Department of Planning, Housing and Infrastructure

Our ref: MP07_0143-PA-25

Kiara Crook
Environmental and Compliance Superintendent
Tarago Operations Pty Ltd
507 Collector Road
Tarago, NSW, 2580

15/09/2025

Woodlawn Copper – Air Quality Management Plan

Dear Ms. Crook

Thank you for submitting the Air Quality Management Plan in accordance with Condition 17, Schedule 4 of the consent for the Woodlawn Copper (MP07_0143). I also acknowledge your response to the Department's review comments and request for additional information.

I note the Air Quality Management has been prepared in consultation with the EPA; and contains the information required by the conditions of approval.

Accordingly, as nominee of the Planning Secretary, I approve the revised Air Quality Management Plan (Rev 11, September 2025).

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 Charissa Pillay on 02 99955944.

Yours sincerely

Stephen O'Donoghue
Director
Resource Assessments

As nominee of the Planning Secretary

Air Quality Management Plan

Woodlawn Zinc Copper Project

Document Review/Change History

Date	Summary of review and changes	Revision No.	Authors	
			Drafted by	Reviewed by
10/9/2014	Draft for internal review	1	HS	-
30/01/2015	Pacific Environment Report	2	HS/RB	-
2/02/2015	Updated version	3	HS	-
25/05/2016	Government review	4	RB	AL
13/09/2016	Issued to DPE	5	RB	AL
04/05/2017	Comments from DPE	6	RB	AL
11/05/2017	Operational version	7	RB	AL
01/08/2017	Amendments for MOD2	8	RB	AL
24/05/2024	Amend company details, refine plan, updates following revised company strategy	9	KC	AVN
31/12/2024	Updated plan following consultation with EPA for submission to major projects portal	10	CH	KC
05/09/2025	Plan updated in response to DPHI RFI (MP07_0143-PA-25) and re-submitted to the major projects portal	11	KC	KC

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Appendices

Glossary

Acronym	Definition
AQMP	Air Quality Management Plan
AS/NZS	Australian/New Zealand Standard
CEMP	Construction Environmental Management Plan
DCCEEW	Department of Climate Change, Energy, the Environment and Water (formerly DPE)
DDG	Depositional Dust Gauges
DEVELOP	Develop Global Limited
DPE	Department of Planning and Environment (now DPHI)
DPHI	Department of Planning, Housing and Infrastructure (formerly DPE)
EA	Environmental Assessment
EMP	Environmental Management Plan
EMS	Environmental Management Strategy
EPA	Environment Protection Authority
EPL	Environmental Protection Licence
HVAS	High Volume Air Sampler
NGER Act	*National Greenhouse and Energy Reporting Act 2007*
NSW	New South Wales
OEH	NSW Environment and Heritage (now DCCEEW)
PIRMP	Pollution Incident Response Management Plan
POEO Act	*Protection of the Environment Operations Act 1997*
PM10	Particulate matter <10 µm
Project Approval	Development Consent 07_0143
SML20	Special Mining Lease 20
TARP	Trigger Action Response Plan
The Department	Environment Protection Authority
The Project	Woodlawn Zinc-Copper Mine
The Proponent	Develop Global t/a Tarago Operations Pty Limited
The Site	Woodlawn Mine
TSF4	Tailings Storage Facility 4
TSP	Total suspended particulate
VKT	Vehicle Kilometres per Tonne

1. INTRODUCTION

1.1. Background

The Woodlawn Zinc-Copper mine (the Project) is located approximately 7 km northwest of Tarago in New South Wales (NSW) within Special (Crown and Private Land) Mining Lease no. 20 (SML20) as shown in Plan 1, Appendix 1. The original Woodlawn mine operated from 1978 to 1998 and processed 13.8Mt of ore from the Woodlawn open pit, underground and minor satellite deposits. Following its prolonged closure, the Project was acquired by ASX-listed Heron Resources who secured Project Approval in July 2013 following the public exhibition of the Projects Environmental Assessment (EA). Heron completed the construction of the project and developed the new underground mine in accordance with the Project Approval before it was put on care and maintenance in March 2020. Heron was placed in administration in July 2021. Develop Global Limited (DEVELOP) completed its acquisition of the Project in May 2022 and Tarago Operations Pty Limited which holds Special Mining Lease (SML) 20 and (EPL) 20821. Veolia operates an eco-precinct, including a licensed landfill, within SML20 but separated from the project and has separate EPL's as shown in Plan 1, Appendix 1.

The existing air quality environment for the Project was described in detail in the Project EA (Parsons Brinkerhoff 2012). With the construction phase of the project, as approved by the original Project Approval and subsequent modifications now complete, this version of the AQMP provides updates for the site and project going forward. This AQMP also considers additional baseline data obtained throughout the 2020 to 2023 period when the site was in care and maintenance with minimal surface activities occurring.

This Air Quality Management Plan (AQMP) forms one component of the of the Projects overall Environmental Management Strategy (EMS). The EMS includes several commitments and associated management plans which together form the basis for the ongoing operation of the Project. The EMS and associated management plans will be updated as required to reflect any changes to the Project.

1.2. Scope and objectives

The control of dust from the premises is a key environmental issue. The purpose of this AQMP is to document the control measures and management initiatives to control dust generation from the Project. The overall objectives for the AQMP are to:

- Implement the commitments made in the EA including specific conditions of approval and the Statement of Commitments.
- Ensure compliance with relevant environmental legislation.
- Manage air quality risks associated with the Project.
- Provide for continuous improvement in dust control performance.
- Provide a mechanism to identify and correct areas of non-compliance.

1.3. Consultation

This plan was originally drafted by Heron following consultation with government and non-government organisations. DEVELOP has since revised the plan with additional consultation where required and applicable depending on the update. A consultation log is provided in Appendix 2 which will be updated as required during the ongoing operation of the Project. The AQMP was originally approved in 2017 (Appendix 3).

1.4. Legislation

Legislation relevant to air quality management includes:

- Environmental Planning and Assessment Act 1979 (EP&A Act);
- Protection of the Environment Operations Act 1997 (POEO Act); and
- Protection of the Environment Operations (Clean Air) Regulation 2010.

