CONCEPTUAL CLOSURE PLAN

Pilbara Iron Ore and Infrastructure Project:
East-West Railway and Mine Sites (Stage B)

for

Fortescue Metals Group Limited

Ref: 30-0086F Stage B PER
December 2004

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1. INTRODUCTION

Fortescue Metals Group (FMG) is seeking to obtain approval from the Environmental Protection Authority (EPA) to develop mining operations and an east-west railway in the Pilbara region of Western Australia.

FMG has identified four key mining areas, three in the Chichester Ranges; Christmas Creek, Mt Lewin and Mt Nicholas; and Mindy Mindy further south on the edge of the Hamersley Ranges. The Christmas Creek, Mt Lewin and Mt Nicholas mining areas will be linked to the Port Hedland to Mindy Mindy railway proposed in Stage A of the Pilbara Iron Ore and Infrastructure Project, via a 160 km railway spur, which will run along the southern slopes of the Chichester Ranges (Figure 1). Access roads will also be constructed to link these project areas.

A Conceptual Closure Plan has been developed for the mining and east-west railway components (Stage B) only, of the Pilbara Iron Ore and Infrastructure Project. At this stage, a Conceptual Closure Plan is not required for Stage A, as it is anticipated that the north-south railway and port facility will be open for other users who will continue to use these facilities into the long term.

This Conceptual Closure Plan is intended to be used as a planning tool for the closure, decommissioning and rehabilitation of all components of the mining operations, including mine pits, waste dumps, plant sites, borefield, water supply pipelines, rail line and associated infrastructure. The plan also establishes a framework for decommissioning for scrutiny by the regulatory agencies in the event of unforeseen closure. FMG have also developed a Revegetation and Rehabilitation Management Plan to specifically document how revegetation and rehabilitation will be carried out.

The development and submission of this Conceptual Closure Plan within the Stage B Public Environmental Review (PER) will facilitate public involvement in the closure process from the early stages. As the project has not yet commenced, this Conceptual Closure Plan cannot anticipate all of the issues that will arise during the projected life of the operation.

This Conceptual Closure Plan will form the basis for developing a comprehensive Life-of-Mine Closure Plan during the first two years of operations as experience with site specific conditions is obtained. A risk-based approach will be applied to identify priorities for ongoing research and monitoring. The mine closure plan will be updated at least every two years.

Specific completion criteria will be developed through the life of an operation as an agreed set of environmental indicators which, upon being met, will demonstrate successful rehabilitation of a site. These will be developed and refined as the operational aspects and characteristics

become better understood through operating experience, focussed research studies and stakeholder consultation.

Commitment – FMG will develop a comprehensive Life-of-Mine Closure Plan within two years of commencement of mining activities which will include the following:

- confirmation of closure objectives
- stakeholder consultation program
- closure aspects risk register
- revised closure design criteria
- closure standards and preliminary completion criteria
- brief description of progressive closure methodology
- closure research and monitoring plan
- basis for financial provisioning
- revised closure schedule

Commitment – FMG will revise and update the Life-of-Mine Closure Plan at least every two years during the operational life of the Project.

Commitment – FMG will submit a final closure plan no later than two years prior to the planned closure of operations.

2. POST-MINING LAND USE AND OBJECTIVES FOR CLOSURE

The first step in developing the overall mine closure strategy is to identify potential post-mining land use options and establish key objectives for closure to be incorporated in the project design.

The most likely post-mining land use is pastoral, with management of the land being returned to the pastoral leaseholders on completion of closure, decommissioning and rehabilitation. This may be reviewed at a later date, depending on the outcome of the Pastoral Lands Board's review of pastoral lease holdings, scheduled for 2015. This review may result in some areas of pastoral lease holdings being excluded for 'public purposes' (e.g. conservation areas). In this context, the primary objectives for the closure of the mining operations and east-west railway are:

1. Establish a safe and stable post-mining land surface which supports vegetation growth and is erosion resistant over the long-term.
2. Re-establish a self-generating ecosystem comprising local native vegetation which resembles the surrounding environment, as close as practical.
3. Leave site in a safe, stable, non-polluting and tidy condition with no remaining plant or infrastructure that is not required for post-operational use.
4. Minimise downstream impacts on vegetation due to interruption of drainage.

5. Identify any potential long-term soil, surface water or groundwater pollution associated with the operations and formulate an action plan to address this.
6. Develop a stakeholder consultation group prior to the onset of closure, to facilitate discussion of closure planning.
7. Continue to monitor environmental performance during decommissioning, rehabilitation and post-closure stages of the project and take appropriate action until the approved completion criteria have been met.

3. CLOSURE TIMETABLE

The proposed closure timetable is likely to be as follows:

EVENT	START	DURATION
Conceptual Closure Plan	Integral part of Project approval process	12 months
Preliminary Life-of-Mine Closure Plan	Within 2 years of commencement of mining operations	2 years
Update Life-of-Mine Closure Plan	Every 2 years during operational life-of-mine	2 months
FMG makes decision to close part or all components of the mining operations and sets date for closure	Estimated at 20 + years	
Discussions with stakeholders, including Regulators	Immediately after decision	Ongoing during closure
Update Assets Register and determine possible points of sale	Immediately after decision	Approximately 3 months
Deconstruction	+3 months	8 months
Restoration work	+12 months	3 months
Review and signoff	+15 months	
Ongoing groundwater monitoring	During the periods above	Minimum one year and possibly longer

4. OBLIGATIONS

4.1 Environmental Principles

There are no formal standards for mine closure planning in Western Australian but there are a number of guidelines for industry to refer to. FMG has reviewed the following documentation on mine closure and rehabilitation and has prepared this Conceptual Closure Plan in line with this documentation, where applicable:

- 'Strategic Framework for Mine Closure'; (2000). Australian and New Zealand Minerals and Energy Council (ANZMEC).

