Amendment Report

Application for Licence Amendment

Part V Division 3 of the *Environmental Protection Act 1986*

Licence Number	L8464/2010/2
Licence Holder	FMG Solomon Pty Ltd
ACN	128 959 179
File Number	DER2013/001363-2
Premises	Solomon Mine E47/1011, E47/1334, E47/1532, M47/1409, M47/1410, M47/1411, M47/1413, M47/1431, M47/1453, M47/1466, M47/1473, M47/1474, M47/1475, L47/293, L47/294, L47/296, L47/301, L47/351, L47/360, L47/362, L47/363, L47/367, L47/381, E47/382, L47/391, L47/392, L47/397, L47/471, L47/472, L47/710, L47/711, L47/813, L47/814, P47/1279, P47/1286, P47/1287, P47/1304, P417/1305, P47/1735, P47/1736 and portion of E47/1319, E47/1333, E47/1398, E47/1399, E47/1447, E47/3094, E47/3464, L47/361 and L47/713 MT SHEILA WA 6751
Date of Report	14 June 2022
Decision	Revised licence granted

Alana Kidd

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ALANA KIDD
MANAGER, RESOURCE INDUSTRIES

an officer delegated under section 20 of the *Environmental Protection Act 1986* (WA)

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1. Decision summary

Licence L8464/2010/2 is held by FMG Solomon Pty Ltd (Licence Holder) for the Solomon Mine (the Premises), located at E47/1011, E47/1334, E47/1532, M47/1409, M47/1410, M47/1411, M47/1413, M47/1431, M47/1453, M47/1466, M47/1473, M47/1474, M47/1475, L47/293, L47/294, L47/296, L47/301, L47/351, L47/360, L47/362, L47/363, L47/367, L47/381, E47/382, L47/391, L47/392, L47/397, L47/471, L47/472, L47/710, L47/711, L47/813, L47/814, P47/1279, P47/1286, P47/1287, P47/1304, P417/1305, P47/1735, P47/1736 and portion of E47/1319, E47/1333, E47/1398, E47/1399, E47/1447, E47/3094, E47/3464, L47/361 and L47/713.

This Amendment Report documents the assessment of potential risks to the environment and public health from proposed changes to the emissions and discharges during the operation of the Premises. As a result of this assessment, Revised Licence L8464/2010/2 has been granted.

The Revised Licence has been granted in a new format with existing conditions being transferred, but not reassessed, to the new format.

2. Scope of assessment

2.1 Regulatory framework

In completing the assessment documented in this Amendment Report, the department has considered and given due regard to its Regulatory Framework and relevant policy documents which are available at https://dwer.wa.gov.au/regulatory-documents.

2.2 Application summary

On 12 October 2021, the Licence Holder submitted an application to the department to amend Licence L8464/2010/2 under section 59 and 59B of the *Environmental Protection Act 1986* (EP Act). The following amendments are being sought:

- Additional Tailings Storage Facility (TSF) decant infrastructure;
- New dewatering disposal option; and
- Additional groundwater supplementation bores.

This amendment is limited only to changes to Categories 5 and 6 activities from the Existing Licence. No changes to the aspects of the existing Licence relating to Categories 54, 57, 61, 62, 64 and 73 have been requested by the Licence Holder.

Table 1 below outlines the proposed changes to the existing Licence

Table 1: Proposed design or throughput capacity changes

Category	Current design throughput capacity	Proposed design throughput capacity	Description of proposed amendment
Category 5: Processing or beneficiation of metallic or non-metallic ore	Not more than 95,300,000 tonnes per annual period	Not more than 95,300,000 tonnes per annual period	Additional TSF1 decant line
Category 6: Mine dewatering	25,000,000 tonnes per annual period	25,000,000 tonnes per annual period	Additional disposal options: • disposal of excess groundwater via injection or diffusion into Kings East

			backfilled pits; and • expanded supplementation infrastructure at Weelumurra Creek.
Category 54: Sewage facility	Not more than 1,178 cubic metres per day	Not more than 1,178 cubic metres per day	N/A
Category 57: Used tyre storage (general)	2500 tyres	2500 tyres	N/A
Category 61: Liquid waste facility	110,000 tonnes per annual period	110,000 tonnes per annual period	N/A
Category 62: Solid waste depot	6,000 tonnes per annual period	6,000 tonnes per annual period	N/A

On 29 March 2022, the Licence Holder also provided information on a proposed Solomon Detrital Iron Deposit (DID) Pilot Plant to trial the production of a Detrital Concentrate Product (DCP). The DID Pilot Plant will be a temporary standalone pilot plant next to the existing approved Processing Plant. A Genset will supply power, with water supply provided by existing approved sources. Minor civil works will be required to level the area. The temporary pilot plant is scheduled to run between 9 and 18 months and produce a small throughput volume of approximately 3,000 tonnes.

The temporary pilot plant will consist of a hopper, feeder, scrubber, wet screens, two fines and one ultrafines Dense Media Separation (DMS) module, tailings thickener and filtration, and product and dry rejects stockpiles. The slurry produced from the operation of the pilot plant will report to the existing approved TSF. Existing dust management controls will be implemented using sprays, sprinklers, and water carts as per other processing facilities.

2.2.1 TSF1 Decant Line

The TSF decant system consists of two decant towers, which supply a gravity fed pipeline into a Decant Pond beyond the TSF embankment. Skid mounted pumps are in place to assist the removal of decant water as the Licence Holder suspects that the gravity fed pipeline is blocked.

The Licence Holder is proposing the following modifications to the decant system:

- Decommissioning of all decant towers;
- Decommissioning of the gravity fed decant pipeline;
- Install new decant pumps and conveyance infrastructure; and
- Add a new discharge point for decant water.

