HUNTER VALLEY
OPERATIONS

HVO AIR QUALITY MANAGEMENT PLAN

DOCUMENT NUMBER
HVOOC-1797567310-5343

STATUS
Approved

VERSION
2.0

EFFECTIVE
12/10/2026

REVIEW
08/04/2029

OWNER
Superintendent - Environment and Community

TABLE OF CONTENTS

1 | Preface 5

1.1 | Introduction 5

1.2 | Scope 6

1.3 | Objectives 24

2 | Regulatory Requirements 25

2.1 | Background 25

2.2 | Project Approval 25

2.3 | Environment Protection Licence 25

2.4 | Relevant Standards and Guidelines 25

3 | Consultation 26

3.1 | Government Agencies 26

3.2 | Nearby Mines 27

4 | Existing Character 27

4.1 | Existing Character 27

4.2 | Approved Activities 27

4.3 | Background Air Quality 28

4.4 | Impact Assessment Criteria 29

4.5 | Baseline Air Quality 29

5 | Management & Mitigation 32

5.1 | Principles and Framework 32

5.2 | Best Practice Management 32

5.3 | Management of Mine Owned Residences 32

5.3.1 | HVO Owned, Occupied Residences 33

5.3.2 | Other Mine Owned, Occupied Residences 33

6 | Air Quality Management Controls 34

6.1 | Introduction 34

6.2 | Sources of Dust 34

6.3 | Operational Controls 35

6.3.1 | Odour 35

6.3.2 | Dust 36
6.3.3 | Design Measures 38
6.4 | Real-Time Air Quality Alarms 39
6.5 | Risk / Response Matrix 39
6.6 | Management of Unpredicted Impacts 41
6.7 | Management of Air Quality Impacts from Coal Transport by Rail 41
6.8 | Continuous Improvement 42
7 | Greenhouse Gas Mitigation Plan 42
8 | Air Quality Monitoring 42
8.1 | Monitoring Program 42
8.2 | Representation of Private Receptors 47
8.3 | Monitoring of Mine Owned Land 49
8.3.1 | Data Provision to Residents in Mine- Owned Residences 50
8.4 | Monitoring Records 50
9 | Compliance Protocol 50
9.1 | HVO North – Compliance Assessment 51
9.2 | HVO South – Compliance Assessment 54
9.3 | Independent Review and Land Acquisition Process 55
10 | Implementation of the AQMP 55
10.1 | Reporting 55
10.1.1 | Internal Reporting 55
10.1.2 | External Reporting 56
10.2 | Complaints Management 56
10.3 | Roles and Responsibilities 57
11 | Review 57
12 | Document Information 58
12.1 | Related Documents 58
12.2 | Reference Information 58
12.3 | Change Information 60
Appendix A: Consultation 63
Appendix B: Examples of Air Quality Management Tools 67

Appendix C: Approval of Management Plan..... 69

1 | PREFACE

1.1 | INTRODUCTION

Hunter Valley Operations (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. While HVO is managed as one operation, HVO North and HVO South each have separate planning approvals.

This Air Quality Management Plan (AQMP) applies to the whole HVO complex (the Project).

The Project is generally bounded by Lemington Road and Jerrys Plains Road alongside its western boundary. The New England Highway is located to the north and east of the Project area with the Golden Highway and Wallaby Scrub Road to the south.

HVO North was granted approval on 12 June 2004 (DA 450-10-2003) for HVO North by the Minister for Infrastructure and Planning and the Minister for Natural Resources (the HVO North Approval). The most recent modification was approved on 24 April 2025.

HVO South operates in accordance with the Project Approval granted on 24 March 2009 (PA 06_0261) by the Minister for Planning (the HVO South Approval). The most recent modification was approved on 6 February 2023.

The HVO North Approval and the HVO South Approval are jointly referred to herein as 'the Approvals'.

The Project is described in detail in:

- 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 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 '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 Project Approval – Modification 4 – Administrative Omissions and Clarifications' [sic], dated 26 September 2012;
- the Environmental Assessment titled 'Hunter Valley Operations North Project Approval – Modification 4' – Dedication of Lands for Offsets [sic], dated 26 September 2012;
- The Environmental Assessment titled 'Hunter Valley Operations North Modification 5' – HVLP Sediment Basin and HVO North Communication Towers, dated November 2016;

- The Environmental Assessment titled 'Hunter Valley Operations South - Modification 5, dated 1 February 2017, and the response to submissions dated June 2017;
- The Environmental Assessment titled 'Hunter Valley North Operations Modification 6, dated November 2016, and the response to submissions dated December 2016 & January 2017; and
- The Environmental Assessment titled 'Proposed Modification 7 to Hunter Valley Operations North' dated June 2017.
- Modification Report titled 'Hunter Valley Operations South Coal Project Modification 6' dated August 2021.
- Modification Report titled 'Hunter Valley Operations South Coal Project Modification 7' dated September 2021.
- Modification Report titled 'Hunter Valley Operations South Modification 8 *Ammonium Nitrate Storage Changes'* dated 11 October 2022, and the submissions report dated 9 December 2022, and associated response titled '*Hunter Valley Operations Mod 8 AN Storage request for information'*, dated 23 December 2022.
- Modification 8 and accompanying Hunter Valley Operations North DA 450-10-2003 Modification 8 – Modification Report (EMM, November 2024) and HVO North modification 8 – Submissions Report (EMM, January 2025)

The Project will occur in an area where mining is already a feature of the landscape. HVO is located in the Hunter Valley coalfields with surrounding mines and infrastructure including Mount Thorley Warkworth (MTW), Bayswater Powerstation, United Wambo and Ravensworth.

An Air Quality Study was prepared as part of the CWW EA (EMGA Mitchell McLennan dated 1 October 2010) to assess potential air quality and greenhouse gas impacts. Similarly, an air quality assessment was undertaken as part of the HVO South Modification 5 Environmental Assessment (EMM February 2017).

This AQMP is the primary tool that will be utilised to reduce potential air quality impacts related to the Project.

1.2 | SCOPE

This AQMP was prepared by HVO in accordance with Condition 6, Schedule 3, of the HVO North Approval and Condition 23, Schedule 3 of the HVO South Approval.

This AQMP applies to the area within HVO North and HVO South boundaries, including:

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

This AQMP is to be applied from the time of approval of this plan, during construction and operation of the Project and incorporates mitigation measures and strategies that HVO will employ to comply with the relevant air quality conditions of the Approvals and Environment Protection Licence (EPL).

Table 1-1 below highlights the conditions required to be covered by this AQMP and the sections within this document in which they are addressed.

Table 1-2 highlights where items in the Statement of Commitments (SOC) related to air quality impacts are addressed in this AQMP.

Table 1-1: Consent Conditions

Consent Condition	Environmental Performance Conditions	Section of AQMP which addresses this requirement
HVO North Consent (DA 450-10-2003)		
Sch 3, Cond 3	**Odour** The Applicant must ensure that no offensive odours are emitted from the site, as defined under the POEO Act.	6.3.1
Sch 3, Cond 4	**Greenhouse Gas Emissions** The Applicant must implement all reasonable and feasible measures to minimise the release of greenhouse gas emissions from the site to the satisfaction of the Secretary.	7 HVO Greenhouse Gas Mitigation Plan
Sch 3, Cond 4A	**Air Quality Criteria** Except for the air quality affected land in Table 1, the Applicant must ensure that all reasonable and feasible avoidance and mitigation measures are employed so that particulate matter emissions generated by the development do not exceed the criteria listed in Tables 2, 3 or 4 at any residence on privately-owned land or on more than 25 percent of any privately-owned land. In this condition 'reasonable and feasible avoidance and mitigation measures' includes, but is not limited to, the operational requirements in Condition 5 of Schedule 4 and the requirements in Conditions 5 and 6 of Schedule 4 to develop and implement a real-time air quality management system that ensures effective operational responses to the risks of exceedance of the criteria. Table 2: Long term criteria for particulate matter a) **Pollutant** / **Averaging Period** / **[d] Criterion** Total suspended particulate (TSP) matter / Annual / [a] 90 µg/m^3 Particulate matter < 10 µm (PM_{10}) / Annual / [a] 30 µg/m^3 Table 3: Short term criterion for particulate matter b) **Pollutant** / **Averaging Period** / **[d] Criterion** Particulate matter < 10 µm (PM_{10}) / 24 hour / [b] 50 µg/m^3 Table 4: Long term criteria for deposited dust **Pollutant** / **Averaging Period** / **Maximum increase in** / **Maximum total** [c] Deposited dust / Annual / [b] 2 g/m^2/month / [a] 4 g/m^2/month Notes to Tables 2–4: • [a] Total impact (i.e. incremental increase in concentrations due to the development plus background concentrations due to all other sources);	5,6,8,9

Consent Condition	Environmental Performance Conditions	Section of AQMP which addresses this requirement
	• [b] Incremental impact (i.e. incremental increase in concentrations due to the development on its own); • [c] Deposited dust is to be assessed as insoluble solids as defined by Standards Australia, AS/NZS 3580.10.1:2003: Methods for Sampling and Analysis of Ambient Air - Determination of Particulate Matter - Deposited Matter - Gravimetric Method. • [d] Excludes extraordinary events such as bushfires, prescribed burning, dust storms, sea fog, fire incidents illegal activities or any other activity agreed by the Secretary.	
Sch 3, Cond 4B	**Air Quality Acquisition Criteria** If particulate matter emissions generated by the development exceed the criteria in Tables 5, 6 or 7 on a systemic basis at any residence on privately-owned land or on more than 25 percent of any privately-owned land, then upon receiving a written request for acquisition from the landowner the Applicant must acquire the land in accordance with the procedures in Conditions 7 and 8 of Schedule 5.	9

Table 5: Long term acquisition criteria for particulate matter

c) **Pollutant**	**Averaging Period**	[d] **Criterion**
Total suspended particulate (TSP) matter	Annual	[a] 90 µg/m^3
Particulate matter < 10 µm (PM_{10})	Annual	[a] 30 µg/m^3

Table 6: Short term acquisition criteria for particulate matter

d) **Pollutant**	**Averaging period**	[d] **Criterion**
Particulate matter < 10 µm (PM_{10})	24 hour	[a] 150 µg/m^3
Particulate matter < 10 µm (PM_{10})	24 hour	[b] 50 µg/m^3

Table 7: Long term acquisition criteria for deposited dust

Pollutant	**Averaging Period**	**Maximum increase in deposited dust level**	**Maximum total deposited dust**
[c] Deposited dust	Annual	[b] 2 g/m^2/month	[a] 4 g/m^2/month

Notes to Tables 5-7:

- [a] Total impact (i.e. incremental increase in concentrations due to the development plus background concentrations due to all other sources);
- [b] Incremental impact (i.e. incremental increase in concentrations due to the development on its own);

Consent Condition	Environmental Performance Conditions	Section of AQMP which addresses this requirement
	• [c] Deposited dust is to be assessed as insoluble solids as defined by Standards Australia, AS/NZS 3580.10.1:2003: Methods for Sampling and Analysis of Ambient Air - Determination of Particulate Matter -Deposited Matter - Gravimetric Method. • [d] Excludes extraordinary events such as bushfires, prescribed burning, dust storms, sea fog, fire incidents, illegal activities or any other activity agreed by the Secretary.	
Sch 3, Cond 4C (a)	**Mine-owned Land** The Applicant must ensure that particulate matter emissions generated by the development do not exceed the criteria listed in Table 2, Table 3 and Table 4 at any occupied residence on any mine-owned land (including land owned by adjacent mines) unless: the tenant and landowner has been notified of health risks in accordance with the notification requirements under Schedule 5 of this consent;	5.3
Sch 3, Cond 4C (b)	the tenant on land owned by the Applicant can terminate their tenancy agreement without penalty, subject to giving reasonable notice, and the Applicant uses its best endeavours to provide assistance with relocation and sourcing of alternative accommodation;	5.3
Sch 3, Cond 4C (c)	air mitigation measures (such as air filters, a first flush roof water drainage system and/or air conditioning) are installed at the residence, if requested by the tenant and landowner (where owned by another mine other than the Applicant);	5.3
Sch 3, Cond 4C (d)	particulate matter air quality monitoring is undertaken to inform the tenant and landowner of potential health risks; and	5.3
Sch 3, Cond 4C (e)	monitoring data is presented to the tenant in an appropriate format, for a medical practitioner to assist the tenant in making an informed decision on the health risks associated with occupying the property, to the satisfaction of the Secretary.	5.3
Sch 3, Cond 5 (a)	**Air Quality Operating Conditions** The Applicant must: implement best management practice to minimise the off-site odour, fume and dust emissions of the development, including best practice coal loading and profiling and other measures to minimise dust emissions from coal transportation by rail;	5.2, 6.7
Sch 3, Cond 5 (b)	operate a comprehensive air quality management system on site that uses a combination of predictive meteorological forecasting, predictive and real time air dispersion modelling and real-time air quality monitoring data to guide the day to day planning of mining operations and implementation of both proactive and reactive air quality mitigation measures to ensure compliance with the relevant conditions of this approval;	6.3.2.2 6.3.2.12 6.4 6.3
Sch 3, Cond 5 (c)	manage $PM_{2.5}$ levels in accordance with any requirements of any EPL;	6.3.2
Sch 3, Cond 5 (d)	minimise the air quality impacts of the development during adverse meteorological conditions and extraordinary events (see note above under Table 5-7);	6

Consent Condition	Environmental Performance Conditions	Section of AQMP which addresses this requirement
Sch 3, Cond 5 (e)	minimise any visible off-site air pollution;	6
Sch 3, Cond 5 (f)	minimise the surface disturbance of the site generated by the development; and	6
Sch 3, Cond 5 (g)	co-ordinate air quality management on site with the air quality management at nearby mines (Mount Thorley Warkworth, Wambo, Ravensworth and HVO South mines) to minimise the cumulative air quality impacts of these mines and the development, to the satisfaction of the Secretary.	3.2
Sch 3, Cond 6	**Air Quality & Greenhouse Gas Management Plan** The Applicant must prepare and implement a detailed Air Quality & Greenhouse Gas Management Plan for the development to the satisfaction of the Secretary. This plan must:	This AQMP & HVO Greenhouse Gas Mitigation Plan
Sch 3, Cond 6(a)	be prepared in consultation with the EPA, and submitted to the Secretary for approval by the end of June 2013;	3
Sch 3, Cond 6(b)	describe the measures that would be implemented to ensure: • best management practice is being employed; • the air quality impacts of the development are minimised during adverse meteorological conditions and extraordinary events; and • compliance with the relevant conditions of this consent.	5.2, 6, 9
Sch 3, Cond 6(c)	describe the proposed air quality management system;	6
Sch 3, Cond 6(d)	include a risk/response matrix to codify mine operational responses to varying levels of risk resulting from weather conditions and specific mining activities;	6.5
Sch 3, Cond 6(e)	include commitments to provide summary reports and specific briefings at CCC meetings on issues arising from air quality monitoring;	10.1.2
Sch 3, Cond 6(f)	include an air quality monitoring program that: • uses a combination of real-time monitors and supplementary monitors to evaluate the performance of the development; • adequately supports the proactive and reactive air quality management system; • includes $PM_{2.5}$ monitoring; • includes monitoring of occupied development-related residences and residences on air quality-affected land listed in Table 1, subject to the agreement of the tenant; • evaluates and reports on the effectiveness of the air quality management system; and • includes a protocol for determining any exceedances of the relevant conditions in this approval; and	8

Consent Condition	Environmental Performance Conditions	Section of AQMP which addresses this requirement
Sch 3, Cond 6(g)	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 air quality impacts of these mines and the development.	3.2
Sch 3, Cond 6A.	Within six months of the determination of Modification 8, unless otherwise agreed by the Secretary, the Applicant must prepare a Greenhouse Gas Mitigation Plan in consultation with the EPA. Notes: • With the introduction of the EPA's Climate Change Policy and Climate Change Action Plan, the Applicant will be required to prepare and implement a Climate Change Mitigation and Adaptation Plan (or similar) in accordance with requirements provided by the EPA under the POEO Act. • In accordance with its Climate Change Action Plan 2023-26, the NSW EPA is preparing guidance for the preparation and implementation of various climate change related guidelines. • Once the Greenhouse Gas Mitigation Plan in Condition 6A of Schedule 3 has been prepared the greenhouse gas management components of the Air Quality & Greenhouse Gas Management Plan in Condition 6 of Schedule 3 can be satisfied through that plan and the EPA's regulatory framework.	HVO Greenhouse Gas Mitigation Plan
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; and	5.3
Sch. 4, Cond. 3(b)	b) an exceedance of the air quality criteria in schedule 4, the Applicant must additionally provide each affected party with: • a copy of the NSW Health fact sheet entitled "Mine Dust and You" (as may be updated from time to time), if not recently provided; and • monitoring data in an appropriate format such that the party's medical practitioner can assist them in making an informed decision on the health risks associated with continued occupation of the property, to the satisfaction of the Secretary.	5.3
Sch. 5, Cond. 2(a)	**Management Plan Requirements** 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	4.3
Sch. 5, Cond. 2(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 development or any management measures/criteria	2, 4.4, 9

Consent Condition	Environmental Performance Conditions	Section of AQMP which addresses this requirement
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;	6, 9
Sch. 5, 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);	8, 10.1
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;	6.6
Sch. 5, Cond. 2(f)	a program to investigate and implement ways to improve the environmental performance of the development over time;	6.8
Sch. 5, Cond. 2(g)	a protocol for managing and reporting any: • incidents;	10.1
	• complaints;	10.2
	• non-compliances with statutory requirements; and	9
	• exceedances of the impact assessment criteria and/or performance criteria;	9
Sch. 5, Cond. 2(h)	a protocol for periodic review of the plan; and	6.8
Sch. 5, Cond. 2(i)	a document 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.	Table 12-2
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. 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. 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.	9.3

Consent Condition	Environmental Performance Conditions	Section of AQMP which addresses this requirement
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.	10.1
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.	10.1
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; (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.	10.1.2
HVO South Project Approval (PA 06_0261)		
Sch. 2 Cond. 15	**Evidence of Consultation** Where conditions of this consent require a document to be prepared in consultation with an identified party, the Applicant must; a) consult with the relevant party prior to submitting the subject document to the Planning Secretary for approval; and b) provide details of the consultation undertaken including:	App.A

<table>
<tr><th>Consent Condition</th><th>Environmental Performance Conditions</th><th>Section of AQMP which addresses this requirement</th></tr>
<tr><td></td><td>• a description of how matters raised by those consulted have been resolved to the satisfaction of both the Applicant and the party consulted; and
• details of any disagreement remaining between the party consulted and the Applicant, and how the Applicant has addressed the matters not resolved.</td><td></td></tr>
<tr><td>Sch. 3, Cond.19</td><td>Air Quality Impact Assessment Criteria
The Applicant must ensure that all reasonable and feasible avoidance and mitigation measures are employed so that particulate matter emissions generated by the development do not exceed the air quality impact assessment criteria listed in Table 8 at any residence on privately-owned land, the Hunter Valley Gliding Club (when in use) or on more than 25 percent of any privately-owned land.

