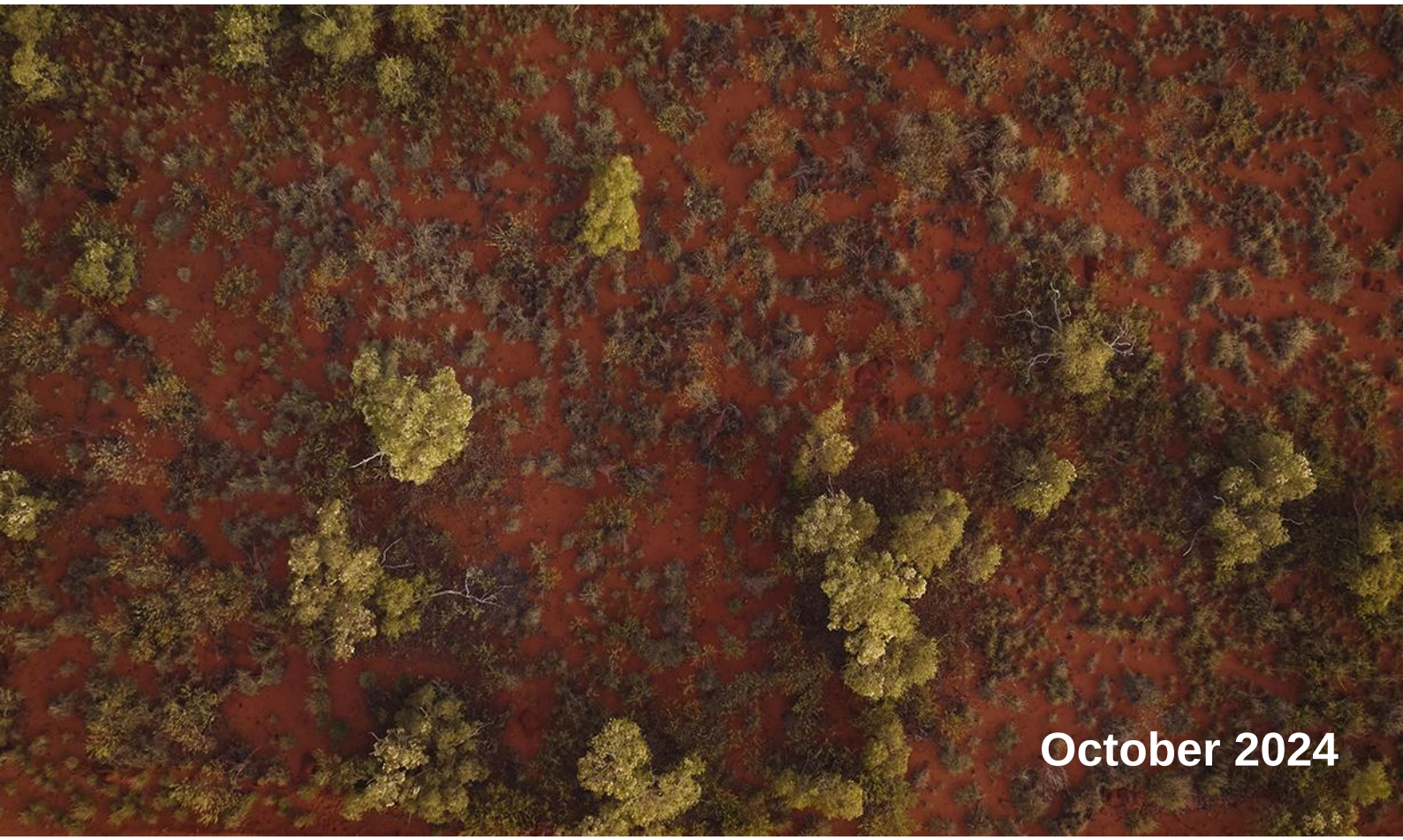
DE GREY MINING LTD

GREENHOUSE GAS ENVIRONMENTAL MANAGEMENT PLAN

HEMI GOLD PROJECT



October 2024

AUTHORISATIONS

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Prepared by

Prepared for

EXECUTIVE SUMMARY

De Grey Mining Limited ("De Grey") has completed a Greenhouse Gas Environmental Management Plan (GHG EMP) for the Hemi Gold Project ("Project"). Key information is presented in Table ES 1.

Table ES 1: Hemi Gold Project Key Information

Proposal Name	**Hemi Gold Project**
Proponent name	De Grey Mining Ltd
Proposal Description and Scope	The Hemi Gold Project is in the Pilbara Region of Western Australia, approximately 85 km south of Port Hedland, within the Shire of the Town of Port Hedland. The Project will mine gold from the Hemi deposits and surrounding area, with up to 5,826 ha of disturbance proposed.
Purpose of GHG EMP	This GHG EMP demonstrates De Grey's commitment to minimising the contribution of this Project to global warming from human-induced activities. Developed to meet requirements of the *Environmental Factor Guideline – Greenhouse Gas Emissions* (EPA, 2023) and to support the proposal's assessment, approval, and implementation under Part IV of the *Environmental Protection Act 1986* (WA) (EP Act).
Emissions estimates	The principal sources of Scope 1 emissions are diesel consumption, direct release of CO_2 from processing and land clearing. Scope 2 emissions are from power supply from the North-West Interconnected System (NWIS) under a Power Purchase Agreement, and Scope 3 emissions are from a range of sources but principally purchased goods and services. The estimated total emissions over the life of the Project are: • Scope 1 Base Case Scenario: 2.6 million tonnes of CO_2-e • Scope 2 Base Case Scenario: 1.8 million tonnes of CO_2-e • Scope 3 Base Case Scenario: 3.6 million tonnes of CO_2-e • Total Base Case Scenario Emissions: 8.0 million tonnes of CO_2-e Annual average emissions over the life of the Project: • Scope 1 Base Case Scenario: 0.18 million tonnes of CO_2-e • Scope 2 Base Case Scenario: 0.13 million tonnes of CO_2-e • Scope 3 Base Case Scenario: 0.26 million tonnes of CO_2-e
Trajectory of emissions reductions	The trajectory of emissions reduction is based on the avoidance of Scope 1 emissions through the electrification of fossil fuel-powered equipment, in particular the mining fleet. Reduction of Scope 2 is focused on the reduction of the electricity emissions intensity through a Power Purchase Agreement. The estimated total emissions over the life of the proposal for the Low Carbon Scenario are: • Scope 1: 2.1 million tonnes of CO_2-e • Scope 2: 1.7 million tonnes of CO_2-e • Scope 3: 3.4 million tonnes of CO_2-e The estimated emissions avoided, reduced over the life of the proposal are: • Scope 1 Emissions Avoided: 0.5 million tonnes of CO_2-e • Scope 2 Emissions Reduced: 0.13 million tonnes of CO_2-e • Scope 3 Emissions Avoided: 0.13 million tonnes of CO_2-e • Total Mitigation: 0.76 million tonnes of CO_2-e

Other statutory decision-making processes which require a reduction in GHG emission	The *National Greenhouse and Energy Reporting Act 2007* (Cth)) requires De Grey to report energy use and emissions under the National Greenhouse and Energy Reporting (NGER) Scheme when its Scope 1 and Scope 2 emissions exceed 25,000 tCO_2-e per annum, which is expected to occur from the start of the Project. The Safeguard Mechanism applies when the facility emits over 100,000 tCO_2-e per annum, which is expected to occur for this Project in the July 2027 – June 2028 (FY2028) reporting period. The Safeguard Mechanism requires emissions to be kept under a production-adjusted baseline. Any exceedance of the baseline must be made good through the purchase of Australian Carbon Credit Units (ACCUs). This Project will be deemed a new facility and is required to meet the relevant best practice baseline, which is expected be 0.00192 tCO_2-e per tonne of run-of-mine metal ore for FY2028. This baseline is not achieved during any year of operation. De Grey is expected to require 1.6 million ACCUs over the Project's life, averaging 145,000 per year.
Key Components of the GHG EMP	Mining has focused on avoiding Scope 1 diesel mining emissions a staged transition to electric equipment as and when the technology becomes technically and commercially available. Electrification will be introduced early in the Project for some equipment, such as light vehicles and buses, whereas haul trucks and excavators are not expected to be introduced until 2030. The processing technology for the Base Case Scenario was subject to investigation and trade-off studies at the pre-feasibility stage and has been refined as more details of the ore body are understood. The result is a process that uses the least electrical power to reduce Scope 2 emissions. However, Scope 1 emissions from the process directly into the atmosphere resulting from the carbonates in the ore and additional limestone required for neutralisation remain a significant source. De Grey has, as yet, been unable to find commercially available emissions abatement for these process-related emissions. Reducing Scope 2 emissions has been a key criterion in the development of a Power Purchase Agreement (PPA), which provides increased certainty over-reliance on the Pilbara grid (NWIS). Scope 3 emissions have been a direct beneficiary of the characteristics of the ore body and the chosen processing technology through the reduction in the need for lime as a neutralisation. Beyond this, De Grey has presented the reduced Scope 3 emissions as a result of fewer fossil fuel deliveries required. While De Grey expects there will be decarbonisation in the production of capital and operational goods and services and transport components of the supply chain, it has not yet entered into special arrangements with suppliers. Finally, De Grey will be required to offset excess Scope 1 emissions under the Safeguard Mechanism using ACCUs or Safeguard Mechanism Credits (SMCs) to maintain an emissions intensity reduction to net zero by 2050.
GHG EMP reviews and reporting	This GHG EMP will formally be reviewed at a minimum of five years. A range of State and Commonwealth public reporting associated with GHG performance will be maintained.
Proposed Construction Date	2025
EMP Required Pre-Construction?	Yes

Proposed Project end-of-life/decommissioning date	2037

GLOSSARY

Term	Definition
°	Degrees
°C	Degrees Celsius
ACCU	Australian Carbon Credit Unit
ANFO	Ammonium Nitrate Fuel Oil
bcm	Bank cubic metre
BESS	Battery Energy Storage System
CaO	Quicklime
$CaCO_3$	Limestone
CER	Clean Energy Regulator
CH_4	Methane
CIL	Carbon In Leach
CO_2	Carbon Dioxide
CO_2-e	Carbon Dioxide equivalent
CO_2-e/annum	Carbon Dioxide equivalent per annum
Cth	Commonwealth
CY	Calendar Year
DCCEEW	Department of Climate Change, Energy, the Environment and Water
DFS	Definitive Feasibility Study
DEG	De Grey
DWER	Department of Water and Environmental Regulation
EERS	Emissions and Energy Reporting System
EOL	End Of Life
EMP	Environmental Management Plan
EP Act	*Environmental Protection Act 1986* (WA)
EPA	Environmental Protection Authority
ERF	Emissions Reduction Fund
FullCAM	Full Carbon Accounting Model
FY	Financial Year
GHG	Greenhouse Gas
GWh	Gigawatt hours
GWP	Global Warming Potential
ha	Hectare
HPGR	High-pressure grinding rolls
ICMM	International Council of Mining and Metals
km	Kilometre

Term	Definition
$ktCO_2$-e	Kilotonnes carbon dioxide equivalent
LOM	Life of Mine
LPG	liquefied petroleum gas
MW	Megawatt
MWac	MWac means megawatt alternating current
Mtpa	million tonne per annum
N_2O	Nitrogen Oxide
NEPM-NPI	National Environmental Protection Measures – National Pollutant Inventory
NGER	National Greenhouse and Energy Reporting
NGER Act	*National Greenhouse and Energy Reporting Act 2007*
NWIS	North West Interconnected System - supplies electricity to several major towns and resource projects in the Pilbara region.
PFS	Pre-Feasibility Study
PM_{10}	Particulate matter with an equivalent aerodynamic diameter of 10 µm or less.
$PM_{2.5}$	Particulate matter with an equivalent aerodynamic diameter of 2.5 µm or less
POx	Pressure oxidation - A process used to extract gold, copper, zinc, molybdenum, and uranium from refractory ore bodies. The process utilises elevated temperatures, pressures, and oxygen to liberate the minerals from refractory ores.
PPA	Power Purchase Agreement
ppm	Parts per million
ROM	Run-of-Mine
Scope 1 greenhouse gas emissions	Direct emissions from owned or controlled sources.
Scope 2 greenhouse gas emissions	Emissions released to the atmosphere from the indirect consumption of an energy commodity
Scope 3 greenhouse gas emissions	These are emissions that the company itself does not produce and are not the result of activities from assets owned or controlled by it but by those that it is indirectly responsible for, up and down its value chain.
SF_6	Sulphur hexafluoride
SMC	Safeguard Mechanism Credit
tCO_2-e/MWh	A tonne of carbon dioxide equivalent emissions per megawatt hour
tCO_2-e/Oz	A tonne of carbon dioxide equivalent emissions per ounce
TSP	Total Suspended Particulates
VRE	Variable Renewable Energy. Renewable energy sources, such as wind power and solar power, are not dispatchable due to their fluctuating nature.
WA	Western Australia

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1. CONTEXT, SCOPE AND PURPOSE

1.1 Proponent, proposal description and Scope

De Grey Mining Limited (De Grey) has completed a Greenhouse Gas Environmental Management Plan (GHG EMP) for the Hemi Gold Project (Project). The Project is in the Pilbara Region of Western Australia, approximately 85 km south of Port Hedland, within the Shire of the Town of Port Hedland (Figure 1-1). The site is accessed via the Great Northern Highway.

The Project will proceed on the following mining tenure:

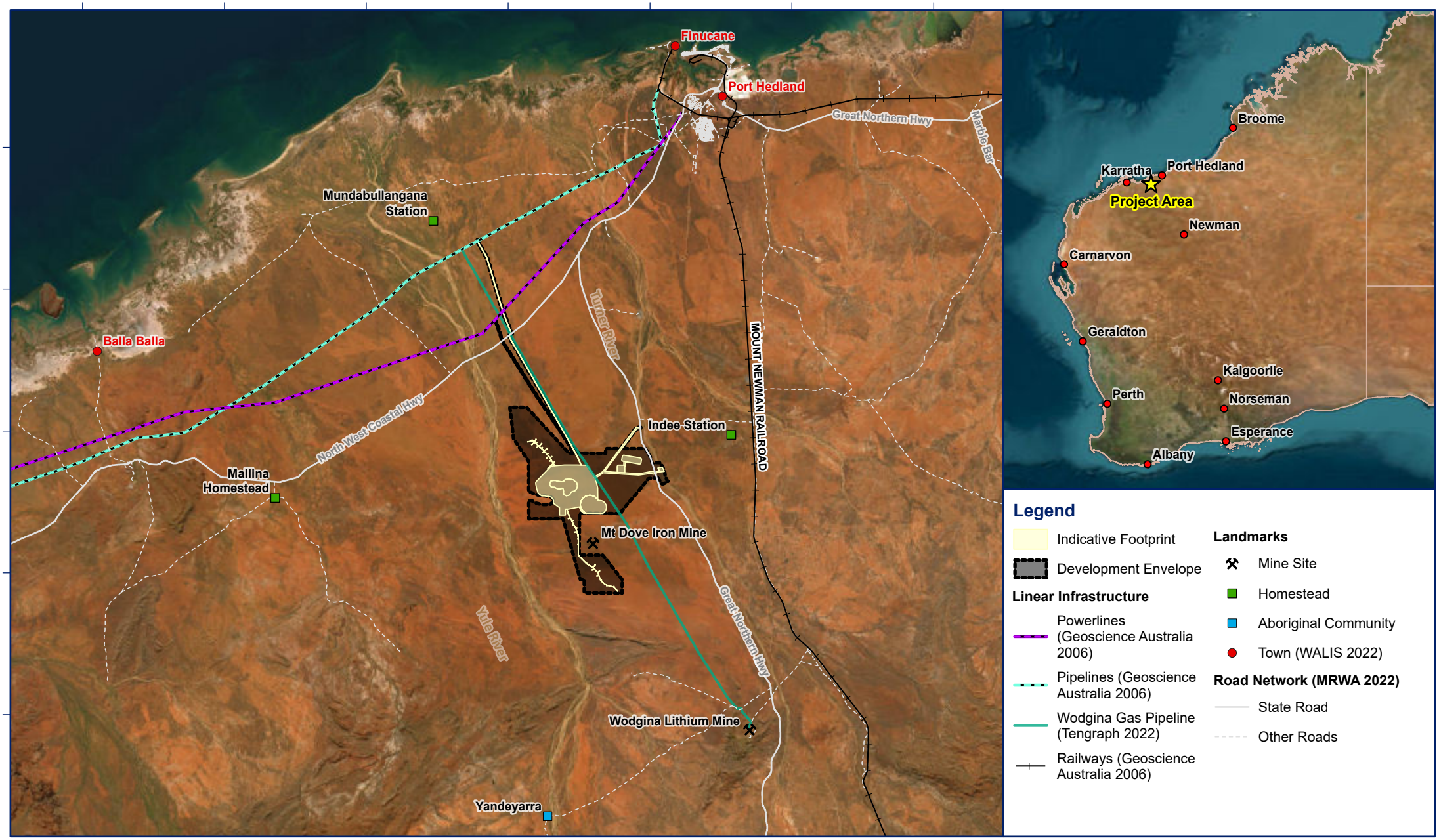
- Mining Lease M47/1628 held by Last Crusade Pty Ltd, a wholly-owned subsidiary of De Grey. This lease application includes the Hemi deposits and the surrounding area.
- Miscellaneous Licences L45/600, L45/604, L 45/605, L45/612, L47/1047 (pending), L47/1048, L47/1049, L47/966 (pending), L47/963 (pending), L45/642, L47/1069 (pending), L47/1070, L47/1071 held or submitted by De Grey. These will be used for supporting infrastructure.

