



Licence Number	L8859/2014/1
Licence Holder	Mineral Resources Limited
ACN	118 549 910
File Number:	DER2014/001998-1
Premises	Iron Valley Iron Ore Project M47/1439 and Miscellaneous Licence L47/757 NEWMAN WA 6753
Date of Report	24 September 2020
Decision	Amended licence granted

1. Definitions and interpretation

Definitions

In this Amendment Report, the terms in Table 1 have the meanings defined.

Table 1: Definitions

Term	Definition
AACR	Annual Audit Compliance Report
ACN	Australian Company Number
Amendment Report	refers to this document
ANZECC Guidelines	Means the Australian and New Zealand Guidelines for Fresh and Marine Water Quality (2000) produced by the Australian and New Zealand Environment and Conservation Council and the Agricultural and Resources Management Council of Australia and New Zealand
AS/NZS 5667.1	means the Australian Standard AS/NZS 5667.1 <i>Water Quality- Sampling- Guidance on the design of sampling programs, sampling techniques and the preservation and handling of samples</i>
AS/NZS 5667.6	means the Australian Standard AS/NZS 5667.6 <i>Water Quality- Sampling- Guidance on sampling of rivers and streams</i>
AS/NZS 5667.11	means the Australian Standard AS/NZS 5667.11 <i>Water Quality- Sampling- Guidance on sampling of groundwaters</i>
asbestos	means the asbestiform variety of mineral silicates belonging to the serpentine or amphibole groups of rock-forming minerals and includes actinolite, amosite, anthophyllite, chrysolite, crocidolite, tremolite and any mixture containing 2 or more of those
asbestos fibres	has the meaning defined in the “Guidelines for Assessment, Remediation and Management of Asbestos-Contaminated Sites in Western Australia”, published by the Department of Health, May 2009
averaging period	means the time over which a limit is measured or a monitoring result is obtained
BWT	Below the water table mining
Category/ Categories/ Cat.	categories of Prescribed Premises as set out in Schedule 1 of the EP Regulations
CDFM	cumulative deviation from mean rainfall
CEMP	Condition Environmental Management Plan

Term	Definition
CEO	means Chief Executive Officer. CEO for the purposes of notification means: Director General Department Administering the <i>Environmental Protection Act 1986</i> Locked Bag 10 Joondalup DC WA 6919 info@dwer.wa.gov.au
Clean fill	has the meaning defined in Landfill Definitions
Delegated Officer	an officer under section 20 of the EP Act
Department	means the department established under section 35 of the <i>Public Sector Management Act 1994</i> and designated as responsible for the administration of Part V, Division 3 of the EP Act.
DN	Means diameter normal
DWER	Department of Water and Environmental Regulation
EPA	Environmental Protection Authority
EP Act	<i>Environmental Protection Act 1986 (WA)</i>
EP Regulations	<i>Environmental Protection Regulations 1987 (WA)</i>
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999 (Cth)</i>
Existing Licence	The Licence issued under Part V, Division 3 of the EP Act and in force prior to the commencement of and during this Amendment Report
GL	gigalitre
Inert Waste Type 1	Has the meaning defined in Landfill Definitions
Inert Waste Type 2	Has the meaning defined in Landfill Definitions
kPa	means kilopascal
Landfill Definitions	means the document titled “Landfill Waste Classification and Waste Definitions 1996” published by the Chief Executive Officer of the Department of Environment and Conservation as amended from time to time;
Licence Holder	Mineral Resources Limited
Minister	the Minister responsible for the EP Act and associated regulations

Term	Definition
mRL	Reduced Level
MRL	Mineral Resources Limited
MS	Ministerial Statement
NATA	means the National Association of Testing Authorities, Australia
NATA accredited	means in relation to the analysis of a sample that the laboratory is NATA accredited for the specific analysis at the time of the analysis
Noise Regulations	<i>Environmental Protection (Noise) Regulations 1997 (WA)</i>
Occupier	has the same meaning given to that term under the EP Act.
Prescribed Premises	has the same meaning given to that term under the EP Act.
Premises	refers to the premises to which this Amendment Report applies, as specified at the front of this Amendment Report.
putrescible	Has the meaning defined in Landfill Definitions
rehabilitation	means the completion of the engineering of a landfill cell and includes capping and/or final cover
Revised Licence	the amended Licence issued under Part V, Division 3 of the EP Act, with changes that correspond to the assessment outlined in this Amendment Report.
Risk Event	as described in <i>Guidance Statement: Risk Assessment</i>
six monthly	means 2 consecutive periods from 1 April to 30 September and 1 October to 31 March in the following year
Special Waste Type 1	Has the meaning defined in Landfill Definitions
spot sample	means a discrete sample representative at the time and place at which the sample is taken
Tpa	Tonnes per annum
TSS	Total Suspended Solids
µS/cm	means micro Seimens per centimetre
WRL	Waste Rock Landform

2. Amendment Description

The following guidance statements have informed the assessment and decisions outlined in this Amendment Report.

- *Guidance Statement: Regulatory Principles (July 2015);*
- *Guidance Statement: Setting Conditions (October 2015);*
- *Guidance Statement: Licence Duration (August 2016);*
- *Guidance Statement: Decision Making (June 2019);*
- *Guidance Statement: Risk Assessment (February 2017); and*
- *Guidance Statement: Environmental Siting (November 2016).*

2.1. Purpose and scope of assessment

Increase in Dewatering Volume

On 21 December 2018, the Licence Holder submitted a Licence Amendment for an increase in dewatering volume from 17 GL/annum to 42 GL/annum from the Iron Valley Iron Ore Project.

The increase in dewatering discharge volume from 17 GL/annum to 42 GL/annum will require the following changes to onsite infrastructure:

- Installation of up to ten new production bores surrounding the North and Central Deposit pits (see Figure 1). Bores will be fitted with flow meters at the headworks;
- Installation of new pumps, gensets, bore headworks, duplication of pipe network to the existing dewatering discharge location and associated discharge infrastructure duplication (with 2 separate discharge streams); and
- Additional connections to the pipe network and pumping system to allow the increase in discharge rates.

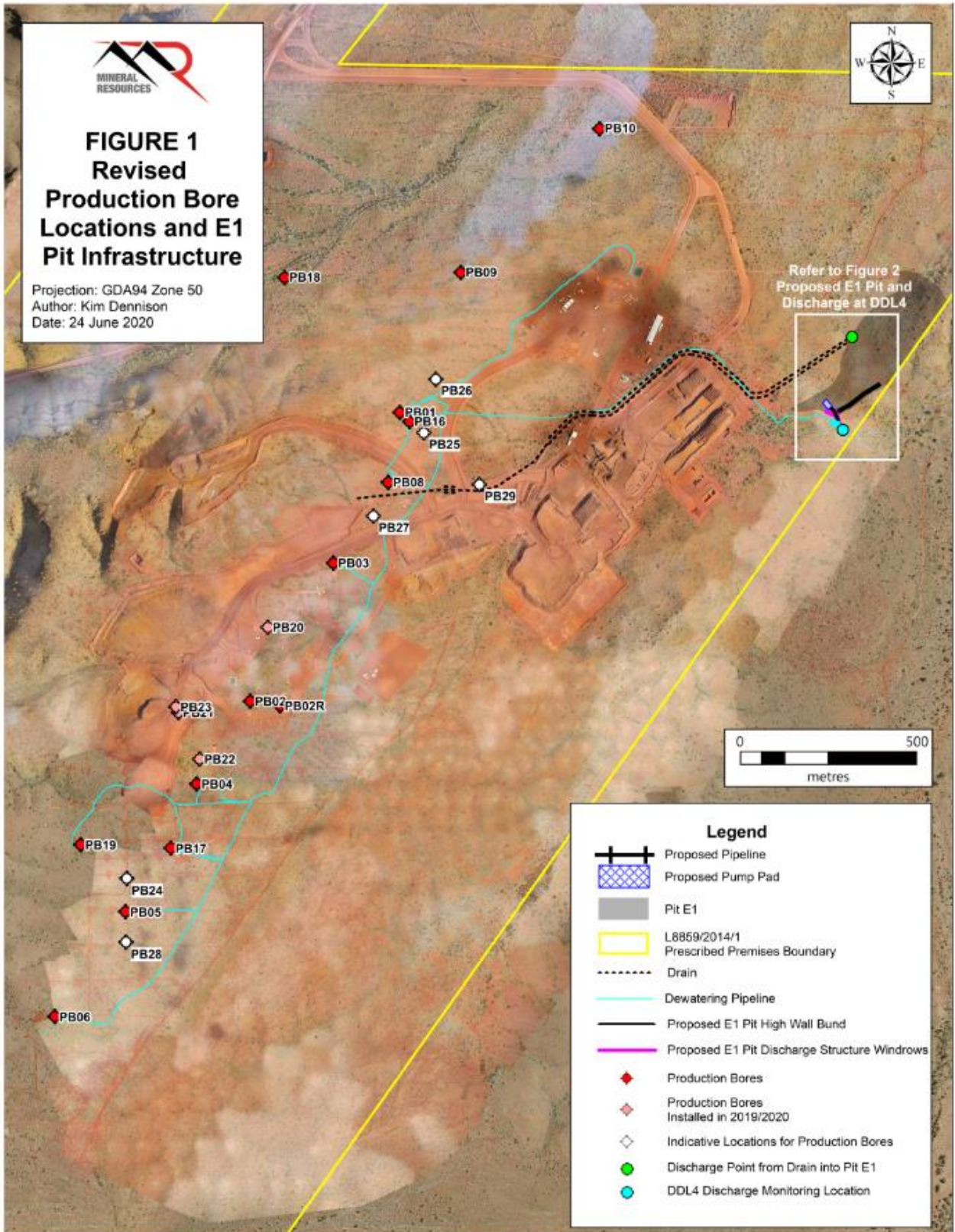


Figure 1: Production bore locations and E1 Pit infrastructure

Change in Design of the Dewatering Infrastructure

On 27 July 2019 MRL submitted a Licence Amendment application to change the design of current dewatering infrastructure, this design was updated on 05 June 2020. The purpose of this amendment is to:

- Accommodate the increase in dewatering discharge from production bores and in-pit sumps from 17 GL/annum to 42 GL/annum; and
- To allow collection of production bore dewater, in-pit sump water and stormwater waste streams to E1 Pit for settlement prior to discharge to a tributary of Weeli Wolli Creek.

Dewatering water from in-pit sumps and stormwater runoff will no longer be discharged via discharge point W1 (this discharge point will be removed from the licence). These two water streams are to instead be sent to the E1 Pit to accommodate settling time for sediments (TSS). Construction of a new drain will intersect the existing stormwater drain and divert this water through the eastern edge of Stockyard 5 and 9 to the E1 Pit, which is a previously mined out pit.

The E1 Pit void volume capacity is 323,000 kL up to 462 RL and there will be a 3 m freeboard above this. The discharge rate will be approximately 250 L/s which provides approximately 21 days for the void to reach capacity (without taking evaporation and ground dissipation into account).

Changes to the onsite drain infrastructure will be as follows (see Figure 2):

- drain depth starts from ~0.5m to 2m where it intersects the pit with a 1:100 slope towards the pit;
- the base of the drain will be 1m wide;
- the batter angle of the drain will be 30°;
- rip rap will be rock pitched into stream training areas and keyed into place;
- further rip rap will be laid into place to slow and turn water flow to relieve sediment before out flow at each end; and
- 1.5m windrows will be installed along the drain.

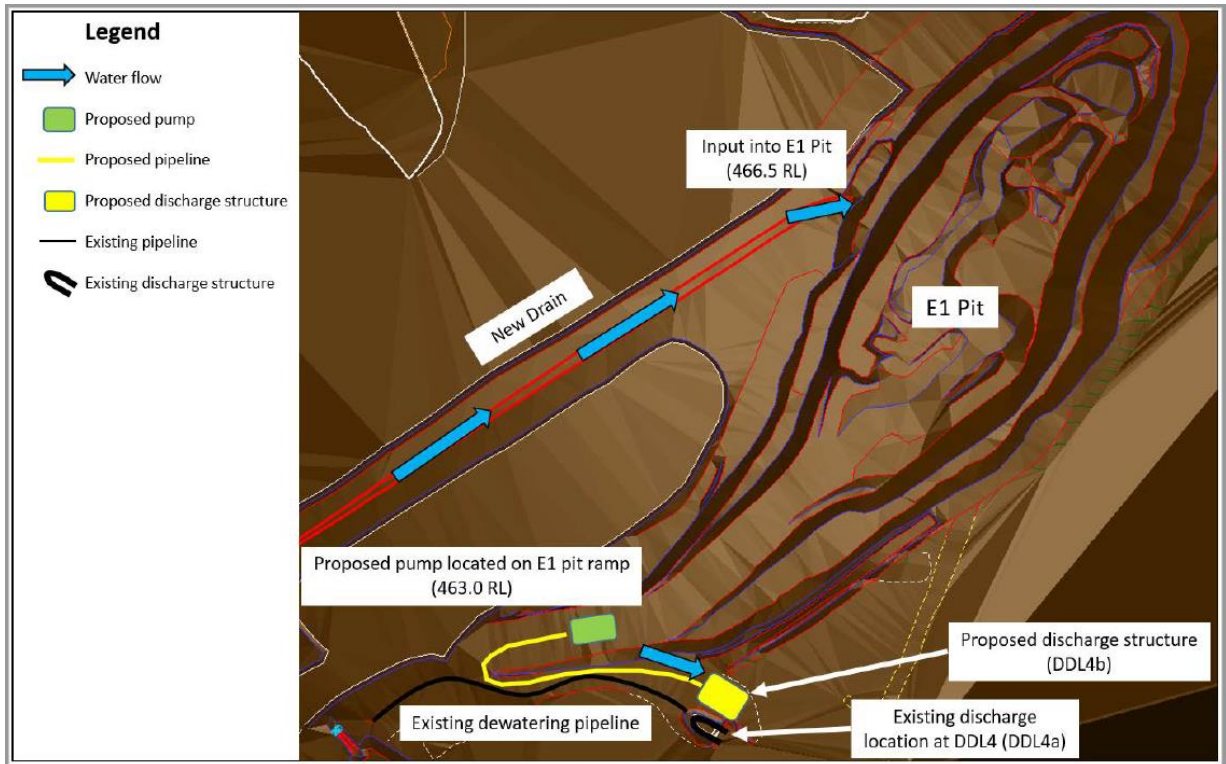


Figure 2: Drain connecting to E1 Pit void schematic

Seepage from E1 Pit will be monitored from Bore MBK in the southern end of the E1 Pit.

