



LUCKY BAY GARNET MINING PROJECT

WORKS APPROVAL APPLICATION ATTACHMENT 3A – ENVIRONMENTAL COMMISSIONING PLAN

AUSTRALIAN GARNET PTY LTD

JULY 2024

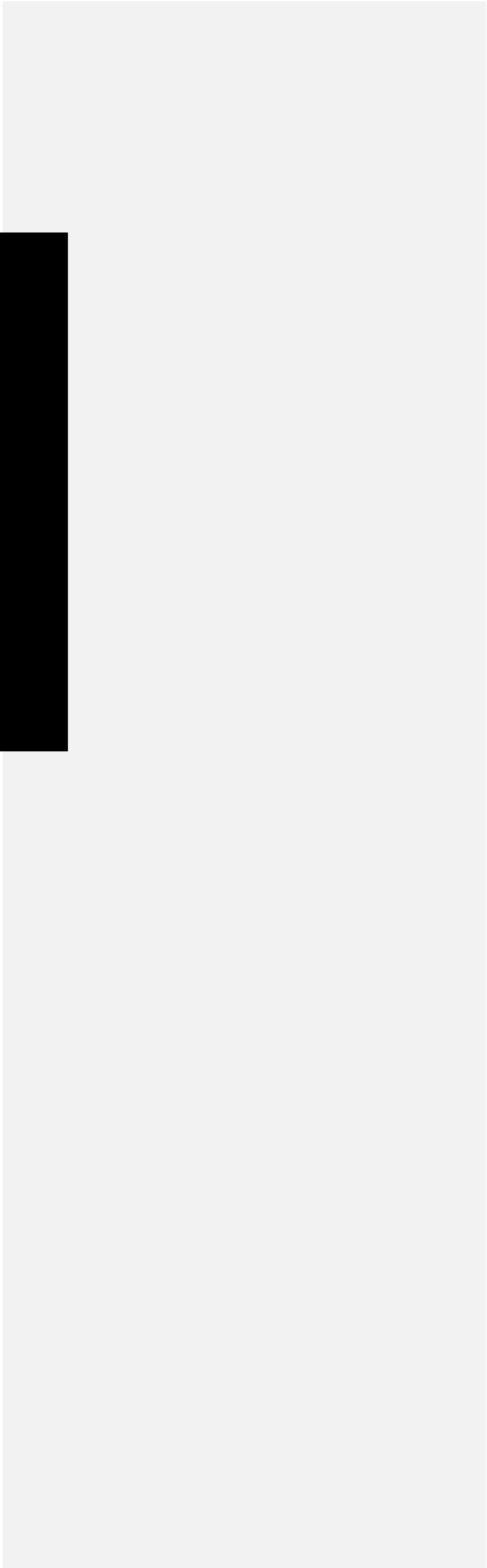
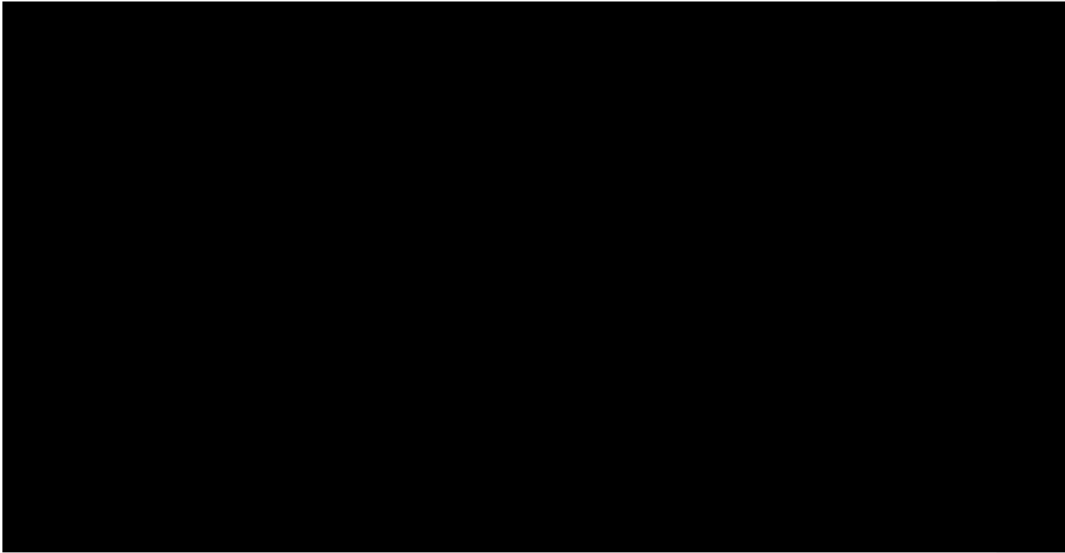