- 'Mine Closure Guideline for Minerals Operations in Western Australia', October 2000. The Chamber of Minerals and Energy.

- 'It's Not Over When it's Over: Mine Closure Around the World', (2002). World Bank and International Finance Corporation.

4.2 Legal Requirements

In Western Australia the main legislative obligations and potential liabilities are created under the following legislation:

- the *Mining Act* 1978 (Mining Act); and
- the *Mines Safety and Inspection Regulations* 1995

which are administered by the Department of Industry and Resources (DoIR) All mining operations in Western Australia are subject to the State *Environmental Protection Act* 1986 (EP Act). The EP Act overrides all other Acts, including the Mining Act and is administered by the Environmental Protection Authority (EPA) and the Department of Environment (DoE). An approval to mine issued under the Mining Act does not override the requirement to obtain an environmental approval under the EP Act. Consequently the requirements of both Acts and their regulators must be satisfied.

The regulation of mine closure in Western Australia is carried out either as a condition of a mining lease imposed at the time approval to mine is granted, or under s.84 which enables the Minister for Mines to impose, at any time, reasonable conditions for the purpose of preventing or reducing, or make good injury to the land.

At this stage, approval to mine has not yet been granted on FMG held tenements. Future updates of this Conceptual Closure Plan will include conditions of the mining leases relating to mine closure and a commitment from FMG to fulfill all requirements.

FMG has signed a State Agreement with the Government of Western Australia which covers FMG's proposed railway and port facilities; the State Agreement was enacted in to law on the 26th November 2004. This State Agreement gives FMG the right to construct and operate its railway and will provide suitable tenure for the railway by issuing a Miscellaneous Licence under the Mining Act. FMG is also negotiating another State Agreement to cover the mining operations; this agreement is expected to be signed in the first quarter of next year with ratification by Parliament following soon thereafter. FMG will be securing tenure for the mining aspects of the Project under the Mining Act and this will be endorsed by the State Agreement when it becomes valid.

It is expected that obligations relating to mine closure will also arise under the EP Act, through Ministerial Conditions of a proposed environmental approval, arising from the Environmental Impact Assessment (EIA) under Part IV of the EP Act. Future updates of the Conceptual Closure Plan will outline all requirements which may have arisen under the EP Act and a commitment by FMG to fulfill them.

5. ENVIRONMENTAL DATA

Annual average rainfall for the Pilbara ranges from 180 mm to over 400 mm (Beard, 1975) with the Bureau of Meteorology data indicating an annual average of 328 mm at Nullagine and 312 mm at Newman. Average maximum summer temperatures are generally between 34°C and 40°C and winter maximum temperatures generally between 22°C and 31°C. In this climate, annual evaporation rates greatly exceed the mean annual rainfall.

The Project Area lies within the Fortescue Botanical District of the Eremaean Botanical Province. The vegetation of this province is typically open, and frequently dominated by spinifex, wattles and occasional eucalypts (Beard, 1975).

The vegetation along the proposed east-west rail line is predominantly sparse low mulga woodland discontinuous in scattered groups, with Coolibah (*Eucalyptus victrix*) trees scattered over various sedges and forbs near Mt Lewin. Where the rail spur terminates near Mt Nicholas, there are hummock grasslands, shrub steppe with *Eucalyptus gamophylla* over hard Spinifex (Beard, 1975).

Vegetation at Christmas Creek is a mosaic of low woodland with mulga in valleys and hummock grasslands, low open tree steppe with snappy gum (*Eucalyptus leucophloia*) over *Triodia wiseana* and kanji over soft spinifex and *Triodia wiseana* hummock grasslands. Mt Lewin and Mt Nicholas is characterised by low mulga woodland and shrub steppe with kanji over soft spinifex and *Triodia wiseana* hummock grasslands. Mindy Mindy is characterised by low tree steppe with snappy gum over *Triodia wiseana* hummock grasslands (Beard, 1975).

The Declared Rare Hamersley Lepidium (*Lepidium catapycnon*) has been recorded near Weeli Wolli Springs. Five Priority 3 and one Priority 4 flora species could potentially occur within the Project area.

Previous fauna surveys conducted in the vicinity of the project area identified four Schedule 1 fauna species and one Schedule 4 fauna species that may occur within the FMG project area. Fauna listed on the CALM Priority fauna database which could potentially occur within the FMG project area include one Priority 1 and seven Priority 4 fauna species.

The topography of the Project area is dominated by the Hamersley Plateau in the south and the Chichester Ranges in the north, with the two features divided by the Fortescue Valley. In general, the topography is gently undulating with relief ranging from 50 to 200 m from the Fortescue Valley to the Chichester Ranges respectively.

The main drainage is the Fortescue River, which flows northwards on Ethel Creek Station and then flows northwest on Roy Hill Station into the Fortescue Marshes. Surface water occurs mainly after rainfall and is usually limited to the periods of January to March and to a lesser extent, May to June.