A discharge pump will be located at the southern end of E1 Pit at the 463m RL. A freeboard of 3m will be maintained within E1 Pit from the lowest point of the pit walls. Discharge from the E1 Pit will be pumped via an anchored pipeline over a rock gabion structure at DDL4, to the new DDL4b discharge point.

This new discharge point (for production bore water, in-pit sump water and stormwater) from the E1 Pit out to the Weeli Wollie Creek tributary will replicate the existing discharge point and will be discharged from DDL4b adjacent to the existing DDL4a structure.

The pipeline will be anchored to a concrete headwall structure and a rectangular channel (approximately 15m length, 5m width and 2m depth). The channel will be constructed of mounded earth and rock filled gabion baskets and lined with impervious geofabric (bidim Grade A19 Class B). The water volume discharged will be metered at the pump station.

Water sampling is proposed to occur downstream of both discharge points at the monitoring location labelled DDL4 Cumulative Sampling Location.

DDL4a; the existing discharge point for mine dewater and DDL4b; the new discharge point for production bore water, in-pit sump water and stormwater are shown in Figure 3.

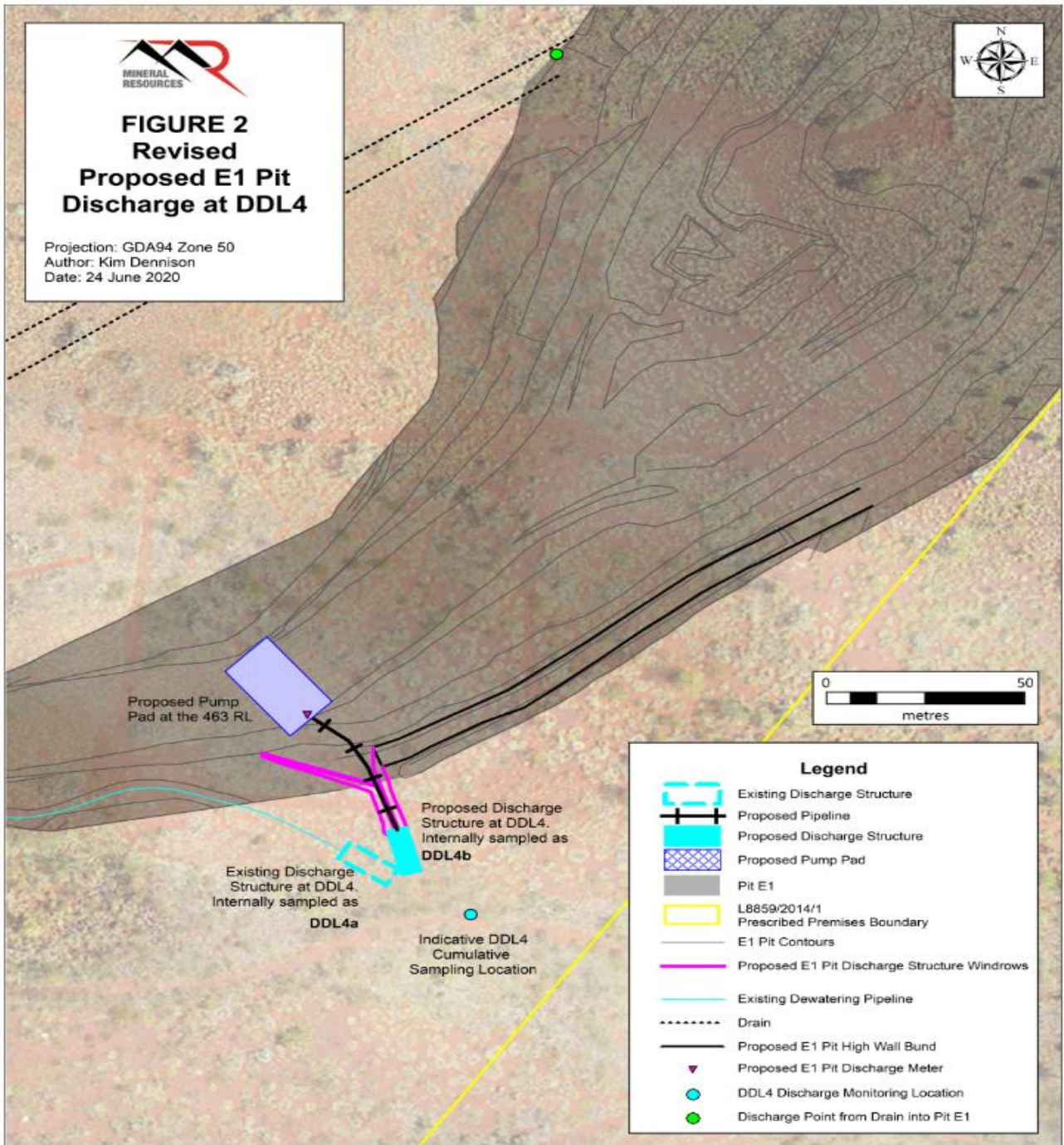


Figure 3: DDL4a, DDL4b and DDL4 Cumulative Sampling Location

Generally only in-pit sump dewatering water and stormwater will be transferred for settling to the E1 Pit, however, dewatering infrastructure established will allow for water from Production Bores and dewatering water from in-pit sumps to be transported to the E1 Pit, as opposed to direct discharge to DDL4a. This will be a contingency until infrastructure is installed and operational to divert Production Bores dewatering water directly to the DDL4a pipeline.

Putrescible Landfill Boundary Extension

On 11 March 2020, the Licence Holder submitted an amendment application to extend the existing 4.7 ha putrescible landfill boundary to allow for greater operational flexibility and to increase the capacity (for waste tyres and rubber) of the facility from 750 tpa to 1500 tpa. The increase will result in the facility extending into a WRL.

Each cell in the proposed landfill will be 10m wide, 30m long and 3m deep, comprising a total volume of 900m³. The specific location of each cell is dependent on the stage of WRL development at any particular time. Three or four cells will be developed in an area of the WRL in which waste rock deposition is not occurring. Once these cells are filled or the area is required for waste rock deposition, the cells are covered and new cells prepared in an alternative location within the landfill. The total area of the proposed landfill is 25.1 ha (see Figure 4).

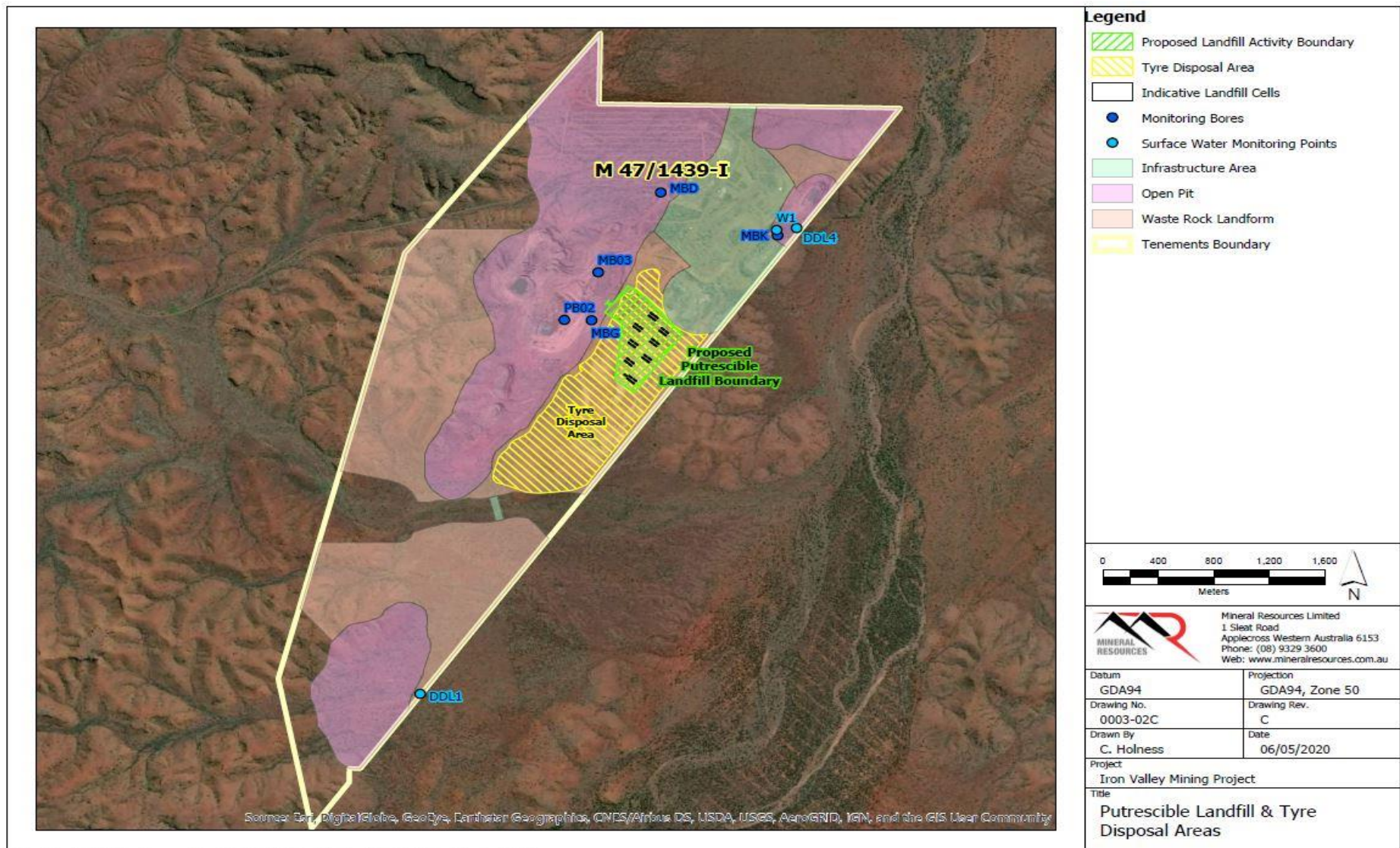


Figure 4: Proposed putrescible landfill boundary

L8859/2014/1

2.2. Consolidation of licence

As part of this amendment, DWER has consolidated the licence by incorporating changes made under Amendment Notice 1 (granted 12 July 2019) and changes as a result of this assessment (see Section 2.1). Amendment Notice 1 was for the relocation of the landfill from an area designated as waste dump to within the open pit area. Two monitoring bores (LMB01 and LMB02) were replaced with bore IDs MB03 and MBG as a result of the relocation of the landfill. However, MB03 was destroyed due to pit development in 2020. Bore BH1 is located on the eastern side of the waste rock landform and replaces MB03.

2.3. Construction commissioning and operation activities

Construction will consist of clearing and grading the drainage channel, channel construction and bund development. Part of the drain currently exists (as W1 drain structure) and the remaining channel is to be within previously disturbed areas with no additional clearing to be undertaken.

Operation will consist of dewatering discharge and include quarterly inspections of dewatering infrastructure and the pit. Maintenance will be undertaken as required and any incidents will be reported.

To date, four dewatering bores have been constructed and are operational. Exploration drilling for additional dewatering bores will commence in June 2020 and these bores will be installed shortly after and with approvals, dependent on the results of the drilling program. MRL have commenced the Iron Valley groundwater drilling program for replacement and addition of Production Bores. Water bore drilling commenced in July 2020 and is ongoing.

Associated infrastructure will be constructed when the additional dewatering bores are installed. Commissioning is not required for the bores and pipeline infrastructure. Based on the current program of works, the bores are anticipated to be operational by October 2020.

Construction of the landfill will commence upon grant of the Licence amendment and the landfill will be operational following construction and compliance. Each landfill cell will be constructed by excavating a trench (30m x 10m x 3m) using a front-end loader.

Table 2 below outlines the proposed changes to the Licence.

Table 2: Proposed design changes

Category	Current design capacity	Proposed design capacity	Description of proposed amendment
6 – Mine Dewatering	17 GL/annum	42 GL/annum	Increase in dewatering discharge volume to Weeli Wolli Creek
			Construction of a new drain, utilisation of E1 Pit for a transfer point, construction of a new discharge point, and removal of discharge point W1
Landfill	750 tpa	1500 tpa	Extension of facility boundary to allow for greater flexibility and to increase the capacity of the facility from 750 tpa to 1500 tpa for prescribed waste, waste tyres and rubber

3. MS 1044

The Licence Holder submitted a Section 45C in November 2018 to increase the dewatering water discharge from 17 GL/year to 42 GL/year under MS 1044. The revised MS 1044, issued on 26 November 2019 identifies hydrological processes, inland waters environmental quality and flora and vegetation as key environmental factors with reference to dewatering, discharge of surplus dewater, riparian and groundwater dependent vegetation.

Condition 5-1 of MS 1044 requires the preparation and submission of a CEMP that demonstrates the following environmental outcomes will be met:

- Groundwater abstraction and/or surplus dewater discharge from the implementation of the Proposal does not cause long term impacts to the environmental values of Weeli Wolli Creek;
- Groundwater abstraction and/or surplus dewater discharge from the implementation of the Proposal does not cause long term impacts on the aboriginal heritage values linked to the physical and/or biological surroundings of Weeli Wolli Creek; and
- Groundwater abstraction and/or surplus dewater discharge from the implementation of the Proposal does not cause long term impacts on the health or cover of riparian and groundwater dependent vegetation within the Drainage Line Exclusion Zone and outside the approved Development Envelope.

Condition 5-2 of MS1044 requires trigger and threshold criteria, monitoring to determine if criteria are exceeded and trigger and threshold contingency actions to be implemented in the event of an exceedance.

MRL has groundwater level triggers for standing water level (SWL) to assess impacts from water abstraction in mine dewatering at the site. This is outside the scope of Part V of the EP Act as Part V regulates discharge.

MRL has derived dewatering discharge trigger and threshold values for toxicants and stressors. Trigger values are based on the higher value of 80th percentile values of local datasets (except for pH which is based on the 20th percentile values) or the default ANZECC and ARMCANZ 2000 value for protection of 95% of species in freshwater aquatic ecosystems. Threshold values are based on the higher value of the maximum baseline value recorded or the default ANZECC and ARMCANZ 2000 trigger value for protection of 80% of species in freshwater aquatic ecosystems. The triggers are shown in Table 3 below.