Table 8: Air quality impact assessment criteria
<table>
<tr><th>Pollutant</th><th>Averaging period</th><th>Criterion</th></tr>
<tr><td rowspan="2">Particulate matter < 10 µm (PM_{10})</td><td>Annual</td><td>[a, c] 25 µg/m^3</td></tr>
<tr><td>24 hour</td><td>[b] 50 µg/m^3</td></tr>
<tr><td rowspan="2">Particulate matter < 2.5 µm ($PM_{2.5}$)</td><td>Annual</td><td>[a, c] 8 µg/m^3</td></tr>
<tr><td>24 hour</td><td>[b] 25 µg/m^3</td></tr>
<tr><td>Total suspended particulate (TSP) matter</td><td>Annual</td><td>[a, c] 90 µg/m^3</td></tr>
</table>
Notes:
* Air quality impacts at HVGC are to be assessed in the immediate vicinity of its residential facilities and/or clubhouse. Air quality limits are only applicable during times of use that have been notified by HVGC to the Applicant.
* a Total impact (i.e. incremental increase in concentrations due to the development plus background concentrations due to all other sources).
* b Incremental impact (i.e. incremental increase in concentrations due to the development on its own).
* c Excludes extraordinary events such as bushfires, prescribed burning, dust storms, fire incidents or any other activity agreed by the Planning Secretary.
However, if the Applicant has a written negotiated air quality agreement with any landowner or HVGC to exceed the air quality limits in Table 8, and a copy of this agreement has been forwarded to the Department and EPA, then the Applicant may exceed the air limits in Table 8 in accordance with the negotiated air quality agreement.</td><td>4.4,9</td></tr>
<tr><td>Sch. 3, Cond. 21</td><td>Additional Air Quality Impact Mitigation Measures
Upon receiving a written request from:
• an owner of land listed in Table 1 (unless the landowner has requested acquisition); or
• an owner of land listed in Table 14
the Applicant must implement reasonable and feasible air quality impact mitigation measures (such as air conditioning, first flush drinking water collection systems etc) at any residence on the land, in consultation with the landowner. These measures must be consistent with the measures outlined in the Voluntary Land Acquisition and Mitigation Policy for the State Significant Mining, Petroleum and Extractive Industry Development (NSW Government, 2014), as amended, and proportionate to the level of predicted impact.</td><td>5</td></tr>
</table>

Consent Condition	Environmental Performance Conditions	Section of AQMP which addresses this requirement
	However, if the Applicant has an air quality agreement with the owner of any land listed in Table 1 or Table 14 and a copy of this agreement has been forwarded to the Department and EPA, then the Applicant does not have to implement such measures. If within 3 months of receiving this request from the landowner, the Applicant 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 Planning Secretary for resolution. Within 3 months of the date of this approval, the Applicant must notify all applicable landowners that they are entitled to receive air quality impact mitigation measures, to the satisfaction of the Planning Secretary. Table 14: Land subject to additional air quality impact mitigation upon request 7 – Stapleton (Cheshunt East) | 34 – Ernst 24 – Clifton and Edwards and residences located within 250 metres of this residence. | 50 – Nelson 471* – Bowman | 56 – Edwards Notes: • The land numbers are as described in the EA, except the one with an asterisk which is described in the EA (Mod 5), and as shown in Appendix 4. • Land number 7 and 24 are now mine-owned.	
Sch. 3 Cond. 21A	**Mine-owned Land** Particulate matter emissions generated by the development must not exceed the criteria listed in Table 8 at any occupied residence on mine-owned land (including land owned by another mining company) unless: a) The tenant and the landowner (if the residence is owned by another mining company) have been notified of any health risks associated with such exceedances in accordance with the notification requirements under Schedule 4 of this consent; b) The tenant of any land owned by the Applicant can terminate their tenancy agreement without penalty at any time, subject to giving reasonable notice; c) Air quality monitoring is regularly undertaken to inform the tenant and landowner (if the residence is owned by another mining company) of the likely particulate emissions at the residence: and d) Data from this monitoring is presented to the tenant and landowner in an appropriate format for a medical practitioner to assist the tenant and landowner in making informed decisions on the health risks associated with occupying the property.	5.3
Sch. 3, Cond. 22 (a)	**Operating Conditions** The Applicant must:	6 HVO Greenhouse

Consent Condition	Environmental Performance Conditions	Section of AQMP which addresses this requirement
	(a) take all reasonable steps to minimise odour, fume, spontaneous combustion, greenhouse gas and dust (including PM_{10} and $PM_{2.5}$) emissions of the development;	Gas Mitigation Plan
Sch. 3, Cond. 22 (b)	(b) minimise any visible off-site air pollution generated by the development;	6
Sch. 3, Cond. 22 (c)	(c) minimise to the greatest extent practicable, the extent of potential dust generating surfaces exposed on the site at any given point in time;	6.3
Sch. 3, Cond. 22 (d)	(d) operate a comprehensive air quality management system that uses a combination of predictive meteorological forecasting and real-time air quality monitoring data to guide the day to day planning of mining operations and the implementation of both proactive and reactive air quality mitigation measures to ensure compliance with the relevant conditions of this consent;	6.4 App. B
Sch. 3, Cond. 22 (e)	(e) carry out regular air quality monitoring to determine whether the project is complying with the relevant conditions of this approval;	9
Sch. 3, Cond. 22 (f)	(f) regularly assess the air quality monitoring data, and modify or stop operations on the site to ensure compliance with the relevant conditions of this consent;	6.4
Sch. 3, Cond. 22 (g)	(g) minimise the air quality impacts of the development during adverse meteorological conditions and extraordinary events (see Note c to Table 8 above); and	6.6
Sch. 3, Cond. 22 (h)	(h) use all reasonable efforts to co-ordinate air quality management on the site with the air quality management at nearby mines to minimise cumulative air quality impacts, to the satisfaction of the Planning Secretary.	3
Sch. 3, Cond. 23 (a)	**Air Quality Management Plan** The Applicant must prepare and implement an Air Quality Management Plan for the development to the satisfaction of the Planning Secretary. This plan must: (a) be submitted to the Planning Secretary for approval within 3 months of the determination of Modification 5, unless otherwise agreed by the Secretary;	This AQMP
Sch. 3, Cond. 23 (b)	(b) be prepared in consultation with the EPA by a suitably qualified and experienced person/s;	3 App. A
Sch. 3, Cond. 23 (c)	(c) describe the measures to be implemented to ensure; • compliance with air quality criteria and operating conditions in this consent; • best practice management is being employed; and • the air quality impacts of the development are minimised during adverse meteorological conditions and extraordinary events;	6

Consent Condition	Environmental Performance Conditions	Section of AQMP which addresses this requirement
Sch. 3, Cond. 23 (d)	(d) describe the air quality management system in detail; and	6
Sch. 3, Cond. 23 (e)	(e) include an air quality monitoring program that: • uses monitors to evaluate the performance of the development against the air quality criteria in this consent and to guide day to day planning of operations; • adequately supports the air quality management system; and • a protocol for identifying and notifying the Department and relevant stakeholders of any air quality incidents	6.4, 6.5, 8
Sch. 3, Cond. 23 (f)	(f) include a protocol that has been prepared in consultation with the owners of nearby mines to minimise cumulative air quality impacts. The Applicant must implement the Air Quality Management Plan as approved by the Planning Secretary.	3.2
Sch. 3, Cond. 24	**Meteorological Monitoring** During the life of the development, the Applicant must ensure that there is a suitable meteorological station in the vicinity of the site that complies with the requirements in the Approved Methods for Sampling and Analysis of Air Pollutants in New South Wales guideline.	8
Sch. 4, Cond. 2	**Notification of Landowners** If the results of monitoring required in Schedule 3 identify that impacts generated by the development 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 Applicant must, within 2 weeks of obtaining the monitoring results, notify the Planning 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 complying with the criteria in Schedule 3.	5.3, 10
Sch. 4, Cond. 3	**Notification of Landowners** If the results of monitoring required in Schedule 3 identify that impacts generated by the development are greater than the relevant air quality impact assessment criteria in Schedule 3, then the Applicant must send the relevant landowners and tenants (including tenants of mine owned properties) a copy of the NSW Health fact sheet entitled “Mine Dust and You” (and associated updates) in conjunction with the notification required in condition 2.	5.3, 10
Sch.4 Cond. 4	**Independent Review** If a landowner considers the development to be exceeding the impact assessment criteria in Schedule 3, then he/she may ask the Planning Secretary in writing for an independent review of impacts of the project on his/her land. If the Planning Secretary is satisfied that an independent review is warranted, the Applicant must within 3 months of the Planning 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 Planning Secretary, to conduct monitoring on the land, to: • determine whether the project is complying with the relevant impact assessment criteria in Schedule 3; and	9.3

Consent Condition	Environmental Performance Conditions	Section of AQMP which addresses this requirement
	• identify the source(s) and scale of any impact on the land, and the development's contribution to this impact; and c) give the Planning Secretary and landowner a copy of the independent review.	
Sch.4 Cond. 5	If the independent review determines that the development is complying with the relevant impact assessment criteria in Schedule 3, then the Applicant may discontinue the independent review with the approval of the Planning Secretary. If the independent review determines that the development is not complying with the relevant impact assessment criteria in Schedule 3, and the development is primarily responsible for this non-compliance, then the Applicant must: a) implement all reasonable and feasible measure, in consultation with the landowner, to ensure that the development complies with the relevant criteria, and conduct further monitoring to determine whether these measures ensure compliance: or b) secure a written agreement with the landowner to allow exceedances of the relevant impact assessment criteria, to the satisfaction of the Planning Secretary. However, if the further monitoring referred to under paragraph (a) above determines that the development is complying with the relevant impact assessment criteria, the Applicant may discontinue the independent review with the approval of the Planning Secretary.	9.3
Sch.5 Cond. 1A (a)	**Management Plan Requirements** The Applicant must ensure that the management plans required under this consent are prepared in accordance with any relevant guidelines, and include: a) a summary of relevant background or baseline data;	1.1 Table 4-1
Sch.5 Cond. 1A (b)	b) a description of: • the relevant statutory requirements (including any relevant approval, licence or lease conditions);	Table 1-1 Table 8-1 2.2 |2.3 |2.4 |
	• any relevant limits or performance measures/criteria; and	Table 8-1
	• 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;	Table 8-1
Sch.5 Cond. 1A (c)	c) a description of the measures that would be implemented to comply with the relevant statutory requirement, limits, or performance measures/criteria;	6, 8, 9
Sch.5 Cond. 1A (d)	d) a program to monitor and report on the: • impacts and environmental performance of the development; and • effectiveness of any management measures (see paragraph (c) above);	8, 10.1
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;	6.6
Sch.5	f) a program to investigate and implement ways to improve the environmental performance of the development over time	6.8

Consent Condition	Environmental Performance Conditions	Section of AQMP which addresses this requirement
Cond. 1A (f)		
Sch.5 Cond. 1A (g)	g) a protocol for managing and reporting any: • Incidents;	10.1
	• Complaints;	10.2
	• Non-compliances with statutory requirements; and	9
	• Exceedances of the impact assessment criteria and/or performance criteria;	9
Sch.5 Cond. 1A (h)	h) a protocol for periodic review of the plan; and	11
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 Planning Secretary's approval. *Note: The Planning Secretary may waive some of these requirements if they are unnecessary or unwarranted for particular management plans.*	Document Control Table
Sch. 5, Cond 2	**Incident Notification** The Applicant must immediately notify the Department and any other relevant agencies after it becomes aware of an incident. The notification must be in writing via the Department's Major Projects Website and identify the development (including the development application number and name) and set out the location and nature of the incident.	10.1
Sch. 5, Cond 3	**Non-Compliance Notification** Within seven days of becoming aware of a non-compliance, the Applicant must notify the Department of the non-compliance. The notification must be in writing via the Department's Major Projects Website and identify the development (including the development application number and name), set out the condition of this consent that the development is non-compliant with, why it does not comply and the reasons for the non-compliance (if known) and what actions have been, or will be, undertaken to address the non-compliance. *Note: A non-compliance which has been notified as an incident does not need to also be notified as a non-compliance.*	10.1
Sch. 5, Cond 4	**Annual Review** By the end of March each year, the Applicant must review the environmental performance of the development to the satisfaction of the Planning 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 development over the previous calendar year, which includes a comparison of these results against: • the relevant statutory requirements, limits or performance measures/criteria; • the requirements of any plan or program required under this consent; • the monitoring results of previous years; and	10.1.2

Consent Condition	Environmental Performance Conditions	Section of AQMP which addresses this requirement
	• 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 development; (e) identify any discrepancies between the predicted and actual impacts of the development, 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 development; and g) evaluate and report on the effectiveness of environmental management of the development.	
Sch. 5, Cond 9	**Access to Information** The Applicant must, for the life of 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 development; • approved strategies, plans or programs required under the conditions of this consent; • a comprehensive summary of the monitoring results of the development, which have been reported in accordance with the various plans and programs approved under the conditions of this consent; • a summary of the current stage and progress of the development; • 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 Applicant's response to the recommendations in any audit; • any other matter required by the Planning Secretary; and (b) keep this information up to date, to the satisfaction of the Planning Secretary.	10.1
Environment Protection Licence 640		
P1	**Location of monitoring/discharge points and areas** P1.1 The following points referred to in the table below are id*entified in this licence for the purposes of monitoring and/or the setting of limits for the emission of pollutants to the air from the point.*	8

Air

EPA identi-fication no.	Type of Monitoring Point	Type of Discharge Point	Location Description
13	Ambient air monitoring		PM10 TEOM at "Howick", marked and shown as "13" on Figure 1.
15	Ambient air monitoring		PM10 TEOM at "Wandewoi", marked and shown as "15" on Figure 1.
16	Ambient air monitoring		PM10 TEOM at "Knodlers Lane", marked and shown as "16" on Figure 1.
17	Ambient air monitoring		PM10 TEOM at the Golden Highway, marked and shown as "17" on Figure 1.
44	Ambient air monitoring		PM10 TEOM at West Pit, marked and shown as "44" on Figure 1.

