ILUKA

Jacinth-Ambrosia Mineral Sands Mine

Annual Compliance Report 2019

28 April 2020

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EXECUTIVE DECLARATION

I, Shane Tilka (General Manager – Jacinth Ambrosia & Midwest), declare that all information contained in this document is, to the best of my knowledge, true and not misleading.

Signature

30/04/2020

Date

Document Control

Annual Compliance Report 2019

Version	Description	Author(s)	Date
V1.0	Compilation of the Annual Compliance Report - 2019	Tarant Borlase and Ben Ryan	17 April 2020

Report Sign-Off

Site Contact

NAME: Joanne Lee

POSITION: Environment, Rehabilitation and Community Relations Manager, J-A

DATE: 31 March 2020

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Person Responsible for Report

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POSITION: Operations Manager J-A

DATE: 29 April 2020

SIGNATURE:

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EXECUTIVE SUMMARY

This Annual Compliance Report (ACR) for the compliance reporting period 1 January – 31 December 2019 has been prepared to comply with the conditions of the mineral tenements (granted under the provision of the *Mining Act 1971)* associated with the Iluka Resources Ltd (Iluka) Jacinth-Ambrosia (J-A) mining operations.

Specifically, the ACR details compliance with and progress towards commitments in the J-A Program for Environmental Protection and Rehabilitation (PEPR), Version 1.1, October 2015.

J-A operations were in a production suspension phase from April 2016 before recommencing at the end of 2017. J-A operations including mining, processing, haulage, rehabilitation, maintenance and support services continued throughout 2019.

Development of the Ambrosia mining area (north of Jacinth) commenced in 2018, with clearance of mining and associated infrastructure areas. Clearance followed the vegetation clearance procedure including the stockpiling of rehabilitation materials. Mining operations in Ambrosia commenced August 2019, and continue into 2020.

Throughout the 2019 reporting period, the Environmental Management System was maintained and Iluka continued its support of research and community programs as detailed to deliver commitments contained in the PEPR. Training and induction programs were implemented as required and all personnel and contractors working on site were inducted to ensure their environmental obligations for operating at the J-A mine site were understood.

Non-compliance was recorded during the 2019 reporting period with several groundwater hydrogeochemistry parameters exceeding site-specific trigger levels. The non-compliance acknowledges measurement criteria associated with both standing water levels and groundwater chemistry have been triggered. However, based on results to date, groundwater quality outside the mine working area has not been impacted. Iluka are continuing to investigate these exceedances with an updated groundwater model and proposed amendment to PEPR groundwater criteria planned for 2020.

Groundwater drawdown from the borefield palaeochannel remains within model tolerance, with a general lowering of standing water levels consistent with water abstraction associated with continuing operations. The model for the palaeochannel is undergoing a review in 2020, with a migration to a different modelling system.

No impacts to native flora and fauna species have been identified due to mining operations. Trends in fauna abundance and recovery cannot be determined at this time and ongoing data collection will form part of long-term monitoring. A fauna survey was planned for 2019, however it has been delayed until 2020 due to the availability of the specialist contractor, and the unfavourable weather conditions in late 2019 which would have posed an unacceptable risk to fauna harm. Weed and pest animal diversity and abundance continue to be addressed through the site pest management program.

In 2019, approximately 69 ha was cleared and stripped of topsoil and subsoil in preparation for mining at Ambrosia and 2.79 ha was disturbed to support the Atacama Exploration Program. Rehabilitation earthworks occurred, with an area of approximately 21.33 ha rehabilitated on the on the Cell 2 and Cell 3A.

1. INTRODUCTION

1.1 Purpose of this report

This Annual Compliance Report (ACR) has been prepared to comply with the relevant conditions of the mineral tenements (granted under the provision of the *Mining Act 1971)* associated with the Iluka Resources Ltd (Iluka) Jacinth-Ambrosia (J-A) mining operations.

1.2 Key operational details

Key details for the mining operations are provided in Table 1.