A bypass pipeline extends past the Decant Pond to allow for stormwater from an extreme storm event to be released to Kangeenarina Creek if required. The Licence Holder is also proposing to use the Gee-Pit as a contingency storage area in the event of high rainfall events.

The TSF has a natural decline to the south and surface water accumulates along the southern edge of the TSF. The Licence Holder proposes to install a pump system (not gravity fed) and transport decant water via pipelines adjacent to existing roads to discharge the decant water to Gee-Pit. Gee-Pit has a storage capacity of 1.4 million m^3 and the water can be reused.

The decant water is not expected to contain elevated levels of sediment, as the sediment will have opportunity to settle out while the water is ponding within the TSF.

The Solomon mine operates at a water deficit and under most operating circumstances any decant water is stored in the Decant Pond and reused in the OPFs. Only under significant rainfall

events will water need to be dissipated off the surface of the TSF to Kangaeenarina Creek and/or Gee-Pit. Decant water discharged under these conditions will be similar quality to stormwater.

2.2.2 Excess groundwater disposal options

The Licence Holder proposes to incorporate the following additional mine dewatering disposal options:

- Expanded supplementation infrastructure at Weelumurra Creek; and
- Disposal of excess groundwater via injection or diffusion into Kings East backfilled pits;

The additional infrastructure includes pipelines, injection borefields, surface and subsurface supplementation infrastructure and water storage facilities.

Containment infrastructure:

- Use of existing and new turkeys nests, tanks and ponds for storage of groundwater abstracted for mine dewatering or dedicated environmental supplementation.

Conveyance infrastructure:

- Additional conveyance pipelines.

Injection and supplementation infrastructure:

Kangeenarina Creek Supplementation System -

This is an existing supplementation system captured under the licence and includes surface supplementation via a pipeline to up to four spigots and subsurface supplementation via infiltration from two buried, slotted pipes. There is no change to this system.

Kanji Infiltration Trench -

This trench is used to dispose of excess groundwater sourced from mine pit dewatering in the case that it is not required for supplementation purposes and exceeds the storage capacity of the site water distribution system. Water disposed to the trench infiltrates or evaporates. There is no change to this system.

Weelumurra Creek borefield -

The licence holder is proposing to include two additional lines of injection bores at Weelumurra Creek borefield, east and west of the current line of nine bores (WIN001 – WIN009) to provide redundancy and operational flexibility.

Karijini National Park -

Correcting of existing bore names:

- KIN001 to be renamed KIN002R2; and
- KIN002 to be renamed KIN003.

Kings East Managed Aquifer Recharge -

The licence holder is proposing to use a completed backfilled pit in Kings East for managing aquifer recharge. The Kings East MAR also allows the water to be discharged into an aquifer where it can be later used as a water supply source.

Discharge will be via up to four parallel buried diffusion lines, installed within the backfill and supplied by the same conveyance pipeline. This will also allow the licence holder to better understand the hydraulic properties of the backfill, which supports closure planning.

Water quality

Groundwater will be used to supplement Kangeenarina and Weelururra Creeks. Excess groundwater may be disposed of in the Kanji Infiltration Trench and at Kings East as a contingency measure. Groundwater is fresh to marginal and shown in Table 2.

Table 2: Average Water Quality Outputs

Parameters	Average Concentration
Calcium (mg/L)	22
Chloride (mg/L)	65
Electrical Conductivity (µS/cm)	532
Magnesium (mg/L)	21
pH	7.0
Potassium (mg/L)	7.1
Sodium (mg/L)	33
Total Dissolved Solids (mg/L)	260
Alkalinity as $CaCO_3$ (mg/L)	112

2.3 Part IV of the EP Act

The existing proposal was assessed by the Environmental Protection Authority (EPA) in the EPA's Report and Recommendations 1386, and approved under Ministerial Statement 862, which was issued on 20 April 2011. Key environmental factors assessed for the original proposal included Flora and Vegetation, Hydrological Processes, Terrestrial Fauna, Subterranean Fauna, and Rehabilitation and Decommissioning.

In 2014 a proposal for an expansion to allow production to continue for 30 years from 2016 was assessed by the EPA. This includes an increase in disturbance of 12,146 hectares (ha) in addition to the originally approved 6,313 ha approved under Ministerial Statement 862, and new mining areas in the Castle Valley and Fredericks deposits. It also includes an increase in abstraction from the existing Southern Borefield, and the construction and operation of the proposed Lower Fortescue Borefield. Product will continue to be transported to the Herb Elliott port using the existing Hamersley Rail Line infrastructure approved under Ministerial Statement 862.

The updated proposal was assessed by the EPA in the EPA's Report and Recommendations 1588 and approved under Ministerial Statement 1062 (MS 1062), which was issued on 03 October 2017. Key environmental factors assessed for the updated proposal included Flora and Vegetation, Terrestrial Fauna, Subterranean Fauna, Hydrological Processes, Inland Waters Environmental Quality, Rehabilitation and Decommissioning (integrating factor), and Offsets (integrating factor).

The Queens mining area contains an area of lignite, which has the potential to impact surface water and groundwater quality if oxidised. The licence holder is required to manage potential impacts to surface water and groundwater from the lignite during operations through MS 1062.

Mine dewatering has the potential to impact groundwater levels in the Weelumurra and Kangeenarina creeklines and at or within the Karijini National Park. Groundwater levels are managed in accordance with the MS 1062.

MS 1062 also regulates clearing, fauna and subterranean fauna management.

