

FINGERBOARDS MINERAL SANDS PROJECT

Risk treatment plan:

Airborne and deposited dust

EPA Update 9 July 2021

Notes:

* Base document is Tabled Document 200a (centrifuge changes – clean version).
* Comments / references provided in square brackets [xxx] for context.

**Risk treatment plan: Airborne & deposited dust**

Contents

[1. Scope 1](#_Toc27131490)

[2. Key sensitive receptors 1](#_Toc27131491)

[3. Inherent risk 5](#_Toc27131492)

[4. Objectives 7](#_Toc27131493)

[5. Compliance standards 7](#_Toc27131494)

[6. Acceptance criteria 8](#_Toc27131495)

[7. Controls to address hazard 9](#_Toc27131496)

[8. Residual risk assessment 12](#_Toc27131497)

[9. Monitoring 13](#_Toc27131498)

[10. Reporting 15](#_Toc27131499)

[11. References 15](#_Toc27131500)

[12. Kalbar reference documents 16](#_Toc27131501)

**List of tables**

[Table 2‑1: Sensitive receptors 4](#_Toc66287722)

[Table 3‑1: Summary of inherent risk ratings (airborne and deposited dust) 5](#_Toc66287723)

[Table 6‑1: Acceptance criteria – airborne and deposited dust 8](#_Toc66287724)

[Table 7‑1: Controls and associated performance measures (airborne and deposited dust) 9](#_Toc66287725)

[Table 8‑1: Summary of residual risk ratings – airborne and deposited dust 12](#_Toc66287726)

[Table 9‑1: Proposed monitoring for airborne and deposited particulates 13](#_Toc66287727)

[Table 10‑1: Dust performance and compliance reporting 15](#_Toc66287728)

[Table 12‑1: Kalbar reference documents 16](#_Toc66287729)

**List of figures**

[Figure 2.1: Sensitive receptor and suggested meteorological and particulate monitoring locations 2](#_Toc66287730)

[Figure 2.2: Sensitive receptor locations (horticultural production and water supply) 3](#_Toc66287731)

# Scope

This risk treatment plan is for the control of mining hazards associated with airborne and deposited dust. This plan does not directly address radioactive hazards in airborne dust: management of radiation hazards is addressed in the Fingerboards Radiation Management Plan. A ‘mining hazard’ means any mining activity that may pose a risk to the environment, to any member of the public or to land, property or infrastructure in the vicinity of work carried out at the Fingerboards mine at any stage of project implementation (construction, operations, decommissioning and closure).

# Key sensitive receptors

Key sensitive receptors include the environment, any member of the public or land, property or infrastructure in the vicinity of the mine that may be impacted or put at risk by airborne or deposited dust arising from mining activities within the Fingerboard mining licence area. The key sensitive receptors associated with airborne and deposited dust hazards include 49 residential dwellings and the land surrounding them (Figure 2.1**Error! Reference source not found.**), horticultural production areas of the Lindenow flats, approximately 0.8 km northeast of the mining licence area (Figure 2.2) and the Woodglen surface water storage facility (shown as ‘water’ in Figure 2.2) and other smaller water storages (farm dams and roof water tanks) on rural properties surrounding the mining licence area.

Kalbar has identified 49 residential locations in proximity to the mining licence area as sensitive receptors (Table 2‑1). The properties at locations R2 and R3 are owned by Kalbar and will not be occupied during construction or operations. The property at location R4 is being used by Kalbar as a mine site office.

Map

Description automatically generated

Figure 2.1: Sensitive receptor and suggested meteorological and particulate monitoring locations