Table 1 Details of mining operations

Descriptor	Details
Tenement numbers (all current)	Mining Lease (ML) 6315 Miscellaneous Purposes Licence (MPL) 110, 111 Extractive Mineral Lease (EML) 6316, 6325, 6326, 6330, 6331, 6332, 6333, 6334
Mine name	Jacinth-Ambrosia
General location details	Eucla Basin, 290 kilometers (km) north west of Ceduna within Yellabina and Nullarbor Regional Reserves.
Mine owner and operator / tenement holder	Iluka Resources (Eucla Basin) Pty Ltd
Site contact	Joanne Lee – Environment, Rehabilitation & Community Manager
Key personnel	Gavin Swart – Operations Manager J-A Joanne Lee – Joanne Lee – Environment, Rehabilitation and Community Relations Manager
Registered Mine Manager	Nicholas Bartsch – Technical Services Manager
Reference and approval date of PEPR being reported against	MO5336.001- Jacinth-Ambrosia Program for Environmental Protection and Rehabilitation (PEPR) for ML 6315, EML 6316, MPL 110, MPL 111 (November, 2015); and ADP 2008/021 - PEPR for Extractive Mineral Leases EML 6325 – 6326, EML 6330 – 6334.
Person responsible for this report	Gavin Swart – Operations Manager J-A
Reporting period for this report	1 January to 31 December 2019
Date of this report	28/04/2020

1.3 Scope of the report

The ACR details compliance with and progress towards commitments in the Jacinth-Ambrosia (J-A) Program for Environmental Protection and Rehabilitation (PEPR), Version 1.1, October 2015 which covers the following:

- Mining Lease (ML) 6315;
- Miscellaneous Purposes Licence (MPL) 110, 111; and
- Extractive Mineral Lease (EML) 6316, 6325, 6326, 6330, 6331, 6332, 6333, 6334.

Compliance reporting for the following is excluded from this report:

- Jacinth-Ambrosia Project Ooldea Road North and Ooldea By-Pass - Rehabilitation Plan, July 2008;
- Jacinth-Ambrosia Project Ooldea Road North and Ooldea By-Pass – Environmental Management (Construction) Plan, Appendix A Dust Management Sub-Plan, July 2008;
- Pre-construction feasibility activities carried out on Exploration Leases;
- Occupational and environmental radiation management and monitoring pursuant to Iluka EPA Licenses LM10 and LF5;
- Port Thevenard HMC facility and operations; and
- Mineral separation at downstream Iluka operations – Hamilton Mineral Separation Plan (VIC) and Narngulu Mineral Separation Plan (WA).

1.4 Other Licences, Permits, Waivers, Native Title and Agreements

Key Licences, Permits, Native Title and Agreements held by Iluka and relevant to the PEPR are listed in Table 2. It should be noted that no waivers are applicable to the operation.

Table 2 Other approvals and agreements relevant to the PEPR

Document	Scope and Relevance
EPA Licence 22442	Authorisation to undertake prescribed activities per the *EP Act 1993*: 2(5) Concrete batching works 2(9) Mineral works 7(7) Extractive industries, production rate >100kt per year 8(2)(a) Fuel burning: rate of heat release >5MW 8(6a) Desalination plant, wastewater discharge 50-500 ML/year
EPA Radiation Protection Licence LM10	Licence to carry out mining or mineral processing per s24, *RPC Act 1982*.
SA Health Approval WCS-2664 – J-A Village Community Wastewater Management Scheme (CWMS).	Authorisation to operate a Community Wastewater Management Scheme (CWMS) per *Public Health Act 2011* (SAPH Act) and the Public Health (Wastewater) Regulations 2013.

Document	Scope and Relevance
SA Health Approval 2009-6154 J-A Mine Site Community Wastewater Management Scheme (CWMS)	As above.
SA Health Approval WWI-10503 J-A Ambrosia Community Wastewater Management Scheme (CWMS)	As above.
Native Title Mining Agreement – Iluka Resources and Far West Coast Aboriginal Corporation	A Part 9B Native Title Agreement (NTA; pursuant to the requirements of the *Native Title Act 1994*) between Iluka Resources and the Far West Coast Aboriginal Corporation (FWCAC).

