:

- The measure should firstly aim to prevent noise impacts, and where that is not practicable, to generally reduce impacts to the environment as a whole;
- The measure is reasonably accessible and is developed on a scale which allows implementation in the Project, under economically and technically viable conditions, taking into consideration the costs and advantages; and

- Of the options available, it is the most effective in achieving a generally high level of protection of the environment as a whole.
- HVO will implement best management practice measures to minimise the operational, road and on-site rail traffic noise associated with the development.

6 Consultation

Condition 10(a), Schedule 3, of the HVO North Approval and Condition 6(b), Schedule 3 of the HVO South Approval both require this NMP be prepared in consultation with the EPA and the Secretary.

6.1 Government Agencies

On 26 March 2018 correspondence was forwarded to the EPA inviting consultation on this NMP.

On 18 June 2018, the EPA advised HVO in writing that the EPA does not require HVO to consult with it regarding the development of plans required under planning consents including this Noise Management Plan (see **Appendix A**).

6.2 Nearby Mines

HVO South and HVO North are managed as a single operation, with common controls implemented on a whole-of-site basis. As such, a formal communication protocol between HVO North and HVO South is not necessary.

Hunter Valley Operations has liaised with the neighbouring Ravensworth Complex regarding options for co-operation to minimise cumulative noise impacts. With regard to cumulative noise impacts on nearby shared sensitive receptors, under an informal agreement HVO and Ravensworth Complex will co-operate with each other to minimise cumulative noise quality impacts on private residences to the east of HVO. HVO and Ravensworth Complex will act in good faith when informed by neighbouring mines of any noise alarms at the relevant locations. In the same manner as for the investigation of a complaint or to validate a noise alarm, HVO and Ravensworth Complex will investigate the circumstances as described by the neighbouring mine.

HVO and United Wambo share monitoring data from the nearby sensitive receptor location at Moses Crossing under an informal agreement.

A protocol between neighbouring mining companies has also been developed where personnel from each mine meet on a regular basis to discuss noise, blasting and air quality management at site and methods to address cumulative impacts. The protocol was developed by Mt Owen Glendell Operations (MGO), Ravensworth, Ashton, Rixs' Creek and Integra Underground. The meeting is held quarterly, with representatives from the following mines invited to each meeting:

- HVO
- Ravensworth
- Ashton
- United Wambo
- Wambo

- MGO
- Rixs’ Creek
- Integra Underground.

Furthermore, the neighbouring MTW mine was formerly managed through the same shared services team as HVO, and as such access to relevant shared environmental monitoring data including real-time monitoring continues despite separation of site management.

7 Implementation

7.1 Operational Controls

In order to mitigate any potential impacts from noise creating activities, a number of management controls will be implemented throughout the life of HVO.

7.1.1 Standard Mitigation Measures

The following controls will occur under standard conditions (24 hour mining operations; construction operations during daylight hours):

- plant, machinery and haul roads will be maintained in good condition according to manufacturer’s specification and repaired as required so that equipment remains in a sound operating condition;
- noise impacts will be considered during risk analysis and change management procedures for substantive changes to operating conditions;
- sound power level testing of equipment will be undertaken to inform HVO of degradation in sound attenuation equipment, and to aid in planning of any future attenuation programs;
- activities that generate complaints will be monitored and modified if real time or supplementary monitoring results confirm that Approval noise criteria are potentially being exceeded;
- environmental inductions will provide relevant employees an overall awareness of potential impacts on sensitive receptors from equipment and its operation;
- noise emission levels will be considered where relevant in awarding contracts and purchasing new equipment;
- development and implementation of a predictive meteorological forecasting tool;
- attended monitoring of noise will be undertaken on a monthly basis at representative sites, by a qualified acoustic consultant; and
- Real-time monitoring using both directional and non-directional monitors with frequency filtering capabilities will be employed at sensitive receptor locations. Noise alarms will be generated, received and actioned to effectively manage noise emissions.

Measures to manage HVO noise emissions are divided into two categories:

- proactive; and
- reactive.

The pro-active and reactive measures are summarised below.

7.1.2 Proactive Measures

7.1.2.1 Sound Attenuated Fleet

HVO currently operates and maintains a number of pieces of HME (Heavy Mining Equipment) which have been commissioned as sound attenuated units with a program to sound attenuate the remainder of the Haul Truck fleet in progress.

Based on known and predicted noise risk (noise levels potentially exceeding permissible levels at sensitive receptor locations) the sound attenuated units will be deployed preferentially to manage noise.

At this time, the assignment of sound attenuated trucks is based on prevailing meteorology and known risk areas (through understanding recent and historical non-compliance events).

7.1.2.2 Sound Power Control

Sound power control will be managed by a combination of sound power testing, a rigorous maintenance schedule and daily pre-start checks.

In accordance with Schedule 3, Condition 9 (c) of the HVO North Approval, HVO will maintain the effectiveness of any installed attenuation equipment.

7.1.2.3 Sound Power Level Testing

Sound power level testing (sound screening) will be undertaken on 1/3 of the attenuated HME fleet annually.

In this way, 100% of attenuated equipment will be screened on a rolling three-year cycle. The results of sound screening will be used for the following:

- to inform HVO of equipment which is experiencing degradation in attenuation equipment and requiring repair; and
- to inform HVO of fleet types and units which can be preferentially deployed into or removed from noise risk areas; and
- HVO will identify equipment which is considered to be in excess of normal operational noise levels by comparison to existing Sound Power Level data.

Where equipment is deemed to be in excess of normal operational noise level for the fleet type, HVO maintenance staff will inspect and assign the piece of equipment to the appropriate maintenance schedule.

The outcomes of ongoing Sound Power Level Testing shall be reported in the Annual Review.

7.1.2.4 Routine Maintenance Scheduling

Routine equipment inspections include assessment of the condition of the attenuation components.

If, during the services and inspections, a major noise attenuation component is found to be absent, worn or broken to the point of being ineffective, that piece of equipment will be repaired or replaced.

Where immediate equipment repair is not possible, the equipment will be placed on low-risk (restricted) duties until such time as repair / replacement of the defective part is undertaken.

7.1.2.5 Daily Pre-start Inspections

Daily pre-start inspection is undertaken by the operators, which includes walking around equipment and undertaking a visual inspection of the vehicle, including any installed sound attenuation equipment. Maintenance staff will assess the severity of the defect (with respect to the effectiveness of the sound attenuation equipment) and action accordingly. If the potential defect is confirmed (major noise attenuation component absent or broken), that piece of equipment will be assigned to the appropriate maintenance schedule for rectification.

Where immediate equipment repair is not possible, the equipment will be placed on low-risk (restricted) duties until such time as repair / replacement of the defective part is undertaken.