The Project is governed by the following:

- Project Approval: as issued in 2013, and amended in 2016 and 2017. Document ID: 07_0143MOD2
- Environment Protection License (EPL): 20821 as issued by the NSW Environmental Protection Agency (EPA)
- Special Mining Lease (SML): 20

1.5. Guidelines and standards

The NSW and Australian government provide a range of guidelines and fact sheets regarding the control of mine site dust and control of dust emissions from construction activities. These guidelines provide general information on the control systems as well as methods to achieve current best practice. There are also guidelines for issue to residents near mine sites in order educate the community to their rights. These sources are presented in Section 7 and have been referred to in the preparation of this plan where applicable.

1.6. Project approval

This AQMP has been developed in accordance with the Project Approval and Statement of Commitments (SOC). Table 1-1 outlines these including reference to where each of the conditions are addressed.

Table 1-1 Conditions of approval

Condition ID	Condition description	Where addressed
Schedule 4, Condition 13	The Proponent shall ensure that no offensive odours generated by the project are emitted from the site, as defined under the POEO Act.	Section 3.4 Section 5.4
Schedule 4, Condition 14	The Proponent shall implement all reasonable and feasible measures to minimise the release of greenhouse gas emissions from the site to the satisfaction of the Director-General.	Section 5.2
Schedule 4, Condition 15	The Proponent shall ensure that all reasonable and feasible avoidance and mitigation measures are employed so that particulate matter emissions generated by the project do not exceed the criteria listed in Tables 7, 8 and 9 (of the Project Approval) at any residence on privately-owned land. However, the criteria listed in Tables 7, 8 and 9 do not apply if the Proponent has an agreement with the relevant owner(s) to exceed the criteria, and the Proponent has advised the Department in writing of the terms of this agreement. *Table 7: Long term impact assessment criteria for particulate matter* **Pollutant** / **Averaging Period** / **[d] Criterion** Total suspended particulate (TSP) matter / Annual / [a] 90 µg/m³ Particulate matter < 10 µm (PM_{10}) / Annual / [a] 30 µg/m³ *Table 8: Short term impact assessment criterion for particulate matter* **Pollutant** / **Averaging Period** / **[d] Criterion** Particulate matter < 10 µm (PM_{10}) / 24 hour / [a] 50 µg/m³ *Table 9: Long term impact assessment criteria for deposited dust* **Pollutant** / **Averaging Period** / **Maximum increase in deposited dust level** / **Maximum total deposited dust level** [c] Deposited dust / Annual / [b] 2 g/m²/month / [a] 4 g/m²/month	Section 5.2
Schedule 4, Condition 16	The Proponent shall: (a) implement best practice air quality management on site, including all reasonable and feasible measures to minimise the off-site odour, fume and dust emissions generated by the project; and	Section 5.4
	(b) minimise any visible air pollution generated by the project; to the satisfaction of the Secretary.	Section 5.2
Schedule 4, Condition 17.	The Proponent shall prepare and implement an Air Quality Management Plan for the project to the satisfaction of the Secretary. This plan must: (a)be prepared in consultation with the EPA, and be submitted to the Secretary for approval prior to commencing construction on the site;	This Plan Appendix 2
	(b) describe the measures that would be implemented to ensure compliance with Conditions 13 to 16 above;	Section 3.4, Section 5

Condition ID	Condition description	Where addressed
	(c) include an air quality monitoring program that: • uses a combination of high volumes samplers and dust deposition gauges to evaluate the performance of the project; and • includes a protocol for determining exceedances of the relevant conditions of this approval; and	Section 4 Section 4.1 Section 5.4
	(d) describe the measures that would be implemented to minimise the release of greenhouse gas emissions from the site.	Section 5.2
Schedule 4, Condition 18	For the life of the project, the Proponent shall ensure that there is a suitable meteorological station operating in the vicinity of the site that complies with the requirements in the *Approved Methods for Sampling of Air Pollutants* in New South Wales guideline.	Section 3.1
Schedule 5, Condition 1	Within two weeks of obtaining monitoring results showing: • an exceedance of any relevant air quality criteria in Schedule 4, the Proponent shall send the affected landowners and/ or tenants a copy of the NSW Health fact sheet entitled "Mine Dust and You" (as may be updated from time to time).	Section 5.4
Schedule 6, Condition 3	The Proponent shall ensure that the management plans required under this approval are prepared in accordance with any relevant guidelines, and include: (a) a description of: • the relevant statutory requirements (including any relevant approval, licence or lease conditions); • any relevant limits or performance measures/criteria; • the specific performance indicators that are proposed to be used to judge the performance of, or guide the implementation of, the project or any management measures;	 Section 1.4 & 1.5 Section 5 Section 5
	(b) a description of the measures that would be implemented to comply with the relevant statutory requirements, limits, or performance measures/criteria;	Section 5.2
	(c) a program to monitor and report on the: • impacts and environmental performance of the project; • effectiveness of any management measures (see b above);	This plan & overarching EMS
	(d) 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;	Section 5.4
	(e) a protocol for managing and reporting any:	Section 6

Condition ID	Condition description	Where addressed
	• incidents and complaints; • non-compliances with statutory requirements and exceedances of the impact assessment criteria and/or performance criteria; and	
	(f) a protocol for periodic review of the plan.	Section 6.5
Schedule 6, Condition 8	The Proponent shall provide regular reporting on the environmental performance of the project on its website, in accordance with the reporting arrangements in any approved plans of the conditions of this approval.	Section 6.2
Statement of Commitments Item 7B	The Rehabilitation and Environmental Management Plan would include measures to avoid and manage dust impacts during operation. As a minimum, these measures would include: • clearly defining haulage routes and limiting the number of trafficable routes over unsealed surfaces • washdown of vehicles • imposing speed limits on unsealed surfaces for light vehicles • stabilising and rehabilitating exposed areas as quickly as possible.	Section 5.2
Statement of Commitments Item 7C	One or more dust deposition gauges would be installed at the nearest privately owned residence to the Project Site to assist in the assessment of air quality impacts due to Project operations.	Section 4.1
Statement of commitments Item 13A	Measures to minimise inefficiencies in the use of electricity would include: • regular electrical calibration checks on machinery • use of high efficiency motors • use of correctly determined (based on capacity required) speed drive pumps • regular monitoring of electrical load regular maintenance of light fittings to optimise light delivery.	Section 5.2
Statement of commitments Item 13B	Measures to minimise diesel consumption would include: • ensuring use of fuel efficient vehicles and machinery • maintaining vehicles and machinery regularly • avoiding prolonged idling: shut down vehicles that are to be idle for a prolonged time • throttling down and switching off construction equipment when not in use • planning delivery schedules so that there are fewer and shorter trips.	Section 5.2

2. EXISTING ENVIRONMENT

2.1. Meteorological conditions

The EPL identifies the meteorological station located at the EPL 11436 premises (Veolia) to be used for the purposes of monitoring (EPA identification no. 5). This is shown in Appendix 1, Plan 2. The weather station measures hourly wind speed and direction, Pascal Stability Class, rainfall, temperature at 2m and 10m, barometric pressure, relative humidity and solar radiation which complies with the requirements in the Approved Methods for Sampling Air Pollutants in NSW (EPA 2022).