2. STATEMENT OF COMPLIANCE

2.1 Compliance status

As indicated above, the ACR has been prepared to document compliance of the J-A operations against statutory approval conditions and the PEPR.

A summary of the compliance status of the operation is provided in Table 3 and Table 4 below.

Table 3 Statement of compliance

Statutory approval	All conditions complied with
ML 6315	No
MPL 110 and 111	Yes
EML 6316, 6325, 6326, 6330, 6331, 6332, 6333, 6334	Yes

Table 4 Non compliances

Statutory approval	Condition no.	Description	Compliance status	Addressed in
ML 6315	Second Schedule. Condition 1	*Ensure that groundwater systems outside the extent of the mine workings are not altered by the disposal of process water*	Non-compliant	Section 7.2.9 and Appendix A.

In investigating and reviewing the non-compliance, Iluka has applied a risk rating to assist in identifying the environmental consequence of the issue and the associated management actions.

The risk assessment tool used for the purposes of rating the non-compliance is based on Iluka's Risk Assessment Procedure (PRC6806) and detailed in Table 5.

Table 5 Non compliance codes

Risk level	Code	Description
Major	Non-compliant	Very serious, long-term environmental impairment of ecosystem function.
Significant	Non-compliant	Serious medium term environmental effects.
Moderate	Non-compliant	Moderate, short-term effects but not affecting ecosystem function.
Minor	Non-compliant	Non-compliance with potential for minor effects on biological or physical environment.
Negligible	Non-compliant	Minimal damage to minimal area of low significance; administrative non-compliance

2.2 Ministerial determination checklist

This Annual Report has been structured to reflect the requirements set in Ministerial Guidelines MG3 (dated 23 January 2018) provided in Table 6.

Table 6 Ministerial Determination Checklist (compliant to MG3)

Requirement	Document reference
1. Requirement for declaration of accuracy	Executive Declaration. Shane Tilka refer above.
2. Compliance reports	This report
3. Requirement for submission and reporting period Report must cover all mineral leases and any associated miscellaneous purposes licences or associated extractive mineral leases.	Table 1
4. **Content of compliance report:**	
4.1 Public liability insurance	Provided separately to the Department
4.2 Identification • tenement number(s) • name of the mine operation • general location details • name(s) of the tenement holder and mine operator(s) • site contact • date of relevant PEPR(s) being reported against • dates of the reporting period • report submission date	Table 1
4.3 Tenements (list and plan of current tenements)	Table 1, Figure 1
4.4 Other approvals	Table 2

Requirement		Document reference
4.5	Ore reserves and mineral resources	Table 7
4.6	Mining, processing and waste storage activities (for reporting period) and predicted for next reporting period.	Table 8 Table 9
4.7	Compliance with environmental outcomes and leading indicator criteria	Section 2 – summary Appendix A - detailed discussion
4.8	Compliance with non-outcome based tenement conditions	Section 7 – summary Appendix A - detailed discussion
4.9	Rectification of non-compliances	Section 7.2 – summary Appendix A - detailed discussion
4.10	Disturbance and rehabilitation activities	Section 9
4.11	Reconciliation of native vegetation clearance	Section 7.2.– summary Appendix A - detailed discussion
4.12	Environment Protection and Biodiversity Conservation Act 1999 reporting	Section 9
4.13	Exempt land	NA
4.14	Complaints	Section 6
4.15	Management system reviews	Section 10
4.16	Verification of uncertainty	Section 11
4.17	Change to mining operations and emerging environmental hazards	Section 12
4.18	Technical reports	NA