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1. INTRODUCTION

This document describes the Environmental Commissioning Plan for the Dry Separation Plant (DSP) upgrade proposed to be undertaken as part of the Australian Garnet Lucky Bay Garnet Project (The Project).

As outlined in the Department of Water and Environmental Regulation's (DWER) Guideline: Industry Regulation Guide to Licensing (June 2019), environmental commissioning is testing undertaken to validate actual environmental performance relative to predicted performance, as assessed by the Department under the works approval. This is a separate activity to commissioning that may occur for production or to check that contractors have completed construction works as agreed and equipment performs to its design rating.

The document summarises the environmental commissioning and air quality verification sampling plan to verify that the noise and dust emissions from the Baghouse and Exhaust Stack of the DSP upgrade are lower than the specified guidelines.

2. CONTEXT AND SCOPE

The Project is proposing to undertake one activity that requires a Works Approval and subsequent Licencing under the Environmental Protection Act, 1986 (WA), specifically:

- Category 8 - Mineral sands mining or processing: premises on which mineral sands ore is mined, screened, separated or otherwise processed.

This document (Attachment 3A) is prepared as part of the Project's Works Approval Application. This Commissioning Plan provides details of commissioning activities which are to be assessed as part of the application. It is noted it only applies to the activities where commissioning is specifically required prior to commencement of full operations. Commissioning will specifically be required for the:

- Potential sources of emissions include the DSP baghouse and exhaust stack.

Commissioning will be carried out in accordance with this Commissioning Plan.

3. COMMISSIONING PROCESS

Commissioning is a systematic process of ensuring that installed systems and infrastructure perform in accordance with their design intent and the sites operational requirements, ensuring that all plant, equipment, infrastructure and systems have been installed according to manufacturers' recommendations and the best practices and standards of the industry. The act of commissioning involves bringing multiple pieces of plant online in the correct sequence with all safety systems operational to ensure sequences, controls and functionality are correct. A commissioning team led by Australian Garnet's Registered Manager will be established to perform this work.

The Commissioning Manager will coordinate the commissioning phases. The commissioning team will be an integrated multi-disciplinary team composed of site personnel, contract engineering personnel and supplier representatives. The responsibilities of this team will include examining and confirming plant construction to design intent and standards, hazard studies and all commissioning activities prior to operational handover.

The commissioning process will include the following phases (where relevant) of the respective systems:

- Stage 1 Construction Verification (pre-commissioning)
- Stage 2 24V dc Control Power-On (Pre-commissioning)
- Stage 3 Service Voltage Testing
- Stage 4 Mechanical (Dry / Cold) Commissioning
- Stage 5 Product-On (Load / Wet /Hot) Commissioning
- Stage 6 Acceptance Testing,

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3.1 SCHEDULE

Construction of the Project will commence upon approval of the Works Approval application, anticipated in December 2024. Construction is anticipated to be take 6 months and be completed end of Q2 2025, followed by a 3-month commissioning period. Time limited operations of 180 days are proposed to commence in Q4 2025, to ensure time for licence application preparation and approval.

Due to the compact nature of the Baghouse, the commissioning of Stage 1 to Stage 4 is expected to take four weeks. Stages 5 and 6 are dependent on upstream plant (Diesel supply and Dryer commissioning) and may take up to eight weeks.

