

27 February 2026

Steve O'Donoghue
Director
NSW Department of Planning, Housing and Infrastructure
4 Parramatta Square
12 Darcey Street
Parramatta NSW 2150

Re: SSD-11826681 & SSD-11826621 - Request for additional information - air quality impact assessment

Dear Steve,

I refer to your correspondence dated 30 January 2026 requesting additional information on potential air quality impacts of the Hunter Valley Operations (HVO) Continuation Project (the Project), including providing a list of receptors where exceedances to the air quality criteria in the NSW Department of Planning, Housing and Infrastructure's (DPHI) *Voluntary Land Acquisition and Mitigation Policy (VLAMP)* and the NSW Environment Protection Authority's (EPA's) *Approved Methods for the Modelling & Assessment of Air Pollutants (Approved Methods)* are predicted, and an indication as to whether those receptors are currently subject to property mitigation or acquisition rights from other mines.

A response to the information requested has been provided by Airen Consulting (Airen), the author of the Air Quality Impact Assessment (Airen 2025) that was submitted with the HVO Continuation Project Amendment Report (EMM 2025). This response is provided in Attachment A.

I trust that this letter adequately responds to the additional information requested on air quality impacts of the Project. However, should you require any additional information, please do not hesitate to contact the undersigned.

Yours sincerely



Brett McLennan
Director
bmclennan@emmconsulting.com.au

References

EMM 2025, *HVO Continuation Project, Amendment Report*, EMM Consulting Pty Ltd.

Airen 2025, *HVO Continuation Project Amendment, Air Quality Impact Assessment*, Airen Consulting Pty Ltd.

Attachment A

Response by Airen Consulting

27 February 2026

Attention: James Wearne
Senior Associate – Major Projects & Approvals
EMM Consulting Pty Ltd
Level 3, 175 Scott Street Newcastle NSW 2300

Dear James

Request for additional information from the Department of Planning, Housing and Infrastructure

Thank you for providing a copy of the letter from the Department of Planning, Housing and Infrastructure (DPHI) (dated 30 January 2026) requesting additional information on the potential air quality impacts of the Hunter Valley Operations (HVO) Continuation Project Amendment. Please see attached for the requested information.

Reference is made to the following documents:

- "HVO Continuation Project Amendment – Air Quality Impact Assessment". Report prepared by Airen Consulting for HV Operations Pty Ltd. Final, Revision 0, dated 29 July 2025. Hereafter referred to as the "Air Quality Impact Assessment" or "AQIA".
- "Request for Additional Information – Air Quality Impact Assessment". DPHI letter dated 30 January 2026, ref: HVO North Open Cut Coal Continuation Project (SSD -11826681). Hereafter referred to as the "DPHI Request".

Yours sincerely

A handwritten signature in blue ink, appearing to read "Shane Lakmaker".

Shane Lakmaker
Director / Atmospheric Scientist
Airen Consulting

1. Background

The potential air quality impacts of the Hunter Valley Operations (HVO) Continuation Project Amendment were assessed by Airen Consulting (Airen). Outcomes of the assessment were reported in an Air Quality Impact Assessment (AQIA) (Airen, 2025a). The key conclusions of the AQIA, with respect to particulate matter, were as follows:

- *Emissions from mining activities (i.e. particulate matter) may present an air quality impact risk with respect to PM₁₀. Specifically, there is potential risk that HVO influences an exceedance on 1 day at Jerrys Plains (for 2029 and 2034 scenario) and on 1 day at Maison Dieu (for 2034). The contributions of HVO to the selected locations on these days would be less than 11 µg/m³ and well below the air quality compliance criteria contained in the existing development consents. Nevertheless, it will be necessary for HVO to respond to any potential increases in offsite air quality risks and minimise its contribution to air quality. HVO is committed to proactively modifying or shutting down any activities that may be increasing the risk of air quality impacts. Modelling has shown that the implementation of modifying operations in response to the trigger levels defined in the AQGGMP can reduce HVO's contributions to air quality such that HVO would not be the cause of an exceedance. Modelling of annual average PM₁₀ concentrations showed compliance with air quality assessment criteria at all sensitive receptors. Concentrations of PM₁₀ due to the amended Project are expected to be lower than the concentrations due to the original Project at sensitive receptors.*
- *Emissions from mining activities (i.e. particulate matter) are not expected to result in any adverse air quality impacts with respect to PM_{2.5}. This outcome is based on modelling which showed compliance with air quality assessment criteria at all sensitive receptors. Concentrations of PM_{2.5} due to the amended Project are expected to be lower than the concentrations due to the original Project at sensitive receptors.*
- *Emissions from mining activities (i.e. particulate matter) are not expected to result in any adverse air quality impacts with respect to TSP. This outcome is based on modelling which showed compliance with air quality assessment criteria at all sensitive receptors. Concentrations of TSP due to the amended Project are expected to be lower than the concentrations due to the original Project at sensitive receptors.*
- *Emissions from mining activities (i.e. particulate matter) are not expected to result in any adverse air quality impacts with respect to deposited dust. This outcome is based on modelling which showed compliance with air quality assessment criteria at all sensitive receptors. Deposition levels due to the amended Project are expected to be lower than deposition levels due to the original Project at sensitive receptors.*
- *Dust concentrations and deposition levels would comply with NSW Government VLAMP criteria at all private sensitive receptors not subject to existing air quality acquisition rights with the exception of annual average PM₁₀, annual average PM_{2.5} and annual average deposited dust at Lot 8//3005 (Property 121). The number of lots with risk of a VLAMP exceedance is expected to reduce with the amended Project, relative to the original Project.*

This document provides additional information to assist the Department of Planning, Housing and Infrastructure (DPHI) in its assessment of potential air quality exceedances to determine whether mitigation and/or acquisition rights apply to impacted receptors under the "Voluntary Land Acquisition and Mitigation Policy" (2018) (VLAMP).

Figure 1 shows the location of all relevant sensitive receptors that have been considered in the AQIA, including their status.