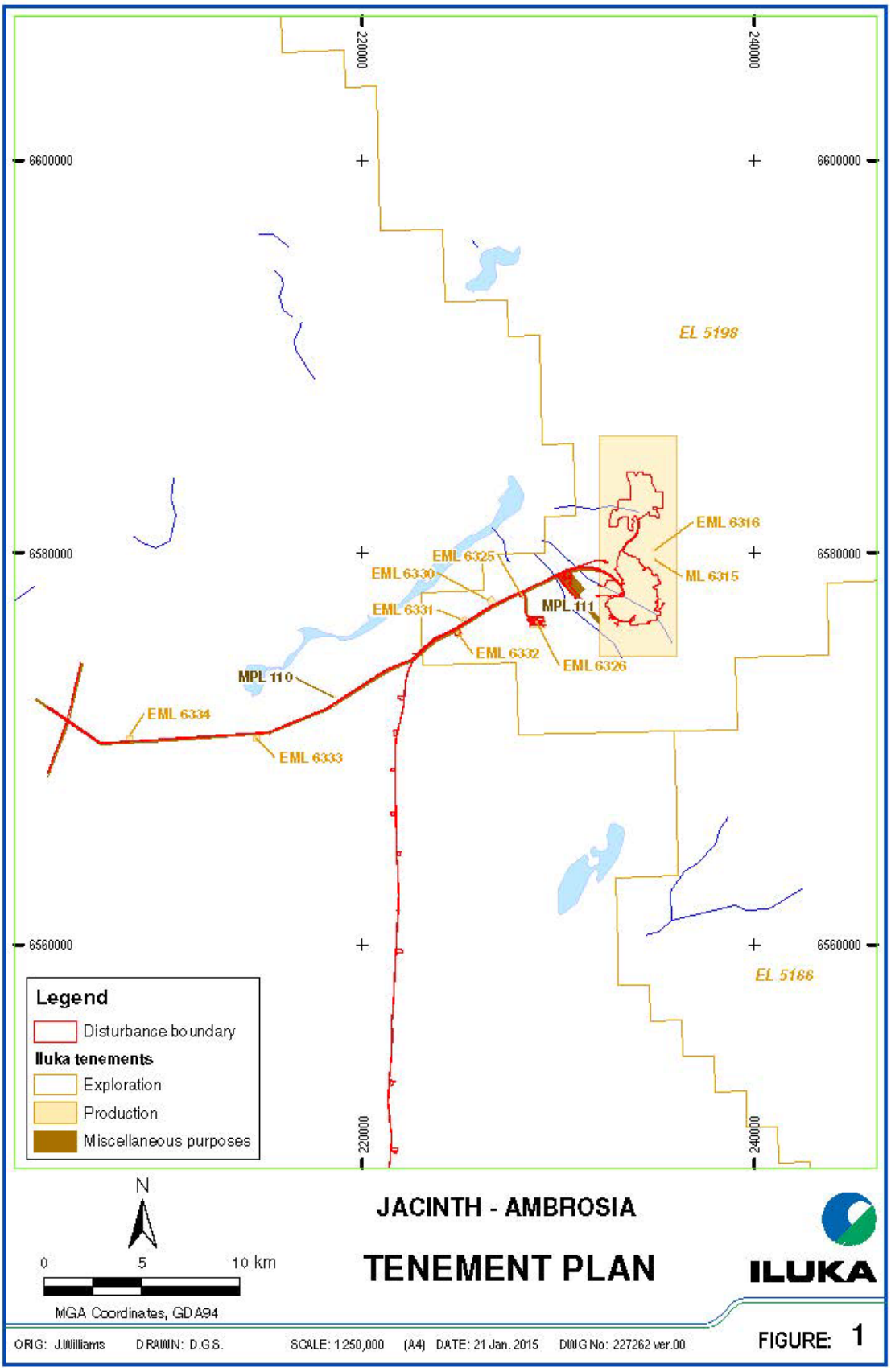

Figure 1: Jacinth-Ambrosia Mine Tenement Plan

3. MINING OPERATIONS

3.1 Activities during the reporting period

Mining operations continued throughout 2019, with a successful transition to the Ambrosia deposit where mining commenced in August, 2019.