3. Risk assessment

The department assesses the risks of emissions from prescribed premises and identifies the potential source, pathway and impact to receptors in accordance with the *Guideline: Risk assessments* (DWER 2020).

To establish a Risk Event there must be an emission, a receptor which may be exposed to that emission through an identified actual or likely pathway, and a potential adverse effect to the receptor from exposure to that emission.

3.1 Source-pathways and receptors

3.1.1 Emissions and controls

The key emissions and associated actual or likely pathway during premises construction and operation which have been considered in this Amendment Report are detailed in Table 3 below. Table 3 also details the proposed control measures the Licence Holder has proposed to assist in controlling these emissions, where necessary.

Table 3: Licence Holder controls

Emission	Sources	Potential pathways	Proposed controls
Construction			
Dust	Installation of TSF decant infrastructure, dewatering disposal and groundwater supplementation bores.	Air/windborne pathway	Separation distance from sensitive receptors is adequate to mitigate any adverse amenity impacts associated with dust or noise emissions associated with construction. **Emission screened out.**
Noise	Installation of TSF decant infrastructure, dewatering disposal and groundwater supplementation bores.	Air/windborne pathway	Separation distance from sensitive receptors is adequate to mitigate any adverse amenity impacts associated with dust or noise emissions associated with construction. **Emission screened out.**
Commissioning and Operations			
Tailings / decant water with elevated sediment levels	Direct discharges of tailings / decant water from pipeline spills/leaks and overtopping	Direct discharges	• Decant water conveyed via pipelines adjacent to roads; • Pipelines (or sections of pipelines) containing tailings are either: ➢ Pipelines equipped with telemetry equipped with telemetry; or ➢ equipped with automatic cut-outs in the event of a pipe failure; and/or ➢ provided with secondary containment sufficient to contain any spill for a period equal to the

Emission	Sources	Potential pathways	Proposed controls
			time between routine inspections; • Visual integrity daily inspections of pipelines; • Annual water balance; • Minimum vertical freeboard of 100 mm on turkeys nests; and • Water released via the decant system is not expected to contain elevated levels of sediment, as the sediment will have opportunity to settle out while the water is ponding within the TSF.
	Direct discharges to Gee-Pit as a contingency option causing infiltration through the base and embankments	Direct discharges	• Majority of decant water is to be reused; • Only under high rainfall events will water need to be dissipated off the surface of the TSF for disposal to Gee-Pit and so will be similar quality to stormwater; • The quality of water discharged off the TSF is anticipated to be relatively high quality as it is most likely to only require discharging after significant storm events. Therefore, water quality is anticipated to be similar to stormwater that would naturally occur over the site; and • The water released via the decant system is not expected to contain elevated levels of sediment, as the sediment will have opportunity to settle out while the water is ponding within the TSF.
Mine dewatering water (fresh to marginal quality)	Direct discharges of mine dewatering water from pipeline spills/leaks and overtopping	Direct discharges	• Annual water balance; • Minimum vertical freeboard of 100 mm on turkeys nests; and • Pipeline and spigots visually inspected weekly for leaks, scouring and sediment loading.
	Infiltration of dewatered water via infiltration from water storage facilities and turkeys nests	Infiltration	• Pre-stressed concrete panel containment structure.
	Direct discharges for groundwater supplementation.	Direct discharges	• Groundwater levels are regulated under Part IV of the EP Act, MS 1062; and • Groundwater quality is monitored.

3.1.2 Receptors

In accordance with the *Guideline: Risk assessments* (DWER 2020), the Delegated Officer has excluded employees, visitors and contractors of the Licence Holder's from its assessment. Protection of these parties often involves different exposure risks and prevention strategies, and is provided for under other state legislation.

Table 4 below provides a summary of potential human and environmental receptors that may be impacted as a result of activities upon or emission and discharges from the prescribed premises *(Guideline: Environmental siting* (DWER 2020)).

Table 4: Sensitive human and environmental receptors and distance from prescribed activity

Human receptors	**Distance from prescribed activity**
Screened out as there are no nearby human receptors.	
Environmental receptors	**Distance from prescribed activity**
Threatened/Priority flora	Seven priority flora species have been recorded within the Premises, being: • *Gompholobium karijini* (Priority 2); • *Acacia effusa* (Priority 3); • *Acacia daweana* (Priority 3); • *Indigofera gilesii subsp. gilesii* (Priority 2); • *Eremophila magnifica subsp. magnifica* (Priority 4); • *Goodenia nuda* (Priority 4); and • *Lepidium catapycnon* (Priority 4).
Threatened/Priority fauna	The following conservation significant species have been recorded within the Premises: • Northern Quoll (Endangered under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) and Schedule 2 of the Wildlife Conservation (Specially Protected Fauna) Notice 2018); • Pilbara Leaf-nosed Bat (Vulnerable under the EPBC Act and Schedule 3 of the Wildlife Conservation (Specially Protected Fauna) Notice 2018); • Pilbara Olive Python (Vulnerable under the EPBC Act and Schedule 3 of the Wildlife Conservation (Specially Protected Fauna) Notice 2018); • Pilbara Barking Gecko (Priority 2); • Fork Tailed Swift (Migratory under the EPBC Act and Schedule 5 of the Wildlife Conservation (Specially Protected Fauna) Notice 2018); • Western Pebble-mound Mouse (Priority 4); • Ghost Bat (Vulnerable under the EPBC Act and Schedule 3 of the Wildlife Conservation (Specially Protected Fauna) Notice 2018); • Gane's Blind snake (Priority 1); • Peregrine Falcon (Other Specially Protected under the EPBC Act and Schedule 7 of the Wildlife Conservation (Specially Protected