The Development Envelope is 22,194 ha, and up to 5,830 ha of disturbance is proposed. The Project is predominately located on the Indee Station Pastoral Lease, with a small portion of the northern miscellaneous licences intersecting the Mundabullangana Station Pastoral Lease.

Existing infrastructure capable of servicing the Project includes:

- Two-lane bitumen highways: the Northwest Coastal Highway and Great Northern Highway;
- Two gas pipelines: the Pilbara Energy gas pipeline and the Wodgina Mine gas pipeline;
- Electricity infrastructure supporting the North-West Interconnected System (NWIS), which includes two gas-fired power stations at South Hedland, one gas-fired power station at Karratha and a 220 kV overhead power transmission line connecting South Hedland to Karratha;
- The port of Port Hedland, a bulk export and materials importation facility;
- The international airport at Port Hedland; and
- Existing combined mobile (cell) tower and optic fibre for communications.

A location plan is presented in Figure 1-1. The development envelope and indicative site layout are presented in Figure 1-2.



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Aerial: Esri, DigitalGlobe, GeoEye, i-cubed, USDA FSA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

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PROJECT	CLIENT
November 2024	Hemi Gold Project - GHG Management Plan
Figure 1-1	
ADV-AU-00673	Project Location

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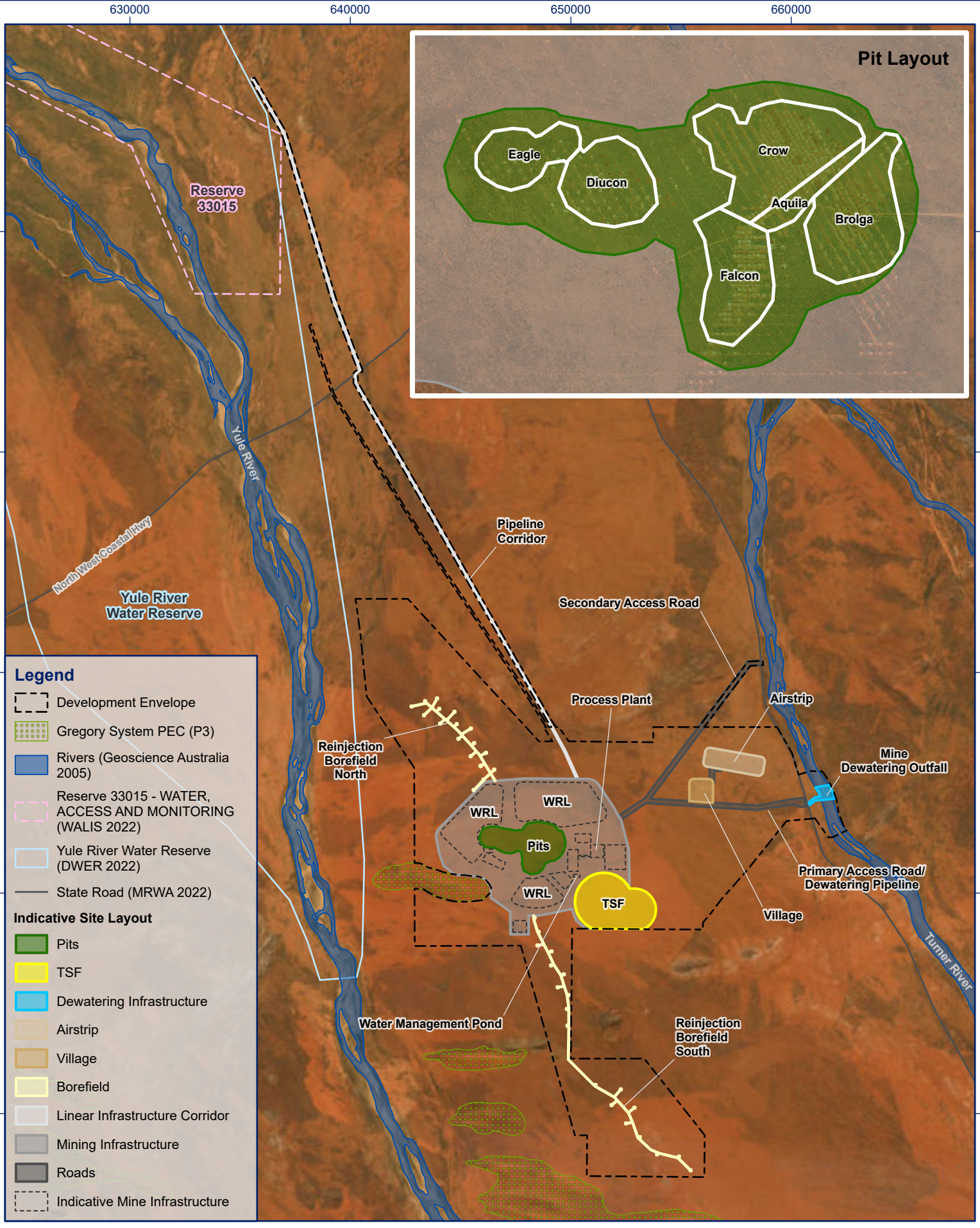

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PROJECT

Hemi Gold Project - GHG Management Plan

Indicative Project Site Layout

Figure 1-2 | ADV-AU-00673 | November 2024

CLIENT

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1.2 Purpose of the GHG EMP

1.2.1 Purpose

This GHG EMP has been prepared to meet the requirements of the Environmental Protection Authority (EPA) *Environmental Factor Guideline: Greenhouse Gas Emissions* (EPA, 2023a). The structure and content of this GHG EMP are based on the *Greenhouse Gas Environmental Management Plan Template* (EPA, 2023b) to ensure transparency and consistency. The factor objective for Greenhouse Gas Emissions is:

- To minimise the risk of environmental harm associated with climate change by reducing greenhouse gas emissions as far as practicable.

De Grey and the EPA recognise the fundamental link between GHG emissions, their effect on the climate and their consequential effect on the natural environment and society. Common global issues include loss of life and livelihoods through severe weather, loss of flora and fauna species through fire, flooding, shifting biome boundaries, and ocean acidification, resulting in coral reef collapses and reduced biodiversity.

GHG emissions from a proposal will be considered by the EPA when they are reasonably likely to exceed:

- 100,000 tonnes of CO_2-e of Scope 1 emissions in any year; or
- 100,000 tonnes of CO_2-e of Scope 2 emissions in any year.

This Project is forecast to first emit over 100,000 tonnes of carbon dioxide equivalents (CO_2-e) of Scope 1 and Scope 2 emissions during the financial year 2028. In addition to being considered by the EPA, the Project will be designated a large facility under the NGER scheme and are required to participate in the Commonwealth Government's Safeguard Mechanism.

The purpose of this GHG EMP is to communicate De Grey's commitment to managing GHG emissions to ensure minimal contribution to climate change.

1.3 Scope 1, 2 and 3 Overview and Boundaries

Scope 1 emissions are direct emissions from the construction and operation of the Hemi Gold Project. Material Scope 1 emissions are associated with diesel combustion in stationary and mobile equipment and direct processing emissions from neutralising carbonates within the ore and additional limestone required.

Scope 2 emissions are indirect emissions from the consumption of an energy commodity. This Project will import electrical power from an external provider. The processing plant is the primary electricity consumer, with the mine becoming a significant consumer as the mining fleet transitions to electricity as a power source.

Scope 3 emissions are indirect emissions other than Scope 2 that occur outside the Project's boundary. The Greenhouse Gas Protocol's Technical Guidance for Calculating Scope 3 Emissions (Version 1) (GHG Protocol, 2013) lists eight upstream and seven downstream Scope 3 categories, which is consistent with the Clean Energy Regulator's Definition.

The Project Scope 1 and 2 boundary is defined as the activity or series of activities that occur within the overall operational control of the De Grey Hemi Gold Project, consistent with the NGER scheme. The sources of Scope 1 and 2 emissions within the boundary of the Project are the development and operational activities associated with sustaining production from the Hemi Gold Project. All emissions outside the Project Boundary except for Scope 2 source emissions are captured as Scope 3 emissions. The combined Scope 1, 2 and 3 emissions are considered cradle-to-grave emissions from the Project.

2. EMISSIONS ESTIMATES

Scopes 1, 2, and 3 emissions have been estimated for a Base Case Scenario and Low Carbon Scenario. Scope 1 emissions were estimated based on engineering completed in collaboration with Wood Australia Pty Ltd (Wood). Scope 2 emissions have been prepared using the electricity consumption estimates from Wood and expected Scope 2 emissions factors for the NWIS for the Base Case Scenario and expected emissions intensities provided in a power purchase agreement (PPA) calculated by Iluminex Group Pty Ltd (Iluminex, 2024).

2.1 Annual and Total Project Emissions

The Project is expected to begin construction in 2025, mining the first ore in late 2026, with the processing plant reaching the nameplate capacity of 10 Mtpa in 2027. Outside of unplanned maintenance and shutdown periods, the nameplate capacity should be maintained throughout the life of the mine until Ore Reserves are exhausted in 2037 and processing is completed in 2038. A summary of the estimated annual average, peak and total Scope 1, 2 and 3 emissions from 2025 to 2038 are presented in Table 2-1.

Table 2-1 Estimated Annual Average, Peak and Total Emissions over the LOM

Greenhouse Gas Emissions Scope	Annual Average ($ktCO_2$-e/annum)	Peak ($ktCO_2$-e/annum)	Total ($ktCO_2$-e)
Base Case Scenario			
Scope 1 Emissions	183	262	2,564
Scope 2 Emissions	131	231	1,831
Scope 3 Emissions	254	419	3,555
Total Emissions	568	911	7,951
Low Carbon Scenario			
Scope 1 Emissions	148	225	2,066
Scope 2 Emissions	121	228	1,697
Scope 3 Emissions	245	399	3,425
Total Emissions	513	852	7,188

Table 2-2 Summary of Scope 1, 2 and 3 Emissions over the Life of the Proposal ($ktCO_2$-e)

Calendar Year	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	Total
Base Case Scenario															
Scope 1	10	48	192	228	220	229	242	262	249	254	260	200	103	67	2,564
Scope 2	0	0	231	217	203	193	175	160	146	132	118	99	85	71	1,831
Scope 1 & 2	10	48	424	445	423	423	417	422	395	386	378	299	188	137	4,395
Scope 3	19	50	232	351	383	339	344	286	419	352	353	245	106	77	3,555
Total	29	98	656	796	807	761	760	708	814	738	731	544	294	214	7,951
Low Carbon Scenario															
Scope 1	10	48	189	222	213	218	225	221	187	164	126	94	86	64	2,066
Scope 2	-	-	228	182	182	184	179	171	99	102	107	104	88	72	1,697
Scope 1 & 2	10	48	417	404	395	402	403	392	286	266	233	198	173	135	3,763
Scope 3	19	50	232	347	380	336	341	278	399	327	319	220	102	76	3,425
Total	29	98	649	750	775	738	744	670	685	593	552	417	276	212	7,188

2.2 Types of GHG Emissions and Global Warming Potential

The majority of emissions from the Hemi Gold Project will be carbon dioxide (CO_2) with minor amounts of methane (CH_4), and nitrous oxide (N_2O). The types of GHG emitted and their Global Warming Potential (GWP) as defined in the National Greenhouse and Reporting Regulations 2008 (Cth) are outlined in Table 2-3. Emissions from sulphur hexafluoride and hydrofluorocarbons were considered immaterial for the purposes of this plan.

Table 2-3 Types of GHG emitted and global warming potential

Greenhouse Gas	Global warming potential
Carbon dioxide (CO_2)	1
Methane (CH_4)	28
Nitrous oxide (N_2O)	265

2.3 Emission Estimation Techniques

2.3.1 Scope 1 Emission Estimation Techniques

Scope 1 emissions are direct emissions from the construction and operation of the Hemi Gold Project. Scope 1 emissions estimated for this GHG EMP are associated with diesel combustion in stationary and mobile equipment and direct processing emissions from carbonates within the ore and additional limestone required for neutralisation, resulting in the release of carbon dioxide directly into the atmosphere.

Scope 1 emissions associated with combustion used calculation methodologies from the most recent National Greenhouse and Energy Reporting (Measurement) Determination 2008 and emissions factors from the *Australian National Greenhouse Accounts Factors: For individuals and organisations estimating greenhouse gas emissions, February 2023* for combustion emissions.

Emissions released from processing due to carbonates in the ore and the addition of limestone for neutralisation were estimated by Wood based on the characterisation of the ore and the processing technique used.

Table 2-4 Scope 1 Methodologies and Assumptions

Source	Source of Emissions and type of GHG (GWP)	Methodology	Limitations
Clearing	Loss of carbon sinks associated with land clearing.	The expected area to be cleared from the LOM plan and emission estimate using the Australian Government's National Carbon Accounting methodology, the Full Carbon Accounting Model (FullCAM).	Categorisation and Measurement of existing biomass using FullCAM.
Mobile Equipment Required for Mining.	Diesel Combustion CO_2, CH_4, N_2O	Diesel use is based on the DFS LOM plan and diesel emission factors from National Greenhouse Accounts Factors (DISER, 2021).	Mine planning accuracy and equipment fuel burn rates.
Explosives	ANFO CO_2-e	The estimated ANFO powder factor per bcm for the material being mined requires blasting and the ANFO emissions factor (Wood, 2023a).	Actual powder factor required for material density.
Equipment for Processing, Dewatering and Day Works	Diesel Combustion CO_2, CH_4, N_2O	Management estimation of diesel-powered equipment required and fuel burn rates. Diesel Emission Factor from National Greenhouse Accounts Factors (DISER, 2021).	Accuracy of estimate and fuel burn rates.
Direct Process Emissions	Carbonate in the ore reacts in the POx circuit with acid, producing CO_2	Estimation of carbonates in the ore from ore characterisation studies to produce carbon dioxide when processing the ore (Wood, 2023a).	Estimate of carbonates with ore.
Direct Process Emissions	Limestone addition reacts with acid to produce CO_2	Estimation of additional limestone required for neutralisation in the ore processing circuit (Wood, 2023a).	Estimate of limestone required for neutralisation.
Process Heat Requirements	LPG Combustion CO_2, CH_4, N_2O	Estimated LPG for the POx steam boiler package, carbon regeneration kiln, elution heater, and smelting furnace. LPG Emission Factor from the National Greenhouse Accounts Factors (DISER, 2021).	Engineering estimate and control efficiency.

2.3.2 Scope 2 Emission Estimation Techniques

On-site power generation is not being pursued as part of this Project, and all electrical power will be sourced from external suppliers through the NWIS grid. Emissions from electrical energy use make up a significant proportion of the total Scope 1 and 2 emissions, making the Scope 2 emission factor over the LOM critical to estimating the Base Case and Low Carbon Scenarios.

The emission estimations are calculated on the forecast power use and the forecasted Scope 2 emission factors in tonnes of carbon dioxide equivalents per megawatt hour of electricity used (tCO_2-e/MWh).

2.3.3 Scope 3 Emission Estimation Techniques

The Scope 3 emissions estimation approach used many data sources, preferencing primary data where available over secondary databases, which is recognised as good practice and internationally recognised by the ICMM's Scope 3 Emissions Accounting and Reporting Guidance (ICMM, 2023). Category descriptions, calculation methods and data sources are outlined in Table 2-8.

2.4 Scope 1 and Scope 2 Base Case Scenario

The Base Case Scenario was developed around the most secure and cost-effective method of providing the energy required to mine and process the ore, considering the location of the deposit, ore characteristics, available technologies, support for those technologies and potential impact on the environment.

2.4.1 Land Use Change

Land use change emissions have been included within Scope 1 emissions calculations. The carbon stock contained within the Hemi Project Disturbance Footprint was estimated using the Full Carbon Accounting Model (FullCAM). The carbon mass in tonnes of carbon per hectare is calculated using the Project location (latitude/longitude coordinates), total area to be cleared (5,826 ha) and long-term average rainfall data. FullCAM produces the total carbon biomass for an area, and the potential carbon dioxide emissions can be calculated using the relative molecular weights of carbon dioxide and carbon.

The maximum above-ground biomass from FullCAM was 12.11 tonnes of carbon per ha. The forecast maximum amount of native vegetation clearance for this Project is 5,826 ha, and the total land use-related carbon stocks would be 70,547 tCO2-e.