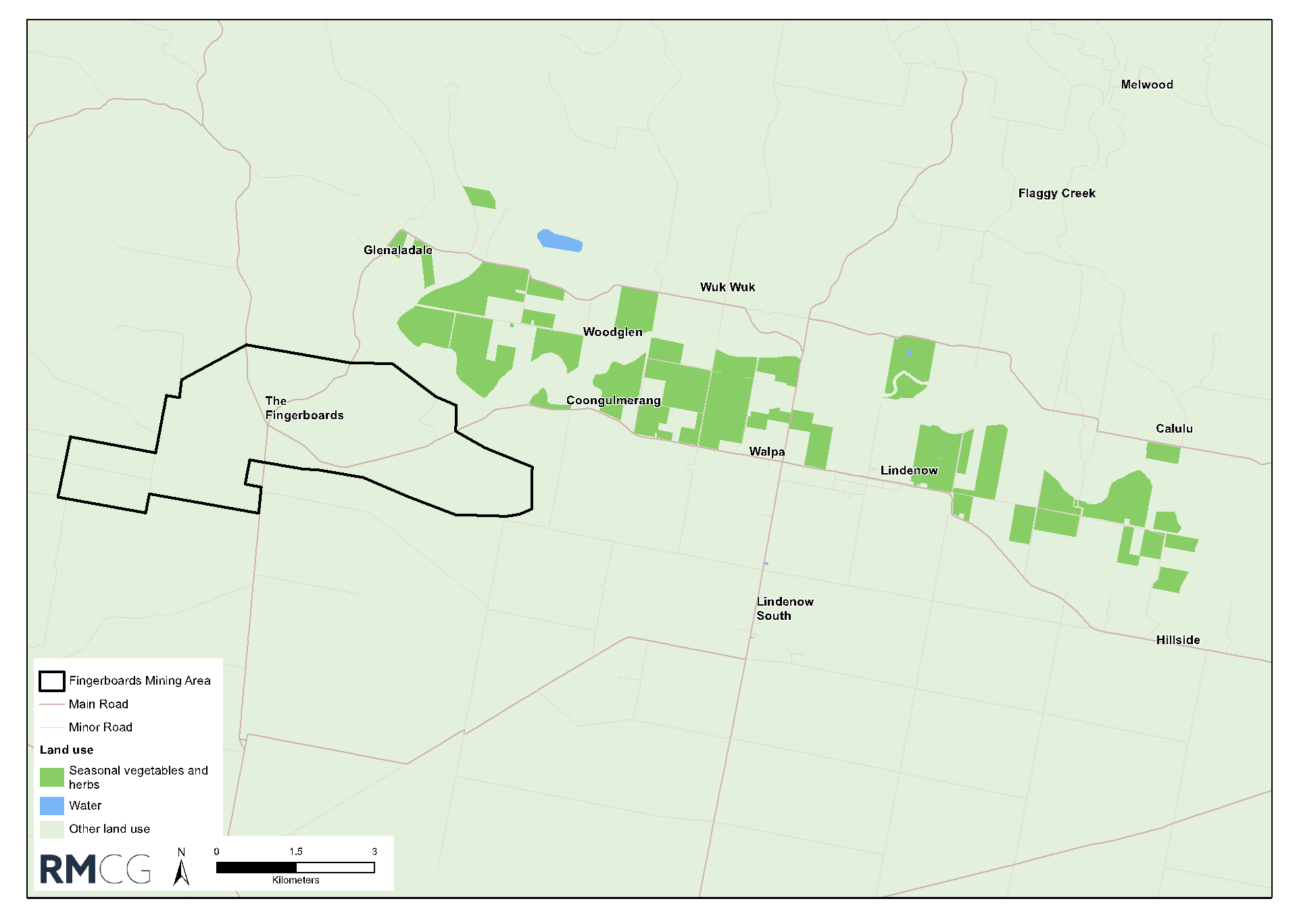


Figure 2.2: Sensitive receptor locations (horticultural production and water supply)