	Fauna) Notice 2018); and • Eastern Great Egret (Migratory).
Priority/Threatened Ecological Communities	Multiple occurrences of Themeda grasslands on cracking clays (Hamersley Station, Pilbara), Threatened Ecological Community (Vulnerable) located adjacent to the southern boundary of the Premises. Multiple occurrences of Brockman Iron cracking clay communities, Priority 1 Ecological Community, located adjacent to the southern boundary of the Premises.
Important Wetlands – Western Australia RAMSAR Sites	Fortescue Marshes located approximately 16km east of the Premises. Fortescue Marsh is also listed as a Priority 1 ecological community
Country Areas Water Supply Act 1947 – Public Drinking Water Source Area (PDWSA)	Millstream Water Reserve (West Pilbara), located approximately 600m west of the Premises, is a Priority 2 PDWSA
Rights in Water and Irrigation Act 1914 – Groundwater Areas	Pilbara Groundwater Area – intersected by the Premises
Rights in Water and Irrigation Act 1914 – Surface Water Areas	Pilbara Surface Water Area – intersected by the Premises
Surface water bodies	Fortescue River South located 2km east of the Premises Three streams traverse operational areas of the Solomon mine: Zalamea (South East Flow), Kangeenarina (Central Flow) and Queens (West Flow). The eastern boundary of the Solomon operation is formed by Weelumurra Creek.

3.2 Risk ratings

Risk ratings have been assessed in accordance with the *Guideline: Risk Assessments* (DWER 2020) for those emission sources which are proposed to change and takes into account potential source-pathway and receptor linkages as identified in Section 3.1. Where linkages are incomplete they have not been considered further in the risk assessment.

Where the Licence Holder has proposed mitigation measures/controls (as detailed in Section 3.1), these have been considered when determining the final risk rating. Where the Delegated Officer considers the Licence Holder's proposed controls to be critical to maintaining an acceptable level of risk, these will be incorporated into the Licence as regulatory controls.

Additional regulatory controls may be imposed where the Licence Holder's controls are not deemed sufficient. Where this is the case the need for additional controls will be documented and justified in Table 5.

The Revised Licence L8464/2010/2 that accompanies this Amendment Report authorises emissions associated with the operation of the Premises i.e. Categories 5 and 6 activities.

The conditions in the Revised Licence have been determined in accordance with *Guidance Statement: Setting Conditions* (DER 2015).

Table 5. Risk assessment of potential emissions and discharges from the Premises during construction, commissioning and operation

Risk Event					Risk rating[1] C = consequence L = likelihood	Licence Holder's controls sufficient?	Conditions[2] of Licence	Justification for additional regulatory controls
Source/Activities	**Potential emission**	**Potential pathways and impact**	**Receptors**	**Licence Holder's controls**				
Commissioning and Operations								
Category 5 TSF decant modifications	Tailings / decant water with elevated sediment levels	Direct discharges of tailings / decant water from pipeline spills/leaks and overtopping. Direct discharge to land causing contamination of soil. Indirect discharge / infiltration causing contamination of groundwater / surface water. Groundwater table depth is 10-30 metres below ground level. Groundwater quality is fresh to marginal. Three surface water streams intersect the premises.	Threatened/Priority flora within the premises boundary Surface waters Millstream Water Reserve (West Pilbara), located approximately 600m west of the Premises, is a Priority 2 PDWSA	Refer to Section 3.1	C = Moderate L = Unlikely **Medium Risk**	Y	Condition 2 has pipeline design requirements. Condition 3, Table 2 Containment infrastructure Requires Gee-Pit to be used only as a contingency discharge point. **Condition 4, Table 3 Management of waste Specifies where the tailings decant water can be discharged to.** Condition 7, Table 5 Inspection of infrastructure Requires visual integrity inspections of tailings / decant water infrastructure. Condition 9, Table 6 Infrastructure requirements Requires design and construction requirements on the decant line and Gee-Pit. Condition 10 includes the operation of the decant line and Gee-Pit. **Condition 16, Table 9 Emissions to land Requires addition of L6 for Gee-Pit discharge point.** **Condition 23, Table 13**	Addition of Gee-Pit discharge point and monitoring when contingency discharges do occur.

Risk Event					Risk rating[1] C = consequence L = likelihood	Licence Holder's controls sufficient?	Conditions[2] of Licence	Justification for additional regulatory controls
Source/Activities	Potential emission	Potential pathways and impact	Receptors	Licence Holder's controls				
							<u>monitoring of emissions to land</u> **<u>Requires monitoring of L6 Gee-Pit discharge point.</u>** Condition 25, Table 15 Process monitoring Requires that tailings delivery and decant water volumes are measures. Condition 26, Table 16 Monitoring of ambient groundwater quality Includes ambient groundwater monitoring. Condition 32, Table 17 Annual Environmental Report Requires that tailings and decant water volumes are reported. Condition 35, Table 19 Notification requirements Requires that compliance document is provided following construction.	
	Tailings / decant water seepage	Direct discharges to the new Gee-Pit decant water pond causing infiltration through the base and embankments of the Gee-Pit	Threatened/Priority flora within the premises boundary Surface waters Millstream Water Reserve (West Pilbara), located approximately 600m west of the Premises, is a Priority 2 PDWSA	Refer to Section 3.1	C = Moderate L = Unlikely **Medium Risk**	Y	Condition 3, Table 2 Containment infrastructure Requires Gee-Pit to be used only as a contingency discharge point. Condition 8 requires an annual water balance be conducted. Condition 9, Table 6 Infrastructure requirements Requires design and	Addition of Gee-Pit discharge point and monitoring when contingency discharges do occur.