This approach assumes that the native vegetation in the area has been undisturbed for 100 years and that clearing will be progressive from 2025 – 2031. Furthermore, emissions have been calculated assuming all vegetation will be lost upon land clearing and converted to carbon dioxide emissions.

2.4.2 Construction Approach

De Grey will remain in operational control of the construction process. Emissions management will form part of the selection criteria for the major construction contractors and equipment and material suppliers. Work has not yet begun on these aspects at this project stage; therefore, improvements above the baseline cannot be demonstrated.

2.4.3 Mining

Mining ore is based on contemporary excavator digging and haul truck transport. An initial optimisation of material movement and mine truck sizing was undertaken to estimate fuel consumption for the LOM DFS. Design changes become more complex and costly as the Project

moves closer to construction and production. However, De Grey will continue to minimise energy requirements and greenhouse gas emissions where possible.

Mining equipment for the base case scenario is diesel, as no commercially viable alternatives are currently available or expected to be available at project commencement.

2.4.4 Processing

Processing trade-off studies were conducted in preparation for the PFS, and the preferred process has remained unchanged following the DFS, as represented in Figure 2-1. It consists of the following three main stages:

1. Comminution using three-stage high-pressure grinding rolls (HPGR) and ball mills to reduce the run of mine (ROM) material size to allow for processing.
2. Sulphide oxidation will be done using pressure oxidation (POx).
3. The remaining process involves flotation, thickening and neutralisation for the flotation concentrate and flotation-tails prior to the carbon in leach, elution, and electrowinning process.

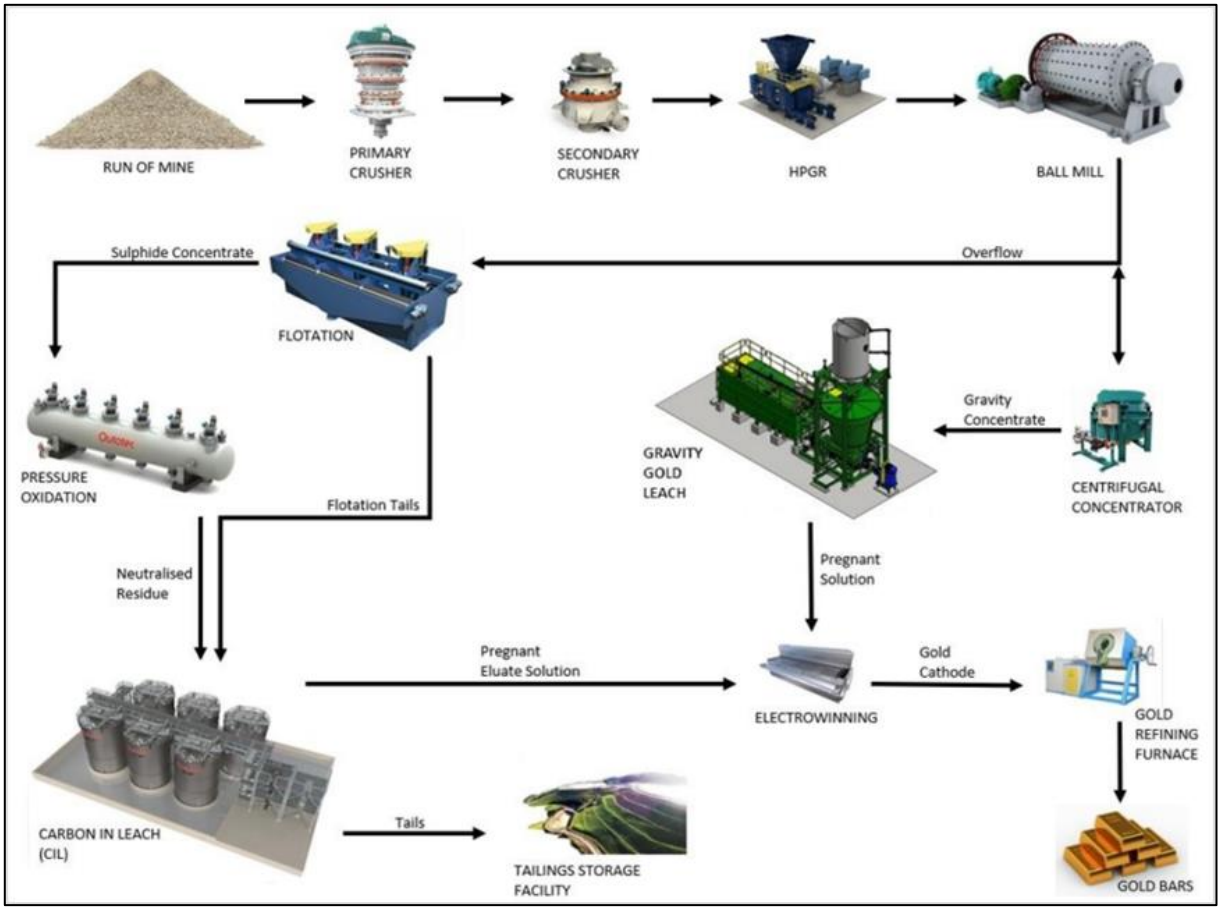
The first four processes represent communication after run-of-mine (ROM) on the top row of Figure 2-1. Three-stage high-pressure grinding rolls (HPGR) and ball mills are considered best practice for improving the ore's surface area and processing recovery rate.

Traditionally, roasting is used to remove the sulphides from this type of semi-refractory ore in preparation for the carbon in leach (CIL), and electrowinning is used to extract the gold. However, roasting uses high temperatures requiring significant energy, typically from the combustion of natural gas, releasing greenhouse gases. It also has the downside of producing substantial sulphur dioxide emissions and is not considered the best practice for new operations.

Wood Australia Pty Ltd was commissioned to complete a trade-off study of alternative methods as per the *Greenhouse Gas Emissions Environmental Factor Guidelines* (EPA, 2023a). This study provided a comparative analysis between the Albion and Pressure Oxidation (PO_X) hydrometallurgical processes. The study found the PO_X process to be superior for this ore body chosen for the following reasons:

- Improved gold recovery, making the most benefit of the disturbance required for mining the deposit;
- High-pressure grinding and rolling significantly reduces the energy required for particle size reduction.
- Less energy is required to operate the POx processing plant, reducing Scope 2 emissions.
- Less requirement for the additional neutralisation reagents, reducing Scope 3 emissions associated with manufacturing these reagents.
- No heat addition is required to sustain the reaction or cooling to control the PO_X process.

Figure 2-1 Proposed Processing Method



2.4.5 Electricity Supply

De Grey understands the NWIS represents this Pilbara region's best practice electricity supply. To develop the electricity emission intensity for the Base Case Scenario, De Grey identified two external reference points outlined in Table 2-5.

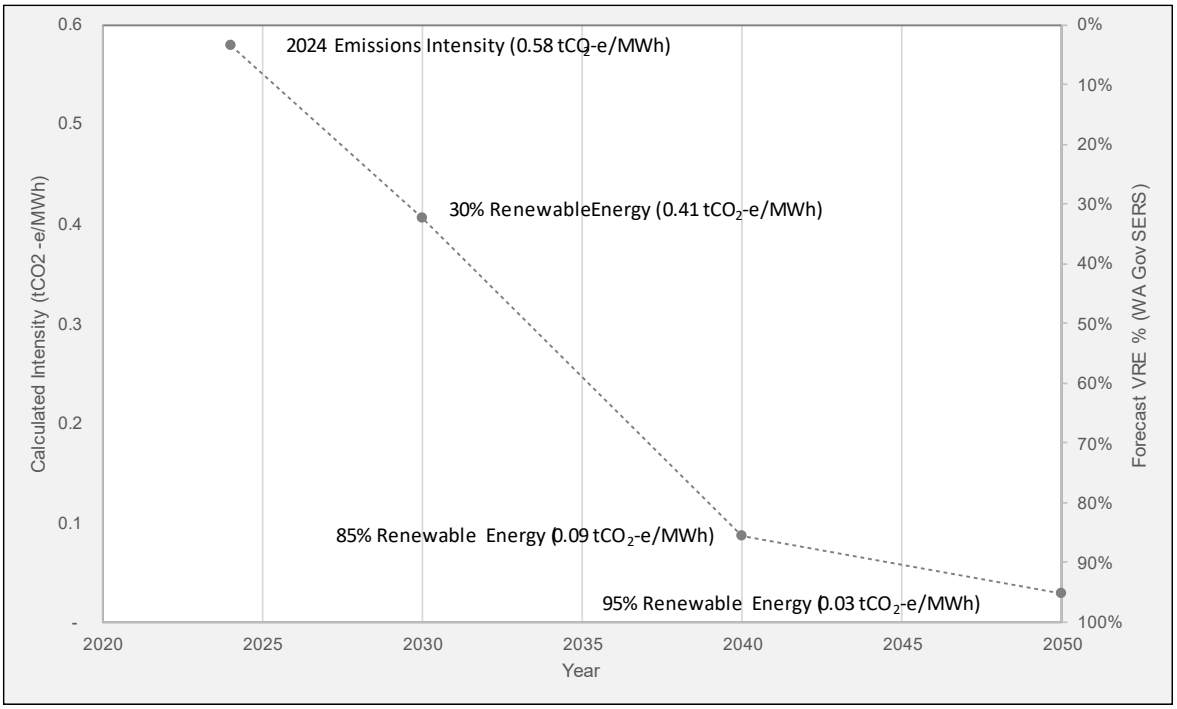
Table 2-5 Published Information Used to Develop NWIS Emissions Factors

Reference	Publication Date	Source of Emissions
Electricity sector emissions and generation data 2022-23. Clean Energy Regulator. (CER, 2024)	February 2024	Estimated from the published energy (MWh) and emissions (tCO_2-e) for all generators on the NWIS for 2022-23. Average electricity emissions intensity of 0.58 tCO_2-e/MWh for 2022-23.
Sectoral Emissions Reduction Strategy (SERS) for Western Australia. (DWER, 2023)	December 2023	Figure 13 of the SERS report forecasts the proportion of renewable energy in the Pilbara, specifically: • 30% by 2030 • 85% by 2040 • 95% by 2050

The information presented in Table 2-5 was used to forecast the electricity intensity for the Base Case Scenario from 2027 when the processing of the ore is expected to begin. Specifically, the existing NWIS electricity emissions intensity of 0.58 tCO_2-e/MWh and the forecast proportion of renewable energy in the Pilbara. This data was then extrapolated between points linearly. Based on this approach, the expected NWIS electricity emissions intensity is depicted in Chart 2-1 based on the following:

- 0.58 t CO_2-e/MWh in 2024 based on the CER's current;
- 0.49 t CO_2-e/MWh in 2027 based on the CER's current;
- 0.41 t CO_2-e/MWh in 2030 based on SERS forecast of 30% renewable energy portion;
- 0.09 t CO_2-e/MWh in 2040 based on SERS forecast of 85% renewable energy portion; and
- 0.03 t CO_2-e/MWh in 2050 based on SERS forecast of 95% renewable energy portion.

Chart 2-1 Forecasted Scope 2 Emission Factor for the Northwest Interconnected System



2.4.6 Base Case Annual and LOM Scope 1 and 2 Emission Estimates

Base Case material Scope 1 and 2 emissions are presented in Chart 2-2 and Table 2-6. The Scope 2 emissions over the LOM make up 42% of the emissions. The remaining 58% of emissions are divided between direct process emissions from the release of CO_2 from carbonates within the ore and limestone addition (23%) and emissions from diesel-powered plants and equipment (32%), with clearing and explosives making up the remainder (3% combined).

Chart 2-2 Base Case Components of Scope 1 and Scope 2 Greenhouse Gases Emissions

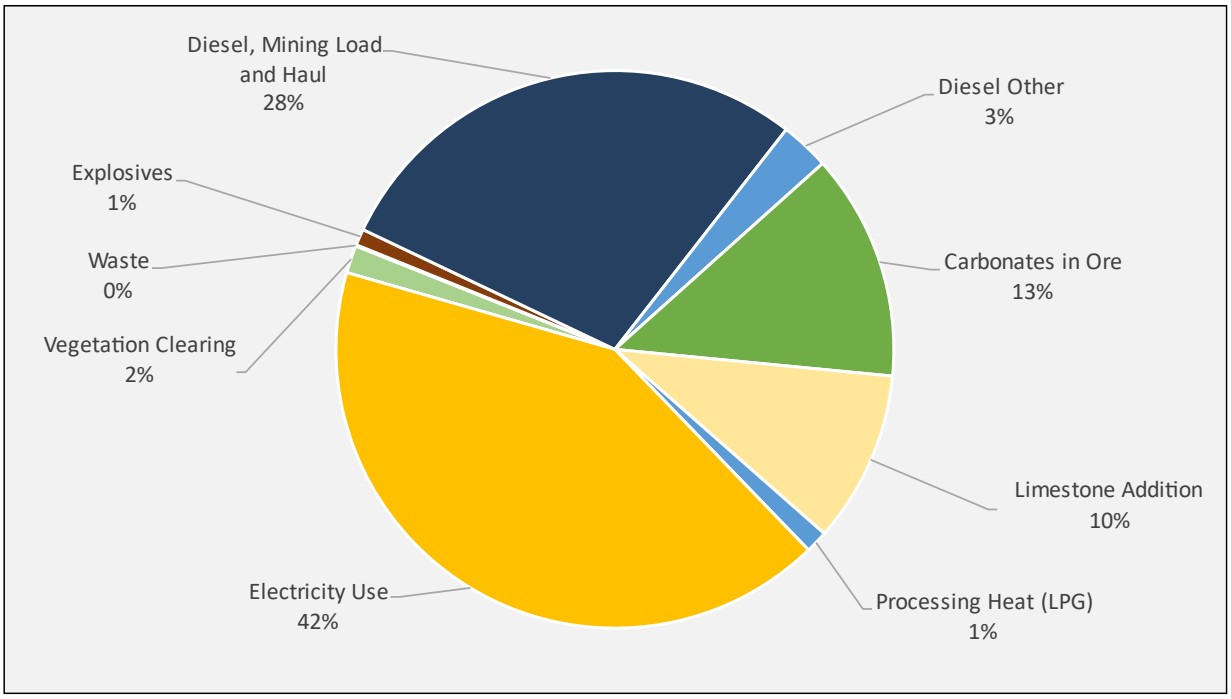


Table 2-6 Base Case Estimated Material Scope 1 and Scope 2 Greenhouse Gases Emission Over the Life of Project

Activity	Scope	Source of Emissions	Project LOM Estimate ($ktCO_2$-e)	GHG Emissions (%)
Vegetation Clearing	Scope 1	Vegetation	71	2%
Waste	Scope 1	Biogenic	3	0%
Explosives	Scope 1	ANFO	42	1%
Diesel, Mining Load and Haul	Scope 1	Diesel	1,251	28%
Diesel Other	Scope 1	Diesel	125	3%
Carbonates in Ore	Scope 1	Chemical Reaction	578	13%
Limestone Addition	Scope 1	Chemical Reaction	438	10%
Processing Heat	Scope 1	LPG	57	1%
Electricity Use	Scope 2	Electricity	1,831	42%
Total			**4,395**	

The change in the annual contribution of the material Scope 1 and 2 emissions over the LOM is presented in Chart 2-3 alongside the total material moved and the ore processed, which highlights that:

- Emissions from diesel follow the total material moved and drop away after 2031.
- The contribution of emissions directly from processing follows the quantity of ore processed. These emissions can be attributed to the neutralisation stage of the process. In this modelling, carbonate in ore and the addition of limestone for neutralisation are considered stable over the LOM and proportional to the production rate only. Carbonate in ore may vary, as will the quantity of sulphide in the ore, which will change the neutralisation requirements. The ore composition and processing time are not known at this level of detail. Therefore, the emissions

associated with carbonates in the ore and limestone will vary over the LOM. This GHG EMP will be modelled in more detail in future iterations.

- No grid connection is expected to occur during the construction phase. Electricity is mainly required for processing the ore, which is reasonably constant over the LOM except for the last year, with lower expected production. Power consumption changes due to different ore characteristics, such as hardness, will be realised during operations.
- The reduction in emissions over the LOM is due to the improving grid emissions factor and the assumption that the NWIS emission factor will reduce independently of this Project.

As mentioned, if the power companies that contribute to the NWIS develop an aggressive decarbonisation plan, then the percentage of Scope 2 will be overestimated; this is something that De Grey and other resource companies will be advocating for. However, suppose these power companies initially look to decarbonise in other parts of their business rather than the power stations that supply the NWIS. In that case, De Grey may be underestimating the Base Case Scenario contribution from Scope 2 emissions.