<table>
<tr><th>Consent Condition</th><th>Environmental Performance Conditions</th><th>Section of AQMP which addresses this requirement</th></tr>
<tr><td></td><td>Note: The EPA notes that licensee will also use monitoring data from the Upper Hunter Air Quality Monitoring Network monitors at Maison Dieu and Warkworth when deriving a differential between upwind and downwind PM_{10} concentrations.</td><td></td></tr>
<tr><td>P1</td><td>Noise/Weather
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.
Noise/Weather
<table>
<tr><th>EPA identification no.</th><th>Type of monitoring point</th><th>Location description</th></tr>
<tr><td>19</td><td>Meteorological Station – to determine meteorological conditions for noise monitoring</td><td>Meteorological station at the HVO corporate office, marked and shown as "19" on Figure 1.</td></tr>
<tr><td>22</td><td>Meteorological Station – to determine meteorological conditions for noise monitoring</td><td>Meteorological station near Cheshunt, marked and shown as "22" on Figure 1.</td></tr>
</table></td><td>8</td></tr>
<tr><td>O3</td><td>Dust
O3.1 The premises must be maintained in a condition which minimises or prevents the emission of dust from the premises.</td><td>5.2, 6</td></tr>
<tr><td>O3</td><td>O3.2 Activities occurring in or on the premises must be carried out in a manner that will minimise the generation or emission from the premises, of wind-blown or traffic generated dust.</td><td>5.2, 6</td></tr>
<tr><td>O3</td><td>O3.3 All trafficable areas, coal storage areas and vehicle manoeuvring areas in or on the premises must be maintained, at all times, in a condition that will minimise the generation, or emission from the premises, of wind-blown or traffic generated dust.</td><td>6</td></tr>
<tr><td>O3</td><td>O3.4 Trucks transporting coal from the premises must be covered immediately after loading to prevent wind-blown emissions and spillage. The covering must be maintained until immediately before unloading the trucks.</td><td>6.3.2.13</td></tr>
<tr><td>O3</td><td>O3.5 The tailgates of all haulage trucks leaving the premises must be securely fixed prior to loading or immediately after unloading to prevent loss of material.</td><td>6.3.2.13</td></tr>
<tr><td>M1</td><td>Monitoring Records
M1.2 All records required to be kept by this licence must be:
a) in a legible form, or in a form that can 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 to see them.</td><td>8.4</td></tr>
<tr><td>M1</td><td>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.</td><td>8.4</td></tr>
</table>

<table>
<tr><th>Consent Condition</th><th>Environmental Performance Conditions</th><th>Section of AQMP which addresses this requirement</th></tr>
<tr><td>M2</td><td>

Requirement to monitor concentration of pollutants discharged

M2.1 For each monitoring/discharge point or utilisation area specified below (by a point number), the licensee must monitor (by sampling and obtaining results by analysis) the concentration of each pollutant specified in Column 1. The licensee must use the sampling method, units of measure, and sample at the frequency, specified opposite in the other columns:

M2.2 Air Monitoring Requirements

POINT 13,15,16,17,44

<table>
<tr><th>Pollutant</th><th>Units of measure</th><th>Frequency</th><th>Sampling Method</th></tr>
<tr><td>PM10</td><td>micrograms per cubic metre</td><td>Continuous</td><td>AM-22</td></tr>
</table>

</td><td>Table 8-2</td></tr>
<tr><td>M3</td><td>

Testing methods - concentration limits

M3.1 Monitoring for the concentration of a pollutant emitted to the air required to be conducted by this licence must be done in accordance with:

a) any methodology which is required by or under the Act to be used for the testing of the concentration of the pollutant; or

b) if no such requirement is imposed by or under the Act, any methodology which a condition of this licence requires to be used for that testing; or

c) if no such requirement is imposed by or under the Act or by a condition of this licence, any methodology approved in writing by the EPA for the purposes of that testing prior to the testing taking place.

Note: The Protection of the Environment Operations (Clean Air) Regulation 2022 requires testing for certain purposes to be conducted in accordance with test methods contained in the publication "Approved Methods for the Sampling and Analysis of Air Pollutants in NSW".

</td><td>8</td></tr>
<tr><td>M4</td><td>

Weather monitoring

M4.1 At the point(s) identified below, the licensee must monitor (by sampling and obtaining results by analysis) the parameters specified in Column 1 of the table below, using the corresponding sampling method, units of measure, averaging period and sampling frequency, specified opposite in the Columns 2, 3, 4 and 5 respectively.

POINT 19,22

<table>
<tr><th>Parameter</th><th>Sampling method</th><th>Units of measure</th><th>Averaging period</th><th>Frequency</th></tr>
<tr><td>Siting</td><td>AM-1 & AM-4</td><td>-</td><td>-</td><td>-</td></tr>
<tr><td>Temperature at 10 metres</td><td>AM-4</td><td>degrees Celsius</td><td>10 minutes</td><td>Continuous</td></tr>
<tr><td>Relative humidity</td><td>AM-4</td><td>percent</td><td>10 minutes</td><td>Continuous</td></tr>
<tr><td>Rainfall</td><td>AM-4</td><td>millimetres per hour</td><td>10 minutes</td><td>Continuous</td></tr>
<tr><td>Wind Speed at 10 metres</td><td>AM-2 & AM-4</td><td>metres per second</td><td>10 minutes</td><td>Continuous</td></tr>
<tr><td>Wind Direction at 10 metres</td><td>AM-2 & AM-4</td><td>Degrees</td><td>10 minutes</td><td>Continuous</td></tr>
<tr><td>Sigma theta</td><td>AM-2 & AM-4</td><td>Degrees</td><td>10 minutes</td><td>Continuous</td></tr>
<tr><td>Total Solar Radiation</td><td>AM-4</td><td>Watts per square metre</td><td>10 minutes</td><td>Continuous</td></tr>
</table>

</td><td>8</td></tr>
</table>

Consent Condition	Environmental Performance Conditions	Section of AQMP which addresses this requirement
M5	**Recording of pollution complaints** M5.1 The licensee must keep a legible record of all complaints made to the licensee or any employee or agent of the licensee in relation to pollution arising from any activity to which this licence applies. M5.2 The record must include details of the following: a) the date and time of the complaint; b) the method by which the complaint was made; c) any personal details of the complainant which were provided by the complainant or, if no such details were provided, a note to that effect; d) the nature of the complaint; e) the action taken by the licensee in relation to the complaint, including any follow-up contact with the complainant; and f) if no action was taken by the licensee, the reasons why no action was taken. M5.3 The record of a complaint must be kept for at least 4 years after the complaint was made. M5.4 The record must be produced to any authorised officer of the EPA who asks to see them.	10.2
R2	**Notification of environmental harm** R2.1 Notifications must be made by telephoning the Environment Line service on 131 555. R2.2 The licensee must provide written details of the notification to the EPA within 7 days of the date on which they became aware of the incident. Note: The licensee or its employees must notify all relevant authorities of incidents causing or threatening material harm to the environment immediately after the person becomes aware of the incident in accordance with the requirements of Part 5.7 of the Act.	10.1

Table 1-2: Statement of Commitments Addressed

SOC reference	Commitments	Where Commitment is addressed
HVO North – Carrington West Wing		
Air Quality	Only the minimum area necessary for mining will be disturbed. Completed overburden emplacement areas will be reshaped, topsoiled and rehabilitated as soon as practicable after the completion of overburden emplacement.	6
Air Quality	Coal handling areas/ stockpiles will be maintained in a moist condition to minimise wind-blown and traffic-generated dust.	6
Air Quality	Water sprays will be available on ROM stockpiles and used to reduce airborne dust, as required.	6

SOC reference	Commitments	Where Commitment is addressed
Air Quality	All roads and trafficked areas will be watered as required, using water trucks, to minimise the generation of dust.	6
Air Quality	All haul roads will have edges clearly defined with marker posts or equivalent to control their locations, especially when crossing large overburden emplacement areas.	6
Air Quality	Obsolete roads will be ripped and re-vegetated.	6
Air Quality	Development of minor roads will be limited and the locations of these will be clearly defined.	6
Air Quality	Minor roads in regular use will be watered.	6
Air Quality	Obsolete roads will be ripped and re-vegetated.	6
Air Quality	Access tracks used by topsoil stripping equipment will be watered.	6
Air Quality	Long term topsoil stockpiles, not used for over three months, will be re-vegetated.	6
Air Quality	Dust aprons will be lowered during drilling.	6
Air Quality	Drills will be equipped with dust extraction cyclones, or water injection systems.	6
Air Quality	Water injection or dust suppression sprays will be used when high levels of dust are being generated.	6
Greenhouse Gas	GHG emission reduction plans and standards will be implemented at HVO and revised as required.	7 HVO Greenhouse Gas Mitigation Plan

1.3 | OBJECTIVES

The purpose of this AQMP is to describe reasonable and feasible measures to address potential air quality impacts of the Project as identified in the Approvals and satisfy the relevant conditions of the Approvals.

This AQMP describes procedures required to ensure compliance with conditions of the Approvals relating to potential air quality impacts. This AQMP also provides a mechanism for assessing air quality monitoring results against the relevant air quality impact assessment criteria.

The objectives of this AQMP are to:

- Identify activities that generate airborne dust;
- Describe control measures to minimise and manage dust generated by these activities;
- Describe how HVO will manage community complaints in a timely and effective manner;
- Provide a program for monitoring performance, evaluating air quality compliance and measuring the effectiveness of controls undertaken by site to effectively manage air quality;
- Describe the steps to be taken where criteria are being exceeded;

- Describe the installation, operation and calibration of monitors in accordance with relevant Australian Standards;
- Describe the process for implementing a continuous improvement system for managing air quality;
- Describe how HVO intends to cooperate with neighbouring mines to minimise the cumulative air quality impacts of those mines and HVO;
- Detail compliance and reporting protocols; and
- Establishing specific responsibilities for the management of air quality.

2 | REGULATORY REQUIREMENTS

2.1 | BACKGROUND

This AQMP has been prepared to fulfil the requirements of relevant legislation, the Approvals, EA commitments, EPL conditions and relevant standards and guidelines.

2.2 | PROJECT APPROVAL

The Approvals and subsequent amendments were assessed under the Environmental Planning and Assessment Act 1979 (NSW) (EP&A Act.). The current HVO North Approval was granted on 12 June 2004 and subsequently modified by the Planning Assessment Commission as delegate of the Minister for Infrastructure and Planning on 24 April 2025.

The current HVO South Approval was granted on 24 March 2009, with the latest modification being approved on 6 February 2023.

The Approvals stipulate air quality criteria that operational activities at HVO must comply with. The air quality criteria under the Approvals are reproduced in Section 1.2.

The requirement for this AQMP arises from Condition 6 of Schedule 3 of the HVO North Approval and Condition 23 of Schedule 3 of the HVO South Approval. A list of the relevant conditions of the HVO Approval's and where they are addressed in this AQMP is found in Section 1.2.

2.3 | ENVIRONMENT PROTECTION LICENCE

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

While not required by the Air Quality conditions of EPL 640, this AQMP lists the measures which will be implemented so as to ensure compliance with the relevant air quality conditions of EPL 640.

Condition 5(c) in Schedule 3 of the HVO North Approval requires that HVO "manage $PM_{2.5}$ levels in accordance with any requirements of any EPL". At the time of submission of this AQMP, EPL 640 does not contain any specific requirements relating to $PM_{2.5}$.

2.4 | RELEVANT STANDARDS AND GUIDELINES

Guidelines and standards applying to dust management at HVO include:

- NSW EPA Approved Methods for the Modelling and Assessment of Air Pollutants in New South Wales (EPA 2017);

- Australian Standard AS / NZS 3580.9.3:2015: Methods for sampling and analysis of ambient air– Determination of suspended particulate matter – Total suspended particulate matter (TSP) – High Volume sampler gravimetric method;
- Australian Standard AS / NZS 3580.9.6:2015: Methods for sampling and analysis of ambient air – Determination of suspended particulate matter – PM10 high volume sampler with size selective inlet – Gravimetric method;
- Australian Standard AS / NZS 3580.9.8:2008: Methods for sampling and analysis of ambient air – PM10 continuous direct mass method using a tapered element oscillating microbalance analyser;
- Australian Standard AS / NZS 3580.10.1:2016: Methods for sampling and analysis of ambient air – Determination of particulate matter – Deposited matter – Gravimetric Method; and
- Australian Standard AS / NZ 3580.9.14:2013 – Methods for sampling and analysis of ambient air – Determination of Suspended particulate matter – PM2.5 high volume sampler with size selective inlet – Gravimetric Method.

3 | CONSULTATION

Condition 6, Schedule 3 of the HVO North Approval and Condition 23, Schedule 3 of the HVO South Approval requires the AQMP to be prepared in consultation with the EPA and include a protocol to minimise cumulative air quality impacts prepared in consultation with neighbouring mines.

3.1 | GOVERNMENT AGENCIES

AQMP Correspondence undertaken in relation to the revision of the AQMP is presented in Table 3-1. A copy of the most recent consultation records are shown in Appendix A.

Table 3-1: External Stakeholder Consultation

Date	Stakeholder	Summary of Consultation
06/09/2019	Howard Reed (DPIE)	Letter received from DPE approving v3.3 of AQMP
2/07/2020	DPE Portal	V3.4 of AQMP submitted for review via DPE Portal
19/05/2022	Joe Fittell (DPE)	Letter received from DPE approving v3.5 of AQMP
24/08/2022	Joel Curran (DPE)	Letter sent with revised AQMP. MP submitted to DPE Portal for review and consultation initiated with EPA.
2/09/2022	EPA	EPA advised HVO in writing that the EPA has no comments on the Air Quality and Greenhouse Gas Mgt Plan and that their role as a regulatory authority, is to set environmental objectives rather than being involved in the development of strategies to achieve those objectives (see Appendix A)
1/06/2023	Tegan Cole (DPE)	Email received requesting further information to be incorporated into revision of AQMP
9/10/2025	Tegan Cole (DPHI)	HVO submit revised AQMP (formerly AQGGMP) following submission of 2024 Annual Review and HVO North Mod 8 granted 28 April 2025.
26/03/2026	Stephen O'Donoghue (DPHI)	Letter received from DPHI approving latest revision of AQMP.

3.2 | 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 considered appropriate.

Liaison with United Wambo, Ravensworth and Mount Thorley Warkworth mines to discuss potential cooperation options has been undertaken as part of a previous Pollution Reduction Programme and air quality monitoring optimisation program assigned to Environment Protection Licences by the EPA. Two examples of those are Disturbing and Handling Overburden under Adverse Weather Conditions and implementation of a near source monitoring network, configured along the axis of prevailing winds. 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 each site and methods to address cumulative impacts.

4 | EXISTING CHARACTER

4.1 | EXISTING CHARACTER

The HVO North complex comprises the:

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

HVO South comprises the:

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

Figure 4-1 shows the layout of HVO.

4.2 | APPROVED ACTIVITIES

- HVO’s mining activities north of the Hunter River are comprised of:
- four coal mining areas, including the West and Mitchell Pits, Carrington and North Pit;
- use of the HCPP, NCPP and HVCPP;

- 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; and
- use of numerous internal haul roads and conveyors.

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

- open cut and highwall mining of coal reserves in Cheshunt Pit, Riverview Pit;
- mining by a combination of draglines, shovels, excavators and associated haul trucks;
- use of an administration area (Southern Facilities);
- maintenance of Heavy Mining Equipment (HME) at the Lemington Workshop;
- storage of explosives (reload facility);
- manufacture of blasting emulsion product; and
- use of numerous internal haul roads.

4.3 | BACKGROUND AIR QUALITY

A detailed air quality assessment has been undertaken as part of the environmental assessment phase of the HVO West Pit and minor modifications development, Carrington West Wing, and the HVO South Modification 5.

The air quality studies detail key receptors and background conditions, as well as modelled impacts under a range of meteorological scenarios at different stages of the life of the developments. The modelling also takes into account typical meteorological conditions, based on measured conditions in the years prior to the study.

Each of these modelling exercises has been undertaken using methodologies which are accepted by the NSW EPA. The Carrington West Wing Extension Air Quality Study and HVO South Modification 5 modelling exercises were undertaken in accordance with the guideline ‘Approved Methods for the modelling and assessment of air pollutants in New South Wales” (DEC 2005) (now superseded (EPA 2017)).

For full details, refer to:

- ‘Air Quality Impact Assessment’, Volume Three – Supporting Appendices, Carrington West Wing Environmental Assessment, EMGA Mitchell McLennan – October 2010.
- Air Quality and Greenhouse Gas Assessment– Hunter Valley Operations South Modification 5, Volume 1 Environmental Assessment – February 2017.
- HVO South Modification 5 – Update of the Approved Methods Letter – March 2017.
- ‘Air Quality Assessment: West Pit Extension and Minor Modifications’, Volume Three – Technical Reports, Environmental Resource Management – October 2003.

These studies can be found on the HVO website (www.hvo.com.au) and are available for internal stakeholders via the Site Document Register.