7.1.3 Proactive Planning

A key objective of effective noise management is to allow as much as possible for continuation of mining operations 24/7.

Under certain meteorological conditions, noise enhancement can be experienced at sensitive receptors, potentially at levels which exceed relevant project approval noise limits. During these times, effective reactive management strategies are required to help achieve compliance with noise criteria is maintained, while minimising impacts on mine productivity.

To provide sufficient operational flexibility, contingency dump options are identified in the HVO Mine Plan which can be utilised during instances of adverse meteorological conditions (including during periods of noise enhancement). Once identified, these contingency options can be utilised reactively following receipt of a trigger for action (see Section 7.1.1).

7.1.3.1 Predictive Meteorological Forecasting

The requirement for use of predictive meteorological forecasting is satisfied through the development and use of noise enhancement prediction graphs which depict the likelihood of noise enhancing conditions being experienced at sensitive receptor locations throughout the upcoming night shift. At the time of submission of this NMP, graphs were available for the noise pathways to:

- Maison Dieu residences;
- Warkworth;
- Moses Crossing residences; and
- Jerrys Plains residences.

The graphs are able to be used as both a proactive informative tool, and assisting with response to any real-time alarm or received complaint. The graphs are part of the daily meteorological forecast for the site that is emailed to all relevant personnel on site that are added to the distribution list. The graphs are also included in daily prestart meeting slides for relevant personnel, including operational mining personnel and environmental department personnel.

7.1.3.2 Risk / Response Matrix

Schedule 3, Condition 10(d) of the HVO North Approval requires a risk / response matrix to codify mine operational responses to varying levels of risk resulting from weather conditions and specific mining operations.

Development of a comprehensive risk / response matrix is an iterative process, and will rely on the validation of developing predictive tools, and the annual validation of monitoring results (**Section 9.2**).

Current understanding of known noise risk areas and standard controls includes:

- use of low dumping options in the Cheshunt Pit area at night time (offsite noise risk at Maison Dieu);
- awareness of offsite noise risk associated with dozer activity while undertaking rehabilitation works on the outer Cheshunt dumps;
- preferential placement of sound attenuated trucks in the Riverview West area during the late summer / Autumn months (offsite noise risk at Jerrys Plains / Moses Crossing);
- introduction of reactive controls as required including cessation of coal haulage over the Hunter River Bridge to the HVO CHPP under calm conditions or low wind speeds during the winter months where elevated noise has been recorded from both HVO North and HVO South in the Moses Crossing area;
- reallocation of coal stockpile options (offsite noise risk at Jerrys Plains / Moses Crossing);
- avoidance and staggering of HME to crib huts and fuel facilities in the Carrington area to reduce truck movements to elevated areas;
- Awareness of potential noise impacts on the wider Jerrys Plains Village area when hauling material at night via the W2 ramp (Southern end of HVO West Pit); and
- Overburden emplacement at the Cheshunt +RL155 dumps (eastern-most dump) under prevailing Nor-Westerly conditions.

7.1.4 Reactive Measures

Pro-active management actions are supported by a system of reactive management measures. These measures utilise a combination of real time noise monitoring and operational surveillance of mining equipment and conditions to help achieve compliance with noise limits at all times.

7.1.4.1 Sound Power Level Testing – Ad Hoc

Where HVO Staff identify equipment which is perceived to be experiencing degradation of sound attenuation, ad-hoc sound power level testing will be arranged as required to assess the equipment. HVO maintenance staff will inspect the equipment, and where a defect is identified, it shall be actioned accordingly. Where immediate equipment repair is not possible, the equipment will be placed on low-risk (restricted) duties until such time as repair / replacement of the defective part is undertaken.

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7.1.4.2 Real Time Noise Monitoring Network

The existing real time monitoring network is comprised of directional monitors. All five of the existing units are currently utilised on a day-to-day basis, informing operations in real time of noise levels approaching noise limits at the receiver locations. These units are located at:

- Maison Dieu;
- Knodlers Lane;
- Moses Crossing; Jerrys Plains; and
- Long Point

The real-time system is subjected to a number of processes to confirm correct function and data accuracy, including:

- Daily status checks (Monday – Friday), confirming power and communications;
- Regular review of data to evaluate the monitoring network performance: and
- Routine Calibration and equipment maintenance.

Ad-hoc calibration and breakdown support is arranged as soon as practicable where required.

7.1.4.3 Validation of Real Time Monitoring Locations

To determine that the prescribed real time monitoring locations adequately represent all privately owned land surrounding HVO validation surveys will be undertaken on an as required basis.

The surveys will be conducted upon request by way of either attended or unattended monitoring at private residence(s) (subject to landowner agreement) for a nominal period to enable comparison with measured levels at the corresponding real time monitoring location. Where monitoring data indicates that real time triggers are not ensuring noise levels below the relevant impact assessment criteria at a particular residence the triggers will be reviewed.

7.1.4.4 Real Time Noise Alarms

HVO operates and maintains a series of unattended, real time, directional noise monitors. The real time system transmits directional, low pass (<1000Hz for Barnowl noise monitors and <630Hz for the Environmental Noise Compass) LAeq and LA90 data respectively to site personnel via the Supervisory Control and Data Acquisition (SCADA) system.

Required by Conditions 9(a) and 10(e), Schedule 3, of the HVO North Approval and Conditions 5(c) and 6(e), Schedule 3 of the HVO South Approval real time noise alarms are considered to be best practice use of real time monitoring systems, providing a warning mechanism to operational personnel of levels that are approaching a relevant noise criterion.

To help achieve compliance with the relevant consent conditions which require HVO to manage noise emissions during meteorological conditions under which the noise criteria do not apply, the noise alarm process operates to more conservative meteorological triggers than those meteorological conditions listed in the consent under which the noise criteria do not apply.

Specifically, noise alarms will continue to operate during periods of rain, temperature inversions, and winds up to 4 m/s.

The real-time noise alarm process operates in accordance with the site work instruction HVOOC-1797567310-2547 (Responding to HVO Environmental Alarms), summarised in the matrix presented in **Table 7-1** and

Table 7-2.

HVO will respond to each valid alarm within 1 hour of receipt during active mining operations. Action responses will be evaluated by the Environment department on a regular basis to confirm average response times, confirm adequacy of this timing and revise if necessary.

