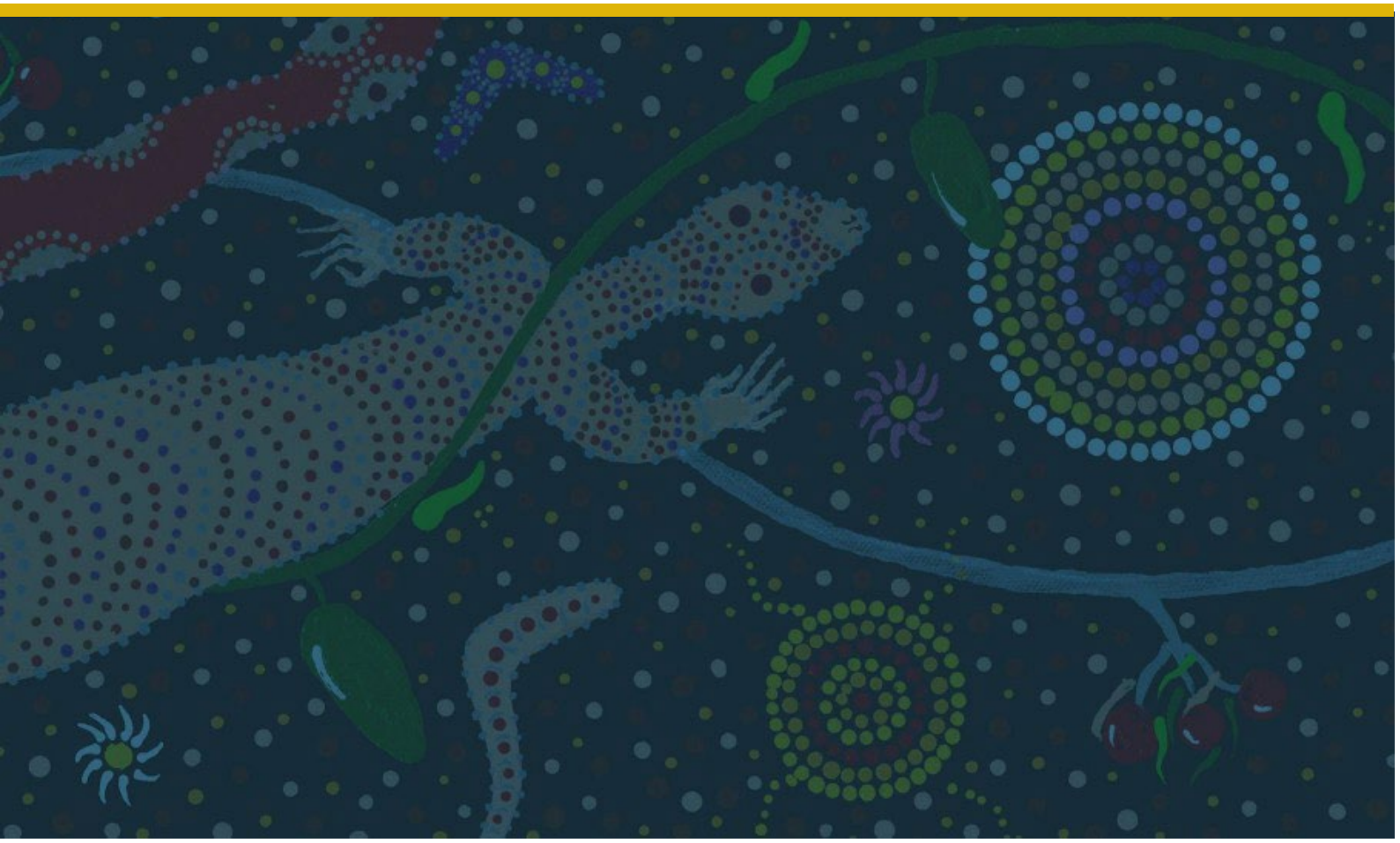
KCGM

FIMISTON AIR QUALITY MANAGEMENT PLAN (v14)

FIMISTON GOLD MINE OPERATIONS EXTENSION (STAGE 3)

FIMISTON SOUTH PROJECT



KALGOORLIE CONSOLIDATED GOLD MINES PTY LTD

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VERSION CONTROL

Version	Date	Document Changes
1	SEP 2007	New Document. An integrated air quality management plan was developed to incorporate a number of management plans including: Blasting Dust Management Plan (BDMP), Dust Monitoring and Management Programme (DMMP) and the Carbon Kiln Mercury Emissions Reduction Programme (CKMERP) as recommended by the Department of Health (DoH) and included feedback received from the [then] Department of Environment and Conservation (DEC) following submission of the Public Environmental Review (PER) for the Fimiston Gold Mine Operations Extension (Stage 3) and Mine Closure Planning in September 2006.
2	MAY 2009	Revised and implemented to meet requirements of Ministerial Statement 782.
3	DEC 2009	Annual Review
4	DEC 2010	Annual Review
5	DEC 2011	Annual Review
6	MAR 2012	Revised to include DoH and DEC comments
7	DEC 2012	Revision to Ambient Mercury Monitoring Programme
8	DEC 2015	First Triennial Review. Reviewed PM_{10} dust monitoring data and updated the trigger levels (Table 5) of DMMP, included an additional performance target for DMMP, removed the ambient mercury monitoring programme as it has been completed, and updated the notification/reporting requirements. Addressed issues that the [then] Office of the Environmental Protection Authority (OEPA) asked to consider in this review in a letter dated 14 August 2013.
	JUN 2016	Inserted methodology for determining a significant contribution following a request by the OEPA via email dated 14 June 2016.
9	JUN 2019	Triennial Review. Format updated to align with the EPA's template for Environmental Management Plans. Updated information regarding implementation of the Fimiston Emissions Reduction Project.
	NOV 2019	Inserted additional information to further clarify the use of back trajectories following a request by the EPA via email/letter dated 11 October 2019.
10	AUG 2022	The 2022 FAQMP is submitted as provisional to support the Revised Proposal. Finalisation of the 2022 FAQMP is dependent on the outcomes of the assessment of the Project by the EPA and the triennial review of the 2019 FAQMP.
11	MAY 2023	Update "Table 5– Trigger Levels of PM_{10} Dust Monitors" following 2023 Triennial Review of the FAQMP (November 2019) FAQMP in March 2023. Alignment to "Instructions on how to prepare *Environmental Protection Act 1986* - Part IV Environmental Management Plans", (version 2.0; 2021) guidance and templated format in response to formal EPA RFI received in February 2023. Also, support revised FS Project submission package for the Fimiston South Expansion (s38).
12	FEB 2024	Update to new EPA format
13	JAN 2025	Updated based on PM_{10} Health Risk Assessment conducted by EPA
14	FEB 2026	Updated based on Ministerial Conditions for MS1258

GLOSSARY AND ABBREVIATIONS

Term	Definition
BAM	Beta Attenuation Monitor
BLD	Proposed Dust Monitoring Location - South Boulder
BSY	Dust Monitoring Location – Boulder Shire Yard
CAS	Weather Monitoring Location – Cassidy Headframe
CIL	Carbon in Leach
CLY	Dust Monitoring Location – Clancy Street
CKB	City of Kalgoorlie-Boulder
DBCA	Department of Biodiversity, Conservation and Attractions
DMMP	Dust Monitoring and Management Programme
DOH	Department of Health
DWER	Department of Water and Environmental Regulation
EMP	Environmental Management Plan
EPA	Environmental Protection Authority (Western Australian)
EP Act	*Environmental Protection Act 1986* (Western Australian)
ERP	Emissions Reduction Project
FAQMP	Fimiston Air Quality Management Plan
FS	Fimiston South
FS Project	Fimiston South Project
HEW	Dust Monitoring Location – Hewitt Street
HGC	Dust Monitoring Location – Hannan's Golf Course
HI	Hazard Indices
HOP	Dust Monitoring Location – Hopkins Street
HRA	Health risk assessments
ICR	Incremental Carcinogenic Risk
KCGM	Kalgoorlie Consolidated Gold Mines Pty Ltd
Km	Kilometre
MEX	Dust/Weather Monitoring Location - Metals Exploration Yard
MS 782	Ministerial Statement 782
MS 1258	Ministerial Statement 1258
Mt	Million tonnes
MTC	Dust Monitoring Location – Mt Charlotte
NEPM	National Environmental Protection Measure
NIM	Proposed Dust Monitoring Location – Ninga Mia
OEPA	Office of the Environmental Protection Authority
PIL	Public Interaction Line
PM_{10}	Particles with a diameter of 10 micrometres or less
ROM	Run of mine

Term	Definition
RTO	Regenerative thermal oxidiser
TSF	Tailings Storage Facility
TSP	Total Suspended Particulate
µg/m^3	Micrograms per cubic metre
WHO	World Health Organization
WRD	Waste rock dump

1. SUMMARY

Kalgoorlie Consolidated Gold Mines Pty Ltd (KCGM) is the proponent for the Fimiston Gold Mine Operations Extension (Stage 3) and Mine Closure Planning: Fimiston South Project (FS Project). The FS Project is important to ensure ongoing operations at Fimiston until approximately 2034. The Revised Proposal is summarised within Section 2.2 of this Fimiston Air Quality Management Plan (FAQMP) for ease of reference.

The currently approved FAQMP (2019, v9) implemented across site was originally prepared by KCGM to satisfy Condition 7-1 of Ministerial Statement 782 (MS782), originally approved on 29 January 2009 by the Minister for Environment.

The 2026 revised FAQMP (v14; this document) has been developed to satisfy submission requirements conditions outlined in the most recent Ministerial Statement 1258 (MS1258).

Version 14 of the FAQMP has been updated to:

- Be presented in accordance with the '*Instructions on how to prepare Environmental Protection Act 1986 - Part IV Environmental Management Plans, (version 2.0; 2021)*' published by the Western Australian (WA) Environment Protection Authority (EPA).
- Details the measures that are required to manage potential impacts to conservation significant species and social surroundings from the current and proposed continuation of approved activities under KCGM's ministerial statements.
- Consideration of additional activities required to deliver the FS Project and future operations as described within the Fimiston Gold Mine Operations Extension (Stage 3) and Mine Closure Planning: Fimiston South Project (FS Project) proposal.
- Consideration of recommendations outlined in the EPA Assessment Report (Report 1779, February 2025) assessing the Fimiston Gold Mine Operations Extension (Stage 3) and Mine Closure Planning: Fimiston South Project (FS Project) proposal.
- Inclusion of recommendations outlined in the Minister's Appeal Determination - Appeals against Report and Recommendation of the Environmental Protection Authority EPA Report 1779 Fimiston Gold Mine Operations Extension (Stage 3) and Mine Closure Planning: Revised Proposal - Fimiston South Project (Appeal Number: 005 of 2025 – 17 September 2025) as well as supporting documentation including the Office of the Appeals Convenor's Report to the Minister for the Environment (Appeal against EPA Report 1779 Fimiston Gold Mine Operations Extension, City of Kalgoorlie-Boulder) July 2025.
- Inclusion of conditions relevant to air quality as outlined in MS1258.

Following approval of FAQMP, internal KCGM document control processes will be implemented to ensure the current FAQMP is formally archived and this version becomes the approved guiding document. Table 1 below contains an executive summary of the information relevant to this revised version of the FAQMP.

Table 1: Management Plan Summary

Title of Proposal	Fimiston Gold Mine Operations Extension (Stage 3) and Mine Closure Planning: Fimiston South Project (FS Project)
Proponent	Kalgoorlie Consolidated Gold Mines Pty Ltd
Ministerial Statement Number	TBA
Purpose of the FAQMP	The purpose of this Air Quality Management Plan is to meet specified document type for an Environmental Management Plan, and to enable the continued and effective (operationally derived) air quality monitoring and reporting regime.
Key Environmental Factor/s and Objective/s	**Key Environmental Factors:** Air Quality, Social Surroundings and Human Health **EPA Objectives:** Air Quality 'To maintain air quality and minimise emissions so that environmental values are protected' (EPA, 2022). Social Surroundings 'To protect social surroundings from significant harm' (EPA, 2022). Human Health 'To protect human health from significant harm' (EPA, 2022).
Condition Clauses	Conditions B3, C2 and C4 of the conditions related to air quality as outlined in MS1258 and set out in Table 2 of this document.
EMP Required Pre-construction?	Yes – this document.

2. CONTEXT, SCOPE, AND RATIONALE

2.1 The Project

KCGM manages and operates the following mining and processing operations for Owner, Northern Star Resources Limited:

- Fimiston Open Pit: open pit mining and waste rock disposal.
- Mt Charlotte Underground Mine: underground mining.
- Fimiston Processing Plant: crushing, mineral processing, refining and tailings disposal.
- Gidji Gold Processing Plant: mineral processing and tailings disposal; and
- Exploration: mineral resource definition drilling and core processing.

The FAQMP is relevant to the Fimiston Operational area within the Mine Development Envelope. The following are key facilities:

- Fimiston Open Pit.
- Fimiston Tailings Storage Facilities (TSFs).
- Fimiston Processing Plant; and
- Fimiston Waste Rock Dumps (WRDs).

2.1.1 Location of Fimiston Operations

The Fimiston Operations are located adjacent to the City of Kalgoorlie-Boulder approximately 600 kilometres (km) east of Perth, Western Australia. On average, KCGM produces 500,000 ounces of gold per annum and has a current operational mine life expectancy until 2034 (including the FS Project).

Ore and waste rock material are mined from the Fimiston Open Pit per annum through traditional truck and shovel methods. Ore is then continuously processed through the Fimiston Processing Plant, whilst marginal or low-grade ore are stockpiled adjacent to the open pit area and waste rock material is transported to various Waste Rock Dumps (WRD) for permanent storage.

2.2 The Revised Proposal – FS Project

The Revised FS Project submission package supports the Fimiston Gold Mine Operations Extension (Stage 3) and Mine Closure Planning: Fimiston South Project (FS Project) application which details the mining out of the Ivanhoe cutback at the southern extent of the pre-existing Fimiston Open Pit. Proposed future mining activities would continue to utilise traditional mining methods currently employed within the open pit. The cutback will amend the overall pit design by both additional widening and deepening of the pit. The works will extend the current operational life of open pit to approximately 2034.

The Revised Proposal includes:

- A cut back of the Fimiston Open Pit, the Ivanhoe cutback
- Additional Fimiston II Extension Tailings Storage Facility (TSF) cell.
- Construction of the new Fimiston III TSF.
- An extension to the existing Southern WRD; and
- Development of areas for supporting infrastructure and services are also required.