Details of nearby receptors (nearby private residences and occupied mine-owned properties) are maintained by Environment & Community department.

4.4 | IMPACT ASSESSMENT CRITERIA

The air quality criteria for HVO North and HVO South, as specified in the Approvals, are provided in full in Table 1-1.

The air quality criteria include impact assessment criteria, used for assessing compliance, and land acquisition criteria. An exceedance of the land acquisition criteria may trigger acquisition rights for the impacted property.

The Approvals require the monitoring of:

- Total Suspended Particulates (TSP);
- Particulate Matter with an aerodynamic diameter less than 10 µm (PM_{10});
- Particulate Matter with an aerodynamic diameter less than 2.5 µm ($PM_{2.5}$); and
- Deposited dust (insoluble solids).

All of the criteria refer to the mass of the substance measured over a period of time; (refer to Table 1-1).

TSP refers to the total dust particles that are suspended in the air. PM_{10} is a subset of TSP, as is deposited dust. TSP is assessed as defined by Standards Australia AS / NZS 3580.9.3:2015: Methods for sampling and analysis of ambient air – Determination of suspended particulate matter – Total suspended particulate matter (TSP) – High Volume sampler gravimetric method (AS 3580.9.3:2015). This method can be used for regulatory compliance monitoring.

PM_{10} refers to particulate matter with an aerodynamic diameter less than 10µm. PM_{10} is assessed as defined by Standards Australia AS / NZS 3580.9.6:2015: Methods for sampling and analysis of ambient air – Determination of suspended particulate matter – PM_{10} high volume sampler with size selective inlet – Gravimetric method and also defined by Standards Australia AS 3580.9.8:2022: Methods for sampling and analysis of ambient air Method 9.8: Determination of suspended particulate matter – PM_{10} continuous direct mass method using tapered element oscillating microbalance analyser (TEOM). These methods can be used for regulatory compliance monitoring.

$PM_{2.5}$ refers to particulate matter with an equivalent spherical aerodynamic diameter less than 2.5µm. $PM_{2.5}$ is currently assessed as defined by Standards Australia AS / NZ 3580.9.12:2022 – Methods for sampling and analysis of ambient air – Determination of Suspended particulate matter – $PM_{2.5}$ beta attenuation monitor (BAM).

Deposited dust relates to the largest dust particles in the air. These particles rarely travel far from the source as they rapidly settle under gravity. Deposited dust is assessed as insoluble solids as defined by Standards Australia AS / NZS 3580.10.1:2016: Methods for sampling and analysis of ambient air – Determination of particulate matter – Deposited matter – Gravimetric Method. This method can be used for regulatory compliance monitoring.

4.5 | BASELINE AIR QUALITY

This section provides a brief overview of the existing, or background, dust levels in the area based on data drawn from the HVO monitoring network which provide measurements of 24-hour average concentrations of TSP and PM_{10} on a six-day cycle and monthly averages of dust fallout levels.

Table 4-1 provides a summary of the annual average PM_{10} and TSP values for monitoring locations around HVO from 2005 to 2017 inclusive.

Table 4-1: Annual average PM_{10} and TSP concentrations at High Volume Air Sampling Sites

Monitoring site	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
PM_{10} (µg/m^3)													
Jerrys Plains	*14*	*15*	*18*	*16*	*19.3*	*14.0*	*22.9*	*20.1*	*NA*	*NA*	*NA*	*NA*	*NA*
Moses Crossing	*16*	*17*	*20*	*15*	*17.5*	*12.8*	*13.9*	*15.4*	*19.3*	*18.8*	*16.3*	*15.4*	*17.4*
Wandewoi	*17*	*18*	*19*	*17*	*17.6*	*13.4*	*15.1*	*NA*	*NA*	*16.4*	*15.5*	*15.6*	*18.1*
Cheshunt East	*NA*	*25*	*24*	*22*	*27.3*	*19.1*	*19.5*	*NA*	*NA*	*23.7*	*18.6*	*18.5*	*22.7*
Maison Dieu	*NA*	*23*	*21*	*18*	*17.4*	*16.5*	*23.9*	*20.4*	*18.7*	*19.8*	*17.6*	*17.7*	*22.2*
TSP (µg/m^3)													
Jerrys Plains	*30*	*52*	*49*	*52*	*59.9*	*41.2*	*38.9*	*40.3*	*NA*	*NA*	*NA*	*NA*	*NA*
Moses Crossing	*33*	*45*	*52*	*37*	*42.5*	*34.3*	*35.8*	*57.0*	*49.3*	*57.0*	*59.5*	*54.5*	*64.2*
Wandewoi	*42*	*49*	*47*	*40*	*46.4*	*39.4*	*14.3*	*NA*	*NA*	*46.5*	*47.3*	*49.7*	*61.1*
Maison Dieu	*NA*	*68*	*57*	*51*	*61.3*	*45.5*	*61.4*	*63.4*	*64.6*	*62.0*	*54.4*	*55.9*	*68.7*

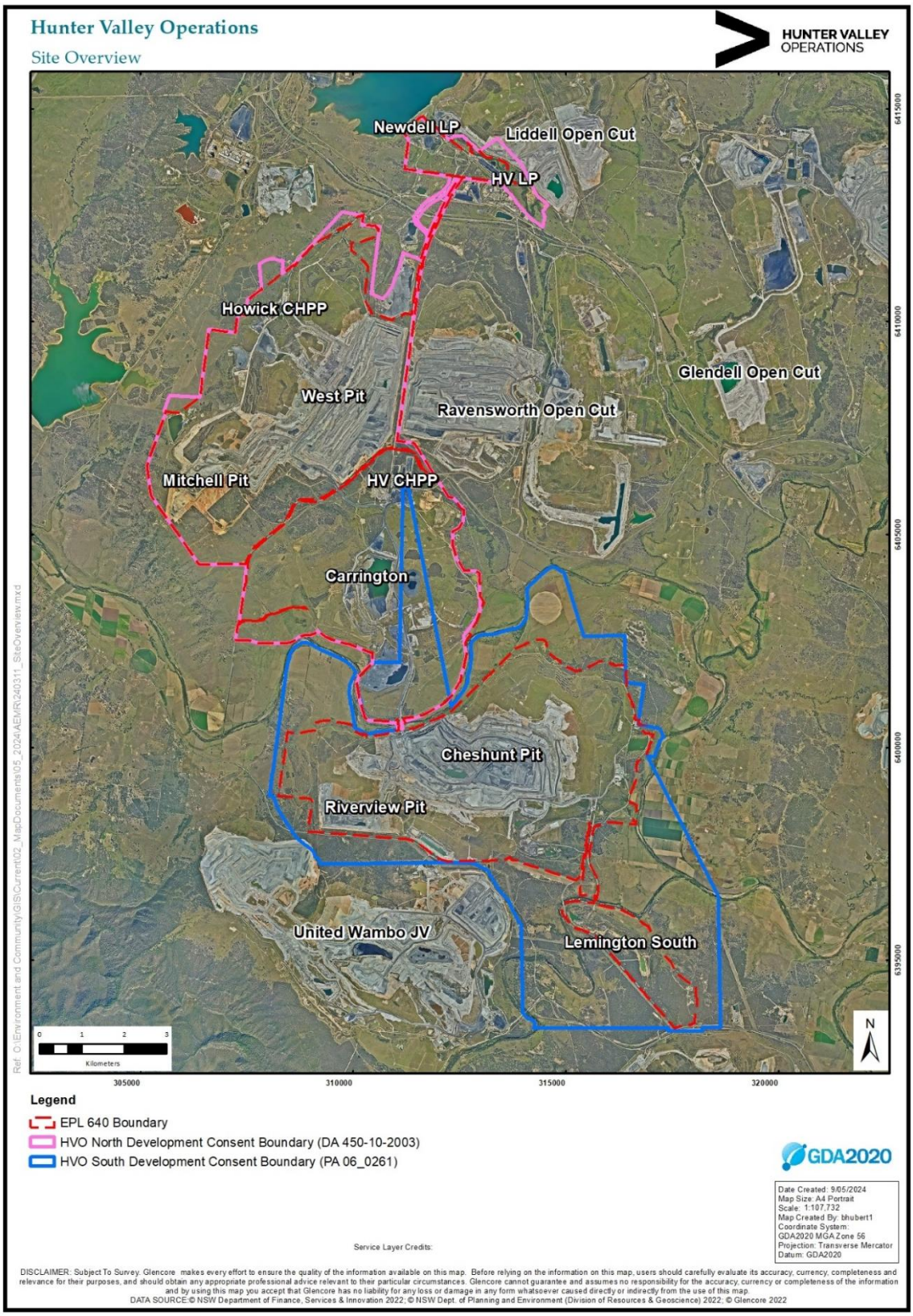

Figure 4-1: Location of Hunter Valley Operations

5 | MANAGEMENT & MITIGATION

5.1 | PRINCIPLES AND FRAMEWORK

The principles and framework for environmental management at HVO as described in the HVO Environmental Management Strategy is based on the following;

- Commitment and Leadership;
- Planning and Policy;
- Implementation;
- Measurement and Evaluation;
- Review; and
- Continuous Improvement.

5.2 | BEST PRACTICE MANAGEMENT

Section 128 of the PoEO Act requires that the Project must operate “by such practicable means as may be necessary to prevent or minimise air pollution.” This requirement applies the concept of practicable means to air quality management.

Part 7.2.1 of the NSW Approved Methods for the Modelling and Assessment of Air Pollutants in NSW (2017) introduces the concept of minimising (toxic) air pollutants “...to the maximum extent achievable through the application of best-practice process design and/ or emission controls.” and outlines that this would have regard to technical, logistical (i.e. practicable) and financial (cost-effective) considerations.

Best management practice in this AQMP is defined as practices used to manage air quality that is consistent with the following:

- The measure should firstly aim to prevent emissions, and where that is not practicable, to generally reduce emissions and 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.

5.3 | MANAGEMENT OF MINE OWNED RESIDENCES

Condition 4C, Schedule 3, and, Conditions 1(b), (c), 2 and 3 of Schedule 4 of the HVO North Approval outline specific requirements for the management of mine-owned residences.

Similarly, Condition 21A, Schedule 3 and Conditions 2 and 3 of Schedule 4 of the HVO South Approval also outline the specific requirements for management of mine-owned residences.

Specifically each approval specifies that:

1 Due to the often large distances between the source of emissions and the potentially impacted receptor, priority should be given to measures that can be shown to minimise impact over measures that simply minimise emissions. For example, to manage deposited dust at a location, the nearest sources are most likely to influence the level of impact, even if these are relatively minor sources compared to others.

2 Meaning more than just air quality impacts should be considered

- HVO must ensure that the air quality criteria are not exceeded at any occupied residence on mine-owned land (including land owned by adjacent mines), unless a range of administrative measures are undertaken; and
- Must ensure that prescribed notification requirements are met.

5.3.1 | HVO OWNED, OCCUPIED RESIDENCES

To comply with these requirements at HVO owned and occupied residences, HVO will:

- As soon as practicable after an exceedance of Air Quality criteria:
  - Provide the tenant with written notice of the exceedance;
  - Provide the tenant with regular monitoring results until the development is again complying with the relevant criteria previously exceeded; Data will be in an appropriate format for the tenant's medical practitioner to assist them in making an informed decision on the health risks associated with continued occupation of the property; and
  - Provide the tenant with a copy of the NSW Health fact sheet entitled "Mine Dust and You" (if not recently provided).
- Subject to giving reasonable written notice, permit tenants to terminate their tenancy agreement with HVO without penalty. A clause making provision for this will be inserted into new tenancy arrangements entered into post 30 September 2013.
- Where the tenant has given reasonable notice that they wish to terminate their tenancy arrangement in accordance with the HVO North consent, the tenant will receive assistance from HVO will use its best endeavours to assist with relocation and sourcing of alternative accommodation. Assistance will be offered by HVO in the form of:
  - Firstly, offering alternate available HVO owned property; and
  - Secondly, where HVO does not hold any other available residence, refer the tenant to HVO's preferred real estate agent/property manager to assist the outgoing tenant in finding alternate accommodation.
- Install air mitigation measures (such as air filters, a first flush roof water drainage system and/or air conditioning) at the residence if the tenant so requests.
- Provide particulate matter monitoring data collected from existing nearby monitors (see Section 8.3). This data will be presented in a form suitable for a medical practitioner to assist the tenant in making an informed decision on the health risks associated with occupying the property.
  - HVO has provided written notification to the tenants of HVO owned residences of their rights as described above.

5.3.2 | OTHER MINE OWNED, OCCUPIED RESIDENCES

To comply with the relevant requirements for tenants and landowners of residences owned by mining companies, other than HVO, HVO will:

- As soon as practicable after an exceedance of applicable HVO air quality criteria:
  - Provide the landowner with a notice of an exceedance;
  - Provide the landowner with regular monitoring results until the development is again complying with the relevant criteria previously exceeded data will be in an appropriate format for the

tenant's medical practitioner to assist them in making an informed decision on the health risks associated with continued occupation of the property;

  - Provide the landowner with a copy of the NSW Health fact sheet entitled "Mine Dust and You" (if not recently provided); and
  - Request that the landowner provide a copy of all this information to any tenant occupying those residences.

- Install air mitigation measures (such as air filters, a first flush roof water drainage system and/or air conditioning) at the residence if the tenant and landowner jointly requests such, unless:
  - the listed mitigation measures are required as a condition in the neighbouring mine's existing project approval; and/or
  - the listed mitigation measures are already installed at the affected property.
- Provide particulate matter monitoring data collected from existing nearby monitors (see Section 8.3). This data will be presented in a form suitable for a medical practitioner to assist the tenant in making an informed decision on the health risks associated with occupying the property.
- HVO has provided written notification of these rights to the landowners and request that a copy of the notification be passed on to the tenants of those properties which are occupied now or in the future.

6 | AIR QUALITY MANAGEMENT CONTROLS

6.1 | INTRODUCTION

To understand how mining activities may affect air quality four factors should be considered:

- The generation of dust from mining activities;
- The dispersion in the air of the generated dust;
- How various size fractions of dust behave in the air; and
- The prevailing background dust levels.

Overall, there are two distinct weather conditions under which most short term dust impacts will occur:

- Hot, high wind conditions, especially where winds are relatively constant - under these conditions the quantity of dust from an operation can be high, leading to high impacts; and
- Stable atmospheric conditions with a gentle wind drift towards receptors - often these are temperature inversion conditions where there is little vertical mixing of the air, and hence relatively low dispersion of the dust leaving the site.

Background dust levels will vary considerably in the wider area around a mine, and from day-to-day. The background levels at a monitoring site are affected by localised sources of dust including dirt roads, activities on, and wind erosion of, exposed or grazed agricultural land, burning, particles from urban areas, wood heating in winter and pollens. In addition, background levels will include regional events, such as extremely dry and windy conditions, dust storms and bushfires.

6.2 | SOURCES OF DUST

The generation of dust emissions from open cut mine activities can be considered in three distinct categories:

- Wind generated emissions, such as wind erosion of exposed surfaces, including stockpiles, overburden dumps and active pit areas, among others;
- Wind sensitive emissions, such as loading, dumping, emplacement, (essentially wherever material falls through the air); and
- Wind insensitive emissions, such as wheel generated dust from hauling, and dust from blasting and drilling where the amount of dust does not depend on the wind speed at the time.

On windy days, particularly during prolonged dry periods, wind generated emissions and wind sensitive emissions will greatly increase. Dust generating activities identified from HVO comprise of:

- Hauling of materials along unsealed roads;
- Loading and unloading of materials;
- Dozers/excavators operating on material;
- Wind erosion from exposed areas;
- Clearing of vegetation, topsoil and subsoil stripping;
- Stockpiling of coal, topsoil and gravels;
- Drilling and blasting of materials;
- Grading roads;
- Re-handling of materials;
- Handling of washed product coal; and
- Transport to and loading of trains at the load points.

The prevailing atmospheric stability class conditions greatly affect the dispersion of dust emissions in the air. The degree of atmospheric dispersion effects the concentration of dust in the air at a distance away from the source.

The various size fractions of particulate matter generated by mining activity will remain entrained in the air for different periods due to gravitational settling. Larger fractions will rapidly fall out of the air, while the smaller fractions can travel large distances before settling out of the atmosphere. It is important to note the further the dust travels the more dispersion will occur and the lower the concentration will be.

6.3 | OPERATIONAL CONTROLS

6.3.1 | ODOUR

Measures will be put in place to control, as far as practicable, that no offensive odours, as defined under the PoEO Act, are emitted from HVO. Spontaneous combustion is considered the only substantial odour risk at HVO. An existing area of chitter emplacement in the vicinity of the Newdell CHPP has been identified as a known spontaneous combustion risk area and continues to be actively monitored and managed accordingly.