The key aspects of the 2019 operations were as follows:

- environmental management systems were maintained;
- development of the Ambrosia mining area with vegetation clearance and stockpiling of cleared materials for rehabilitation;
- continued support of research and community programs to deliver on commitments in the PEPR;
- continued induction and training for site personnel and contractors on site to ensure understanding of environmental obligations and requirements for the J-A mine site;
- rehabilitation monitoring activities (excluding LFA) were completed in accordance with PEPR requirements with good vegetation and soil stabilisation recorded at 2019 rehabilitation locations (in comparison to analogue sites);
- phreatic surface testing in the tailings profile indicated that the phreatic surface level is greater than 2.1 m (myall/mallee and myall associations);
- no significant negative impacts to native flora or fauna species were identified as a result of 2019 operations;
- weed diversity and abundance continued to be addressed through the site weed management program;
- a total of 21.33 ha of Cell 2 and Cell 3A were rehabilitated as planned;
- 69 ha of vegetation was cleared in accordance with the J-A Vegetation Clearance Permit System requirements, plus an additional 2.79 ha cleared to support Atacama exploration programs;
- Groundwater monitoring within the water supply paleochannel, mine site and background zone (standing water levels (SWLs)) on a monthly basis; and
- Annual groundwater quality monitoring in background and operational (mine and tailings storage facility (TSF)) bores.

3.2 Ore Reserves and mineral resources

Updated Measured, Indicated and Inferred Mineral Resources are summarised in Table 7. The updated Mineral Resource and Ore Reserves (from those in the approved PEPR) reflect the progression of operations into lower grade ore occurring in the northern areas of the Jacinth and Ambrosia Deposit.

Table 7 JA Mineral Resources (JORC 2012)

Deposit	Mineral Resource Category	Material	In situ HM	HM Grade	Assemblage in HM		
					Ilmenite Grade	Zircon Grade	Rutile Grade
		Mt	Mt	%	%	%	%
Jacinth + Ambrosia	Measured	126	3.1	2.4	28	46	5
	Indicated	19	0.3	1.9	20	51	5
	Inferred	39	0.8	2.1	24	49	4
	Total	**184**	**4.2**	**2.3**	**27**	**47**	**5**

Updated Proved and Probable Ore Reserves are summarised in Table 8.

Table 8 Jacinth-Ambrosia ore reserves (JORC Status, as of 31st December 2019)[1]

JORC Status *(as at 31 Dec 2019)*	Ore (Mt)	HM In-Situ (Mt)	HM Grade (%)	Ilmenite (%)	Zircon (%)	Rutile (%)
Reserve - proved	82.2	2.5	3.0	28.3	47.1	4.8
Reserve - probable	5.2	0.1	2.0	18.3	50.8	4.4

3.3 Overburden, Ore and Concentrate

The operations continued throughout 2019 following the recommencement of operations in December 2017. Key production data for the operations during 2019 (ore, overburden and heavy mineral concentrate movement) is provided in Table 8.

Table 9 Mining summary for J-A, 2019[1]

Material	Tenement	Quantity	
Overburden moved	ML 6315	3,359	Kbcm †
Ore Mined	ML 6315	9,302	kt
HMC – Produced	ML 6315	419	kt
HMC – Shipped	ML 6315	446	kt

† bcm = bulk cubic metres. % at the end of the reporting period.

All heavy mineral concentrate (HMC) was shipped via the Port of Thevenard to the downstream processing plant at Narngulu (WA).

Based on current mine plan, the indicative volume of materials to be mined and processed for 2020 are provided in Table 9.

Table 10 Indicative volumes[2] planned for 2020 reporting period

[1] From: Iluka Resources Annual Report 2019, Available: https://iluka.com/investors-media/asx-disclosures/annual-reports

[2] Indicative volumes only, mine plan may change during the reporting period resulting in changes to the indicative numbers provided.

Material	Tenement	Quantity	
Overburden	ML 6315	5,992	Kbcm †
Ore Mined	ML 6315	9,302	kt
HMC – Produced	ML 6315	433	kt
HMC – Shipped	ML 6315	411	kt

4. VOLUNTARY INFORMATION

Not applicable.

5. PROJECT VARIATION SUMMARY

On 25th June 2019 Iluka provided notification to DEM of the proposal to develop supporting infrastructure for the Jacinth-Ambrosia operation, and of a minor change to the mining sequence.

The development of a bioremediation treatment pad has been proposed, to be constructed and managed in accordance with Bioremediation Management Plan and relevant legislation. The principal object of this infrastructure change is to treat the hydrocarbon impacted soil material generated from operational activities to an acceptable level for re-use on site as a resource for rehabilitation works. Another minor change to supporting infrastructure was the proposal for an additional waste water treatment plant at the Ambrosia support area, of similar scope to the existing system at the mine site, subject the SA Health approvals.