Chart 2-3 Base Case Scenario Scope 1 and 2 Greenhouse Gas Emissions Profile

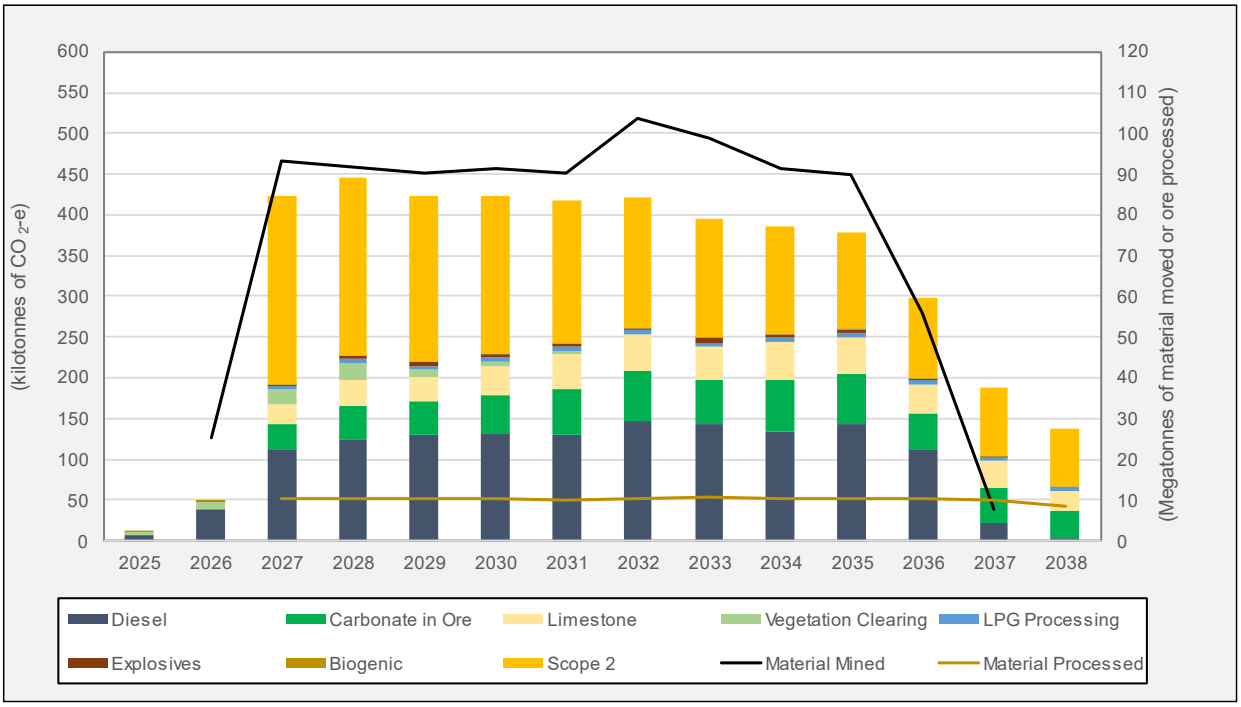


Table 2-7 Annual Scope 1 and 2 Emissions ($ktCO_2$-e) for Base Case Scenario

Source	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	Total
Diesel	8	38	112	124	129	133	130	148	143	133	142	111	23	3	1,376
Carbonate in Ore	0	0	31	41	41	47	56	60	54	63	62	46	43	33	578
Limestone	0	0	24	31	31	35	43	46	41	48	46	35	32	25	438
Vegetation Clearing	2	10	18	22	8	5	5	0	0	0	0	0	0	0	71
LPG Processing	0	0	5	5	5	5	5	5	5	5	5	5	5	5	57
Explosives	0	0	2	4	5	4	4	3	6	5	5	3	0	0	42
Biogenic	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
Scope 1 Total	10	48	192	228	220	229	242	262	249	254	260	200	103	67	2,564
Scope 2 - Electricity	0	0	231	217	203	193	175	160	146	132	118	99	85	71	1,831
Scope 1 and 2 Total	10	48	424	445	423	423	417	422	395	386	378	299	188	137	4,395

2.5 Scope 3 Emissions Estimates: Base Case Scenario

Scope 3 emissions estimates were examined based on the eight upstream (Category 1 - 8) and seven downstream (Category 9 - 15) Scope 3 categories detailed in Table 2-8. The data was provided prior to the DFS stage of the Project, and these estimates are likely to be refined as more information becomes available.

Scope 3 emissions are estimated to be 3.4 $MtCO_2$-e, being over 30% of the total emissions over the LOM. Category 01: Purchased goods and services contribute over 80% of the Scope 3 emissions, estimated at 2.8 $MtCO_2$-e over the LOM. Over 70% of Category 01 is from explosives, with the remaining being reagents used for processing.

The Scope 3 emissions over the LOM are represented in Chart 2-4 using a logarithmic scale due to the dominance of Category 01, and details of calculation methods and activity data types are in Table 2-8. The annual emission estimates for material Scope 3 emissions are shown in Table 2-8 and Chart 2-5.

Chart 2-4 Scope 3 Greenhouse Gas Emissions Profile – Base Case Scenario

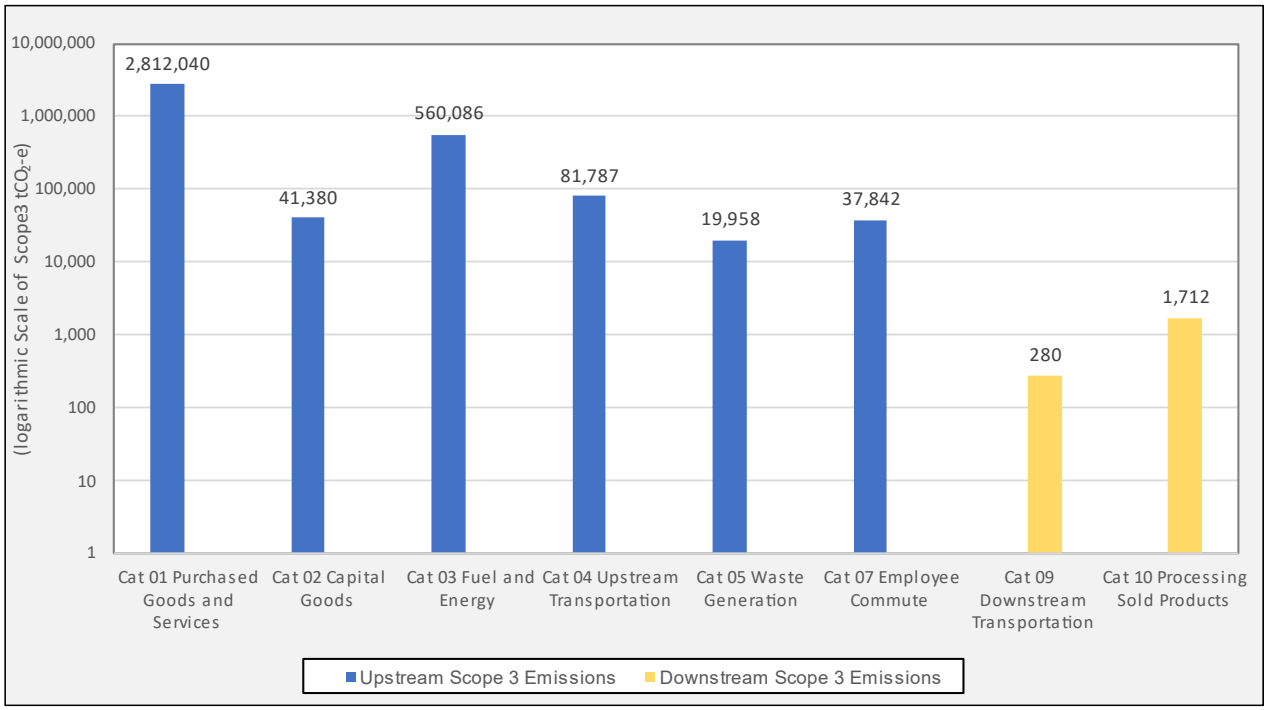


Chart 2-5 Scope 3 Greenhouse Gas Emissions Profile – Base Case Scenario

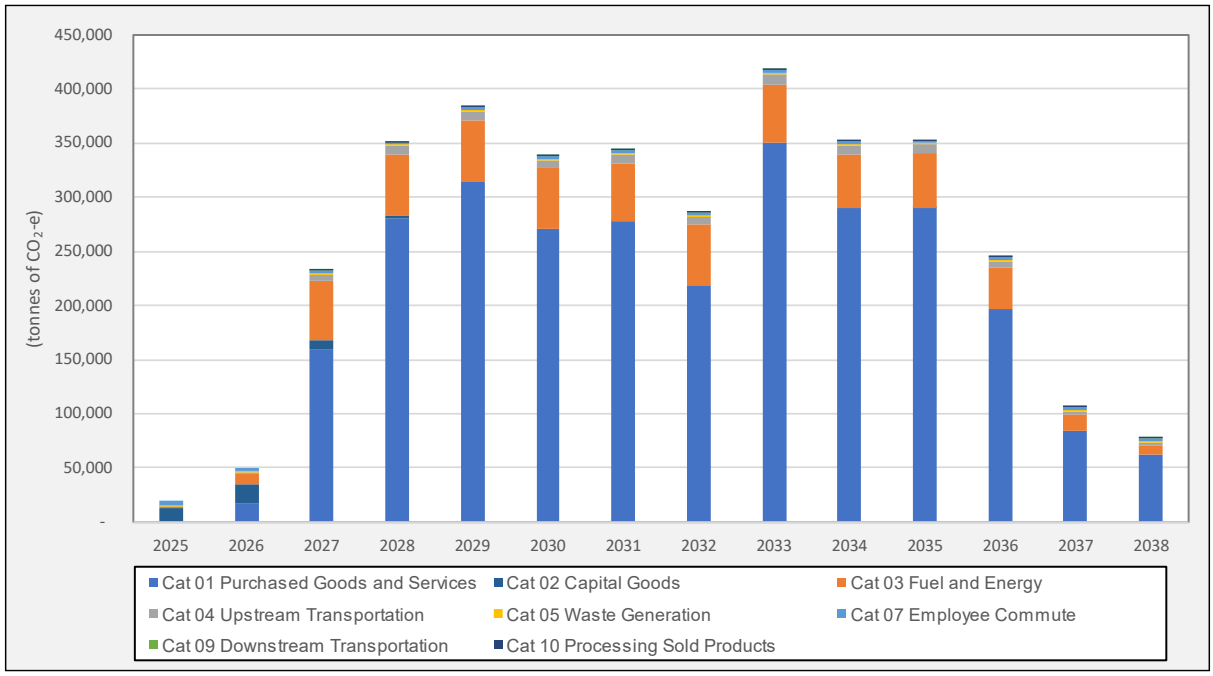


Table 2-8 Scope 3 Emissions Categories and Calculation Methods

GHG Protocol Category	Description	Emissions Estimate ($ktCO_2$-e)	Calculation Method and Typical Activity Data
Category 1: Purchased goods and services	Extraction, processing, refining, production, transportation, and eventual use of goods and services purchased or acquired.	2,812	Operational goods and services such as: • Explosives for mining • Reagents for processing
Category 2: Capital goods	Extraction, processing, refining, production, transportation, and eventual use of goods and services purchased or acquired.	41	Capital Good Purchases. Embedded estimates based on dollar spend. • Machinery • Steel for construction • Concrete for construction
Category 3: Fuel- and Energy-Related Activities, Not Included in Scope 1 or Scope 2.	Upstream emissions of purchased fuels and electricity, including (Transport and Distribution) losses.	560	Estimates are based on National Greenhouse Accounts Factors (DCCEEW, 2023) for embedded emissions in: • Diesel • LPG • Electricity
Category 4: Upstream transport	Transportation and distribution of products purchased by the reporting company.	82	Estimates made using the estimated quantity of purchased products, shipping/transportation method and distance from supplier to the project site, including: • Explosives • Reagents • Diesel • LPG
Category 5: Waste generated in operations	Disposal and treatment of waste generated in the reporting company's operations.	20	The emissions from the treatment of solid waste generated by the camp accommodation. Waste was estimated from data obtained from a study of mining camps (Goodfield, 2015). Adjusted for 720 people on-site during construction and 600 people on-site during the operating phase.
Category 6: Business travel	Transportation for business-related activities during the reporting year.	Not Estimated	This category was not estimated as travel for business other than employee commuting (Category 7) is considered insignificant.
Category 7: Employee commuting	Transportation of employees between their homes and their work sites.	38	Based on emissions from employees commuting from a Perth residence to the Project via air and road.

GHG Protocol Category	Description	Emissions Estimate ($ktCO_2$-e)	Calculation Method and Typical Activity Data
Category 8: Upstream leased assets	Operation of assets leased by the reporting company (lessee).	Not Estimated	No upstream leased assets were identified.
Category 9: Downstream transport	Transportation and distribution of products sold between the reporting company's operations and the end consumer.	0.3	Based on emissions from transport of the gold doré to the Perth Mint by air.
Category 10: Processing of sold products	Processing of intermediate products sold.	1.7	Based on the emissions from the processing of gold doré product at the Perth Mint.
Category 11: Use of sold products	End use of goods and services sold by the reporting company in the reporting year	Not Estimated	Considered immaterial.
Category 12: End-of-Life of sold products	Waste disposal and treatment of products sold by the reporting company at the end of their life	Not Estimated	Considered immaterial.
Category 13: Downstream leased assets	Operation of assets owned by the reporting company (lessor) and leased to other entities.	Not Estimated	No downstream leased assets were identified.
Category 14: Franchises	Operation of franchises that are not included in Scopes 1 and 2.	Not Estimated	No franchises were identified.
Category 15: Investments	Operation of investments (including equity and debt investments and project finance) Scope 1 or 2.	Not Estimated	No investments were identified.

Table 2-9 Annual Scope 3 Emissions ($ktCO_2$-e) for Base Case Scenario

Source	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	Total
Cat 01 Purchased Goods and Services	-	16	160	280	314	270	278	219	351	290	290	197	84	62	2,812
Cat 02 Capital Goods	12	19	8	2	-	-	0	-	-	-	0	-	-	-	41
Cat 03 Fuel and Energy	2	9	55	57	56	56	53	56	53	49	50	38	15	9	560
Cat 04 Upstream Transportation	0	0	5	8	9	8	8	6	10	8	8	6	3	2	82
Cat 05 Waste Generation	2	2	1	1	1	1	1	1	1	1	1	1	1	1	20
Cat 07 Employee Commute	3	3	3	3	3	3	3	3	3	3	3	3	3	3	38
Cat 09 Downstream Transportation	-	-	0	0	0	0	0	0	0	0	0	0	0	0	0
Cat 10 Processing Sold Products	-	-	0	0	0	0	0	0	0	0	0	0	0	0	2
Total	19	50	232	351	383	339	344	286	419	352	353	245	106	77	3,555

3. TRAJECTORY OF EMISSIONS REDUCTIONS

Emissions trajectories are presented for the Base Case Scenario, as discussed in Section 2.4, and the Low Carbon Scenario, which includes the mitigation measures outlined in Sections 4 to 7. The baseline emissions for this GHG EMP have used the 2028 base case emissions as this is the first year of 12 months of nameplate production. However, the linear trajectory to net zero by 2050 starts in 2027 to align with the beginning of production.

3.1.1 Scope 1 Emissions Trajectory and Targets

It is proposed that the Project will begin production in late 2026 and ramp up to reach its designed capacity for material movement and processing of ore in 2027. However, 2026 and 2027 have a large proportion of cover waste, which is less energy-intensive to dig, load and haul. Even though there is still a significant proportion of cover waste in 2028, it serves as a representative baseline for the remainder of the operations.