2.3 Key Environmental Factors

This FAQMP specifically addresses Air Quality, Social Surroundings and Human Health environmental factors, as defined within the EPA's *Statement of Environmental Principles, Factors and Objectives and aims of EIA* (EPA, 2023, version 5).

As defined within the EPA's Environmental Factor Guideline: Air Quality (EPA, 2020), the environmental objective of Air Quality is:

To maintain air quality and minimise emissions so that environmental values are protected.

As defined within the EPA's Environmental Factor Guideline: Social Surroundings (EPA, 2023), the environmental objective of Social Surroundings is:

To protect social surrounding from significant harm.

As defined within the EPA's Environmental Factor Guideline: Human Health (EPA, 2016), the environmental objective of Human Health is:

To protect human health from significant harm.

2.3.1 Activities Affecting Key Environmental Factor – Air Quality

Air quality is a key environmental factor for the FS Project due to the proximity of the Fimiston Gold Mine Operations to the City of Kalgoorlie-Boulder and surrounding areas. Identification and management of contributing factors (aspects and risk analysis) or activities which may contribute to decreased air quality are paramount for large scale operations such as the Fimiston operations. It is located in a semi-arid region of Western Australia, which unlike other sub-tropical or tropical areas of Australia, is relatively dry throughout the entire year. This climatic setting supports surface substrates to be dry, fragile, and readily susceptible to movement of individual particulates (matter), which when disturbed become mobilised (air borne) into the air column (ambient air). These processes are otherwise referred to as wind erosion, and fugitive particulate loading (concentration). Whilst the presence of particulate matter within the ambient air is a natural occurrence in Australia, many introduced activities may pose additional impact and change to the severity or occurrences.

Particulate matter (PM) consists of many particles of varying sizes (fractions); some of these particulates are very small and can be inhaled into the lungs or settle on vegetation, posing a risk of impacting the health of the recipient.

Activities known to contribute to the mobilisation of particulates include, driving on dirt roads or off roading, herd grazing or spring pollen production/release, clearing vegetation, crushing rock or grading material, blasting, excavation of material for transportation, dumping of materials and reshaping waste rock dumps or stockpiles, burning wood for heating homes, general earthworks, and off-road recreational activities.

The FS Project is a mining activity which alike the current Fimiston operational mining activities requires the fracturing and extraction of rock from a designated area, crushing of rock/ore which for further processing or relocation to WRD (tip head) for long term waste storage. As the proposed activity under the FS Project is considered like-for-like with currently approved site activities; KCGM have chosen to continue with the existing mitigation measures. These measures in the past have proven to be effective in assisting KCGM to minimise the risk likelihood of occurrence and levels of severity from the Fimiston operations (operational contribution). KCGM's particulate management approach is further detailed in Sections 2.7 and Section 2.8.

Specific aspects in addition to current site activities, which may have the potential to impact from the implementation of continued mining activities and pose a risk to decreasing air quality (increased particulates), if not managed appropriately, may include:

Potential direct impacts:

- Increased dust emissions from an expanded mining footprint and haulage of waste or ore.
- Diesel particulate matter from internal combustion engines operating closer to the surface.
- Greenhouse gas emissions from additional resources and/or supplies being brought to the Fimiston operation to complete other supporting construction activities. (This element is addressed further in the Northern Star Greenhouse Gas Management Plan.)
- Increased dust emissions from initial clearing activities, harvesting of topsoil, increase of operationally exposed areas or dry tailings.

Potential indirect or flow on impacts may include:

- Reduced public health, higher levels of hay fever or asthma irritants present within the air.
- Reduced health or loss of vegetation or flora due to clearing or clearing outside surveyed areas.
- Reduced visual amenity during site preparation works (clearing, topsoil harvesting or construction contouring), visual recognition of willy willy phenomenon.
- Displacement of fauna species or increased fauna interactions occurring on public roads leading to road kills and odour (short term impact during pre-construction); or:
- Adverse 24-hour or annual average air quality monitoring result/s which identify the Fimiston operation as a significant contributing factor.

2.3.2 Activities Affecting Key Environmental Factor – Social Surroundings

Air quality is a key environmental factor, and when this environmental factor is considered in tandem with social surroundings the potential for impacts on the community or individuals may be considered and investigated. The potential impacts (actual or perceived) as a direct result of the FS Project or the ongoing Fimiston operation on the physical or biological surroundings, a person's aesthetic, cultural, economic surrounds may be assessed. KCGM's management approach is detailed in Section 2.6.3.

This environmental factor is defined under the *Environment Protection Act 1986* and presented in the Environmental Factor Guideline: Social Surrounds (EPA, 2023) as:

> *"Environment, subject to subsection (2), means living things, their physical, biological and social surroundings, and interactions between all of these (Subsection 3(1))".*
>
> *"For the purposes of the definition of environment in subsection (1), the social surroundings of man are his aesthetic, cultural, economic and social surroundings to the extent that those surroundings directly affect or are affected by his physical or biological surroundings (Subsection 3(2))".*

Examples of social surroundings may include:

- Aesthetics of local towns (presentation of schools, parks, and playgrounds).
- Ability to attract and retain new employees (modern housing and technologies).
- Encourage new employees and their families to relocate, invest and stay regionally (economics).
- Ability for a town or regional area to provide modern amenity, services, health care (or emergency transfers to major medical facilities).

- Additional employment inside and outside of the mine (small business, sole traders, medium sized business).
- Acceptance and/or embracing of culture diversity, cultural history, provision of family friendly environments.
- Ability to maintain Aboriginal heritage and cultural knowledge, stories, artefacts.
- Ability to accept diversity of both natural and manmade historical heritage.

The Fimiston operations is located directly adjacent to the City of Kalgoorlie-Boulder urban areas (commercial, industrial, and residential) with open cut, underground and ore processing activities occurring for over 100 years. This is in part legacy from historical mining practices in and around the rural City of Kalgoorlie-Boulder and a scenario that is not unique to the Goldfields Region of Western Australia. Other examples of Australian towns located in proximity to mining activities include Port Hedland and Karratha (WA), Mount Isa (Qld), Bendigo (Vic), Lightning Ridge (NSW), Jabiru (NT) or Roxby Downs (SA).

Historically, being able to live close to where the work was provided a practical solution when the distance from work to home (and vice versa) was often restricted by how far a person could walk, ride a bike or travel by horse; in addition to completing long hours each day (example: in the 1800's people often survived in very basic living conditions (subsistence)). This scenario has gradually changed over time (century) as regional growth occurred, expectations of living conditions became a higher priority, disposable incomes became larger, and demographics of towns gradually evolved.

This is especially noticeable since the introduction of occupational health and safety standards (~1970's onwards) into workforces which assisted to guide changes to living conditions, quality of lifestyle/s and eventually a work life balance became the focus over basic survival (set basic expectations/standards). Examples of how social surroundings may influence the image of a mining town such as the City of Kalgoorlie-Boulder can be easily observed when comparing photos from previous decades or centuries to that of the current day. These influences include:

- Comparison and progression of improved living conditions over the past 100+ years.
- Analysis of population dynamics and trends over the past 100+ years.
- Recreational activities and the changes that have occurred over the past 100+ years.
- Changes to the social scene and (actual or perceived) reduction in anti-social behaviours.
- Acceptance, inclusion and recognition of new ethnic cultures, values, beliefs, or religions.
- Acceptance, inclusion, and recognition of indigenous cultures (localised and nationally), diversity of beliefs, ethnographic and anthropological connections to country.

Potential impacts to social surroundings element when considering air quality from the proposed implementation of continued mining activities might include:

- Reduced visual amenity from un-vegetated mining landforms or the presence of a haze.
- Reduced public health due to odour, diesel particulates, volumes of fly-in/fly-out personnel (colds and flu), volumes of social/recreational activities (increased antisocial activities).
- Reduced public amenity from dust emissions (excessive levels of particulates in homes or landing on cleaned vehicles).
- Reduced vegetative health or impacting on items or locations of cultural importance (ethnographic), short term or long term.
- Reduced physical and/or mental health of individuals or sensitive receptors (pre-existing conditions aggravated through reduced air quality).

Other social surrounding elements which are covered in separate KCGM management plans include:

- Reduced amenity from higher or impacted background noise or vibration levels.
- Reduced public health or potential damage to property from flyrock.

2.3.3 Activities Affecting Key Environmental Factor – Human Health

Human health is a key environment factor when considered in tandem with air quality and as an additional potential risk beyond social amenity. This human health factor has been interpreted and assessed as an additional step above personalising/individualising a direct risk aspect in addition to social surroundings which may otherwise be interpreted as in-personal/non-direct.

The human health factor is driven in part due to the location of the overall operational area, the semi-arid climatic region (natural) and the proximity of the proposed continued mining activities adjacent to the City of Kalgoorlie-Boulder; but, also supported by the fact that KCGMs employees, contractors, families, and friends have the right to be safe whilst at work and whilst outside of the workplace. For the purposes of this FAQMP, the World Health Organization (WHO) defines human health as:

> *"a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity" (EPA, 2016)."*

KCGM's management approach is detailed in Section 2.5.1. Additional human health management is managed and implemented under the Work Health and Safety Act 2020 *and Work Health and Safety (General) Regulations 2022*; by additional KCGM departments.

Potential risks to human health when incorporating an air quality element to the proposed implementation of the continuing mining activities might include:

- Reduced individual or public health (acute or chronic), including but not limited to sensitive receptors such as children and elderly through inhalation of air emissions over an extended amount of time (long term exposure).
- Reduced individual health, through inhalation of mobilised particulate emissions resulting in reactions similar to hay fever or asthma (acute short-term exposure).
- Uncontrolled release of harmful emissions into the air shed beyond regulated conditions.

Other aspects of the long-term mining activities which may pose a risk in the long term may include:

- Failure to modernise the Fimiston operation leading to excessive or unacceptable volumes of greenhouse gas emissions being released.
- Failure to maintain maintenance schedules or purchasing of suitable replacement parts or filters (sub grade materials)
- Failure to upgrade to newer technologies or improved methods if/when readily available. Considerations of human health during the environmental impact assessment phase of the FS Project included:
    - Careful consideration, planning and monitoring requirements of climatic conditions when undertaking mining activities.
    - Designing a delivery or execution plan to where possible, have near surface dust generating activities undertaken during the known cooler or wetter times of the year (land clearing).
    - Identification of a group or singular high-risk task or activity which may require additional mitigation processes to be implemented to lower the proposed significance of impact (fugitive sources), prior to the task commencing.
    - Ensure activities identified as potentially having a higher risk probability of mobilising

particulates are identified early to enable the correct personal protective equipment to be selected and used (point source).

- Implement dust suppression activities (water cart) to minimise the potential for dust generation.
- Consider additional monitoring or training opportunities under the Workplace Health & Safety Act 2022, through discussions with KCGM health and hygiene teams.

2.4 Condition Requirements

This FAQMP is submitted in accordance with the applicable ministerial statement conditions as outlined in Table 2 below (Conditions B3, C1, C2, C3 and C4 of the conditions related to air quality as outlined in MS1258), as this is the currently approved method. Table 2 below summarises currently approved conditions.

These conditions can then be revised, finalised, and implemented following receipt of approval under the EP Act as a new ministerial statement, which would trigger the archiving of MS1258.

Table 2: Summary of Relevant Conditions (MS1258)

Ministerial Conditions	
B3-1	The proponent must implement the significant amendment proposal to meet the following environmental outcomes for dust emissions associated with the implementation of the proposal. (1) Comply with ambient PM_{10} limit of 50 micrograms per cubic metre averaged over a 24-hour period at community based monitors. (2) Comply with ambient PM_{10} limit of 75 micrograms per cubic metre averaged over a 24-hour period at boundary monitors (3) Comply with ambient PM limits at any additional monitors resulting from, and according to the requirements of, any review and update of the Fimiston Air Quality Management Plan.
B3-2	To meet the requirements in condition B3-1, the proponent must: (1) Monitor dust emissions at the dust monitoring locations and at any additional dust monitoring locations referred to in condition B3-1(3). (2) Ensure continuous dust monitoring data is available on the proponent's website within 24-hours of the recording of that data.
B3-3	The proponent must review and update the Fimiston Air Quality Management Plan (Version 13, July 2024, or any future revisions) that demonstrates how achievement of the air quality environmental outcome in condition B3-1, and how the requirements of condition B3-2 will be achieved, and satisfies the requirements of condition C4, and submit it to the CEO.
B3-4	The proponent must conduct a triennial review of the plan required in condition B3-3 which includes a review of the dust levels applicable to actions and alerts used to adequately control offsite impacts from onsite dust generation and submit it to the **CEO**.
B3-5	The proponent must implement the significant amendment proposal to meet the following environmental objectives for detonating explosives: (1) Ensure explosives are detonated at surface level when wind directions favour the carriage of dust away from the residential areas of Kalgoorlie- Boulder, unless undertaken for the purposes of removing obstructions in crushers, or making workings safe, or for firing misfired holes. (2) Ensure that explosives are only detonated between the hours of 0700 hours and 1800 hours, unless undertaken for the purposes of removing obstructions in crushers, or making workings safe, or for firing misfired holes.