Table 2‑1: Sensitive receptors

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Receptor** | **To project area (km)** | **To mining activity (km)** | **Description** |  | **Receptor** | **To project area (km)** | **To mining activity (km)** | **Description** |
| **R01** | 0.14 | 0.76 | Residence |  | **R29** | 1.09 | 1.50 | Residence |
| **R02** | 0.16 | 0.18 | Residence (owned by Kalbar) |  | **R30** | 0.33 | 0.35 | Residence |
| **R03** | 0.00 | 0.00 | Residence (owned by Kalbar) |  | **R31** | 0.59 | 0.61 | Residence |
| **R04** | 0.00 | 0.12 | Residence (owned by Kalbar) |  | **R35** | 1.36 | 1.65 | Residence |
| **R05** | 0.26 | 0.36 | Residence |  | **R36** | 1.04 | 1.14 | Residence |
| **R06** | 0.58 | 0.84 | Residence |  | **R38** | 1.94 | 2.12 | Residence |
| **R07** | 0.22 | 0.32 | Residence |  | **R40** | 1.83 | 2.03 | Residence |
| **R08** | 1.70 | 1.94 | Residence |  | **R41** | 1.34 | 1.55 | Residence |
| **R09** | 1.92 | 2.06 | Residence |  | **R42** | 1.42 | 1.72 | Residence |
| **R15** | 0.27 | 0.53 | Residence |  | **R43** | 1.51 | 1.66 | Residence |
| **R16** | 0.94 | 1.13 | Residence |  | **R44** | 1.65 | 2.00 | Residence |
| **R17** | 1.08 | 2.04 | Residence |  | **R45** | 1.65 | 2.08 | Residence |
| **R18** | 1.38 | 2.31 | Residence |  | **R46** | 1.90 | 2.13 | Residence |
| **R19** | 1.89 | 1.92 | Residence |  | **R47** | 0.33 | 0.35 | Residence |
| **R20** | 1.21 | 1.52 | Residence |  | **R48** | 1.63 | 2.59 | Residence |
| **R21** | 0.95 | 1.11 | Residence |  | **R49** | 1.85 | 1.92 | Residence |
| **R22** | 1.65 | 1.84 | Residence |  | **R2001** | 1.85 | 1.95 | Residence |
| **R25** | 1.39 | 1.64 | Residence |  | **R2002** | 1.91 | 2.02 | Residence |
| **R26** | 1.15 | 1.53 | Residence |  | **R2003** | 1.83 | 2.22 | Residence |
| **R27** | 1.66 | 1.93 | Residence |  | **R2004** | 0.05 | 0.30 | Residence |
| **R28** | 1.07 | 1.09 | Residence |  |  |  |  |  |

# Inherent risk

In this risk treatment plan ‘inherent risk’ means the likelihood and consequence of a risk event, assuming that standard controls specified in Attachment A of the Fingerboards draft Risk Management Plan are implemented.

Table 3‑1: Summary of inherent risk ratings (airborne and deposited dust)

| # | **Details of risk event** | **Phase** | **Consequence** | **Likelihood** | **Inherent risk rating** |
| --- | --- | --- | --- | --- | --- |
| 1 | Ground clearing, mining, materials handling, vehicular traffic: exposure of sensitive offsite receptors to airborne particulates (total particulates, PM10, PM2.5, crystalline silica) exceeds human health guideline values | C, O, CL | Minor | Unlikely | Low |
| 2 | Wind erosion from disturbed surfaces and /or stockpiles: Exposure of sensitive offsite receptors to airborne particulates (total particulates, PM10, PM2.5, crystalline silica) exceeds human health guideline values | C, O, CL | Minor | Unlikely | Low |
| 4 | Ore processing: Exposure of sensitive offsite receptors to airborne particulates (total particulates, PM10, PM2.5, crystalline silica) exceeds human health guideline values | O | Minor | Rare | Low |
| 5 | Wheel-generated dust and lift off from disturbed areas and stockpiles: Contamination of horticultural crops (inert dust) | C, O, CL | Minor | Unlikely | Low |
| 6 | Wheel-generated dust and lift off from disturbed areas and stockpiles: contamination of horticultural crops (metals or radionuclides) | C, O, CL | Insignificant | Unlikely | Low |
| 7 | Wheel-generated dust and lift off from disturbed areas and stockpiles: impacts on productivity or marketability of horticultural crops | C, O, C L | Insignificant | Unlikely | Low |
| 8 | Wheel-generated dust and lift off from disturbed areas and stockpiles: Soiling of surfaces at sensitive receptors | C, O, CL | Insignificant | Unlikely | Low |
| 9 | Wheel-generated dust and lift off from disturbed areas and stockpiles: Deposition on rooftops, followed by contamination of rainwater tanks | C, O, CL | Insignificant | Unlikely | Low |
| 10 | Wheel-generated dust and lift off from disturbed areas and stockpiles: Aesthetic impacts: reduction in clarity of air | C, O, CL | Insignificant | Unlikely | Low |
| 11 | Wind erosion from disturbed surfaces, stockpiles or tailings: exposure of sensitive offsite receptors to airborne toxicants human health guideline values | C, O, CL | Insignificant | Unlikely | Low |
| 12 | Ore processing: Exposure of sensitive offsite receptors to airborne toxicants exceeds human health guideline values | O | Insignificant | Unlikely | Low |
| 13 | Vehicle emissions: Exposure of sensitive offsite receptors to airborne toxicants exceeds human health guideline values | C, O, CL | Insignificant | Unlikely | Low |
| 14 | Scope 1 and Scope 2 GHG emissions: Emissions intensity incompatible with best practice management | C, O, CL | Minor | Possible | Medium |
| 15 | Wind erosion from disturbed surfaces, stockpiles or tailings: exposure of sensitive offsite receptors to radionuclides exceeds human health guideline values | C, O, CL | Insignificant | Unlikely | Low |
| 16 | Ore processing: exposure of sensitive offsite receptors to radionuclides exceeds human health guideline values | O | Insignificant | Unlikely | Low |