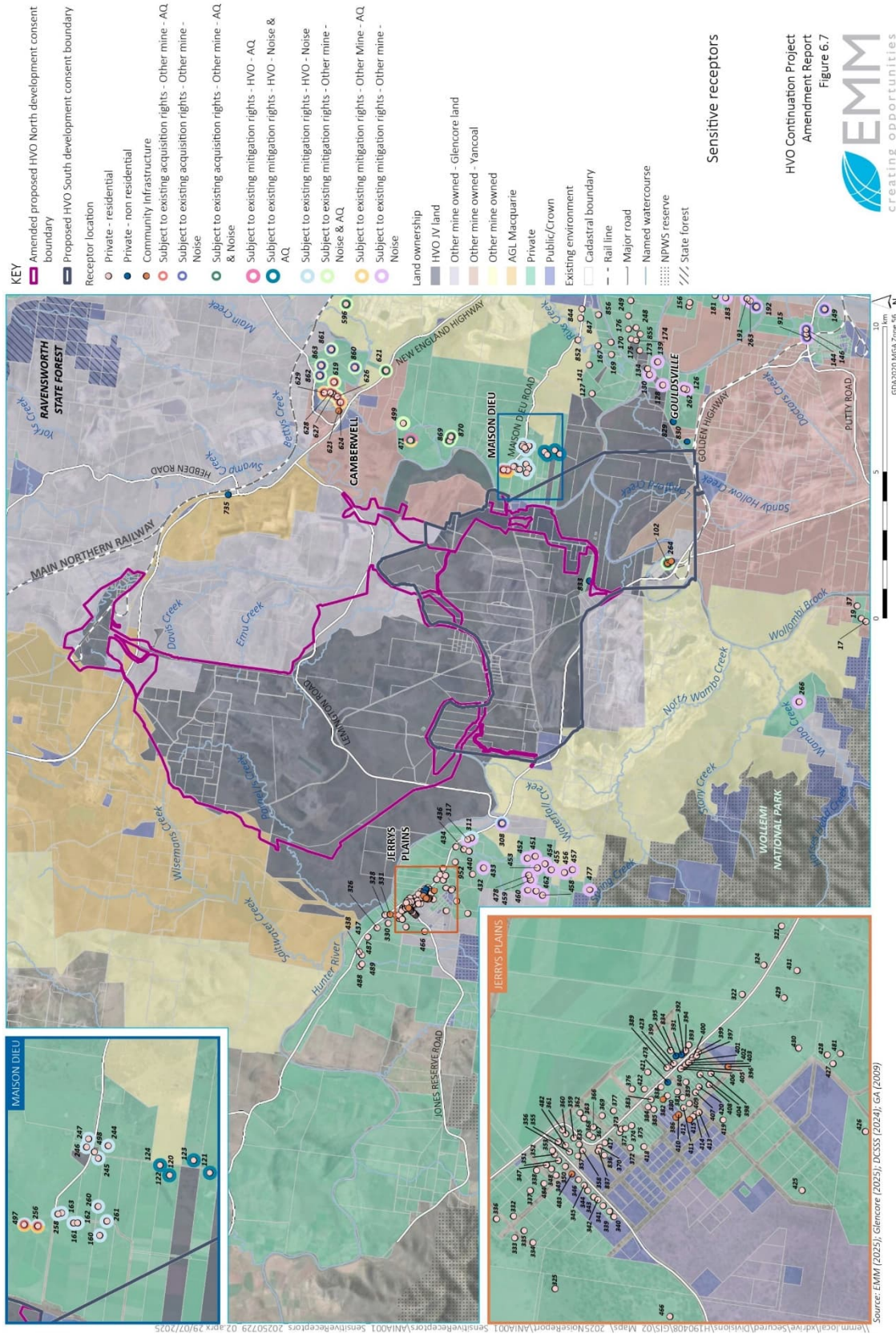


Figure 1 Sensitive receptors

2. Annual average PM₁₀ and PM_{2.5} under VLAMP

Annexure C of the Air Quality Impact Assessment (dated 29 July 2025) shows predicted exceedances of the VLAMP annual cumulative PM₁₀ and PM_{2.5} criteria at private receptors (621, 624, 626, 627, 628, 860, 861, 862, 863, 102 and 596), private commercial receptors (830 and 833) and community infrastructure (264). Further information is required to demonstrate how the VLAMP has been considered for the exceedances shown in Annexure C and how the predicted exceedances are influenced by project contributions and average background concentrations. You are requested to:

a. Demonstrate how the provisions of the VLAMP have been considered for the predicted exceedances of the VLAMP criteria; and

b. Provide a table listing receptors (ranked by the highest predicted cumulative impacts) that exceed the VLAMP annual cumulative PM₁₀ and PM_{2.5} criteria (25 µg/m³ and 8 µg/m³). List the average background concentrations for each and HVO's contribution to these exceedances.

Table 1 shows the modelled annual average PM₁₀ concentrations for all sensitive receptors where the modelled concentration exceeds 25 µg/m³ at any time during the life of the amended Project. This information also includes the calculated minimum distance between active mining areas of HVO and each sensitive receptor, as well as the contributions from other sources of PM₁₀. The property mitigation or acquisition rights status under other projects are also identified.

The results from Table 1 show that 9 of the 11 receptors are at least 10 km from the active mining areas of HVO. Consequently, the modelling shows that contributions to cumulative annual average PM₁₀ concentrations at these locations are dominated by sources other than HVO. Specifically, the maximum contribution of HVO to annual average PM₁₀ concentrations at any receptor in any assessment year is 3.3 µg/m³ and the contribution of other sources would be, on average, 23 µg/m³. It can therefore be concluded that the amended Project would not be the primary cause of exceedances of the VLAMP criteria, in terms of annual average PM₁₀. This is consistent with the fact that, except for Receptor 264 (community infrastructure), all receptors in Table 1 are already afforded mitigation and/or acquisition rights from other mines.

It should be noted that Table 1 is specific to dwellings. The AQIA determined that the amended Project may contribute to an exceedance of the annual average VLAMP criteria for PM₁₀ and PM_{2.5} on more than 25% of privately owned land where there is an existing dwelling on landholding 8//3005 (Property 121). This outcome remains.