Risk Event					Risk rating[1] C = consequence L = likelihood	Licence Holder's controls sufficient?	Conditions[2] of Licence	Justification for additional regulatory controls
Source/Activities	Potential emission	Potential pathways and impact	Receptors	Licence Holder's controls				
							construction requirements on the decant line and Gee-Pit. Condition 10 includes the operation of the decant line and Gee-Pit. **Condition 16, Table 9 Emissions to land Requires addition of L6 for Gee-Pit discharge point.** **Condition 23, Table 13 monitoring of emissions to land Requires monitoring of L6 Gee-Pit discharge point.** Condition 25, Table 15 Process monitoring Requires that tailings delivery and decant water volumes are measures. Condition 26, Table 16 Monitoring of ambient groundwater quality Includes ambient groundwater monitoring. Condition 32, Table 17 Annual Environmental Report Requires TSF annual water balance be provided and tailings / decant water volumes are reported. Condition 35, Table 19 Notification requirements Requires that compliance document is provided	

Risk Event					Risk rating[1] C = consequence L = likelihood	Licence Holder's controls sufficient?	Conditions[2] of Licence	Justification for additional regulatory controls
Source/Activities	Potential emission	Potential pathways and impact	Receptors	Licence Holder's controls				
							following construction.	
Category 6 mine dewatering water additional disposal options	Mine dewatering water (fresh to marginal quality)	Direct discharges of mine dewatering water from pipeline spills/leaks and overtopping	Threatened/Priority flora within the premises boundary Surface waters Millstream Water Reserve (West Pilbara), located approximately 600m west of the Premises, is a Priority 2 PDWSA	Refer to Section 3.1	C = Minor L = Unlikely **Medium Risk**	Y	Condition 3, Table 2 Containment infrastructure Requires design and construction requirements on raw water storage facilities and turkeys nest. Condition 9, Table 6 Infrastructure requirements Requires design and construction requirements on the mine dewatering infrastructure. Condition 10 includes the operation of the mine dewatering infrastructure. Condition 22, Table 12 Monitoring of point source emissions to groundwater Requires monitoring of mine dewatering water. Condition 26, Table 16 Monitoring of ambient groundwater quality Includes ambient groundwater monitoring. Condition 32, Table 17 Annual Environmental Report Requires that monitoring is provided. Condition 35, Table 19 Notification requirements Requires that compliance document is provided following construction.	N/A

Risk Event					Risk rating[1] C = consequence L = likelihood	Licence Holder's controls sufficient?	Conditions[2] of Licence	Justification for additional regulatory controls
Source/Activities	Potential emission	Potential pathways and impact	Receptors	Licence Holder's controls				
		Infiltration of dewatered water via infiltration from water storage facilities and turkeys nests may cause mounding and impact vegetation if not managed appropriately. Dewatering discharge may impact surface water quality in creek systems. Groundwater table depth is 10-30 metres below ground level.	Premises is located within proclaimed Pilbara Groundwater and Surface Water areas.	Refer to Section 3.1	C = Minor L = Unlikely **Medium Risk**	Y	Condition 3, Table 2 Containment infrastructure Requires design and construction requirements on raw water storage facilities and turkeys nest. Condition 9, Table 6 Infrastructure requirements Requires design and construction requirements on the mine dewatering infrastructure. Condition 10 includes the operation of the mine dewatering infrastructure. Condition 15, Table 8 Point source emissions to groundwater Includes new supplementation bores at Weelumurra North Supplementation Injection Bores and Kings East Managed Aquifer Recharge. Condition 26, Table 16 Monitoring of ambient groundwater quality Includes ambient groundwater monitoring. Condition 32, Table 17 Annual Environmental Report Requires that monitoring is provided. Condition 35, Table 19 Notification requirements Requires that compliance	N/A

Risk Event					Risk rating[1] C = consequence L = likelihood	Licence Holder's controls sufficient?	Conditions[2] of Licence	Justification for additional regulatory controls
Source/Activities	Potential emission	Potential pathways and impact	Receptors	Licence Holder's controls				
							document is provided following construction.	
		Direct discharges for groundwater supplementation.	Premises is located within proclaimed Pilbara Groundwater and Surface Water areas.	Refer to Section 3.1	C = Minor L = Unlikely **Medium Risk**	Y	Condition 3, Table 2 Containment infrastructure Requires design and construction requirements on raw water storage facilities and turkeys nest. Condition 9, Table 6 Infrastructure requirements Requires design and construction requirements on the mine dewatering infrastructure. Condition 10 includes the operation of the mine dewatering infrastructure. Condition 15, Table 8 Point source emissions to groundwater Includes new supplementation bores at Weelumurra North Supplementation Injection Bores and Kings East Managed Aquifer Recharge. Condition 26, Table 16 Monitoring of ambient groundwater quality Includes ambient groundwater monitoring. Condition 32, Table 17 Annual Environmental Report Requires that monitoring is provided.	N/A

Risk Event					Risk rating[1] C = consequence L = likelihood	Licence Holder's controls sufficient?	Conditions[2] of Licence	Justification for additional regulatory controls
Source/Activities	Potential emission	Potential pathways and impact	Receptors	Licence Holder's controls				
							Condition 35, Table 19 Notification requirements Requires that compliance document is provided following construction.	

Note 1: Consequence ratings, likelihood ratings and risk descriptions are detailed in the *Guideline: Risk assessments* (DWER 2020).

Note 2: Proposed Licence Holder's controls are depicted by standard text. **Bold and underline text** depicts additional regulatory controls imposed by department.

4. Consultation

Table 6 provides a summary of the consultation undertaken by the department.