Table 7-1 – Real time noise alarms and trigger levels for action

HVO Noise Trigger levels					
Monitoring Location	Source Direction	Receptor Noise Limit (dB(A))	Trigger Mechanism ¹	Level 1 Amber Trigger (dB(A))	Level 2 Red Trigger (dB(A))
Maison Dieu	HVO	41	A	36	38
Knodlers Lane	HVO	37	A	35	37
Jerrys Plains	West Pit	35	B	33	35
Moses Crossing	West Pit	39	C	NA ²	36
	Carrington Pit	39			36
	South Pit	36			33
Long Point	South Pit	35	A	33	35

¹ Trigger Type A - Alarms generated following measurement of two (2) consecutive 15min directional low pass (<1000Hz) LA_{eq} readings from the source direction of interest **and** under conservative meteorological parameters (wind speeds under 4m/sec, and no rainfall).

¹ Trigger Type B - Alarms generated following measurement of two (2) consecutive 15min directional low pass (<630Hz) LA₅₀ readings from the source direction of interest and under conservative meteorological parameters (wind speeds under 4m/sec, and no rainfall). Alarms will only be triggered when the LA₁₀ is less than 40dB from the direction of the Golden Highway to exclude influence of road traffic noise

¹ Trigger Type C – Alarms generated when omnidirectional LA₉₀ level is above red trigger level and directional LA_{eq} low pass (<1000Hz) value is indicating directional data is dominant noise source (±2dB of LA₉₀)

³ Amber Trigger not considered valuable given the trigger mechanism is derived from LA₉₀ Data

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Table 7-2 – Real time noise alarms Trigger Action Response Plan

Normal Conditions	Level 1 – Amber	Level 2 - Red
Noise Levels OK – Maintain current controls	Operational changes to reduce noise commence. Check alarm details to determine source. Notify OCE and implement operational modifications using the hierarchy: Change Fleet Type Change Haul Route Drop Equipment Change Dump	Decisive action required Shut down task Continue to monitor and progressively restart if noise below trigger

Note:

In the event that noise levels do not change significantly following introduction of significant operational change, mining operations will be restarted, accompanied by continued surveillance of real-time noise monitoring data.

7.1.5 Attended Monitoring

7.1.5.1 Location and Frequency

In addition to the real time noise management system, ongoing attended noise monitoring will be undertaken at locations representative of privately owned residences in neighbouring communities, including Maison Dieu and Jerrys Plains. Attended noise monitoring data will be compared against the real time system and used to evaluate compliance with noise criteria. Monitoring will be undertaken in accordance with the requirements of Appendix 3 of the HVO North Approval and Appendix 4A of the HVO South Approval.

7.1.5.2 Procedures for Varying the Rates and Locations

The procedures for varying the rates and locations of attended monitoring should the real-time monitoring data suggest that the relevant noise limits are being exceeded are set out in **Section 8**.

7.2 Management of Unpredicted Impacts

In the event that unpredicted noise impacts are found to be occurring at nearby privately owned residences, HVO will consider management options on a case-by-case basis such as:

- Entering into an impact cooperation agreement with the landowner;
- Review of management controls and monitoring systems specific to the affected residence;

- Mitigation options (such as installation of double glazed windows and air conditioning units); or
- Acquisition of the affected property.

7.3 Rail Noise

HVO will advise ARTC (and any other relevant rail service provider) that:

- the HVO site may only be accessed by locomotives that are approved to operate on the NSW rail network in accordance with the noise limits in ARTC’s EPL No. 3142; and
- rolling stock to be supplied (existing or newly manufactured) to HVO must be designed, constructed and maintained to minimise noise.

HVO will review any publically available environmental audit reports against the relevant EPL, and liaise with ARTC or the relevant service provider regarding rectification of any non-compliance related to noise conditions. This review will be undertaken every three years as a component of the Independent Environmental Audit.

7.4 Continuous Improvement

HVO will continuously seek to make further improvements to noise management by way of improving existing controls and investigating new and emerging technologies, implementing new controls where required, and thoroughly investigating any exceedance and non-compliance events.

HVO will continue to develop action plans to reduce the risk of non-compliance with the relevant noise conditions of the Approvals. Identified actions will be documented in the site improvement plan, recorded in the action management system, and tracked to completion.

8 Measurement and Evaluation

8.1 Monitoring Program

The monitoring program provides a summary of the noise monitoring program for Hunter Valley Operations. The program includes a protocol for evaluating compliance with the noise criteria, and a representation of the properties which have been captured in this noise monitoring program. The monitoring locations are subject to change and will be updated periodically to align with management and compliance needs and to accommodate progression of mining and changes to local landholdings.

8.1.1 Monitoring Locations

Noise monitoring is undertaken at locations shown on **Figure 8-1** at the frequency defined in **Table 8-1** below.

Table 8-1 – Noise Monitoring Program

Parameter	Frequency	Monitor Location	Sampling Method
Attended Noise L_{A1} (1 min) L_{Aeq} L_{Ceq}^2	Minimum of twelve (12) monitoring events per annum (nominally once per month, at least two weeks apart) ⁵	2339 Jerrys Plains Road (Jerrys Plains East) Jerrys Plains Village Jerrys Plains West ³ Kilburnie South Knodlers Lane Long Point Maison Dieu Redmanvale Road ³ Shearers Lane Warkworth ⁴ HVGC	Noise Policy for Industry (NSW EPA, 2017) AS1055.1997
Attended Noise L_{A1} (1 min) L_{Aeq} L_{Ceq}^2	1 night per quarter (additional to frequency above, against HVO North Consent Criteria only)	2339 Jerrys Plains Road (Jerrys Plains East) Kilburnie South Jerrys Plains Village Jerrys Plains West ³ Redmanvale Road ³	Noise Policy for Industry (NSW EPA, 2017) AS1055.1997
Real Time Noise ¹ L_{Aeq} L_{A90}	Continuous	Directional Monitors Knodlers Lane Moses Crossing Maison Dieu Jerrys Plains Long Point	Directional monitors used. AS1055.1997
Meteorological Monitoring	Continuous	HVO Corp. Meteorological Station Cheshunt Meteorological Station	AS3580.14:2014

¹ Real time noise parameters are assessed for both All Pass and Low Pass (noise levels less than 1000 Hertz).

² Application of Low Frequency modification penalties as per Noise Policy for Industry (EPA 2017)

³ Monitoring at Redmanvale Road and Jerrys Plains West is only undertaken in the event of exceedance measured at any other Jerrys Plains location.

⁴ Attended monitoring at Warkworth Village is suspended and can be reintroduced at any time at the request of the regulator.

⁵ Additional monitoring events undertaken following non-compliance may occur within two weeks of the previous measurement.

8.1.2 Noise Limits for Assessment

Consent noise limits for assessment are detailed in Table 8-2.