3.2 INPUTS / OUTPUTS

Stages 1 to 3 only require electrical energy and air to run the system and measure the noise levels. Noise levels have been recorded by the manufacturer at their factory and will be used as the baseline of the new measurement.

Stages 4 and 5 will require diesel and mineral sand feed to hot commission the baghouse and discharge stack and monitor the off-gas particulate loading

Discharges from the stack in Stages 1 to 3 are air only.

Stages 4 and 5 will discharge dryer exhaust, water vapor and potentially particulates while the system is commissioned and optimized.

During commissioning of the baghouse and exhaust stack the noise and particulate emissions and/or discharges will be monitored and/or confirmed to establish or test a steady-state operation.

4. EXPECTED EMISSIONS AND DISCHARGES

4.1 EXPECTED EMISSIONS TO AIR

Processing of minerals in arid environments involves a significant potential for generation of dust emissions. Dust emissions generated during commissioning of the DSP bag house and exhaust has potential to impact on air quality through the generation of fugitive dust and add to other operational sources including:

- Wind erosion from the mining area, stockpiles and un-sealed access roads.
- Pre-stripping, mining and final tail contouring.
- Ore processing.
- Mining, material handling and transport activities.
- Engine exhausts from construction equipment, generators, mining equipment and light vehicles.

4.2 EXPECTED NOISE EMISSIONS

Potential sources of noise emissions during commissioning of the DSP bag house and exhaust has the potential to increase noise emissions and add to other noise sources including:

- Construction and earthwork activities.
- Exhaust Stack.
- Process Plant equipment.
- Warning alarms on conveyors Process Plant and vehicles.
- Transport of equipment and supplies to and from the Project during commissioning and operations.

4.3 EXPECTED DISCHARGES TO LAND AND SURFACE WATER

Due to the very high water infiltration rate of the local sands there is no sustained surface water or runoff. Potential sources of discharge to land during commissioning may originate from:

- Increased sediment load from ephemeral runoff due to ground disturbance and construction of the DSP infrastructure.
- Hydrocarbon spills or leaks from vehicle and equipment used in construction and commissioning.
- Overflow or loss of contents from process equipment with localised spillage.

4.4 EXPECTED DISCHARGES TO GROUNDWATER

The construction and commissioning of the DSP infrastructure is not considered to pose and significant risk pathways which could impact groundwater. Any localised hydrocarbon or chemical spills will be contained, cleaned up and wastes disposed of appropriately.

5. MANAGEMENT OF EMISSIONS AND DISCHARGES

5.1 EMISSIONS TO AIR

The Project design has considered exposure to dust, greenhouse gases and odour emissions in order to minimise adverse impacts.

Australian Garnet will implement dust control measures during construction, commissioning and operational stages of the Project to ensure compliance with occupational health and environmental standards. Adherence to best practice in relation to dust management will also assist to maintain plant aesthetics and prevent potential impacts to human health, fauna and adjacent vegetation. Refer to the *Australian Garnet Lucky Bay Operations Dust Management Plan (AUG-PLN-EV-003-02)* previously submitted to the department.

The following sections describe the management measures that will be implemented during commissioning.

5.1.1 Dust

- Vehicles will keep to defined areas.
- Dust will be managed by watering unsealed roads with a water cart.
- Vehicles will be required to travel at safe operating speeds on unsealed roads.
- Occupational hygiene requirements for dust will be complied with in operational areas.
- The DSP upgrade includes an exhaust extraction system and baghouse which is designed to reduce operational dust emissions.

5.2 NOISE EMISSIONS

The additional noise emissions associated with the DSP plant upgrade have been assessed and an updated Noise Assessment Report (*Lucky Bay Garnet Mine Project Proposed Upgrades to Processing Plant Environmental Noise Assessment July 2024*) forms part of the Works Approval Application which is seeking approval for the DSP upgrade proposal. The Noise Assessment Report concluded “Assessment of the Australian Garnet noise levels for the addition of the proposed Dry plant to the existing processing operations, show that compliance is achieved for all operating conditions for night periods, being the most stringent in terms of compliance for the processing plant.” Noise management and monitoring measures for the overall Lucky Bay Project are described in the *Australian Garnet Lucky Bay Operations Noise Management Plan (AUG-PLN-EV-001-02 (V3))*, previously submitted to the department.