Site specific weather data from this station has been recorded by Project owners since August 2017. The data indicates that temperatures at the Woodlawn Site are generally warmest during January, and coolest during August, with mean temperatures of around 21 °C and 7 °C respectively. Over the year, rain falls (amount of ≥1 mm) on approximately 85 days with the highest average rainfall occurring during November (approximately 110 millimetres (mm)). It is noted that in the original EA this figure was 65 wet days with November experiencing approximately 57 mm and is therefore likely influenced by the site experiencing above average rainfall during the last four years.

Review of weather data acquired on site and presented in previous Annual Review reports indicate that winds experienced on the site including the strongest winds are predominately from the westerly direction. Northerlies, including north west and north east directions are also experienced at times. These rotate to primarily originating from a more easterly direction during summer. Of all the directions, southerly winds are the most uncommon on the site.

2.2. Site soils

Like the meteorological conditions the existing soil is also important to understand when designing and reviewing the dust monitoring program, especially on an already disturbed site such as Woodlawn. As detailed in the EA which referenced historical, pre-mining results from 1967, 1968 and 1970 the soils of the Project area naturally contained elevated heavy metal concentrations associated with and downgradient from the original ore body. Elevated zinc was also noted in residual clay soils derived from dolerite bedrock.

The initial pre-2000's mine and associated processing plant subsequently operated resulting in legacy stockpiles and disturbed, bare areas. However, there have been limited more recent sampling of site soils undertaken across the project area. Naturally elevated concentrations of heavy metals were recorded more recently (2008) when hickory paddock was sampled prior to Project approval and subsequent construction of the processing plant and new Tailings Storage Facility (TSF4). However, these results were below the industrial guidelines applied at the time and based on the historical results were reflective of background concentrations. The EA also mentioned that soils within the project area are also likely be affected by past industrial activities including from the old plant area and tailings dams. The historical processing plant formerly located between the Veolia administration and the new processing plant has since been removed with this area now exclusively used and operated by Veolia. Areas of disturbed and bare soil remains here which is noted to be up wind from some of the dust monitoring locations (refer to Section 4.1).

2.3. Baseline dust concentration

The EA presented background PM10 results at a High Volume Air Sampler (HVAS) which was decommissioned in 2007 and is represented in Figure 2-1. A new HVAS unit was installed south of the site in 2017 (refer to Plan 2, Appendix 1) and remains operational. The Woodlawn

mine has not been surface operational during the period between 2020 and 2023. However, results from this period have provided useful background air quality trends to update the original EA's data, albeit during very wet seasonal conditions, exclusive of mining activity. This is presented in Figure 2-2 and depict clear seasonal fluctuations with increased concentrations being recorded during the summer months.

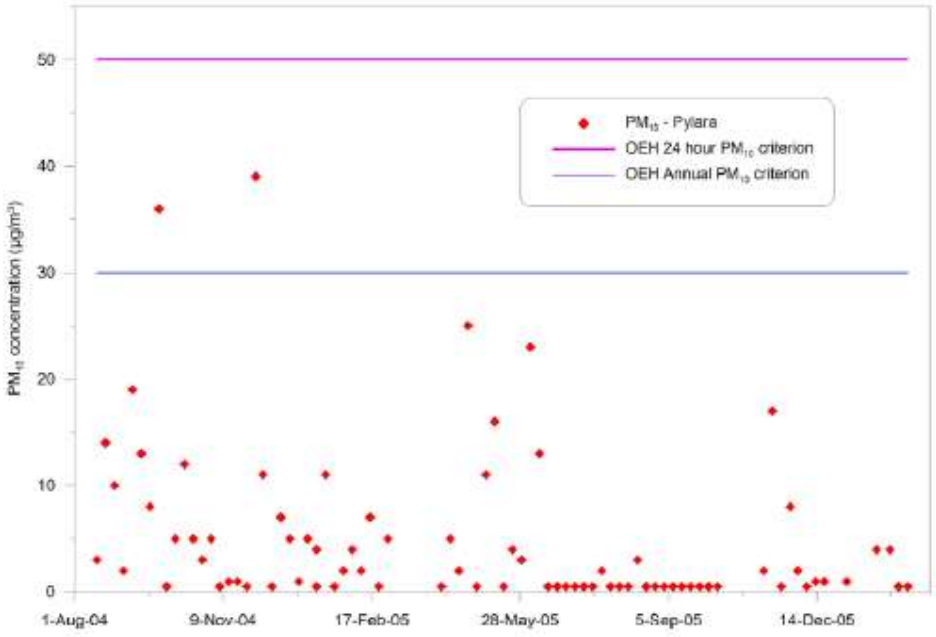

Figure 2-1 HVAS baseline monitoring results (2004 to 2006)

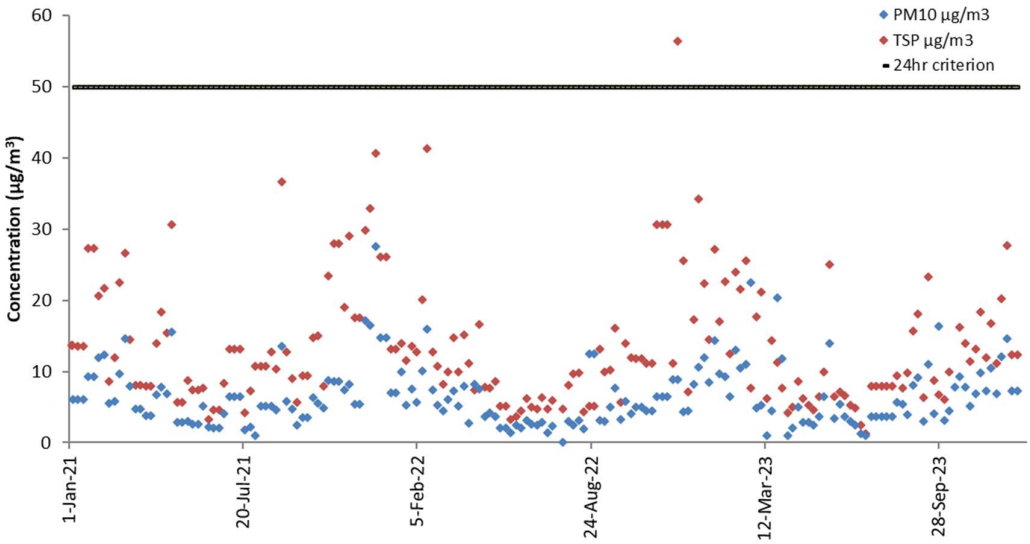

Figure 2-2 HVAS baseline monitoring results (2020 to 2023)