In general, the water table throughout the region is a subdued reflection of the topography, so that groundwater levels are generally highest along topographic high points, and lowest in valley locations. However, because groundwater gradients are generally shallower than topography, the depth to the water table is generally least in low-lying areas and greatest along the mountain ridges. As a result, the Nummuldi Member, which dips across the Hamersley Basin, tends to be below the water table where it occurs in low-lying areas, and above the water table at higher elevations.

FMG plans to rehabilitate all land disturbed by their operations to a self-sustaining ecosystem resembling as close as practicable, the pre-mining environment. The majority of the proposed areas to be disturbed are pastoral areas, some of which have been disturbed by long-term grazing activity. FMG will aim to re-establish vegetative cover using species native to these areas, but will also consider the impact of grazing on rehabilitation success.

6. STAKEHOLDER INVOLVEMENT

FMG recognises that stakeholder involvement is critical in developing and implementing a mine closure strategy. As this is a conceptual closure plan, stakeholders have not yet been identified or consulted on closure issues, but FMG will ensure that communication with its stakeholders occurs well before and continues during, the decommissioning and closure phase.

Consultation with stakeholders prior to the commencement of the closure and decommissioning phase will ensure stakeholder concerns and objectives are built into the closure strategy. This will help to minimise the potential for late changes to the closure process to occur, which may generate additional costs for the Company.

Stakeholders are likely to come from three main sectors:

- Regulators;
- Community and non-government organisations (including landholders); and
- Company management and employees.

FMG will identify stakeholders for closure during the life of the project and will provide updates on closure developments on an ongoing basis. Once the options and schedule for closure have been narrowed down, a targeted consultation strategy will be developed which will provide information to stakeholders and address any concerns raised.

7. RISK ASSESSMENT

An initial qualitative environmental risk assessment will be carried out during 2006, once production has commenced. This will identify environmental risks associated with the operational, closure and post-closure periods, which will be tabulated on an Environmental Risk Register. The Risk Register will be revised regularly during the life of the operation.

8. FINANCIAL PROVISIONS

FMG will make financial provisions during the life of the operation to cover the costs of closure and decommissioning. This will ensure that sufficient funds are set aside to cover these costs when revenue is no longer being generated.

FMG Senior Management will review the closure provision on an annual basis to ensure provisions are correct. Provisions will be provided monthly through an automatic accounting entry. Any Performance Bonds accumulated by the DoIR are separate from the Company monthly closure provisions and therefore, do not contribute to the total closure provision.

The Company will develop an assets register which will be reviewed on an annual basis. On commencement of the closure process, an audit of the site and an update of the assets register will be conducted to ensure that all closure requirements are recognised and so that required actions can be formulated.

9. REHABILITATION AND REVEGETATION MANAGEMENT PLAN

FMG have developed a rehabilitation and revegetation to outline actions that will be undertaken during the rehabilitation and revegetation of the mining operations and the east-west rail spur (Stage B), The management plan outlines general rehabilitation and revegetation management actions that will be adopted. The plan will be continually updated to incorporate successful procedures identified in site specific trails.

It is recognised that mining is a temporary landuse which should be integrated with, or followed by , other forms of landuse. Rehabilitation of mines will be aimed towards a clearly defined future landuse for the area. This use will be determined in consultation with relevant interest groups including government departments, local government councils, traditional owners and private landowners. Different components of a mine may have different post-mining landuses.

10. CONCEPTUAL CLOSURE DESIGN CRITERIA AND METHODOLOGIES

The following table provides conceptual design criteria and proposes appropriate closure activities for achieving the primary closure objectives associated with various aspects of the FMG mining and east-west railway operations. At this stage it is not possible to anticipate exactly the actions required for closure due to the potential for changes in; technology available to the mining and processing industries and closure standards over time. More detailed closure action plans will be progressively prepared, as appropriate, during the life of the operation.

Conceptual Closure Objectives, Design Criteria and Methodology

Project Aspect	Closure Objectives	Closure Design Criteria	Conceptual Closure Activities
Mine Pits and Waste Dumps			
Mine Pits (backfilled)	• Establish a safe and stable post-mining land surface which supports vegetation growth and is erosion resistant over the long-term. • Rehabilitated land surface functioning as uninterrupted water catchment for sheetflow-reliant Mulga communities. • Re-establish self-generating ecosystem comprising local native vegetation which resembles the surrounding environment, as close as practical. • Continue to monitor environmental performance during decommissioning, rehabilitation and post-closure stages of the project and take appropriate action until the approved completion criteria have been met.	• Prioritise back filling of pits depending on the distribution of downstream Mulga communities • Restore approximate pre-mining contours, where practicable • Water-shedding upper surface • Optimum drainage regime to sustain downstream Mulga communities • Optimum topsoil cover with cleared vegetation material • Self-generating ecosystem function comprising approximate pre-mining vegetation communities	• Identify most susceptible Mulga communities in relation to potential interruption of sheet drainage from open pit development • Survey pre-mining land surface • Characterise and map pre-mining drainage regimes • Schedule mining operations to maximise complete backfilling of pits in most susceptible areas where restoration of drainage is practicable • Clear vegetation and topsoil from all disturbed areas for use in rehabilitation • Progressively backfill during the life of mining operations • Conduct trials over early pits, or appropriate borrow pits, to develop practicable means of establishing a stable water-shedding surface (e.g. selective placement of tails or compacted waste materials) • Contour water shedding surface to minimise potential for ponding and maximise runoff to downstream Mulga communities • Direct replacement of cleared topsoil where practical or re-spread stockpiled topsoil and vegetation material (refer to Revegetation Plan Section) • Seed with local native vegetation if necessary (refer to Revegetation Plan Section) • Lightly scarify • Monitor land/ecosystem function and downstream impacts on vegetation
Mine Pits (voids) (Although this is described as a void the final pit will be filled above the water table and where practicable be free draining. It is	• Establish a safe and stable post-mining land surface which supports vegetation growth. • Maximise infiltration of water • Minimise downstream impacts on vegetation due to interruption of drainage	• Pit perimeters resembling the topography of the surrounding environment • Abandonment bunding surrounding open pits in accordance with doir guidelines where contouring to <20º is not	• Clear vegetation and topsoil from all disturbed areas for use in rehabilitation • Partially backfill open pits with overburden material to at least above the water table • Batter and contour pit walls to <20º to resemble surrounding topography where practicable • Deep rip the pit floor to relieve compaction and assist with infiltration of