5.3 DISCHARGES TO LAND AND SURFACE WATER

Project design has considered local topography and the locations of drainage lines and flood levels to minimise disturbance of these.

The following management measures will be implemented during commissioning of the DSP plant upgrade project:

- Hydrocarbons will be stored in impermeable bunds in accordance with Australian Standards (AS1940 and AS1692).
- Diesel fuel pods (i.e. with generators) required during construction and commissioning will be self-bunded and/or placed on adequate bunding.
- Hydrocarbon wastes will be segregated from other wastes and collected for offsite disposal by a licensed contractor.
- Hydrocarbon-contaminated wastes (e.g. oil filters, rags, containers) will kept in demarcated, dedicated containers for offsite disposal by a licensed contractor.
- Minor hydrocarbon spillage occurring as a result of equipment failures will be addressed and reported through the incident reporting procedure.
- Spill kits will be located at strategic locations throughout the project area and employees trained in their use.

5.4 DISCHARGE TO GROUNDWATER

The following management measures will be implemented to manage potential discharges to groundwater during commissioning of the DSP upgrade:

- Hydrocarbons will be stored in impermeable bunds in accordance with Australian Standards (AS1940 and AS1692).
- Minor hydrocarbon spillage occurring as a result of equipment failures will be addressed and reported through the incident reporting procedure.
- Spill kits will be located at strategic locations throughout the project area and employees trained in their use.

6. MONITORING

No specific monitoring is proposed for construction and commissioning of the DSP upgrade project. Routine inspections of the works site will be undertaken to ensure adherence to the management controls outlined in Sections 5 and 7 and to general Site operating requirements.

Please advise if dust and noise emissions will be measured during commissioning and compared to vendors specs and/or relevant standards ?

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7. MANAGEMENT OF ACCIDENTS AND MALFUNCTIONS

Contingencies for the commissioning phase of the DSP are summarised in Table .

Table 2: Contingency Plan

Work Area	Contingency	Action
	Spill or leak of fuel or lubricants	<ul style="list-style-type: none"> • Shut down, recover spill, identify fault and repair • Contain impacted waste or product • Dispose of absorbents/spill
	Dust extraction system not working properly	<ul style="list-style-type: none"> • Identifying fault and repair
	Baghouse not working properly	<ul style="list-style-type: none"> • Identifying fault and repair
	Excessive dust from construction activities	<ul style="list-style-type: none"> • Increase rate of water application in work area from water carts.
	Plant noise exceeds workplace standards outside of designated hearing protection zones	<ul style="list-style-type: none"> • Investigate cause and remedy

8. REPORTING

Written advice will be provided to DWER for the following:

- Commencement of commissioning (seven calendar days prior to start).
- Suspension of commissioning (seven calendar days after suspension).
- Completion of commissioning (seven calendar days after completion).

As per the DWER Industry Licencing Guidelines (2019), Australian Garnet will provide the following reports to demonstrate that conditions of the Works Approval have been met:

- Environmental Compliance Report.
- Environmental Commissioning Report.

Environmental Compliance Reports will be submitted upon completion of construction to confirm that the works have been constructed in accordance with the conditions of the Works Approval.

Environmental Commissioning Reports will be submitted to DWER within three calendar months of completion of commissioning. This report will include the following:

- A list of any original monitoring reports submitted to Australian Garnet from third parties for the commissioning period.
- A summary of the environmental performance of the infrastructure as installed, against the design specification set out in the Works Approval application.
- A review of performance against the Works Approval conditions.
- Where Works Approval conditions have not been met, measures proposed to meet the design specification and/or Works Approval conditions, together with timescales for implementing the proposed measures.

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