There are numerous Depositional Dust Gauges (DDG) across the Project area as presented Plan 2, Appendix 1. Historically, these have been used either for compliance, or to monitor on-site activities and the effectiveness of management strategies. It is noted that in the EA a background dust deposition level relevant to all receptors in the study area was assumed to be 2.3 which represented the average of all monthly data from the gauge locations at the time – of those only DG22 and DG28 are still monitored today. The EA results are similar to what has been recorded between 2020 and 2023. The baseline results in Table 2-2 indicate the

variability between the dust gauges and highlights the gauges which are typically associated with naturally elevated results. Ash content is therefore important to determine whether elevated concentrations are attributable to site activities.

Insoluble solids represent the matter which does not dissolve in water whereby ash content is the matter that remains after the same sample has been combusted in the laboratory. Insoluble solids, therefore, also includes organic matter such as pollen which is why many depositional dust gauges across the Project area often record elevated readings even when the site was not operational between 2020 and 2023. In this instance reference is always made to the ash content as providing a better indication of the mineral content (or soil dust) of a sample. Ash content for the samples collected as part of the EA was not recorded.

Table 2-2 Dust deposition gauges average baseline monitoring results (2020 – 2023)

Location	2020 - 2023		2006 – 2010
	Insoluble solids (g/m^2/month)	Ash content (g/m^2/month)	Insoluble solids (g/m^2/month)
DGH01	2.86	1.7	Not installed
DG22B	4.83	4.09	Not installed
DG22	3.10	1.60	2.46
DG28	2.00	0.88	1.7
DG33	1.34	0.48	Not installed
DG34	6.03	2.24	Not installed

3. PROJECT AIR QUALITY MANAGEMENT

3.1. Meteorological

As of 2022, Veolia operate and maintain the three publicly available weather stations within the region as summarised in Table 3-3. Schedule 4 Condition 18 of the Project Approval requires a suitable meteorological station operating in the vicinity of the site that complies with the requirements in the Approved Methods for Sampling Air Pollutants in NSW Guideline. In accordance with the EPL, this station has been assigned as the one at the EPL 11436 premises (Veolia). The location of the weather station is presented on Plan 2, Appendix 1. Two additional weather stations (Tarago Recreational Area and Tarago Showground) are used when required in the case that data cannot be obtained from the Eco Precinct, or if validation of data is required.

The Eco Precinct weather station has been operational since 2017. For assessment of longer regional climatic trends, data is sourced from the next closest Bureau of Meteorology station (Goulburn: Station number 070330).

Table 3-3 Regional weather stations

Location	Address	Website link
Tarago Recreation Area	2124 Braidwood Road, Tarago	https://public.eagle.io/public/dash/pd1zgzieta85sls
Tarago Showground	Braidwood Toad, Tarago	https://public.eagle.io/public/dash/2zjxag9mp0xpa0e
Eco Precinct	619 Collector Road	https://public.eagle.io/public/dash/dl8hsm0b6rb43f0

3.2. Dust sources

During Operation, dust sources will be limited to crushing and screening, material loading and handling, conveyors, mine ventilation facilities and general on-site activities. Dust may also be generated from:

- Unsealed haul roads and access roads;
- Exposed surface that remain unrehabilitated;
- Stockpiles; and
- Dry tailings dams

Dust modelling undertaken as part of the EA and confirmed again with the 2015 Project Modification, demonstrated that some minor air quality (dust) impacts could be experienced at the nearby Veolia occupied properties during construction. These were adequately controlled at the time. A dispersion model for the Operational phase suggests that the Project is unlikely to cause exceedances of regulatory air quality criteria even at the nearest sensitive receptors. This included conservative modelling with more than 1.5 MT of year being processed in any one year.

3.3. Emissions

The main sources of greenhouse gases generated by the Project are listed below. Greenhouse gas management will focus on emissions management and reductions associated with:

- Fuel combustion (mainly diesel) associated with the use of plant and equipment;
- Indirect emissions associated with electricity use; and
- Indirect emissions associated with the transport of product.

3.4. Odour

It is not predicted that the operational phase of the Project will generate any odour emissions, however, odour has been included in the Trigger Action and Response Plan (TARP) as per Schedule 4 Condition 13 of the Project Approval (Section 5.4). In addition, Condition L5.1 (EPL20821) states that no condition of the license identifies a potentially offensive odour for the purposes of section 129 of *the Protection of the Environment Operations Act 1997*.

4. AIR QUALITY MONITORING PROGRAM

4.1. Monitoring locations

Schedule 4 Condition 17(c) of Project Approval states that the air quality management plan must include an air quality monitoring program that uses a combination of High-Volume Air Sampler (HVAS) and dust deposition gauges to evaluate the performance of the project and include protocols to determine any exceedances of the relevant conditions. The locations of these monitors are summarised in Table 4-4 and are presented in Plan 2, Appendix 1 and are in accordance with Condition P1, Section 2 of EPL20821. DEVELOP staff completing the monitoring with the dust gauges collected monthly and the HVAS weekly

DG22B and DGH01 are used internally to facilitate potential emerging air quality issues. Operational air quality monitoring results found to exceed the compliance conditions are not normally considered reported unless they are determined to meet the thresholds of a reportable incident under the Pollution Incident Response Management Plan (PIRMP).

Two HVAS units were installed at the Pylara Homestead in 2017 and are used to measure atmospheric concentrations of Total Suspended Particulate (TSP) matter per cubic metre of air, and the PM10 fraction (10 micron component in each cubic metre of air). Data collection and operation of the HVAS units are in accordance with the EPA guideline Approved Methods for the Sampling and Analysis of Air Pollutants in NSW (EPA, 2005). Both TSP and PM10 units have been programmed to operate for 24 hours every 6 days.