Project Aspect	Closure Objectives	Closure Design Criteria	Conceptual Closure Activities
therefore likely that the final pit's post-mining landform will be below the pre-mining landform but it will not be a deep void.)	• Continue to monitor environmental performance during decommissioning, rehabilitation and post-closure stages of the project and take appropriate action until the approved completion criteria have been met.	practicable • Passive drainage diversion and downstream re-distribution	water • Conduct revegetation trials using local native species to determine appropriate treatment of pit floor material (refer to Revegetation Plan Section) • Progressively apply results of revegetation trials to completed pits (refer to Revegetation Plan Section) • Maintain/establish surface water diversion works • Monitor land/ecosystem function and downstream impacts on vegetation.
Permanent Overburden Storage Areas	• Establish a safe and stable post-mining landform which supports vegetation growth and is erosion resistant over the long-term. • Re-establish self-generating ecosystem comprising local native vegetation which resembles the surrounding environment, as close as practical. • Minimise downstream impacts on vegetation due to interruption of drainage • Continue to monitor environmental performance during decommissioning, rehabilitation and post-closure stages of the project and take appropriate action until the approved completion criteria have been met.	• Minimise requirement for Perminant overburden storage areas • Batters <20° • 5m back-sloping berms at 10m vertical intervals • Optimum topsoil cover with cleared vegetation material • Passive drainage diversion and downstream re-distribution • Optimum drainage regime to sustain downstream mulga communities • Self-generating ecosystem function comprising approximate pre-mining vegetation communities	• Schedule mining operations for optimum backfilling of mined out pits • Clear vegetation and topsoil from all disturbed areas for use in rehabilitation • Progressively batter final permanent overburden storage areas slopes and contour to blend with topography • Direct replacement of cleared topsoil where practical or re-spread stockpiled topsoil and vegetation material where practicable (refer to Revegetation Plan Section) • Deep rip on contour • Seed with local native vegetation if required (refer to Revegetation Plan Section) • Maintain/establish surface water diversion works • Monitor land/ecosystem function and downstream impacts on vegetation
Processing Facilities			
Semi-Mobile Primary Crusher(s)] And	• Leave site in a safe, stable, non-polluting and tidy condition with no remaining plant or infrastructure that	• No remaining plant or infrastructure that is not required for post-operational	• Dismantle and remove semi-mobile primary crushing facilities from site for sale • Excavate and remove and/or bury concrete footings

Project Aspect	Closure Objectives	Closure Design Criteria	Conceptual Closure Activities
Secondary crushers, screening and beneficiation plant(s)	is not required for post-operational use.	use	• Bury remaining inert scrap materials which are not suitable for sale or recycling • Remove any hydrocarbon contaminated soils for remediation • Rip surface to alleviate compaction and encourage re-growth of native vegetation (refer to Revegetation Plan Section)

Project Aspect	Closure Objectives	Closure Design Criteria	Conceptual Closure Activities
Rejects Storage Facility	• Leave site in a safe, stable, non-polluting and tidy condition with no remaining plant or infrastructure that is not required for post-operational use. • Establish a safe and stable post-mining landform which supports vegetation growth and is erosion resistant over the long-term. • Re-establish self-generating ecosystem comprising local native vegetation which resembles the surrounding environment, as close as practical. • Minimise downstream impacts on vegetation due to interruption of drainage. • Comply with the closure requirements outlined in DoIR '*Guidelines for the Safe Design and Operating Standards for Tailings Storages'*. • Continue to monitor environmental performance during decommissioning, rehabilitation and post-closure stages of the project and take appropriate action until the approved completion criteria have been met.	• No remaining plant or infrastructure that is not required for post-operational use • Prioritise co-disposal of rejects material to pits depending distribution of downstream mulga communities • Locate initial out-of-pit rejects storage facility to minimise downstream impacts on vegetation due to interruption of drainage • Water-shedding upper surface • Embankment constructed of competent rock material with batters <20° • Limit height <10m above natural ground surface • Optimum waste rock and topsoil cover with cleared vegetation material • Passive drainage diversion and downstream re-distribution • Self-generating ecosystem function comprising approximate pre-mining vegetation communities	• Locate initial out-of-pit rejects storage facility to avoid interruption of natural drainage in most susceptible areas of mulga • Allow sufficient time for consolidation and drying of rejects material to achieve geotechnically stable landform • Clear vegetation and topsoil from all disturbed areas for use in rehabilitation • Investigate current mining industry rehabilitation practices for Reject/Tailings Storage Facilities in the Pilbara region and develop an appropriate rehabilitation program including: – optimum waste rock and topsoil cover to establish a stable water-shedding surface – optimum ripping / surface treatment – suitable native vegetation seed mixes – weed and pest management options – use of non-palatable species to minimise the impact of grazing – completion criteria – vegetation monitoring program • Maintain/establish surface water diversion works • Monitor land/ecosystem function and downstream impacts on vegetation