Table 1 Modelled annual average PM₁₀ concentrations

ID	Status	Existing mitigation rights	Existing acquisition rights	Minimum distance to HVO (km)	Project (HVO N)				Project (HVO S)				Project (Complex)				Due to other sources				Cumulative				Criteria
					2024	2029	2034	2041	2024	2029	2034	2041	2024	2029	2034	2041	2024	2029	2034	2041	2024	2029	2034	2041	
102	Private - Subject to Acquisition Rights	Warkworth (Noise & AQ) [SSD6464]	Warkworth (Noise & AQ) [SSD6464]	5.4	0.2	0.3	0.5	0.6	1.1	2.8	2.3	1.1	1.4	3.0	2.7	1.8	38	36	37	19	39	39	39	21	25
264	Community Infrastructure	-	-	5.6	0.2	0.3	0.4	0.6	1.1	2.6	2.1	1.1	1.3	2.9	2.6	1.7	38	36	37	18	39	39	40	20	25
621	Private - Subject to Acquisition Rights	Rixs Creek North (Noise & AQ) [PA08_0102]; Rixs Creek South (AQ) [SSD 6300]	Rixs Creek North (Noise) [PA08_0102]; Ashton (AQ) [DA309-11-2001-I]	10.0	2.1	2.3	3.1	2.0	0.2	0.3	0.2	0.1	2.3	2.6	3.3	2.0	25	28	28	10	28	30	31	12	25
624	Private - Subject to Acquisition Rights	MOCO (AQ) [SSD-5850]; Rixs Creek South (AQ) [SSD 6300]	MOCO (AQ) [SSD-5850]; Rixs Creek South (AQ) [SSD 6300]. Note - acquisitions apply to all 9 contiguous lots 1/248748, 2/9/758214, 3/9/758214, 4/9/758214, 5/9/758214, 6/9/758214, 7/9/758214, 8/9/758214, 9/9/758214	10.0	2.2	2.4	3.0	1.7	0.3	0.3	0.2	0.1	2.5	2.7	3.2	1.8	21	22	22	10	23	25	26	12	25
626	Private - Subject to Acquisition Rights	Glendell (Noise) [DA 80/952]; MOCO (AQ) [SSD 5850]; Rixs Creek North (Noise) [PA08_0102]; Rixs Creek South (AQ) [SSD 6300]	MOCO (AQ) [SSD-5850]; Rixs Creek South (AQ) [SSD 6300]. Note - acquisitions apply to both contiguous lots 1/8/758214 and 2/8/758214	10.2	2.2	2.3	2.9	1.6	0.2	0.3	0.2	0.1	2.4	2.6	3.1	1.7	22	23	23	10	24	26	27	11	25
627	Private - Subject to Acquisition Rights	Glendell (Noise) [DA 80/952]; MOCO (AQ) [SSD 5850]; Rixs Creek North (Noise) [PA08_0102]; Rixs Creek South (AQ) [SSD 6300]	MOCO (AQ) [SSD-5850]; Rixs Creek South (AQ) [SSD 6300]	10.4	2.1	2.2	2.7	1.5	0.2	0.3	0.2	0.1	2.3	2.5	2.9	1.6	21	23	23	10	24	26	26	11	25
628	Private - Subject to Acquisition Rights	Glendell (Noise) [DA 80/952]; MOCO (AQ) [SSD 5850]; Rixs Creek North (Noise) [PA08_0102]; Rixs Creek South (AQ) [SSD 6300]	MOCO (AQ) [SSD-5850]; Rixs Creek South (AQ) [SSD 6300]	10.5	2.0	2.1	2.6	1.4	0.2	0.3	0.2	0.1	2.3	2.4	2.8	1.5	21	23	23	10	23	25	26	11	25
860	Private - Subject to Acquisition Rights	Glendell (Noise) [DA 80/952]; Rixs Creek North (Noise & AQ) [PA08_0102]; Rixs Creek South (AQ) [SSD 6300]	Glendell [DA80/952]; Rixs Creek North (Noise) [PA08_0102]	10.7	1.9	2.0	2.6	1.5	0.2	0.3	0.2	0.1	2.1	2.3	2.7	1.5	24	27	27	10	26	29	30	11	25
861	Private - Subject to Acquisition Rights	Glendell (Noise) [DA 80/952]; Rixs Creek North (Noise) [PA08_0102]; IUG (Noise) [PA08_0101]; Rixs Creek South (AQ) [SSD 6300]	Glendell [DA80/952]; Rixs Creek North (Noise) [PA08_0102]	11.6	1.5	1.6	1.9	1.1	0.2	0.2	0.1	0.0	1.7	1.8	2.1	1.1	25	30	30	10	27	32	32	11	25
862	Private - Subject to Acquisition Rights	Glendell (Noise) [DA 80/952]; Rixs Creek North (Noise) [PA08_0102]; IUG (Noise) [PA08_0101]; Rixs Creek South (AQ) [SSD 6300]	Rixs Creek North (Noise) [PA08_0102]	11.1	1.9	1.9	2.3	1.3	0.2	0.3	0.2	0.1	2.1	2.2	2.5	1.3	23	26	26	10	25	28	29	11	25
863	Private - Subject to Acquisition Rights	Glendell (Noise) [DA 80/952]; Rixs Creek North (Noise) [PA08_0102]; IUG (Noise) [PA08_0101]; Rixs Creek South (AQ) [SSD 6300]	Rixs Creek North (Noise) [PA08_0102]	11.4	1.7	1.8	2.1	1.2	0.2	0.2	0.1	0.0	1.9	2.0	2.3	1.2	24	27	27	10	26	29	30	11	25

Ashton = Ashton Coal Project, HVO S = Hunter Valley Operations (South), HVON = Hunter Valley Operations (North), MOCO = Mt Owen Continued Operations, IUG = Integra Underground, UWJV = United Wambo JV, Rav Ops = Ravensworth Surface Operations

Table 2 shows the modelled annual average PM_{2.5} concentrations for all sensitive receptors where the modelled concentration exceeds 8 µg/m³ at any time during the life of the amended Project. This information also includes the calculated minimum distance between active mining areas of HVO and each sensitive receptor, as well as the contributions from other sources of PM_{2.5}. The property mitigation or acquisition rights status under other projects are also identified.

As for PM₁₀, the results from Table 2 show that contributions to cumulative annual average PM_{2.5} concentrations at these locations are dominated by sources other than HVO. This is primarily due to the distances between receptors and active mining areas of HVO which are at least 10 km. The maximum contribution of HVO to annual average PM_{2.5} concentrations at any receptor in any assessment year is 0.9 µg/m³ and the contribution of other sources would be, on average, 7.7 µg/m³. It can therefore be concluded that the amended Project would not be the primary cause of exceedances of the VLAMP criteria, in terms of annual average PM_{2.5}. Again, this is consistent with the fact that, except for receptors 264 and 507 (both community infrastructure), all receptors in Table 2 are already afforded mitigation and/or acquisition rights from other mines.