Table 3: Proposed trigger and threshold values for toxicants and stressors

Table A1. Revised operational water quality guidelines (i.e. trigger and threshold criteria) for Iron Valley dewatering discharge from WWC baseline (i.e. current background condition) datasets, together with ANZECC/ARMCANZ default 95% TVs. All values are mg/L unless otherwise indicated (WRM 2017).

Analyte	Notes	ANZECC/ ARMCANZ (2000) 95% TV	Trigger Criteria ¹	Threshold Criteria ²
Alkalinity (as CaCO ₃)		np	300	386
Boron (B)	T	0.37	0.37	1.3
Electrical Conductivity (µS/cm)		250-900	940	1930
Iron (Fe)	T	0.3	0.3	1.0
Hardness (as CaCO ₃)		np	360	470
Magnesium (Mg)		np	54	70
Nitrate-nitrite nitrogen (N-NOX) (eutrophication)		0.03	0.4	1.0
Nitrate (NO ₃)	T, N	11	11	17
Nitrogen-total (eutrophication)		0.3	0.7	3.1
Phosphorus-total (eutrophication)		0.01	0.02	0.1
pH-field (H ⁺)		6.0-8.0	7.5-8.1	6.0-8.4
Sulphate (S-SO ₄)		np	60	71
Strontium (Sr)	T	np	0.19	0.22
Total Dissolved Solids (TDS) – Surface Water SSTV		np	520	1100
Total Dissolved Solids (TDS) – Groundwater SSTV		np	520 ³	622 ³
Total Suspended Solids (TSS)		np	5	17
Zinc (Zn)	T, H	0.008	0.008	0.031

Notes:

1 = Trigger criteria for each analyte are set based on site-specific trigger values (SSTVs) derived from the 80thile values (and 20thile values for pH) of local baseline datasets, or the default trigger value (see ANZECC & ARMCANZ 2000) for protection of 95% of species in freshwater aquatic ecosystems, whichever value is greatest.

2 = Threshold criteria for each analyte are set based on the maximum baseline value recorded, or the default trigger value for protection of 80% of species in freshwater aquatic ecosystems, whichever value is greatest.

3= The Trigger and Threshold criteria for Total Dissolved Solids in groundwater has been developed by AQ2 as groundwater is generally fresher and less variable than surface water quality. Threshold criteria has been updated to represent the peak concentration recorded from production bores during routine monitoring.

H = TV should be modified for water hardness at the time of sampling

g= using the default algorithms in Tables 3.4.3 and 3.4.4 of ANZECC/ARMCANZ (2000).

N= Default TV for NO₃ as a toxicant is soon to be revised to around 11 mg/L NO₃ (i.e. 2 - .5 mg/L N-NO₃); to convert nitrate-nitrogen (N-NO₃) to nitrate (NO₃), multiply by 4.43. Therefore, the interim operational guideline is based on the revised value rather than the current ANZECC/ARMCANZ (2000) default TV of 0.7 mg/L NO₃ or the 80thile of baseline data (1.6 mg/L).

NP= Not provided.

T= Toxicant.

4. Other approvals

The Licence Holder has provided the following information relating to other approvals as outlined in Table 4.

Table 4: Relevant approvals

Legislation	Number	Approval
<i>Mining Act 1978</i>	M47/1439 L47/757 Revised Mining Proposal (42 GL dewatering volume) and Mine Closure Plan	Mining Tenement Miscellaneous lease Mining Proposal Addendum- Iron Valley Below Water Table M47/1439 and L47/757- J03682 (Registration ID 77673) Approved 23 December 2019 DMIRS was consulted during the approvals process and had no specific comments on the licence amendment.
<i>Part IV EP Act</i>	MS 1044 issued 8 December 2016	Revised Iron Valley Iron Ore Project <ul style="list-style-type: none"> clearing of no more than 988 ha within the 1,177 ha Development Envelope. No clearing and/or development of mine pits, WRL and associated infrastructure is to be undertaken within the Drainage Line Exclusion Zone; groundwater abstraction of up to 23 GL/annum; discharge of up to 17 GL/annum of surplus dewater into Weeli Wolli Creek via three separate onsite dewater discharge locations (DDL1, DDL4 and DDL5); and all mine pits except Pit C and Pit N will be backfilled to above the water table to prevent the formation of pit lakes. Pit lakes will form in Pit C and Pit N.
<i>Part IV EP Act</i> • <i>S45c Revised MS 1044</i>	Revised MS1044 issued 26 November 2019	<ul style="list-style-type: none"> increase volume of mine dewatering discharge to Weeli Wolli Creek from 17 GL to 42 GL/annum via up to three separate onsite dewater discharge locations (DDL1, DDL4 and DDL5); increase groundwater abstraction from 23 GL/ year to 42 GL/ year; and all mine pits except Pit N will be backfilled to above the water table to prevent the formation of pit lakes. A pit lake will form in Pit N only.
<i>Rights in Water and Irrigation Act 1914</i> <i>Section 26D</i> <i>Section 5C</i>	CAW202374(1) GWL 182884(4) issued 28/11/2019	Construction of 10 Production Bores Abstraction of 42 GL/annum. North West Planning was consulted during the approvals process with regards to the landfill facility and advised that there is an updated Groundwater Operating Strategy and review of the Mine Closure Plan indicates that there is no contamination issues arising from the project.

5. Contaminated Sites Branch advice and recommendations

Technical Advice was sought from DWER's Contaminated Sites Branch (CSB) regarding MRL's approach to managing the impact of dewatering discharge on Weeli Wolli Creek which included site specific water level and water quality guideline values (see Section 3 MS1044).

The advice indicated that while the approach was found to be technically sound, the following

additional factors need to be considered in assessing the impacts of dewatering discharge:

- A suite of metals and metalloids be included in the monthly sampling program. These should include cadmium, cobalt, nickel, zinc, molybdenum, selenium, tungsten, vanadium and uranium;
- Default aquatic guideline values in the Australian and New Zealand Guidelines for Fresh and Marine Water Quality 2018 should be initially used as assessment criteria; and
- Monitoring of the abundance and diversity of macroinvertebrates of the hyporheic zone and the water column should be conducted at fixed sites upstream and downstream of the dewatering discharge area to assess the biological impacts of the dewatering discharge on receptors in Weeli Wolli Creek.

In addition, CSB recommended that MRL provide a plan outlining how exceedances of water quality trigger values will be used to initiate a management response to protect the environmental values of Weeli Wolli Creek.

Other than resampling which MRL has committed to, responses should include water treatment prior to discharge and toxicity testing of key fauna in Weeli Wolli Creek to develop more relevant site specific guideline values.

CSB recommended that the biological monitoring MRL has committed to should be reviewed at least every three years to ensure it remains effective in protecting the environmental values of Weeli Wolli Creek.

CSB also provided advice on triggers for SWL in monitoring bores to determine if dewatering water abstraction is resulting in declined groundwater levels. This advice was provided to DWER's Water section for consideration.

6. River Science Branch advice and recommendations

Technical advice was sought from DWER's River Science Branch regarding the aquatic fauna sampling program in Weeli Wolli Creek that MRL has committed to. The advice indicated that monitoring of impacts to stygofauna and troglifauna is not necessary based on groundwater modelling. Increased abstraction is unlikely to impact stygofauna as only one species is found in the area of the predicted groundwater mounding, and that species is unlikely to be threatened due to no loss of habitat being expected. Relative humidity of the subterranean habitat is expected to remain the same with higher abstraction and therefore impacts to troglifauna are not expected.

In terms of surface and fauna in the sediment and space between and alongside a stream bed where shallow groundwater and surface water mix (hyporheos communities) the aquatic fauna monitoring program was found to be robust, defensible and will facilitate a reliable assessment of changes in ecology measured against the proposed triggers and thresholds.

River Science Branch has recommended the following:

- Dry season monitoring should be included. Sampling design should follow the spatio-temporal coverage as set-out for wet season sampling, however may require some adaptation to ensure key permanent pools are captured. Assessment of permanent aquatic habitats during the dry season will provide a more stable reference point to track change over time (compared to the more dynamic biological conditions expected under higher bioconnectivity through the wet season) and thus provide greater confidence in monitoring change in fish communities (including recruitment) and permanent water invertebrates species. The need to maintain ongoing monitoring in both the wet and dry seasons should be reviewed after 3 years; and

- The extent of post-closure monitoring needs to be considered. Rather than 1-year monitoring post-closure as currently stated, this should be monitoring until change associated with Iron Valley mining operations has stabilised and any associated management completed (noting the potential difficulty in separating this from changes associated with other operations in the catchment);
- Reporting should include:
 - Tracking of fish composition and condition, particularly evidence of recruitment. At a minimum this should include reporting of size/age classes. It is not expected that a related trigger or threshold will be developed; and
 - Reporting of fauna communities against data from water chemistry and aquatic habitat descriptions.
- Following guidance in ANZECC/ARMCANZ 2018, the sampling program should be adapted over time as more information becomes available about the characteristics of the aquatic ecosystem. Consequently, the monitoring program should be periodically reviewed (on at least a three-yearly basis) to ensure that it continues to be effective in protecting the environmental values of Weeli Wollie Creek. This includes hydrological assessment to determine whether site locations remain relevant to assess impact into the future; and
- A plan indicating how exceedances of water quality trigger values will be used to initiate a management response to protect the environmental values of Weeli Wollie Creek is required. This includes targeted biological monitoring, which is currently incorporated into the program, but should also consider triggers for undertaking toxicity testing of key organisms from Weeli Wollie Creek to develop more relevant site-specific guideline values for the chemical constituents of concern.

The technical advice memos were referred to Environmental Impact Assessment Services.

7. Water quality of discharge from Production Bores to DDL4a

MRL provided one suite of analysis results from the Production Bores taken on 26 November 2019. The results are shown in Table 5.

Table 5: Production Bores water quality (26 November 2019)

Parameter	Units	PB01	PB04	PB05		PB16	PB17	PB19	T3PB	PB21	ANZECC/ARMCANZ 2018 Australian and New Zealand Guidelines for Fresh and Marine Water Quality, trigger values for freshwater, 95% level of protection
pH	pH unit	7.5	7.8	7.6		7.8	7.6	7.3	7.8	8	-
Electrical Conductivity (EC)	µS/cm	920	890	850		910	830	920	860	920	-
Total Dissolved Solids (TDS)	mg/L	540	500	480		520	460	520	520	510	-
Total Suspended Solids (TSS)	mg/L	<5	<5	<5		<5	<5	<5	<5	<5	-
Ammonia as N	mg/L	<0.005	<0.005	<0.005		0.010	0.020	<0.005	<0.005	0.005	0.9
Nitrate as N	mg/L	0.006	0.14	0.29		0.044	0.20	<0.005	2.5	0.025	-
Nitrite as N	mg/L	<0.005	<0.005	<0.005		<0.005	<0.005	<0.005	0.012	<0.005	-
Phosphate as P	mg/L	0.017	0.035	0.029		0.029	0.024	0.007	0.007	0.01	-
Calcium (Ca) dissolved	mg/L	51	49	47		50	46	50	63	51	-
Potassium (K) dissolved	mg/L	9.2	8.7	8.6		8.9	8.3	8.7	6.6	9.4	-
Magnesium (Mg) dissolved	mg/L	41	39	38		41	37	41	34	41	-
Sodium (Na) dissolved	mg/L	54	52	51		54	51	53	33	55	-
Bicarbonate HCO ₃ as CaCO ₃	mg/L	320	310	290		310	280	310	250	320	-
Carbonate CO ₃ ²⁻ as CaCO ₃	mg/L	<5	<5	<5		<5	<5	<5	<5	<5	-
Hydroxide OH ⁻ as CaCO ₃	mg/L	<5	<5	<5		<5	<5	<5	<5	<5	-
Total Alkalinity as CaCO ₃	mg/L	320	310	290		210	280	310	250	320	-
Chloride	mg/L	47	83	78		82	34	82	99	86	-
Sulphate	mg/L	26	45	43		46	19	45	28	48	-
Ionic Balance	%	1.7	-7.3	-6.2		-5.1	5.3	-5.6	-5.3	-6.4	-
Hardness as CaCO ₃	mg/L	300	280	270		290	270	290	300	300	-
Silica (Si)	mg/L	27	28	26		30	26	27	46	26	-
Aluminium (Al) dissolved	mg/L	<0.01	<0.01	<0.01		<0.01	<0.01	<0.01	<0.01	<0.01	0.055
Arsenic (As) dissolved	mg/L	<0.001	<0.001	<0.001		<0.001	<0.001	<0.001	<0.001	<0.001	0.024
Chromium (Cr) dissolved	mg/L	<0.001	<0.001	<0.001		<0.001	<0.001	<0.001	<0.001	<0.001	0.001
Copper (Cu) dissolved	mg/L	<0.001	<0.001	<0.001		<0.001	<0.001	<0.001	<0.001	<0.001	0.0014
Iron (Fe) dissolved	mg/L	0.05	0.03	0.06		<0.01	0.02	0.27	<0.01	0.02	0.3

Manganese (Mn) dissolved	mg/L	<0.005	0.008	0.018		0.005	0.007	0.040	<0.005	0.036	1.9
Nickel (Ni) dissolved	mg/L	<0.001	<0.001	<0.001		<0.001	<0.001	<0.001	<0.001	<0.001	0.011
Lead (Pb) dissolved	mg/L	<0.001	<0.001	<0.001		<0.001	<0.001	<0.001	<0.001	<0.001	0.0034
Zinc (Zn) dissolved	mg/L	0.010	0.005	0.007		0.002	0.004	0.005	0.003	0.006	0.008
TRH C ₆ -C ₉	µg/L	<10	<10	<10		<10	<10	<10	<10	<10	-
TRH C ₆ -C ₁₀	µg/L	<10	<10	<10		<10	<10	<10	<10	<10	-
TRH C ₆ -C ₁₀ less BTEX (F1)	µg/L	<10	<10	<10		<10	<10	<10	<10	<10	-
MTBE	µg/L	<1	<1	<1		<1	<1	<1	<1	<1	-
Benzene	µg/L	<1	<1	<1		<1	<1	<1	<1	<1	0.95
Toluene	µg/L	<1	<1	<1		<1	<1	<1	<1	<1	-
Ethylbenzene	µg/L	<1	<1	<1		<1	<1	<1	<1	<1	-
m+p-xylene	µg/L	<2	<2	<2		<2	<2	<2	<2	<2	-
o-xylene	µg/L	<1	<1	<1		<1	<1	<1	<1	<1	0.35
Naphthalene	µg/L	<1	<1	<1		<1	<1	<1	<1	<1	0.016
Surrogate dibromofluoromethane	%	106	103	103		104	104	104	103	104	-
Surrogate toluene-d8	%	103	102	102		102	103	103	103	104	-
Surrogate 4-BFB	%	102	102	101		103	100	100	106	102	-
TRH C ₁₀ -C ₁₄	µg/L	<50	<50	<50		<50	<50	<50	<50	<50	-
TRH C ₁₅ -C ₂₈	µg/L	<100	<100	<100		<100	<100	<100	<100	<100	-
TRH C ₂₉ -C ₃₆	µg/L	<100	<100	<100		<100	<100	<100	<100	<100	-
TRH >C ₁₀ -C ₁₅ (less N ₂)	µg/L	<50	<50	<50		<50	<50	<50	<50	<50	-
TRH >C ₁₆ -C ₃₄	µg/L	<100	<100	<100		<100	<100	<100	<100	<100	-
TRH C ₃₄ -C ₄₀	µg/L	<100	<100	<100		<100	<100	<100	<100	<100	-
Surrogate o- Terphenyl	%	100	96	98		102	97	98	97	97	-

8. Water quality in E1 Pit for discharge to DDL4b

MRL has provided analysis results for one sample of water in E1 Pit taken on 20 January 2020. The sample of water (taken on 20 January 2020) was taken from the E1 Pit. It should be noted that site rainfall records indicate 107.4mm of rainfall was received for the period 01 January 2020 – 20 January 2020 so some of this water may have contained site stormwater along with the in-pit sumps dewatering water.