Project Aspect	Closure Objectives	Closure Design Criteria	Conceptual Closure Activities
Train loading yard stockpile	• Leave site in a safe, stable, non-polluting and tidy condition with no remaining plant or infrastructure that is not required for post-operational use.	• No remaining plant or infrastructure that is not required for post-operational use	• Remove any remaining stockpiled ore and return to the mine pits if not required as product • Dismantle and remove all processing, railway and supporting infrastructure from site for sale • Remove scrap metal from site for recycling • Bury remaining inert scrap materials which are not suitable for sale or recycling • Excavate and remove and/or bury concrete footings • Remove any hydrocarbon contaminated soils for remediation • Contour to restore natural drainage • Rip surface to alleviate compaction and encourage re-growth of native vegetation (refer to Revegetation Plan Section)
Mobile plant and machinery workshop	• Leave site in a safe, stable, non-polluting and tidy condition with no remaining plant or infrastructure that is not required for post-operational use.	• No remaining plant or infrastructure that is not required for post-operational use	• Dismantle and remove all mobile plant and machinery workshop from site for sale • Remove scrap metal from site for recycling • Bury remaining inert scrap materials which are not suitable for sale or recycling • Excavate and remove and/or bury concrete footings • Remove any hydrocarbon contaminated soils for remediation • Contour to restore natural drainage • Rip surface to alleviate compaction and encourage re-growth of native vegetation (refer to Revegetation Plan Section)

Project Aspect	Closure Objectives	Closure Design Criteria	Conceptual Closure Activities
Railway Facilities			
Railway	• Leave site in a safe, stable, non-polluting and tidy condition with no remaining plant or infrastructure that is not required for post-operational use. • Re-establish self-generating ecosystem comprising local native vegetation which resembles the surrounding environment, as close as practical. • Minimise downstream impacts on vegetation due to interruption of drainage	• No remaining plant or infrastructure that is not required for post-operational use • Optimum drainage regime to sustain downstream mulga communities • Self-generating ecosystem function comprising approximate pre-mining vegetation communities	• Stakeholder consultation to determine future post-operational use for all, or part of, the railway system and associated infrastructure • Components of the railway no longer required for any future purpose to be dismantled with the majority of the materials being sold and the remainder being used either for scrap metal or disposed of to landfill • Remove scrap metal from site for recycling • Bury remaining inert scrap materials which are not suitable for sale or recycling • Excavate and remove and/or bury concrete footings • Remove any hydrocarbon contaminated soils for remediation • Contour to restore natural drainage • Rip surface to alleviate compaction and encourage re-growth of native vegetation (refer to Revegetation Plan Section)
Train loading yard	• Leave site in a safe, stable, non-polluting and tidy condition with no remaining plant or infrastructure that is not required for post-operational use.	• No remaining plant or infrastructure that is not required for post-operational use	• Dismantle and remove all processing, railway and supporting infrastructure from site for sale • Remove scrap metal from site for recycling • Bury remaining inert scrap materials which are not suitable for sale or recycling • Excavate and remove and/or bury concrete footings • Remove any hydrocarbon contaminated soils for remediation • Contour to restore natural drainage • Rip surface to alleviate compaction and encourage re-growth of native vegetation (refer to Revegetation Plan Section)
Bridges and culverts	• Leave site in a safe, stable, non-polluting and tidy condition with no remaining plant or infrastructure that is not required for post-operational use. • Minimise downstream impacts on	• No remaining plant or infrastructure that is not required for post-operational use • Optimum drainage regime to sustain downstream mulga	• Stakeholder consultation to determine future post-operational use for bridges and culverts constructed by fmg • If future use of any bridge or culvert is indicated by a third party such as the local shire or pastoralists, the management of the asset will be transferred to the third party. • Bridges and culverts no longer required for any future purpose to be