Table 2 Modelled annual average PM_{2.5} concentrations

ID	Status	Existing mitigation rights	Existing acquisition rights	Minimum distance to HVO (km)	Project (HVO N)				Project (HVO S)				Project (Complex)				Due to other sources				Cumulative				Criteria
					2024	2029	2034	2041	2024	2029	2034	2041	2024	2029	2034	2041	2024	2029	2034	2041	2024	2029	2034	2041	
102	Private - Subject to Acquisition Rights	Warkworth (Noise & AQ) [SSD6464]	Warkworth (Noise & AQ) [SSD6464]	5.4	0.1	0.1	0.2	0.2	0.3	0.8	0.6	0.3	0.4	0.9	0.7	0.5	10.5	9.8	9.8	6.4	10.9	10.7	10.5	6.9	8
264	Community Infrastructure	-	-	5.6	0.1	0.1	0.2	0.2	0.3	0.7	0.5	0.3	0.4	0.8	0.7	0.5	10.4	9.8	9.8	6.2	10.8	10.6	10.5	6.7	8
507	Community Infrastructure	-	-	15.7	0.1	0.1	0.2	0.1	0.0	0.0	0.0	0.0	0.2	0.2	0.2	0.1	7.9	8.4	8.4	4.2	8.1	8.6	8.6	4.3	8
596	Private - Subject to Acquisition Rights	Rixs Creek North (Noise & AQ) [PA08_0102]; Glendell (Noise) [DA 80/952]; IUG (Noise) [PA08_0101]	Rixs Creek North (Noise & AQ) [PA08_0102]; IUG (Noise) [PA08_0101]	12.7	0.3	0.3	0.4	0.3	0.0	0.1	0.0	0.0	0.3	0.4	0.5	0.3	10.7	11.9	11.9	4.2	11.0	12.3	12.3	4.4	8
621	Private - Subject to Acquisition Rights	Rixs Creek North (Noise & AQ) [PA08_0102]; Rixs Creek South (AQ) [SSD 6300]	Rixs Creek North (Noise) [PA08_0102]; Ashton (AQ) [DA309-11-2001-1]	10.0	0.5	0.6	0.8	0.5	0.1	0.1	0.1	0.0	0.6	0.7	0.9	0.6	8.4	8.8	8.8	4.2	9.0	9.5	9.7	4.7	8
626	Private - Subject to Acquisition Rights	Glendell (Noise) [DA 80/952]; MOCO (AQ) [SSD 5850]; Rixs Creek North (Noise) [PA08_0102]; Rixs Creek South (AQ) [SSD 6300]	MOCO (AQ) [SSD-5850]; Rixs Creek South (AQ) [SSD 6300]. Note - acquisitions apply to both contiguous lots 1/8/758214 and 2/8/758214	10.2	0.5	0.6	0.8	0.5	0.1	0.1	0.1	0.0	0.6	0.7	0.8	0.5	7.1	7.3	7.3	4.2	7.7	8.0	8.2	4.6	8
627	Private - Subject to Acquisition Rights	Glendell (Noise) [DA 80/952]; MOCO (AQ) [SSD 5850]; Rixs Creek North (Noise) [PA08_0102]; Rixs Creek South (AQ) [SSD 6300]	MOCO (AQ) [SSD-5850]; Rixs Creek South (AQ) [SSD 6300]	10.4	0.5	0.6	0.7	0.4	0.1	0.1	0.1	0.0	0.6	0.7	0.8	0.4	7.0	7.3	7.3	4.2	7.6	7.9	8.1	4.6	8
860	Private - Subject to Acquisition Rights	Glendell (Noise) [DA 80/952]; Rixs Creek North (Noise & AQ) [PA08_0102]; Rixs Creek South (AQ) [SSD 6300]	Glendell [DA80/952]; Rixs Creek North (Noise) [PA08_0102]	10.7	0.5	0.5	0.7	0.4	0.1	0.1	0.1	0.0	0.5	0.6	0.7	0.4	7.9	8.3	8.3	4.2	8.4	8.9	9.0	4.6	8
861	Private - Subject to Acquisition Rights	Glendell (Noise) [DA 80/952]; Rixs Creek North (Noise) [PA08_0102]; IUG (Noise) [PA08_0101]; Rixs Creek South (AQ) [SSD 6300]	Glendell [DA80/952]; Rixs Creek North (Noise) [PA08_0102]	11.6	0.4	0.4	0.5	0.3	0.1	0.1	0.0	0.0	0.4	0.5	0.6	0.3	8.1	8.8	8.8	4.2	8.5	9.2	9.3	4.5	8
862	Private - Subject to Acquisition Rights	Glendell (Noise) [DA 80/952]; Rixs Creek North (Noise) [PA08_0102]; IUG (Noise) [PA08_0101]; Rixs Creek South (AQ) [SSD 6300]	Rixs Creek North (Noise) [PA08_0102]	11.1	0.5	0.5	0.6	0.4	0.1	0.1	0.1	0.0	0.5	0.6	0.7	0.4	7.7	8.1	8.1	4.2	8.2	8.7	8.8	4.6	8
863	Private - Subject to Acquisition Rights	Glendell (Noise) [DA 80/952]; Rixs Creek North (Noise) [PA08_0102]; IUG (Noise) [PA08_0101]; Rixs Creek South (AQ) [SSD 6300]	Rixs Creek North (Noise) [PA08_0102]	11.4	0.4	0.5	0.6	0.3	0.1	0.1	0.1	0.0	0.5	0.5	0.6	0.4	7.9	8.4	8.4	4.2	8.4	8.9	9.0	4.5	8

Ashton = Ashton Coal Project, HVOS = Hunter Valley Operations (South), HVON = Hunter Valley Operations (North), MOCO = Mt Owen Continued Operations, IUG = Integra Underground, UWJV = United Wambo JV, Rav Ops = Ravensworth Surface Operations

As noted above, the modelling indicates that the VLAMP criteria for annual average PM₁₀ and PM_{2.5} would be triggered at the listed receptors primarily because of contributions from sources other than HVO (that is, other sources would contribute 89 to 96% of the VLAMP criteria, on average). HVO's consideration of these outcomes includes designing the amended Project to minimise environmental impacts, consistent with the provisions of the VLAMP. More specifically, HVO has committed to:

- Reducing the quantities of material moved in each year under the amended Project. The quantities of material moved would be significantly (approximately 23%) lower than the original Project.
- Implementing dust management measures for the amended Project that are consistent with best practice dust mitigation measures (as per Table 19 of the AQIA).