Table 8-2 – Noise Limits

Monitoring Location	Consent Area	L _{Aeq} Impact Assessment Criteria (dB)	L _{Aeq} Land Acquisition Criteria (dB)	L _{A1} (1min) Criteria (dB)
Knodlers Lane	North	35	41	46
	South	39		45
Maison Dieu	North	35	41	46
	South	39		45
Shearers Lane	North	35	41	46
	South	41		45
Kilburnie South	North	39	41	46
	South	39		45
Jerrys Plains Village	North	36	41	46
	South	35		45
Jerrys Plains West	North	35	41	46
	South	35		45
2339 Jerrys Plains Road (Jerrys Plains East)	North	39	41	46
	South	35		45
HVGC	North	NA	NA	NA
	South	55	NA	NA
Long Point	North	35	41	46
	South	35		45
Redmanvale Road	North	35	41	46
	South	35		45

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EPL noise limits for assessment are detailed in Table 8-3. EPL noise limits do not apply under the following meteorological conditions:

- Wind speeds greater than 3 metres/second at 10 metres above the ground level;
- Stability category F temperature inversion conditions and wind speeds greater than 2 metres/second at 10 metres above ground level;
- Stability category G temperature inversion conditions; or
- During periods of rain or hail.

Data recorded by the HVO Corporate or Cheshunt meteorological stations will be used to determine these meteorological conditions. Data will be sourced from the meteorological station that is considered to be most representative for each noise monitoring location. Temperature inversions (stability category) will be determined by the methods referred to in Fact Sheet D of the Noise Policy for Industry (2017). Attended monitoring for EPL noise limits is undertaken at monitoring locations detailed in Table 8-1 and shown in Figure 8-1. Corresponding EPL monitoring location naming is detailed in Table 8-3.

Table 8-3 – EPL Noise Limits

Monitoring Location – EPA ID	Monitoring Location – NMP ID	EPL Point	L _{Aeq} Impact Assessment Criteria (dB)	L _{A1} (1min) Criteria (dB)
NMP1A	Shearers Lane	36	41	46
NMP1B	Knodlers Lane	37	40	46
NMP1C	Maison Dieu	38	39	46
NMP2	Long Point (Dights Crossing)	39	37	46
NMP3	Kilburnie South	40	39	46
NMP4	Jerrys Plains East	41	39	46
NMP5	Jerrys Plains Village	42	40	46
NMP6	Jerrys Plains West	43	40	46

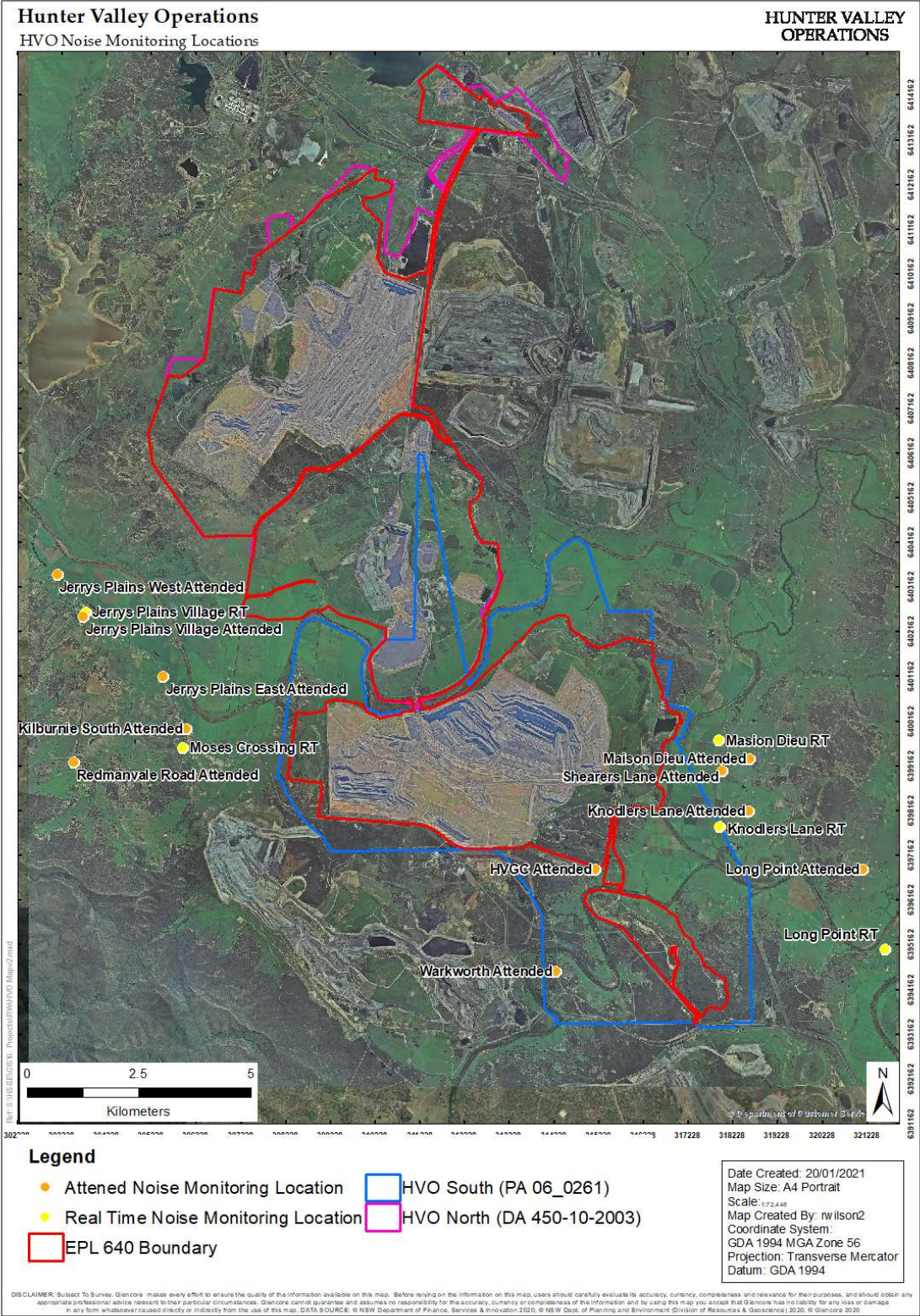


Figure 8-1 – Noise Monitoring Locations

8.2 Protocol for Evaluating Compliance

This section outlines the key considerations in evaluating compliance with the relevant noise criteria in the approvals.