The in-pit sumps move as the pit progresses. The number of sumps at any given time varies due to the design of active pit areas and dewater requirements.

The results are shown in Table 6. This water is sediment laden and is intended to settle within E1 Pit prior to final discharge to DDL4b to reduce the TSS in the final discharge to Weeli Wolli Creek.

DWER notes this is one sample.

Table 6: Quality of water discharged to E1 Pit

Parameter	Unit	Result (20 January 2020)	ANZECC/ARMCANZ 2018 Australian and New Zealand Guidelines for Fresh and Marine Water Quality, trigger values for freshwater, 95% level of protection
pH	pH units	8.4	-
Electrical Conductivity (EC)	µS/ cm	880	-
Total Recoverable Hydrocarbons (TRH)	µg/L	<10 (C ₆ - C ₉ , C ₆ - C ₁₀ , C ₆ - C ₁₀ less BTEX)	-
Ionic balance	%	-0.75	-
Total Dissolved Solids (TDS)	mg/L	490	-
Total Suspended Solids (TSS)	mg/L	12	-
Total Nitrogen	mg/L	-	-
Total Phosphorus	mg/L	-	-
Total Alkalinity	mg/L	270	-
Calcium	mg/L	40	-
Magnesium	mg/L	46	-
Sodium	mg/L	61	-
Potassium	mg/L	8.3	-
Chloride	mg/L	85	-
Sulphate	mg/L	50	-
Fluoride	mg/L	0.4	-
Aluminium	mg/L	0.03	0.055
Arsenic	mg/L	<0.001	0.024
Boron	mg/L	0.31	0.37
Cadmium	mg/L	<0.0001	0.0002
Chromium	mg/L	<0.001	0.001
Copper	mg/L	<0.001	0.0014
Iron	mg/L	0.16	-
Manganese	mg/L	<0.005	1.9
Nickel	mg/L	<0.001	0.011
Lead	mg/L	<0.001	0.0034
Antimony	mg/L	<0.001	-
Selenium	mg/L	<0.001	0.011
Zinc	mg/L	0.005	0.008
Mercury	mg/L	<0.00005	0.0006

9. Subterranean Fauna

Bennelongia Environmental Consultants assessed the potential impacts to subterranean fauna from the increase in discharge volumes to Weeli Wollie Creek. It was determined that there is one stygofauna species known in the area of the predicted mounding, *syncarid Bathynella* sp. B23. It was however considered that it would be unlikely to be threatened by the increased discharge volumes due to no physical habitat being lost and no significant change in habitat within the mounding area being expected.

The studies also determined that no additional impact to troglofauna is expected from the increased volumes of mine dewatering water discharged. This is because the regular occurrence of high energy perturbation along Weeli Wollie Creek from flooding after rainfall events suggests that it is unlikely any troglofauna species have short ranges in the vicinity. Modelling conducted also shows that the spatial extent of groundwater mounding from the increased volumes will be similar.

MS 1044 CEMP has an Aquatic Fauna Management Plan. This requires post discharge wet season aquatic fauna (hyporheic fauna, macroinvertebrates and fish) sampling to be conducted annually to determine if dewatering discharge can be linked to any change in aquatic fauna.

10. Riparian Vegetation

Preston Consulting have stated that Weeli Wollie Creek is a major drainage line, containing riparian vegetation, which copes with significant flow events. The proposed increase in dewater discharge is within the natural flow parameters. Riparian vegetation is expected to be able to cope with large flow events, therefore the proposed change is unlikely to result in a significant impact to this vegetation.

MS 1044 CEMP has a Riparian and groundwater dependent vegetation monitoring program with trigger/threshold values in place.

11. Amendment history

Table 7 provides the amendment history for L8859/2014/1.

Table 7: Licence amendments

Instrument	Issued	Amendment
L8859/2014/1	18/12/2014	New Licence
	19/02/2015	Licence holder requested Licence amendment to include Categories 5, 6 and 57.
	17/06/2016	Licence holder requested Licence amendment to dispose of 2GL of dewatering effluent to undertake Below Water Table mining Inclusion of construction conditions for Stage 1 and Stage 2 and the increase in capacity to 10,000,000 tonnes per annum for category 5.
	15/12/2016	Licence holder requested Licence amendment to increase the capacity of category 6, the approval to accept and dispose of plastics and asbestos at the landfill, dispose of rubber to the Tyre Disposal Area and expansion of the Tyre Disposal Area Inclusion of conditions relating to the construction of Stage 2, additional screener and dewatering discharge infrastructure, process limits, emission points to surface water and removal of process monitoring, ambient surface water monitoring and improvement conditions.
	12/07/2019	Licence holder requested amendments to relocated the existing landfill site

		Groundwater monitoring points were also relocated.
L8859/2014/1	24/09/2020	On 21 December 2018, the licence holder submitted an application to increase the approved dewatering volume from 17 GL per annum to 42 GL per annum.
		On 27 July 2019, the licence holder submitted an application to remove discharge point W1 and construct a new drain for mine dewatering water and stormwater to flow into the E1 Pit for settlement of sediments prior to discharge to a new discharge point DDL4b.
		On 11 March 2020 the licence holder submitted an amendment application to extend the existing landfill into a WRL to allow for greater operational flexibility and to increase the capacity of the facility from 750 tonnes per annum (tpa) to 1500.

12. Location and receptors

The Iron Valley Iron Ore Project is located approximately 90 km north-west of Newman within the Shire of East Pilbara. The project is a BWT blast and hydraulic shovel open pit mine.

The major surface water feature in the vicinity of the Project is Weeli Wolli Creek, which flows into the Fortescue Marsh. Natural perennial flows in Weeli Wolli Creek only occur in Weeli Wolli Spring, approximately 25km upstream of the Project, with flow in the remainder of Weeli Wolli Creek and tributaries being ephemeral and following significant rainfall events. Discharge flows north east along an ephemeral tributary of Weeli Wolli Creek until the tributary and Weeli Wolli Creek meet approximately 650m downstream. Flow is then north east along a secondary drainage channel within Weeli Wolli Creek (parallel to the main channel and approximately 400m east).

There are two separate wetting fronts along Weeli Wolli Creek. A wetting front is defined in MS 1044 as 'the extent of the surface expression of water from the discharge of surplus mine pit dewater under natural no-flow conditions'. One is located approximately 3.5 km upstream of DDL4 and is a result of cumulative dewatering discharge into Marillana and Weeli Wolli Creek by other mining companies. The other wetting front extends approximately 1.6km downstream of DDL4 and is a result of dewatering discharge from the Iron Valley Project.

Table 8 below lists the relevant sensitive land uses in the vicinity of the Prescribed Premises which may be receptors relevant to the proposed amendment.

Table 8: Receptors and distance from activity boundary

Residential and sensitive premises	Distance from Prescribed Premises
Yandi Mining Camp	6km

Table 9 below lists the relevant environmental receptors in the vicinity of the Prescribed Premises which may be receptors relevant to the proposed amendment.

Table 9: Environmental receptors and distance from activity boundary

Environmental receptors	Distance from Prescribed Premises
Weeli Wolli Creek	200m north east
Priority Ecological Community (P3) - Vegetation of sand dunes of the Hamersley Range/Fortescue Valley	2.2km west of the premises boundary
Fortescue Marshes- proposed RAMSAR addition	26.5 km north east of the premises boundary
Newman Water Reserve- Public Drinking Water Source Area	58 km south west of the premises boundary
Karajini National Park	65 km north west of the premises boundary

Groundwater	Approximately 45m below ground level at bore MB03
Flora and Fauna	<p>MRL can confirm there are no conservation significant flora present within the approved development envelope and/or within the vicinity of E1 Pit.</p> <p>MRL can confirm that previous fauna surveys identified one conservation significant fauna within the approved development envelope, the Rainbow Bee-eater. The species is a regular migrant and is very widespread. The species was identified throughout the development envelope and near Camp.</p>

13. Risk assessment

Table 10 and Table 11 below describe the Risk Events associated with the amendment consistent with the *Guidance Statement: Risk Assessments*. Both tables identify whether the emissions present a material risk to public health or the environment, requiring regulatory controls.

Table 10: Risk assessment for proposed amendments during construction

Risk Event				Consequence rating ¹	Likelihood rating ¹	Risk ¹	Reasoning	Regulatory controls (refer to conditions of the granted instrument)
Source/Activities	Potential emissions	Potential receptors, pathway and impact	Applicant controls					
<p>Construction of new drain to intersect stormwater drain:</p> <ul style="list-style-type: none"> • Vehicle movements; and • Earthworks. <p>Construction of E1 Pit with pump and pipeline:</p> <ul style="list-style-type: none"> • Vehicle movements; • Earthworks; and • Installation of rip rap. <p>Construction of putrescible landfill expansion</p> <ul style="list-style-type: none"> • Vehicle movements; and • Earthworks. 	Dust	<p>Potential receptors Yandi Mining Camp 6km away</p> <p>Pathway Air/windborne pathway</p> <p>Impact</p> <ul style="list-style-type: none"> • Health of Priority Ecological Community (P3) • Vegetation of sand dunes of the Hamersley Range/ Fortescue Valley (smothering). Within 5km of the Project Envelope the DWER TEC and PEC search identified two occurrences of Priority Ecological Community (P3) • Vegetation of sand dunes of the Hamersley Range/ 	<ul style="list-style-type: none"> • Drain channel will be located in a previously disturbed area therefore no clearing is required; • Existing roads will be used; • Dust suppression including the application of water or suppressants as required; • Vehicles and machinery will only be used on designated tracks/roads; • Vehicle speeds on unsealed roads will be controlled to minimise dust generation; and • Minimum separation distances or load heights between the excavator and trucks may be incorporated into operational procedures. 	Slight	Unlikely	Low	<p>The construction works are not expected to generate significant dust emissions.</p> <p>The proposed controls are expected to be sufficient at mitigating dust emissions during construction.</p> <p>Limited flora and fauna located in the vicinity of these activities.</p>	N/A

Risk Event				Consequence rating ¹	Likelihood rating ¹	Risk ¹	Reasoning	Regulatory controls (refer to conditions of the granted instrument)
Source/Activities	Potential emissions	Potential receptors, pathway and impact	Applicant controls					
		<p>Fortescue Valley. The PEC was identified to be located approximately 4km north and 8 km north of the Project;</p> <ul style="list-style-type: none"> • Fauna disturbance; and • Reduced surface water quality (Weeli Wollie Creek-200m NE). 						
	Noise	<p>Nearest sensitive receptor is Yandi Mining Camp 6km away</p>	<ul style="list-style-type: none"> • Use of equipment, machines and vehicles that would be the quietest reasonably available which are regularly maintained; and • Noise related complaints will be registered and investigated. 	Slight	Rare	Low	<p>Temporary construction timeframe with works to be carried out in accordance with the Noise Regulations.</p> <p>Distance should mean noise impacts are unlikely.</p>	N/A

Note 1: Consequence ratings, likelihood ratings and risk descriptions are detailed in the Department's Guidance Statement: Risk Assessments (February 2017)

Table 11: Risk assessment for proposed amendments during time-limited and during full operation

Risk Event				Consequence rating ¹	Likelihood rating ¹	Risk ¹	Reasoning	Regulatory controls (refer to conditions of the granted instrument)
Source/Activities*	Potential emissions	Potential receptors, pathway and impact	Applicant controls					
Dewatering abstraction resulting in drawdown of groundwater levels	None	<p>Potential Receptors Groundwater dependent ecosystems</p> <p>Pathway Abstraction of groundwater</p> <p>Impact Groundwater for dependent vegetation</p>	N/A	N/A	N/A	N/A	<ul style="list-style-type: none"> • Not within Part V scope; and • Regulated under the <i>RIWI Act 1914</i> and Part IV of the EP Act 	N/A
Rupture of dewatering spur pipeline - unexpected spillage of bore water and/or sump/stormwater	See Section 13.1 for detailed full assessment and regulatory controls required.							
Discharge of dewatering water from Production Bores via DDL4a into Weeli Wolli Creek	See Section 13.2 for full detailed assessment and regulatory controls required. MS 1044 regulates Riparian and groundwater dependent vegetation and aquatic fauna via management plans.							