Table 6: Consultation

Consultation method	Comments received	Department response
Local Government Authority advised of proposal (20 January 2022)	No comments received.	N/A.
Department of Mines, Industry Regulation and Safety (DMIRS) advised of proposal (20 January 2022)	DMIRS replied 11/03/2022 with comments on the Category 5 and Category 6 modifications.	DWER sent a Request For Further Information to the Licence Holder. The Licence Holder met with DMIRS and DMIRS provided further comments on 22/03/2022 with no objections.
Department of Biodiversity, Conservation and Attractions (DBCA) advised of proposal (20 January 2022)	No comments received.	N/A.
Licence Holder was provided with draft amendment (05 April 2022)	Refer to Appendix 1.	Refer to Appendix 1.

5. Conclusion

Based on the assessment in this Amendment Report, the Delegated Officer has determined that a Revised Licence will be granted, subject to conditions commensurate with the determined controls and necessary for administration and reporting requirements.

5.1 Summary of amendments

Table 7 provides a summary of the proposed amendments and will act as record of implemented changes. All proposed changes have been incorporated into the Revised Licence as part of the amendment process.

Table 7: Summary of Licence amendments

Existing condition	Condition summary	Revised licence condition	Conversion notes
N/A	Contents	N/A	Deleted as per current licensing format.
N/A	Introduction	N/A	Deleted as per current licensing format.
N/A	Licence history	Licence history	Administrative changes.

Existing condition	Condition summary	Revised licence condition	Conversion notes
1.1.1	Interpretation	Interpretation	Updated as per current licensing format.
1.1.2	Definitions	Definitions	Moved to the back of the Licence, now Table 20.
1.1.3	Australian or other standard	Interpretation	Condition deleted and now included in the updated 'Interpretation' section as per current licensing format.
1.1.4	Reference to code of practice	Interpretation	Condition deleted and now included in the updated 'Interpretation' section as per current licensing format.
1.2.1	Pipelines	2	Condition number changed only.
1.2.2, Table 1.2.1	Containment infrastructure	3, Table 2	Inclusion of Gee-Pit discharge point. Inclusion of raw water storage and turkey nest.
1.2.3, Table 1.2.2	Management of waste	4, Table 3	Inclusion of tailings decant water and disposal options.
1.2.4	Irrigation of treated wastewater	5	Condition number changed only.
1.2.5, Table 1.2.3	Cover requirements	6, Table 4	Condition and table numbers changed only.
1.2.6, Table 1.2.4	Inspection of infrastructure	7, Table 5	Condition and table numbers changed only.
1.2.7	Annual water balance	8	Condition number changed only.
1.2.8, Table 1.2.5	Infrastructure requirements	9	Inclusion of Gee-Pit decant infrastructure and mine dewatering infrastructure.
1.2.9	Operating upgraded infrastructure	10	Inclusion of Gee-Pit decant infrastructure and mine dewatering infrastructure.
1.2.10	Production or design capacity limits	1, Table 1	Updated to new format.
1.2.11	Stormwater diversions	11	Condition number changed only.
1.2.12	Wastewater quality monitoring report for RO Plant	N/A	Removed. Reverse Osmosis Plant Reject Water Stream Commissioning Report was submitted on 20 May 2020 (A1895293 and A1895316). The commissioning water quality results indicate the reverse osmosis plant reject water stream are within the *ANZECC 2000 - Livestock Drinking Water Guidelines* for each of the sampled parameters.

Existing condition	Condition summary	Revised licence condition	Conversion notes
1.2.13	RO Plant Reject Water Stream	N/A	Reverse Osmosis Plant Reject Water Stream Commissioning Report was submitted on 20 May 2020 (A1895293 and A1895316). The commissioning water quality results indicate the reverse osmosis plant reject water stream are within the *ANZECC 2000 - Livestock Drinking Water Guidelines* for each of the sampled parameters.
2.2.1, Table 2.2.1	Point source emissions to surface water	12, Table 7	Condition and table numbers changed only.
2.3.1, Table 2.3.1	Point source emissions to groundwater	13, Table 8	Inclusion of new supplementation bores.
2.4.1, Table 2.4.1	Emissions to land	14, Table 9	Updated information on Kangi Infiltration Trench. Inclusion of L6 Gee-Pit discharge point.
2.4.2, Table 2.4.2	Emission limits to land	15, Table 10	Condition and table numbers changed only.
3.1.1	Sampling	16	Condition number changed only.
3.1.2	Frequency of monitoring	17	Updated to new format.
3.1.3	Calibration	18	Updated to new format.
3.1.4	Calibration	18	Updated to new format.
3.2.1, Table 3.2.1	Monitoring of point source emissions to surface water	19, Table 11	Condition and table numbers changed only.
3.3.1, Table 3.3.1	Monitoring of point source emissions to groundwater	20, Table 12	Inclusion of new supplementation bores.
3.4.1, Table 3.4.1	Monitoring of emissions to land	21, Table 13	Inclusion of monitoring for Gee-Pit discharge point.
3.5.1, Table 3.5.1	Monitoring of inputs and outputs	22, Table 14	Condition and table numbers changed only.
3.6.1, Table 3.6.1	Process monitoring	23, Table 15	Condition and table numbers changed only.
3.7.1, Table 3.7.1	Monitoring of ambient groundwater quality	24, Table 16	Condition and table numbers changed only.
4.1.1	Information and records	25 and 26	Updated to new format.
4.1.2	Annual Audit Compliance Report	27	Updated to new format.
4.1.3	Complaints management	28	Updated to new format.