Since the project was approved in 2012 no deposited dust gauges have been installed on privately owned residences. Instead, the Pylara Homestead (DG28) which is owned by Veolia has been adopted as fulfilling this statement of commitment. This location is closer to the project than the nearest privately owned residence so is currently considered a suitable alternative.

Table 4-4 EPL20821 air quality monitoring sites

Equipment	EPA ID	Site ID	Location description
Weather station	5	MET	Meteorological station located at the EPL 11436 premises
Deposited dust gauge – EPL sites	2	DG22	Eastern side of the EPL 11436 Bioreactor void (shared with EPL 11436)
	1	DG28	Nearest residential receptor, Pylara Homestead (shared with EPL 11436)
	4	DG33	Background receiver, southern boundary of SML
	25	DG34	Background receiver, western side of the EPL 11436 Bioreactor void (shared with EPL 11436
Deposited dust gauge – internal activities	NA	DGH01	East of Project
	NA	DG22B	Adjacent to project LV access road used to access the haul road
HVAS	26	PM10	High volume air sampler – Pylara Homestead
		TSP	

4.2. Sample analysis

Analytical analysis of air quality samples collected across the site are summarised in Table 4-5.

Table 4-5 Summary of analysis for air quality monitoring

Site ID	Frequency	Total insoluble matter (g.m2/month)	Ash Content (g.m2/month)	Total suspended particulates (µg/m3)
DGH01	Monthly	X	X	-
DG22	Monthly	X	X	-
DG22B	Monthly	X	X	-
DG28	Monthly	X	X	-
DG33	Monthly	X	X	-
DG34	Monthly	X	X	-
PM10	Weekly	-	-	X
TSP	Weekly	-	-	X

Deposited dust will 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.*

4.3. Greenhouse gas monitoring

As per Schedule 4 Condition 14, DEVELOP will implement all reasonable and feasible measures to minimise the release of greenhouse gas emissions from the Site. These are detailed in Section 5.2. Greenhouse gas monitoring throughout the year will be undertaken primarily through the monitoring of diesel use, oil and grease use and electricity use.

Monitoring will be undertaken in accordance with the requirements of the *National Greenhouse and Energy Reporting Act 2007* (NGER Act) and the *National Greenhouse and Energy Reporting Regulations 2008* (NGER, 2008).

DEVELOP complete reporting under the NGER Act including emissions data as applicable.

5. AIR QUALITY COMPLIANCE

5.1. Compliance criteria

Air quality compliance criteria for the Project is outlined in Schedule 4 Condition 15 of the Project Approval and is presented in Figure 5-3 below. Dust data collected is reviewed monthly when laboratory results are received and compared to the criteria set by the Project Approval. The criteria listed in Figure 5-3 applies at any residence on privately owned land which, therefore, relates to the Pylara Homestead and associated monitoring locations. Extraordinary events are excluded such as bushfires, prescribed burning, dust storms, sea fog, fire incidents or any other activity agreed by the Director General.

Table 6: Long term impact assessment criteria for particulate matter

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 7: Short term impact assessment criterion for particulate matter

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

Table 8: Long term impact assessment criteria for deposited dust

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

However, the criteria listed in Tables 6, 7 and 8 do not apply if the Proponent has an agreement with the relevant owner(s) to exceed the criteria, and the Proponent has advised the Department in writing of the terms of this agreement.

Notes to Tables 6, 7 and 8:

- *[a] Total impact (i.e. incremental increase in concentrations due to the project plus background concentrations due to all other sources);*
- *[b] Incremental impact (i.e. incremental increase in concentrations due to the project 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; and*
- *[d] Excludes extraordinary events such as bushfires, prescribed burning, dust storms, fog, fire incidents or any other activity agreed by the Director-General.*

Figure 5-3 Air quality criteria

5.2. Mitigation measures

A range of mitigation requirements and control measures are identified in the EA and Project Approval. Specific measures and requirements to address air quality impacts for the Project, including operation, are outlined in Table 5-6. The measures have been listed to cover broad activities.

Table 5-6 Mitigation measures

Mitigation Measure	Performance indicator	Responsibility
Use of a water cart to wet exposed surfaces during windy conditions or heavy traffic resulting in visible dust lift off.	No visible dust above vehicle wheel arches	All site personnel
Dust levels are to be managed according to pictures in the NSW EPA dust assessment handbook		All personnel
Ensure employees and contractors on site are aware that they have an obligation to minimise dust.	No visible dust leaving the site	All site personnel
Ensure effective lines of communication to report activities that may be causing excessive dust.		All site personnel
Ensure all access roads are maintained to mitigate potential dust sources.		All site personnel
Ensure any disturbed area and/or exposed surface is revegetated as soon as practical.	Compliance with vegetation and rehabilitation management plans	All site personnel
Progressively rehabilitate the site as soon as reasonably practicable after disturbance. All reasonable and feasible measures will be taken to minimise the total area exposed for dust generation at any time. Interim rehabilitation strategies will be employed when areas prone to dust generation cannot be permanently rehabilitated until later in the project life.		All site personnel
Ensure that all the plant and equipment used at the site, or to transport materials from the site, is maintained in a proper and efficient condition, operated in a proper and efficient manner.	Well maintained equipment and potential reductions in fuel costs and less downtime	Management
Ensure regular maintenance of diesel-powered equipment to ensure operation at peak efficiency.		All site users Maintenance & Planning
Maintaining vehicles and machinery regularly		Maintenance & Planning
Avoiding prolonged idling: shut down vehicles that are to be idle for a prolonged time		All Operators
Throttling down and switching off construction equipment when not in use		All Operators
Ensuring use of fuel-efficient vehicles and machinery		Management
Ensure well-maintained equipment and potential reductions in fuel costs and less downtime		Maintenance & Planning
All reasonable and feasible measures to minimise the release of greenhouse gas emissions from the site will be implemented.	Energy use is reduced	Management
Future opportunities to utilise available renewable energy generated on site will be explored		Management