8.2.1 Mining Noise

As a preface to discussion of affectation and compliance it is appropriate to consider some specific characteristics of mining noise in the Hunter Valley. These are:

- Most receptors are located a considerable distance from mine sites with regard to noise propagation (greater than 1000 metres);

Mining noise is typically inaudible during the day period – this is supported by the DRAFT NSW Department of Planning and Infrastructure Guideline – Noise Monitoring Application Note, which states “Extensive experience has shown that

- daytime or evening criteria is rarely, if ever exceeded and that night time criteria is the limiting criterion”
- Received levels of mining noise usually vary greatly from one night to the next at any receptor location. Different meteorological conditions from one night to the next are the primary cause of different received levels at receptors.
- Mining noise from a large open cut operation, received at a receptor, is typically a continuum with minor event noises that are usually not very emergent;
- The received mining noise spectrum generally does not have any significant content (if any) above 1000 Hertz; and
- Other noise sources at a receptor location can often be considerably louder than received mining noise. This is particularly true for noise events (dogs, cows, cars etc.), which influence the total L_{Aeq} .

8.2.2 Noise Affectation / Sustained Non Compliance

The Approvals stipulate noise criteria which must be met during the life of the development(s). Assessment of compliance with these noise criteria is undertaken as per the noise monitoring described in this document.

The approvals however do not stipulate requirements or give guidance on noise affectation, or the frequency or duration of any non-compliance which would constitute noise affectation.

Primarily, determination of noise affectation is a comparison of measured noise levels against consent conditions under a governing set of meteorological conditions, with the results either meeting the criteria on the consent condition or not.

The EPA’s Noise Policy for Industry (NPfI) discusses the setting of noise criteria with the overall outcome seeking to ensure the noise limits can be met for 90% of the time and protect the majority of the community (90%) from being highly annoyed by industrial noise.

The NPfI indicates that higher-level noise is a problem when it occurs as a result of significant meteorological effects such as temperature inversions. Typically where at least 30% of the total night time during winter is affected by significant meteorological effects, there is the possibility for annoyance. Where these effects occur less than 30% of the time they need not be considered. This equates to approximately 8 nights per month.

In summary, the NPfl in various sections infers that noise levels greater than the limiting criteria are expected and acceptable on occasion. Whilst not definitive, this document indicates that higher noise levels are expected and allowable between 3 and 8 nights per month.

So, in regard to frequency of criteria non-compliance, it would appear that anywhere up to 8 nights per month would be necessary before a location could be considered noise affected.

However, the frequency of attended monitoring does not allow for a determination of nights per month affectation.

To allow for more robust assessment of the frequency and/or duration of any non-compliance, HVO will assess noise in line with the DRAFT NSW Department of Planning and Infrastructure Guideline – Noise Monitoring Application Note. Sections 2.5 and 4.2 (Period monitoring requirements) and 4.5 (result acceptance) are of particular relevance in the context of noise affectation:

8.2.3 Monitoring Periods

Extensive experience has shown that daytime or evening criteria is rarely, if ever exceeded and that night time criteria is the limiting criterion. Furthermore, where the day or evening criteria are being approached, it is found that the noise enhancing conditions that are more likely to occur at night which will have the greatest potential to cause exceedances. It is the Department’s desire that resources be focused on monitoring the periods of the day which are the most sensitive and those where generated levels or noise are likely to be the most annoying.

Consequently, unless there are compelling reasons to require monitoring during the day or evening periods at a specific location, any requirement to measure during these periods is suspended and this monitoring effort is to be directed towards fulfilling the additional night time monitoring requirements.

Periods are defined in Table 8-4.

Table 8-4 – Definition of Day / Evening / Night Periods

Period	Days	Times
Day	Monday to Saturday	7am to 6pm
	Sundays and Public Holidays	8am to 6pm
Evening	Monday to Sunday	6pm to 10pm
Night	Monday to Saturday	10pm to 7am
	Sundays and Public Holidays	10pm to 8am

8.2.4 Period Monitoring Requirements

Requirements for Day and Evening monitoring shall be suspended, but the requirement can be reactivated by the Department at any time following valid complaints or concerns. Night time noise monitoring can commence from 9 pm onwards but must be assessed against the night time criteria.

In line with the DRAFT Guideline, HVO will not focus resources on compliance assessment or management of daytime or evening noise (in the current context considered to cease at 9pm, not

10pm), unless there is a compelling reason to do so. It is noted that the Department can reactivate these requirements at any time.

HVO will undertake compliance assessments in the manner outlined in section 4.5 of the DRAFT guideline. A monitoring location will be considered ‘noise affected’ if there are two instances of ‘noise affected nights’ measured at a particular location during the same calendar month. The procedure for result acceptance is highlighted in **Section 5** below.

8.2.5 Monitoring

In accordance with Condition 3, Appendix 3 of the HVO North Approval and Condition 3, Appendix 4A of the HVO South Approval, Attended monitoring is to be used to evaluate compliance with the relevant conditions of the approvals. Attended monitoring will be conducted from a selection of nine sites as detailed in the HVO Monitoring Program. Attended monitoring will be completed once per calendar month. Additional attended monitoring will be completed if directed in writing by the EPA.

Monitoring will be undertaken in accordance with the Noise Policy for Industry (NSW EPA 2017) guidelines, the Australian Standard AS 1055 ‘Acoustics, Description and Measurement of Environmental Noise’.

HVO will be considered to be in non-compliance with an applicable Impact assessment criteria (LAeq, 15min and LA1, 1min) when a measured exceedance (HVO contribution to the noise environment exceeds the Project Approval criteria), exceeds the relevant criterion. If a follow up measurement taken in line with the result acceptance procedure exceeds the relevant criterion under relevant meteorological conditions it will be considered to be the same exceedance event as the first measurement.

HVO will be considered to be in non-compliance with an applicable Land Acquisition criteria (LAeq) when a measured exceedance (HVO contribution to the noise environment exceeds the Project Approval criteria), exceeds the relevant criterion and a follow up measurement taken in line with the result acceptance procedure also exceeds the relevant criterion under relevant meteorological conditions.

8.2.6 Result Acceptance

A 15 minute reading shall be taken and assessed against the applicable criteria. If the reading is below the criteria, then the consultant will record the result, note the site has passed and move on to the next monitoring site. If reading exceeds criteria and is attributable to the mine operation and taken in valid meteorological conditions then the following steps are to be followed:

1. Consultant to record the reading, advise the mine a reading has exceeded the criteria and proceed to Step 2.
2. Within 75 mins after first reading (and no earlier than 10pm) a second 15 minute reading is to be taken. If this reading exceeds the criteria then proceed to Step 3 otherwise proceed to Step 4.
3. If the second reading exceeds criteria and is attributable to the mine operation and taken in valid meteorological conditions then proceed to Step 5.
4. If the second reading does not exceed the criteria, the consultant will record the result, note the site has passed, schedule an additional monitoring test to be undertaken at the site within 1 week, and move on to the next monitoring site.