Note: ‘C’ = construction; ‘O’ = operations; ‘CL’ = decommissioning and closure

# Objectives

The objectives of this risk treatment plan are to minimise and manage project-related airborne and deposited dust so as to: [EPA Comment: As per EPA’s cover letter the language across all of the risk treatment plans should be amended to reflect the intent of the New EP Act]

* [EPA Comment: reference to the general environmental duty should be included]
* Protect the health, wellbeing and amenity of residents and local communities, and
* Protect surrounding land uses and prevent contamination of crops and surface water supplies (including water harvested in rainwater tanks),
* Protect the environmental values of the air environment as defined in the Part 2 (Ambient Air) of the Environment Reference Standard (**Environment Reference Standard**) is made under section 93 of the *Environment Protection Act 2017*; and
* Maintain compliance with applicable objectives specified in the Environment Reference Standard and other relevant policy, guidance and legislation (as described in Section 4).

# Compliance standards

The compliance standards for this risk treatment plan are:

* Environment Reference Standard under the *Environment Protection Act 2017*
* EPA Guideline: Recommended separation distances for industrial residual air emissions.
* [EPA Comment: EPA Publication 1961 Guideline for assessing and minimising air pollution in Victoria should be inserted once it is finalised]

# Acceptance criteria

Acceptance criteria are the measures which, if attained, are the basis for concluding that the control measures described in this plan have been effective in achieving the plan objectives.

[EPA Comment: Include the equivalent acceptance criteria paragraph from the water risk treatment plan which includes reference to the general environmental duty]

Table 6‑1: Acceptance criteria – airborne and deposited dust [EPA Comment: We have not been provided with an updated version of the Rehabilitation Plan (Appendix C to the Work Plan) since Doc 203. Table 7-1 of the Rehabilitation Plan (pg 7-14) will also need to be amended to reflect the acceptance criteria for PM10 and PM2.5 in this table 6-1]

[EPA Comment: should be updated to reflect EPA Publication 1961 Guideline for assessing and minimising air pollution in Victoria once it is finalised (ie replacing the PEM)]

| **Pollutant** | **Averaging period** | **Air quality acceptance criteria** | **Source** |
| --- | --- | --- | --- |
| PM10 | 24 hours | 50 µg/m3 | Environment Reference Standard (Part 2 – Ambient Air) |
| PM10 | Annual | 20 µg/m3 | Environment Reference Standard (Part 2 – Ambient Air) |
| PM2.5 | 24 hours | 25 µg/m3 | Environment Reference Standard (Part 2 – Ambient Air) |
| PM2.5 | Annual | 8 µg/m3 | Environment Reference Standard (Part 2 – Ambient Air) |
| Dust deposition Note 3 | Annual | 2 g/m2/month Note 1 |  |
| Annual | 4 g/m2/month Note 2 |
| Respirable crystalline silica (as PM2.5) | Annual | 3 µg/m3 | Protocol for Environmental Management (Mining and Extractive Industries). |
| Arsenic | Annual | 0.003 μg/m3 | EPA Protocol for Environmental Management (Mining and Extractive Industries). |
| Radionuclides | Annual | ALARA | EPA Protocol for Environmental Management (Mining and Extractive Industries). |

Note 1 -Maximum increase in deposited dust level.

Note 2 - Maximum total deposited dust level.