Existing condition	Condition summary	Revised licence condition	Conversion notes
4.1.4	Disposal sites	29	Condition number changed only.
4.2.1	Annual Environmental Report	30	Updated to new format.
4.2.2	Annual Environmental Report	31	Condition number changed only.
4.2.3, Table 4.2.2	Non-annual reporting requirements	32, Table 18	Condition and table numbers changed only.
4.3.1, Table 4.3.1	Notification requirements	33, Table 19	Included Gee-Pit decant infrastructure and mine dewatering infrastructure.
Schedule 1: Maps	Maps of infrastructure, emissions points and monitoring points	Schedule 1: Maps	Relabeled with Figures.

References

1. Department of Environment Regulation (DER) 2015, *Guidance Statement: Setting Conditions*, Perth, Western Australia.
2. Department of Water and Environmental Regulation (DWER) 2020, *Guideline: Environmental Siting*, Perth, Western Australia.
3. DWER 2020, *Guideline: Risk Assessments*, Perth, Western Australia.
4. Fortescue Metals Group Ltd, Application to Amend Solomon Licence L8464/2010/2, 12 October 2021, East Perth, Western Australia.
5. DMIRS, DMIRS COMMENTS on LICENCE APPLICATION (L8464/2010/2) – Solomon – FMG 11/03/2022, Perth, Western Australia.
6. DMIRS, Solomon Licence Application L8464/2010/2 - DER2013/001363-2 22/03/2022, Perth, Western Australia.
7. Fortescue Metals Group Ltd, RE: NOTIFICATION: APPLICATION FOR AN AMENDMENT TO LICENCE (L8464/2010/2) - REQUEST FOR FURTHER INFORMATION 01/04/2022, East Perth, Western Australia.
8. Fortescue Metals Group Ltd, RE: Part V – Clarification 29/03/2022, East Perth, Western Australia.

Appendix 1: Summary of Licence Holder's comments on risk assessment and draft conditions

Condition	Summary of Licence Holder's comment	Department's response
Licence history table for this amendment	The Licence Holder has requested that 'Modifications to the prescribed premises boundary' be removed, stating there was no change to the prescribed premises boundary under this amendment.	The department has removed this.
Condition 12	The Licence Holder requests this condition be removed as the condition is no longer required. The Licence Holder has stated that this report was submitted on 20 May 2020.	The department has made the requested change. Reverse Osmosis Plant Reject Water Stream Commissioning Report was submitted on 20 May 2020 (A1895293 and A1895316). The commissioning water quality results indicate the reverse osmosis plant reject water stream are within the *ANZECC 2000 - Livestock Drinking Water Guidelines* for each of the sampled parameters.
Condition 13	The Licence Holder requests this condition be removed as the condition is no longer required. The Licence Holder has stated that this report was submitted on 20 May 2020.	The department has made the requested change. Reverse Osmosis Plant Reject Water Stream Commissioning Report was submitted on 20 May 2020 (A1895293 and A1895316). The commissioning water quality results indicate the reverse osmosis plant reject water stream are within the ANZECC 2000 - Livestock Drinking Water Guidelines for each of the sampled parameters.
Condition 15, Table 8, Column 2	The Licence Holder has requested the following wording be changed, which is shown by the deletion in strikethrough and inclusion in bold and underline below: Mine dewater discharged to up to ~~9~~ **25** of the Weelumurra North Supplementation Injection Bores in Weelumurra Creek for the purpose of supplementation.	The department has made the requested change.
Condition 16, Table 9, Column 1	The Licence Holder has requested that L6 for the Gee-Pit as shown in Figure 13, be changed to: L12	The department has made the requested change.

Condition	Summary of Licence Holder's comment	Department's response
	Shown as Gee Pit in Figure 13.	
Condition 21, Table 11, Column 1	The Licence Holder has requested that Contingency discharge pipeline include 'to Kangeenarina Creek' so that emission point name aligns with Table 7.	The department has made the requested change.
	The Licence Holder has requested that the internal FMG EnviroSys names be added to the emissions points to avoid confusion.	The department has made the requested changes.
Condition 21, Table 11, Column 4	The Licence Holder has requested that for the contingency discharge pipeline to Kangeenarina Creek the frequency of 'continuous' for the volume of water discharged to creek (kL) be changed to 'Continuous when discharging is occurring'.	The department has changed the frequency to 'Continuous when discharge is occurring'.
	The Licence Holder has requested that for the delivery pipeline to the Kangeenarina Creek Supplementation System the frequency of 'Six monthly' be changed to 'Six monthly when discharge is occurring'.	The department has made the requested change.
Condition 23, Table 13, Column 1	The Licence Holder has requested that L6 for the Gee-Pit, be changed to L12 as per condition 16.	The department has made the requested change.
Condition 23, Table 13, Column 2	The Licence Holder has requested that 'Volume of water discharged to creek' actually be 'Volume of water discharged to Gee Pit'.	The department has made the requested change.
Condition 26, Table 16, Column 1	The Licence Holder has requested that the internal FMG EnviroSys names be added to the monitoring points to avoid confusion.	The department has made the requested changes.
Amendment Report Section 2.2 Application Summary	The Licence Holder is requesting that for the temporary pilot plant that the following wording be changed, which is shown by the deletion in strikethrough and inclusion in bold and underline below: • The temporary pilot plant is scheduled to run for **between** 9 **and 18** months and produce a small throughput volume of approximately **3,000** ~~2,664~~ tonnes. • The temporary pilot plant will consist of a hopper, feeder, scrubber, wet screen**s**, **two** ~~one~~ fines and one ultrafines Dense Media Separation (DMS) module, tailings thickener and filtration, and product and dry rejects stockpiles.	The department has made the requested changes.