De Grey does not envisage any need to surrender offsets to meet the 5 yearly emissions targets

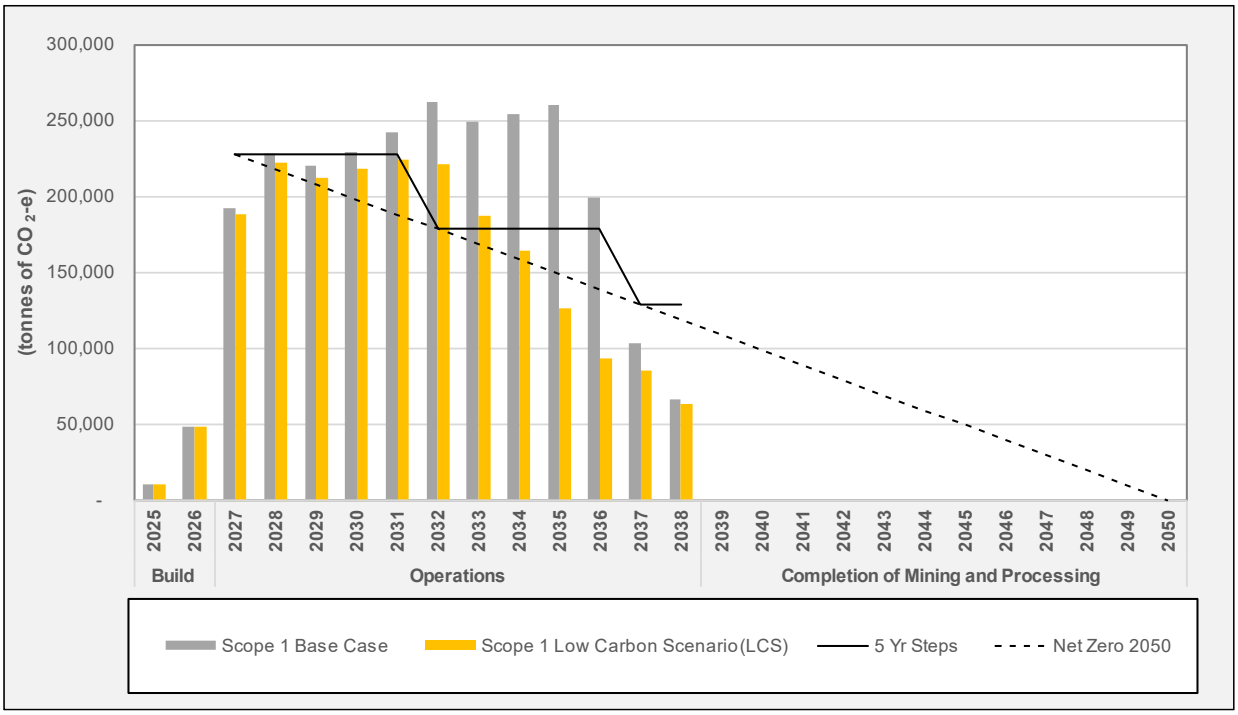
The emissions targets have been calculated using the baseline year's annual emissions for the first 5 years and then moving down to the linear trajectory for the following 5 years, as demonstrated in Chart 3-1. These 5 yearly targets are compared to the Base Case Scenario and Low Carbon Scenario emissions trajectory (Table 3-1 and Chart 3-1). The 5 yearly targets begin in 2027 as the relatively small quantity of production and diesel consumption in 2026 would skew the resulting emissions well below the emissions in the baseline.

Table 3-1 Scope 1 Interim Five-Yearly Targets ($ktCO_2$-e)

Operational Years	Emissions Target	Base Case Scenario	Low Carbon Scenario
2027 - 2031	1,139	1,112	1,066
2032 - 2036	891	1,224	792
2037 – 2038	257	170	149
Total	2,287	2,506	2,007

Section 3.1.3 examines the combined effect of Scope 1 and Scope 2 on gross emissions.

Chart 3-1 Scope 1 Base Case Scenario Emission Trajectory and Targets



3.1.2 Scope 2 Emissions Trajectory

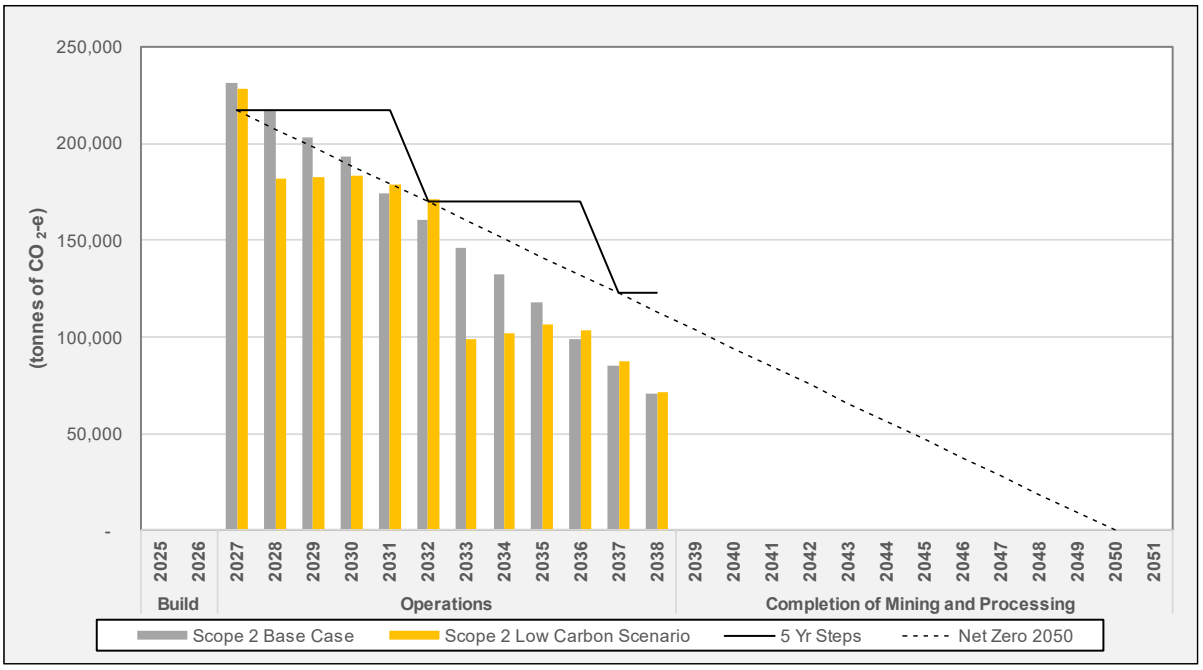
For Scope 2, the Hemi Gold Project will use 2028 as the baseline year to be consistent with Scope 1, with the Project projected to be processing at nameplate capacity in that year. The 5 yearly emissions trajectories and targets for the Base Case and Low Carbon scenarios are in Table 3-2, with the annual emissions in Table 3-5.

Table 3-2 Scope 2 interim five-yearly targets ($ktCO_2$-e)

Operational Years	Emissions Target	Base Case Scenario	Low Carbon Scenario
2027 - 2031	1,085	1,019	955
2032 - 2036	849	656	583
2037 – 2038	245	156	160
Total	2,180	1,831	1,697

The trend for the Base Case Scenario over the LOM presented in Chart 3-2. shows a linear reduction in emissions over the LOM. This linear reduction results from a combination of steady power demand over the LOM and the forecast decrease in the NWIS electricity emissions intensity discussed in Section 2.4.5. The Low Carbon Scenario shows increases from 2027 to 2030 and then again from 2031 to 2035, which results from a fixed forecast for electricity intensity negotiated through the PPA (Section 5) but an increase in electricity demand as the electrification of diesel-powered equipment increases. This increase in Scope 2 emissions should be viewed in the context of the reduction in diesel Scope 1 emissions, which is discussed in Section 6 of this report.

Chart 3-2 Scope 2 Base Case Scenario Emission Trajectory and Targets



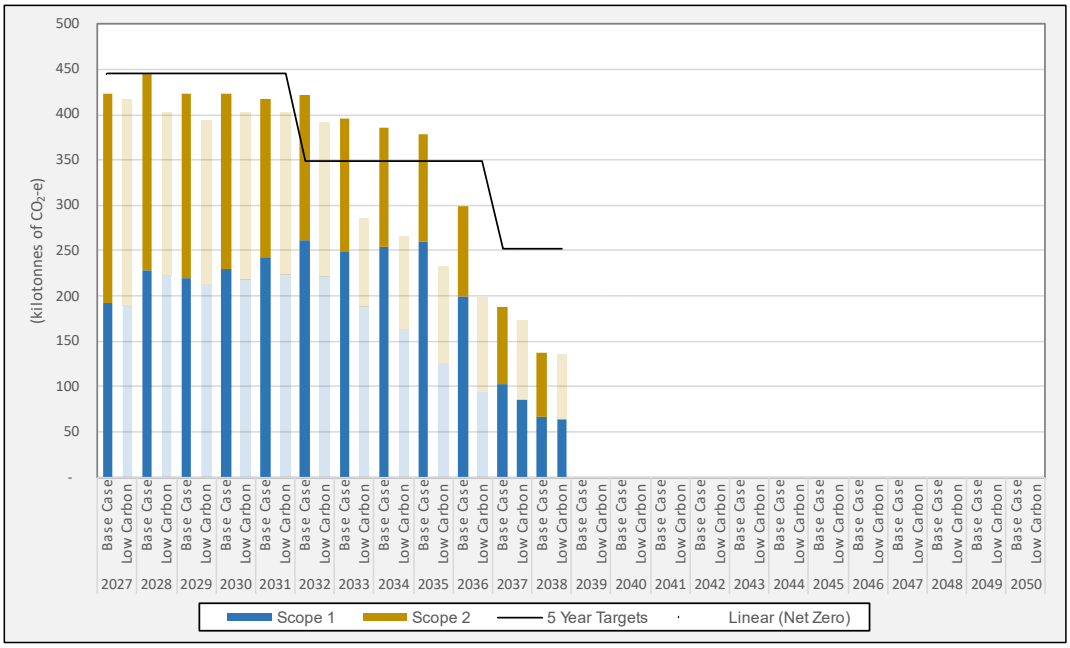
3.1.3 Scope 1 and 2 Emissions Trajectory

The 5 yearly emissions trajectories and targets for the Base Case Scenario, Low Carbon Scenario and Low Carbon Scenario are presented in Table 3-3, with the annual emissions in Chart 3-3 and Table 3-5.

Table 3-3 Scope 1 and 2 interim five-yearly targets (ktCO2-e)

Years	Emissions Target	Base Case Scenario	Low Carbon Scenario
2027 - 2031	2,224	2,131	2,021
2032 - 2036	1,741	1,880	1,374
2037 – 2038	503	326	309
Total	**4,468**	**4,337**	**3,704**

Chart 3-3 Scope 1 and 2 Base Case Scenario Emission Trajectory and Targets



3.1.4 Scope 3 Emissions Trajectory

As mentioned in Section 3.1.1, the Hemi Gold Project will use 2028 as the baseline year, with the Project reaching nameplate production in 2027. The emissions trajectory and five yearly targets are shown in Table 3-4, with the Base Case Scenario emissions and the Low Carbon Scenario trajectories displayed in Chart 3-4. The Low Carbon Scenario reduction trajectory is based on the reduction in Scope 3 emissions from fuel and electricity from fossil fuel power.

The largest contributor to the Scope 3 emissions is the Category 1 Purchase of Goods and Services, which remains unchanged between the two scenarios and shows a large annual variability (Table 2-9). The yearly variability is almost entirely driven by the change in expected explosive use, which makes up approximately 70% of the Scope 3 emissions in Category 1 Purchase of Goods and Services. De Grey has not identified an alternative approach to reducing the size of the ore.

Table 3-4 Scope 3 Interim Five-Yearly Targets

Operational Years	Emissions Target ($ktCO_2$-e)	Base Case Scenario ($ktCO_2$-e)	Low Carbon Scenario ($ktCO_2$-e).
2027 - 2031	1,757	1,649	1,635
2032 - 2036	1,375	1,654	1,542
2037 – 2038	397	183	178
Total	**3,528**	**3,486**	**3,356**

Chart 3-4 Scope 3 Emissions Trajectory and Targets

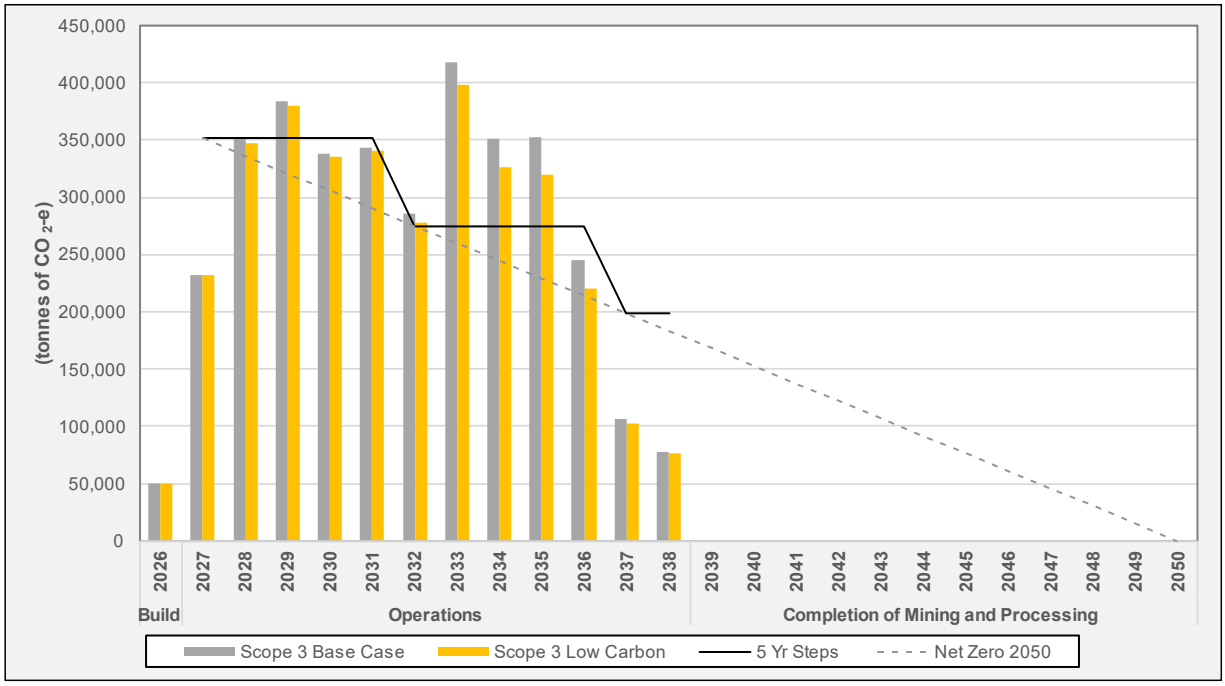


Table 3-5 Greenhouse Gases Avoided Reduced for Scopes 1-3 ($ktCO_2$-e)

Calendar Year	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	Total
Base Case Scenario															
Scope 1	10	48	192	228	220	229	242	262	249	254	260	200	103	67	2,564
Scope 2	0	0	231	217	203	193	175	160	146	132	118	99	85	71	1,831
Scope 1 & 2	10	48	424	445	423	423	417	422	395	386	378	299	188	137	4,395
Scope 3	19	50	232	351	383	339	344	286	419	352	353	245	106	77	3,555
Total	29	98	656	796	807	761	760	708	814	738	731	544	294	214	7,951
Low Carbon Scenario															
Scope 1	10	48	189	222	213	218	225	221	187	164	126	94	86	64	2,066
Scope 2	-	-	228	182	182	184	179	171	99	102	107	104	88	72	1,697
Scope 1 & 2	10	48	417	404	395	402	403	392	286	266	233	198	173	135	3,763
Scope 3	19	50	232	347	380	336	341	278	399	327	319	220	102	76	3,425
Total	29	98	649	750	775	738	744	670	685	593	552	417	276	212	7,188
Emissions Avoided or Reduced															
Scope 1			4	6	8	11	18	41	62	90	134	106	18	3	499
Scope 2			3	36	21	10	-4	-11	47	30	11	-5	-3	-1	134
Scope 1 & 2			7	41	28	21	13	30	109	120	145	101	15	2	632
Scope 3			0	5	3	3	3	8	20	25	33	26	4	1	130
Total			7	46	32	23	16	38	129	144	179	127	19	3	763

4. SCOPE 1 – MITIGATION MEASURES

Reduction in Scope 1 emissions is focused on decarbonising diesel-powered plant and equipment. This plan is based on electrification of this plant and equipment as the most likely pathway in combination with reducing Scope 2 emissions intensity.

4.1 Mining best practice design and operational measures

Decarbonised traditional diesel-powered plant and equipment are at various early stages of development worldwide. There are examples of currently available battery-powered loaders, haul trucks and excavators. Fortescue Ltd has produced a prototype hydrogen-powered truck, and BHP Group Ltd (BHP) and Caterpillar Inc (Caterpillar) are developing a battery-powered haul truck.

De Grey will continue to assess the best available technology to achieve the targets set out in this plan cost-effectively.

At this stage, De Grey has not included alternative fuels, e.g., biodiesel or green hydrogen, in the Low Carbon Scenario. However, should these fuels become available in the Pilbara region, then they could be used in addition to or in place of plant and equipment electrification. The introduction of alternative fuels may have the potential to further reduce Scope 1 and Scope 2 emissions compared with electrification.

4.2 Proposed Scope 1 Mining Mitigation Measures

The proposed Low Carbon Scenario is focused on reducing Scope 1 emissions through the electrification of diesel-powered mobile and stationary plant and equipment (Table 4-1). The reduction in emissions through electrification is dependent on reducing Scope 2 emissions, which is discussed in Section 5. This approach is based on the expected technology available, and a decarbonisation project done in collaboration with Wood Australia (Wood, 2023).

Other decarbonised energy sources may prove to be a more cost-effective transition with even deeper reductions in emissions, and De Grey will regularly monitor available technologies.

Table 4-1 Scope 1 Low Carbon Scenario Mitigation Measures

Period	Activity	Influence
2027 - 2030	Transition to electric non-mining site vehicles	Electric light and other vehicle transition: • 100% Electric Buses from start • 25% of all vehicles by 2028 • 100% of vehicles by 2031
2027 - 2032	Transition to electric dewatering borefield pumps.	Borefield pumps will transition from diesel-powered to electric as follows: • All diesel during construction • 25% electric in 2028 • 50% electric in 2029 • 85% electric from 2032
2030 - 2037	Transition to electric haul trucks and excavators.	The transition from diesel to electric involves: • One electric haul truck and excavator in 2030 • One additional excavator in 2032 • 75% electric haul fleet by 2035
2030 - 2034	Transition to electric for other mining support equipment.	75% of the ancillary fleet (small graders and small dozers) will transition from diesel to electric from 2030 to 2034.