Covering of exposed material during spontaneous combustion events is the key control used to minimise odour and air quality emissions in line with the HVO Principal Hazard Management Plan for Spontaneous Combustion.

6.3.2 | DUST

The best practice control measures and actions, (both proactive and reactive), for air quality management at HVO can be broken down into a number of subcategories based on control target, as listed below.

6.3.2.1 | GENERAL

- Site induction is to include air quality requirements to provide employee awareness of potential dust impacts
- A programme of regular monitoring for the measurement of TSP, PM_{10}, $PM_{2.5}$, dust deposition and meteorological conditions is to be implemented, using a combination of static monitors (HVAS and depositional dust gauges) and real-time air quality monitoring and implementation of warning systems.
- Operate a proactive system to provide appropriate warning of adverse meteorological conditions when trigger levels may be exceeded (see Section 6.3.2.2).
- Operate a network of dedicated cameras for visual monitoring of dust and implement an Air Quality Trigger Action Response Plan (TARP). These will be used by accountable personnel on an as-needs basis to determine if additional control measures are required.

6.3.2.2 | PROACTIVE MANAGEMENT

- Predictive modelling is undertaken and received by HVO Environment and Drill and Blast staff on a daily basis, which is used to identify periods of the day where air pollutant (particularly blast plume) dispersion is favourable / unfavourable. The forecast dispersion conditions are reviewed and used to inform drill and blast staff of the optimum time to fire, based on the risk of plume trajectory towards sensitive receptors. See Figure 12-1 of Appendix B.
- HVO receives predictive meteorological forecast information. The forecast information highlights periods of the day which are predicted to present potential dust risk at various surrounding receptor locations. The forecast details levels of risk and associated actions that may need to be applied during these times ranging from maintaining current controls, pre-empting deteriorating conditions to operational modifications that may be required.

6.3.2.3 | DISTURBED AREAS

- Minimise advance clearing/ site preparation to reduce wind erosion. Only the minimum area necessary for mining will be disturbed.
- Design overburden placement to minimise the disturbance area, i.e. use of in-pit dumping when available following receipt of a trigger in conjunction with the real time air quality monitoring network.
- Progressively reshape, topsoil and rehabilitate completed overburden emplacement areas, in accordance with the Annual Rehabilitation Management Plan.
- Temporary stabilisation of unused areas or dump slopes will be undertaken annually by way of aerial seeding or similar. Review of operating areas will be conducted in the weeks leading up to each seeding event. Seed will be applied where practicable to areas that are planned to be inactive for approximately six months or more.
- Cleared vegetation is mulched and then typically incorporated into topsoil during the stripping process. Prior to stripping mulch remains insitu on the soil surface providing soil stabilisation.
- Regularly water cleared areas during construction activities, where visual inspection necessitates watering.

6.3.2.4 | HANDLING OF MATERIALS

- During topsoil stripping, make dust suppression options available to increase topsoil moisture if significant dust lift off occurs during stripping.
- Avoid or postpone ripping/pre-strip of overburden if significant dust lift off occurs and winds direct dust towards receptors as indicated by real time monitoring data.
- Load and dump operations will be managed to minimise dust generation with the development of allocation options which take into consideration wind speed and direction.
- Cease or modify activities as required during adverse meteorological conditions as defined by EPA dust stop program.

6.3.2.5 | ROAD DESIGN

Consideration should be given to:

- Using the largest practical and cost-effective truck size for transporting coal and overburden;
- Minimising haul lengths when dumping in-pit based on potential air impacts; and
- Locating haul roads in the lee of terrain rather than across the top of exposed terrain, where feasible. Major Haul Roads will be constructed using preferentially selected material.

6.3.2.6 | ROADS, ALL

- Impose speed limits on all roads;
- Utilise the existing watercart fleet to maintain haul road dust control effectiveness;
- Suspend operations of unused road networks as soon as practicable;
- All roads and regularly trafficked unpaved areas will be routinely watered using water carts to minimise the generation of dust;
- Roads which are seldom used will be watered as appropriate or have restricted access;
- Obsolete roads will be ripped and revegetated.
- Development of minor roads will be limited.

6.3.2.7 | PRIMARY HAUL ROADS (I.E. HAUL ROADS USED FOR 12 MONTHS OR MORE)

- Construct primary roads to achieve a compact, stable and durable surface using material with a low silt/ fines content.
- Regularly maintain haul roads to maintain a smooth surface, define road edges and manage build-up of fine material on the road surface.

6.3.2.8 | TEMPORARY HAUL ROADS (I.E. HAUL ROADS USED FOR FEWER THAN 12 MONTHS)

- Watering is to be applied to temporary haul roads to manage dust emissions, as necessary.

6.3.2.9 | OTHER UNSEALED ROADS AND TRACKS

- Road vehicles should aim to remain on formed roads and tracks at all times, i.e. limited discretionary off-road driving. Limit off-road driving to necessary situations, e.g. survey/ inspection work.

- Access tracks used by topsoil stripping scrapers during their loading and unloading cycle will be watered.
- Appropriate speed limits assigned to minimise dust generation.
- Closure of auxiliary roads as required under adverse meteorological conditions.
- Restricted access to un-used tip heads.

6.3.2.10 | TOPSOIL STOCKPILES

- Long term stockpiles will be re-vegetated as soon as practicable.

6.3.2.11 | IN-PIT AND ROM COAL STOCKPILES

- Watering is to be applied to manage dust emissions as necessary; and
- Ceasing or modifying loading and dumping in coal stockpile areas to minimise dust emissions during adverse weather conditions.

6.3.2.12 | DRILLING AND BLASTING

- Conduct blasting in accordance with the permissions page, unless otherwise required for safety reasons.
- Drill rigs will utilise water injection or be fitted with dust mitigation such as sprays and dust aprons that will be lowered during drilling. Drill rigs will not be operated without adequate dust control. Stem blast holes to prevent venting of explosion gases.
- Use adequate stemming in drill holes at all times.
- Operate a pro-active (predictive) dust and blast fume management system based on forecast and real time weather data.
- Water will be applied to drill cuttings / turkey nests where excessive dust lift-off is likely.

6.3.2.13 | CHPP

- Water sprays will be employed at the feeder, crusher, conveyor and transfer points unless operating conditions do not necessitate additional suppression.
- All conveyors will be fitted with appropriate cleaning and collection devices.
- Where possible use of ‘hood and spoon’ chutes.
- Use enclosed conveyor transfer.
- Regularly clean areas where spilt material can build up, e.g. under transfer chutes and conveyors.
- Daily completion of area environmental inspection.
- Road haulage trucks (using public roads) will have covered loads (until immediately unloading) and secured tailgates to prevent windblown dust emissions or spillage.

6.3.3 | DESIGN MEASURES

The potential design measures that can be considered for the Project will be limited by the established mine plan design. The key measures that are available within the existing mine plan designs for the Project are as follows:

- Limiting the spatial extent of activity on exposed areas, i.e. working more intensely in limited areas rather than working less intensely over larger areas;
- Where possible use alternative, low elevation dumps (for use during adverse meteorological conditions); and
- Limiting the haul lengths and constructing roads from carefully selected materials to form a tightly bound, stable surface.

Many of these design related aspects are also included within the operational measures.

6.4 | REAL-TIME AIR QUALITY ALARMS

HVO currently utilises a network of Tapered Element Oscillating Microbalance (TEOM) units in support of the proactive and reactive air quality management system. Implementation of a number of the available reactive management options is triggered following recording of elevated PM_{10} measurements at these monitoring locations. Real time air quality alarms are currently in place at the following locations:

- Maison Dieu
- Knodlers Lane
- Warkworth
- Wandewoi

The trigger levels and operational response matrix are detailed in Table 6-1 and Figure 6-1

In support of the TEOM network described above, HVO has implemented additional supplementary real time monitors upwind and downwind of the operation as part of the EPA's air quality monitoring optimisation programme.

6.5 | RISK / RESPONSE MATRIX

Table 6-1: Real Time Air Quality Alarm System Overview

Monitoring location	Trigger level	Response actions
HVO Corporate Met Station	*Wind Speed >8m/sec*	• *Validation of alarm (verify monitors functioning correctly and review meteorological conditions)* • *Notify relevant Open Cut Examiner*
HVO Cheshunt Met Station	*Wind Speed >8m/sec*	
Maison Dieu	***Stage one*** • *10 min average PM_{10} > 150µg/m^3 (winds in arc of mine to monitor)* • *1 hour average PM_{10} > 50µg/m^3 for three consecutive*	
Knodlers Lane		

Warkworth	*hours (winds in arc of mine to monitor)* ***Stage two*** *• rolling 24hr average PM_{10} > 50µg/m^3 for six consecutive hours (winds in arc of mine to monitor)* *• 10min average PM_{10} >150 µg/m^3 for three consecutive hours (winds in arc of mine to monitor)*	• *Response as per flowchart below*
Wandewoi		

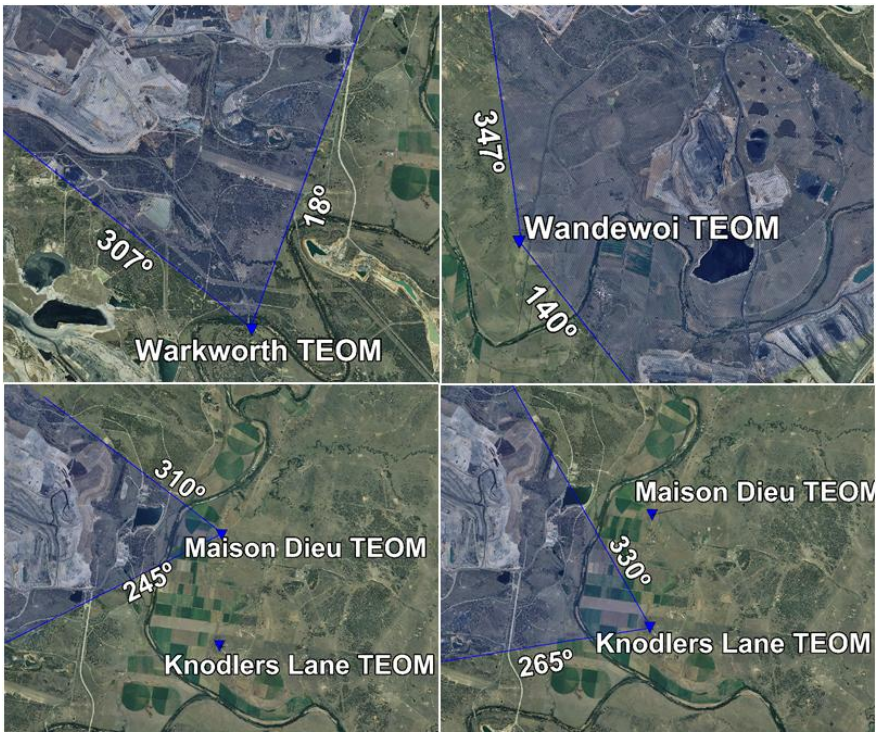

Figure 6-1: Stage 2 air quality alarms – wind arcs from 'mine to monitor'

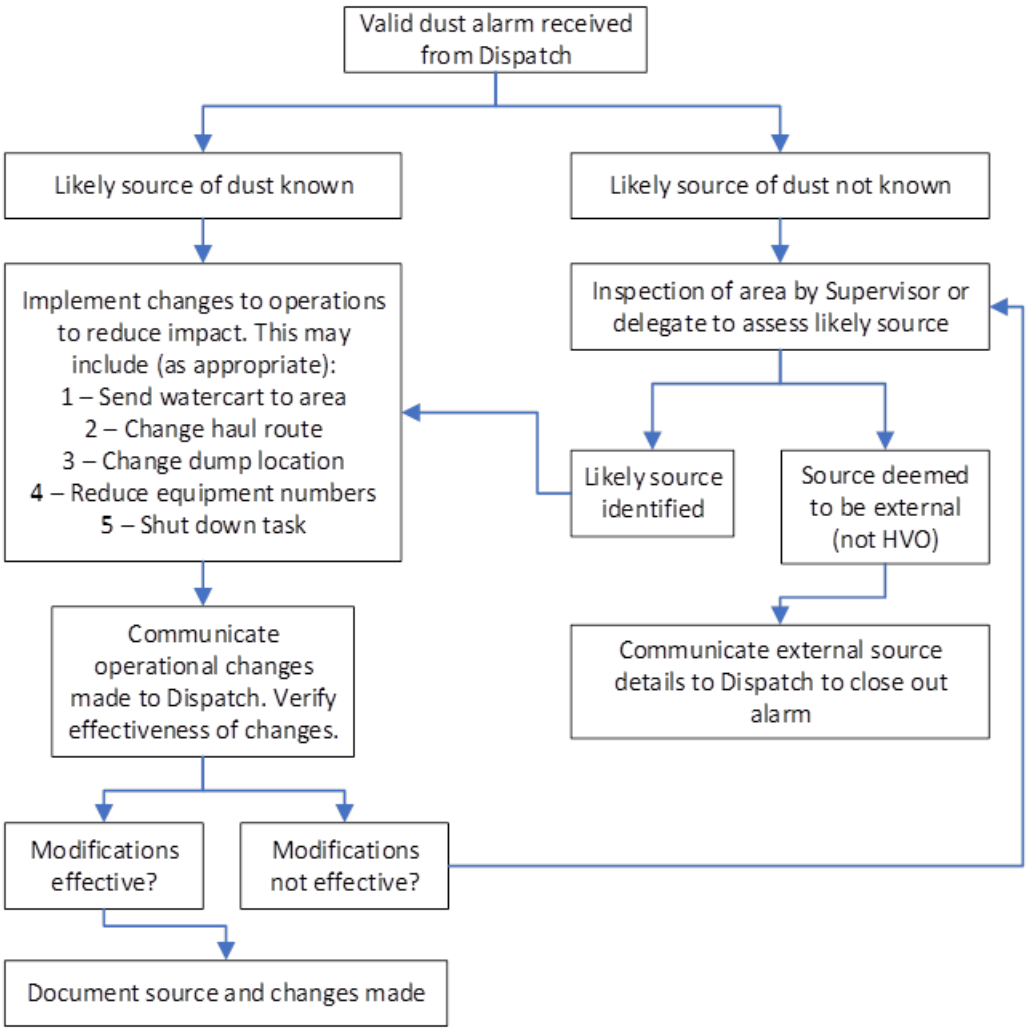

Figure 6-2: Matrix of pre-determined actions

6.6 | MANAGEMENT OF UNPREDICTED IMPACTS

In the unlikely event that unpredicted air quality impacts are found to be occurring at nearby privately owned residences, HVO will consider management options 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).
- Acquisition of the affected property.

6.7 | MANAGEMENT OF AIR QUALITY IMPACTS FROM COAL TRANSPORT BY RAIL

HVO continues to manage potential air quality emissions associated with coal transportation to the Port of Newcastle through the following measures:

- Design of train loading facilities supports effective profiling of coal in train wagons, minimising wind-blown dust; and
- Transport of coal following the coal washing process, so that approximately 10% Total Moisture (TM) is retained.

6.8 | CONTINUOUS IMPROVEMENT

HVO will look for ways to improve air quality performance, by way of:

- yearly review of the monitoring programme;
- Annual Review;
- periodic internal reviews of procedures; and
- investigation results from any air quality incident.

These will be used as a means of investigating and implementing ways to improve the environmental performance of the Project over time.

7 | GREENHOUSE GAS MITIGATION PLAN

Within 6 months of approval or otherwise agreed by the Secretary, HVO is required to develop a Greenhouse Gas Mitigation Plan to meet the requirements of condition 6A of development consent DA 450-10-2003 Modification 8 (Mod 8) (approved 24 April 2025) in consultation with the NSW EPA.

The GHG Mitigation Plan will outline the ongoing emission mitigation and management strategies to be considered and, where practicable and feasible, implemented throughout the life mine.

As noted within Condition 6A, once the GHG Mitigation Plan has been prepared, the greenhouse gas management components of DA 450-10-2003 Schedule 3 Condition 6 can be satisfied through that plan and the EPA's regulatory framework. Similarly, HVO also intends to satisfy HVO South PA 06_0621 Schedule 3 Condition 53 with the same document.

8 | AIR QUALITY MONITORING

8.1 | MONITORING PROGRAM

Air Quality Monitoring for the Project site will be undertaken in accordance with the Air Quality Monitoring Program set out in this section. The monitoring program will be reviewed annually.

The monitoring locations are subject to change and will be updated periodically to align with management needs and to accommodate progression of mining. A protocol for evaluating compliance with the air quality impact assessment and land acquisition criteria is detailed Section 9. Section 8.2 details the private residences which are represented through this monitoring programme.