Project Aspect	Closure Objectives	Closure Design Criteria	Conceptual Closure Activities
	vegetation due to interruption of drainage	communities • Self-generating ecosystem function comprising approximate pre-mining vegetation communities	dismantled with the majority of the materials being sold and the remainder being used either for scrap metal or disposed of to landfill • Remove scrap metal from site for recycling • Bury remaining inert scrap materials which are not suitable for sale or recycling • Excavate and remove and/or bury concrete footings • Recontour to restore natural drainage • Rip surface to alleviate compaction and encourage re-growth of native vegetation (refer to Revegetation Plan Section)
Supporting Infrastructure			
Power station and transmission lines	• Leave site in a safe, stable, non-polluting and tidy condition with no remaining plant or infrastructure that is not required for post-operational use.	• No remaining plant or infrastructure that is not required for post-operational use	• Dismantle and remove all power generation equipment, associated infrastructure and transmission lines from site for sale • Remove scrap metal from site for recycling • Bury remaining inert scrap materials which are not suitable for sale or recycling • Excavate and remove and/or bury concrete footings • Remove any hydrocarbon contaminated soils for remediation • Contour to restore natural drainage • Rip surface to alleviate compaction and encourage re-growth of native vegetation (refer to Revegetation Plan Section)
Bulk hydrocarbon storage	• Leave site in a safe, stable, non-polluting and tidy condition with no remaining plant or infrastructure that is not required for post-operational use. • Identify any potential long-term soil, surface water or groundwater pollution associated with the operations and formulate an action plan to address this.	• No remaining plant or infrastructure that is not required for post-operational use • All sites contaminated with hydrocarbons or chemicals to be completely remediated with levels of contaminants in soil, ground or surface water in compliance with the values in	• Remove any residual hydrocarbon materials from the bulk storage tanks transfer to a licensed facility for disposal • Remove empty bulk storage vessels from site or fill with sand and leave *in situ* • Sample the storage site for the presence of any hydrocarbon contamination • If any contamination is identified, develop an action plan for further sampling and appropriate remediation • Remove scrap metal from site for recycling • Bury remaining inert scrap materials which are not suitable for sale or

Project Aspect	Closure Objectives	Closure Design Criteria	Conceptual Closure Activities
		the doe guideline 2003 *'assessment levels for soil, sediment and water'* and the anzecc 2000 *guidelines for fresh and marine water quality*.	recycling • Excavate and remove and/or bury concrete bunding and/or footings • Rip surface to alleviate compaction and encourage re-growth of native vegetation (refer to Revegetation Plan Section)
Explosive and detonator, ammonia nitrate storage and magazine	• Leave site in a safe, stable, non-polluting and tidy condition with no remaining plant or infrastructure that is not required for post-operational use. • Identify any potential long-term soil, surface water or groundwater pollution associated with the operations and formulate an action plan to address this.	• No remaining plant or infrastructure that is not required for post-operational use • All sites contaminated with hydrocarbons or chemicals to be completely remediated with levels of contaminants in soil, ground or surface water in compliance with the values in the doe guideline 2003 *'assessment levels for soil, sediment and water'* and the anzecc 2000 *guidelines for fresh and marine water quality*.	• Remove all explosives and associated equipment • Dismantle the magazine and remove from site for sale or disposal (if transportable), or demolished (if permanent) • Sample the storage site for the presence of any contamination • If any contamination is identified, develop an action plan for further sampling and appropriate remediation • Remove scrap metal from site for recycling • Bury remaining inert scrap materials which are not suitable for sale or recycling • Excavate and remove and/or bury concrete bunding and/or footings • Rip surface to alleviate compaction and encourage re-growth of native vegetation (refer to Revegetation Plan Section)
Haul roads and access tracks	• Leave site in a safe, stable, non-polluting and tidy condition with no remaining plant or infrastructure that is not required for post-operational use. • Re-establish self-generating ecosystem comprising local native vegetation which resembles the surrounding environment, as close as practical. • Minimise downstream impacts on	• No remaining plant or infrastructure that is not required for post-operational use • Optimum drainage regime to sustain downstream mulga communities • Self-generating ecosystem function comprising approximate pre-mining vegetation communities	• Stakeholder consultation to determine future post-operational use for haul roads and access tracks constructed by FMG • Haul roads and access tracks not required by stakeholders will be rehabilitated • Remove culverts and other associated infrastructure • Remove any hydrocarbon contaminated soils for remediation • Contour to restore natural drainage • Re-spread stockpiled topsoil and vegetation material where available • Deep rip surface to alleviate compaction and encourage re-growth of native vegetation (refer to Revegetation Plan Section) • Seed with local native vegetation if necessary (refer to Revegetation Plan

Project Aspect	Closure Objectives	Closure Design Criteria	Conceptual Closure Activities
	vegetation due to interruption of drainage • Continue to monitor environmental performance during decommissioning, rehabilitation and post-closure stages of the project and take appropriate action until the approved completion criteria have been met.		Section) • Restrict access • Monitor land/ecosystem function and downstream impacts on vegetation
Administration and ancillary support facilities and Accommodation and camp facilities	• Leave site in a safe, stable, non-polluting and tidy condition with no remaining plant or infrastructure that is not required for post-operational use.	• No remaining plant or infrastructure that is not required for post-operational use	• Power, water and drainage systems to be shut off and the buildings will be removed from site for sale • Remove scrap metal from site for recycling • Bury remaining inert scrap materials which are not suitable for sale or recycling • Excavate and remove and/or bury concrete footings • Remove any hydrocarbon contaminated soils for remediation • Contour to restore natural drainage • Rip surface to alleviate compaction and encourage re-growth of native vegetation (refer to Revegetation Plan Section)
Airstrip	• Leave site in a safe, stable, non-polluting and tidy condition with no remaining plant or infrastructure that is not required for post-operational use.	• No remaining plant or infrastructure that is not required for post-operational use	• Stakeholder consultation to determine future post-operational use for the upgraded airstrip at Mt Nicholas by other parties. • Transfer management and maintenance of the airstrip to the local shire or pastoralist. • Remove any structures assembled by FMG and rehabilitate areas not required by new manager
Concrete batching plant	• Leave site in a safe, stable, non-polluting and tidy condition with no remaining plant or infrastructure that is not required for post-operational use.	• No remaining plant or infrastructure that is not required for post-operational use	• Dismantle and remove the concrete batching plant and the main moving components from site for sale • Remove scrap metal from site for recycling • Bury remaining inert scrap materials which are not suitable for sale or recycling