The Ambrosia deposit was approved and forms part of the current Jacinth Ambrosia Program for Environment Protection and Rehabilitation (PEPR No. MPEPR2015/039). Changes to the mining sequence, a result of regular review of market conditions and resource optimisation, have been communicated where the current mine plan identifies a transition from Ambrosia to Jacinth in 2026 and a cease to mining at Jacinth in 2029.

The works were not anticipated to alter the environmental risk profile described in the PEPR or require any modification of the current environmental outcomes or measurement criteria.

6. COMPLAINTS

There was one community complaint received for the reporting period, relating to a perceived increase in wild dog activity south of the dog fence with a concern that this increase is due to animals crossing at the cattle grid on the Ooldea Rd. The complaint was via a phone call directly to the ERCR Manager of the J-A operation, and actioned immediately.

Contact was made with the NRM office in Ceduna who have had two motion sensitive cameras installed at the grid for some time. They advised that there has been some dog activity noted north of the fence yet no photographic evidence to suggest that they are crossing at the grid. As a precautionary measure an additional motion sensitive camera was purchased and installed through consultation with NRM officers to attempt to verify whether dogs are travelling along the fence, as there are already two cameras on the grid itself. The camera footage has been reviewed a number of times since installation, with only two confirmed photos of dogs identified; both of which were on the north side of the grid with no evidence of crossing.

This has been communicated back to the originator of the complaint, and additional measures of animal control and cooperation with local land owners are being investigated for 2020.

7. COMPLIANCE

7.1 Compliance with environmental outcomes and leading indicator criteria

Compliance summaries relevant to each PEPR outcome are provided in Tables 10 to 20 below.

The information provided demonstrates compliance with outcomes, leading indicator and measurement criteria (note: only measurement criteria relevant to operations have been included).

Information supporting the compliance assessment is provided in Appendix A and identified in the respective tables.

7.1.1 Public Safety & Traffic

Table 11 Summary of compliance outcomes for public safety and traffic

PUBLIC SAFETY AND TRAFFIC				
ML & MPL PEPR Outcome	Leading Indicator Criteria	Measurement Criteria	Status	Supporting information
No public injuries or deaths resulting from mine operations traffic or unauthorised access that could have been reasonably prevented.	Annual review of incidents related to traffic or unauthorised access.	Incident investigation concludes that any public incident that involved uncontrolled site access or mine operations traffic resulting in public injury or death was not a result of mine operations, or could not have been reasonably prevented.	Compliant	Appendix A, Section 2.1
No public injuries or deaths resulting from uncontrolled fire that could have been reasonably prevented.	Annual review of incidents related to fire indicates that no fire incidents were related to (caused by) mine operations.	Fires arising from mining operations are captured in the Iluka 'Cintellate' Incident Management System and investigated to determine causality and control effectiveness, and to assess whether they could have been reasonably prevented.	Compliant	Appendix A, Section 2.1

7.1.2 Heritage

Table 12 Summary of compliance outcomes for heritage

HERITAGE				
ML and MPL PEPR Outcome	Leading Indicator Criteria	Measurement Criteria	Status	Supporting information

No disturbance to Aboriginal artefacts or sites of significance unless prior approval under the relevant legislation is obtained.	All heritage sites restored to pre-mining vegetation association and all artefacts restored to original position (unless agreed with the Far West Coast Aboriginal Corporation).	Demonstrate that no disturbance has occurred in areas for which heritage clearance approval has not been gained (output from GIS).	Compliant	Appendix A Section 2.2