Monitoring locations to be used to measure compliance with the relevant subclauses to Conditions 4C and 6 (f) of Schedule 3 (DA 450-10-2003) and Conditions 21A and 23 (e) of Schedule 3 (PA 06_0261) are outlined in Section 8.3. Land which was subject to acquisition upon request (Table 1 of HVO North Approval) is now mine owned, air quality monitoring of these lands are also represented in Section 8.3.

Air Quality monitoring is conducted at various locations surrounding HVO as shown in Figure 8-1 and detailed in Table 8-1 and Table 8-2 as detailed below. Monitoring detailed in Table 8-1 and Table 8-2 is undertaken at identical locations using the same monitors.

Table 8-1: HVO Air Quality Monitoring – Planning Approval Compliance Assessment

Parameter	Frequency[5]	Monitor Location	Limit/Guideline	Sampling Method
Depositional Dust – privately owned land	*Monthly*	*D118* *D119* *DL14*	***HVO North Only*** *Maximum increase in deposited dust level* *2 g/m^2/month (Annual Average)* *Maximum total deposited dust level* *4 g/m^2/month (Annual Average)*	*Approved Methods[1] 19* *Australian Standards 3580.10.1:2016*
Total Suspended Particulate	*24 hours every 6 days*	***HVO South*** *Moses Crossing* *Knodlers Lane* *Maison Dieu* *Long Point* ***HVO North*** *Cheshunt East* *Moses Crossing*	*Annual Average - 90 µg/m^3*	*AM-15* *AS3580.9.3:2015[2]* *(High Volume Air Samplers)*
PM_{10}	*24 hours every 6 days*	***HVO South*** *HVGC* *Moses Crossing* *Long Point* ***HVO North*** *Cheshunt East* *Moses Crossing*	***Short Term*** *24 Hour Average -50 µg/m^3* ***HVO South*** *Annual Average- 25 µg/m^3* ***HVO North*** *Annual Average - 30 µg/m^3*	*AS3580.9.6:2015[2]* *(High Volume Air Samplers PM_{10})*

Parameter	Frequency[5]	Monitor Location	Limit/Guideline	Sampling Method
PM_{10}	*Continuous[3]*	***HVO South*** *Knodlers Lane* *Maison Dieu (OEH operated unit)* *Warkworth (OEH operated unit)* *Jerrys Plains (OEH operated unit)* ***HVO North*** *Jerrys Plains (OEH operated unit)*	*24 Hour Average - 50 µg/m³* ***HVO South*** *Annual Average - 25 µg/m³* ***HVO North*** *Annual Average - 30 µg/m³*	*AS3580.9.8:2022[2]* *(Tapered Element Oscillating Mass Balance)*
PM_{10}	*Continuous[3]*	*Wandewoi*	*Measurement for management purposes*	*AS3580.9.8:2022[2]* *(Tapered Element Oscillating Mass Balance)*
$PM_{2.5}$	*Continuous[6]*	***HVO South*** *Moses Crossing* *Maison Dieu*	***HVO South*** *24 Hour Average- 25µg/m³* *Annual Average - 8 µg/m³*	*AS3580.9.12:2022[2]* *(Beta Attenuation Monitor $PM_{2.5}$)*
Meteorological Stations	*Continuous*	*HVO Corporate[4]* *Cheshunt[4]*	*Measurement for management purposes*	*AM1, AM2, AM4* *AS 3580.14:2014[2]*

1 New South Wales Environment Protection Agency 'Approved Methods for the Sampling and Analysis of Air Pollutants in New South Wales' (AM) guidelines.

2 Australian Standard (AS).

3 All continuous PM_{10} air quality monitors are TEOM units.

4 Meteorological stations are calibrated and maintained to a Class 2 performance standard.

5 Mis captures and data recovery statistics will be reported in the Annual Review and Annual Return where relevant. Mis captures include real time monitoring daily data recovery of less than 75%, invalid samples and missing scheduled sample periods for high volume air samplers and depositional dust gauges

6. All continuous $PM_{2.5}$ air quality monitors are BAM units.

Table 8-2: HVO Air Quality Monitoring - EPL Monitoring Locations

Parameter	Frequency	Monitor Location	Guideline	Sampling Method
PM_{10}	*Continuous[1]*	*Knodlers Lane (EPL ID #16)* *Wandewoi (EPL ID #15)* *Howick (EPA ID #13)* *Golden Highway (EPA ID #17)* *West Pit (EPA ID #44)*	*EPL 640*	*AS3580.9.8:2022* *(Tapered Element Oscillating Mass Balance)*

1 Mis captures and data recovery statistics will be reported in the Annual Review and Annual Return where relevant. Mis captures include real time monitoring daily data recovery of less than 75%, invalid samples and missing scheduled sample periods for high volume air samplers and depositional dust gauges.

Condition 5(c) in Schedule 3 of the HVO North Approval requires that HVO "manage $PM_{2.5}$ levels in accordance with any requirements of any EPL". At the time of submission of this AQMP, EPL 640 does not contain any specific requirements relating to $PM_{2.5}$.

The requirement for "supplementary monitoring" as described in the Project Approval shall be satisfied through the placement of additional TEOM units in close proximity to the mine boundary, aligned with prevailing winds, in conjunction with the principles of the NSW EPA Air Quality Monitoring Optimisation program.

Real-time meteorological data will be collected in conjunction to air quality monitoring data. This information shall include wind speed and direction, rainfall, temperature and humidity.

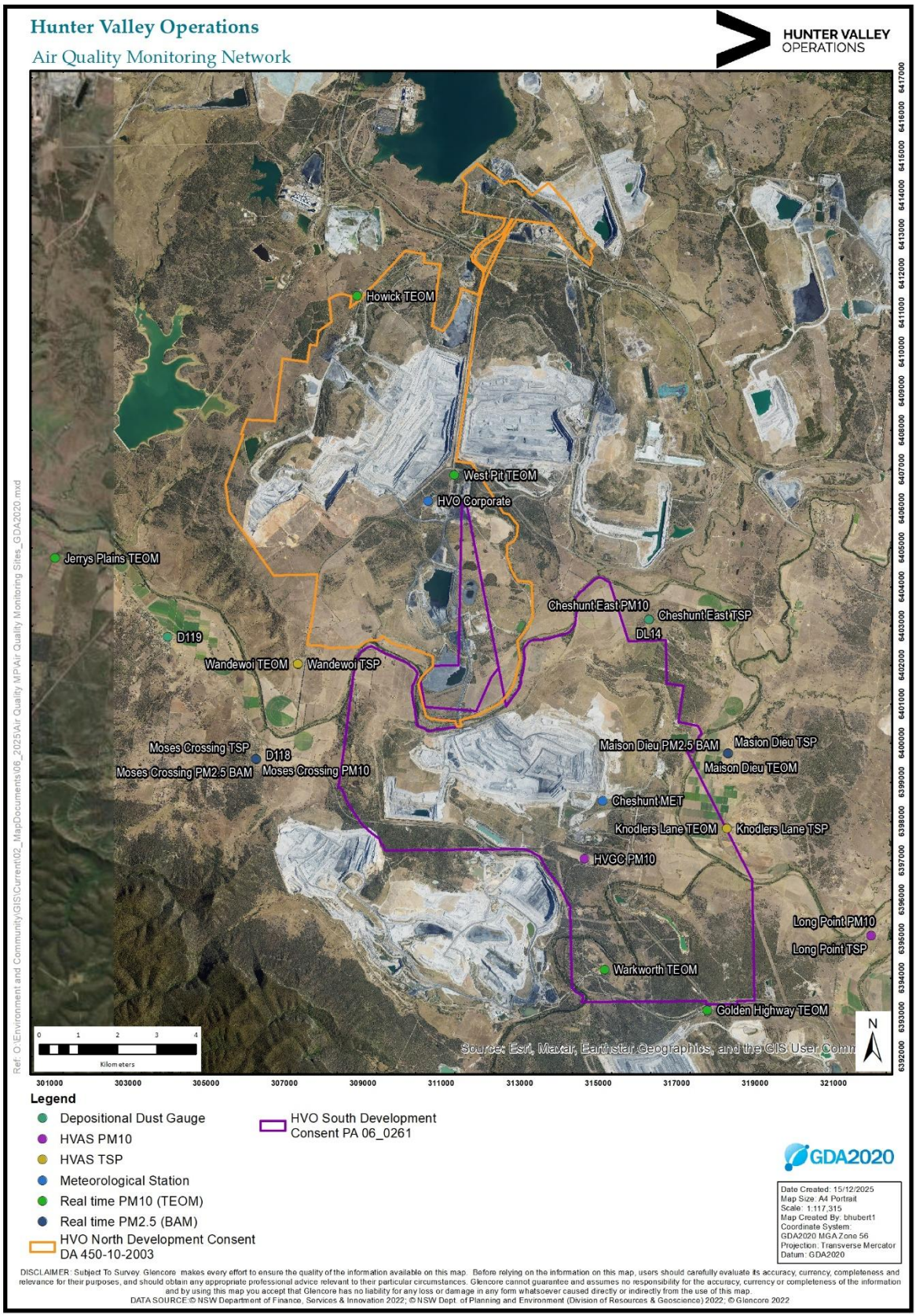

Figure 8-1: HVO Air Quality Monitoring Locations

8.2 | REPRESENTATION OF PRIVATE RECEPTORS

In order to assess compliance against the impact assessment and land acquisition criteria, results of air quality monitoring as outlined in the Air Quality Monitoring Program shall be compared against the relevant conditions (outlined in Tables 8 – 13 of the HVO South Coal Project Approval, and Tables 2 – 7 of the HVO North Development Consent).

Where monitoring data represents a non-compliance with the criteria, all landowners in the vicinity of the nearest monitoring location (see Figure 5) will be notified in writing, supporting contact details are maintained in HVO's Spatial Database sets. A review of represented receivers along with property ownership status will be undertaken as required.

HVO has negotiated agreements in place with private landholders listed in Table 1 or Table 14 of the HVO Development Consent. Their respective agreements have been forwarded to the Department and EPA. All properties represented by Knodlers Lane (TEOM) monitor have received mitigation and all properties have negotiated agreements in place.

Privately owned land that is subject to a negotiated air quality agreement is shown in Figure 8-2.

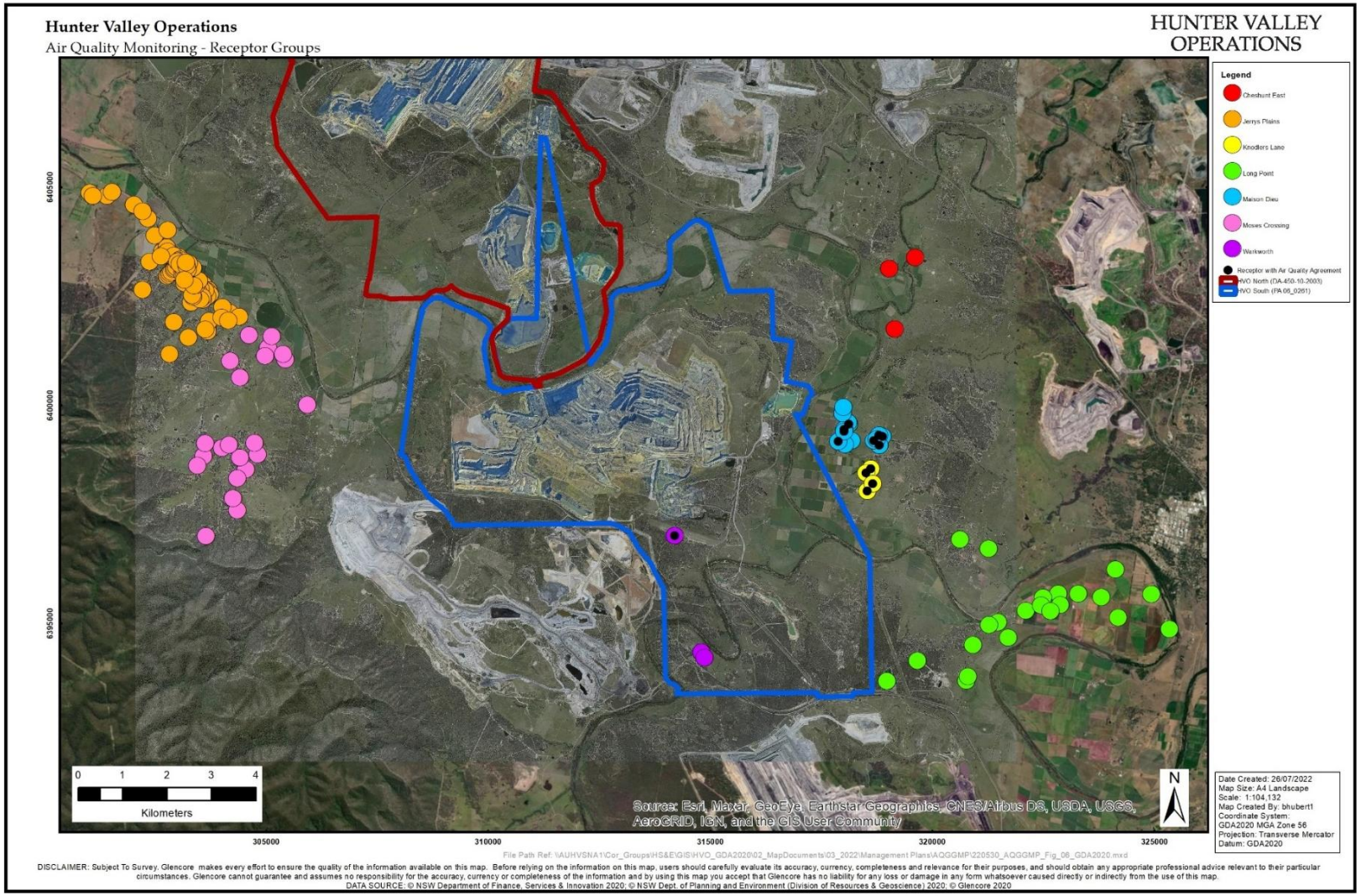

Figure 8-2: Representation of Private Receptors

8.3 | MONITORING OF MINE OWNED LAND

Air Quality Monitoring of mine owned land will be undertaken so as to measure compliance with the relevant sub clauses to conditions 4C and 6 (f) of Schedule 3 (DA 450-10-2003) and Conditions 21A and 23 (e) of Schedule 3 (PA 06_0261). Collection of monitoring data for mine-owned properties will be undertaken at monitoring locations specified in Table 8-3 and Figure 8-1.

To confirm that the monitoring locations adequately represent all mine-owned land surrounding HVO, a validation survey will be undertaken on request from the resident. The surveys will be conducted by way of installing a particulate monitoring device (subject to landowner agreement) for a period of up to two (2) weeks to enable comparison with measured levels at nearby monitoring stations as specified in this monitoring program.

Table 8-3: Mine-Owned Land Air Quality Monitoring Program

Parameter	Frequency	Monitor Location	Limit/Guideline	Sampling Method
Depositional Dust	*Monthly (30 +/- 2 days)*	*D118* *DL14*	***HVO North*** *Insoluble Solids Annual Average – 4g/m^2/month*	*AS3580.10.1 (2016)*
Total Suspended Particulates (TSP)	*Every six days*	***HVO North*** *Cheshunt East* *Wandewoi* *Moses Crossing* ***HVO South*** *Maison Dieu* *Knodlers Lane* *Moses Crossing* *Cheshunt East* *Wandewoi*	*Annual Average- 90µg/m^3*	*AS3580.9.3 (2015)*
Particulate Matter <10µm *(PM_{10})*	*Every six days*	*Cheshunt East* *Moses Crossing*	***HVO North*** *24 Hour Average -50µg/m^3* *Annual Average -30µg/m^3* ***HVO South*** *24 hour Average- 50µg/m^3*	*AS3580.9.6 (2015)*

Parameter	Frequency	Monitor Location	Limit/Guideline	Sampling Method
Particulate Matter <10µm *(PM_{10})*	*Continuous*	***HVO North*** *Wandewoi* ***HVO South*** *Warkworth* *Wandewoi* *Maison Dieu*	***HVO North*** *24 Hour Average-50µg/m^3* *Annual Average-30µg/m^3* ***HVO South*** *24 Hour Average-50µg/m^3*	*AS3580.9.8:2022*[2] *(Tapered Element Oscillating Mass Balance)*
Particulate Matter <2.5µm *($PM_{2.5}$)*	*Continuous*	***HVO South*** *Maison Dieu* *Moses Crossing*	***HVO South*** *24 Hour Average -25µg/m^3* *Annual Average 8µg/m^3*	*AS3580.9.12:2022*[2] *(Beta Attenuation Monitor $PM_{2.5}$)*

8.3.1 | DATA PROVISION TO RESIDENTS IN MINE- OWNED RESIDENCES

Residents in mine-owned properties will be presented with monitoring data upon request, in a format that can be presented to a medical practitioner. The data provided will be from the nearest monitoring location to the residence, as listed in this program. Where the property is owned by a mining company other than HVO, the monitoring data will be provided to the relevant personnel from the mine concerned for distribution to licensees in tenanted properties

8.4 | MONITORING RECORDS

All air quality monitoring data is maintained in accordance with EPL 640 and maintained on the premises for a period of 4 years using Pi Historian and/or EMD. 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.