Project Aspect	Closure Objectives	Closure Design Criteria	Conceptual Closure Activities
			• Excavate and remove and/or bury concrete footings • Remove any hydrocarbon contaminated soils for remediation • Contour to restore natural drainage • Rip surface to alleviate compaction and encourage re-growth of native vegetation
Borrow pits and ballast quarry(s)	• Establish a safe and stable land surface which supports vegetation growth. • Maximise infiltration of water • Minimise downstream impacts on vegetation due to interruption of drainage	• Pit perimeters resembling the topography of the surrounding environment • Abandonment bunding surrounding open pits in accordance with doir guidelines where contouring to <20º is not practicable • Passive drainage diversion and downstream re-distribution	• Clear vegetation and topsoil from all disturbed areas for use in rehabilitation • Backfill borrow pits and ballast quarries where sufficient material is available • Batter and contour pit walls to <20º to resemble surrounding topography where practicable • Deep rip the pit floor to relieve compaction and assist with infiltration of water • Conduct revegetation trials using local native species to determine appropriate treatment of pit floor material (refer to Revegetation Plan Section) • Progressively apply results of revegetation trials to completed pits (refer to Revegetation Plan Section) • Maintain/establish surface water diversion works • Monitor land/ecosystem function and downstream impacts on vegetation
Sewage treatment facilities	• Leave site in a safe, stable, non-polluting and tidy condition with no remaining plant or infrastructure that is not required for post-operational use.	• No remaining plant or infrastructure that is not required for post-operational use	• Empty any sewage from the treatment facilities transfer to an approved facility for disposal by a licensed operator • Dismantle and remove the sewage treatment facilities from site for sale • Remove scrap metal from site for recycling • Bury remaining inert scrap materials which are not suitable for sale or recycling • Excavate and remove and/or bury concrete footings • Contour to restore natural drainage • Rip surface to alleviate compaction and encourage re-growth of native vegetation (refer to Revegetation Plan Section)

Project Aspect	Closure Objectives	Closure Design Criteria	Conceptual Closure Activities
Groundwater quality monitoring bores	• Leave site in a safe, stable, non-polluting and tidy condition with no remaining plant or infrastructure that is not required for post-operational use.	• No remaining plant or infrastructure that is not required for post-operational use	• Groundwater quality monitoring bores will be retained for post-decommissioning monitoring • Groundwater quality monitoring bores that are not required for ongoing monitoring will be shut down, bore casings cut off below ground surface and holes plugged.
Water supply bores and pipes	• Leave site in a safe, stable, non-polluting and tidy condition with no remaining plant or infrastructure that is not required for post-operational use.	• No remaining plant or infrastructure that is not required for post-operational use	• Selected water supply bores will be retained for post-decommissioning monitoring • Non-potable water supply bores that are not required for ongoing monitoring will be shut down, bore casings cut off below ground surface and holes plugged. • Above ground pipelines and pumps to be flushed and removed from site • Below ground pipes will be cut off below ground surface and remain buried • Areas around the bores and pipeline route, if they have been excessively disturbed, will be contoured, ripped and seeded with suitable species (refer to Revegetation Plan Section)
Drains	• Leave site in a safe, stable, non-polluting and tidy condition with no remaining plant or infrastructure that is not required for post-operational use.	• No remaining plant or infrastructure that is not required for post-operational use • Optimum drainage regime to sustain downstream mulga communities	• Drains along roads and tracks which will be left open will remain intact. • Drains no longer required will be filled in and the surface contoured to restore natural drainage • Eroded areas surrounding the drains will be repaired before being rehabilitated.
Steel structures, pipes and other metal fabrications	• Leave site in a safe, stable, non-polluting and tidy condition with no remaining plant or infrastructure that is not required for post-operational use.	• No remaining plant or infrastructure that is not required for post-operational use	• Steel structures, pipes and other metal fabrications will be removed from site for sale or recycling • Bury remaining inert scrap materials which are not suitable for sale or recycling
Machinery and pumps	• Leave site in a safe, stable, non-polluting and tidy condition with no remaining plant or infrastructure that	• No remaining plant or infrastructure that is not required for post-operational	• All machinery and pumps will be removed from site and sold at auction.

Project Aspect	Closure Objectives	Closure Design Criteria	Conceptual Closure Activities
	is not required for post-operational use.	use	
Electrical equipment	• Leave site in a safe, stable, non-polluting and tidy condition with no remaining plant or infrastructure that is not required for post-operational use.	• No remaining plant or infrastructure that is not required for post-operational use	• All electrical equipment will be removed from site and sold at auction.
Remaining materials	• Leave site in a safe, stable, non-polluting and tidy condition with no remaining plant or infrastructure that is not required for post-operational use.	• No remaining plant or infrastructure that is not required for post-operational use	• All other materials, which are anticipated to be small quantities of non-recyclable and non-saleable items and rubbish, will be disposed of to local landfill or buried in the mine pits.