Ministerial Conditions
(3) Ensure mining operations are not undertaken within 400 metres of a property zoned “Residential” under the Town Planning Scheme without the written consent of the owner and occupier of that property. (4) Where adverse impacts to State Registered Places may occur or are identified associated with active mining, liaise with the Heritage Council of Western Australia on those State Registered Places.
C1-1 The proponent must not undertake: (1) Mining activities forming part of the expanded and revised proposal until the CEO has confirmed in writing that the environmental management plan required by condition B3-3 meets the requirements of those conditions and condition C4. (2) Construction of the Waste Rock Dumps forming part of the expanded and revised proposal until the CEO has confirmed in writing that the environmental management plan required by condition B2-3 meet the requirements of those conditions and condition C4.
C2-1 Upon being required to implement an environmental management plan under Part B, or after receiving notice in writing from the CEO under condition C1-1 that the environmental management plan(s) required in Part B satisfies the relevant requirements, the proponent must: (1) Implement the most recent version of the confirmed environmental management plan; and (2) Continue to implement the confirmed environmental management plan referred to in condition C2-1(1), other than for any period which the CEO confirms by notice in writing that it has been demonstrated that the relevant requirements for the environmental management plan have been met, or are able to be met under another statutory decision-making process, in which case the implementation of the environmental management plan is no longer required for that period.
C2-2 The proponent: (1) May review and revise a confirmed environmental management plan provided it meets the relevant requirements of that environmental management plan, including any consultation that may be required when preparing the environmental management plan; (2) Must review and revise a confirmed environmental management plan and ensure it meets the relevant requirements of that environmental management plan, including any consultation that may be required when preparing the environmental management plan, as and when directed by the CEO; and (3) Must revise and submit to the CEO the confirmed environmental management plan if there is a material risk that the outcomes or objectives it is required to achieve will not be complied with, including but not limited to as a result of a change to the significant amendment proposal.
C2-3 Despite condition C2-1, but subject to conditions C2-4 and C2-5, the proponent may implement minor revisions to an environmental management plan if the revisions will not result in new or increased adverse impacts to the environment or result in a risk to the achievement of the limits, outcomes or objectives which the environmental management plan is required to achieve.
C2-4 If the proponent is to implement minor revisions to an environmental management plan under condition C2-3, the proponent must provide the CEO with the following at least twenty (20) business days before it implements the revisions: (1) The revised environmental management plan clearly showing the minor revisions; (2) An explanation of and justification for the minor revisions; and

Ministerial Conditions	
	(3) An explanation of why the minor revisions will not result in new or increased adverse impacts to the environment or result in a risk to the achievement of the limits, outcomes or objectives which the environmental management plan is required to achieve.
C2-5	The proponent must cease to implement any revisions which the CEO notifies the proponent (at any time) in writing may not be implemented.
C2-6	Confirmed environmental management plans, and any revised environmental management plans under condition C2-4(1), must be published on the proponent's website and provided to the CEO in electronic form suitable for on- line publication by the Department of Water and Environmental Regulation within twenty (20) business days of being implemented, or being required to be implemented (whichever is earlier).
C3-1	The proponent must undertake annual monitoring capable of: (1) Substantiating whether the significant amendment proposal limitations and extents in Part A are exceeded; and (2) Detecting and substantiating whether the environmental outcomes identified in Part B are achieved (excluding any environmental outcomes in Part B where an environmental management plan is expressly required to monitor achievement of that outcome).
C3-2	The proponent must submit as part of the Compliance Assessment Report required by condition D2, a compliance monitoring report that: (1) Outlines the monitoring that was undertaken during the implementation of the significant amendment proposal; (2) Identifies why the monitoring was capable of substantiating whether the significant amendment proposal limitation and extents in part a are exceeded; (3) For any environmental outcomes to which condition C3-1(2) applies, identifies why the monitoring was scientifically robust and capable of detecting whether the environmental outcomes in part b are met; (4) Outlines the results of the monitoring; (5) Reports whether the significant amendment proposal limitations and extents in Part A were exceeded and (for any environmental outcomes to which condition C3-1(2) applies) whether the environmental outcomes in Part B were achieved, based on analysis of the results of the monitoring; and (6) Reports any actions taken by the proponent to remediate any potential non-compliance.
C4-1	The environmental management plans required under conditions B1-2, B2-3 and B3-3 must contain provisions which enable the substantiation of whether the relevant outcomes of those conditions are met, and must include: (1) Threshold criteria that provide a limit beyond which the environmental outcomes are not achieved; (2) Trigger criteria that will provide an early warning that the environmental outcomes are not likely to be met; (3) Monitoring parameters, sites, control/reference sites, methodology, timing and frequencies which will be

Ministerial Conditions	
	used to measure threshold criteria and trigger criteria. Include methodology for determining alternate monitoring sites as a contingency if proposed sites are not suitable in the future; (4) Baseline data; (5) Data collection and analysis methodologies; (6) Adaptive management methodology; (7) Contingency measures which will be implemented if threshold criteria or trigger criteria are not met; and (8) Reporting requirements.
C4-4	The plan required under condition B3-3 is to be updated if new community- based or boundary monitor(s) are established.
C4-5	Without limiting condition C3-1, failure to achieve an environmental outcome, or the exceedance of a threshold criteria, regardless of whether threshold contingency measures have been or are being implemented, represents a non-compliance with these conditions.

2.5 Potential Impacts

2.5.1 Public Health

The main transport pathway for particulate emissions associated with the FS Project would be through atmospheric dispersion (fugitive), and therefore inhalation is expected to remain the most significant risk exposure route that may impact human health (Health protective guidelines include the National Environment Protection Council (NEPC), National Environment Protection Measure for Ambient Air Quality as amended 2015 (as amended)).

Air dispersion modelling from carbon regeneration kilns to assess the potential health risks posed by mercury emissions has historically indicated that the levels being emitted from Fimiston pose no risk to workers or the community. Ramboll (2022a) conducted a screening health risk assessment (HRA) to determine if the projected FS Project fugitive particulate loadings may have potential to result in unacceptable impacts to human health (workforce or public). This involved a review of the previous screening HRA (Golden Pike and the 2006 HRA) and then re-assessment of potential health risks, taking into consideration additional ambient monitoring data from 2020 to 2021 to the historical data.

The HRA also compared the expected change in potential health risks from the current operations to include the proposed changes of the FS Project. Similar health risk conclusions that were reached in the Ramboll (2022a) as in this review and HRA update which included PM_{10} data collected during 2010 to 2019. A review of ambient PM_{10} data collected across KCGM's seven ambient PM_{10} monitoring stations was undertaken to identify the maximum short-term and long-term PM_{10} concentrations for use in the screening HRA.

This was completed by identifying:

- The historic maximum metals concentrations in ambient particulate samples (were calculated utilising historic metals concentration data and applied bioavailability factors based on analysis of

regional soil samples).

- Identification of the maximum recorded 1-hour and 24-hour average PM_{10} concentration (where KCGM was identified as a potential contributor).
- Highest annual average PM_{10} concentrations measured at each monitoring site, were used as inputs to the screening HRA.
- Inclusion of air dispersion modelling data presented in Ramboll (2022a) to assess the potential health impacts (FS project implementation).
- Modelled PM_{10} concentrations were calculated from 2019 to 2025.
- Estimated PM_{10} concentrations in 2025 were calculated utilising monitored data from 2019 (worst case scenario).
- Historic maximum metals concentration data was then used to estimate current (2019) and future PM_{10} metal concentrations.
- Acute HIs were calculated to be between 0.5 and 2.6, and chronic HIs were well below one. Values below 10 generally do not represent cause for concern. National Environment Protection Measure for Ambient Air Quality as amended 2015 (as amended).
- Maximum ICRs from the estimated metals concentrations were above the target of 1E-05 (i.e., 0.00001). However, these estimates are considered highly conservative because they are calculated using the maximum recorded metal concentrations in any 24-hour period, rather than the average metals concentrations, which would be more representative of actual conditions.
- Once bioavailability factors from historical soils samples were accounted for, the ICRs were below 1E-05 (Ramboll 2022b).
- No unacceptable acute or chronic non-carcinogenic or carcinogenic risks were found at any of the sampling locations.

In addition, in October 2024, the EPA Services Branch requested that KCGM undertake a health risk assessment (HRA) of PM_{10} dust from KCGM operations using an independent health risk assessor. The assessor (Matisons Toxicological Solutions, 2024a) noted the following conclusions:

- Kalgoorlie-Boulder is situated in a dusty environment.
- KCGM is a significant contributor to dust in Kalgoorlie-Boulder.
- Five dust monitors are located on the boundary of the Fimiston open pit and two, HGC and MEX, located within the general community.
- The boundary monitors are not suitable indicators of community dust exposure.
- 2022/23 was an above average ‘dusty’ year with equal contribution from KCGM and other sources and is considered an outlier compared with the two previous years of monitoring.
- Annual PM_{10} for all KCGM monitors are within the guideline with HQs at or below 1 and longer-term health effects are not expected within the residential community.
- All PM_{10} concentrations at the HGC monitor, which is well within the residential area, were less than the annual and 24-hour PM_{10} GVs. PM_{10} concentrations at the MEX monitor were all less than the annual GV and with average 24-hour HQs at or less than 1.2.
- Exceedance of the 24-hour PM_{10} guideline of 50 $\mu g/m^3$ is the main point of departure from the NEPM GV.
- Exceedances of the PM_{10} 24-hour GV was prominent in the year December 2022 to November 2023 but only 50% of the number of days the 24-hour PM_{10} GV was exceeded attributed to KCGM.
- There are some moderately elevated 24-hour PM_{10} levels at boundary monitors but all HQs were at or less than 1.5 and 3/7 and 5/7 monitors not recording any exceedances attributable to KCGM during 2021/22 and 2020/21 respectively.
- If the monitoring results for 2022/23 are discounted as outliers, the 24-hour HQs at community-based monitors were at or less than 1 and hence there would not have been any health effects expected

from short-term exposure to PM_{10}.

- The NEPM guidelines are applicable to the two community-based monitors, HGC and MEX.
- The FAQMP in conjunction with a boundary monitor guideline of 75 µg/m^3 (equivalent a HQ of 1.5) is suitable to monitor and respond to potential dust excursions from the Fimiston open pit and to minimise any short-term health effects within the residential community.
- 24-hour HQs of 1.2 would not be considered to produce any untoward short-term health effects.
- DWER ambient air quality monitoring in Kalgoorlie has reported that Kalgoorlie has not exceeded the annual PM_{10} guideline and that there were no exceedances of the 24-hour guidelines for 2020 and 2021.

Based on the outcomes of the HRA, the following recommendations were made (Matisons Toxicological Solutions, 2024b).

- The applicable guideline for PM_{10} community-based monitors should remain at 50 µg/m^3 averaged over 1 day and of 25 µg/m^3 as an annual average.
- The two community-based monitors are the HGC and the MEX monitors can be used as a surrogate community-based dust monitor.
- Consideration be given to a community-based monitor in a more centralized residential area of Kalgoorlie-Boulder.
- The Mt Charlotte (MTC), Hewitt Street (HEW), Clancy Street (CLY), Boulder Shire Yard (BSY), and Hopkins Street (HOP) monitors are located at the boundary zone of the Fimiston open pit and therefore should be considered as boundary monitors and not as community-based monitors. As part of the Fimiston Air Quality Management Plan (FAQMP) these monitors allow for alert and subsequent actions to be undertaken when excessive dust may egress from the Fimiston open pit. In such case, the appropriate guideline for these boundary monitors is recommended to be 75 µg/m^3 averaged over 1 day. The annual average to remain the same for all 7 monitors at 25 µg/m^3.
- DWER to update its ongoing ambient air quality monitoring in Kalgoorlie so that a better understanding of the current dust impacts on the community is obtained.
- Maintaining boundary monitor HQs for the 24-hour PM_{10} averages to below 1.5, equivalent to 75 µg/m^3 with the aim of achieving HQs of 1.2 equivalent to 60 µg/m^3.
- This should ensure that short-term health impacts would not be expected within the residential community.
- A level of 50 µg/m^3 be used at the boundary monitors as an investigation level to monitor potential dust excursion from the Fimiston open pit.
- Implement the upgrade of the alert and action levels to enhance dust control at the Fimiston open pit.
- Assess dust monitoring data for the next two to three years in light of any changes undertaken to the Fimiston Air Quality Management Plan.

These recommendations have been incorporated into this FAQMP.

2.5.2 Impacts on Vegetation and Flora

Accumulation of dust particulates on leaf surfaces may occur as a result of exposure to excessive particulates being generated (mobilised) nearby settling on vegetation. This may result in a reduced ability for plants to photosynthesise and transpire, leading to a decline in plant health and may increase the potential to lead to dieback, if the situation is prolonged. Sources of particulate emissions are localised, consisting of dust lift-off from mining vehicle traffic and minor quantities from blasting. Direct and indirect

impacts to vegetation and flora are likely to be limited to areas that directly surround the FS Project activities (construction footprint).

Vegetation within these areas comprises of vegetation communities that are well represented in the local and greater region. Most of this vegetation has previously been degraded and/or highly modified by historical land use practices, which includes urban development, mining (some early rehabilitation) an d pastoralism. The potential impacts are therefore considered not likely to have a significant impact on the representation of these vegetation types in the local area or the greater region.

Flora surveys conducted by Phoenix (2019a, 2020b and 2022a) indicate that 90 individuals of Priority 2 Flora species *Eremophila praecox* identified in both disturbed and rehabilitated areas. However, indirect impacts from dust emissions are considered not likely to have a significant impact on the conservation status of this species because:

- Documented distribution for the species is broader than was previously known; with records supporting the notion that the species may in fact be widespread, but infrequently recorded.
- *E. praecox* is currently listed as a Priority 2 flora species by Department of Biodiversity, Conservation and Attractions (DBCA).
    - This change in status to Priority 2 was approved following the 2019 regional survey.
    - Additional regional records support the likelihood the species may represent a Priority 3 species (now known from multiple records).
- In excess of one third of plants recorded are in conservation estate, e.g., Karrawang Nature Reserve and Bullock Holes Timber Reserve (non KCGM leases).

2.5.3 Fauna Displacement

Excessive dust has the potential to result in temporary displacement of local fauna populations for short durations of time. This can take place as fauna move to avoid inhalation of dust, relocate after vegetation providing habitat is damaged or relocate away from dust producing activities (noise) such as clearing or construction.

Results from recent fauna survey suggest that it is unlikely that there are any conservation significant fauna species inhabiting the area intended for the FS Project cut back due to the overall positioning being located near a busy major by-pass and developed industrial areas. It is therefore unlikely that emissions to air would result in any significant impacts to fauna or significant fauna species (displacement of local populations) as a result of the cut back activities being implemented.

2.6 Rationale and Approach

The continued mining activities have been designed to avoid and minimise impacts to key environmental factors (refer to Sections 2.3.1, 2.3.2, and 2.3.3). This includes identifying activities that may cause or contribute to particulate emissions or otherwise enable mobilisation of particulate material into the air shed/ambient background.

KCGM's approach to managing particulate emissions are based on the identification of likely major emission sources by applying conventional risk assessment methodologies, predictive air quality modelling, air quality monitoring results, operational experience and feedback drawn from community feedback.

Risk mitigation measures identified during the risk assessment process are to be implemented as part of the task/activity being implemented to reduce the overall residual risk of particulates (KCGM becoming identified as a significant contributing factor) following concentrations of PM_{10} at boundary monitors greater than >50 µg/m^3 over a 24-hour averaged period. This concentration represents the trigger criteria at the boundary monitors and is discussed further in Section 2.8.4.

This enables KCGM to identify and summarise both the activity, source and type of emission/s and assign a management plan to aid monitoring and reporting, as summarised in Table 3 contribute to particulate emissions or otherwise enable mobilisation of particulate material into the air shed/ambient background.

KCGM's approach to managing particulate emissions are based on the identification of likely major emission sources by applying conventional risk assessment methodologies, predictive air quality modelling, air quality monitoring results, operational experience and feedback drawn from community feedback.