Results of the individual mitigation measures are presented in Table 4-2 and show the most significant reduction in Scope 1 emissions comes from the electrification of the mining equipment. However, this emission reduction does not start until around 2031, when the equipment is likely to become available. De Grey is committed to making early reductions, as seen with the non-mining equipment being introduced early in the Project.

Table 4-2 Scope 1 Mitigation Measures ($ktCO_2$-e)

Mitigation	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	Total
Absolute Reduction ($ktCO_2$-e)															
Mining Equipment						3	11	33	55	84	128	100	11	0	425
Mine Dewatering			3	5	6	5	4	4	4	3	3	3	3	0	43
Non-Mining Site Vehicles			0	1	2	2	3	3	3	3	3	3	3	3	29
Total			3	6	8	10	18	40	62	90	134	106	17	3	497
Percentage Reduction of Individual Mitigation Actions															
Mining Equipment						3%	9%	24%	41%	67%	94%	96%	73%		34%
Mine Dewatering			25%	50%	85%	85%	85%	85%	85%	85%	85%	85%	85%		51%
Non-Mining Site Vehicles			15%	25%	50%	75%	100%	100%	100%	100%	100%	100%	100%	100%	88%
Total			3%	5%	6%	8%	14%	28%	43%	68%	94%	96%	78%	100%	36%
Percentage Reduction Compared to Total Scope 1															
Mining Equipment			0%	0%	0%	1%	4%	13%	21%	33%	55%	52%	13%	0%	17%
Mine Dewatering			2%	2%	3%	2%	2%	2%	2%	1%	1%	2%	3%	0%	2%
Non-Mining Site Vehicles			0%	0%	1%	1%	1%	1%	1%	1%	1%	2%	3%	4%	1%
Total			2%	3%	3%	4%	7%	16%	23%	36%	58%	55%	20%	4%	19%

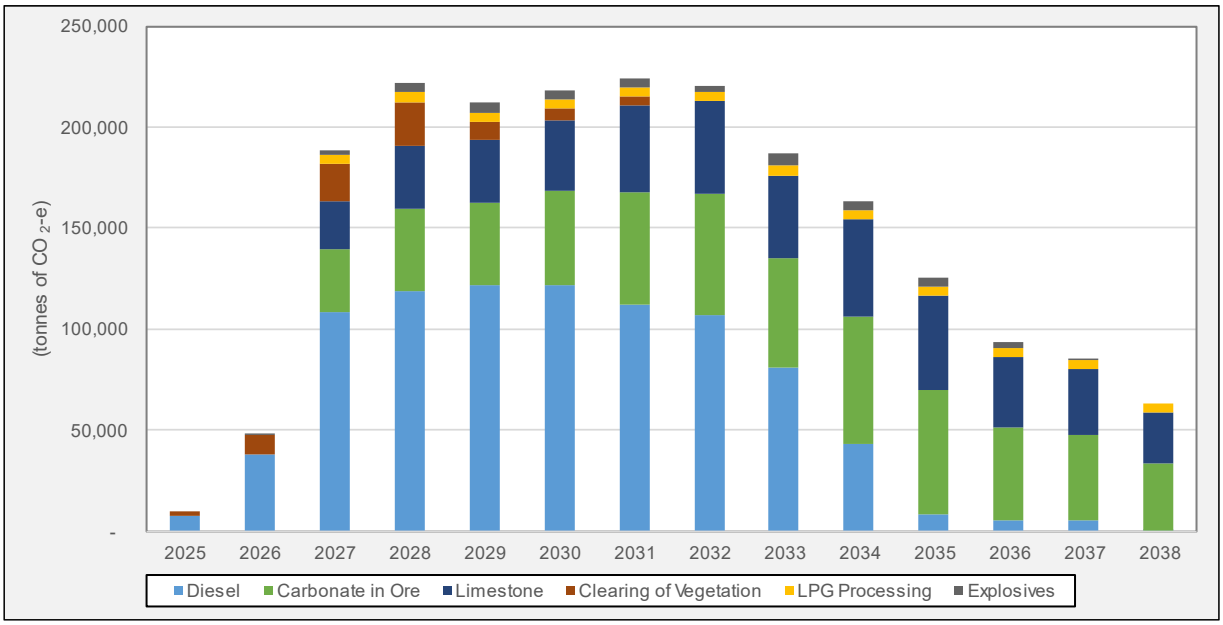
4.3 Processing best practice design and operational measures

Following the decarbonisation of the diesel plant and equipment, the remaining Scope 1 emissions that are persistent over the LOM are the generation of CO_2 emissions directly from the treatment process, as seen in Chart 4-1. As discussed in section 2.4.4, the POx process results in the conversion of carbonate in the ore to CO_2, and the addition of limestone to maintain the correct pH during and after the leaching process is neutralised to emit CO_2 directly into the atmosphere.

It is fortunate from resource utilisation and global emissions point of view that the Hemi ore has inherent naturally occurring carbonates that provide approximately 90% of the neutralisation. Therefore, only a small addition of a neutralisation agent from external sources is required, thus reducing external limestone and lime and providing a consequential reduction in Scope 3 emissions from the production and transport of these reagents to the site.

De Grey believes the process design presented in the Base Case Scenario discussed in Section 2.4.4 is the best-practice processing method for this ore body with current cost-competitive technologies. During operation, process control will be key to reducing the quantity of additional neutralisation required.

Chart 4-1 Diesel Emissions Compared to Process Emissions over LOM for Low Carbon Scenario



4.3.1 Alternative Mitigation Measures Considered for Scope 1 Processing Emissions

De Grey commissioned an investigation into carbon reduction opportunities for reducing the Scope 1 emissions from processing (Wood, 2023b). Five opportunities were identified: three focussing on the direct emissions from the process and two on alternative energy for part of the process.

Capturing the carbon dioxide being directly emitted to the environment has the highest mitigation potential at over one million tCO_2-e over the LOM. Two methods were assessed: passive carbon mineralisation in tailings and active carbon capture and storage through liquefication and reuse. From a cost perspective, both technologies were competitive with the cost of offsets and warranted further investigation as the Project progresses. Currently, the technology maturity for both of the opportunities is considered at the industrial testing stage and could not be confidently included.

Replacing limestone with lime would reduce the direct process Scope 1 emissions by over 20% at over 400 ktCO_2-e over the LOM. This opportunity was not pursued as it is costly and does not reduce real emissions, as it transfers Scope 1 emissions to Scope 3 emissions as there is currently no low emissions provider of lime.

The remaining two opportunities involved the use of electrical equipment or green hydrogen to replace processes using LPG. The former technologies are in the industrial testing phase of technology maturity, while the use of green hydrogen is in the piloting stage, and green hydrogen is not yet available in the region. They also have a comparatively minimal impact on the emissions over the LOM at about 60 thousand tCO_2-e.

5. SCOPE 2 – MITIGATION MEASURES

5.1.1 Proposed Low Carbon Scenario

The proposed Low Carbon Scenario reduces Scope 1 emissions through electrification, which increases electrical demand by as much as 60% in 2034. At the start of operations, the processing plant, building, and camp make up 98% of the emissions. While best practice design has been considered for the Base Case Scenario, improvements of 10% are likely as the processing design progresses, and 20% for the village and other buildings. These improvements have not been considered in this GHG EMP but will be considered in future revisions as specific reductions are identified.

Reducing emissions at the source is the focus of Scope 2 mitigation measures. To meet demand and guarantee a stable and reliable supply of electricity, De Grey intends to enter a power purchase agreement (PPA) for the construction of new high-efficiency reciprocating gas engines (~75 MW) at the Port Hedland Power Station, approximately 43 MW of new solar (as an expansion of the 45 MW Port Hedland Solar Farm currently under construction) and a new 75 km 220 kV transmission line from the NWIS to the Hemi Gold Project (Iluminex, 2024). The solution will:

- Install new gas generation with a thermal efficiency that is expected to outperform all existing gas power stations on the NWIS.
- Expand the existing Port Hedland Solar Farm to approximately 88 MW in total, with 43 MW allocated to De Grey.
- Enable De Grey to increase renewable energy contributions further over time, specifically wind generation, should third-party Pilbara wind projects achieve a Final Investment Decision (FID).
- Improve the overall emissions intensity (tCO_2-e/MWh) of the NWIS, benefiting the reporting of all existing users. This improvement is achieved by adding more efficient gas generation and the expansion of solar, which will not all be used by De Grey.

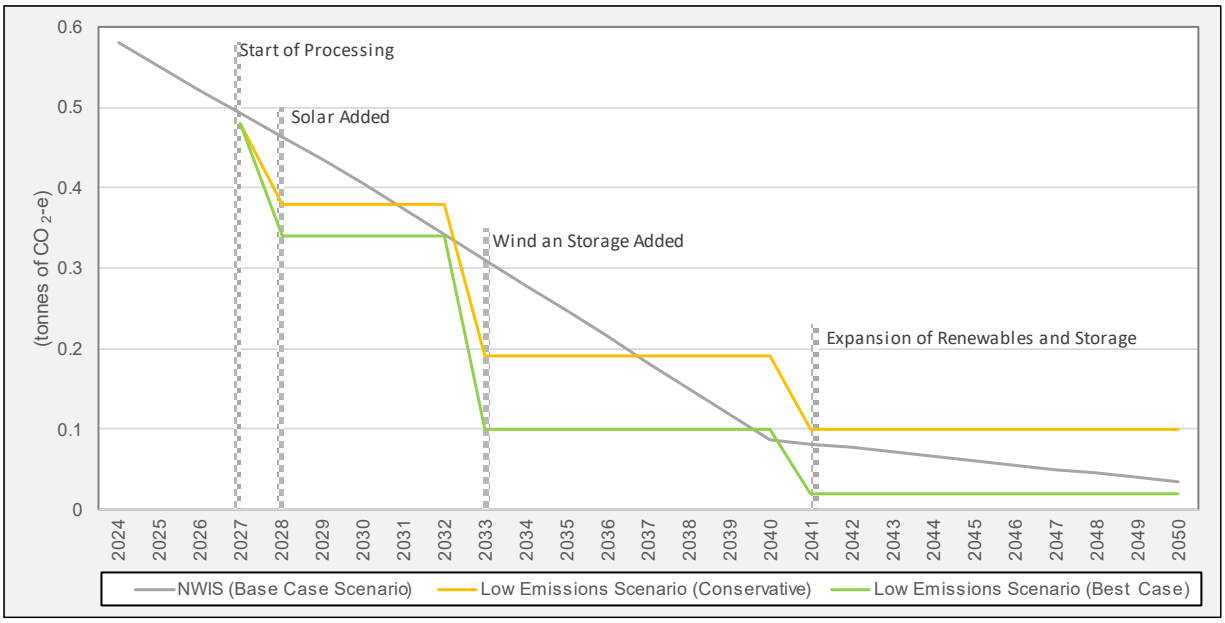
The resulting market-based Scope 2 emission factor from the PPA is presented in Table 5-1 as a range, and plotted on Chart 5-1 as “Low Emission Scenario (Conservative)” and “Low Emission Scenario (Best Case)”. If the NWIS decarbonises as expected (previously discussed in Section 2.4.5), the NWIS will provide a similar, although delayed, Scope 2 emissions intensity trajectory. The PPA provides both a more immediate emissions reduction and de-risks the reliance on the NWIS to provide the Scope 2 reduction.

Should the NWIS decarbonise as expected by the state government, the location-based electricity emissions factor from the NWIS will be lower in some years than the Hemi Gold Project’s forecasted market-based Low Carbon Scenario (Conservative) emissions intensity, as seen in Chart 5-1. Should the situation arise where the NWIS location-based emissions intensity is lower than the market-based emissions intensity, then De Grey would move to a location-based intensity for that period.

Table 5-1 Chronology of Low Carbon Scenario

Activity	Expected Year	Basis of Emission Factor Estimate	Expected Hemi Project Scope 2 Emission Factor (tCO_2-e/MWh)
Commissioning	2027	Establish a new high-efficiency gas generation supplying 100% of the operational load.	0.48 to 0.52
The addition of 43 MWac Solar Photo-Voltaic	2028	Variable Renewable Energy (VRE) 21-30% from contracted solar at Port Hedland Boodarie Solar Farm.	0.34 to 0.38
The addition of Wind Generation and Storage	2032	VRE 60-80% from the addition of wind generation and storage, pending third-party wind project FID.	0.1 to 0.19
The expansion of Renewables and Storage	2041	VRE achieves 80-95% from the expansion of renewables and storage.	0.02 to 0.10

Chart 5-1 Hemi Gold Project Electricity Emissions Intensity versus NWIS



5.1.2 Alternatives Mitigation Measures Considered for Scope 2 Emissions

Four energy demand reduction opportunities were identified and investigated (Wood, 2023b).

The largest of these mitigation measures has the potential to save around 10% in electricity demand or around 200 thousand tonnes of CO_2-e over the LOM. No specific equipment has been identified yet, so while this mitigation measure will be actively pursued, it does not form part of the mitigation measures for this GHG EMP.

Preheating of reagents and waste heat recovery opportunities have less gross mitigation potential at 12,000 and 69,000 tonnes of CO_2-e over the LOM. These need further investigation and may be included in future mitigation measures.

Energy-efficient offices and camp buildings will also be part of the best practice design and will most likely reduce the energy demand estimated. The savings will be identified as the detailed energy-efficient design progresses.

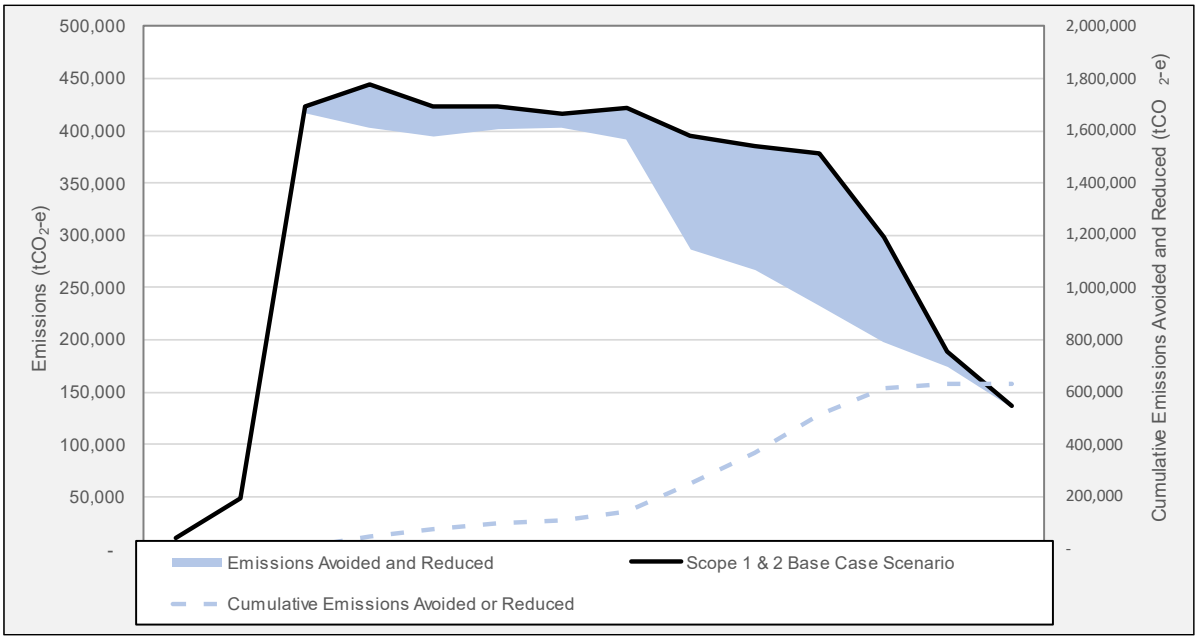
Electricity supply rather than demand is the other method to reduce emissions. De Grey considered variations on three electricity supply solutions for the Hemi project:

- An islanded renewable hybrid solution using gas supplied by Pilbara Energy Pipeline augmented by wind, solar and battery energy storage system (BESS). Consultation with renewable energy providers found that wind was not technically viable due to the Project being in a cyclonic area and augmentation restricted to solar, and BESS provides restricted decarbonisation.
- A renewable hybrid solution using existing gas generation on the NWIS, dedicated solar generation and involvement with third-party large-scale wind projects. To supply the Hemi project using existing gas generation would require the use of inefficient open cycle gas turbines (OCGT) for firming during low renewable energy events. Even with augmentation by solar, wind and BESS, this approach would not achieve emissions intensity reductions to achieve the Hemi Project's emissions reduction targets.
- The solution chosen is similar to the previous option but involves the construction of new high-efficiency gas generation to provide firming for the VRE. This approach allows the Hemi Gold Project to deliver an immediate reduction in emissions intensity for the Project and the NWIS from commissioning and increase renewable energy contributions to the NWIS over time.