5. The consultant will record the result, note the site has failed and is deemed a 'noise affected night' at that site. An additional monitoring test should be scheduled to be undertaken at the site within 1 week, and move on to the next monitoring site.

HVO will notify DPIE following the measurement of an exceedance once the consultant has reviewed meteorological data and confirmed that the meteorological conditions were valid at the time of measurement, and the exceedance is confirmed.

8.2.7 Low Frequency Noise Modification Factor

Corrections for low-frequency noise characteristics will be applied in accordance with *Fact Sheet C: Corrections for annoying noise characteristics* of the Noise Policy for Industry (NSW EPA, 2017).

8.2.8 Sleep Disturbance ($L_{A1, 1min}$) Criteria

Management of noise sources which have the potential to cause exceedances of the sleep disturbance ($L_{A1, 1min}$) criteria are generally one-off, emergence type events (such as loud bangs associated with dropping material into a truck, or a short term engine surge), which are difficult to control through engineered means. As a result, these events are not easily managed in real-time through the use of real-time monitoring systems in the manner described in **Section 7.1.4**. As a result, it is more difficult to ensure compliance with these criteria at all times than it is the 15 minute average L_{Aeq} parameter, typically characterised by a consistent mine noise continuum. In considering an appropriate level of response to any measured exceedances of the $L_{A1, 1min}$ sleep disturbance criteria, there is literature on the subject that is worthy of consideration:

- World Health Organisation – “Night Noise Guidelines for Europe” (2009); and
- NSW EPA – Noise Policy for Industry - 2017

With consideration of the above, HVO employs the following methodology to enable alignment to the project approval $L_{A1, 1min}$ criteria and the relevant literature:

- Any measured exceedance of the stipulated $L_{A1, 1min}$ criteria for the monitoring location (**Table 8-2**) identified through the monthly compliance monitoring regime shall be communicated to HVO personnel and rectified;
 - Where the result exceeds the relevant criterion, but is less than 52dB(A):
 - Re-measure (as described in **Section 8.2.2** above) involves collection of five (5) $L_{A1, 1min}$ samples commencing approximately five (5) minutes after detection of the exceedance;
 - The result is reported to DPI&E along with details of action taken in response to the measurement, and the outcomes of the five (5) additional measurements;
 - Result is not considered non-compliant with the $L_{A1, 1min}$ criteria
 - Where the result exceeds the relevant criterion, and is equal to or greater than 52dB(A):
 - Re-measure (as described in **Section 8.2.2** above) involves collection of five (5) $L_{A1, 1min}$ samples commencing approximately five (5) minutes after detection of the exceedance;
 - If any of the re-measured results remain elevated above the criteria, non-compliance is recorded;

- The result is reported to DPI&E along with details of action taken in response to the measurement, and the outcomes of the five (5) additional measurements;
- Follow-up measurement is conducted within 1 week (as described in **Section 8.2.2** above).

8.3 Independent Review and Land Acquisition Process

Where the owner of privately-owned land has reasonable grounds to believe that HVO is exceeding noise criteria, they may request an independent review from the Secretary, as per Conditions 4, 5 and 6 of Schedule 4 of the HVO North Approval or Conditions 4, 5 and 6 of Schedule 4 of the HVO South Approval.

If the independent review determines that HVO is not complying with the relevant project acquisition criteria, then upon receiving written request from the land owner, HVO will act in accordance with Conditions 7 and 8 of Schedule 4 of the HVO North Approval or Conditions 7, 8 and 9 of Schedule 4 of the HVO South Approval, whichever is relevant.

8.3.1 Representation of Private Receptors

In order to assess compliance against the impact assessment and land acquisition criteria, attended noise monitoring will be undertaken at or near 10 privately owned residences (as per the HVO Monitoring Program) which are considered representative of neighbouring properties.

Attended noise monitoring results from each monitoring location will be assessed against the lowest common applicable noise criteria for all receptors in the vicinity of each monitoring location. Details of residences within each monitoring “zone” are maintained and updated periodically by HVO. The attended monitoring locations and the neighbouring properties represented by each are shown in **Figure 8-1**.

8.4 Monitoring Records

All noise monitoring records are maintained in accordance with EPL 640 and maintained on the premises for a period of 4 years . The following is recorded for each sample:

- a) The date(s) on which the sample was taken;
- b) The time(s) at which the sample was collected;
- c) The point at which the sample was taken; and
- d) The name of the person who collected the sample.