Mitigation Measure	Performance indicator	Responsibility
which will reduce greenhouse gas emissions from electricity usage.		
Use alternative fuels where economically and practically feasible	Fuel use is reduced	Management
Review opportunities to increase energy efficiency such as minimising haul distances, reducing trips by coordinating delivery and removal of materials etc.	Energy efficiency is maximised	All site users to monitor and report need for dust control measures
Where possible, ensure consideration of energy efficiency for all electrical equipment, appliances, lighting and hot water systems.		Management
Use of high efficiency motors		Management
Use of correctly determined (based on capacity required) speed drive pumps		Management
Regular monitoring of electrical load		Management
Regular maintenance of light fittings to optimise light delivery.		Management
Regular electrical calibration checks on machinery		Maintenance & Planning
Ensure access roads are clearly defined to avoid unnecessary traffic on unsealed surfaces.	No haulage vehicles are to use unmarked roads.	All site personnel
Ensure all personnel adhere to specified speed limits on all road across site	40 km/h onsite speed limit for haul road and 10km/hr for processing plant	All site personnel
Prevent potential soil contamination associated with spillage from the crushing and flotation plant and concentrate storage	Install dust sprays on the crushing circuit No increasing trends in metal or dust in down-wind depositional dust gauges	Processing Plant
Stand down vehicles with smoky exhausts (more than 10 seconds)	No smoky exhausts	All Operators
Optimise fleet to reduce fuel consumption and Vehicle Kilometres per Tonne (VKT) where possible	Reduced VKT and fuel consumption	Management

5.3. Notifications

Should there be an exceedance of any relevant air quality criteria DEVELOP will notify the affected landowners and/or tenants within 2 weeks as well as provide a copy of the NSW Health fact sheet entitled “Mine Dust and You” (as may be updated from time to time), as per Condition 1, Schedule 5 of the Project Approval. DEVELOP will also report the incident to the Department of Planning, Housing and Infrastructure (DPHI) and the EPA as well as provide details of the incident in the Annual Review in accordance with Schedule 4 Condition 6 of the Project Approval.

5.4. Trigger, Action and Response Plan

The Trigger, Action and Response Plan (TARP) for air quality management is presented in Table 5-7.

Table 5-7 Air Quality Management TARPs

Event level	Trigger	Action	Response
Level 1	Air quality sampling results less than prescribed criteria	No action required, continue monitoring	None required
Level 1	No visible dust being generated by surface activities	No action required, continue monitoring	None required
Level 2	Deposited dust approaching 4 g/m2/month over 1 month	Review of data and conditions including: • Weather station data to determine wind speed and direction during the collection period. • Ash content as an indicator of mineral content • Internal Project activities being performed which may have contributed to dust generation. • Other external activities such as high regional dust levels as a result of bushfire or localised effects from neighboring farming activities. • Other extraordinary events such as bushfires, prescribed burning, dust storms, fog, fire incidents or any other activity agreed y the Director-General. • Laboratory results to ensure correct analysis methodology and chain of custody conformance. • Location of elevated reading and review of adjacent sampling locations and network to identify similar trends or areas of concern	If site activities are likely source of elevated readings, implement mitigation measures identified in Section 5.2.
Level 2	PM10 approaching 50µg/m3 over 24 hours	Review of data and conditions as per above.	If site activities are likely source of elevated readings, implement mitigation measures identified in Section 5.2.

Event level	Trigger	Action	Response
Level 2	Visible dust being generated on site	Site personnel notify surface supervisor	Adjust, implement additional controls (such as water cart), relocate, or cease dust emitting activities.
Level 3	PM10 >50µg/m3 over 24 hours	Review of data and conditions as per above.	Progress to level 4 if the review confirms the exceedances is attributable to site activities and are not excluded. If not, continue monitoring.
Level 3	Deposited dust recorded above 4 g/m2/month over 1 month at DG28 or 2 months at other sites	Review of data and conditions as per above.	Progress to level 4 if the review confirms the exceedances is attributable to site activities. If not, continue monitoring.
Level 3	Odour being noticeable generated from onsite activities, stored material or water sources.	Site personnel to notify mine manager or delegate to inspect the work area and verify	Cease, modify or further inspect cause of odour generation
Level 3	Visible dust carrying over mine site boundary	Site personnel notify mine manager or delegate	Immediate inspection to verify and rectify – all dust emitting activities to cease, implementation of additional controls before resumption
Level 3	Complaint received in relation to air quality	Review of data and conditions as per above.	Contact with the complainant to discuss and resolve the complaint, if possible.
Level 4	Review confirms exceedance at compliance sites (DG28, HVAS) attributable to the project.	Investigation into the cause of the change, consideration of additional sampling points and/or techniques if cause is unknown. Corrective measures implemented to reduce dust deposition and return the Project to compliance.	Report non-compliance to the EPA and DPHI, assign corrective actions, provide investigation report and updates to government agencies where required. Within 2 weeks affected landowners and/or tenants will be sent a copy of “Mine Dust and You”
Level 4	Complaint not resolved	Advise complainant of their rights under Schedule 5 Condition 2	As directed by DPHI

6. COMMUNICATION, REPORTING AND REVIEWS

6.1. Communication

Effective communication with government agencies, the workforce and the community are important features of the overall Environmental Management Strategy for Woodlawn mine and therefore a key component of each environmental Management Plan.

DEVELOP is committed to consulting with the wider community and strives to achieve a high standard of community awareness and communication. A Community Consultation Committee (CCC) was established in 2015 as part of the construction phase of the Project and continues to meet regularly to discuss the Project. Further detail regarding stakeholder liaison in included in the Project EMS.

6.2. Reporting

All environmental monitoring requirements specified in EPA licences and approvals are undertaken and the data maintained on site in data management systems. Copies are provided for internal review as required by the General Manager. A summary of the data is provided to regulatory authorities as required by statutory approvals. Other data collected as part of projects or auditing procedures are reported internally in accordance with the Environmental Management Strategy verification procedures.

In accordance with Project Approval Schedule 6 Condition 4 an Annual Review will be prepared in accordance with the Department of Planning *Post Approval requirements for state significant mining development Annual Review Guideline* dated October 2015 (or more recent edition if appropriate). A copy of the Annual Review will be made available on the DEVELOP web site as follows: http://develop.com.au/Woodlawn-sustainability/

Monitoring data required by the EPL will be reported on the company's web page in accordance with EPA requirements for public disclosure, and as per Schedule 6 Condition 11 of the Project Approval http://develop.com.au/Woodlawn-sustainability/.