9 | COMPLIANCE PROTOCOL

Compliance evaluation will be undertaken for private residences on the basis of the outcomes of air quality assessment from monitors located nearby to neighbouring communities, as detailed in Table 1-1.

Compliance with the impact assessment criteria and land acquisition criteria as detailed in Table 1-1, requires a direct or indirect assessment of measured results, depending on the averaging period and requirements of the specific condition. Assessments are undertaken at a frequency dependant on the monitoring technique and averaging period for the criteria. Assessments against criteria will occur as soon as practicable after receipt of results and reported in accordance with Section 10.1.

A measured exceedance does not necessarily constitute non-compliance with criteria, as dust generating events and activities not associated with HVO can contribute to measured exceedances beyond HVO's control. As such for each of the criteria specified in the Approvals, an assessment will be made to determine if HVO is responsible for the exceedance before compliance with the criteria can be established.

Compliance Assessment Protocols for HVO North and HVO South are presented in Table 9-1 and Table 9-2 respectively.

Any confirmed non-compliance will trigger an investigation of the cause/s of the non-compliance, adequacy of current controls and subsequent review of this Management Plan

9.1 | HVO NORTH – COMPLIANCE ASSESSMENT

Table 9-1: HVO North Compliance Assessment Protocol

Parameter / Criteria	Impact Type	Averaging Period	Compliance Assessment[a]
Long Term Impact Assessment Criteria for Particulate Matter			
Total suspended particulate (TSP) matter / 90µg/m^3	Total[b]	Annual	In the event of a measured exceedance, HVO will investigate HVO North's contribution (Increment) to the Total measured result. HVO North's contribution will be determined by assessment of upwind and downwind monitoring results utilising measured background air quality levels and meteorological conditions across the averaging period. If HVO North has contributed to the exceedance, then the result will be reported to the Department in accordance with reporting requirements detailed in **Section 10.1**.
Particulate Matter <10µm (PM_{10}) / 30µg/m^3			
Short Term impact Assessment Criteria for Particulate Matter			
Particulate Matter <10µm (PM_{10}) / 50µg/m^3	Incremental[c]	24 Hour	In the event of a measured exceedance, HVO will investigate HVO North's contribution (Increment) to the Total measured result. HVO North's contribution will be determined by assessment of upwind and downwind monitoring results utilising measured background air quality levels and meteorological conditions across the averaging period. If HVO North has exceeded the incremental criteria, then the result will be reported to the Department in accordance with reporting requirements detailed in **Section 10.1**.
Long Term Impact Assessment Criteria for Deposited Dust			
Deposited Dust (maximum increase) / 2g/m^2/month /	Incremental[c]	Annual	In the event of a measured exceedance, HVO will investigate HVO North's contribution (Increment) to the Total measured result. HVO North's contribution will be determined by assessment of upwind and downwind

Parameter / Criteria	Impact Type	Averaging Period	Compliance Assessment[a]
			monitoring results utilising measured background air quality levels and meteorological conditions across the averaging period. Samples deemed to be contaminated will be removed from the assessment. If HVO North has exceeded the incremental criteria, then the result will be reported to the Department in accordance with reporting requirements detailed in **Section 10.1**.
Deposited Dust (maximum total) / 4g/m^2/month	Total[b]	Annual	In the event of a measured exceedance, HVO will investigate HVO North's contribution (Increment) to the Total measured result. HVO North's contribution will be determined by assessment of upwind and downwind monitoring results utilising measured background air quality levels and meteorological conditions across the averaging period. Samples deemed to be contaminated will be removed from the assessment. If HVO North has contributed to the exceedance, then the result will be reported to the Department in accordance with reporting requirements detailed in **Section 10.1**.
Long Term Land Acquisition Criteria for Particulate Matter			
Total suspended particulate (TSP) matter / 90µg/m^3	Total[b]	Annual	In the event of a measured exceedance, HVO will investigate HVO North's contribution (Increment) to the Total measured result. HVO North's contribution will be determined by assessment of upwind and downwind monitoring results utilising measured background air quality levels and meteorological conditions across the averaging period. Should HVO North have contributed to exceedances on a systemic basis on any privately owned land or on more than 25 percent of any privately owned land, then upon receiving a written request for acquisition from the landowner, land will be acquired in accordance with Cond. 7 & 8, Sch. 4 of DA 450-10-2003.
Particulate Matter <10µm (PM_{10}) / 30µg/m^3			
Short Term Land Acquisition Criteria for Particulate Matter			
Particulate Matter <10µm (PM_{10}) / 150µg/m^3	Total[b]	24 Hour	In the event of a measured exceedance, HVO will investigate HVO North's contribution (Increment) to the Total measured result. HVO North's contribution will be determined by assessment of upwind and downwind monitoring results utilising measured background air quality levels and meteorological conditions across the averaging period. Should HVO North have contributed to exceedances on a systemic basis on any privately owned land or on more than 25 percent of any privately owned land, then upon receiving a written request for acquisition from the landowner, land will be acquired in accordance with Cond. 7 & 8, Sch. 4 of DA 450-10-2003.
Particulate Matter <10µm (PM_{10}) / 50µg/m^3	Incremental[c]	24 Hour	In the event of a measured exceedance, HVO will investigate HVO North's contribution (Increment) to the Total measured result. HVO North's contribution will be

Parameter / Criteria	Impact Type	Averaging Period	Compliance Assessment[a]
			determined by assessment of upwind and downwind monitoring results utilising measured background air quality levels and meteorological conditions across the averaging period. Should the criteria be exceeded on a systemic basis on any privately owned land or on more than 25 percent of any privately owned land, then upon receiving a written request for acquisition from the landowner, land will be acquired in accordance with Cond. 7 & 8, Sch. 4 of DA 450-10-2003.
Long Term Land Acquisition Criteria for Deposited Dust			
Deposited Dust (maximum increase) / 2g/m^2/month	Incremental[c]	Annual	In the event of a measured exceedance, HVO will investigate HVO North's contribution (Increment) to the Total measured result. HVO North's contribution will be determined by assessment of upwind and downwind monitoring results utilising measured background air quality levels and meteorological conditions across the averaging period. Samples deemed to be contaminated will be removed from the assessment. Should the criteria be exceeded on a systemic basis on any privately owned land or on more than 25 percent of any privately owned land, then upon receiving a written request for acquisition from the landowner, land will be acquired in accordance with Cond. 7 & 8, Sch. 4 of DA 450-10-2003.
Deposited Dust (maximum total) / 4g/m^2/month	Total[b]	Annual	In the event of a measured exceedance, HVO will investigate HVO North's contribution (Increment) to the Total measured result. HVO North's contribution will be determined by assessment of upwind and downwind monitoring results utilising measured background air quality levels and meteorological conditions across the averaging period. Samples deemed to be contaminated will be removed from the assessment. Should HVO North have contributed to exceedances on a systemic basis on any privately owned land or on more than 25 percent of any privately owned land, then upon receiving a written request for acquisition from the landowner, land will be acquired in accordance with Cond. 7 & 8, Sch. 4 of DA 450-10-2003.

[a] Where extraordinary events or contamination (as defined in the Approval) is considered to have contributed to an exceedance, this will be referred to an air quality consultant for determination.

[b] Total impact – incremental increase in concentrations due to the HVO North plus background levels from all other sources. Criteria is not considered applicable where a measured result exceeds the criteria and upwind/downwind monitoring results indicate that there has been no incremental increase to background levels as a result of HVO North's activities.

[c] Incremental impact – incremental increase in concentrations due to HVO North on its own.

9.2 | HVO SOUTH – COMPLIANCE ASSESSMENT

Table 9-2: HVO South Compliance Assessment Protocol

Parameter / Criteria	Impact Type	Averaging Period	Compliance Assessment[a]
Particulate Matter <10µm (PM_{10}) / 25 µg/m^3	Total[b]	Annual	In the event of a measured exceedance, HVO will investigate HVO South's contribution (Increment) to the Total measured result. HVO South's contribution will be determined by assessment of upwind and downwind monitoring results utilising measured background air quality levels and meteorological conditions across the averaging period. If HVO South has contributed to the exceedance, then the result will be reported to the Department in accordance with reporting requirements detailed in **Section 10.1**.
Particulate Matter <10µm (PM_{10}) / 50 µg/m^3	Incremental[c]	24 Hour	In the event of a measured exceedance, HVO will investigate HVO South's contribution (Increment) to the Total measured result. HVO South's contribution will be determined by assessment of upwind and downwind monitoring results utilising measured background air quality levels and meteorological conditions across the averaging period. If HVO South has exceeded the incremental criteria, then the result will be reported to the Department in accordance with reporting requirements detailed in **Section 10.1**.
Particulate Matter <2.5µm ($PM_{2.5}$) / 8 µg/m^3	Total[b]	Annual	In the event of a measured exceedance, HVO will investigate HVO South's contribution (Increment) to the Total measured result. HVO South's contribution will be determined by assessment of upwind and downwind monitoring results utilising measured background air quality levels and meteorological conditions across the averaging period. If HVO South has contributed to the exceedance, then the result will be reported to the Department in accordance with reporting requirements detailed in **Section 10.1**.
Particulate Matter <2.5µm ($PM_{2.5}$) / 25 µg/m^3	Incremental[c]	24 Hour	In the event of a measured exceedance, HVO will investigate HVO South's contribution (Increment) to the Total measured result. HVO South's contribution will be determined by assessment of upwind and downwind monitoring results utilising measured background air quality levels and meteorological conditions across the averaging period. If HVO South has exceeded the incremental criteria, then the result will be reported to the Department in accordance with reporting requirements detailed in **Section 10.1**.

Parameter / Criteria	Impact Type	Averaging Period	Compliance Assessment[a]
Total suspended particulate (TSP) matter / 90µg/m^3	Total[b]	Annual	In the event of a measured exceedance, HVO will investigate HVO South's contribution (Increment) to the Total measured result. HVO South's contribution will be determined by assessment of upwind and downwind monitoring results utilising measured background air quality levels and meteorological conditions across the averaging period. If HVO South has contributed to the exceedance, then the result will be reported to the Department in accordance with reporting requirements detailed in **Section 10.1**.

[a] Where extraordinary events or contamination (as defined in the Approval) is considered to have contributed to an exceedance, this will be referred to an air quality consultant for determination.

[b] Total impact – incremental increase in concentrations due to the HVO South plus background levels from all other sources. Criteria is not considered applicable where a measured result exceeds the criteria and upwind/downwind monitoring results indicate that there has been no incremental increase to background levels as a result of HVO South's activities.

[c] Incremental impact – incremental increase in concentrations due to HVO South on its own.

9.3 | INDEPENDENT REVIEW AND LAND ACQUISITION PROCESS

Where the owner of privately-owned land has reasonable grounds to believe that HVO is exceeding air quality criteria, they may request an independent review from the Planning 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 HVO North or South project acquisition criteria, then upon receiving written request from the landowner, 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.

10 | IMPLEMENTATION OF THE AQMP

10.1 | REPORTING

10.1.1 | INTERNAL REPORTING

Determining exceedances of air quality criteria will be undertaken in accordance with the protocol for evaluating compliance detailed in Section 9.

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.

10.1.2 | EXTERNAL REPORTING

PA 06_0261

HVO will immediately notify the Department and any other relevant agencies after it becomes aware of any incident relating to Air Quality. The notification will be in writing via the Departments Major Projects Website and identify the development including the development application number and name) and set out the location and nature of the incident. Within 7 days of becoming aware of the incident, HVO will provide DPHI and any other relevant agencies with an incident report. Reports will be provided to DPHI using the Department's Major Projects Website.

DA 450-10-2003

HVO will immediately notify the Secretary and any other relevant agencies of any incident relating to Air Quality. Within 7 days of becoming aware of the incident, HVO will provide the Planning Secretary and any other relevant agencies with an incident report, and such further reports as requested.

Affected residences will be notified in writing in the event of a confirmed non-compliance with air quality criteria. Any air quality non-compliance attributed to HVO will also trigger notification in writing to tenants in mine-owned properties (in addition to privately owned land).

The AQMP and air quality monitoring data, collected in accordance with this AQMP will be made available on the HVO website (www.hvo.com.au).

Any non-compliance relating to the air quality monitoring conditions of EPL 640 will be reported to the EPA in accordance with condition R1.1 via the EPA's online digital portal.

The Annual Review prepared each year for HVO will include detail of air quality monitoring results and air quality complaints for the corresponding year. The Annual Review will be submitted by 31 March the following year and will be prepared in accordance with:

- Schedule 5, Condition 9 of DA 450-10-2003
- Schedule 5, Condition 4 of PA 06_0261
- Post-approval requirements for State significant mining developments – Annual Review Guideline (NSW Government, October 2015)

A summary of air quality 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 air quality which may arise from time to time.

10.2 | 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 Community Complaints and Blasting Hotline will be in operation 24 hours per day, seven days a week.

All complaints will be recorded and investigated, and, where the investigation identifies potential non-compliance with a consent or licence condition, mitigating action will be taken. Investigation into air quality complaints will generally involve a visual inspection of operating areas and a check of real time monitoring data to confirm dust levels at nearby sensitive receptors.

The details of all air quality 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 EPL 640 relating to handling of pollution complaints. This register will be updated monthly and made available on the HVO website.

10.3 | ROLES AND RESPONSIBILITIES

Table 10-1: Roles and Responsibilities

Role	Responsibilities
Mine Manager	Direction and operational oversight
Technical Services Manager	Provision of mine plans for proactive model
Environment & Community Manager	Technical Oversight
Environment & Community Officer	Exceedance investigation Scheduled reporting Monitoring data review Operation of predictive tools Technical oversight
Environment & Community Superintendent	Management of air quality monitoring program Non-compliance reporting Manage maintenance of unattended monitoring network Management Plan reviews Technical oversight System development
Supervisors/Open Cut Examiners	Operational modification following trigger Respond to community complaints
Mine monitoring and control/dispatch	Receipt of dust alarms Receipt of community complaints
Consultants	Static air quality monitoring Exceedance investigations as required

11 | REVIEW

The AQMP will be reviewed within three months of the submission of the Annual Review and updated to the satisfaction of the Planning Secretary of the DPHI where necessary.

The AQMP will also be reviewed within three months of submission of an incident report relating to air quality, the submission of an independent environmental audit report or approval of a modification to the consent. Within 6 weeks of conducting any such review, HVO will advise the Planning Secretary of the outcomes and provide revised documents (where required) to the Planning Secretary for review and approval.

Any major amendments to the AQMP 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.

12 | DOCUMENT INFORMATION

12.1 | RELATED DOCUMENTS

Related documents, listed in Table below, are documents directly related to or referenced from within this document.

NUMBER	TITLE

12.2 | REFERENCE INFORMATION

Reference information, listed in Table below, is information that is directly referred to for the development of this document

REFERENCE	TITLE
	DA 450-10-2003 HVO West Pit – Development Consent
	PA 06_0261. HVO South Pit – Project Approval
	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 'Hunter Valley Operations South Modification 5', Volume 1 and 2 dated February 2017.

REFERENCE	TITLE
	HVO South Modification 5 – Update of the Approved Methods Letter – March 2017.
	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
	NSW Office of Environment and Heritage Approved Methods for the Modelling and Assessment of Air Pollutants in New South Wales (DECC 2005)
	Australian Standard AS / NZS 3580.9.3:2015: Methods for sampling and analysis of ambient air– Determination of suspended particulate matter – Total suspended particulate matter (TSP) – High Volume sampler gravimetric method
	Australian Standard AS / NZS 3580.9.6:2015: Methods for sampling and analysis of ambient air – Determination of suspended particulate matter – PM10 high volume sampler with size selective inlet – Gravimetric method
	Australian Standard AS / NZS 3580.9.8:2008: Methods for sampling and analysis of ambient air – PM10 continuous direct mass method using a tapered element oscillating microbalance analyser.
	Australian Standard AS / NZS 3580.10.1:2016: Methods for sampling and analysis of ambient air – Determination of particulate matter – Deposited matter – Gravimetric Method
	Australian Standard AS / NZS 3580.9.14:2013: Methods for sampling and analysis of ambient air – Determination of suspended particulate matter – PM2.5 high volume sampler with size selective inlet – Gravimetric method.