Risk mitigation measures identified during the risk assessment process are to be implemented as part of the task/activity being implemented to reduce the overall residual risk of particulates (KCGM becoming identified as a significant contributing factor) following an exceedance of the trigger criteria.

This enables KCGM to identify and summarise both the activity, source and type of emission/s and assign a management plan to aid monitoring and reporting, as summarised in Table 3.

Table 3: Summary of Emission Source and Types

Activity	Emission Source Summary	Air Emission Type	Management Plan/Programme
Ore Processing	The Fimiston Processing Plant treats ore mined from the Fimiston Open Pit and the Mt Charlotte Underground Mine. Crushing activities and conveyor transfer points have the potential to create fugitive dust emissions.	Fugitive Dust	Dust Monitoring and Management Programme
	During the gold recovery process there is potential for atmospheric emissions of mercury from the carbon regeneration kilns (fugitive) or the gold room (point source). *Note: Gold room activities are supported by additional PPE and safety procedures outside the scope of the FAQMP.*	Fugitive Dust and point source depending on the situation.	Mercury Emissions Management Plan
Tailings Storage Facilities	KCGM operates three Tailings Storage Facilities (TSFs) which support the Fimiston Processing Plant waste storage. These are the Fimiston I TSF, Fimiston II TSF and the Kaltails TSF. KCGM is constructing a fourth TSF (Fimiston III TSF). Fugitive dust from the TSFs is generally caused by strong winds resulting in surface wind erosion of deposited tailings waste.	Fugitive Dust	Dust Monitoring and Management Programme
Drilling and Blasting	Drilling and blasting are undertaken to fracture rock for extraction within pit, underground and occasionally near the surface. Blasting activities have the potential to cause high loading but short-term fugitive dust emissions and therefore need to be carefully managed and planned, particularly for blasts that occur near the surface. Example being no blasting during red winds is implemented by blast crews (wind direction predominantly towards town).	Fugitive Dust and point source depending on the situation.	Blasting Dust Management Plan

Activity	Emission Source Summary	Air Emission Type	Management Plan/Programme
Mining	Mining is undertaken utilising hydraulic shovels that load ore/waste rock into haul trucks which transport ore to the ROM pad or stockpile as low grade to be subsequently processed at a later time. These activities involve the handling, transporting, and dumping of material; use of earth moving equipment; vehicle movement on unsealed roads.	Fugitive Dust	Dust Monitoring and Management Programme
Waste Rock Dumps	Waste rock and overburden which is of no economical processing value or value to rehabilitation activities, is removed from active mining areas and placed on WRD for long term storage and eventual final landform formation.	Fugitive Dust	Dust Monitoring and Management Programme
Topsoil stockpiles	Generally consisting of topsoil and vegetative material (seed bank). Are generally stable and settle following rainfall which forms a crust reasonably resistant to wind erosion.	Fugitive Dust	Dust Monitoring and Management Programme

2.6.1 Survey and Studies Undertaken

2.6.1.1 Studies Completed

KCGM has a long history of monitoring air quality at Fimiston Operations, and numerous additional studies have been conducted to analyse air quality and identify potential emissions sources.

Past completed air quality studies include:

- CSIRO Australia (Mine Site Rehabilitation Research Programme), Dust Generation from Tailings.
- Development of the Micro Wind Tunnel and preliminary investigations in tailings surfaces.
- CSIRO Dust Management System for Blasting.
- Coffey (1999) National Pollutants Inventory Kalgoorlie Mining Trial Aggregated Emission Study.
- DEP (1999) Kalgoorlie NPI Trial.
- SKM (2005) Airborne Contaminants or Emissions of Significance in the Kalgoorlie-Boulder.
- Coolgardie and Kambalda Area, Kalgoorlie Gap Emissions Study.
- ENVIRON (2006) Dust modelling study – Fimiston operations extension.
- Ramboll (2018) Review of PM_{10} Monitoring Data and Assessment of the Potential Particulate Impacts of Proposed Project Changes at the Fimiston Operations.
- Ramboll (2022, revised in 2023) Appendix H Fimiston South Project: Air Quality Impact Assessment;
- Ramboll (2022) Appendix I Fimiston South Project Screening Health Risk Assessment;
- Matisons Toxicological Solutions (2024a), Kalgoorlie Consolidated Gold Mines (KCGM) PM_{10} Dust Health Risk Assessment; and
- Matisons Toxicological Solutions (2024b). Recommendations for Dust Management at KCGM Kalgoorlie.

2.6.1.2 Increased Dust Emission Modelling

Air dispersion modelling was undertaken (refer to Appendix H Air Quality Impact Assessment of the Referral package, 2022) to provide a comparative analysis proposed worst case scenario following the FS Project implementation. Analysis of the predicted scenario presented within the air quality impact assessment were based on the results of this air dispersion modelling.

The modelling analysis highlighted:

- That the most significant changes to air quality are expected to occur within the open pit; however, impacts at sensitive receptor locations are not expected to change significantly (Ramboll, 2023).
- This risk potential will primarily be a slightly elevated during construction works to realign the Environmental Noise Bund (ENB) and during initial surface cut back activities (short term).
- The FS Project includes addition of new open operation supporting areas, including WRD which will need to be adequately managed during and following the projects implementation.
- As operational future growth continues there is opportunity to review the existing equipment and holistic monitoring system/s (emerging and material risk assessment), to drive identification of risk severity changes and promote self-sustaining continuous improvement (Section 4).
- In-pit dumping of waste rock material as cut back activities progress may result in a reduction of wheel-generated dust emissions (reduced haulage distance).
    - However, this may increase the in-pit dust loading through the action of dumping waste rock; although this dust is expected to remain and settle back into the open-pit.
    - Lower likelihood of being transported away from within the open pit than if activity was located at the surface.
    - As the in-pit WRD grows closer to the surface there will be a requirement to increase dust suppression activities to offset the change of risk probability.

The modelling results indicated that peak 24-hour average concentrations of PM_{10} could potentially exceed the ambient air quality guidelines (>50 µg/m^3) at the boundary of the facility if emissions are not adequately controlled.

- The modelling completed as part of an impact assessment (FS Project, 2023) predicted negligible changes (small increases at some locations, decreases at others) in the short term.
- It is important to note that although there is a level of uncertainty present when utilising any modelling program, they are considered an effective tool to establish a basis for risk assessment prior to any works commencing.
- Given the proximity of Fimiston operations and the proposed FS Project/NB to the City of Kalgoorlie-Boulder, the south-western open-pit expansion and noise bund construction is likely to have the greatest potential for impact on daily recorded PM_{10} concentrations at nearby monitoring locations.
    - Monitoring locations HOP, BSY, and CLY would be the most sensitive to any additional particulate loading.
    - Current FAQMP standard practice includes early warning notifications (trigger alarms) to enable additional dust suppression activities to be applied quickly.

2.6.1.3 Emerging Risk: Exposed Area Particulates

As mentioned above, a key finding of recent predictive modelling suggests an emerging risk (section 2.6.1.2). This emerging risk relates to future growth and the requirement of the site to support continued operational mining, processing, and long-term waste management. The Air Quality Impact Assessment (Ramboll, as revised in 2023) highlighted through additional analysis of the recent modelling of a predicted emerging change to the current air quality risk profile (severity and likelihood). Analysis also highlighted this change may originate from exposed areas not from the proposed FS Project works.

Common mining industry exposed areas include:

- Unsealed haul roads and light vehicle monitoring or service tracks.
- Boundary fence lines and areas surrounding buildings and offices.

- Monitoring locations, supporting infrastructure corridors and open pipeline bunds.
- Dry Tailing Storage Facilities (TSF).

Waste Rock Dumps (WRD's).Through early identification of this emerging risk, this will assist KCGM to further investigate and assess potential contributing sources, such as:

- Currently exposed areas.
- Future placement and design of new exposed operational areas.
- Future exposed area growth/rate – short term (e.g.: <5 years).
- Mine life planning – long term (e.g.: >10+ years).

By implementing a risk assessment/environmental impact assessment approach into the investigation, KCGM will be able to assess the robustness of the current air quality monitoring system or identify any areas of concern or areas for improvement, for example:

- Ability to provide a representative sampling system.
- Early identification of if/when the emerging risk tipping point may be most likely to occur.
- Identify if external seasonal/climatic changes may impact in addition, beyond the predictive model (extended drought conditions).
- Provide basis for business case development.

This approach is supported by the following points raised in the revised Impact Assessment:

- The cumulative results from the modelling highlighted the importance of the effective implementation of mitigation controls and the ongoing management and review (risk identification and assessment).
- An analysis of the revised impact assessment indicates that the peak concentrations of Particulates were associated with wind erosion from exposed areas.
- Long term particulate management and the supporting monitoring system upgrades may be needed to support future growth.

2.6.2 Key Assumptions and Uncertainties

Assumptions and uncertainties are based on surveys undertaken to date to form the basis of the proposed management approach, as listed below:

2.6.2.1 Assumptions

- Utilising areas of existing disturbance and minimising additional clearing and implementing progressive rehabilitation throughout the life of the project will minimise the impacts of dust emissions (reduce the potential for particulate mobilisation).
- Modelling provides a suitable representation of the particulate emissions from the Fimiston Operations.
- Surveys to date provide sufficient information to confirm the presence of flora and fauna and suggest healthy populations exist within the Fimiston area. Additional surveys have been completed to determine the likely extent of local population(s) beyond the FS Project area; and
- The Mine Development Envelope (MDE) and broader regional area have been adequately surveyed for terrestrial flora and fauna and no other conservation significant species are likely to be affected by the FS Project.

2.6.2.2 Uncertainties

- The extent to which climatic factors outside of KCGM control, including dust and fire, may impact on the health and extent of populations of individual species.
- The extent to which disturbed and airborne particulates generated from the implementation of the

FS Project cut back may travel from the source to receptor.

- Occurrence of extreme rainfall events, drought or fire events occurring during the life of mine and post-closure; and
- If located, the resilience of conservation significant flora species to particulate deposition.

2.6.3 Management Approach

Management measures considered to minimise the intensity of the effects (actual or perceived) of the FS Project are necessary to ensure the activities will not have a significant detrimental impact on key environmental factors.

Specific application of the risk mitigation hierarchy for the FS Project has been summarised below.

2.6.3.1 Avoid

- Blasting operations will continue to be restricted during unfavourable wind conditions (red winds).
- For initial FS Project cutback earth works (close to surface elevation), additional controls will be implemented,
- Work in a particular area will be suspended for a nominated activity, if necessary, based on visual inspections, particulate loading trigger alarms, public feedback or prevailing wind conditions being unfavourable (red winds).
- Alternative operational area/s will be utilised if possible (e.g., use a different waste dump, or wheeled transports to remain in pit) to mitigate the generation of a point source which may lead to excessive fugitive loading overall.
- Redesigning of WRD (reduced footprint) to avoid potential impacts of particulates or clearing, refer to Significant Species Management Plan.

2.6.3.2 Minimise

- Restricting dumping of material for the realignment of the Noise Bund, pending on wind direction.
- Restricting near surface mining activities (e.g., handling of oxide material, blasting) as a function of wind direction.
- Use of water trucks and water cannons in areas that could produce dust (service corridors and other active surfaces).
- Watering down ore / waste rock material prior to load and haul activities as/if required.
- Watering down the surface of the blast prior to firing as/if required.
- Water sprays on crushers turned on when needed.
- Plan activities in high-risk areas (e.g., digging / loading) during day shift when fugitive dust can be seen and managed more easily than at night.
- Air Quality Monitoring trigger alarm/s system notifying of a potential to exceed 24-hour daily average if work modes not amended or additional dust suppression activities not implemented, (external reporting of air quality exceedance/s).
- Ensure all contractors and staff undertake site species inductions which include raising awareness of the importance of dust control.
- Investigate the use of fences covered in shade cloth or similar structure (non-permanent) for periods where high dust transportation risk has the potential for direct impact on neighbouring premises. For example, during realignment and construction of Noise Bund.
- Ensure continuous compliance dust monitoring is undertaken in line with acceptable methods, that the data is assessed in real time, and the results of the monitoring are reviewed and reported on in a timely manner (includes publishing of data to website).
- Ongoing consultation with internal and external stakeholders to determine success or short comings

of particulate management measures.

- Consider working with the City of Kalgoorlie-Boulder with additional dust management measures (e.g., preventing vehicular access, or rehabilitation) of open areas on the eastern side of the City of Kalgoorlie-Boulder.

2.6.3.3 Remediate

- Progressive rehabilitation of bare ground areas to minimise the potential for particulates to become airborne as fugitive dust emissions from wind erosion.
- Encourage the development of landforms which support natural seeding and establishment of flora or long-term surface coverage.
- Encourage the design of open areas to be resistant to (sheet) wind erosion.

2.7 Fimiston Environmental Management Programmes

2.7.1 Dust Monitoring and Maintenance Procedure

Particulate emissions are monitored via the implementation of the KCGM-ENV-010 Dust Monitoring and Management Procedure (DMMP), a subcomponent of the FAQMP. A key performance target of the DMMP is to manage KCGM's operations to ensure as far as reasonably practical that there are no events above the 24-hour PM_{10} ambient air quality criteria applicable in the community greater than 50 $\mu g/m^3$ (micrograms per cubic metre) and at the boundary monitors greater than 70 $\mu g/m^3$. This limit is also conditioned to where KCGM is identified as a significant contributor to any event (this allows for naturally occurring climatic events to be identified and recorded).

The DMMP currently utilises a network of seven ambient PM_{10} monitoring stations, five of which are established along the boundary of the Fimiston Open Pit within Kalgoorlie-Boulder (Figure 1). Two of the monitors (Hannans Golf Club and the Metals Exploration Yard (MEX) monitor located on Lionel Street) are representative of community compliance monitoring locations.

KCGM is currently investigating the establishment of additional permanent monitor near the Ninga Mia community/ within the northern sector. In addition it is investigating the establishment of an additional community monitor to location within the Kalgoorlie township (South Boulder) that will be wholly located within sensitive receptors and located closer to the proposed FS Project operations, as outlined in MS1258. The establishment of these monitors will be dependent on negotiation of access to a suitable location for the monitors and a number of factors related to compliance with relevant monitor siting standards.

KCGM also maintains a number of portable dust monitors. KCGM uses the monitors on a project specific basis to detect elevated concentrations of dust and to manage emissions from ad hoc projects in the region.

Refer to section 2.8 Particulate Monitoring for further detail.