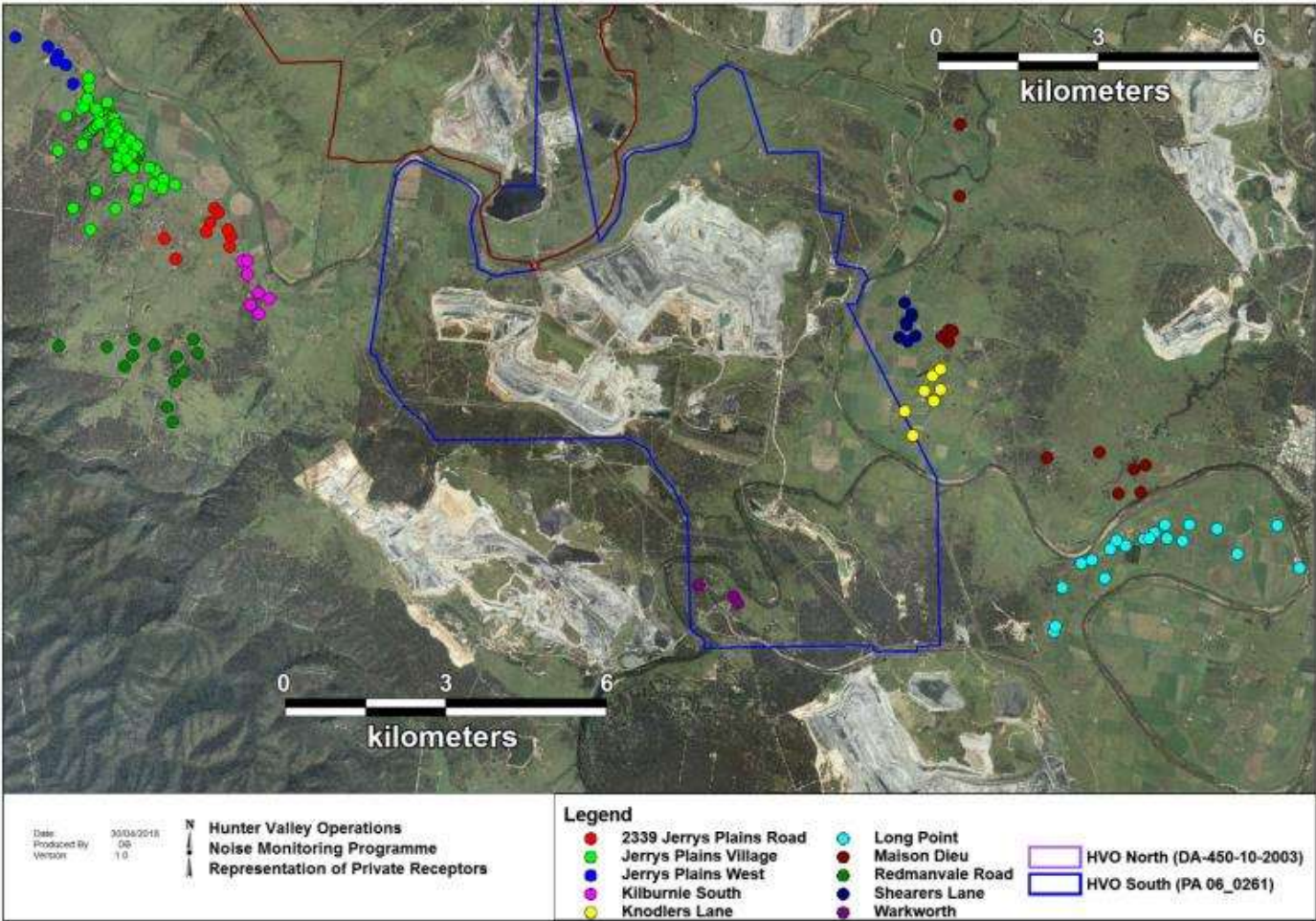


Figure 8-2 – Representation of Private Receptors

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9 Reporting and Review

9.1 Reporting

9.1.1 Internal Reporting

Determining exceedances of noise criteria will be undertaken in accordance with the protocol for evaluating compliance (**Section 8.2**).

The Environment & Community Coordinator (or delegate) will report any potential or confirmed exceedance / non-compliance to relevant site personnel, including the General Manager, Manager – Mining and Manager Environment & Community.

Non-compliance events will be investigated. Where additional controls are identified for implementation to reduce the risk of repeated non-compliance, these will be assigned to the relevant accountable person. Actions are tracked to completion.

9.1.2 External Reporting

The Environment & Community Coordinator (or delegate) will report any incident related to HVO Noise Management in writing to the DPI&E as soon as practicable following receipt of information indicating any such confirmed exceedance / non-compliance. Any exceedance of EPL licence limits will be reported to the EPA by telephoning the Environment Line service on 131 555 or emailing info@epa.nsw.gov.au as soon as practicable after the exceedance becomes known to HVO or a HVO employee or agent. A report will be provided to the EPA within 7 days that explains the cause of the exceedance and the actions taken to prevent future exceedance of noise limits.

HVO will also report any incidents to relevant agencies as required by Condition 7 in Schedule 5 (HVO North) and Condition 2 in Schedule 5 (HVO South).

Affected residences will be notified in writing in the event of a confirmed non-compliance with noise conditions.

Noise monitoring data, collected in accordance with this NMP will be made available on the HVO website (<https://insite.hvo.com.au>).

A summary of noise monitoring results will also be presented to the HVO Community Consultative Committee (CCC) meetings which are held four times per calendar year. The CCC will also be briefed on any issues relating to noise which may arise from time to time.

The NMP will be available on the HVO website.

9.2 Annual Assessment and Model Validation

The Annual Review prepared each year for HVO will include a summary of noise monitoring results and noise related complaints for the corresponding year.

Schedule 3, Condition 10(e) requires an “annual validation of the noise model for the development”. This will be achieved by way of comparing real time and attended monitoring data against predicted noise levels. The outcomes of the annual model validation will be reported in the HVO Annual Review.

HVO will provide an annual noise compliance assessment report prepared by an appropriately qualified acoustic consultant with its Annual Return prior to 30 May each year. The report will include an assessment of any exceedance of noise limits and justification that

the noise monitoring points are still representative of the sensitive receptors within the noise monitoring groups.

9.3 Complaints Management

Community Complaints are lodged via the Complaints and Blasting Hotline, 1800 888 733. The hotline number will be prominently displayed on the HVO website and regularly advertised in the local newspaper. The Complaints and Blasting Hotline will be in operation 24 hours per day, seven days a week.

Complaints will be recorded and investigated by HVO staff. All other complaints lodged via letter, in person or by fax, will also be recorded and investigated by the Environment & Community personnel.

All complaints will be investigated, and, where the investigation identifies potential non-compliance with a consent or licence condition, mitigating action will be taken.

The details of all noise complaints, and any mitigating actions taken, will be circulated to senior management. Where requested, follow-up correspondence with the complainant will be provided.

HVO will maintain a register of complaints in accordance with the conditions of EPL640 relating to the handling of pollution complaints. The register will be updated monthly.

9.4 Review

This NMP will be reviewed within three months of the submission of the Annual Review and updated to the satisfaction of the Secretary of the DPI&E where necessary.

This NMP will also be reviewed, and revised if necessary, within three months of the submission of an incident report, of an audit report and approval of a modification to the consent.

Within 6 weeks of conducting any such review, HVO will advise the Secretary of the outcomes and provide revised documents (where required) to the Secretary for review and approval.

Any major amendments to this NMP that affect its application will be undertaken in consultation with the appropriate regulatory authorities and stakeholders. Minor changes such as formatting edits may be made with version control on the Project website.

10 Accountabilities

Table 10-1 – Roles and Responsibilities

Roles	Accountabilities
Manager Mining	Direction and operational oversight
Manager Technical Services	Allocation of contingency options in consideration of noise impacts
Manager Environment and Community	Implementation of Management Plan Technical Oversight
Environment and Community Officer	Assistance with exceedance investigation Scheduled reporting

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	Monitoring data review Operation of predictive tools Manage maintenance of unattended monitoring network Technical oversight
Environment and Community Coordinator	Administer noise monitoring program Non-compliance reporting Management plan reviews Technical oversight Coordinate exceedance investigation
Maintenance Manager	Maintenance of Heavy Mining Equipment and repair of sound suppression Coordination of Sound Power Testing
Supervisors / Open Cut Examiners	Operational Modification following trigger Respond to community complaints (after 7pm)
Mine Monitoring / Control (Dispatch)	Receipt of noise alarms Receipt of community complaints Preferential placement of sound suppressed equipment
Consultants	Attended noise monitoring Sound power level testing Technical oversight