Note 3 - Dust is assessed as insoluble solids as defined by AS 3580.10.1: 2016.

# Controls to address hazard [note mitigations to be updated in accordance with current EES Mitigation Register. Below table now superseded] [EPA Comment: EPA assumes that the third column “performance measures” in this table will remain in this risk treatment plan (despite not being shown in the Mitigation Register). EPA has sought and received a compare of Table 7-1 against the Mitigation Register (as there were differences). EPA will review that compare and provide any additional comments if necessary.]

The controls listed in Table 7‑1 will be implemented in order to minimise airborne and deposited dust from activities conducted within the mining licence area.

[EPA Comment: additional mitigation measures may be required to minimise the risk of harm to human health or the environment to the extent reasonably practicable. These additional measures may evolve overtime as the state of knowledge evolves]

| Table 7‑1: Controls and associated performance measures (airborne and deposited dust) **#** | **Details of controls** | **Performance measures** |
| --- | --- | --- |
| AQ01 | Areas will be cleared in a staged manner only as required to reduce dust generation by minimising the area of exposed ground surfaces at any one time. | Clearing records; airborne and deposited dust monitoring records. Maximum disturbed area at any given time will not exceed 360 ha. |
| AQ02 | Water or appropriate suppressants will be applied to working surfaces, stockpiles, haul roads, the mine voids and other areas as required to minimise dust generation. | Airborne and deposited dust monitoring records; water cart usage records |
| AQ03 | Drop heights for topsoil and overburden during creation of stockpiles will be minimised as far as practicable to reduce dust generation. | Work instruction; periodic compliance observations |
| AQ04 | Speed limits will be implemented and enforced on unsealed project roads to minimise dust generation | Induction records; signage; periodic audits; observations |
| AQ05 | Topsoil stripping will be planned and conducted in consideration of forecast and actual weather conditions to minimise dust generation | Topsoil stripping records; materials inventory; site meteorological records; operations schedule. Topsoil stripping to be suspended under windy conditions (average wind speed > 25 km/hr) |
| AQ07 | The mine void will be progressively backfilled and rehabilitated to minimise the area required for topsoil and overburden stockpiles | Clearing and rehabilitation records; materials inventory. |
| AQ08 | Haul vehicles will travel on designated haul roads only and haul routes will be minimised where possible. Haulage of product will be limited to daytime hours only (11hours a day) | Mine plans; haulage records |
| AQ09 | Suppressants and water will be applied to exposed areas and stockpiles, where rehabilitation is not yet practical, to reduce potential for dust generation. In particular, during drier months when less rainfall is expected | Records of dust suppressant and water use. |
| AQ10 | Ore will be transferred across the project area as a slurry to reduce potential for dust emission | Pipeline as-built report. |
| AQ11 | Ore will be processed as a slurry. | Commissioning report. |
| AQ12 | There will be no crushing or grinding of ore, preventing the potential generation of respirable crystalline silica emissions | Plant design specifications and as-built report. |
| AQ13\* | When real-time monitoring indicates that trigger level near key sensitive receptors have been reached, dust generating activities will be ceased at certain times, suspended, slowed or moved to other parts of the mine. This should be done in order of preference as outlined in the trigger action response plan of the AQMP. | Dust monitoring records; site meteorological records; operations records; complaints register. Dust generating activities to be suspended or moved under windy conditions (average wind speed > 25 km/hr), observations . |
| AQ14\* | Ground-disturbing activities (including cessation of night time operations) and materials handling will be scheduled to avoid excessive dust emissions during forecast adverse weather conditions or at certain time within the mining footprint. | Mining schedules; dust monitoring records; site meteorological records; operations records; complaints register. Dust generating activities to be suspended or moved under windy conditions (average wind speed > 25 km/hr), observations . |
| AQ15\* | Additional mitigation measures will be implemented and monitored through the proposed environmental management framework. In particular, the development of an air quality risk treatment plan. | Implementation of this plan. |
| AQ16 | Construction of the wear course of internal haul roads will use an optimal size grading of aggregate with road stabilisation and compaction agents. | Design specifications; as-built reports. |
| GHG01\* | Solar photovoltaic technology will be used to supplement electricity requirements for applications such as lighting. | Annual tracking of energy use and greenhouse gas emissions; NGERS reporting |
| GHG02\* | Energy efficient technology will be used where practicable, including low energy lighting (e.g., LEDs). | Annual tracking of energy use and greenhouse gas emissions; NGERS reporting |
| GHG03 | The power factor of mains electricity will be improved by reducing the phase difference between the voltage and the current. The on-site power factor correction will be optimised for grid electricity usage | Annual tracking of energy use and greenhouse gas emissions; NGERS reporting |
| GHG04 | Vehicle diesel consumption will be reduced through equipment selection, load and route optimisation and production scheduling, and minimising idle time. | Annual tracking of energy use and greenhouse gas emissions; NGERS reporting |
| GHG05 | Fuel-burning equipment will be maintained and operated according to manufacturer/supplier guidelines and recommendations. | Maintenance records |
| GHG06 | Generator diesel consumption will be reduced through selecting a flexible configuration that allows for electricity output to be adjusted in line with demand. | Annual tracking of energy use and greenhouse gas emissions; NGERS reporting |
| RD09a | Engineering controls, such as ventilation, dust control, and appropriate machinery shielding will be provided where required. | Workplace OH&S particulate monitoring results |
| AQ 17 | Conduct continuous visual observation monitoring (e.g. video monitoring) of high dust generation activities  [EPA Comment: this mitigation measure is not included in the current version of the mitigation register.] | Implementation of this measure |