Appendix 2: Application validation summary

SECTION 1: APPLICATION SUMMARY					
Application type					
Works approval	☐				
Licence	☐	Relevant works approval number:		None	☐
		Has the works approval been complied with?		Yes ☐ No ☐	
		Has time limited operations under the works approval demonstrated acceptable operations?		Yes ☐ No ☐ N/A ☐	
		Environmental Compliance Report / Critical Containment Infrastructure Report submitted?		Yes ☐ No ☐	
		Date Report received:			
Renewal	☐	Current licence number:			
Amendment to works approval	☐	Current works approval number:			
Amendment to licence	☒	Current licence number:	L8464/2010/2		
		Relevant works approval number:		N/A	☐
Registration	☐	Current works approval number:		None	☐
Date application received		12 October 2021			
Applicant and Premises details					
Applicant name/s (full legal name/s)		FMG Solomon Pty Ltd			
Premises name		Solomon Mine			
Premises location		E47/1011, E47/1334, E47/1532, M47/1409, M47/1410, M47/1411, M47/1413, M47/1431, M47/1453, M47/1466, M47/1473, M47/1474, M47/1475, L47/293, L47/294, L47/296, L47/301, L47/351, L47/360, L47/362, L47/363, L47/367, L47/381, E47/382, L47/391, L47/392, L47/397, L47/471, L47/472, L47/710, L47/711, L47/813, L47/814, P47/1279, P47/1286, P47/1287, P47/1304, P417/1305, P47/1735, P47/1736 and portion of E47/1319, E47/1333, E47/1398, E47/1399, E47/1447, E47/3094, E47/3464, L47/361 and L47/713			
Local Government Authority		Shire of Ashburton			
Application documents					
HPCM file reference number:		DWERDT514973			
Key application documents (additional to application form):		Cover Letter Supporting Documentation			
Scope of application/assessment					

Summary of proposed activities or changes to existing operations.	Licence amendments, including: • Additional Tailings Storage Facility (TSF) decant infrastructure; • New dewatering disposal option; and • Additional groundwater supplementation bores.

Category number/s (activities that cause the premises to become prescribed premises)

Table 1: Prescribed premises categories

Prescribed premises category and description	Assessed production or design capacity	Proposed changes to the production or design capacity (amendments only)
Category *5:* Processing or beneficiation of metallic or non-metallic ore	Not more than 95,300,000 tonnes per annual period	N/A
Category 6: Mine dewatering	25,000,000 tonnes per annual period	N/A
Category 54: Sewage facility	Not more than 1,178 cubic metres per day	N/A
Category 57: Used tyre storage (general)	2500 tyres	N/A
Category 61: Liquid waste facility	110,000 tonnes per annual period	N/A
Category 62: Solid waste depot	6,000 tonnes per annual period	N/A
Category 64: Class II putrescible landfill site	14,000 tonnes per annual period	N/A
Category 73: Bulk storage of chemicals	Not more than 9,560 cubic metres in aggregate	N/A

Legislative context and other approvals

Has the applicant referred, or do they intend to refer, their proposal to the EPA under Part IV of the EP Act as a significant proposal?	Yes ☐ No ☒	Referral decision No: Managed under Part V ☐ Assessed under Part IV ☐
Does the applicant hold any existing Part IV Ministerial Statements relevant to the application?	Yes ☒ No ☐	Ministerial statement No: MS1062 EPA Report No: 1588
Has the proposal been referred and/or assessed under the EPBC Act?	Yes ☐ No ☒	Reference No:
Has the applicant demonstrated occupancy (proof of occupier status)?	Yes ☒ No ☐	Certificate of title ☐ General lease ☐ Expiry: Mining lease / tenement ☐ Expiry: Other evidence ☐ Expiry:

Has the applicant obtained all relevant planning approvals?	Yes ☒ No ☐ N/A ☐	Approval: Expiry date: If N/A explain why?
Has the applicant applied for, or have an existing EP Act clearing permit in relation to this proposal?	Yes ☒ No ☐	CPS No: MS1062
Has the applicant applied for, or have an existing CAWS Act clearing licence in relation to this proposal?	Yes ☐ No ☒	Application reference No: N/A Licence/permit No: N/A No permit is required.
Has the applicant applied for, or have an existing RIWI Act licence or permit in relation to this proposal?	Yes ☒ No ☐	Application reference No: N/A Licence/permit No: GWL175139(2) Solomon Dewatering GWL177976(1) Southern Fortescue Borefield GWL176913(2) Solomon Injection Supply GWL177110(2) Solomon Camp Water Supply
Does the proposal involve a discharge of waste into a designated area (as defined in section 57 of the EP Act)?	Yes ☐ No ☒	Name: N/A Type: N/A Has Regulatory Services (Water) been consulted? Yes ☐ No ☒ N/A ☐ Regional office: North West
Is the Premises situated in a Public Drinking Water Source Area (PDWSA)?	Yes ☒ No ☐	Name: Millstream Water Reserve Public Drinking Water Source Area Priority: P2 Are the proposed activities/ landuse compatible with the PDWSA (refer to WQPN 25)? Yes ☒ No ☐ N/A ☐
Is the Premises subject to any other Acts or subsidiary regulations (e.g. *Dangerous Goods Safety Act 2004, Environmental Protection (Controlled Waste) Regulations 2004, State Agreement Act xxxx*)	Yes ☒ No ☐	*Mining Act 1978*

Is the Premises within an Environmental Protection Policy (EPP) Area?	Yes ☐ No ☒	N/A
Is the Premises subject to any EPP requirements?	Yes ☐ No ☒	N/A
Is the Premises a known or suspected contaminated site under the *Contaminated Sites Act 2003*?	Yes ☐ No ☒	Classification: N/A Date of classification: N/A