Risk Event				Consequence rating ¹	Likelihood rating ¹	Risk ¹	Reasoning	Regulatory controls (refer to conditions of the granted instrument)
Source/Activities*	Potential emissions	Potential receptors, pathway and impact	Applicant controls					
Discharge of dewater (production bores and in-pit sumps) and stormwater to the E1 Drain and into the E1 Pit transfer point	<p>Dewater with elevated sediment, dissolved ions, metals and metalloids including cadmium, cobalt, copper, nickel, zinc, chromium, molybdenum, selenium, tungsten, vanadium and uranium</p> <p>Nitrates from explosive residue may also be present.</p> <p>Phosphorus should also be monitored, and there is the potential for residual hydrocarbons.</p>	<p>Pathway Direct discharge via overtopping of the drain and/or E1 Pit (noting area also subject to post cyclone rain),</p> <p>Via pipelines leak/rupture</p> <p>Receptors vegetation</p> <p>Impact(s) Smothering of vegetation.</p> <p>Potential contamination of soil</p> <p>Erosion</p>	<p>Drain:</p> <ul style="list-style-type: none"> Rip rap rock armoring installed at various points along the drain; Slope design prevents scouring and erosion Further rip rap will be laid into place to slow and turn water flow to relieve sediment before out flow at each end prior to E1 Pit; and 1.5m windrows will be installed along the drain. <p>E1 Pit:</p> <ul style="list-style-type: none"> An average discharge rate of approximately 250 L/s which provides approximately 21 days for the void to reach capacity (without taking evaporation and ground dissipation into account); and Volume capacity 462 RL with 3 m minimum freeboard. 	Minor	Unlikely	Medium	<p>See section 13.2. Appropriate infrastructure design controls in place such as freeboard and monitoring programs in place.</p> <p>Only one sample was taken and provided, though it is not clear how many sumps or if sample was cumulative.</p> <p>Monitoring indicated that the one sample was within ANZECC/ ARMCANZ 2018 Australian and New Zealand Guidelines for Fresh and Marine Water Quality, trigger values for freshwater, 95% level of protection (see Section 8).</p>	<p>Condition 1.2.7, Table 1.2.3 - Infrastructure requirements included within the licence.</p> <p>Condition 3.2.1, Table 3.2.1 - Water quality monitoring required at DDL4a and DDL4b for 12 months to monitor separate discharge stream quality.</p> <p>DDL4 Downstream Sampling Location.</p> <p>It is unclear how many sumps will be used, or if these will change/move, therefore there is the possibility that the water quality may also change as mining progresses.</p> <p>This discharge stream should be validated in the E1 Pit prior to discharge to Weeli Wooli Creek given there was one sample result provided.</p>
		<p>Seepage/infiltration through the base of the E1 Pit and contamination of water within pit (blasting residues</p>	<ul style="list-style-type: none"> Seepage monitoring via bore MBK at the southern end of E1 Pit. 	Minor	Possible	Medium	<p>A sample from Jan 2019 was within ANZECC/ ARMCANZ 2018 Australian and New Zealand Guidelines for Fresh and Marine Water</p>	<p>Ambient groundwater quality and a comparison against ANZECC/ARMCANZ 2018 Australian and New Zealand Guidelines for Fresh and Marine Water</p>

Risk Event				Consequence rating ¹	Likelihood rating ¹	Risk ¹	Reasoning	Regulatory controls (refer to conditions of the granted instrument)
Source/Activities*	Potential emissions	Potential receptors, pathway and impact	Applicant controls					
		etc.) Receptors Groundwater, vegetation and subterranean fauna Impact(s) Contamination of groundwater, impacts to vegetation and loss of subterranean fauna habitat					Quality, trigger values for freshwater, 95% level of protection (see Section 8). The DO notes this was one sample and should not be relied upon for the basis of ongoing risk assessment and monitoring. MRL will conduct groundwater sampling (including MBK) as per Condition 3.4.1 and Table 3.4.1 on the Licence. A trigger level for SWL and associated management actions have been developed by MRL.	Quality, trigger values for freshwater, 95% level of protection. Cadmium, cobalt, copper, nickel, zinc, chromium, molybdenum, selenium, tungsten, vanadium and uranium to be added to monitoring condition for bore MBK. Mounding associated with dewatering discharge is regulated by Part IV of the EP Act Ministerial Statement 1044.
Discharge of settled dewatering water and stormwater from E1 Pit via DDL4b into a tributary of Weeli Wolli Creek	See Section 13.3 for detailed risk assessment and regulatory controls required. MS 1044 regulates Riparian and groundwater dependent vegetation and aquatic fauna via management plans.							
Operation of extended putrescible waste landfill	Dust lift-off and windblown litter	Potential receptors Flora and vegetation in the vicinity Pathway Air/windborne Impact(s) Reduced	<ul style="list-style-type: none"> No waste is stored within 35m from the boundary of the landfill; A fence or other physical barrier shall be maintained around the active landfill area; Wind-blown waste is contained within the 	Slight	Possible	Low	Appropriate management measures are in place to regulate dust and windblown litter from the landfill. Applicant uses standard dust suppression measures onsite.	Condition 1.2.2, Table 1.2.1 – Management of landfill wastes. Condition 1.2.3 – Removal/storage of waste where it does not meet waste criteria. Condition 1.2.4, Table 1.2.2 – Cover

Risk Event				Consequence rating ¹	Likelihood rating ¹	Risk ¹	Reasoning	Regulatory controls (refer to conditions of the granted instrument)
Source/Activities*	Potential emissions	Potential receptors, pathway and impact	Applicant controls					
		photosynthetic activity due to dust/litter inundation	landfill boundary; <ul style="list-style-type: none"> • Wind- blown waste is returned to the tipping area on at least a monthly basis; • The tipping height of the landfill is approximately 3m; • Waste acceptance criteria; • Weekly covering of waste or as soon as practicable after deposit and prior to compaction; • Covering depth; • Existing roads will be used; • Dust Management Plan will be implemented; • Dust suppression methods including the application of water or suppressants as required; • Vehicles and machinery will only use designated tracks/roads; and • Vehicle speeds on unsealed roads will be controlled to minimise dust generation. 					requirements.
	Seepage from landfill facility	Potential receptors Groundwater and subterranean fauna	<ul style="list-style-type: none"> • Facility only accepts permitted waste types; and • Separation distance between the base of 	Minor	Possible	Medium	Existing L8859/2014/1 conditions are adequate to manage risks.	Condition 1.2.2, Table 1.2.1 - Management of landfill wastes. Condition 1.2.3 -

Risk Event				Consequence rating ¹	Likelihood rating ¹	Risk ¹	Reasoning	Regulatory controls (refer to conditions of the granted instrument)
Source/Activities*	Potential emissions	Potential receptors, pathway and impact	Applicant controls					
		Pathway Seepage through base of the landfill Impact(s) Reduced groundwater quality and loss of subterranean fauna habitat	the landfill and the highest groundwater level is at least 2m.					Removal/storage of waste where it does not meet waste criteria. Condition 3.4.1, Table 3.4.1 – Ambient groundwater monitoring in the vicinity of the landfill.
	Odour from waste disposal	Potential receptors Yandi Mining camp- 6km away Pathway Air/windborne Impact Amenity	<ul style="list-style-type: none"> Weekly covering of waste or as soon as practicable after deposit and prior to compaction; and Covering depth. 	Slight	Possible	Low	The distance to the nearest receptor is too great for odour impacts to occur and management practices include waste covering and depth to manage odours.	Condition 1.2.4, Table 1.2.2 - Cover requirements

Note 1: Consequence ratings, likelihood ratings and risk descriptions are detailed in the Department's Guidance Statement: Risk Assessments (February 2017)

13.1. Risk assessment - rupture of the dewatering pipelines containing Production Bore water or in-pit sumps/stormwater onsite

13.1.1. Description of rupture of the dewatering pipelines

Rupture of pipelines carrying the mine dewatering water from the Production Bores or from the in-pit sumps pipelines resulting in discharges of mine dewatering water to the environment.

13.1.2. Identification and general characterisation of emission

The emission is an unexpected spillage of dewatering water from:

- The pipeline transferring mine dewatering water from the Production Bores to the DDL4a discharge location at Weeli Wolli Creek; and/or
- The pipeline is from the active pit, Central Deposit, transporting dewater (production bore water and in-pit sump water) into the E1 Pit, which discharges out to DDL4b discharge location at Weeli Wolli Creek.

Production bore dewater and in-pit sump water has potential to contain metals and metalloids from mining operations not previously tested, including aluminium, chromium and copper. Dewatering effluent may also contain cadmium, cobalt, nickel, zinc, molybdenum, selenium, tungsten, vanadium and uranium. In-pit sump water may also contain elevated sediment, possibly Nitrogen (from explosives), Phosphorus and hydrocarbons. This is then transferred from the in-pit sumps to the E1 Pit for settlement.

Table 5 outlines water quality provided for Production Bores. Table 6 contains data for a sample collected from E1 Pit, DWER notes this is a single sample.

13.1.3. Description of potential adverse impact from the emission

An unexpected spillage of dewatering effluent may result in contamination of the soil near the rupture point, decreased health of vegetation on and offsite, water logging and localised erosion. Production Bores water is unlikely to contain hydrocarbons or Nitrogen and Phosphorus, whereas in-pit sumps/stormwater may contain hydrocarbons and Total Nitrogen and Total Phosphorus.

13.1.4. Criteria for assessment

The criteria for assessment are the ANZECC/ARMCANZ 2018 Australian and New Zealand Guidelines for Fresh and Marine Water Quality, trigger values for freshwater, 95% level of protection.

13.1.5. Licence Holder controls

This assessment has reviewed the controls set out in

Table 14 below to mitigate pipeline ruptures and spillage onsite.

Table 12: Licence holder controls

Site infrastructure	Description of infrastructure controls	Operation details
Pipeline corridors	<ul style="list-style-type: none"> • All dewatering pipelines are located in previously disturbed areas where possible; • Isolation valves mainly at the headworks, the start and end of the bore pipeline (spur line) and at certain locations on the main collector pipeline; • Dewatering pipelines are contained within a pit shell, V-drain or 	<ul style="list-style-type: none"> • The booster station, sump pumps, bore pumps and related dewatering infrastructure is

Site infrastructure	Description of infrastructure controls	Operation details
	<p>within a bunded area;</p> <ul style="list-style-type: none"> • Any ruptures will be contained and water will be directed back into the Drain and then into the E1 Pit; • The active pit shell and E1 Pit provides a significantly higher water holding capacity than any pipe fail may generate; • Booster station, sump pumps and bore pumps are fitted with alarms and automatic shut off systems that monitor water level, flow and pressure; and • All dewatering pipeline is adjacent to and/or visible from highly trafficked areas onsite therefore any pipeline failure is promptly reported. 	inspected daily.

13.1.6. Key findings

The Delegated Officer has reviewed the information regarding pipeline ruptures and has found:

1. Water quality is generally within the ANZECC/ARMCANZ 2018 Australian and New Zealand Guidelines for Fresh and Marine Water Quality, trigger values for freshwater, 95% level of protection.
2. Any pipeline ruptures will be contained and water will be directed back into the Drain and then into the E1 Pit.

13.1.7. Consequence

Contamination of the soil near the rupture point

If impacts from contamination of the soil near the rupture point occurs, then the Delegated Officer has determined that the impact of contamination of the soil near the rupture point will have low level onsite impacts, minimal level local scale offsite impacts, not detectable wider scale impacts and Specific Consequence Criteria (for environment) are likely to be met. Therefore, the Delegated Officer considers the consequence of ruptures to soils to be **minor**.

Decreased health of vegetation in the vicinity

If impacts from decreased health of vegetation in the vicinity occurs, then the Delegated Officer has determined that the impact of decreased health of vegetation in the vicinity will have low level onsite impacts, minimal local scale off site impacts and non detectable wider scale off site impacts and Specific Consequence Criteria (for environment) are likely to be met. Therefore, the Delegated Officer considers the consequence of decreased health of vegetation in the vicinity to be **minor**.

13.1.8. Likelihood of Risk Event

Contamination of the soil near the rupture point

The Delegated Officer has determined that the risk event will probably not occur in most circumstances. Therefore, the Delegated Officer considers the likelihood of decreased groundwater quality to be **unlikely**.

Decreased health of vegetation in the vicinity

The Delegated Officer has determined that the risk event will probably not occur in most circumstances. Therefore, the Delegated Officer considers the likelihood of decreased groundwater quality to be **unlikely**.

13.1.9. Overall rating of discharge of dewatering rupture of the dewatering spur pipeline

Contamination of the soil near the rupture point

The Delegated Officer has compared the consequence and likelihood ratings described above with the risk rating matrix and determined that the overall rating for the risk of contamination of the soil near the rupture point is **medium**.

Decreased health of vegetation in the vicinity

The Delegated Officer has compared the consequence and likelihood ratings described above with the risk rating matrix and determined that the overall rating for the risk of decreased health of vegetation in the vicinity is **medium**.

13.2. Risk assessment – increased discharge of dewatering effluent to discharge point DDL4a into a tributary of Weeli Wolli Creek

13.2.1. Description of discharge of dewatering effluent to a tributary of Weeli Wolli Creek

There is to be an increase of dewatering effluent from the Production Bores discharging directly to DDL4a to the Weeli Wolli Creek (via existing discharge point). There are no changes to this existing infrastructure, except for the installation of additional Production Bores and an increase from 17GL up to 42GL of dewatering water discharged. This dewatering water is not required to be transferred to the E1 Pit as the sediment load is <5mg/L of TSS.

It should be noted that as per the amendment submitted on 21 December 2018 the dewatering effluent volume requested is for a cumulative maximum of 42 GL/annum. This total discharge volume will be managed through the approved discharge points DDL4 (DDL4a and DDL4b), DDL5 (yet to be constructed) and DDL1 (yet to be constructed).

13.2.2. Identification and general characterisation of emission

The dewatering effluent may contain metals and metalloids from mining operations including aluminium, chromium and copper. It may also contain cadmium, cobalt, nickel, zinc, molybdenum, selenium, tungsten, vanadium and uranium.

See Table 5 for Production Bores water quality. The water quality appears to be fresh, with a TDS of <1,000mg/L and parameters are within the ANZECC/ARMCANZ 2018 Australian and New Zealand Guidelines for Fresh and Marine Water Quality, trigger values for freshwater, 95% level of protection. The TSS is not elevated at <5mg/L. It should also be noted that additional bores are to be installed so this water quality may not necessarily be the same for new bores.