6. SCOPE 1 AND 2 MITIGATION MEASURES COMBINED

The total mitigation, including emissions avoided and reduced, is compared to the Base Case Scenario for Scope 1 and 2 in Chart 6-1, along with the cumulative emissions over the LOM.

Chart 6-1 Scope 1 + 2 GHG Emissions Mitigation



The Scope 1 emissions avoided is due to the electrification of diesel power equipment. The additional electricity required results in a Scope 2 emissions increase, even though there is an improvement in the electricity emissions intensity. Table 6-1 provides the details of the interaction between avoided emissions associated with diesel use and the impact of the additional electricity demand on Scope 2 emissions.

Table 6-1 Scope 1 and 2 Mitigation Measures Combined ($ktCO_2$-e)

Mitigation Activity	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	Total
Absolute Reduction in Diesel Use													
Mining Equipment	0	0	0	3	11	33	55	84	128	100	11	0	425
Stationary Equipment	3	5	6	5	4	4	4	3	3	3	3	0	43
Non-Mining Equipment	0	1	2	2	3	3	3	3	3	3	3	3	29
Total	3	6	8	10	18	40	62	90	134	106	17	3	497
Resulting Increase in Scope 2 Emissions Following Electrification Based on Power Purchase Agreement													
Mining Equipment	0	0	0	1	1	8	8	11	16	13	2		59
Stationary Equipment	2	2	2	2	2	2	1	1	1	1	1		15
Non-Mining Equipment	0	0	0	0	0	0	0	0	0	0	0	0	1
Total	2	2	2	4	3	10	9	12	16	13	2	0	76
Combined Emissions Avoided and Reduced													
Mining Equipment	0	0	0	2	10	25	47	73	112	87	9	0	366
Stationary Equipment	1	3	4	3	2	2	3	2	2	2	2	0	28
Non-Mining Equipment	0	1	2	2	3	3	3	3	3	3	3	3	28
Total	1	4	6	6	15	30	53	78	118	93	15	3	421

6.1.1 Benchmarking review of baseline

Benchmarking has been conducted to demonstrate the carbon intensity of gold products for comparison with the Hemi Gold Project's product. The results are summarised in Table 6-2 below:

Table 6-2 Benchmark Review of Carbon Intensity

Description	Year	tCO_2-e/ozAu	Source
Global Average	2020	0.8	World Gold Council
Average of open pit mines	2020	0.79	World Gold Council
Australian average	2020	0.73	World Gold Council
Australian average	2021/2022	0.68	Wood (15 mines)*
Canadian and US average	2021/2022	0.62	Wood (11 mines)*
Other regions average	2021/2022	0.59	Wood (6 mines)*
Mines with POx processing plants	2021/2022	0.70	Wood (4 mines)*

** Wood Australia (2023). De Grey Hemi Gold Refinery Decarbonisation Project – Carbon Intensity Benchmarking. February 2023.*

Comparing greenhouse gas emissions intensity for a gold mining operation can be challenging due to the number of factors that can influence emissions intensity. Many aspects of a mining Project, including grade of the ore, type of ore, geographic location of the mine, available energy sources and processing technology, can influence the emissions intensity measure of tCO_2-e per oz of gold. Generally, only Scope 1 and 2 emissions are used to generate the emissions intensity.

De Grey intends to use the pressure oxidation (POx) process, which requires using a neutralising agent to manage pH prior to the leaching phase of the process. The neutralising agent can be either limestone ($CaCO_3$) or quicklime (CaO). If limestone is used for neutralising, then the CO_2 emitted when limestone is added to the acidic material is a Scope 1 emission. If quicklime is used, as is the case for Newcrest's Lihir Mine in Papua New Guinea, no CO_2 is produced from the facility. However, there are significant CO_2 emissions associated with the production of quicklime, which are classified as Scope 3 and, therefore, are not included in the Scope 1 and 2 emission intensity for the Lihir Mine.

The Hemi ore being processed for this Project contains carbonate and requires significantly less limestone addition to achieve the correct neutralisation. Table 2-6 shows the CO_2 generated from the carbonate in the ore and that generated by adding limestone.

Having carbonates in the ore has advantages, including a decreased use of natural resources (limestone) and reduced diesel required to cart the limestone to the site, producing fewer Scope 3 emissions. Benchmarking becomes problematic when this one source of emissions (neutralisation) makes up approximately 22% of the total Scope 1 and 2 emissions. The emission intensity of the Hemi Project will be skewed higher than that of facilities using predominately lime, where the emissions are within the Scope 3 emissions rather than the Scope 1 emissions.

Australia does not have a gold mining operation that uses the POx method to extract gold from refractory ore. De Grey engaged Wood to carry out a benchmarking investigation for Australian and world gold production (Wood, 2023a). Part of this assessment included global gold operations using POx. Four companies were identified, but only one (Lihir) broke down their Scope 1 emissions to enable an understanding of what neutralisation agent was used.

Chart 6-2 presents the current benchmark intensities of Western Australian and Australian gold operations against De Grey's yearly emissions intensity for the operating life of the mine. The Hemi Gold Project begins midway when benchmarked against international operations, as shown in Chart 6-3, and by 2035, it will be in the best 10 operations benchmarked. The intensity rises again in 2037 and 2038 due to declining grades.

Chart 6-2 Scope 1 + 2 Emissions for Gold Production (tCO2-e/Oz AU)

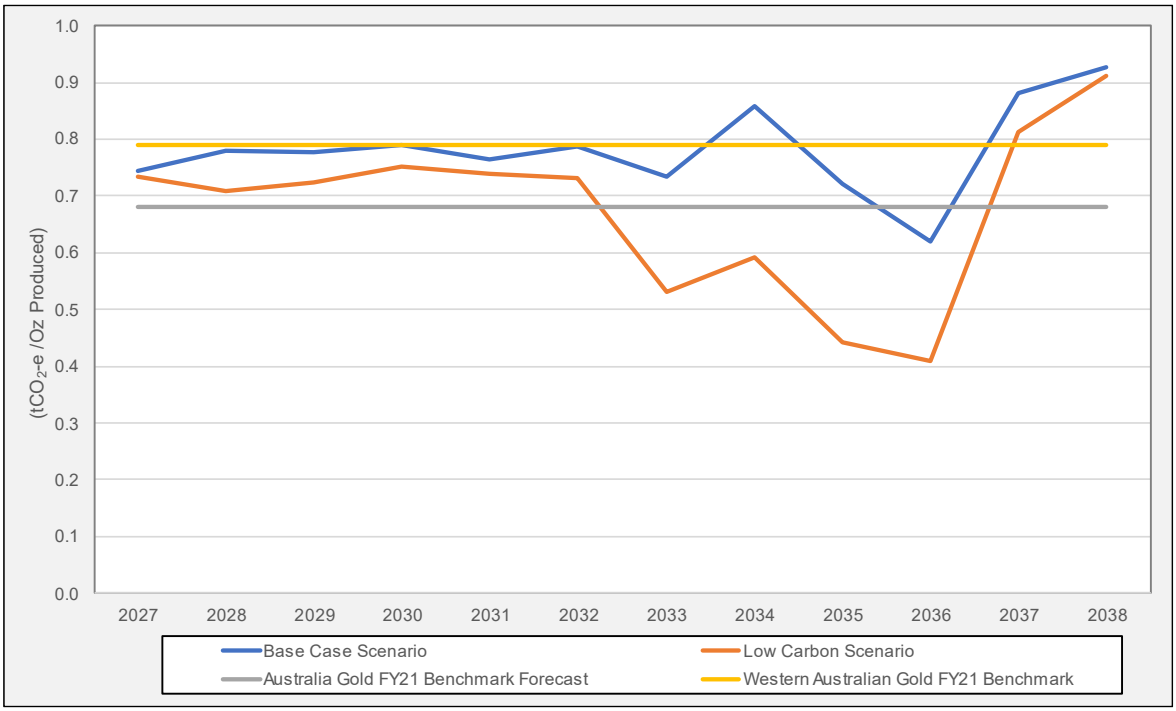
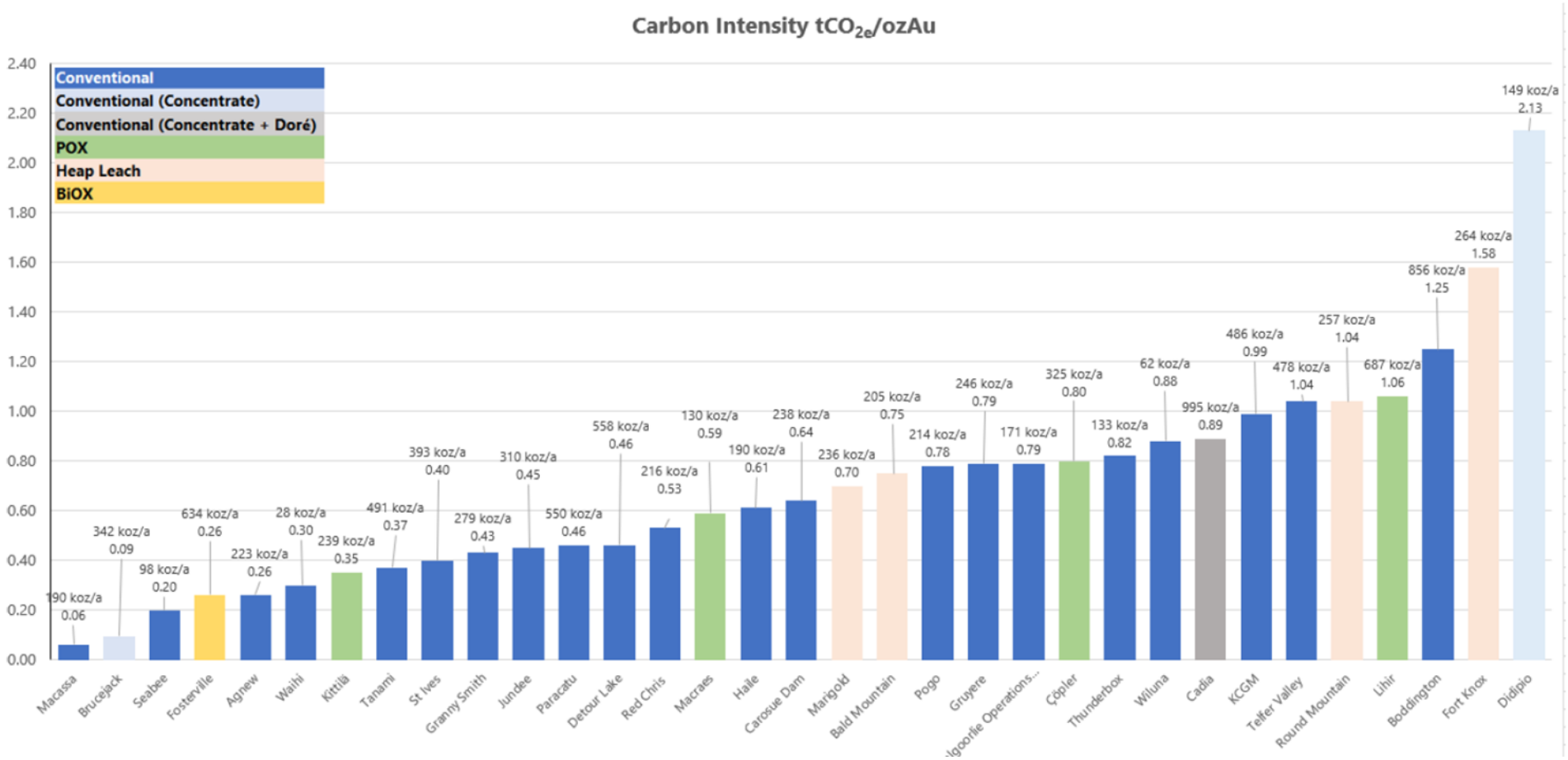


Chart 6-3 Scope 1 + 2 Emissions Intensity of Global Gold Operations



7. SCOPE 3 – MITIGATION MEASURES

The World Gold Council confirmed that the carbon footprint from gold's downstream (Scope 3) uses is relatively small. Gold's GHG emissions from its downstream product processing represent approximately 1% of the total. The overwhelming majority originate from the jewellery manufacturing industry.

As Scope 1 and 2 gross emissions decline through De Grey's low carbon scenario, Scope 3 will become more material unless upstream suppliers are also committed to reducing their emissions. De Grey will be working with these stakeholders to influence the reduction in these Scope 3 emissions, ensuring embedded emissions from our suppliers are part of the selection criteria.

Although not a mitigation measure, having carbonates in the ore has reduced the requirement for limestone, reducing the associated mining of natural resources (limestone) and less diesel required to transport the limestone to the site. The Base Case Scenario includes the consequential reduction in Scope 3 emissions.

7.1.1 Proposed Low Carbon Scenario

The reduction in Scope 3 emissions for this Project is a consequence of the Scope 1 and Scope 2 mitigation measures detailed in Table 7-1. The resulting emissions reductions are presented in Table 7-2.

Table 7-1 Changes to Scope 3 Emissions.

Category	Mitigation Measure	Influence
Cat 03 – Fuel and Energy	Decarbonisation of the electricity supply.	As the electricity supply relies less on fossil fuels, the embedded emissions associated with electricity will be reduced.
	Transition to electric vehicles, reducing diesel use on-site.	As diesel consumption reduces, there will be fewer embedded emissions from diesel consumed. However, this transition also results in an increased requirement for electricity, resulting in upward pressure on Scope 3 emissions associated with electricity.
	The combined effect of the transition to electric vehicles and decarbonisation of the grid.	The reduction in diesel Scope 3 emissions is much larger than the increase in Scope 3 emissions from electricity consumption (Table 7-2).
Cat 04 – Upstream Transport	Transition to electric vehicles resulting in a reduction in diesel deliveries to the site.	The Scope 1 emissions associated with diesel deliveries will be reduced due to fewer deliveries.

The Scope 3 carbon budget over the life of the Project was reduced by 2.6% or 89 thousand tCO_2-e through the implementation of the Low Carbon Scenario as compared to the Base Case Scenario. This reduction is mainly due to the reduction in Scope 3 emissions from fuel and electricity from fossil fuel power. The largest contributor to the Scope 3 emissions is from the Category 1 Purchase of Goods and Services, which remain unchanged between the two scenarios.

As the detailed design progresses, more definitive quantities will be understood around high-emission sources such as concrete and steel for construction, allowing De Grey to refine emission estimates and mitigation opportunities for the Project. De Grey will also ensure energy efficiency and emissions reduction, which are key criteria in process and equipment selection, including

climate-friendly building design. Any improvements to Scope 1 or 2 emissions will have a similar impact to the Scope 3 emissions associated with procuring this energy. Further consideration will be given to ensure that implementing and tracking emissions are made easy and accessible to operational staff, allowing for consideration of emissions in decision-making.

Table 7-2 Scope 3 Mitigation Measures (tCO_2-e)

	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	Total
Mitigation													
Category 3 (Fuel and Energy) Diesel	918	1,420	1,894	2,697	4,358	10,006	15,255	22,179	33,004	26,064	4,323	751	122,869
Category 3 (Fuel And Energy) Electricity	333	4,010	2,319	1,089	-490	-1,186	5,335	3,364	1,295	-517	-332	-107	15,113
Category 4 (Upstream Transport)	2	3	4	6	9	19	28	40	58	46	8	3	226
Total	**1,253**	**5,433**	**4,217**	**3,792**	**3,877**	**8,839**	**20,618**	**25,583**	**34,357**	**25,593**	**3,999**	**647**	**138,208**

8. OTHER STATUTORY PROCESSES REQUIRING A REDUCTION IN GHG EMISSIONS

8.1.1 National Greenhouse and Energy Reporting Scheme

The NGER scheme, established by the *National Greenhouse and Energy Reporting Act 2007* (Cth) (NGER Act), is a single national framework for reporting and disseminating company information about greenhouse gas emissions, energy production, energy consumption and other information specified under the NGER Act. The objectives of the NGER scheme are to:

- Inform government policy.
- Inform the Australian public.
- Help meet Australia's international reporting obligations.
- Assist Commonwealth, State and Territory government programs and activities.
- Avoid duplication of similar reporting requirements in the states and territories.

The Clean Energy Regulator (CER) administers the NGER Act, its legislative instruments, and related policies and processes, including:

- Registering and deregistering corporations for reporting.
- Receiving reports via the Emissions and Energy Reporting System (EERS).
- Monitoring and enforcing compliance.
- Applying the audit framework.
- Administering the National Greenhouse and Energy Register.
- Administering the Safeguard Mechanism.
- Publishing data.

Under the NGER Act, the Project will be required to report Scope 1 and Scope 2 emissions data as it is projected to exceed the reporting threshold of 25,000 t of CO_2-e emitted per annum. The reporting requirements under the NGER scheme do not require any facility to reduce emissions or have an emissions reduction target. However, the Scope 1 emissions data reported under the NGER scheme will be used to determine the offset obligation under the Safeguard Mechanism.