6.3. Complaints

Operational related complaints may be received:

- Directly via the Community Hotline: 1800 371 124
- Directly via the website: https://www.develop.com.au/contact-us/
- Directly via the CCC
- Indirectly via government agencies

Following receipt of an air quality related complaint DEVELOP would investigate and respond as per Table 5-7. The Environmental Management System includes more detail on the complaints management procedure. A complaints register is updated monthly and is publicly available on the DEVELOP website.

6.4. Incident reporting

All reasonable and feasible avoidance and mitigation measures are employed to ensure that particulate matter emissions generated by the project do not exceed the criteria identified in Section 5.1.

In the event that the exceedance of the air quality criteria is attributable to the project, it will be reported to the EPA and DPHI within 24 hours of the completion of the investigation. A detailed report will be subsequently provided within 7 days. Corrective and/or preventative actions will be assigned to relevant Company personnel. Actions will be communicated internally through planning meetings and toolbox talks and outstanding actions will be monitored for their effectiveness upon completion. A copy of the investigation report and regular updates on the status of the identified corrective and/or preventative actions will be provided to the relevant government agencies and, if required, the complainant.

6.5. Review and continuous improvement

The AQMP will be reviewed and updated annually or in the case of a significant operational change. The review will include an assessment of the effectiveness of control measures and performance against the Plan's objectives. The objectives of a review are to:

- Maintain compliance with statutory requirements.
- Identify opportunities for improvement in the management plan.
- Incorporate community considerations.

The AQMP review will include:

- This document.
- Legislation, approval, license changes.
- Community complaints and enquiries.

As per Schedule 6 Condition 5, DEVELOP will review, and if necessary, revise the AQMP within 3 months of:

- the submission of an annual review;
- the submission of an incident report;
- the submission of an audit report; or
- any modification to the conditions of this approval.

Where the review leads to revisions in the AQMP, then within 4 weeks of the review the revised document will be submitted to the Secretary for approval.

7. REFERENCES

AS 3580.1.1-2007 Methods of Sampling Analysis of Ambient Air. Part 1.1 Guide to Siting Air Monitoring Equipment

AS 3580.10.1-2003 Methods of Sampling Analysis of Ambient Air. Determination of Particulate Matter – Deposited Matter - Gravimetric Method

AS/NZS 3580.14.:2014 – Methods for sampling and analysis of ambient air – Meteorological monitoring for ambient air quality monitoring applications.

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/NZS 3580.9.6:2015 - Methods for sampling and analysis of ambient air – Determination of suspended particulate matter – PM10 (Particulate matter <10 µm) high volume sampler with size selective inlet – gravimetric method.

AS/NZS 3580.10.1:2016 – Methods for sampling and analysis of ambient air – determination of particulate matter – deposited matter- gravimetric method.

AS/NZS 3580.1.1:2016 – Methods for sampling and analysis of ambient air – Guide to siting air monitoring equipment

Commonwealth Department of the Environment (2016), National Environment Protection Councils (NEPC) – National Environment Protection Measure (NEPM) for Ambient Air Quality Guidelines

Commonwealth Department of Climate Change and Energy Efficiency (2010), *National Greenhouse Account (NGA) Factors*

Commonwealth Department of Climate Change and Energy Efficiency (2010), *National Greenhouse and Energy Reporting (Measurement) Determination 2008* (as amended for 2010-2011)

Clean Energy Regulator (2008), *National Greenhouse and Energy Reporting Regulations 2008*

DECC (2008), Managing Urban Stormwater: Soils and Construction, Volume 1 (Landcom 2004) and Volume 2 (the “Blue Book”)

NSW EPA (2005), Approved Methods for Modelling and Assessment of Air Pollutants in NSW

NSW EPA (2019), Dust Assessment Handbook

NSW EPA (2022), The Approved Methods for the Sampling and Analysis of Air Pollutants in NSW guideline

NSW EPA (2022) Approved Methods for the Sampling and Analysis of Air Pollutants in NSW

NSW Government (2014), Mine Dust and You

NSW Government (2010), The Protection of the Environment Operations (Clean Air) Regulations

OEH (2014), Government Resource Efficiency Policy

Parsons Brinckerhoff (2012) Environmental Assessment: TriAusMin Woodlawn Project, available on the NSW major projects portal or DEVELOP website

Appendix 1 Plans

732000 736000 740000

6120000

6116000

SML20 (Woodlawn Mine Site)
Drainage Catchment Boundary
Revegetation Area
Underground Workings
Railways
WindfarmTurbines
EPL20436 (Infigen Energy)
EPL 20821 (Tarago Operations)
EPL 20476 (Veolia MBT)
EPL 11436 (Veolia Bioreactor)
GOULBURN MULWAREE COUNCIL
QUEANBEYAN-PALERANG REGIONAL COUNCIL

ALLIANCE/VIGA CREEK
GOULBURN MULWAREE LGA
LAKE GEORGE CATCHMENT
QUEANBEYAN-PALERANG REGIONAL LGA
HAWKESBURY CATCHMENT
CRISPS CREEK
BONGARALAB
BRAIDWOOD ROAD
COLLECTOR ROAD
GOULBURN STREET
BUNGENDORE ROAD
MULWAREE RIVER

Woodlawn Farm
EVAP. DAM 2 (ED2)
EVAP. DAM 1 (ED1)
Paste Plant
Veolia Bioreactor
Box Cut
Processing Plant
Rehabilitated Waste Rock Dump
Tailings Dam (TSF 4)
Tailings Dam North (TDN)
Tailings Dam West (TDW)
Tailings Dam South (TDS)
Cowley Hills
Pylara Homestead
Tarago

SYDNEY
SML20
CANBERRA

1 2 km

Scale: 1:32,000 MGA94 (Zone 55)

VTX-JOB-0473-MAP-02

Date: 2025-6-26 | Rev: 02 | @A3

DEVELOP

Author: C Hobbs | Requested By: K Crook

WOODLAWN ZINC COPPER PROJECT

Site Plan

736000

Weather Station
Air Monitoring Locations
Windfarm Turbines
SML20 Boundary
Infigen Energy - Woodlawn Wind Farm
Tarago Operations
Veolia Environmental Services - Veolia MBT
Veolia Environmental Services - Woodlawn Bioreactor