Note: Mitigation actions followed by an asterisk are ‘additional mitigation actions’. All others are ‘standard mitigation actions.

# Residual risk assessment

The risk ratings for events contributing to airborne and deposited dust hazards – once standard and additional mitigation actions have been put in place – are summarised in Table 8‑1. [EPA Comment: EPA has not been provided with an updated version of the Risk Management Plan. Amendments will also need to be made to the Table in that document to reflect this table 8-1]

Table 8‑1: Summary of residual risk ratings – airborne and deposited dust

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| # | **Details of risk event monitored** | **Phase** | **Consequence** | **Likelihood** | **Residual risk rating** |
| 1 | Ground clearing, mining, materials handling, vehicular traffic: exposure to airborne particulates (total particulates, PM10, PM2.5, crystalline silica) sensitive receptors exceeds human health guideline values | C, O, CL | Minor | Possible | Low [EPA Comment: residual risk rating should be updated] |
| 2 | Wind erosion from disturbed surfaces and /or stockpiles: Exposure to airborne particulates (total particulates, PM10, PM2.5, crystalline silica) sensitive receptors exceeds human health guideline values | C, O, CL | Minor | Possible | Low [EPA Comment: residual risk rating should be updated] |
| 3 | Ore processing: Exposure to airborne particulates (total particulates, PM10, PM2.5, crystalline silica) sensitive receptors exceeds human health guideline values | O | Minor | Rare | Low |
| 4 | Wheel-generated dust and lift off from disturbed areas and stockpiles: Contamination of horticultural crops (inert dust) | C, O, CL | Minor | Unlikely | Low |
| 5 | Wheel-generated dust and lift off from disturbed areas and stockpiles: Adverse impacts on vegetation health / productivity / marketability | C, O, CL | Minor | Unlikely | Low |
| 6 | Wind erosion from disturbed surfaces: Exposure to airborne toxicants at sensitive receptors exceeds human health guideline values | C, O, CL | Insignificant | Possible | Low |
| 7 | Wind erosion from stockpiles: Exposure to airborne toxicants at sensitive receptors exceeds human health guideline values | C, O, CL | Insignificant | Possible | Low |
| 8 | Wind erosion from TSF: Exposure to airborne toxicants at sensitive receptors exceeds human health guideline values | O | Minor | Unlikely | Low |
| 9 | Scope 1 and Scope 2 GHG emissions: Emissions intensity incompatible with best practice management | C, O, CL | Minor | Unlikely | Low |
| 10 | Wind erosion from disturbed surfaces and/or stockpiles: Exposure to radionuclides at sensitive receptors exceeds human health guideline values | C, O,CL | Insignificant | Unlikely | Low |

# Monitoring [see also EES Chapter 12, EMF, Table 12.9]

[EPA Comment: EPA recommends similar wording to that used in the water risk treatment plan and repeats its comment that corrective actions should be documented now]