Additional documents:

- KCGM-ENV-053-PRO - Dispatch - Responding to Dust Alarms Procedure.
- KCGM-ENV-017-PRO – MET EQUIP Service and Calibration Procedure.
- KCGM-ENV-001-PRO - Fimiston Air Emissions Procedure.

2.7.2 Blasting Dust Management Plan

Blasting activities are defined as a pattern of charged holes that are fired in a sequence to fracture the rock to enable excavation by hydraulic shovels and subsequent load and haul activities to ore stockpiles, crusher or to waste rock dumps. The action of drilling and charging blast hole does not contribute greatly to ambient air particulate loading. However, the firing of the blast field, resulting in a displacement of energy causing the fracturing of rock, vast volumes of short-term particulates and gases (by products) are released into the area surrounding the blast field.

Both open pit and underground blasting have the potential to cause fugitive dust resulting in short-term high particulate loading emissions. As the Fimiston operational area is physically positioned near the City of Kalgoorlie-Boulder and the FS Project is proposing a cut back to the west, understanding and implementing mitigation controls is paramount. Current near surface blasting considers the potential for the likelihood of dispersal of particulate matter towards urban areas. These are managed through Wind Direction Dependent blasts (red winds and green winds) and are primarily related to surface blasting undertaken on the upper benches of the open pit. As a mitigating control, if the location of a blast is near surface and has a higher risk probability of post blast particulates being dispersed over urban areas (red winds) the blast is delayed until more suitable climatic conditions are present (green winds). Refer to section 2.8.2 Blast Monitoring for further detail.

Additional documents:

- KCGM-ENV-097 Quick Guide - Blast and Airblast levels.
- KCGM-ENV-001-PRO - Fimiston Air Emissions Procedure.

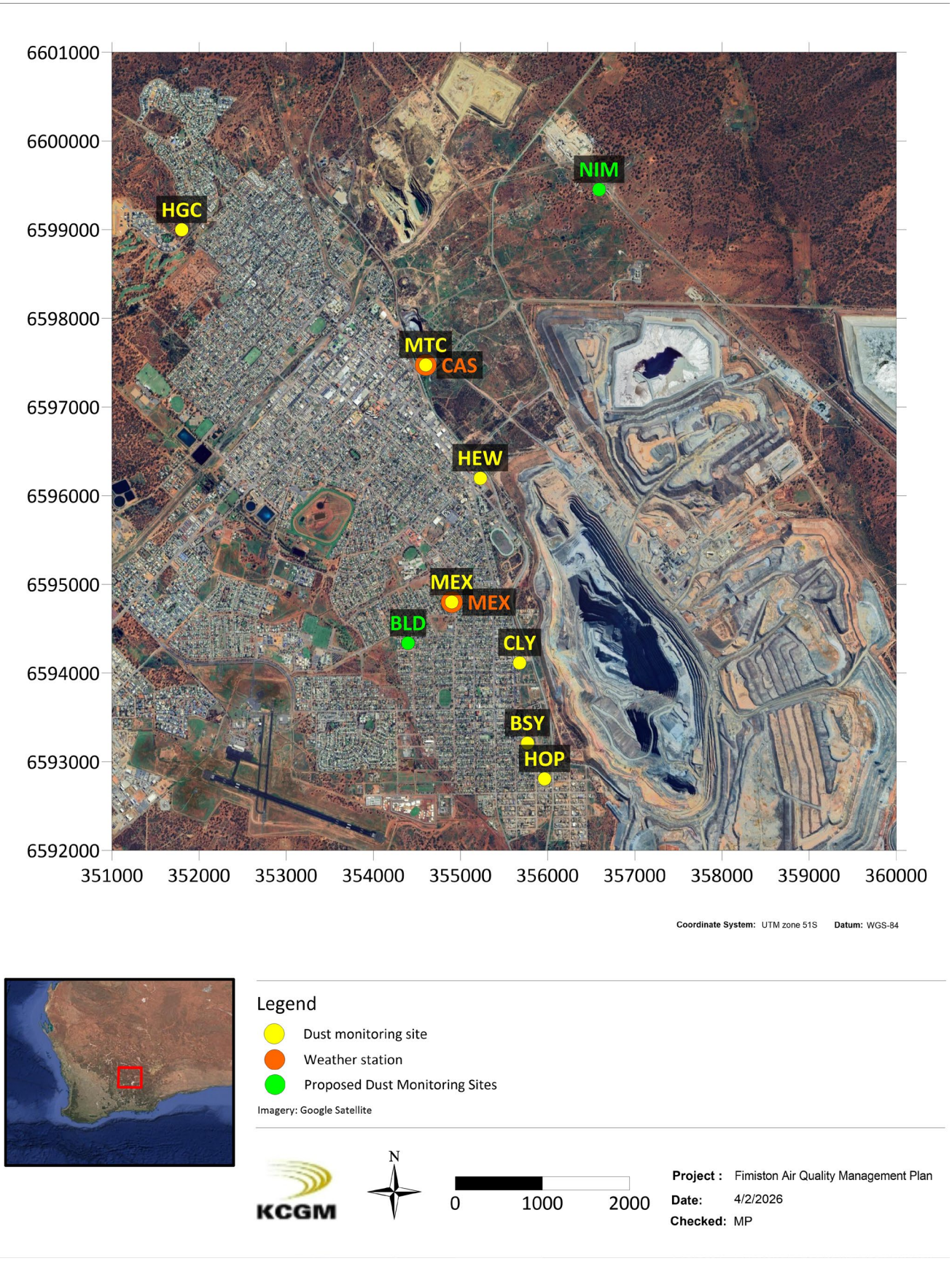

Figure 1: Particulate (Dust) Monitoring Network Locations

2.7.3 Mercury Emissions Management Plan

During 2015, KCGM commenced implementation of the Fimiston Emissions Reduction Project (ERP) which has been designed to capture greater than 90% of the atmospheric mercury emissions associated with mineral processing activities at the Fimiston Processing Plant. The Fimiston ERP involved the installation of an exhaust off-gas scrubber, a regenerative thermal oxidiser (RTO), and a sulphur impregnated carbon scrubber to capture mercury from the carbon regeneration kilns off-gas prior to release. A mercury retort unit was also installed in the gold room to capture mercury emissions from the furnace along with mercury storage facility, until these can be removed off-site to an approved facility for final treatment / disposal.

The Commissioning Report for the ERP was submitted to Department of Water and Environmental Regulation (DWER) on 15 October 2020. The Delegated Officer considered the Commissioning Report and found the data adequately demonstrates that the project design criteria in terms of mercury capture and volatile organic compound destruction had been achieved. Licence L6420/1988/14 now incorporates the Fimiston ERP.

On 24 November 2020, KCGM applied to the DWER to amend Licence L6420/1988/14 under section 59 and 59B of the (EP Act), seeking the following amendments:

- Operation of infrastructure constructed and commissioned under works approval W5532/2013/1 for the Fimiston ERP including installation of new emissions control equipment including a Retort Oven in the Gold Room, a Wet Scrubber, RTO and Carbon Filter Beds to treat the off-gas from the Carbon Regeneration Kilns;
- Amending authorised emission points to air in Table 2.2.1 of to reflect the new abatement system; and
- amending Table 1.3.1 containment infrastructure of Licence L6420/1988/14 to include retort room liquid mercury store and mercury storage facility.

KCGM considers that ambient mercury monitoring is not required given that:

- The ambient mercury monitoring programme produced results that were consistent with those expected, and below the ambient guidelines; and
- That the Fimiston ERP has resulted in a significant reduction in the release of atmospheric emissions of mercury.

This FAQMP supersedes the Carbon Kiln Mercury Emissions Reduction Programme. Refer to Mercury Emission Monitoring for further information.

Additional document:

- KCGM-FIM-PRO-MET-009-PRO - Mercury data collation procedure.

2.8 Particulate Monitoring Programmes

2.8.1 PM_{10} Monitoring

The primary objective is to proactively manage the Fimiston operations to ensure that the ambient PM_{10} concentrations remain below <50 µg/m^3 in any 24-hr period, at compliance and boundary monitoring locations. This performance target is based on the National Environmental Protection (Ambient Air Quality) Measure (Variation 2021, as amended) (NEPM 2021).

To ensure the particulate monitoring network is adequately maintained and in accordance with NEPM provisions on data availability, the annual compliance statistics will be based on daily PM_{10} data that is at least 75 percent complete in each calendar quarter as well as an annual data availability of at least 75% based on valid daily PM_{10} data.

Particulate monitoring locations include:

- Boulder Shire Yard (BSY).
- Hewitt Street (HEW).
- Clancy Street (CLY).
- Hopkins Street (HOP).
- Mt Charlotte (MTC).
- Metals Exploration Yard (MEX).
- Hannan's Golf Course (HGC).

As part of the Revised FS Project, KCGM is investigating the establishment of three new monitors at or near the following locations.

- Ninga Mia Community (NIM); and
- South Boulder (BLD).

Supporting meteorological monitoring stations include:

- Metals Exploration Yard (MEX); and
- Cassidy Headframe (CAS).

The design of KCGM's DMMP has evolved over time in response to regulatory requirements, technological advancements, updated studies, and operational practices at Fimiston. The current network utilises Beta Attenuation Monitors (BAM) at each of the monitoring locations (historically Hi-Vols), measuring real-time ambient PM_{10} concentrations.

The real-time data are compared to site-specific Alert and Action levels:

- Alert levels are set at values that are indicative of the possibility of on-site activities contributing to ambient concentrations that may approach the NEPM standard and where reasonable and practicable management measures could be implemented to reduce this risk; and
- Action levels are set at values that indicate it is likely that on-site activities are contributing to ambient concentrations that may result in an exceedance of the DMMP target concentration and where reasonable and practicable, immediate management measures should be implemented to reduce this potential.

The real time data collected at each monitoring location is subjected to formulas which are site specific and ensure climatic variation is also applied (wind speed, direction) as contributing factors. Any day where a 24-hour ambient PM_{10} concentration of greater than >50 $\mu g/m^3$ is recorded, KCGM reviews the recorded data to determine if the Fimiston operations may have been a significant contributor to that event.

In brief, the procedure involves a review of the 5-minute average PM_{10} concentrations and meteorological monitoring data for the period in question to:

- Determine the daily average concentration, if any, that was associated with wind directions that were within the arcs that align with Fimiston operations and use this value to calculate the ratio of the KCGM arc.

- Based on an assessment of the winds that occurred, determine which ambient PM_{10} monitoring station is most likely to represent the "background" monitoring site if applicable and the daily average "background" concentration recorded at that site.
- Calculate the difference between the recorded daily average exceedance concentration and the daily average background concentration and determine the ratio of this difference and the recorded daily average exceedance concentration.
- If the ratios determined from steps 1 and 3 are both greater than 60% then it is considered in likelihood that Fimiston has potentially been a significant contributor to that event.

Table 4: PM_{10} Monitoring Performance Targets

Monitoring locations	Daily	PM_{10} Monitoring Performance	
		Annual Event	Annual Data Availability
Metals Exploration Yard (MEX)[1] Hannan's Golf Course (HGC) [1] Boulder Shire Yard (BSY) [2] Hewitt Street (HEW) [2] Clancy Street (CLY) [2] Hopkins Street (HOP) [2] Mt Charlotte (MTC) [2] Ninga Mia Community (NIM) [1,3] South Boulder (BLD) [1,3]	No exceedance of >50 µg/m^3 averaged over 24 hours at any community compliance dust monitoring location (HGC and MEX), per annum (where KCGM is determined to be a significant contributor). And no exceedance >75 µg/m^3 averaged over 24 hours at any boundary dust monitoring location.	No exceedance of >25 µg/m^3 at any dust monitoring using an annual average	75 percent data availability in each calendar quarter as well as an annual data availability of at least 75% based on valid daily PM_{10} data
Additional data management following data capture	The proponent shall make available continuous dust monitoring data on their website within 48 hrs of the recording of that data.		Annual compliance report

Notes:
1 Community Compliance Monitors
2 Boundary Monitors
3 Currently being investigated for establishment

Continuous Particulate matter monitoring is collected via the utilisation of:

- Permanently installed Thermo Beta Attenuation Monitor (BAM) samplers at all current monitors, fitted with PM_{10} inlets run continuously (Figure 1), these monitors are configured to:
    - PM_{10} dust data are recorded in µg/m^3.
    - Provide 5-minute average PM_{10} concentrations (real time basis)
    - PM_{10} dust data are validated on a weekly basis.
    - BAM samplers are serviced quarterly in accordance with the manufacturer's recommendations.
    - HGC site is used as a representative control monitoring site for PM_{10}, located some 4.5 km from the Fimiston operations.
- Wind speed and direction is recorded at two weather stations (MEX and CAS).
    - MET ONE model 50.5 sonic anemometer equipment.
        - field checked every six months.

- wind tunnel calibrated every two years in accordance with the manufacturer's recommendations.

- The NIM monitor may initially utilise mobile continuous laser particle counter dust monitors until a permanent monitoring location can be established. Once established, this monitor will utilise BAM samplers. The additional community monitor in South Boulder (BLD) will be established with a BAM sampler.

KCGM also maintains a number of portable laser particle counter dust monitors. These monitors are generally used on a project specific basis to detect elevated concentrations of dust and to manage emissions from ad hoc projects in the region. The monitors are mounted on a trailer and re-positioned by KCGM staff as required. Trigger criteria similar to those outlined in Section 2.8.4, are used with the portable monitors to alert KCGM staff when elevated concentrations are being detected.

2.8.2 Blast Monitoring

KCGM Drill and Blast teams run a series of pre-blast checks, one which includes capturing current wind speed and direction/s over the previous 30 min from both MEX and CAS weather stations (Dust Programme). This process is repeated 15 min prior to a blast, to ensure conditions within Table 5 are met, if they are not the blast is postponed.

In the event climatic conditions are unfavourable for an extended amount of time, it may become necessary to fire the blast (even if climatic conditions are not favourable). This eventuality is to ensure the safety of personnel; example, if the sleeping shot has been in place for 14 days, at which time the explosives need to be fired for safety reasons (i.e., they may not detonate properly if left in-situ for longer periods). In this scenario MEX wind data is used to assess the conditions. If MEX data is not available, the CAS wind data is utilised.

Conditions 4 and 5 in Table 5 are relaxed (or considered not applicable) when the current winds are clearly in the 'green arc' and are forecast is to remain that way. Table 6 outlines the restrictions imposed on Wind Direction Dependent blasts and examples of situations which require authorisation.