REFERENCE	TITLE
	NSW Approved Methods for the Modelling and Assessment of Air Pollutants in NSW (2017)
	European Union Directive 2008/1/EC
	Concessions and Mitigation Agreement (Coal & Allied and Hunter Valley Gliding Club)

12.3 | CHANGE INFORMATION

Full details of the document history are recorded in the document control register, by version. A summary of the current change is provided in table below. Example detail shown below.

REGULATOR VERSION	HVO SHAREPOINT VERSION	DATE	CHANGE DETAILS	REVIEW TEAM	REGULATOR APPROVAL
1.0	-	28/06/2013	Original	Kelly O'Mullane (Approvals Specialist)	-
1.1	1.1	11/02/2014	Revised following feedback from DoPI	Kelly Adamthwaite (Approvals Specialist)	12/02/2014
1.2	-	01/06/2015	Nil. Revision as required under Schedule 6, Condition 5A	Gerard Gleeson (Environment Specialist)	-
1.3	-	10/03/2016	Change to Monitoring Programme	Gerard Gleeson (Environment Specialist)	-
1.4	-	02/06/2016	Change to Monitoring Programme to support EPA Air Quality Optimisation	Gerard Gleeson (Environment Specialist)	-

REGULATOR VERSION	HVO SHAREPOINT VERSION	DATE	CHANGE DETAILS	REVIEW TEAM	REGULATOR APPROVAL
1.5	-	30/05/2017	Revision following modification to HVO North Consent and to reflect variation to Environment Protection Licence	Doug Fenton (Environment Advisor)	-
2.0	-	30/11/2017	Revision to align with new ownership management practices. Change to Monitoring Program. Review following HVO North Mod. 7	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 DP&E on Version 3.0.	Dominic Brown (Environment & Community Coordinator)	-
3.2	-	28/03/2019	Revision following feedback from DP&E on Version 3.1.	Dominic Brown (E&C Coordinator)	-
3.3	3.3	05/09/2019	Revision following feedback from DP&E on Version 3.2. Review following submission of 2018 Annual Review Format change	Dominic Brown (E&C Coordinator)	06/09/2019

REGULATOR VERSION	HVO SHAREPOINT VERSION	DATE	CHANGE DETAILS	REVIEW TEAM	REGULATOR APPROVAL
3.4	-	2/07/2020	Revision following submission of IEA Report and 2019 Annual Review. Inclusion of controls for In-Pit and ROM coal stockpile dust management.	Dominic Brown (E&C Coordinator)	-
3.5	3.5	10/12/2021	Revision of website. Clarification of alarms. Revision following feedback from DPIE and report of incident.	Keith Simkin (E&C Coordinator)	19/05/2022
-	-	28/03/2022	General revision following approval of PA 06_0261 Mod 6	Keith Simkin (Environmental Consultant)	-
-	-	26/7/2022	General revision following approval of PA 06_0261 Mod 7. Inclusion of negotiated agreements and recommendations from Jacobs Network Review 2022	B Hubert (E&C Coordinator)	-
-	-	10/08/2023	Revision following approval of PA 06_0261 Mod 8	B Hubert (E&C Superintendent)	
4.0	1.0	6/08/2025	Revision following approval of DA 450-10-2003 Mod 8	B Hubert (E&C Superintendent, Ben de Somer (E&C Manager)	26/03/2026
NA	2.0	6/08/2026	Revision following submission of 2025 AR and approval of 2025 IEA	B Hubert (E&C Superintendent, Ben de Somer (E&C Manager)	15/09/2026

APPENDIX A: CONSULTATION

YANCOAL 兖煤澳大利亚有限公司

YANCOAL AUSTRALIA LTD
OFFICE: Level 26, 363 George Street Sydney NSW 2000
PHONE: +61 2 8583 5300
FAX: +61 2 8583 5399
EMAIL: info@yancoal.com.au
WEBSITE: www.yancoalaustralia.com.au
ABN 82 111 859 119

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

NSW EPA

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

NSW GOVERNMENT | Planning, Industry & Environment

Energy and Resource Assessments
Planning and Assessment
Contact: Melissa Anderson
Phone: 8275 1392
Email: melissa.anderson@planning.nsw.gov.au

Mr Dominic Brown
Environmental and Community Coordinator
Hunter Valley Operations
Email: Dominic.brown@hvo.com.au

Dear Mr Brown

Hunter Valley Operations (DA 450-10-2003 & MP 06_0261)
Approval of Air Quality and Greenhouse Gas Management Plan

I refer to your email of 5 September 2019 submitting version 3.3 of the revised Air Quality and Greenhouse Gas Management Plan (Plan) for the Hunter Valley Operations project for approval.

The Department has reviewed the Plan and finds that it meets the requirements of the development consents.

Consequently, the Secretary has approved the Plan. Please place a final untracked version of the approved Plan on the project's website at your earliest convenience.

Should you have any enquiries in relation to this matter, please contact Melissa Anderson on the details above.

Yours sincerely,

Howard Reed

Howard Reed 6.9.19
Director
Coal and Quarry Assessments
as nominee of the Secretary

NSW GOVERNMENT

Andrew Speechly
HV Operations Pty Ltd
1011 Lemington Road
Lemington NSW 2330

19/05/2022

Dear Mr Speechly

Hunter Valley Operations South (MP06_0261)
Approval of Air Quality and Greenhouse Gas Management Plan

I refer to the Air Quality and Greenhouse Gas Management Plan which was submitted in accordance with condition 23 of Schedule 3 of the development consent for Hunter Valley Operations South (MP06_0261).

The Department has carefully reviewed the document and is satisfied that it addresses the relevant requirements of MP06_0261.

Accordingly, the Planning Secretary has approved the Air Quality and Greenhouse Gas Management Plan (Revision 3.5, dated December 2021). Please ensure that the approved plan is placed on the project website at the earliest convenience.

If you wish to discuss the matter further, please contact me on 02 4908 6896 or via email at joe.fittell@planning.nsw.gov.au.

Yours sincerely

Joe Fittell
Team Leader
Resource Assessments

As nominee of the Planning Secretary

APPENDIX B: EXAMPLES OF AIR QUALITY MANAGEMENT TOOLS

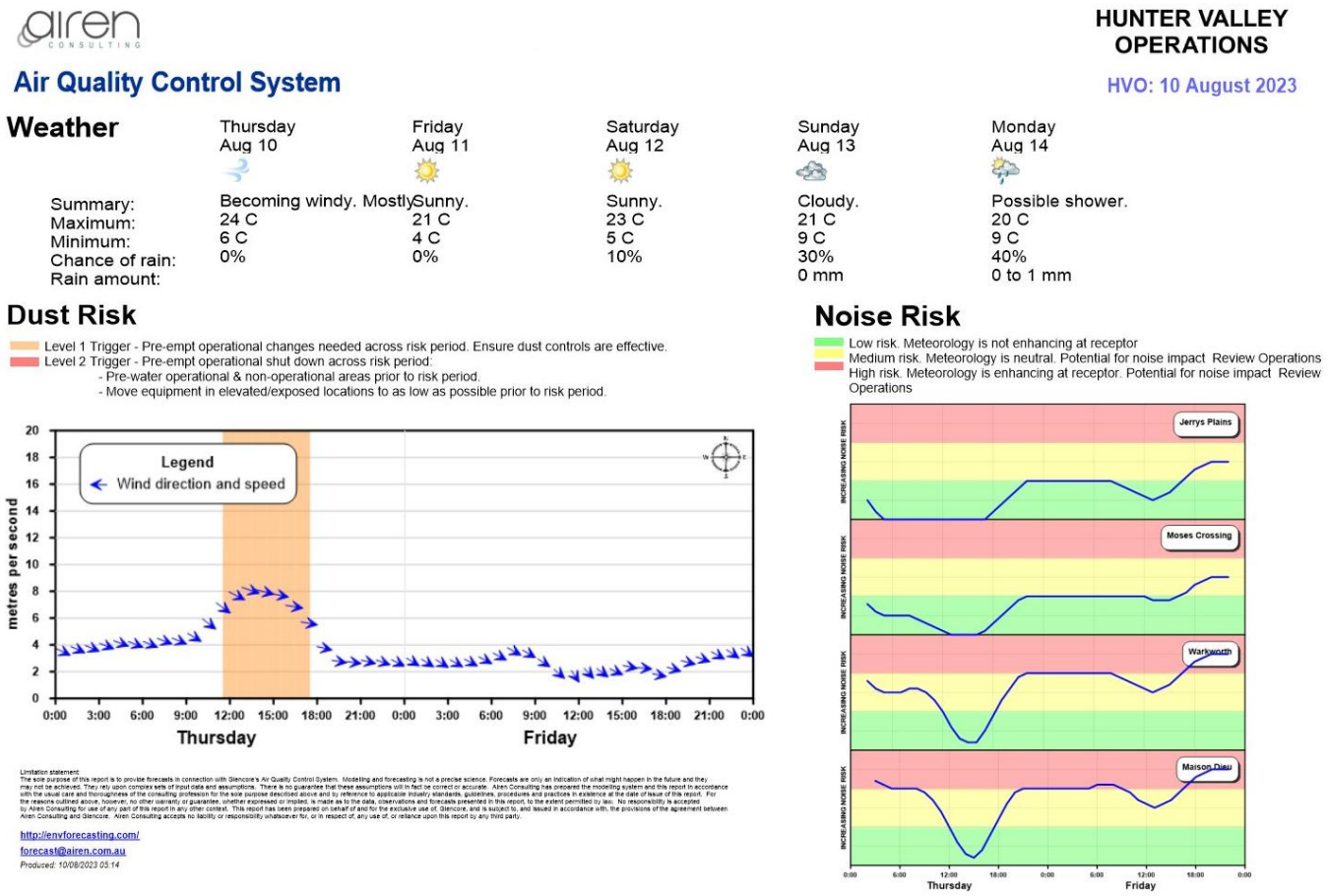

Figure 12-1: Predicative dust risk meteorological forecast

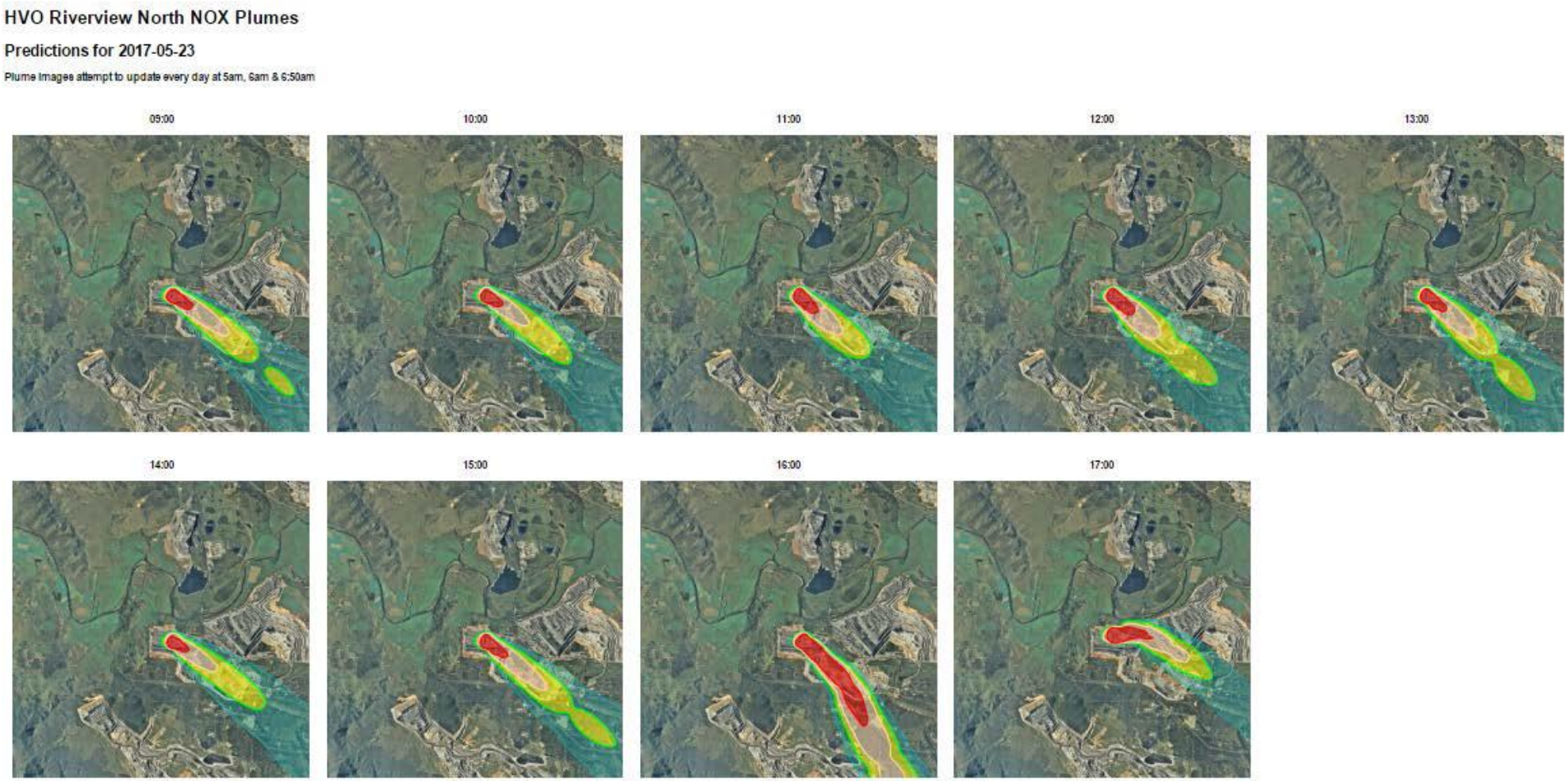

Figure 12-2: Blast Plume Prediction

APPENDIX C: APPROVAL OF MANAGEMENT PLAN

Department of Planning, Housing and Infrastructure

NSW GOVERNMENT

Our ref: MP06_0261-PA-177

Ben de Somer
Environment and Community Manager
HV OPERATIONS PTY LTD
Via Major Projects Portal

26/03/2026

Subject: Air Quality Management Plan

Dear Mr de Somer

I refer to the Air Quality Management Plan submitted in accordance with Condition 4 of Schedule 4 of the consent for the HVO North mine (DA 450-10-2003) and Condition 4A of Schedule 5 of the consent for the HVO South mine (PA 06_0261). I also acknowledge your response to the Department's review comments and request for additional information.

I note the Air Quality Management Plan has been revised following submission of the 2024 Annual Review on 31 March 2025 and approval of HVO North Mod 8 granted 24 April 2025.

The Department has carefully reviewed the document and is satisfied that it meets the requirements of the relevant conditions in the consents (DA 450-10-2003 and PA 06_0261). The Department notes that the greenhouse gas management plan component required under DA 450-10-2003 has been addressed in the Greenhouse Gas Mitigation Plan required under Condition 6A of Schedule 4.

Accordingly, as nominee of the Planning Secretary, I approve the Air Quality Management Plan (submitted 5 February 2026).

You are reminded that if there are any inconsistencies between the Plan and the conditions of approval, the conditions prevail. Please ensure you make the document publicly available on the project website at the earliest convenience.

If you wish to discuss the matter further, please contact Jack Turner on 9995 5387.

Yours sincerely

Stephen O'Donoghue
Director
Resource Assessments
As nominee of the Planning Secretary

Department of Planning, Housing and Infrastructure

Our ref: DA450-10-2003-PA-118

Ben de Somer
Manager Environment and Compliance
1011 LEMINGTON ROAD
Lemington Road, STATE, Postcode

15/09/2026

Subject: Air Quality Management Plan

Dear Mr de Somer

I refer to the Air Quality Management Plan (the Plan) which has been revised following the submission of an Annual Review in accordance with Condition 4, Schedule 5 of the consent for the HVO North – West Pit Consent 2003 (DA450-10) and Condition 4A, Schedule 5 of HVO South (MP06-0261).

I note the revisions to the Plan are administrative and the Plan contains the information required by the conditions of consent.

In In accordance with Condition 3A of Schedule 5 of the consent for HVO North – West Pit Consent 2003 (DA450-10) and Condition 1C of Schedule 5 HVO South (MP06-0261), the Department agrees that consultation is not required for the revision of the Plan given the administrative nature of the updates.

Accordingly, as nominee of the Planning Secretary, I approve the Air Quality Management Plan (Submitted 11 August 2026).

You are reminded that if there are any inconsistencies between the Plan and the conditions of approval, the conditions prevail.

Please ensure you make the document publicly available on the project website at the earliest convenience.

If you wish to discuss the matter further, please contact Patrick Worthington at patrick.worthington@dphi.nsw.gov.au

Yours sincerely

Jack Turner
Team Leader – Resource Assessments

As nominee of the Planning Secretary