8.1.2 Emissions Safeguard Mechanism

The National Greenhouse and Energy Reporting (Safeguard Mechanism) Rule 2015 applies baselines to large GHG-emitting facilities to maintain net emissions below a specified limit (baseline) in line with Australia's climate objectives. The Safeguard Mechanism operates under the NGER Act and applies to designated large facilities with covered Scope 1 emissions of over 100,000 t CO_2-e per year. On 30 March 2023, reforms were passed to help Australia achieve its net-zero target by 2050 and a 43% reduction below 2005 levels by 2030, as outlined in the Climate Change Act 2022. These reforms include removing "headroom" and tightening baselines by 4.9% annually until 2030, with further reductions extending to 2050. Post-2030, decline rates will be adjusted in five-year intervals based on the success of the Safeguard Mechanism and updates to Australia's Nationally Determined Contribution under the Paris Agreement, with the rates for 2030-2031 to 2034-2035 being set by 1 July 2027.

De Grey, being the responsible emitter, will be required to apply for a production-adjusted baseline following the Project exceeding 100,000 tonnes of covered Scope 1 emissions during an NGER scheme reporting period. Covered Scope 1 emissions include all the diesel combustion

and process emissions but do not include emissions from explosives or land clearing, as these are not included in the NGER scheme.

It is envisaged that in the 2028 reporting period (July 2027 – June 2028), the Hemi Gold Project will be deemed a "designated large facility" under Section 22XJ of the NGER Act. At this point, the prescribed production-adjusted baseline will have been through four 4.9% reductions. As a new facility, the best practice emission intensity applies, being 0.00192 t CO_2-e per tonne of run-of-mine metal ore for the 2028 reporting period. This emissions intensity is used to set the baseline for the period. Scope 1 emissions exceeding this baseline must be covered by surrendering ACCUs or SMCs to the CER before 31 March of the following year.

For the Hemi Gold Project, the obligations under the Safeguard Mechanism result in a significantly reduced net covered Scope 1 emission reduction trajectory, as discussed in Section 8.3.2.

8.2 Consistency with other (non-statutory) GHG reduction instruments

8.2.1 Corporate Emission Targets

De Grey is committed to reducing greenhouse gas emissions and preparing for the physical impacts of climate change and the transition to achieve net-zero emissions by 2050. The company has a decarbonisation roadmap to significantly reduce Scope 1 emissions by transitioning away from fossil fuel-powered plant and equipment. To ensure that using a decarbonised mining fleet results in a real reduction of GHG emissions, De Grey is committed to reducing the emission intensity of its electrical power.

De Grey has a sustainability framework in place that includes a commitment to focus on energy efficiencies that contribute to a low-carbon future. The implementation of the framework will be guided and monitored in a manner consistent with the International Council of Mining and Metals Mining Principles and the requirements of the Task Force on Climate-related Financial Disclosures. De Grey is committed to achieving and exceeding the targets outlined in this GHG EMP.

8.2.2 Industry-Wide Commitments

The World Gold Council (2020) identified that the major source of gold's greenhouse gas emissions is mining operations. About 95% of those emissions come from fuel and electricity usage. Of this, electricity generation typically represents the largest source of emissions at mine sites.

The drive to reduce carbon emissions from gold mining remains at an early stage but is increasing rapidly. Given the scale of their operations, the largest producers have the largest capacity to upgrade their operations to reduce environmental impact. Most of the top producers are currently upgrading facilities to reduce their dependence on fossil fuels in the transition to renewable energy sources, or at the least to transition to cleaner fuels, such as by shifting from coal-fired plants to natural gas.

The top five gold producers – Newmont, Barrick Gold, AngloGold Ashanti Ltd., Polyus and Kinross – accounted for 53% of the emission when comparing 2019 and 2020 emissions from 90 leading gold mines globally (Wood Australia, 2023). Each has committed to reducing its emissions by 20-30% in accordance with the 2016 Paris Climate Accord. If those top five producers reduce their emissions by an average of 25% by 2030, and assuming they process a similar amount of ore as they did in 2020, emissions will decrease from 27 tCO_{2e} to 20 tCO_{2e} in 2030 per thousand tonnes of ore processed.

8.2.3 State Commitments

Under Section 15 of the *Environmental Protection Act 1986 (WA)* (EP Act), the WA EPA has the objective of using its best endeavours to protect the environment and to prevent, control, and abate pollution and environmental harm. This objective, combined with the established link between cumulative sources of GHG emissions and the risk of climate change and the broad acknowledgement that the warming climate will impact the WA environment, means it is appropriate for the EPA to consider the effects of proposals that contribute to the state's GHG. The Western Australian Climate Policy (DWER, 2020) outlines actions for adapting to climate change and transitioning to net zero GHG emissions by 2050, including through the development of sectoral emission reductions.

8.3 Offsets

8.3.1 Offsets required for EPA Emissions Trajectory

De Grey does not expect to require the purchase and surrender of any offsets to meet the 5 yearly targets outlined in Table 3-1 for Scope 1 emissions and Table 3-2 for Scope 2 emissions.

8.3.2 Proposed Safeguard Offsets

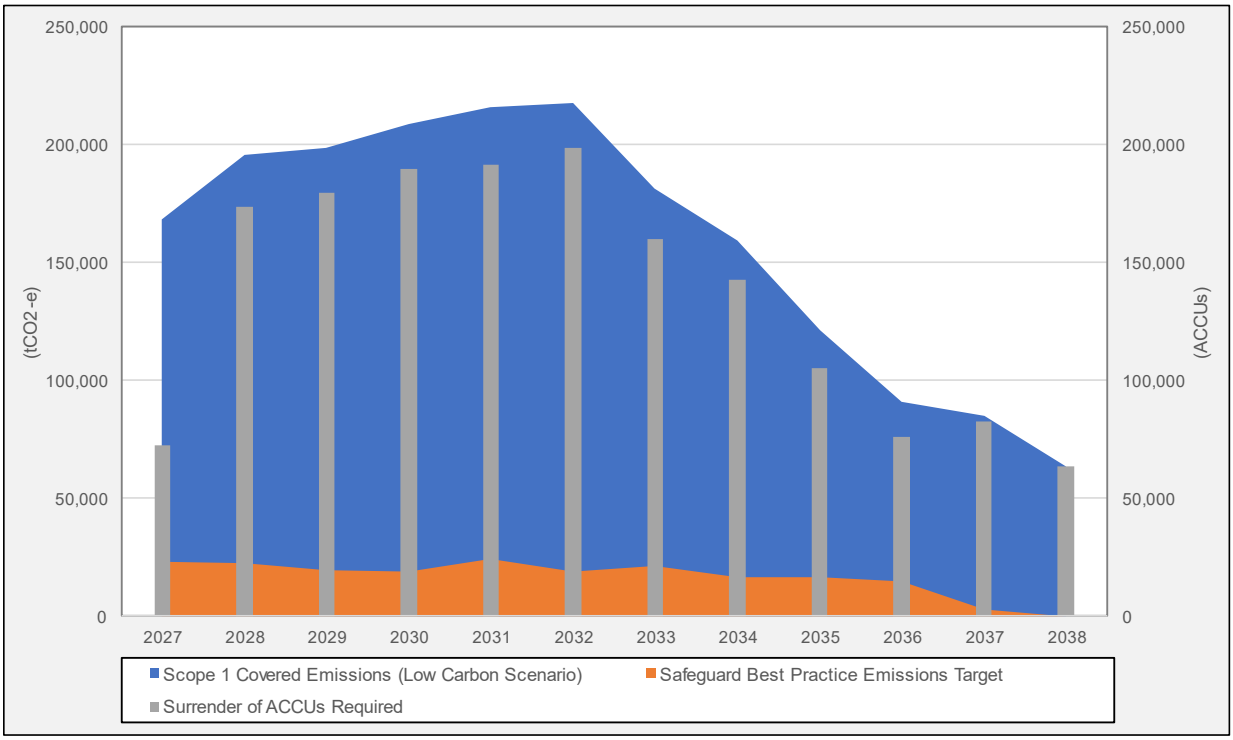
As discussed in section 8.1.2 of this report, offsets are required to meet expected Safeguard Mechanism obligations The projected offsets required to be surrendered to meet the Safeguard Mechanism baseline for Scope 1 emissions are presented in Table 8-1. As the Safeguard Mechanism's baseline uses a production adjusted emissions intensity the target for each year is based on the ROM Production. Therefore, the is no direct emissions trajectory of gross emissions to net zero by any particular year. The yearly target is represented by the orange area in Chart 8-1.

Table 8-1 Estimate of Offsets Required (tCO_2-e)

Calendar Year	Scope 1 Covered Emissions (Low Carbon Scenario)	Estimated Best Practice Emissions Target	Estimated ACCUs Required	Proportion of Scope 1 Emissions Offset
2027	168,489	23,086	72,702*	43%
2028	195,764	22,319	173,444	89%
2029	198,925	19,585	179,340	90%
2030	208,727	18,998	189,729	91%
2031	215,616	24,078	191,539	89%
2032	217,899	19,032	198,867	91%
2033	181,226	21,467	159,759	88%
2034	159,314	16,426	142,888	90%
2035	121,410	16,440	104,970	86%
2036	91,136	14,788	76,349	84%
2037	85,210	2,810	82,400	97%
2038	63,605	0	63,605	100%
Total	1,907,321	199,029	1,635,591	86%

* Note: Scope 1 covered emissions are more than the sum of estimated best practice emissions and estimated accus required as financial year 2028 which only covers 6 months of calendar year 2027.

Chart 8-1 Safeguard Emissions Target and ACCUs Required.



As part of the annual NGER scheme reporting (due at the end of October each year), the CER provides a position statement of any Safeguard Mechanism exceedance and resultant liability. The Proponent has until April of the following year to surrender the appropriate quantity of ACCUs in the event of a liability. This information is recorded on the CER website as evidence as part of the Safeguard Mechanism facility data.

8.3.3 Offset Integrity

De Grey is increasing its commercial efforts to guarantee the availability of high-quality carbon credits in sufficient quantities. This initiative aims to fulfil any ACCUs required for Safeguard Mechanism obligations and to achieve both short-term and long-term objectives for the Project.

The Emissions Reduction Assurance Committee (ERAC) is an independent statutory committee that assesses compliance against the legislated Offsets Integrity Standards to ensure the continued integrity of the Australian Carbon Credit Units Scheme.

By using ACCUs to offset emissions to meet both the Safeguard Mechanism and the commitments in this GHG EMP, De Grey can be confident that these offsets represent real abatement that contributes to Australia's international emissions reduction efforts.

ERAC completes periodic reviews and publishes the findings. De Grey will use this information to help decide which ACCUs they purchase and surrender each year.

8.3.4 Offset Supply

Supply of ACCUs to meet Safeguard Mechanism obligations are forecast to be available as outlined in the CER's quarterly carbon market reports, wherein the March 2023 edition where they "…expect substantial aggregate ACCU supply to 2030…" (CER, 2024), which should meet their expected cumulative emissions reduction required by Safeguard of 200 million tonnes by 2030.

The availability of ACCUs out to 2033 is also backed up by Reputex Energy's OUTLOOK: Medium-term forecast for Australian Carbon Credit Unit (ACCU) supply 2023-33 (RepuTex

Energy, 2024). This report states that they "…expect the Australian market to have ample supply to meet increasing demand under the Safeguard Mechanism…".

De Grey may also elect to work directly with the community, pastoralists, traditional owners and other stakeholders to generate offsets within the Emissions Reduction Fund (ERF) framework. Developing local ERF projects would generate offsets in addition to what is already being achieved through the ERF and provide co-benefits to the Pilbara community. De Grey expects to utilise a combination of purchased, self-generated and 3rd party contracted offsets.

8.4 Project Operating Beyond 2050

De Grey is committed to reducing greenhouse gas emissions and preparing for the physical impacts of climate change and the transition to achieve net-zero emissions by 2050. The Project is proposed to be in production from 2026 with an expected 13-year mine life. Closure and rehabilitation processes will begin after this period, with all operations completed before 2050. If operations extend past the proposed mine life, the GHG EMP will be revised to account for the continued operation.

9. ADAPTIVE MANAGEMENT

De Grey is committed to the continuous improvement of the Project to ensure emissions reduction over the Project's life. Measures included in this plan will be considered and reviewed at regular intervals to improve performance and ensure targets for emissions can be met over time. An adaptive management approach will be adopted for the life of the Project. Adaptive management aligns with the systematic approach of a robust environmental management system where the results from actions are monitored and reviewed, and the plan is adapted to support continuous improvement. Mechanisms to ensure systems are set up through all stages of development to support adaptive management were discussed in Section 4. The rapid change of technologies that can improve greenhouse gas management means adaptive management is essential to this GHG EMP.

Supporting effective adaptive management includes:

- Well-defined and communicated objectives and targets.
- Monitoring of gross energy and emissions that result in intensities that can be used to refine management actions and decisions from all employees and contractors.
- Emission management is made integral to management meetings alongside production, safety and environmental management.
- Consideration of greenhouse gases is integrated into the management of change process.
- Regular auditing and review of results by internal and external experts.
- Review of emerging technologies and innovations in the mining and processing sector.

9.1 Greenhouse Gas Environmental Management Plan Review

This GHG EMP will formally be reviewed at a minimum of five years to enable the reconsideration of best practice design and operations. De Grey will continue to assess the best available technology to achieve the targets set out in this plan cost-effectively. The triggers for a review may be:

- A change to mine planning, processing or introduction of new equipment or infrastructure has the potential to result in a significant change to the emissions profile.
- Substantial changes to State or Commonwealth legislation and climate change policy.
- Board or executive management decisions to change the targets outlined in this plan.

Material changes may require stakeholder consultation, including departments within the Western Australian State Government.

10. REPORTING

De Grey is committed to transparency and a range of public reporting associated with its GHG performance, specifically:

- Annual WA EPA Compliance Assessment Report (which specifically requires details relating to the environmental management plans required under ministerial statement conditions). This report will include the following:
    - Quantity of the GHG emissions;
    - The number of tonnes of iron ore produced; and
    - The emissions intensity (including calculation and calculation methodology).
- A five-year Ministerial Statement Annual Compliance Report, which will contribute to the Paris Agreement's 5-year consolidated report of performance against the Project Targets. This consolidated report will include the following:
    - Quantity of total GHG emissions from the facility;
    - Net GHG emissions;
    - GHG emission reduction measures, the sources, and the accounting methodology that has been implemented to reduce emissions;
    - Quantity of the required offsets to meet interim targets (if required);
    - Performance (emission intensity) against benchmarking for comparable facilities; and
    - A statement of whether interim targets have been achieved.
- Annual NGERs emission and Safeguard Mechanism reporting.
- Annual National Pollutant Inventory reporting.
- Annual sustainability reporting is publicly available on the De Grey website.

This GHG EMP will be made publicly available on the De Grey website.

11. STAKEHOLDER CONSULTATION

As part of the EPA Section 38 Referral, consultation has been undertaken with a broad range of stakeholders on all EPA Environmental Factors, including greenhouse gas management. Section 5 of the Referral Supporting Document provides an overview of the consultation process to date.

Stakeholder consultation has been captured in a Stakeholder Engagement Register since February 2020 and is categorised into the following:

- Aboriginal Corporation
- Traditional Owners
- Pastoralists
- Local Businesses
- Local Government
- State Government
- Federal Government
- Mining Companies

Additionally, there has been ongoing regular consultation with a number of specialist consultancies and engineering companies in the development of this GHG EMP, including:

- Energetics Pty Ltd
- RPMGlobal
- Wood Australia Pty Ltd
- Iluminex Group Pty Ltd

There has also been engagement with electricity power providers in the development of a power strategy, including the negotiation of a power purchase agreement. These include:

- Horizon Power
- Alinta Energy
- APA Group

De Grey will continue to engage with community and government stakeholders as part of the broader stakeholder consultation program, which includes all EPA Environmental Factors. Any feedback on greenhouse emissions will be documented and considered in periodic GHG EMP revisions.

12. CHANGES TO THE EMP

Complexity of changes	**Minor revisions** ☐	**Moderate revisions** ☐	**Major revisions** ☐	
Date revision submitted to EPA: DD/MM/YYYY				
Is the change proposed to be implemented under condition C3-3? If so, the proponent must provide a copy to the CEO at least 20 days before commencing implementation.	**Yes** ☐	**No** ☑		
Proponent's operational requirement timeframe for approval of revision **Reason for Timeframe:**	**< One Month** ☐	**< Six Months** ☐	**> Six Months** ☐	**None** ☐

Item no.	GHG EMP section no.	GHG EMP page no.	Summary of change (separate track changes document to be provided)	Reason for change	New or increased adverse impacts to the environment? Risk to the achievement of limits, outcomes or objectives?
1.	All	All	Updated to reflect reference to the DFS rather than the PFS and comments from EPA.		
2.	1.	1.			
3.	1.	1.			

13. REFERENCES

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