Table 5: KCGM Dust Programme – Required Conditions for Wind Dependent Blasting

Condition	
1	At least four of the six 5-minute average wind direction boxes are shown as green.
2	No more than one of the last three 5-minute wind direction boxes are shown as red.
3	The 30-minute average is shown as green.
4	The variation in the measured wind direction (as depicted in yellow) is narrow (e.g. less than 60º) and not reflective of large variations in the wind directions.
5	The 30-minute average wind speed is greater than 2 m/s.

Table 6: Blast Restrictions for Wind Direction Dependent Blasts

	Blasting Restriction	Authorisation Required
Normal	Blast may be fired only if the KCGM Dust Programme meets the conditions of Table 6 with relaxation of Conditions 4 and 5 if winds are clearly in the "green" arc.	No
Opportunity to blast due to dust mitigating circumstances (e.g., rain, depth in pit).	Decision to blast on a case-by-case basis.	Yes

Necessity to blast for safety reasons (e.g., sleep time for explosives is approaching 14 days, risk of lightning strike or rockfall, shot contains voids)	Decision to blast on a case-by-case basis.	Yes

2.8.3 Mercury Emissions Monitoring

Mercury is known to be contained within coloradoite, one of a suite of telluride minerals that are rare but widely distributed through the Golden Mile lodes and generally represents less than 0.00014% of the ore mined from the Fimiston Open Pit and the Mt Charlotte Underground Mine. The percentage of mercury present in the ore processed through the Fimiston Processing Plant circuit is typically less than 0.0001%; and present in waste rock (typically 0.00001%).

During the gold recovery process some of the mercury that is contained in the ore is leached and collected onto carbon via the Carbon in Leach (CIL) circuit. Whilst a small amount of mercury joins the gold in the refining process most of the mercury is retained on the carbon. Subsequently the mercury is then recovered from the carbon during the carbon regeneration process and during the gold refining process.

Mineral processing activities at the Fimiston Processing Plant may potentially result in point source emissions of mercury to the surrounding atmosphere. The highest risk probability exists from the action of carbon regeneration process (carbon regeneration kilns) which extracts captured mercury from the carbon in leach circuit (CIL) and during the gold refining process (gold room).

Additional document:

- KCGM-FIM-PRO-MET-009-PRO - Mercury data collation procedure.

2.8.4 Ambient Air Quality Trigger Values

The trigger levels for each compliance monitoring site are presented in Table 7. Revised particulate trigger and action levels have been provided in Table 8 (as per revised s38 proposal Appendix H - FS Project Air Quality Impact Assessment 2022, as revised in 2023). Based on the outcome of a review, it was recommended that a number of the alerts were further tightened at Hopkins street, Clancy Street and the Metals Exploration Yard.

Initial trigger and action levels for the Fimiston III TSF Boundary monitor and the Ninga Mia community monitor have been conservatively set at the lowest alert and action values for each monitor. These will be reviewed and potentially updated once historical monitoring data is available for analysis.

Table 7: Currently Implemented Trigger and Action Levels for PM_{10} Particulate Loading

2019 Trigger & Action Levels Particulate Monitoring (µg/m³)						
Site	HOP	CLY	HEW	BSY	MTC	MEX
2019 Alert (Trigger) Levels						
0.5 hr Alert	160	135	155	155	175	165
1 hr Alert	140	115	135	140	155	145
6 hr Alert	75	65	75	80	90	90
2019 Action Levels						
0.5 hr Action	315	320	360	365	375	300
1 hr Action	270	250	285	285	325	235
6 hr Action	115	110	115	130	150	115

Note 1: As the HGC site is used as a control monitoring site no trigger levels have been set for this site.

Note 2: As part of the preliminary and minor works proposal, HOP monitoring station will need relocation to allow construction of the noise bund.

Table 8: Proposed Amended Trigger and Action Levels for PM_{10} Particulate Loading

Revised (Pending) Trigger & Action Levels Particulate Monitoring (µg/m³)								
Site	HOP	CLY	HEW	BSY	MTC	MEX	NIM	BLD
Proposed Alert (Trigger) Levels								
0.5 hr Alert	**155**	**130**	155	155	175	165	130	165
1 hr Alert	**135**	**110**	135	140	155	145	110	145
6 hr Alert	75	65	75	80	90	**85**	65	85
Proposed Action Levels								
0.5 hr Action	315	320	360	365	375	300	300	300
1 hr Action	270	250	285	285	325	235	235	235
6 hr Action	115	110	115	130	150	115	110	115

Note 1: As the HGC site is used as a control monitoring site no trigger levels have been set for this site.

Note 2: Alert values that have been tightened are bolded.

Note 3: The proposed NIM monitor has set an initial alert and action levels that based on the most conservative values. The initial BLD alert and action levels are based on those at the MEX station These values may be adjusted once historical monitoring data is available for analysis.

2.9 Rationale, Indicators, and/or Management Actions

Choice of monitoring indicators, trigger and action levels have been identified on the basis that they adequately measure on site activities and are considered representative of in-situ conditions; therefore, provision of trigger and action levels that focus on reducing the potential for impacts to air quality, social surrounds and/or human health. Management actions have been identified that directly relate to activities that are known to cause or promote the mobilisation of particulates on site from general day- to-day operations.

2.9.1 Monitoring Location Selection

Selection of the current and future new monitoring locations should give consideration to the requirements

outlined in *AS/NZS 3580.1.1:2016 Methods for sampling and analysis of ambient air: Guide to siting air monitoring equipment*, including:

- The sampling inlet has a minimum clear sky angle of 120°.
- Avoiding sites affected by extraneous local emissions (e.g., adjacent to unsealed roads).
- The height of any nearby obstacle above the sampling unit should be less than or equal to half the distance between the sampling unit and nearest wall/supporting structure; and
- The sampling inlet should be located 10 m from any object with a height exceeding 2 m (for trees, the distance should be measured from the dripline).

2.9.2 Predicted Control Strategy

Fimiston operations utilises both forecasted and live weather condition information to manage potential fugitive particulate emissions associated with mining activities, achieved through implementation of the following control measures:

- Identifying activities which have a higher risk potential of mobilising particulates.
- Delaying or suspending activities which may contribute excessively to particulate loading as/if deemed necessary until climatic conditions become favourable; and
- Use of alternative operational areas if possible (e.g., use a different waste rock dump, or relocation of that shift to within pit (out of the wind)).

2.9.3 Reactive Component

KCGM has developed and implemented a Particulate loading trigger alarm system (warning notification) which actively monitors the ambient PM_{10} data (continuous data collection and analysis). The system is based on pre-set criteria which enable the system to automatically activate and send trigger alarm/s which prompts a reactive (pro-active and preventative) response from KCGM. The pre-sent data refers to all previous operational records as a continually growing data base from previous reporting years.

This alarm system is primarily based on calculating current data (5min portions) against the likelihood of reaching or exceeding preformulated trigger levels (individual to each compliance monitoring location, as discussed in Section 2.8.4).

This assists KCGM to identify and manage:

- The occurrence of short-term/high concentration events during any given shift which may impact on the 30 minute, 1 hour or 6 hour averages, which form the basis for the 24-hour daily average.
- The identification of concentration levels which may result in a 24-hour average of >50 µg/m^3.
- Result in increased number of exceedance events recorded by the operation within a reporting year; or
- Result in an annual air quality standard not being met during the next:
    - Review of this document.
    - Review of tri-annual adaptive management measures; or
    - Review of the Fimiston Air Quality Impact Assessment.

2.9.4 Pro-active Alarm System

Historically, KCGM utilised a network of High-Volume Dust Samplers (Hi-Vols), primarily used to monitor fugitive dust emissions associated with blasting, these were initially located in proximity to the FOP at the BSY, CLY and HEW monitoring sites, and were only operated on days when blasting was undertaken.

From 2004-2012 these systems were upgraded and replaced with BAMS (Beta Attenuation Mass monitors), refer to Table 9. BAMs owned and maintained by KCGM are maintained (schedule quarterly

calibrations) within climate-controlled enclosures or stations with heated in-lets maintained between 5 and 8°C above ambient temperature.

This technique comprises a beta source and detector separated by a filter tape. Energy is absorbed from beta particles as they pass through the particulates captured on filter, which provide an indication of the mass on the filter. The instruments in use at KCGM are Thermo FH62 continuous BAMs, which use a source of Carbon-14.

These instruments are classed as USA EPA Federal Equivalence Methods (FEM) so in accordance with Australian Standards (ASNZ 3580) are appropriate for reporting PM_{10} for regulatory purposes (Table 10).

Table 9: Summary of Current Particulate Monitoring Equipment by Location

Summary of Monitoring Equipment by Location		
Site	**Parameter**	**Equipment**
HOP	PM_{10}	BAM
CLY	PM_{10}	BAM
HEW	PM_{10}	BAM
BSY	PM_{10}	BAM
MTC	PM_{10}	BAM
HGC	PM_{10}	BAM
MEX	PM_{10} ,wind speed, wind direction, ambient temperature	BAM & Met Station
CAS	Wind speed, wind direction	Met Station
NIM	PM_{10}	Laser Particle Counter[2]
BLD	PM_{10}	BAM[3]

Note:

1 Fimiston operations are considered a contributing source if both calculated arcs align with the operation; and the calculated difference between recorded daily average background and the potential exceedance location daily average are both greater than >60%.
2 Or other near reference monitoring methodology. To be updated to a BAM once suitable permanent locations are established.
3 To be installed once suitable permanent locations are established.

2.10 Implementing Monitoring and Reporting

2.10.1 Website Reporting

Ministerial Statement 1285 requires KCGM to make available continuous particulate monitoring data online within 24-hours of the recording of that data. To meet this requirement a Dust Monitoring Report which is made publicly available on the KCGM website (www.superpit.com.au).

The report is updated daily at ~6 am daily, with an internal performance tracking target of having 100% of captured data available on the KCGM website within 48hours of any individual 24hour sampling record. This enables KCGM to amend any unforeseen issues, examples not limited to, regional power outages, website outages and delays due to unplanned equipment maintenance or vandalism.

If requested, recorded PM_{10} monitoring data may be provided to DWER and/or DoH upon request.

2.10.2 Weekly Data Validation

A weekly validation process is undertaken by KCGM; this check includes:

- Checking the date.

- Reviewing the data.
- Removal of erroneous negative spikes (< -20 µg/m³).
- Removal of calibration periods; and
- Recording of errors codes.

In the event errors are identified remedial actions are implemented to rectify the error and regain representative monitoring as soon as practicable (may include mobilisation of third-party specialist).

2.10.3 Alarm Workflow Process

In the event of an alarm (Alert or Action) being activated, Open Pit Dispatch is notified via an audible and visual alarm identifying the at-risk monitoring location requiring further investigation (to be recorded in INX). If the back trajectory indicates that the Fimiston Operation has the potential to be a contributing source to the event, the Dispatch Operators, Shift Supervisor or nominated delegate will identify what activities are occurring nearby and implement additional mitigation control measures. This workflow is shown in Figure 2

2.10.4 Determining Significant Contributor

In response to an alarm indicating an exceedance of the daily 24-hr average particulate threshold (>50 µg/m³), KCGM undertakes a review of the collected PM_{10} concentrations and climatic data recorded on that day. To assess if Fimiston operations were a significant contributor the following steps are followed:

1. Determine the daily average concentration, if any, that was associated with wind directions within the arcs and use this value to calculate the ratio of the KCGM arc.
2. Based on an assessment of the winds that occurred, determine which ambient PM_{10} monitoring station is most likely to represent the “background” concentration recorded at that site (usually the HGC site).
3. Calculate the difference between the recorded exceedance daily average concentration and the background daily average concentration to determine the ratio of difference; and
4. If the ratios determined from steps 1 and 3 are both greater than >60% then KCGM is considered most likely a significant contributor.

Other contributory factors will be considered during this review include but are not limited to, the following:

- Fugitive dust caused by regional storm events which can result in significant contributions to ambient PM_{10} concentrations over a wide area. Evident if multiple monitoring locations record Action alarms around the same time on the same day from the same wind direction.
- Fugitive dust caused by an external third party (e.g., vehicle activity on unsealed roads, demolition or clearing activities outside of KCGM leases).
- Additional seasonal contributing factors such as wood smoke during winter (common heating option in Kalgoorlie); or
- When the potential source of the of the PM_{10} concentrations cannot be determined due to very low wind speeds and/or highly variable wind directions, or blocked inlet/s.