Monitoring required to check the effectiveness of dust management controls is summarised in Table 9‑1. Further details of monitoring parameters and recommended locations is contained in the Draft Air Quality Management Plan at Appendix C of the expert evidence statement of Simon Welchman, see sections 7 (Air Quality and Meteorological Monitoring Program) and section 8 (Trigger Action Response Plan)). [EPA comment: EPA understands that there are not proposed to be any sub-plans under the Work Plan. Accordingly where will these further details be recorded? EPA requests that all sections of the Draft Air Quality Management Plan which are intended to be inserted into this Air RTP are inserted so that EPA can review and comment]

Table 9‑1: Proposed monitoring for airborne and deposited particulates

|  |  |  |
| --- | --- | --- |
| # | **Aspect to be monitored** | **Details of monitoring** |
| 1 | 1-hour average PM10 | Real-timing monitoring (1-hour average) of PM10 concentrations to be conducted at key sensitive receptor locations (whose positions will vary throughout the mining programme) to allow for changes in operation activities and locations that may impact the achievability of the 24-hour average health-based criteria. Assume minimum of 3 real-time PM10 monitors. Management action trigger level for hourly PM10 readings to be set at 80 µg/m3 (1 hr average reading). EPA comment: EPA understands that there will not be an air quality “sub plan” for the mining licence area] |
| 2 | 24-hour average concentrations of PM10 and PM2.5 | Continuous monitoring to be conducted during construction and operations at locations representative of sensitive receptors likely to experience the highest particulate concentrations (monitoring locations will change, depending upon the locations of mining activities. Assume network of no fewer than 5 particulate monitoring stations. |
| 3 | Weekly analysis of PM10 and PM2.5 filters for respirable crystalline silica, gross alpha and beta radiation and heavy metals. |
| 4 | Meteorological monitoring | At least hourly monitoring and recording of temperature, humidity, wind speed and direction. Alarms to be sent automatically to shift supervisor if average wind speeds exceed 25 km/hr, to trigger management responses, including restricting operations if necessary. |
| 5 | Monthly average dust deposition rates. | Continuous dust deposition monitoring upwind and downwind of active mining areas (assume minimum of 3 downwind and 2 upwind locations). |
| 6 | Total and dissolved metals and suspended solids in rainwater tanks and dams | Rainwater tanks and dams to be monitored quarterly for a minimum of twelve months prior to commencement of site works to establish baseline data, and continue during construction and operation of the mine. To be carried out at a minimum of 13 locations which the modelling suggests will be potentially impacted by the Project. Corrective actions that should be implemented if monitoring results exceed recommended health-based Australian Drinking Water Guideline limits. Analysis should include metals and suspended solids concentrations, relative to pre-mining concentrations. In the event of an incident, or if inspections or monitoring results indicate that recommended health-based Australian Drinking Water Guideline limits are not being achieved, corrective actions would be enacted and may include any or all of the following:   * Immediately stop work where required. * Complete incident report and investigations. * Report to regulatory authorities as required (with notice of proposed corrective actions where relevant). * Investigate cause of exceedance or issue, including review of relevant monitoring data and effectiveness of implemented corrective actions (if any). * Implement corrective actions as appropriate to prevent recurrence. * Undertake maintenance as required.   Notify regulatory authorities of corrective actions implemented and outcome as applicable.  [additions in accordance with expert evidence of Simon Welchman, [71], TN13 Item 102] |
| 7 | Complaints | Monitor and document continuously. Respond in accordance with Fingerboards complaints management procedure. |
| 8 | Periodic monitoring and chemical analysis of deposited dust on nearby crops to validate the assumptions of dust assessments described in the Human Health Risk Assessment. | Local horticultural and agricultural producers and the Environmental Review Committee will be consulted to determine the frequency of this monitoring and the duration of the monitoring program. [expert evidence statement of Simon Welchman, [72], TN13 Item 103]  [EPA Comment: Insert equivalent paragraph from item 10 above re monitoring results exceeding performance requirements and correct actions] |
| 9 | Dust generation at source | Continuous visual observation monitoring (e.g. video monitoring) of high dust generation activities [response to EPA submission, accepting that this will be economically viable, and otherwise in accordance with expert evidence of Simon Welchman, [68], TN13 100]  [EPA Comment: it should be made clear that visual monitoring is not just about video monitoring. It is about actively surveying visible dust (dust plumes, deposition on surfaces etc). Visible observations should be the first trigger for mitigation measures]  PM10 and dust - Daily monitoring of Airborne particles and dust controls are implemented and actively operating with evidence to verify. |