The implementation of the measures would demonstrate that all reasonable and feasible avoidance and/or mitigation measures would be employed to minimise impacts of the amended Project.

3. Maximum 24-hour average PM₁₀ and PM_{2.5} under EPA's Approved Methods

Annexure C of the Air Quality Impact Assessment (dated 29 July 2025) shows predicted exceedances of the EPA's modelled maximum 24 -hour average cumulative impact assessment criterion for PM₁₀ (50 µg/m³) and PM_{2.5} (25 µg/m³) at private receptors (102, 308, 471, 497, 498, 499, 592, 596, 598, 599, 613, 619, 621, 624, 626, 627, 628, 629, 856, 860, 861, 862, 863, 869, 870, 947, 122, 124, 126, 127, 128, 130, 134, 141, 162, 163, 167, 169, 170, 173, 174, 175, 244, 245, 246, 247, 256, 258, 260, 261, 262, 311, 317, 434, 436, 440, 614, 846, 847, 852), community infrastructure (264, 507, 511, 623, 797, 799) and private commercial receptors (735, 800, 829, 830, 833). Further information is required to demonstrate whether the project contributes to the magnitude and frequency of these exceedances and confirm whether the project results in additional exceedance days. You are requested to:

a. Provide a table listing receptors (ranked by the highest number of exceedances and highest number of days) that exceed the EPA's modelled maximum 24 -hour average PM₁₀ criterion (50 µg/m³) and PM_{2.5} criterion (25 µg/m³) for more than 5 days for each modelled year (2029, 2034 and 2041) and include:

i. the maximum cumulative concentration;

ii. the total number of days the cumulative concentration exceeds the PM₁₀ criterion of 50 µg/m³ and PM_{2.5} criterion of 25 µg/m³ with and without the project;

iii. the project's incremental contribution to these exceedances (HVO North, HVO South and HVO North and South combined); and

iv. the average background concentrations.

Table 3 shows the requested PM₁₀ data. This includes the modelled 24-hour average PM₁₀ concentrations for all sensitive receptors where the modelled cumulative concentration exceeded 50 µg/m³ on more than 5 days in any assessment year. The maximum contributions from HVO South, HVO North and the Complex (i.e. HVO South and HVO North) are included, noting that these maximum concentrations are not necessarily on the same day as the maximum cumulative concentrations. The modelled number of days above 50 µg/m³ has been presented for scenarios including HVO and not including HVO (i.e. "no HVO") in order to show the potential of HVO to cause an exceedance of the EPA criterion, for these locations. It should be noted that these results do not reflect reactive controls that are employed at HVO or at other mining operations, so the cumulative results can be considered as worst case. The property mitigation or acquisition rights status under other projects are also identified.

The contributions of HVO to the selected locations would be at most 27 µg/m³ which is below the VLAMP criteria (except at receptor 833 being the aerodrome). Nevertheless, and as noted in the AQIA, it will be necessary for HVO to respond to any potential increases in offsite air quality risks and minimise its contribution to air quality. HVO is committed to proactively modifying or shutting down any activities that may be increasing the risk of air quality impacts. Modelling (Airen, 2025b) has shown that the implementation of modifying operations in response to the trigger levels defined in the Air Quality and Greenhouse Gas Management Plan (AQGGMP) can reduce HVO's contributions to air quality such that HVO would not be the cause of an exceedance.