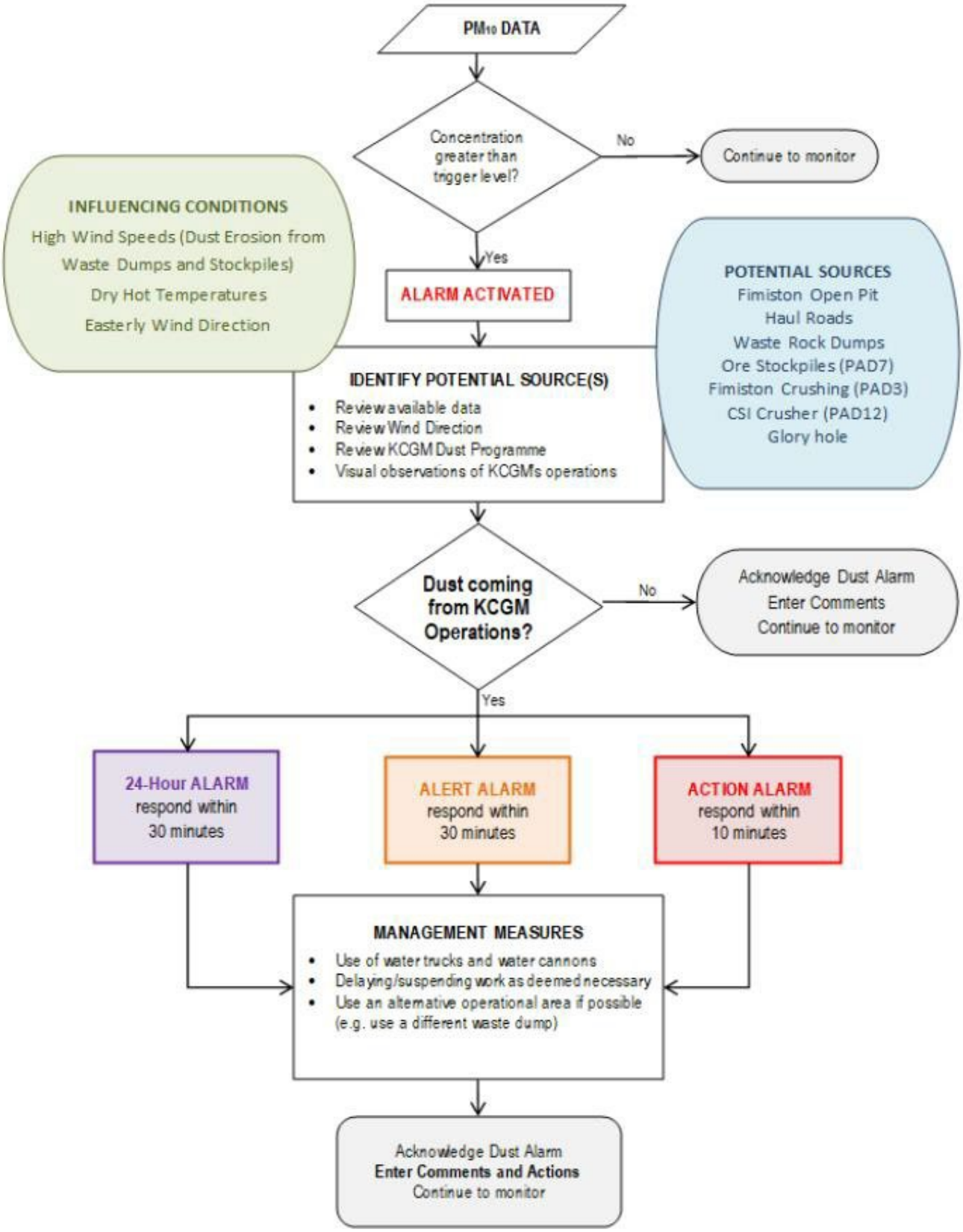

Figure 2: Particulate Alert and Alarm Process Workflow

2.10.5 Reporting a Confirmed Exceedance Event

In the event of an exceedance of 50 µg/m³ over a 24-hour period being confirmed at a community compliance monitor and the Fimiston operations are deemed most likely a significant contributor, external reporting to regulating authorities is required if the event has occurred at a community compliance monitor (HGC or MEX, or at the future proposed location). If the event has occurred at a KCGM boundary monitor and is in exceedance of 75 µg/m³ over a 24-hour period, external reporting to regulating authorities is also required. KCGM must notify the Department of Water and Environmental Regulation (DWER) and the Department of Health (DoH) in writing within seven days of any exceedance event occurring. The period of seven days allows for:

- The potential recovery of missing data if there have been any communication problems; and
- Data validation and analysis including time for the determination of potential source contributors and the following up with dispatch operators on dust alarm actions, taking into account shift changes and out of office periods when staff are unavailable.

The following information is included in the notification:

- A summary of the event including climatic conditions and site operations.
- Appropriate time series wind rose analysis indicating particulate concentration/s, wind speed and direction.
- Source contribution analysis; and
- Actions taken and identified mitigation measures, where appropriate.

Details of compliance against the Annual Event Target and Annual Data Availability are reported to the DWER via the Annual Compliance Assessment Report.

If the event has occurred at the boundary monitors, is in exceedance of 50 µg/m^3 but does not exceed 75 µg/m^3 at the boundary monitor, it will trigger an in internal investigation by KCGM and appropriate management measures will be implemented. A summary of these exceedances will be presented to DWER in the annual Environmental Report as outlined in Section 2.10.6.

2.10.6 Annual Environmental Report

In accordance with licencing conditions of Prescribed Premises Licence L6420/1988/14, KCGM prepares an Annual Environment Report for the Fimiston Operations that includes:

- A summary of the PM_{10} particulate monitoring results (concentrations) for the reporting period (1 year).
- An analysis of seasonal and annual particulate loading trends to review the effectiveness of control or mitigation measures.
- Assessment of continuous improvement of air emission controls implemented through the FAQMP.
- A summary of any exceedances events attributable to KCGM and a summary of any exceedances of 50 µg/m^3 but not exceeding 75 µg/m^3 at the boundary monitors over a 24-hour period.

3. EMP PROVISIONS

The key objective of this FAQMP is to ensure that once approval of the FS Project is received that the impending activities of that Project will not inadvertently impact on the ability of KCGM to maintain impacts in line with the EPA factors of Air Quality, Social Surrounds and Human Health, or supporting objectives.

To meet these objectives, management provisions have been established for identified potential impacts as summarised in Section 2.5. As environmental impacts incorporate both quantifiable and non-quantifiable impacts, outcomes-based and objective-based provisions have been included within this revised FAQMP (2023).

Early response triggers for management-based provisions are detailed in the tables below.

- Outcome-based provisions are performance-based and may be used where the part of the environment is able to be objectively measured and reported. Therefore, outcome-based provisions have been established to specify triggers and thresholds of direct impacts and to ensure the FS Project achieves acceptable environmental outcomes.
- Objective-based provisions relate to management actions and may be used where the part of the environment is not capable of being objectively measured and reported. Therefore, management-based provisions have been established to specify management actions and targets, particularly for indirect impacts that are non-quantifiable. As monitoring is undertaken and additional population data is gathered, the management targets are expected to be reviewed and quantifiable outcome- based provisions established.

3.1.1 Outcome-based Provisions

Purpose of Outcome-based provisions: EMP to comply with Ministerial Statement conditions.

Table 10: Outcome-based Provisions: Air Quality

EPA factor/s and objective/s: Air Quality. To maintain air quality and minimise emissions so that environmental values are protected.
Outcome/s: To maintain air quality and minimise emissions so that environmental values are protected.
Key environmental values: Human health, flora and vegetation and terrestrial fauna.
Key impacts and risks: Impact on human health, reduction in flora and fauna presence or health.

Triggers	Response actions	Monitoring	Timing / frequency of actions	Reporting
Trigger Criteria • 24-hour average for PM_{10} concentration of 50 µg/m^3 is not exceeded at the community monitoring stations. 24-hour average for PM_{10} concentration of 75 µg/m^3 is not exceeded at the boundary monitors. Threshold Criteria • 24-hour average for PM_{10} concentration of 50 µg/m^3 is exceeded at the boundary monitors.	Trigger Criteria • KCGM will undertake an assessment of the ambient PM_{10} monitoring data and review the circumstances and potential emission source. • Where KCGM is identified to be a significant contributor to the event the relevant authorities (i.e., DWER and DoH) will be notified within seven days of the date of exceedance. Threshold Criteria • Report internally as an incident (INX). • Investigate cause and if it is likely to result in the key environmental outcome not being achieved. • Report to DWER in annual environmental report.	• Particulate monitoring is undertaken at seven monitoring locations stations (HOP, CLY, HEW, BSY, MTC, HGC, MEX) that utilise Thermo Beta Attenuation Monitor (BAM), • Interim mobile laser particle counter monitors will be used at the new IM monitoring location with a BAM unit to be installed once a permanent location is established. • KCGM is investigating establishing a community monitor at location in South Boulder.	• Continuous. The units are configured to provide 5-minute average PM_{10} concentrations.	• Details of compliance against the Annual Event Target and Annual Data Availability are reported to the DWER. • The Annual Compliance Assessment Report prepared under the Ministerial Statement. • Triennial Review of FAQMP Action and Alert Levels. • Environmental Performance Report to the Minister every five (5) years

Triggers	Response actions	Monitoring	Timing / frequency of actions	Reporting
Vegetation condition around the mine site is declining.	• Review particulate, weather and weed monitoring to compare to control sites to rehabilitation. Determine whether the changes observed in the impact sites are comparable to the observations in the reference sites. • Investigate potential causes for the observed decline in vegetation health which may include but are not limited to: - Seasonal conditions (e.g., rainfall and temperatures). - Effectiveness of weed control. - Spatial variation (near-impact areas) versus sites located further from impact. • Develop strategies to reduce particulates affecting the vegetation if it is shown to be the cause of the decline. • Increase in staff training and awareness on particulate implications to vegetation health.	• Annual assessment of vegetation health, condition and weed presence. • 24-hour Public Interaction Line (PIL).	• Annually for the first three years. • Following the development of a strong dataset over this period, the monitoring methodology and frequency will be reduced to every three years.	• The Annual Environment Report (AER) to DMIRS. • Includes appendix Annual Vegetation Monitoring report. • Annual Compliance Assessment (CAR) Report to DWER/EPA. • Annual Review of FAQMP Action and Alert Levels. • Environmental Performance Report to the Minister every five (5) years
Fauna is clearly displaced from current habitat.	• Report internally as an incident (INX). • Investigate cause and extent of mortality and if it is likely to result in the key environmental outcome not being achieved. • If necessary (deemed to be project-related), consider measures to prevent a re-occurrence of the incident and/or remediation strategies to address the impact. • Engagement with key stakeholders including DBCA, and relevant specialists where required to determine key actions.	• Annual assessment of fauna habitat. • 24-hour Public Interaction Line (PIL).	• Triennial review • Individual INX event records.	• Annual Compliance Assessment (CAR) Report to DWER/EPA. • Annual Review of FAQMP Action and Alert Levels. • The Annual Environment Report (AER) to DMIRS. • Annual reporting under the International Cyanide Code.

3.1.2 Objective-based Environmental Management Plans (EMP)

Purpose of Environmental Management Plans (EMP): EMP to comply with Ministerial Statement conditions.

Table 11: Objective-based Conditions for Air Quality

EPA factor/s and objective/s: Air Quality. To maintain air quality and minimise emissions so that environmental values are protected. Objective/s: To maintain air quality and minimise emissions so that environmental values are protected. **Key environmental values: Human health, flora and vegetation and terrestrial fauna.** **Key impacts and risks: Impact on human health, reduction in flora and fauna presence or health.**

Objective-based				
Triggers	**Response actions**	**Monitoring**	**Timing / frequency of actions**	**Reporting**
FAQMP is not implemented.	• Confirm FAQMP is being implemented. • Report internally as an incident in accordance with internal procedures. • Review management strategies and implement changes to prevent future occurrences which may include the following: - Audit and review of training and staff inductions i.e., Increase in staff training and awareness to include information on legislative requirements). • Report internally as an incident (INX).	• Internal audit. • Trigger event or Alert level event process, investigation training or programme review. • INX event/s records of exceedances or other non-compliance. • Independent review conducted as part of annual reporting	• Annual auditing. • As required or triggered through INX event record.	• Annual Compliance Assessment (CAR) Report to DWER/EPA. • Tri-annual Review of FAQMP Action and Alert Levels. • The Annual Environment Report (AER) to DMIRS. • Environmental Performance Report to the Minister every five (5) years
FAQMP is not reviewed.	• Confirm FAQMP is reviewed as required. • Report internally as an incident in accordance with internal procedures. • Review management strategies and implement. changes to prevent future occurrences.	• Internal audit • Independent review conducted as part of annual reporting	• Annual auditing. • As required or triggered through INX event record.	• Annual Compliance Assessment (CAR) • Report to DWER/EPA and

Objective-based				
Triggers	**Response actions**	**Monitoring**	**Timing / frequency of actions**	**Reporting**
	• Annual auditing and documentation of any contingency actions.	• INX event/s records.		DoH. • Environmental Performance Report to the Minister every five (5) years
Wind Direction Dependent blasts are not undertaken as per the requirements of this FAQMP.	• Blasts are managed in accordance with the wind speed, direction, strength and variability as set out in Table 7 of this FAQMP. • Report internally as an incident in accordance with internal procedures. • Report internally as an incident (INX).	• Internal audit. • Continuous PM_{10} dust monitoring is undertaken at monitoring locations stations. • Individual event-based INX event/s records.	• The monitors are configured to provide 5- minute average PM_{10} concentrations. • Annual auditing • As required or triggered through INX event record.	• Annual Compliance Assessment (CAR) Report to DWER/EPA and DoH. • Annual Environment Report (AER) to DMIRS. • Environmental Performance Report to the Minister every five (5) years
Complaints received about dust amenity	• Public complaint investigation. • Review management strategies and implement changes to prevent future occurrences. • Community notification on the webpage. • Review management strategies and implement changes to prevent future occurrences. • Review of internal procedure/work instruction. • Report internally as an incident (INX).	• 24-hour Public Interaction Line (PIL). • Individual event-based INX event/s records. • Continuous PM_{10} dust monitoring is undertaken at monitoring locations stations.	• 24-hour Public Interaction Line (PIL). • Community Notification webpage updated within 48 hours. • As required or triggered through INX event record.	• Annual Compliance Assessment (CAR) Report to DWER/EPA and DoH. • Annual Environment Report (AER) to DMIRS. • Community Notification webpage • Environmental Performance Report to the Minister every five (5) years

Objective-based				
Triggers	**Response actions**	**Monitoring**	**Timing / frequency of actions**	**Reporting**
Dust monitoring data is not on the website.	• Dust monitoring data is uploaded to the website within 48 hrs of the data being recorded. • Report internally as an incident in accordance with internal procedures. • Review management strategies and implement changes to prevent future occurrences. • Report internally as an incident (INX).	• Internal audit • Internal IT maintenance programme/schedule. • Review of internal procedure/work instruction. • Individual event-based INX event/s records.	• Monitoring data is updated within 48 hours, continuous cycle. • As required or triggered through INX event record.	• Annual Compliance Assessment (CAR) Report to DWER/EPA and DoH. • Annual Environment Report (AER) to DMIRS. • Website reporting • Environmental Performance Report to the Minister every five (5) years
Complaints record not kept or not up to date or made available	• Register of complaints updated and made publicly available. • Report internally as an incident in accordance with internal procedures. • Review management strategies and implement changes to prevent future occurrences. • Report internally as an incident (INX).	• Internal audit • Internal IT maintenance programme/schedule. • Review of internal procedure/work instruction. • Individual event-based INX event/s records.	• Annual auditing • After Internal IT review • As required or triggered through INX event record.	• Annual Compliance Assessment (CAR) Report to DWER/EPA and DoH. • Annual Environment Report (AER) to DMIRS. • Environmental Performance Report to the Minister every five (5) years

4. CONTINUOUS IMPROVEMENT

This FAQMP has proven to be an effective tool for the holistic management particulate emissions within a framework of regular review (annual report) and continuous improvement (projects or KCGM identified opportunities). In some sub supporting internal KCGM documents this may also be termed as adaptive management. In both cases this refers to the ability to be flexible and adapt to a changing environment.

Continuous Improvement includes:

- Review of air quality monitoring data and trigger levels for dust alarms every year (annual review of trigger and action levels) or following any high dust event.
- Review of air quality management practices following an increase/repeated complaints from the same urban geographical location/area.
- Review and implementation of amended particulate mitigation practices.

4.1 Adaptive Management and Review of the FAQMP

KCGM operations recognises the dynamic nature of both natural ecosystems, man-made work areas and changing legislative environment and supports adaptive management under this FAQMP.