The discharge of the excess dewatering water has resulted in two separate wetting fronts along Weeli Wolli Creek:

- The first is located approximately 3.5km upstream of the existing discharge point DDL4a and is a combined discharge of excess dewatering water from Iron Valley into Marillana and Weeli Wolli Creeks by Rio Tinto and BHP Billiton Iron Ore Pty Ltd; and
- The second is located approximately 1.6km downstream of the existing discharge point DDL4a and is caused by excess dewatering water from Iron Valley. This excess water does not reach the Fortescue Marsh as it is lost through a combination of aquifer recharge, evaporation and evapotranspiration.

Golder conducted a wetting front assessment to estimate the revised wetting front extent based on the proposed increase to the discharge volume from the Project into Weeli Wolli Creek

(Golder, 2018a). The change to the estimated extent of the Iron Valley and cumulative wetting fronts along Weeli Wollli Creek caused by increasing discharge at DDL4 from 17 GL/yr to 42 GL/yr has been assessed as negligible (Golder, 2018a). Based on observations of the wetting front locations from the past 24 months, the original assessment of the wetting front extent appears to have significantly underestimated the potential of the Weeli Wollli Creek alluvial aquifer to absorb and transmit away recharging groundwater resulting from stream flow along the creek. This is evident in the current observations of the RTIO and Iron Valley wetting fronts, both of which have fallen well short of their predicted locations (Golder, 2018a).

13.2.3. Description of potential adverse impact from the emission

The increase in the volumes of dewatering effluent may result in erosion at the existing discharge point DDL4a within Weeli Wollli Creek and decreased groundwater quality in the vicinity and in the creek due to change to existing water quality in the creek.

13.2.4. Criteria for assessment

The criteria for assessment are the ANZECC/ARMCANZ 2018 Australian and New Zealand Guidelines for Fresh and Marine Water Quality, trigger values for freshwater, 95% level of protection. ANZECC/ARMCANZ (2000) recommends the use of field studies to compare results of laboratory toxicity testing to the observed response of aquatic fauna to known water quality.

13.2.5. Licence Holder controls

This assessment has reviewed the controls set out in Table 14 below.

Table 13: Licence holder controls

Site infrastructure	Description of infrastructure controls	Operation details
Discharge point DDL4a	<p><u>Erosion</u></p> <p>Discharge point DDL4a is an existing discharge point and already has erosion controls in place - is a channel constructed of mounded earth and lined with impervious geofabric and constructed of rock filled gabion baskets.</p>	<p>The Applicant has stated that there are no issues downstream of this discharge point with scouring or sediment loading.</p> <p>Volume of water discharge metered at the valve station.</p>
	<p><u>Groundwater contamination</u></p> <p>No specific additional infrastructure controls.</p>	<p>Water quality monitoring of the dewatering water discharged to the existing discharge point DDL4a is already conducted by the licence holder and is reflective of the discharge to the creek.</p> <p>Water quality monitoring will also be conducted at the DDL4 Downstream Sampling Location (this is the mixed water from both discharge points, DDL4a and DDL4b).</p>

13.2.6. Key findings

The Delegated Officer has reviewed the information regarding the increase in Production Bores dewatering water discharge to discharge point DDL4a and has found:

1. Water quality is generally within the ANZECC/ARMCANZ 2018 Australian and New Zealand Guidelines for Fresh and Marine Water Quality, trigger values for freshwater, 95% level of protection.
2. No additional infrastructure is required for the increase in dewatering water

discharge.

3. MS 1044 regulates Riparian and groundwater dependent vegetation and aquatic fauna via management plans.
4. DWER's Contaminated Sites Branch and River Science Branch have recommended an additional specific Biological Monitoring Program, with the use of the ANZECC/ARMCANZ 2018 Australian and New Zealand Guidelines for Fresh and Marine Water Quality, trigger values for freshwater, 95% level of protection guidelines. If exceedances are noted then it is recommended to develop more relevant site-specific guideline values using either toxicity testing on organisms, or to treat the water prior to discharge. This has been referred to Environmental Impact Assessment Services.

13.2.7. Consequence

Erosion

If impacts from erosion of the tributary bed occurs, then the Delegated Officer has determined that the impact of erosion will have low level onsite impacts, minimal wider scale offsite impacts and non detectable wider scale offsite impacts. Therefore the Delegated Officer considers the consequence of erosion to be **minor**.

Groundwater quality

If impacts from decreased groundwater quality occurs, then the Delegated Officer has determined that the impact of decreased groundwater quality will have low level onsite impacts, minimal level local scale offsite impacts, not detectable wider scale impacts and Specific Consequence Criteria (for environment) are likely to be met . Therefore, the Delegated Officer considers the consequence of lower groundwater quality to be **minor**.

13.2.8. Likelihood of Risk Event

Erosion

The Delegated Officer has determined that the risk event will probably not occur in most circumstances as the discharge point DDL4a is already in place and no erosional issues have been noted. Therefore, the Delegated Officer considers the likelihood of erosion to be **unlikely**.

Groundwater quality

The Delegated Officer has determined that the risk event will probably not occur in most circumstances as the TDS of groundwater that is discharged from the Production Bores is generally fresher than the surface water should be within the ANZECC/ARMCANZ 2018 Australian and New Zealand Guidelines for Fresh and Marine Water Quality, trigger values for freshwater, 95% level of protection. Therefore, the Delegated Officer considers the likelihood of decreased groundwater quality to be **unlikely**.

13.2.9. Overall rating of discharge of dewatering effluent to a tributary of Weeli Wollie Creek

Erosion

The Delegated Officer has compared the consequence and likelihood ratings described above with the risk rating matrix and determined that the overall rating for the risk of erosion of the tributary bed is **medium**.

Groundwater quality

The Delegated Officer has compared the consequence and likelihood ratings described above with the risk rating matrix and determined that the overall rating for the risk of decreased

groundwater quality is **medium**.

13.3. Risk assessment - transfer of dewater (production bore water and in-pit sump water / stormwater via Pit E1 to discharge point DDL4b into a tributary of Weeli Wolli Creek

13.3.1. Description of discharge of E1 Pit to a tributary of Weeli Wolli Creek

Dewater from production bores and in-pit sumps within the active pit area and stormwater is to be transferred to E1 Pit via a drain for settlement of sediment and then discharged to the new discharge point DDL4b to a tributary of Weeli Wolli Creek.

The new drain will intersect the existing stormwater drain and divert water through the eastern edge of Stockyards 5 and 9 where will enter the E1 Pit.

The new discharge point DDL4b will be adjacent to the existing discharge point DDL4a and also be the same method of discharge and set up:

- Pipeline anchored to a concrete headwall structure and rectangular channel (approximately 15m long x 5m wide x 2m deep); and
- Channel constructed of mounded earth, lined with impervious geofabric and constructed of rock filled gabion baskets.

13.3.2. Identification and general characterisation of emission

The dewatering effluent contains metals and metalloids from mining operations including aluminium, chromium and copper. It may also contain cadmium, cobalt, nickel, zinc, molybdenum, selenium, tungsten, vanadium and uranium. It should not be sediment laden due to settlement within the E1 Pit.

See Section 8 for the water quality going into the E1 Pit, however, this is prior to settlement so TSS should be reduced prior to discharge to the new DDL4b discharge point.

The DO notes that nitrates, phosphorus and hydrocarbons have not been monitored in discharge from the in pit sumps and storm water discharge. Given the sumps are located in the pit – there is the potential for residual chemicals from blasting and hydrocarbons from machinery/pumps used within the pit to be present.

13.3.3. Description of potential adverse impact from the emission

The E1 Pit discharge may result in erosion and seepage causing decreased groundwater quality at the new discharge point DDL4b.

Elevated nitrates and phosphorus have the potential to cause or contribute to eutrophication which may occur in Weeli Woolli Creek, and tributaries or pools.

Hydrocarbons may also affect the water quality within Weeli Woolli Creek where dissolved oxygen can be impacted.

13.3.4. Criteria for assessment

The criteria for assessment are the ANZECC/ARMCANZ 2018 Australian and New Zealand Guidelines for Fresh and Marine Water Quality, trigger values for freshwater, 95% level of protection.

13.3.5. Licence Holder controls

This assessment has reviewed the controls set out in Table below.

Table 14: Licence holder controls

Site infrastructure	Description of infrastructure controls	Operation details
New discharge point DDL4b	<p><u>Erosion</u></p> <p>Pipeline anchored to concrete headwall structure and a rectangular channel (approximately 15m long x 5m wide x 2m deep)</p> <p>Channel constructed of mounded earth and lined with impervious geofabric and constructed of rock filled gabion baskets.</p> <p>(this is the same design of the existing discharge point DDL4a where there have been no issues with erosion noted).</p>	<p>The Applicant has stated that there are no issues downstream of the discharge point DDL4a (which is the same design) with scouring or sediment loading.</p> <p>Volume of water discharge metered at the pump station.</p>
	<p><u>Groundwater contamination</u></p> <p>No specific additional infrastructure controls.</p>	<p>MRL will continue to conduct surface water sampling as per Condition 3.2.1 and Table 3.2.1 on the Licence.</p> <p>MRL will continue to conduct groundwater sampling as per Condition 3.4.1 and Table 3.4.1 on the Licence.</p> <p>Water quality monitoring is also conducted at the DDL4 Cumulative Sampling Location (this is the mixed water from both discharge points, DDL4a and DDL4b).</p>

13.3.6. Key findings

The Delegated Officer has reviewed the information regarding discharge of in-pit sumps dewatering water and stormwater via E1 Pit to new discharge point DDL4b and has found:

1. Water quality is generally within the ANZECC/ARMCANZ 2018 Australian and New Zealand Guidelines for Fresh and Marine Water Quality, trigger values for freshwater, 95% level of protection.
2. MS 1044 regulates Riparian and groundwater dependent vegetation and aquatic fauna via management plans.
3. DWER's Contaminated Sites Branch and River Science Branch has recommended an additional specific Biological Monitoring Program, the use of the ANZECC/ARMCANZ 2018 Australian and New Zealand Guidelines for Fresh and Marine Water Quality, trigger values for freshwater, 95% level of protection guidelines and if exceedences are noted then developing more relevant site-specific guideline values using either toxicity testing on organisms or treating the dewatering water prior to discharge. This has been referred to Environmental Impact Assessment Services.

13.3.7. Consequence

Erosion

If impacts from erosion at discharge point DDL4b occurs, then the Delegated Officer has determined that the impact of erosion will have low level onsite impacts, minimal wider scale offsite impacts and non detectable wider scale offsite impacts. Therefore the Delegated Officer

considers the consequence of erosion to be **minor**.

Groundwater quality

If impacts on groundwater quality occur, then the Delegated Officer has determined that the impact of decreased groundwater quality will have mid level onsite impacts, low level local scale offsite impacts, minimal wider scale impacts and Specific Consequence Criteria (for environment) are at risk of not being met. Therefore, the Delegated Officer considers the consequence of lower groundwater quality to be **moderate**.

13.3.8. Likelihood of Risk Event

Erosion

The Delegated Officer has determined that the risk event will probably not occur in most circumstances as the existing discharge point DDL4a has not had issues with erosion using the same method and set up. Therefore, the Delegated Officer considers the likelihood of erosion of the tributary bed to be **unlikely**.

Groundwater quality

The Delegated Officer has determined that the risk event will probably not occur in most circumstances as the water quality in Section 8 is within the ANZECC/ARMCANZ 2018 Australian and New Zealand Guidelines for Fresh and Marine Water Quality, trigger values for freshwater, 95% level of protection. Therefore, the Delegated Officer considers the likelihood of decreased groundwater quality to be **unlikely**.

13.3.9. Overall rating of discharge of dewatering effluent to a tributary of Weeli Wolli Creek

Erosion

The Delegated Officer has compared the consequence and likelihood ratings described above with the risk rating matrix and determined that the overall rating for the risk of erosion of the tributary bed is **medium**.

Groundwater quality

The Delegated Officer has compared the consequence and likelihood ratings described above with the risk rating matrix and determined that the overall rating for the risk of decreased groundwater quality is **medium**.

A risk rating will be determined for risk events in accordance with the risk rating matrix set out in Table 15 below.

Table 15: Risk rating matrix

Likelihood	Consequence				
	Slight	Minor	Moderate	Major	Severe
Almost certain	Medium	High	High	Extreme	Extreme
Likely	Medium	Medium	High	High	Extreme
Possible	Low	Medium	Medium	High	Extreme
Unlikely	Low	Medium	Medium	Medium	High
Rare	Low	Low	Medium	Medium	High

14. Summary of acceptability and treatment of Risk Events

Table 16: Risk assessment summary

	Description of Risk Event			Applicant controls	Risk rating	Acceptability with controls (conditions on instrument)
	Emission	Source	Pathway/ Receptor (Impact)			
1.	Unexpected spillage from dewatering pipelines	Dewatering water from the Production Bores and/or in-pit sumps dewatering water and/or stormwater	<p>Pathway Direct discharge to soil</p> <p>Receptor Soil near the rupture point Vegetation in the vicinity</p> <p>Impact</p> <ul style="list-style-type: none"> Contamination of the soil at the rupture point Decreased health of vegetation in the vicinity 	As per Section 13.1.5	<p><u>Contamination of the soil</u></p> <p>Moderate consequence</p> <p>Possible likelihood</p> <p>Medium Risk</p> <p><u>Decreased health of vegetation in the vicinity</u></p> <p>Minor consequence</p> <p>Unlikely likelihood</p> <p>Medium risk</p>	Acceptable subject to regulatory controls (Table 17)
2.	Dewatering water discharge increase to existing discharge point DDL4a to Weeli Wolli Creek.	Production Bores dewatering water	<p>Pathway Direct discharge from existing discharge point DDL4a</p> <p>Receptor</p> <ul style="list-style-type: none"> Flora; and Fauna <p>Impact</p> <ul style="list-style-type: none"> Erosion; and Decreased groundwater quality 	As per Section 13.2.5	<p><u>Erosion</u></p> <p>Minor consequence</p> <p>Unlikely likelihood</p> <p>Medium Risk</p> <p><u>Groundwater quality</u></p> <p>Minor consequence</p> <p>Unlikely likelihood</p> <p>Medium Risk</p>	Acceptable subject to regulatory controls (Table 17)
3.	Dewatering water / stormwater discharge via E1 Pit to DDL4b to Weeli Wolli Creek tributary	Production bores and active pit area in-pit sumps dewatering water and stormwater via E1 Pit	<p>Pathway Direct discharge from new discharge point DDL4b</p> <p>Receptor</p> <ul style="list-style-type: none"> Flora; and Fauna <p>Impact</p> <ul style="list-style-type: none"> Erosion; and Decreased groundwater quality 	As per Section 13.3.5	<p><u>Erosion</u></p> <p>Minor consequence</p> <p>Unlikely likelihood</p> <p>Medium Risk</p> <p><u>Groundwater quality</u></p> <p>Minor consequence</p> <p>Unlikely likelihood</p> <p>Medium Risk</p>	Acceptable subject to regulatory controls (Table 17)

15. Regulatory controls

A summary of regulatory controls determined to be appropriate for the Risk Event is set out in Table 17. The risks are set out in the assessment in section 13 and the controls are detailed in this section. DWER will determine controls having regard to the adequacy of controls proposed by the Licence Holder. The conditions of the Licence will be set to give effect to the determined regulatory controls.