11. COMPLETION CRITERIA

In order to assess when the closure process is complete, FMG will develop a set of completion criteria. These criteria will be reviewed by FMG senior management before being submitted to the regulatory authorities for approval and sign off. The approved set of completion criteria will be used as a basis for assessing the closure of the mining and rail operations, with FMG required to be in compliance with the specified criteria before the land management can be relinquished. The completion criteria will be reviewed every two years with the closure plan and updated to include findings of FMG's mine rehabilitation research and development program as well as additional requirements of the regulatory authorities.

Draft completion criteria have been developed as follows, but are likely to be refined throughout the life of the Project, for example as a result of research into rehabilitation methods, ongoing baseline monitoring and increased environmental expectations placed on mining companies in general.

Objective	Potential Completion Criteria
1. Establish a safe and stable post-mining land surface which supports vegetation growth and is resistant over the long term.	All mine voids, infilled (where possible), restore approximately pre mining contours , spread with topsoil, ripped, seeded, have natural drainage lines reinstated and are geotechnically stable. Any remaining permanent overburden storage areas have been contoured to be water shedding , spread with topsoil, ripped, and are geotechnically stable. Rehabilitated rejects and permanent overburden storage areas should comply with the closure requirements outlined in DoIR 'Guidelines for the Safe Design and Operating Standards for Tailings Storages'. All processing, railway and supporting infrastructure has been dismantled and removed from site for sale and/or appropriately disposed of. All buildings and ancillary infrastructure have been removed from site and the surface ripped on the contour to relieve compaction. All bores (except those to be retained for monitoring purposes) have been shut down, bore casings removed and holes plugged or capped. All pipelines and pumps have been flushed and removed from site (aboveground) or left buried (below ground).

Objective	Potential Completion Criteria
	All bulk hydrocarbon storage tanks have been emptied, and removed. All haulroads, tracks and rail corridors have been rehabilitated with natural drainage lines re-established. The final rehabilitated landform: • has been ripped (if compacted) and contoured to resemble the surrounding landscape; • has been contoured to allow natural drainage patterns to be re-established; • is stable and non-erosive; and • has a soil profile that is similar to the pre-mining profile and that will support plant growth.
2. Re-establish a self-generating ecosystem comprising local native vegetation which resembles the surrounding environment as close as practical.	Revegetated areas are stable, well established and represent a self-sustaining ecosystem similar to the surrounding environment in terms of flora and fauna species composition and fauna habitat.
3. Leave site in a safe, stable, non-polluting and tidy condition with no remaining plant or infrastructure that is not required for post-operational use.	All plant and infrastructure post mining is identified, appropriately removed and disposed off in an environmentally responsible manner. The project site is not considered contaminated as per the DoE Guideline 2003 'Assessment Levels for Soil, Sediment and Water'
4. Minimise downstream impacts on vegetation due to interruption of drainage.	Drainage re-established to areas dependant on overland sheetflow
5. Identify any potential long-term soil, surface water or groundwater pollution associated with the operations and formulate an action plan to address this.	All sites contaminated with hydrocarbons or chemicals have been completely remediated with levels of contaminants in soil, ground or surface water in compliance with the values in the DoE Guideline 2003 'Assessment Levels for Soil, Sediment and Water' and the ANZECC 2000 Guidelines for Fresh and Marine Water Quality. Any future sources of contamination have been identified and assessed for risk and treated by removal of the source and/or development of a management plan.

Objective	Potential Completion Criteria
6. Develop a stakeholder consultation group prior to the onset of closure, to facilitate discussion of closure planning.	A community consultation program has been implemented and a closure stakeholder reference group has been formed prior to the closure process commencing. The stakeholder reference group has been well informed of all closure activities and any concerns raised by the group have been formally addressed.
7. Continue to monitor environmental performance during decommissioning, rehabilitation and post-closure stages of the Project and take appropriate action until the approved completion criteria have been met.	Monitoring of soil, surface and groundwater, flora, fauna and any contaminated areas has continued according to the agreed schedule during the post closure period and the results have been included in the annual closure report to the Regulators. Monitor ecosystem function and downstream impact from mine pits, reject and permanent overburden storage areas on vegetation. (Monitoring is likely to be a combination of methods and may include photographic monitoring, transects and standard plot areas) Progressively apply results of revegetation trials to completed pits Any areas of concern identified during the post closure period have been addressed with an action plan and included in the annual closure report.

12. CONCLUSIONS

It is anticipated that the FMG mining operations located at Mt Nicholas, Mt Lewin, Christmas Creek and Mindy Mindy will be closed at the end of the estimated 20+ year long mine life (2026). The east-west railway may be utilised post-mining however, if a suitable use is not identified it will also be closed. This Conceptual Closure Plan cannot anticipate all of the issues that will arise during the projected life of the operation and therefore, is not intended to be a definitive closure prescription. This document does however, provide an outline of the closure process that may be undertaken. A detailed closure plan will be prepared closer to the actual closure date, when the date of closure has been established.

13. REFERENCES

AS/NZS ISO14001 (1996). *Environmental Management Systems – Specification with Guidance for Use.* Australian/New Zealand Standard.

Australian Dangerous Goods Code (January 1998). 6th Edition. Commonwealth of Australia: National Road Transport Commission.

Beard J. S. (1975). Vegetation of the Pilbara Region.

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