Table 3 Modelled 24-hour average PM₁₀ concentrations and days above 50 µg/m³

ID	Status	Existing mitigation rights	Existing acquisition rights	Minimum distance to HVO (km)	Project (HVO N)			Project (HVO S)			Project (Complex)			Cumulative concentration				Cumulative days>50												
					2024	2029	2034	2024	2029	2034	2024	2029	2034	2024	2029	2034	2041	EPA criteria	2024	2029	2034	2041	2024 (no HVO)	2029 (no HVO)	2034 (no HVO)	2041 (no HVO)				
102	Private - Subject to Acquisition Rights	Warkworth (Noise & AQ) [SSD6464]	Warkworth (Noise & AQ) [SSD6464]	5.4	2	2	3	5	7	21	15	8	8	9	23	18	12	101	105	105	71	50	70	72	75	9	63	59	63	7
264	Community Infrastructure	-	-	5.6	2	2	3	5	7	20	15	8	9	22	17	11	105	109	109	69	50	75	74	77	7	69	64	66	4	
471	Private - Subject to Acquisition Rights	Rav Ops (AQ) [DA 09_0176]; HVOS (AQ) [06_0261]	Ashton (AQ & Noise) [DA309-11-2001-]; Rav Ops (AQ) [DA 09_0176]	7.5	12	13	21	16	8	13	7	3	14	17	21	17	61	64	69	47	50	2	4	9	0	2	2	2	0	
596	Private - Subject to Acquisition Rights	Rixs Creek North (Noise & AQ) [PA08_0102]; Glendell (Noise) [DA 80/952]; IUG (Noise) [PA08_0101]	Rixs Creek North (Noise & AQ) [PA08_0102]; IUG (Noise) [PA08_0101]	12.7	8	8	11	7	4	6	3	1	8	8	12	7	74	99	99	42	50	42	140	141	0	37	134	134	0	
599	Private - Subject to Acquisition Rights	MOCO (AQ) [SSD-5850]	MOCO (AQ) [SSD-5850]	14.8	4	4	6	4	2	4	3	1	4	5	6	5	67	69	70	41	50	4	7	7	0	3	7	7	0	
613	Private - Subject to Acquisition Rights	-	MOCO (AQ) [SSD-5850] vacant lots 31/6842 and 2/1175728 within landholding only	14.8	4	4	6	4	2	4	3	1	4	5	6	5	67	69	70	41	50	4	7	7	0	3	7	7	0	
614	Private - Dwelling	-	-	14.8	4	4	6	4	2	4	3	1	4	5	6	5	67	69	70	41	50	4	7	7	0	3	7	7	0	
621	Private - Subject to Acquisition Rights	Rixs Creek North (Noise & AQ) [PA08_0102]; Rixs Creek South (AQ) [SSD 6300]	Rixs Creek North (Noise) [PA08_0102]; Ashton (AQ) [DA309-11-2001-]	10.0	11	12	17	11	6	9	5	2	11	12	17	11	62	63	65	43	50	6	12	13	0	4	8	8	0	
626	Private - Subject to Acquisition Rights	Glendell (Noise) [DA 80/952]; MOCO (AQ) [SSD-5850]; Rixs Creek North (Noise) [PA08_0102]; Rixs Creek South (AQ) [SSD 6300]	MOCO (AQ) [SSD-5850]; Rixs Creek South (AQ) [SSD 6300]. Note - acquisitions apply to both contiguous lots 1/8/758214 and 2/8/758214	10.2	11	11	18	14	4	6	5	2	11	13	19	14	61	63	65	42	50	3	4	6	0	2	3	3	0	
735	Private - Commercial	-	-	7.4	18	18	23	18	11	15	7	2	18	19	23	18	59	61	63	42	50	5	7	6	0	1	4	4	0	
797	Community Infrastructure	-	-	7.4	20	21	27	19	11	15	7	2	20	22	27	20	63	65	67	42	50	6	7	6	0	4	4	4	0	
799	Community Infrastructure	-	-	7.4	20	21	27	19	11	15	7	2	20	22	27	20	63	65	67	42	50	6	7	6	0	4	4	4	0	
800	Private - Commercial	-	-	7.4	20	21	27	19	11	15	7	2	20	22	27	20	63	65	67	42	50	6	7	6	0	4	4	4	0	
830	Private - Commercial	-	-	8.5	2	2	4	6	12	18	13	8	14	20	13	8	53	56	55	46	50	4	6	5	0	3	3	3	0	
833	Private - Commercial	-	-	2.8	3	4	7	10	29	63	44	26	30	65	47	30	79	92	80	60	50	35	89	48	7	8	3	4	0	
861	Private - Subject to Acquisition Rights	Glendell (Noise) [DA 80/952]; Rixs Creek North (Noise) [PA08_0102]; IUG (Noise) [PA08_0101]; Rixs Creek South (AQ) [SSD 6300]	Glendell [DA80/952]; Rixs Creek North (Noise) [PA08_0102]	11.6	9	9	13	9	4	7	4	2	9	10	13	9	61	67	67	42	50	3	14	14	0	1	9	9	0	
862	Private - Subject to Acquisition Rights	Glendell (Noise) [DA 80/952]; Rixs Creek North (Noise) [PA08_0102]; IUG (Noise) [PA08_0101]; Rixs Creek South (AQ) [SSD 6300]	Rixs Creek North (Noise) [PA08_0102]	11.1	10	11	16	12	4	5	4	2	11	12	17	12	61	64	64	42	50	4	5	6	0	1	3	3	0	
863	Private - Subject to Acquisition Rights	Glendell (Noise) [DA 80/952]; Rixs Creek North (Noise) [PA08_0102]; IUG (Noise) [PA08_0101]; Rixs Creek South (AQ) [SSD 6300]	Rixs Creek North (Noise) [PA08_0102]	11.4	10	10	15	11	4	6	4	2	10	11	15	11	60	65	65	42	50	3	9	10	0	1	7	7	0	

Ashton = Ashton Coal Project, HVOS = Hunter Valley Operations (South), HVON = Hunter Valley Operations (North), MOCO = Mt Owen Continued Operations, IUG = Integra Underground, UWJV = United Wambo JV, Rav Ops = Ravensworth Surface Operations

Table 4 shows the requested PM_{2.5} data. This includes the modelled 24-hour average PM_{2.5} concentrations for all sensitive receptors where the modelled cumulative concentration exceeded 25 µg/m³ on more than 5 days in any assessment year. The maximum contributions from HVO South, HVO North and the Complex (i.e. HVO South and HVO North) are included, noting that these maximum concentrations are not necessarily on the same day as the maximum cumulative concentrations. The modelled number of days above 25 µg/m³ has been presented for scenarios including HVO and not including HVO (i.e. “no HVO”) in order to show the potential of HVO to cause an exceedance of the EPA criterion, for these locations.

The contributions of HVO to the selected locations would be at most 20.1 µg/m³ which is below the VLAMP criteria. As for PM₁₀, and as noted in the AQIA, it will be necessary for HVO to respond to any potential increases in offsite air quality risks and minimise its contribution to air quality.

Table 4 Modelled 24-hour average PM_{2.5} concentrations and days above 25 µg/m³

ID	Status	Existing mitigation rights	Existing acquisition rights	Minimum distance to HVO (km)	Project (HVO N)				Project (HVO S)				Project (Complex)				Cumulative concentration				Cumulative days>25								
					2024	2029	2034	2041	2024	2029	2034	2041	2024	2029	2034	2041	2024	2029	2034	2041	2024	2029	2034	2041					
833	Private - Commercial	-	-		1.2	1.5	2.5	3.5	8.5	19.4	12.1	5.6	9.1	20.1	13.4	7.6	29	30	25	19	25	5	7	0	0	0	0	0	0

Ashton = Ashton Coal Project, HVOS = Hunter Valley Operations (South), HVON = Hunter Valley Operations (North), MOCO = Mt Owen Continued Operations, IUG = Integra Underground, UWJV = United Wambo JV, Rav Ops = Ravensworth Surface Operations

4. Annual average deposited dust under VLAMP

Annexure C of the Air Quality Impact Assessment (dated 29 July 2025) shows exceedances of the VLAMP's annual cumulative deposited dust criteria at private receptors (102, 592, 596, 619, 621, 624, 626, 627, 628, 629, 860, 861, 862, 863) and community infrastructure (264, 507, and 511). You are requested to demonstrate how the provisions of the VLAMP have been considered for the predicted exceedances shown in Annexure C.

Table 5 shows the modelled annual average deposited dust levels for all sensitive receptors where the modelled concentration exceeds 4 g/m²/month at any time during the life of the amended Project. This information also includes the calculated minimum distance between active mining areas of HVO and each sensitive receptor, as well as the contributions from other sources of PM_{2.5}. The property mitigation or acquisition rights status under other projects are also identified.