Table 17: Summary of regulatory controls to be applied

		Controls (references are to sections below, setting out details of controls)			
		Infrastructure and equipment	Monitoring	Specified actions	Reports
Risk Items (see risk analysis in section 13)	1. Unexpected spillage from dewatering pipelines	●		●	●
	2. Production Bores increase in dewatering discharge to Weeli Wolli Creek tributary via existing discharge point DDL4a		●		●
	3. In-pit sumps dewatering water and stormwater discharge via E1 Pit with discharge to new discharge point DDL4b to Weeli Wolli Creek	●	●		●

16. Consultation

Table 18: Summary of consultation

Method	Comments received	DWER response
Application advertised on DWER website (20/08/2019) Application advertised on DWER website	N/A	N/A
Shire of East Pilbara advised of proposal (23/09/19)	N/A	N/A
DMIRS advised of proposal (23/9/19)	15 October 2019 MRL submitted a Mining Proposal in December 2018 which proposes an increase in the mine dewatering rate to 42 GL per annum, with all of this volume proposed to be discharged to an existing discharge point on Weeli Wolli Creek. Assessment of the Mining Proposal is on hold until the Minister for the Environment approves the revised MS 1044 and the associated Surface Water Management Plan	Noted
Licence holder referred draft documents (30/07/2020)	Detailed comments received 25/08/2020 - refer to Appendix 2.	Refer to Appendix 2.

17. Conclusion

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

17.1. Summary of amendments

Table 19 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 19: Licence amendments

Condition No.	Proposed amendments
Prescribed premises category description	Category 6 assessed production / design capacity increased from 17,000,000 up to 42,000,000 tonnes per annual period Category 89 assessed production / design capacity increased from 750 up to 1,500 tonnes per annual period
Premises description and licence summary	Updated to current status.
Licence history	Updated to include amendments to date.
Condition 1.2.2, Table 1.2.1	Landfill capacity updated from 750 up to 1,500 tonnes per annual period.
Condition 1.2.7, Table 1.2.3	Additional screener (removed) and update to DDL4 (now called DDL4a) dewatering infrastructure compliance documentation received 25 January 2017 (A1345831) and DWER acknowledgment dated 27 January 2017 (A1365796). Inclusion of infrastructure requirements for new dewatering infrastructure (drain, E1 Pit, duplication of pipeline network to DDL4a, new discharge point DDL4b and landfill.
Condition 1.2.9, Table 1.2.4	Premises production or design capacity limit for category 6 increased from 17,000,000 up to 42,000,000 tonnes per annual period.
Condition 2.2.1, Table 2.2.1	Removal of W1 discharge point as now the new drain, E1 Pit and DDL4b system will be used instead. DDL4 updated to DDL4a. DDL4b included.
Condition 2.2.2, Table 2.2.2	W1 removed and replaced with DDL4b with limit for TRH.
Condition 3.1.2	Monitoring frequency condition replaced with updated version from the Conditions Library.
Conditions 3.1.3 – 3.1.4	Calibration conditions replaced with updated version from the Conditions Library.
Condition 3.2.1, Table 3.2.1	Updated DDL4 to DDL4a.

	<p>Included new discharge point DDL4b.</p> <p>Sampling required for DDL4a and DDL4b for 12 months and ongoing for TRH.</p> <p>Included DDL4 Cumulative Sampling Location that includes both waste streams combined for DDL4a and DDL4b and is where the water quality sampling will take place.</p> <p>Added in additional parameters as per Contaminated Sites Branch technical advice.</p>
Condition 3.4.1, Table 3.4.1	<p>Removed LMB01 and LMB02 and replaced with MB03 and MBG as per Amendment Notice 1.</p> <p>Changed Standing water level units from m(AHD) to mbgl and included trigger of 456.78 RL.</p> <p>Added in additional parameters as per Contaminated Sites Branch technical advice.</p> <p>Added in more detailed monitoring for MBK as this is where seepage may report from E1 Pit.</p>
Condition 4.1.2	Annual Audit Compliance Report condition updated to current condition in Conditions Library.
Condition 4.1.3	Complaints condition updated to current condition in Conditions Library.
Condition 4.1.4	Books conditions included as per Condition Library.
Condition 4.1.5	Books conditions included as per Condition Library.
Condition 4.2.1, Table 4.2.1	<p>Annual Environmental Report condition updated to current condition in Conditions Library.</p> <p>Discharge points updated in the table.</p> <p>Comparison to ANZECC/ARMCANZ 2018 Australian and New Zealand Guidelines for Fresh and Marine Water Quality, trigger values for freshwater, 95% level of protection.</p>
Condition 4.3.1, Table 4.3.1	Additional screener removed as compliance documentation received 25 January 2017 (A1345831) and DWER acknowledgment dated 27 January 2017 (A1365796).
Maps	Updated to current versions.

ALANA KIDD
MANAGER, RESOURCE INDUSTRIES
INDUSTRY REGULATION

An officer delegated by the CEO under section 20 of the EP Act

Appendix 1: Key documents

	Document title	In text ref	Availability
1	Licence L8859/2014/1 – Iron Valley Iron Ore Project	L8859/2014/1	accessed at www.der.wa.gov.au
2	Amendment Notice 1 – 12 July 2019	Amendment Notice 1	accessed at www.der.wa.gov.au
3	Ministerial Statement 1044	MS 1044	accessed at www.epa.wa.gov.au/
4	DER, July 2015. <i>Guidance Statement: Regulatory principles</i> . Department of Environment Regulation, Perth.	N/A	accessed at www.dwer.wa.gov.au
5	DER, October 2015. <i>Guidance Statement: Setting conditions</i> . Department of Environment Regulation, Perth.	N/A	
6	DER, August 2016. <i>Guidance Statement: Licence duration</i> . Department of Environment Regulation, Perth.	N/A	
7	DER, November 2016. <i>Guidance Statement: Risk Assessments</i> . Department of Environment Regulation, Perth.	N/A	
8	DER, June 2019. <i>Guidance Statement: Decision Making</i> . Department of Environment Regulation, Perth.	N/A	
9	Amendment 1: Email titled “L8859/2014/1: Iron Valley - EL Amendment” dated 21/12/2018 2:50pm and authored by Mineral Resources Limited	N/A	DWER records (A1752311 and A1862023)
	Bennelongia Environmental Consultants (2018). Update of Subterranean Fauna Assessment in Bennelongia’s (2016) Iron Valley Project Report. 18 October 2018.	Bennelongia, 2018	
	Preston Consulting Pty Ltd (2018). Iron Valley Project. Application to Amend Ministerial Statement 1044 Under Section 45C of the Environmental Protection Act 1986. Prepared for BCI Minerals Ltd by Preston Consulting Pty Ltd. 9 November 2018.	Preston Consulting, 2018	
	Golder Associates Pty Ltd (2018a). Technical Memorandum – Wetting Front Assessment – Iron Valley 45C Application for Discharge Increase. 6 September 2018. Golder Reference Number: 18107902-001-TM-Rev0.	Golder 2018a	
10	Amendment 2: Email titled “Part V Licence Amendment Application - MRL Iron Valley	N/A	DWER records (DWERDT183541)

	L8859/2014/1 - E1 Drain Dewatering Infrastructure" dated 27 July 2019 1:11pm and authored by Mineral Resources Limited		
11	Amendment 3: Email titled "L8859 Iron Valley Licence Amendment Application - Cat 89 Landfill" dated 11/03/2020 10:34am and authored by Mineral Resources Limited	N/A	DWER records (A1875241)
12	Email titled "RE: L8859 Iron Valley Licence Amendment Application - Cat 89 Landfill" dated 24/04/2020 11:26am and authored by Mineral Resources Limited	N/A	DWER records (A1887920)
13	Email titled "RE: L8859 Iron Valley Licence Amendment Application - Cat 89 Landfill" dated 6/05/2020 3:28pm and authored by Mineral Resources Limited	N/A	DWER records (A1891147)
14	Email titled "Iron Valley Licence Amendment (L8859/2014/1) - Request for Further Information" dated 19/05/2020 1:52pm and authored by Mineral Resources Limited	N/A	DWER records (A1895520)
15	Groundwater Operating Strategy for Iron Valley Below the Water Table Project GWL 182884	N/A	DWER records (REPORT19/399)
16	Email titled "RE: L8859 Iron Valley Licence Amendment Application - Cat 89 Landfill" dated 24/04/2020 11:26am and authored by Mineral Resources Limited	N/A	DWER records (A1887920)
17	Email titled "RE: L8859/2014/1 amendment- Iron Valley Iron Ore Project- Request for Information" dated 1/05/2020 2:49pm and authored by Mineral Resources Limited	N/A	DWER records (A1890348)
18	Contaminated Sites Branch Technical Advice	N/A	DWER records (A1878252)
19	River Science Branch Technical Advice	N/A	DWER records (A1891056)
20	Email titled "Iron Valley RFI Response Discussion" dated 10/06/2020 9:33am and authored by Mineral Resources Limited	N/A	DWER records (A1909095)
21	Email titled "RE: Iron Valley Licence Amendment (L8859/2014/1) - Request for Further Information" dated 24/06/2020 3:52pm and authored by Mineral Resources Limited	N/A	DWER records (A1908589)
22	Email titled "RE: Proposed amendments to Licence L8859/2014/1 - MRL comments and proposed changes" dated 9/09/2020 8:25am and authored by Mineral Resources Limited	N/A	DWER records (A1933437)

Appendix 2: Summary of Licence Holder comments

The Licence Holder was provided with the draft Amendment Report on 30 July 2020 for review and comment. The Licence Holder responded on 25 August 2020. The following comments were received on the draft Licence and Amendment Report.

Condition	Summary of Licence Holder comment	DWER response
Amendment Report		
Section 2.1 Purpose and scope of assessment - Change in Design of Dewatering Infrastructure Page 7	MRL recognises the amendment document submitted to DWER on 27 July 2019 however the Project Scope was amended as per the RFI response submitted to DWER on 05 June 2020. The revised Project scope included the transfer of dewater (production bore and in-pit sump water) and stormwater into E1 pit for discharge through DDL4b. MRL has proposed a wording amendment in the Amendment Report Draft document to reflect this.	Updated
Section 2.1 Purpose and scope of assessment Page 7	MRL can confirm that E1 pit is a previously mined out pit.	Updated
Section 2.1 Purpose and scope of assessment Page 7	MRL deemed that a full drainage permeability and seepage assessment of the Drain was not required due to the low risk of pollution and/or environmental harm. The Drain is located within a previously disturbed area and over 100 meters from surrounding vegetation. Any potential seepage is likely to be localised and restricted to the area immediately adjacent to the Drain. Water quality within the Drain will be similar to that of the surrounding groundwater and water within E1 Pit and is not considered to pose a significant risk to the environment. The Drain itself will be constructed as per Condition 1.2.7 and Table 1.2.3 on the Licence to reduce the risk of erosion and spills to the surrounding, previously disturbed mine areas.	Updated
Section 2.1 Purpose and scope of assessment Page 7	Water level within E1 Pit will be maintained at the 462 RL, which will include a freeboard of 3 meters from the lowest point on the pit crest (RFI response dated 05 June 2020 incorrectly stated the maximum pit water level as 452 RL). The total volume capacity of E1 Pit up to the 462 RL is approximately 323,000 kL. Wet weather capacity of E1 Pit will be managed through the existing maximum RL and discharge rates.	Updated
Section 2.1 Purpose and scope of assessment Page 8	As per the RFI response submitted to DWER on 05 June 2020, water will be discharged from E1 pit via a new pump, pipeline and discharge structure. MRL has included a comment in the Amendment Report Draft to reflect this.	Updated
Section 2.1 Purpose and scope of assessment Page 8	Please see revised Figure 2 (Attachment 3) showing water flow and design for E1 pit discharge infrastructure.	Updated
Section 2.1 Purpose and scope of assessment - Change in Design of Dewatering Infrastructure Page 8	As per the RFI response submitted to DWER dated 05 June 2020 the water discharged into E1 pit will be sourced from production bores, in-pit sumps and stormwater. Therefore, the water discharged from E1 pit will include production bore and in-pit sump water, as well as stormwater. MRL has proposed a wording amendment in the Amendment Report Draft document to reflect this.	Updated