# Reporting

Table 10‑1: Dust performance and compliance reporting

|  |  |  |  |
| --- | --- | --- | --- |
| # | Aspect being reported | To whom will the information be reported? At what frequency? | How will the information be used? |
| 1 | Airborne PM10 (1-hourly averages) | Continuous real-time reporting: if trigger level exceeded notifications to mine shift superintendent; construction earthworks superintendent. | To guide operational decisions (need to implement additional dust controls, relocate or suspend activities). |
| 2 | Airborne PM10 and PM2.5 (24-hour averages) | Weekly review by environmental superintendent; monthly reporting to Fingerboards management team; exceedance of acceptance criteria reported to mine manager within 24 hours of exceedance; quarterly reporting to Community Reference Group; annual reporting to ERR and EPA. | Compliance verification; check effectiveness of dust minimization activities; to assist in operational planning |
| 3 | Weekly analysis of PM10 and PM2.5 filters for respirable crystalline silica, gross alpha and beta radiation and heavy metals. | Weekly review by environmental superintendent; monthly reporting to Fingerboards management team; exceedance of acceptance criteria reported to mine manager within 24 hours of exceedance; quarterly reporting to Community Reference Group; annual reporting to ERR and EPA. | Compliance verification; check effectiveness of dust minimization activities; to assist in operational planning |
| 4 | Meteorological monitoring | Continuous real-time reporting: if wind speed trigger level exceeded notifications to mine shift superintendent; construction earthworks superintendent. | To guide operational decisions (need to implement additional dust controls, relocate or suspend activities); to assist in responding to complaints. |
| 5 | Monthly average dust deposition rates. | Monthly review by environmental superintendent; monthly reporting to Fingerboards management team; exceedance of acceptance criteria reported to mine manager within 24 hours of exceedance; quarterly reporting to Community Reference Group; annual reporting to ERR and EPA. | Compliance verification; check effectiveness of dust minimization activities; to assist in operational planning |
| 6 | Total and dissolved metals and suspended solids in rainwater tanks | Quarterly review by environmental superintendent; monthly reporting to Fingerboards management team; exceedance of acceptance criteria reported to mine manager and owners of water tanks within 24 hours of exceedance; quarterly reporting to Community Reference Group (release of individual data subject to consent of tank owners); annual reporting to ERR and EPA. | Compliance verification; check effectiveness of dust minimization activities |
| 7 | Complaints | Weekly reporting to Fingerboards management team; complaints statistics reported quarterly to Community Reference Group; annual reporting to ERR and EPA; |  |

# References

Environment Protection Authority (NSW), 2016. Approved Methods for the Modelling and Assessment of Air Pollutants in New South Wales.

[EPA Comment: EPA Publication 1961 Guideline for assessing and minimising air pollution in Victoria should be inserted once it is finalised

Environment Reference Standard made under s93 of the Environment Protection Act 2017 (Victorian Government Gazette, No. S 245 Wednesday 26 May 2021)

Katestone Environmental Pty Ltd, 2020. Stage Two Air Quality and Greenhouse Gas Assessment for the Fingerboards Mineral Sands Project, Version 1.4 (final), document number D16070-54, April 2020.

Standards Australia, 2016. AS/NZS 3580.10.1:2016 - Methods for sampling and analysis of ambient air Determination of particulate matter - Deposited matter - Gravimetric method.

Katestone Environmental Pty Ltd, 2021. Air Quality Management Plan (AQMP) for the Fingerboards Project, 0.2 DRAFT, document number D19060-4, April 2020.

RCMG, 2019, Fingerboards Mineral Sands Project Horticultural Impact Assessment, Final Draft Report V2, prepared for Kalbar Resources Ltd, January 2019.

# Kalbar reference documents

[To be completed when EMS is fully developed]

Table 12‑1: Kalbar reference documents

|  |  |
| --- | --- |
| **#** | **Document** |
| 1 |  |
| 2 |  |
| 3 |  |