As for PM₁₀ and PM_{2.5}, the results from Table 5 show that contributions to cumulative annual average deposited dust levels are dominated by sources other than HVO. This is primarily due to the distances between receptors and active mining areas of HVO which are at least 10 km. The maximum contribution of HVO to annual average PM_{2.5} concentrations at any receptor in any assessment year is 0.4 g/m²/month and the contribution of other sources would be, on average, 3.9 g/m²/month. It can therefore be concluded that the amended Project would not be the primary cause of exceedances of the VLAMP criteria, in terms of annual average deposited dust. Again, this is consistent with the fact that, except for receptors 264 and 507 (both community infrastructure), all receptors in Table 5 are already afforded mitigation and/or acquisition rights from other mines.

As noted above, the modelling indicates that the VLAMP criteria for annual average deposited dust levels would be triggered at the listed receptors primarily because of contributions from sources other than HVO. HVO's consideration of these outcomes includes designing the amended Project to minimise environmental impacts, consistent with the provisions of the VLAMP. More specifically, HVO has committed to:

- Reducing the quantities of material moved in each year under the amended Project. The quantities of material moved would be significantly (approximately 23%) lower than the original Project.
- Implementing dust management measures for the amended Project that are consistent with best practice dust mitigation measures (as per Table 19 of the AQIA).

The implementation of the measures would demonstrate that all reasonable and feasible avoidance and/or mitigation measures would be employed to minimise impacts of the amended Project.

Again, it should be noted that Table 5 is specific to dwellings. The AQIA determined that the amended Project may contribute to an exceedance of the annual average VLAMP criteria for deposited dust on more than 25% of privately owned land where there is an existing dwelling on landholding 8//3005 (Property 121). This outcome remains.

Table 5 Modelled annual average deposited dust

ID	Status	Existing mitigation rights	Existing acquisition rights	Minimum distance to HVO (km)	Project (HVO N)				Project (HVO S)				Project (Complex)				Due to other sources				Cumulative				Criteria	
					2024	2029	2034	2041	2024	2029	2034	2041	2024	2029	2034	2041	2024	2029	2034	2041	2024	2029	2034	2041		
102	Private - Subject to Acquisition Rights	Warkworth (Noise & AQ) [SSD6464]	Warkworth (Noise & AQ) [SSD6464]	5.4	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1	4.2	4.0	4.0	3.3	4.2	4.1	4.1	3.4	4
264	Community Infrastructure	-	-	5.6	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1	4.2	4.0	4.0	3.2	4.2	4.1	4.1	3.3	4
507	Community Infrastructure	-	-	15.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	3.3	5.5	5.5	2.5	3.3	5.6	5.6	2.5	4
592	Private - Subject to Acquisition Rights	Rixs Creek North (Noise) [PA08_0102]; MOCO (AQ) [SSD-5850]; IUG (Noise) [PA08_0101]	Rixs Creek North (Noise) [PA08_0102]; MOCO (AQ) [SSD-5850]	15.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	3.0	4.2	4.2	2.5	3.0	4.3	4.3	2.5	4
596	Private - Subject to Acquisition Rights	Rixs Creek North (Noise & AQ) [PA08_0102]; Glendell (Noise) [DA 80/952]; IUG (Noise) [PA08_0101]	Rixs Creek North (Noise & AQ) [PA08_0102]; IUG (Noise) [PA08_0101]	12.7	0.1	0.1	0.2	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.2	0.1	0.1	4.1	8.9	8.9	2.5	4.2	9.1	9.1	2.6	4
619	Private - Subject to Acquisition Rights	MOCO (AQ) [SSD-5850]; Glendell (Noise) [DA 80/952]; Rixs Creek North (Noise) [PA08_0102]; Rixs Creek South (AQ) [SSD 6300]	MOCO (AQ) [SSD-5850]; Rixs Creek South (AQ) [SSD 6300]	10.7	0.2	0.2	0.3	0.1	0.0	0.0	0.0	0.0	0.2	0.2	0.3	0.1	0.1	3.4	4.4	4.4	2.5	3.6	4.7	4.7	2.6	4
621	Private - Subject to Acquisition Rights	Rixs Creek North (Noise & AQ) [PA08_0102]; Rixs Creek South (AQ) [SSD 6300]	Rixs Creek North (Noise) [PA08_0102]; Ashton (AQ) [DA309-11-2001-1]	10.0	0.2	0.2	0.3	0.2	0.0	0.0	0.0	0.0	0.2	0.2	0.3	0.2	0.2	3.3	3.8	3.8	2.5	3.5	4.0	4.1	2.7	4
623	Community Infrastructure	-	-	9.8	0.3	0.3	0.4	0.2	0.0	0.0	0.0	0.0	0.3	0.3	0.4	0.2	0.2	3.3	3.9	3.9	2.5	3.5	4.2	4.2	2.7	4
624	Private - Subject to Acquisition Rights	MOCO (AQ) [SSD-5850]; Rixs Creek South (AQ) [SSD 6300]	MOCO (AQ) [SSD-5850]; Rixs Creek South (AQ) [SSD 6300]. Note - acquisitions apply to all 9 contiguous lots 1/248748, 2/9/758214, 3/9/758214, 4/9/758214, 5/9/758214, 6/9/758214, 7/9/758214, 8/9/758214, 9/9/758214	10.0	0.3	0.3	0.3	0.2	0.0	0.0	0.0	0.0	0.3	0.3	0.3	0.2	0.2	3.3	4.0	4.0	2.5	3.6	4.3	4.4	2.7	4
626	Private - Subject to Acquisition Rights	Glendell (Noise) [DA 80/952]; MOCO (AQ) [SSD-5850]; Rixs Creek North (Noise) [PA08_0102]; Rixs Creek South (AQ) [SSD 6300]	MOCO (AQ) [SSD-5850]; Rixs Creek South (AQ) [SSD 6300]. Note - acquisitions apply to both contiguous lots 1/8/758214 and 2/8/758214	10.2	0.2	0.3	0.3	0.2	0.0	0.0	0.0	0.0	0.3	0.3	0.3	0.2	0.2	3.4	4.2	4.2	2.5	3.6	4.5	4.5	2.7	4
627	Private - Subject to Acquisition Rights	Glendell (Noise) [DA 80/952]; MOCO (AQ) [SSD-5850]; Rixs Creek North (Noise) [PA08_0102]; Rixs Creek South (AQ) [SSD 6300]	MOCO (AQ) [SSD-5850]; Rixs Creek South (AQ) [SSD 6300]	10.4	0.2	0.2	0.3	0.2	0.0	0.0	0.0	0.0	0.2	0.3	0.3	0.2	0.2	3.4	4.3	4.3	2.5	3.6	4.5	4.6	2.7	4
628	Private - Subject to Acquisition Rights	Glendell (Noise) [DA 80/952]; MOCO (AQ) [SSD-5850]; Rixs Creek North (Noise) [PA08_0102]; Rixs Creek South (AQ) [SSD 6300]	MOCO (AQ) [SSD-5850]; Rixs Creek South (AQ) [SSD 6300]	10.5	0.2	0.2	0.3	0.1	0.0	0.0	0.0	0.0	0.2	0.2	0.3	0.1	0.1	3.4	4.3	4.3	2.5	3.6	4.5	4.6	2.6	4
629	Private - Subject to Acquisition Rights	MOCO (AQ) [SSD-5850]; Rixs Creek North (AQ) [PA08_0102]; Rixs Creek South (AQ) [SSD 6300]	MOCO (AQ) [SSD-5850]; Rixs Creek South (AQ) [SSD 6300]. Note - acquisitions apply to both contiguous lots 103/852484 and 104/852484	10.6	0.2	0.2	0.3	0.1	0.0	0.0	0.0	0.0	0.2	0.2	0.3	0.1	0.1	3.3	4.2	4.2	2.5	3.6	4.4	4.5	2.6	4
860	Private - Subject to Acquisition Rights	Glendell (Noise) [DA 80/952]; Rixs Creek North (Noise & AQ) [PA08_0102]; Rixs Creek South (AQ) [SSD 6300]	Glendell [DA80/952]; Rixs Creek North (Noise) [PA08_0102]	10.7	0.2	0.2	0.3	0.2	0.0	0.0	0.0	0.0	0.2	0.2	0.3	0.2	0.2	3.5	4.9	4.9	2.5	3.7	5.2	5.2	2.7	4
861	Private - Subject to Acquisition Rights	Glendell (Noise) [DA 80/952]; Rixs Creek North (Noise) [PA08_0102]; IUG (Noise) [PA08_0101]; Rixs Creek South (AQ) [SSD 6300]	Glendell [DA80/952]; Rixs Creek North (Noise) [PA08_0102]	11.6	0.2	0.2	0.2	0.1	0.0	0.0	0.0	0.0	0.2	0.2	0.2	0.1	0.1	3.5	5.6	5.6	2.5	3.7	5.8	5.8	2.6	4
862	Private - Subject to Acquisition Rights	Glendell (Noise) [DA 80/952]; Rixs Creek North (Noise) [PA08_0102]; IUG (Noise) [PA08_0101]; Rixs Creek South (AQ) [SSD 6300]	Rixs Creek North (Noise) [PA08_0102]	11.1	0.2	0.2	0.2	0.1	0.0	0.0	0.0	0.0	0.2	0.2	0.2	0.1	0.1	3.3	4.5	4.5	2.5	3.5	4.7	4.8	2.6	4
863	Private - Subject to Acquisition Rights	Glendell (Noise) [DA 80/952]; Rixs Creek North (Noise) [PA08_0102]; IUG (Noise) [PA08_0101]; Rixs Creek South (AQ) [SSD 6300]	Rixs Creek North (Noise) [PA08_0102]	11.4	0.2	0.2	0.2	0.1	0.0	0.0	0.0	0.0	0.2	0.2	0.2	0.1	0.1	3.3	4.8	4.8	2.5	3.5	5.0	5.0	2.6	4