EVAP. DAM 2 (ED2)
EVAP. DAM 1 (ED1)
Woodlawn Farm
Weather Station
EVAP. DAMS 3 NORTH (ED3N)
DG22
COLLECTOR ROAD
DG34
EVAP. DAMS 3 SOUTH (ED3S)
PASTE PLANT
DG22B
PROCESSING PLANT
BOX CUT AND UG MINE ENTRY
VEOLIA BIOREACTOR
DGH01
DG33
TAILINGS DAM (TSF4)
REHABILITATED WASTE ROCK DUMP
WASTE ROCK DAM
TAILINGS DAM NORTH (TDN)
TAILINGS DAM WEST (TDW)
TAILINGS DAM SOUTH (TDS)
HVAS
DG28
Pylara Homestead

6116000

736000

0.5 1 km

Scale: 1:15,000 MGA94 (Zone 55)

VTX-JOB-0406-MAP-REV05

Date: 2025-9-4	Rev: 02	@A3	Author: C Hobbs	Requested By: K Crook

DEVELOP

WOODLAWN ZINC COPPER PROJECT

Air Quality Monitoring Locations

Appendix 2 Consultation log - AQMP

Date	Form / Agency	Comments and Outcomes	Response/how addressed
23/08/2025	EPA	Query sent to EPA requesting feedback on the AQMP and NMP before the review period for this closes on the 9th September. Same email correspondence followed up on 4th September	Response received 05/09/2025 via email, comments considered in subsequent updates
17/12/2024	Iberdrola	Briefing the Iberdrola representative for the Capital Renewable Energy Precinct	Copy of presentation sent. No comments requiring action.
17/12/2024	Veolia	Briefing Woodlawn Veolia environment manager on project re-start and updates being proposed for management plans.	Copy of presentation sent. Draft plans which require consultation under the approval (blast and water) to be sent once drafted.
9/12/2024	Online meeting with EPA Queanbeyan	Briefing with EPA to outline updates being proposed for management plans. Included: air quality, water, noise, waste rock and rehabilitation.	No comments / noted. Recommendation to re-engage with EPA if technical input or advice is required for any of the plans at any point.
15/11/2024	DPHI	Briefing DPHI on complex site historical context and re-start timeline with high level discussion on timing and process of management plan submission and approval.	Agreed with approach to re-draft and re-submit management plans.
30/03/2017	Email from EPA with final EPL 20821	Final EPL issued to Heron Resources	Noted
15/03/2017	Email from EPA re EPL	Updated Woodlawn Mine EPL for comment	Various emails and calls to finalise EPL and attachments
13/01/2017	Meeting with EPA Queanbeyan	Meeting with EPA to discuss licence finalisation and amendments to license	No specific comments received in relation to noise, blasting or dust management. The inclusion of the 4 dust deposition gauge was added to the licence
20/10/2016	Letter from EPA re draft EPL	Provision of second draft EPL 20821 for the Heron operation	Noted
12/10/2016	Letter to DPE re additional Experts	Letter from Heron Resources requesting approval of additional experts engaged in management plan preparation	Noted and approved by DPE
12/10/2016	Email from EPA re licence application	First draft EPL provided for comment with request for additional plans	6 emails to and from EPA and various phone calls in relation to comments on draft EPL

Date	Form / Agency	Comments and Outcomes	Response/how addressed
10/08/2016	EPL Application to EPA	Application for new EPL covering Woodlawn Mine construction and operation	Noted
27/05/2016	Email to Julian Thompson EPA	Copy of Air Quality Management Plan provided to EPA for comment	Noted
9/03/2016	Meeting with Community Consultation Committee	Presentation to Woodlawn Community Consultation Committee which included overview of project, monitoring program, construction program, workforce numbers, exploration and environmental management plan preparation and content.	Draft EMPs provided on web page for download by committee members
13/10/2014	Meeting with EPA and OEH Queanbeyan Office	General project briefing, need for EPL separation with Veolia EPL, monitoring conditions, lack of archaeology sites and impact, need to define vegetation offset area and outcomes	Ongoing negotiation with EPA in relation to licensing requirements
9/10/2014	Email to Sandie Jones OEH	Copy of Planning Approval and plans of development area	Noted
18/09/2014	Site meeting with DRE	General briefing and site inspection, outline of Management Plans, finalised scope of MOP, Need for rehabilitation trials, standard environmental management provisions, control of acid generation	Noted
11/09/2014	Letter to DPE (Department of Planning and Environment)	Seeking approval of Experts engaged in relevant management Plan	Approval provided
23/07/2014	Meeting with Goulburn City Council	General Management and Planning Manager, general briefing no specific feedback	Noted
7/07/2014	Letter from Trade and Investment	Requested meeting and briefing on site and staged approach to preparation and approval of management plans	On site meeting held
3/07/2014	Initial consultation letter to: • NSW Trade and Investment • Environment Protection Authority • NSW Office of Water • Sydney Catchment Authority	These letters were the initial consultation and sought specific advice from each agency according to the respective relevant management plan.	

Date	Form / Agency	Comments and Outcomes	Response/how addressed
	• Office of Environment and Heritage • Department of Planning and Environment (DPE)		
19/01/2014	Email to Fran Kelly and James Caddey SCA	Copy of Woodlawn EMS provided, Project Approval, and Construction Environmental Management Plan (EMP)	None

Appendix 3 Plan approval

Resource Assessments
Contact: Stephen Shoesmith
Phone: 9274 6164
Email: stephen.shoesmith@planning.nsw.gov.au

Mr Andrew Lawry
Chief Operating Officer
Heron Resources Limited
WOODLAWN MINE PROJECT

By email to: ALawry@HeronResources.com.au

Dear Mr Lawry

Woodlawn Mine Project (07_0143)
Approval of Environmental Management Plans

I refer to your letter dated 30 March 2017 seeking the Secretary's review and approval of the:

- Vegetation and Rehabilitation Management Plan (incorporating the Tailings Management Strategy, Vegetation Management Plan and Rehabilitation Management Plan);
- Noise and Blast Management Plan;
- Water Management Plan;
- Heritage Management Plan; and
- Air Quality Management Plan.

The Department has reviewed the revised versions of these documents, dated May 2017 and is satisfied that they address the requirements of Condition 2 in Schedule 3 and Conditions 4, 7, 12, 17, 20, 22, and 27 in Schedule 4 of project approval 07_0143. Accordingly, the Secretary approves the revised management plans.

Please ensure that a copy of the approved plans is placed on your website as soon as possible.

If you require further information, please contact Stephen Shoesmith on 9274 6164 or by email to stephen.shoesmith@planning.nsw.gov.au.

Yours sincerely

Preshaw 12/5/17

Clay Preshaw
A/Director
Resource Assessments
As nominee of the Secretary