10.1 Reference Information

Table 10-2 – Reference Information

Reference Information
• Project Approval - DA 450-10-2003. • Project Approval - DA 06_0261. • The EIS titled 'Hunter Valley Operations – West Pit Extension and Minor Modifications', dated October 2003, and prepared by Environmental Resources Management Australia; • The section 96(1A) modification application for the 'Hunter Valley Loading Point', dated 30 June 2005, and prepared by Matrix Consulting; • The 'Carrington Pit Extended Statement of Environmental Effects', dated October 2005, and prepared by Environmental Resources Management Australia; • The 'Carrington West Wing Environmental Assessment', dated 1 October 2010, and prepared by EMGA Mitchell McLennan (CWW EA); • The Environmental assessment titled 'Hunter Valley Operations South Coal Project Environmental Assessment Report', Volumes 1, 2 and 3, dated January 2008, including the response to submissions; • The Environmental Assessment titled 'Raising of Lake James Dam', dated October 2009, and the response to submissions (including its Statement of Commitments) dated November 2009; • The Environmental Assessment titled 'Proposed Modification to HVO South Project', dated May 2010, and the response to submissions dated August 2010; • The Environmental Assessment titled 'Hunter Valley Operations South Project Approval – Modification 4 – Administrative Omissions and Clarifications' [sic], dated 26 September 2012;

- The Environmental Assessment titled 'Hunter Valley Operations South Project Approval – Modification 5 – Dedication of Lands for Offsets' [sic], dated 26 September 2012.
- The Environmental assessment titled 'Hunter Valley Operations South Modification 5', Volume 1 and 2 dated February 2017.
- Noise Policy for Industry (NSW EPA, 2017) (Superseding New South Wales Industrial Noise Policy (INP, 2000))
- DRAFT NSW Department of Planning and Infrastructure Guideline – Noise Monitoring Application Note (DP&I, 2013) Australian Standard AS 1055 'Acoustics, Description and Measurement of Environmental Noise'.
- 'Noise and Vibration Assessment', Volume Two – Supporting Appendices, Carrington West Wing Environmental Assessment, EMGA Mitchell McLennan – October 2010.
- 'Hunter Valley Operations South Coal Project Noise and Vibration Assessment', Volume 2 – Environmental Assessment Report, Environmental Resource Management – January 2008.
- 'Hunter Valley Operations West Pit and Minor Modifications Noise Assessment', Volume Three – Technical Reports, Environmental Resource Management – October 2003.
- Site work instruction HVO-13-EWI-SITE-042 (Responding to HVO Environmental Alarms)
- Concessions and Mitigation Agreement – Coal and Allied and Hunter Valley Gliding Club

10.2 Change Information

Table 10-3 – Change Information

Version	Date	Description	Author	Secretary Approval Date
1.0	28/06/2013	Original	Kelly Adamthwaite Approvals Specialist	-
1.1	11/02/2014	Revised following DoPI feedback	Kelly Adamthwaite Approvals Specialist	-
1.2	30/09/2014	Revised following DP&E feedback	Gerard Gleeson Environment Specialist	-
1.3	29/05/2015	Revised following DP&E feedback	Gerard Gleeson Environment Specialist	-
1.4	24/08/2015	Revised following DP&E feedback	Gerard Gleeson Environment Specialist	-
1.5	04/02/2016	Revised Sleep Disturbance compliance assessment	Gerard Gleeson Environment Specialist	8/03/2016
1.6	30/05/2017	Revised following modification to HVO North Consent. Updated Trigger Action Response Plan.	Doug Fenton Environment Advisor	-
2.0	30/11/2017	Revision to align with new ownership management practices. Review following HVO North Mod. 7. Alignment to the Noise Policy for Industry (EPA, 0217)	Dominic Brown Environment Specialist	-
3.0	25/05/2018	Revision following Modification 5 of HVO South Consent and Submission of 2017 Annual Review.	Dominic Brown Environment Specialist	-
3.1	08/02/2019	Revision following feedback from DPI&E on Version 3.0.	Dominic Brown Environment & Community Coordinator	19/02/2019
3.2	03/10/2019	Update to reflect HVO plan template, GCAA standards	Dominic Brown Environment & Community Coordinator	
3.3	07/05/2021	Update following DPIE request for information	Keith Simkin Environment & Community Coordinator	
3.4	09/07/2021	Update following DPIE request for information	Keith Simkin Environment & Community Coordinator	
3.5	10/12/2021	Update following DPIE request for information	Keith Simkin Environment & Community Coordinator	

Appendix A - Consultation with the EPA



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26 March 2018

Environmental Protection Authority NSW
 PO Box 448G
 NEWCASTLE NSW 2300

ATTN: Mark Hartwell

Dear Mark

RE: Hunter Valley Operations – EPA Consultation on Noise, Air Quality, Blasting and Water Management Plans

We refer to relevant conditions in contemporary Approvals granted under the *Environmental Planning and Assessment Act 1979* (NSW) (EP&A Act), requiring Hunter Valley Operations to consult with the EPA during development of Environmental Management Plans for Noise, Air Quality and Greenhouse Gas, Blasting, and Water.

We note that the EPA has previously advised (including letter from the EPA to Hunter Valley Operations, reference DOC14/115042, EF13/2793), that *"the...EPA encourages the development of such plans... [the] EPA does not review these documents as our role is...not to be directly involved in the development of strategies to achieve those objectives"*.

We therefore write seeking confirmation on whether EPA still maintains this position and no longer requires to be consulted on the drafting of such plans for Hunter Valley Operations.

We would be grateful if you could please advise of the EPA's position in this regard by 5 April 2018.

We look forward to hearing from you.

Yours sincerely

Andrew Speechly
 Manager Environment & Community
 Yancoal – Hunter Valley Operations



DOC18/180487-02, EF16/2461

Hunter Valley Operations
PO Box 267
SINGLETON NSW 2330

18 June 2018

Attention: Dominic Brown

Dear Mr Brown

HUNTER VALLEY (HVO) MANAGEMENT PLAN CONSULATION

Reference is made to your email dated 26 March 2018 to the Environment Protection Authority ("EPA") in relation to *Hunter Valley Operations Management Plan Consultation*.

The EPA encourages the development of such plans to ensure that proponents have met their statutory obligations and designated environmental objectives. However, the EPA does not review these documents, nor provide input to these documents as our role is to set environmental objectives for environmental/conservation management, not to be directly involved in the development of strategies to achieve those objectives.

The EPA does not require HVO to consult with it regarding the development of plans required under planning consents. The EPA provides its recommended conditions of approval to the Department of Planning and Environment during the development assessment and approvals process.

If you wish to discuss the matter further please contact Natasha Ryan on 02 4908 6833.

Yours sincerely



MARK HARTWELL
Head Regional Operations Unit - Hunter
Environment Protection Authority

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Appendix B - Detailed Baseline Data

Appendix C - Approval of Management Plan