Ashton = Ashton Coal Project, HVOS = Hunter Valley Operations (South), HVON = Hunter Valley Operations (North), MOCO = Mt Owen Continued Operations, IUG = Integra Underground, UWJV = United Wambo JV, Rav Ops = Ravensworth Surface Operations

5. Conclusions

The key conclusions from the collation and assessment of the requested information were as follows:

- Contributions to cumulative annual average PM₁₀, PM_{2.5} and deposited dust levels concentrations at the selected locations would be dominated by sources other than HVO. This is evident from the mitigation or acquisition rights those receptors benefit from in the other mines development consent and/or approvals.
- Contributions of HVO to maximum 24-hour average PM₁₀ and PM_{2.5} concentrations would be below the VLAMP criteria (except at receptor 833 being the aerodrome which is subject to a specific management plan). This modelling did not reflect reactive controls that are employed at HVO or at other mining operations, so the cumulative results can be considered as worst case. HVO is committed to proactively modifying or shutting down any activities that may be increasing the risk of air quality impacts. Modelling (Airen, 2025b) has shown that the implementation of modifying operations in response to the trigger levels defined in the AQGGMP can reduce HVO's contributions to air quality such that HVO would not be the cause of an exceedance of EPA criteria.
- HVO's consideration of the outcomes above has included designing the amended Project to minimise environmental impacts, consistent with the provisions of the VLAMP. More specifically, HVO has committed to reducing the quantities of material moved in each year under the amended Project and implementing dust management measures for the amended Project that are consistent with best practice dust mitigation measures. The implementation of these measures would demonstrate that all reasonable and feasible avoidance and/or mitigation measures would be employed to minimise impacts of the amended Project.

6. References

Airen (2025a) "HVO Continuation Project Amendment – Air Quality Impact Assessment". Report prepared by Airen Consulting for HV Operations Pty Ltd. Final, Revision 0, dated 29 July 2025.

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EPA (2022) "Approved Methods for the Modelling and Assessment of Air Pollutants in NSW". August 2022. Published by the Environment Protection Authority.

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Katestone (2011) "NSW Coal Mining Benchmarking Study: International Best Practice Measures to Prevent and / or Minimise Emissions of Particulate Matter from Coal Mining". Prepared by Katestone Environmental Pty Ltd for NSW Office of Environment and Heritage, December 2010.

NSW Government (2018) "Voluntary Land Acquisition and Mitigation Policy for State Significant Mining, Petroleum and Extractive Industry Developments". September 2018.