Section 2.1 Purpose and scope of assessment - Change in Design of Dewatering Infrastructure Page 8	As per the RFI response submitted to DWER dated 05 June 2020 the water discharged into E1 pit will be sourced from production bores, in-pit sumps and stormwater. Therefore, the water discharged from E1 pit will include production bore dewater, in-pit sump water and stormwater. MRL would also like to highlight that discharge from DDL4a will not change and will include production bore water and in-pit sump water as per existing approvals. MRL has proposed a wording amendment in the Amendment Report Draft document to reflect this.	Updated
Section 2.1 Purpose and scope of assessment - Change in Design of Dewatering Infrastructure Page 9	As per the RFI response submitted to DWER dated 05 June 2020 production bore dewater can be diverted to E1 pit during the life of mine. MRL has proposed a wording amendment in the Amendment Report Draft document to reflect this.	Updated
Section 2.2 Consolidation of licence Page 12	MRL would like to advise DWER that MB03 was destroyed due to pit development in 2020. Bore BH1 is recommend as a replacement, which is located on the eastern side of the waste rock landform. MRL have provided a revised Figure 4 in Attachment 4. MRL has included a comment in the Amendment Report Draft to reflect this.	Updated
Section 2.3 Construction commissioning and operation activities Page 12	As per the RFI response submitted to DWER dated 05 June 2020 there will be no commissioning required for the new bores and associated infrastructure, or for any other infrastructure proposed on the Licence. MRL has proposed a wording amendment in the Amendment Report Draft document to reflect this.	Updated
Section 2.3 Construction commissioning and operation activities Page 12	MRL have commenced the Iron Valley groundwater drilling program for replacement and addition of Production Bores. Water bore drilling commenced in July 2020 and is ongoing.	Updated
Section 2.3 Construction commissioning and operation activities - Table 2 Proposed design changes Page 12	MRL would like to propose changes to Table 2 on Page 12 of the Amendment Report document to be consistent with the amendment information. MRL has proposed a wording amendment in the Amendment Report Draft document to reflect this.	Updated
Section 5 Contaminated Sites Branch advice and recommendations Page 15-16	MRL will conduct surface water sampling as per Condition 3.2.1 and Table 3.2.1 on the Licence which include the metals and metalloids listed under Section 5 of the Amendment Report. MRL will cease discharge from DDL4b if three consecutive TRH exceedances are recorded, as per Condition 3.2.1 and Table 3.2.1 on the Licence. MRL will conduct groundwater sampling as per Condition 3.4.1 and Table 3.4.1 on the Licence which include the metals and metalloids listed under Section 5 of the Amendment Report. MRL will compare surface water quality and groundwater quality to the ANZECC/ARMCANZ 2018 guidelines as per Condition 4.2.1 and Table 4.2.1 on the Licence. Potential impacts to the biological values of Weeli Wolii Creek will continue to be monitored and managed as per the s45 approval (MS1044) and Condition Environmental Management Plan (CEMP). Potential groundwater draw down impacts will continue to be monitored and managed as per the RiWi Act approval (GWL182884) and associated Groundwater Operating Strategy (GWOS).	Noted
Section 6 River Science Branch advice and recommendations	Potential impacts to the biological values of Weeli Wolii Creek will continue to be monitored and managed as per the s45 approval (MS1044) and Condition Environmental Management Plan (CEMP). The outcomes of survey work required under the CEMP (which includes aquatic fauna monitoring and analysis of surface	Noted

Page 16-17	water quality) is reviewed and where required the CEMP is revised. Management actions will be implemented as per the CEMP to ensure the environmental values of Weeli Wolli are protected.	
Section 7 Water quality of discharge from Production Bores to DDL4a Page 17-18	As per the RFI response submitted to DWER dated 10 June 2020 the sample date for the groundwater analysis suite was the 26 November 2019, this date is incorrect in the Amendment Report document. MRL has proposed a wording amendment in the Amendment Report Draft document to reflect this.	Updated
Section 8 Water quality of discharge to E1 Pit, from in-pit sumps dewatering water and stormwater, for discharge to DDL4b Page 20	MRL can confirm that in-pit sumps move as the pit progresses. The number of sumps at any given time varies due to the design of active pit areas and dewater requirements. MRL can confirm the sample of water (taken on 20 January 2020) was taken from the E1 pit as per the RFI submitted to DWER on 15 May 2020. MRL has included a comment in the Amendment Report Draft to reflect this.	Updated
Section 11 Amendment history – Table 7 Licence Amendments Page 22	MRL has identified an error in Table 7 Licence Amendments. MRL has proposed a wording amendment in the Amendment Report Draft document to reflect this.	Updated
Section 12 Location and receptors – Table 9 Environmental receptors and distance from activity boundary Page 23	MRL can confirm there are no conservation significant flora present within the approved development envelope and/or within the vicinity of E1 Pit. MRL can confirm that previous fauna surveys identified one conservation significant fauna within the approved development envelope, the Rainbow Bee-eater. The species is a regular migrant and is very widespread. The species was identified throughout the development envelope and near Camp.	Updated
Section 13 Risk Assessment – Table 10 Risk assessment for proposed amendments during construction Page 25	MRL can confirm that within 5 km of the Project Envelope the DWER TEC and PEC search identified two occurrences of Priority Ecological Community (P3) Vegetation of sand dunes of the Hamersley Range/ Fortescue Valley. The PEC was identified to be located approximately 4 km north and 8 km north of the Project. MRL has included a comment in the Amendment Report Draft to reflect this.	Updated
Section 13 Risk Assessment – Table 10 Risk assessment for proposed amendments during construction Page 28	As the Life of Mine develops the inputs into E1 pit will fluctuate. On average, the volume input to E1 pit will be approximately 250 L/s which provides approximately 21 days for the void to reach capacity (without taking evaporation and ground dissipation into account). Volume capacity of E1 pit will be to the 462 RL with a minimum 3 metre freeboard from the lowest point on the pit crest. MRL has proposed a wording amendment in the Amendment Report Draft document to reflect this.	Updated
Section 13 Risk Assessment – Table 10 Risk assessment for proposed amendments during construction Page 29	MRL will conduct groundwater sampling (including MBK) as per Condition 3.4.1 and Table 3.4.1 on the Licence. If an exceedance is recorded MRL will conduct a sampling investigation and report as per the Licence. Trigger levels and associated management actions have been developed. Please refer to Attachment 2 Reference 40. MRL acknowledge that should seepage become an issue in MBK, additional works and approvals may be required. MRL has included a comment in the Amendment Report Draft to reflect this.	Updated
Section 13 Risk Assessment – Table 10 Risk	As per RFI submitted to DWER on 5 June 2020 fencing will be managed in accordance with Condition 1.2.2 and Table 1.2.1 which states "A fence or other physical barrier shall be maintained around the active landfill	Updated

assessment for proposed amendments during construction Page 29-31	area.". This is at variance to the statement on Page 29 of the Amendment Report document stating that "Facility is to be fenced". As per RFI submitted to DWER on 5 June 2020 the covering of waste will be managed in accordance with Condition 1.2.4 and Table 1.2.2 which states "weekly or as soon as practicable after deposit and prior to compaction.". This is at variance to the statement on Page 30 and 31 of the Amendment Report document stating "Weekly covering of waste". MRL has proposed a wording amendment in the Amendment Report Draft document to reflect this.	
Section 13.1.2 Identification and general characterisation of emission Page 32	MRL can confirm that there is a pipeline from the active pit, Central Deposit, transporting dewater (production bore water and in-pit sump water) into the E1 Drain. MRL have also proposed a change from "Central Deposit Pit" to "active pit area" to allow for operational flexibility throughout the Life of Mine. MRL has included a comment in the Amendment Report Draft to reflect this.	Updated
Section 13.2 Risk assessment - discharge of Production Bores dewatering effluent 17GL up to XXGL (MRL to confirm volume) to discharge point DDL4a into a tributary of Weeli Wolli Creek Page 34	MRL would like to confirm that as per Amendment document submitted on 21 December 2018 the dewatering effluent volume requested is for a cumulative maximum of 42 GL per annum. This total discharge volume will be managed through the approved discharge points DDL4 (DDL4a and DDL4b), DDL5 (yet to be constructed) and DDL1 (yet to be constructed). MRL propose the inclusion of "GL per discharge point" be deleted from the Amendment Report and Licence documents as the volumes will change throughout the Life of Mine. MRL would also like to highlight that the source water for DDL4a discharge will not change and therefore will include production bore water and in-pit sump water as per existing approvals. MRL has proposed a wording amendment in the Amendment Report Draft document to reflect this.	Updated
Section 13.2 Risk assessment - discharge of Production Bores dewatering effluent 17GL up to XXGL (MRL to confirm volume) to discharge point DDL4a into a tributary of Weeli Wolli Creek Page 34	MRL would like to confirm that as per Amendment document submitted on 21 December 2018 the dewatering effluent volume requested is for a cumulative maximum of 42 GL per annum. This total discharge volume will be managed through the approved discharge points DDL4 (DDL4a and DDL4b), DDL5 (yet to be constructed) and DDL1 (yet to be constructed). MRL has included a comment in the Amendment Report Draft to reflect this.	Updated
Section 13.2.5 Licence Holder controls – Table 13 Licence holder controls Page 35	MRL would like to clarify that the location of the flow meter for the DDL4a discharge point is at the valve station. MRL has proposed a wording amendment in the Amendment Report Draft document to reflect this.	Updated
Section 13.3.1 Description of discharge of E1 Pit to a tributary of Weeli Wolli Creek Page 37	MRL have also proposed a change from "Central Deposit Pit" to "active pit area" to allow for operational flexibility throughout the Life of Mine. MRL would like to confirm that as per Amendment document submitted on 21 December 2018 the dewatering effluent volume requested is for a cumulative maximum of 42 GL per annum. This total discharge volume will be managed through the approved discharge points DDL4 (DDL4a and DDL4b), DDL5 (yet to be constructed) and DDL1 (yet to be constructed). Therefore it is proposed that the reference to volume from DDL4b is removed from the Amendment Report document. MRL has proposed a wording amendment in the Amendment Report Draft document to reflect this.	Updated
Section 13.3.5 Licence holder controls - Table 14 Licence holder controls	MRL will continue to conduct surface water sampling as per Condition 3.2.1 and Table 3.2.1 on the Licence. MRL will continue to conduct groundwater sampling as per Condition 3.4.1 and Table 3.4.1 on the Licence. MRL has included a comment in the Amendment Report Draft to reflect this.	Updated

Page 38		
Section 14 Summary of acceptability and treatment of Risk Events Page 41	As per existing approvals and Licence amendment documentation, the combined discharge offsite will be up to 42 GL/pa from the discharge points previously approved (DDL1, DDL4 and DDL5). MRL propose the inclusion of GL per discharge point be deleted from the Licence and Amendment Report documents as the volumes will change throughout the Life of Mine. MRL has included a comment in the Amendment Report Draft to reflect this.	Updated
Section 14 Summary of acceptability and treatment of Risk Events Page 41	MRL have also proposed a change from "Central Deposit Pit" to "active pit area" to allow for operational flexibility throughout the Life of Mine. MRL has included a comment in the Amendment Report Draft to reflect this.	Updated
Section 16 Consultation – Table 18 Summary of consultation Page 42	MRL has obtained approval under the Mining Act 1978 (Mining Proposal Reg ID 77673) to increase mine dewatering rates to 42 GL per annum. As per the RFI submitted to DWER on 5 June 2020 this approval was granted on 23 December 2019. BC Pilbara Iron Ore Pty Ltd has obtained approval under Section 45C of the Environmental Protection Act 1986 (Ministerial Statement 1044) to abstract up to 42 GL per annum of groundwater and to discharge up to 42 GL per annum of surplus dewater into Weeli Wolli Creek. This was approved on 26 November 2019. MRL has obtained approval under the Rights in Water and Irrigation Act 1914 (5C GWL182884(4) to abstract 42 GL per annum of groundwater. This was approved on 28 November 2019.	Noted
Licence		
Premises Description and licence summary Page 3	MRL would like to clarify that DDL4 is "only used" as the main discharge point for the Project as of the date of this Licence Amendment. MRL has proposed a wording amendment for the dewatering paragraph and landfill paragraph to be consistent with amendment and Project information. MRL has proposed a wording amendment in the Licence Draft document to reflect this.	Updated
Condition 1.2.7 Table 1.2.3 Infrastructure Requirements Page 11-12	Water level within E1 Pit will be maintained at the 462 RL maintaining a minimum freeboard of 3 meters from the lowest point on the E1 pit wall (RFI response dated 05 June 2020 incorrectly stated the maximum pit water level as 452 RL). MRL has proposed a wording amendment in the Licence Draft document to reflect this.	Updated
Condition 1.2.8 Page 12-13	As per RFI submitted to DWER on 05 June 2020 the additional screener has been constructed and is operational therefore the text "the additional screener and" should be removed from Condition 1.2.8. MRL have proposed a wording amendment in the Licence Draft document to reflect this.	Updated
Condition 1.2.9 Table 1.2.4 Production or design capacity limits Page 12	MRL will discharge mine dewater up to 42 GL per annum through the approved discharge points (DDL1, DDL4 (including DDL4a and DDL4b) and DDL5). MRL has included the above comment in the Licence Draft document.	Updated
Condition 2.2.1 Table 2.2.1 Emission points to surface water Page 13	MRL will discharge mining dewater (from production bores and in-pit sumps) and stormwater through DDL4 (DDL4a and DDL4b). MRL has proposed a wording amendment in the Licence Draft document to reflect this.	Updated
Condition 3.2.1 and 3.4.1 Table 3.2.1 and 3.4.1	MRL propose to amend 'Fluorine' in the Licence to "Fluoride" as per monitoring and AER documentation since the commencement of the Project. MRL have confirmed with a NATA accredited laboratory that	Updated

Page 15 and 18	testing for fluorine in water is not an available test and it is not included on the NATA website. MRL has proposed a wording amendment in the Licence Draft document to reflect this.	
Condition 3.4.1 Table 3.4.1 Page 17	MRL would like to advise DWER that MB03 was destroyed due to pit development in 2020. Bore BH1 is recommend as a replacement which is located on the eastern side of the waste rock landform. MRL have provided a revised Figure 4 in Attachment 4. MRL has proposed a wording amendment in the Licence Draft document to reflect this.	Updated
Condition 3.4.1 Table 3.4.1 Page 17	The SWL Trigger Level for MBK will be set at 456.78 RL. Management actions to be implemented at this level include: <ul style="list-style-type: none"> • Ensuring continual and maximum discharge to DDL4b • Where possible re-routing dewater to DDL4a • Where possible reducing input load into E1 pit • Recommence normal operations once water level has recovered Site has also set a number of Management trigger levels to ensure contingency actions are put into place prior to the groundwater level reaching the Trigger Level.	Updated
Condition 4.2.1 Table 4.2.1 Annual Environmental Report Page 20	The revised infrastructure (RFI 05 June 2020) allows for mine dewater (production bore and in-pit sump water) and stormwater to be transferred to the E1 pit transfer point. From this point, the E1 in-pit water (combination of water sources) is transferred to the DDL4b discharge point. MRL record the dates (month) and volume of dewater transferred from production bores to E1 pit. MRL has proposed a wording amendment in the Licence Draft document to reflect this.	Updated
Schedule 1: Maps Figure 4 Putrescible landfill prescribed premises boundary Page 26	MRL would like to advise DWER that MB03 was destroyed due to pit development in 2020. Bore BH1 is recommend as a replacement which is located on the eastern side of the waste rock landform. MRL have provided a revised Figure 4 in Attachment 4. MRL has proposed a wording amendment in the Licence Draft document to reflect this.	Updated