Adaptive management involves:

- Monitoring and evaluation against management targets (including early response triggers) and environmental criteria (action thresholds).
- Implementing mitigation measures, reviewing, and assessing new technologies; and
- Systematically adapting management of change to assist maintaining the under pinning environmental factor objectives of the EP Act.

Any changes to a Project will instigate a review and consideration of risks, mitigation controls and management actions. Assumptions and uncertainties will be evaluated against collected monitoring data on a recurrent basis in a process of continual improvement and establishing early response indicators/criteria. Any review and consideration of management actions or additions to this plan made in relation to adaptive management will be submitted to DWER for formal review.

Examples of adaptive management throughout operations include:

- The introduction of a different / alternative monitoring initiative.
- The introduction of new dust management technology; and
- The identification of more effective trigger criteria or early response triggers in light of more comprehensive monitoring information.
- Changes to regulatory or national standards triggering a programme review; or
- Implementation of Tri-annual Review Recommendations.

The continued implementation of KCGM's existing particulate management measures is expected to facilitate the successful management of fugitive emissions from the proposed FS Project.

Recommendations for further consideration have also been presented, within the context of continuous improvement.

Table 12: Summary of Considerations for Continuous Improvement

Summary of Monitoring Equipment By Location		
Emission Source	**Current Practice**	**Strategies for Consideration**
Physical Mining Activities		
Blasting	Use of KCGM Dust Management Programme (visual interface) that includes location of blast, acceptable wind arc and review of wind data recorded in the last 30 minutes for blasting to proceed.	No further recommendations.
Bulldozing	Suspension of work in a particular area as deemed necessary based on visual inspections, dust alarms or prevailing wind conditions.	Use predictive forecast to plan and schedule bulldozing of material. Include minimising travel speed and distance travelled where possible.
Conveyors	Conveyors are open but have belt wash stations and belt scrapers. Material fallout is regularly cleaned.	No further recommendations
Drilling	No cyclones or fabric filters. Water sprays are used when needed.	Consider use of cyclones or fabric filters.
Haul roads	Watering when needed. The need for watering is also identified as part of the reactive strategy. The water used onsite is hyper saline enabling significantly better dust control.	Surface improvements on high-risk areas. The high-risk areas may be determined based on spatial proximity to receptors or areas with high traffic. Scheduled maintenance of haul roads should be documented within onsite management systems.
Loading and unloading of overburden	Standard practice includes watering down the face area before material handling.	Integrate standard practices including minimising drop height, irrigating benches and pre-soaking blasted overburden and restrictions around handling of more dusty ore (e.g., oxide ore) into FAQMP and/or operational procedure for excavators etc. Use predictive forecast to identify the need for additional dust controls.
Loading and unloading of ROM	Reactive strategy is used to implement additional controls such as water carts along transport routes. ROM material itself not watered.	Use predictive forecast to identify the need for additional controls such as watering.
Screening and crushing	Water sprays utilised throughout crushing circuit.	No further recommendations.
Wind erosion from open areas	Water sprays are used to suppress dust when needed – identified based on the reactive strategy.	Investigate the use of chemical suppressant in open areas particularly prior to high-risk periods (i.e., ahead of Spring and Summer periods when higher proportion of easterlies occur) or before periods of high winds (>6.3 m/s). Investigate the use of wind fences for periods with high dust transportation risk. For example, during realignment and construction of NB.

Summary of Monitoring Equipment By Location		
Emission Source	**Current Practice**	**Strategies for Consideration**
Wind erosion from stockpiles	Water sprays are used to suppress dust when needed – identified based on the reactive strategy.	No further recommendations
Considerations for Processes		
Predictive	Weather forecast systems are used to control fugitive dust emissions from blasting and earthmoving activities. Controls implemented include delaying/suspending work and use of alternate areas if possible.	Output from forecast system be used to apply additional dust controls ahead of an event. Examples include cleaning of sealed roads, applying dust suppressants on haul routes. Document control measures by source within the FAQMP and/or operational procedures.
Reactive	Real-time monitoring data is used to set “Alert” and “Action” alarms. Back- trajectory module is used to identify potential sources and implementation of dust controls including use of water carts, suspend/delay operations, use alternative operational area, contacting appropriate personnel if dust is from crushing operations and restricting haulage speeds.	Document dust control options for each source within the FAQMP and/or operational procedures.

5. STAKEHOLDER CONSULTATION

The relevant stakeholders for this FAQMP are:

- City of Kalgoorlie-Boulder (CKB)
- Community Reference Group (CRG)
- Department of Energy, Mines, Industry Regulation and Safety (DEMIRS)
- Department of Water and Environmental Regulation (DWER)
- EPA Services
- Goldfields Esperance Development Corporation (GEDC)
- Kalgoorlie-Boulder Chamber of Commerce and Industry (KBCCI)
- Kalgoorlie-Boulder Community
- Marlinyu Ghoorlie Native Title Claimant Group (MG)

The results from the stakeholder consultation process with local groups and governing authorities are outlined in Table 13.

Table 13: Results from Stakeholder Consultation

Stakeholder	Consultation conducted	Response\outcomes\comments
City of Kalgoorlie-Boulder (CKB)	Meeting with City of Kalgoorlie-Boulder and Goldfields Esperance Development Commission held 30 March 2022 to discuss relocation of the Super Pit Lookout.	Considerations for relocation of the Super Pit Lookout were discussed, including accessibility requirements, access, and location. KCGM Operations' proximity to Boulder Camp was also discussed, and potential dust from traffic movement.
Community Reference Group (CRG)	KCGM Operations General Manager provided an overview of the Fimiston South Revised Proposal to the CRG members on the 21 April 2022, including details on KCGM's current operations and future plans in the Goldfields region. Several CRG meetings have occurred post submission of the Revised Proposal with opportunities for CRG members to provide feedback to KCGM staff regarding their operations.	CRG members were very interested in the relocation of the Super Pit Lookout, and community engagement activities undertaken by KCGM for the Revised Proposal.
Department of Energy, Mines, Industry Regulation and Safety (DEMIRS)	KCGM General Manager hosted the DMIRS Executive Leadership Group at the Super Pit Lookout during March 2023, providing the group with an overview of the Fimiston South Revised Proposal and associated early and preliminary works.	KCGM to continue engagement with DMIRS as the Revised Proposal progresses.
Department of Water and Environmental Regulation (DWER)	Consultation on the triennial review of the FAQMP occurred during 2023. KCGM proposed that that the 3-yearly review of the FAQMP, due January 2023, be extended to enable the review to be aligned with the EPA assessment of the Fimiston South Revised Proposal. Several emails relating to dust emissions were received by KCGM during 2023 from the Pollution Watch Branch of DWER. Questions related to dust complaints received in the previous 12 months and operational changes that may have contributed to an increase in dust emissions. Subsequent consultation with DWER recommended that the alerts and trigger levels be tightened and the tri annual review become an annual review.	Following consultation between EPA Services and the DWER, KCGM received advice from the EPA Services that "EPA Services has sought advice from the compliance branch and consider that the next plan can be submitted as part of the revised proposal, rather than in January 2023. Responses were provided and DWER were satisfied with the detailed responses. DWER Pollution Watch Branch were happy to hear that improvements are continuously being made onsite and DWER will investigate all possible sources of dust emissions, taking into account the drier conditions and erosion. Alerts and trigger levels have been updated and KCGM has committed to an annual review of the FAQMP.

Stakeholder	Consultation conducted	Response\outcomes\comments
EPA Services	Consultation on the triennial review of the FAQMP occurred during 2022/23. KCGM proposed that that the 3-yearly review of the FAQMP, due January 2023, be extended to enable the review to be aligned with the EPA assessment of the Fimiston South Revised Proposal. EPA Services requested that a HRA assessment of PM10 dust levels be undertaken by an independent specialist as nominated by EPA services.	Following consultation between EPA Services and the DWER, KCGM received advice from the EPA Services in November 2022 confirming that the triennial review of the FAQMP can be submitted as part of the Fimiston South Revised Proposal. A revised FAQMP has been submitted for assessment. Outcomes from the HRA of the PM_{10} dust levels have been incorporated into the FAQMP.
Goldfields Esperance Development Corporation (GEDC)	Meeting with City of Kalgoorlie-Boulder and Goldfields Esperance Development Commission held 30 March 2022 to discuss relocation of the Super Pit Lookout.	Considerations for relocation of the Super Pit Lookout were discussed, including accessibility requirements, access, and location. KCGM Operations' proximity to Boulder Camp was also discussed, and potential dust from traffic movement.
Kalgoorlie-Boulder Chamber of Commerce and Industry (KBCCI)	The General Manager of Growth presented at the 22nd Annual KBCCI "What's Down the Track Forum & Exhibition" held on 16 November 2023 in Kalgoorlie.	The primary objective of the presentation was to provide a forecast into the drivers that support the growth and local economic opportunities that exist with respect to the Fimiston South Revised Proposal.
Kalgoorlie-Boulder Community	Local Voices Pulse Survey conducted with >200 community members in September 2022 and March 2023 - exploring KCGM's operational impacts and benefits, and the company's relationship with the Kalgoorlie-Boulder community. Community Information session regarding the Fimiston South Proposal (held 5 April 2022) and the Noise Bund Realignment (held 17 October 2023) hosted at the Boulder Bowls Club led by KCGM Operations' General Manager. These sessions provided an overview of the Revised Proposal stages, anticipated impacts, and opportunities for the Kalgoorlie-Boulder community resulting from the Fimiston South Project. Session was attended by local residents and	Survey results released publicly, with a briefing provided to KCGM Operations site leaders and employees. KCGM to continue using Local Voices to understand and respond to community sentiment. Community concerns raised about air quality and the impact of dust from the Fimiston Open Pit on near mine residents, particularly those in the South Boulder area, and KCGM's environmental monitoring and management processes. Short periods of closure of the Goldfields Highway during the first 12 months of the Fimiston South Project for blast activities was also raised, with details of KCGM's plans to mitigate impacts on businesses and residents shared.

Stakeholder	Consultation conducted	Response\outcomes\comments
	businesses in the Boulder area. KCGM has a 24-hour Public Interaction Line (PIL) (established in 1993) which the community can use to speak directly with KCGM representatives on specific matters they wish to discuss. It is an important avenue for capturing individual and community-based issues which may require additional follow up and action/s. The PIL is promoted regularly in print and radio advertising, radio interviews, online mediums (website) and printed materials (information sheets).	Community and stakeholder feedback on environmental aspects which are received by KCGM are recorded and where appropriate a response is provided. Recorded complaints are tabled in the KCGM Annual Compliance Assessment Reports and the Annual Environmental Report.
Marlinyu Ghoorlie Native Title Claimant Group (MG)	Extensive engagement and consultation have been undertaken with the Native Title Claimant Group, Marlinyu Ghoorlie, both pre and post submission of the Fimiston South Revised Proposal. KCGM hosted a meet and greet with Northern Star senior leaders and MG Directors to gain a greater understanding of the FS Project footprint. Several heritage surveys, including ethnographic and ethnobotanical surveys have been conducted with MG across KCGM's operations.	Feedback received related to KCGM Operations current mining activities and future plans. MG asked about KCGM's Aboriginal participation and procurement plans, as well as heritage management and survey processes. No specific feedback or concerns relating to air quality have been raised by MG during the various consultations to date. Refer to KCGM ACHMP (Appendix C) of the Fimiston South Revised Proposal for further details.

5.1 Complaint Management

KCGM has a 24-hour Public Interaction Line (PIL) (established in 1993) which the community can utilise to speak directly with KCGM representatives regarding the specific matters they wish to discuss. It is an important and vital avenue for capturing both individual and community-based issues which may require additional follow up and action/s. The PIL is promoted regularly through print, radio advertising, radio interviews, online mediums (website) and printed materials (information sheets).

The PIL is supported by an electronic database, which enables the categorisation of queries and the automation of subsequent action allocation and follow-up. The database is also used to record stakeholder communications and engagement which enables data to be analysed and tracked with reference to areas of community concern.

During business hours, PIL enquiries are referred directly to the relevant department supervisor for appropriate action; whilst incoming calls received outside office business hours may be forwarded to the shift supervisor for immediate action or where appropriate will be followed up the next working day.

Once an internal review has been completed, the caller is informed of actions taken or outcomes of their enquiry or complaint. KCGM responds to all people who contact the PIL and provide contact details either

by phone, in writing or meetings. Historically, complaints connected directly to particulate loading are low, with an average of four per annum between 2018 and 2021.

6. CHANGES TO THE EMP

Complexity of changes	Minor revisions ☐		Moderate revisions	X	Major revisions ☐		
Number of Key Environmental Factors	One ☐		2-3 X		> 3 ☐		
Date revision submitted to EPA: 9/12/2025							
Proponent's operational requirement timeframe for approval of revision Reason for Timeframe:			< One Month X	< Six Months ☐	> Six Months ☐	None ☐	

Item no.	EMP section no.	EMP page no.	Summary of change	Reason for change
1	Section 1	3	Updated background information	Satisfy submission requirements inclusive of the proposed Fimiston Gold Mine Operations Extension (Stage 3) and Mine Closure Planning: Fimiston South Project (Proposal)
2		4	Updated management plan summary table	Updated to reflect the Stege 3 Proposal
3	Section 2	10	Updated condition requirements	Updated to reflect proposed ministerial condition requirements
4		14	Inclusion of additional Health Risk Assessment undertaken in 2025	Removed to more closely align with EPA guidelines
5		17	Updates to include references to boundary monitors	Updated to reflect proposed ministerial condition requirements
		19	Updates to include references to studies undertaken during approvals process	Updated to reflect most recent studies

Item no.	EMP section no.	EMP page no.	Summary of change	Reason for change
		22	Updated to reflect changes in conditions related to the boundary and community monitors.	Updated to reflect proposed ministerial condition requirements
		24	Image updated to include proposed new monitoring locations	Updated to reflect proposed ministerial condition requirements
		25-28	Updated to reflect changes in conditions related to the boundary and community monitors.	Updated to reflect proposed ministerial condition requirements
		30	Trigger and action levels revised	Update based on analysis of historical monitoring data.
		32	Inclusion of additional monitors in Table 9	Updated to reflect proposed ministerial condition requirements
		35	Updated to reflect changes in conditions related to the boundary and community monitors.	Updated to reflect proposed ministerial condition requirements
	Section 3	37-41	Provisions updated to reflect proposed ministerial condition requirements	Updated to reflect proposed ministerial condition requirements

7. REFERENCES

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