7.1.3 Pest Species

Table 13 Summary of compliance outcomes for weed species and pest animals

WEED SPECIES AND PEST ANIMALS				
ML & MPL PEPR Outcome	Leading Indicator Criteria	Measurement Criteria	Status	Supporting information
No introduction of new weeds or plant pathogens, nor increase in abundance of existing weed species in the lease area and adjacent areas caused by mining operations.	Annual review of the pest flora survey and weed management register (comprising results of field monitoring and visual observations) considering trends that could indicate population increase or introduction of new weed species.	Weed species diversity and abundance at closure to be consistent with control sites.	Compliant	Appendix A, Section 2.3
No increase in abundance of pest animal species in the lease area and adjacent areas caused by mining operations.	Annual review of register of pest animal infestation looking at trends that could indicate population increase.	Pest animal species abundance at closure to be consistent with control sites.	Complaint	Appendix A, Section 2.3

7.1.4 Soils

Table 14 Summary of compliance outcomes for soil

SOILS				
ML & MPL PEPR Outcome	Leading Indicator Criteria	Measurement Criteria	Status	Supporting information
Soil profile and function is restored and capable of supporting agreed land use.	Soil profile is restored in accordance with Table 29 Indicative soil profile (Section 3.10.4 in PEPR, 2015).	All measurement criteria relate to closure.	Compliant	Appendix A, Section 2.4
	Biological soil crust recorded in rehabilitation areas.			
	Before reinstatement of soil profile, ensure the phreatic surface in tails profile is within acceptable limits i.e. >2.1 m below top of tails surface in myall/mallee and myall associations and >4.5 m in chenopod associations.			

7.1.5 Waste Management

Table 15 Summary of compliance outcomes for solid waste

WASTE MANAGEMENT				
ML & MPL PEPR Outcome	Leading Indicator Criteria	Measurement Criteria	Status	Supporting information
No demolition, industrial or solid domestic wastes (other than treated sewage) are to be disposed on site.	Site waste register contains records of all waste movements from site.	Audit and inspection records demonstrate waste correctly stored and managed in accordance with Waste Management Plan.	Compliant	Appendix A, Section 2.5
		Demolition or industrial wastes disposed of at appropriately licensed facility outside the project area.	Compliant	Appendix A, Section 2.5

7.1.6 Dust and Air Quality

Table 16 Summary of compliance outcomes for dust and air quality

DUST AND AIR QUALITY				
ML & MPL PEPR Outcome	Leading Indicator Criteria	Measurement Criteria	Status	Supporting information
All fuel burning equipment is operated in accordance with the requirements of the EPA.	No criteria applicable due to low inherent risk associated with outcome.		Compliant	Appendix A, Section 2.6

7.1.7 Native Vegetation

Table 17 Summary of compliance outcomes for native vegetation

NATIVE VEGETATION				
ML & MPL PEPR Outcome	Leading Indicator Criteria	Measurement Criteria	Status	Supporting information
All clearance of native vegetation is authorised under appropriate legislation.	All vegetation clearance is within authorised clearance boundaries.	All vegetation clearance is within authorised clearance boundaries.	Compliant	Appendix A, Section 2.7
Post-mining ecosystem and landscape function is resilient, self-sustaining and indicating that the pre-mining ecosystem and landscape function will ultimately be achieved.	-	Landscape Function Analysis indicates that rehabilitated systems are trending towards pre-disturbance landscape function based on comparison with control sites.	Compliant	Appendix A, Section 2.7
No uncontrolled fires caused by mining.	-	-	Compliant	Appendix A, Section 2.1

7.1.8 Native Fauna

Table 18 Summary of compliance outcomes for native fauna

NATIVE FAUNA				
ML & MPL PEPR Outcome	Leading Indicator Criteria	Measurement Criteria	Status	Supporting information
No net adverse impacts from site operations on native fauna abundance or diversity within the lease area and adjacent areas.	Fauna monitoring results indicate fauna diversity and abundance in impact areas is comparable with control sites.	At closure, all open water storage facilities in-filled and closed. Apply C29 to measure that appropriate habitat is restored for faunal species.	Compliant	Appendix A, Section 2.8
All sick and injured fauna are managed as per the requirements of the *Animal Welfare Act 1985*.	-	Records indicate compliance with the requirements of the *Animal Welfare Act 1985*, where an animal is injured as a result of mining operations.	Compliant	Appendix A, Section 2.8

7.1.9 Surface Water

Table 19 Summary of compliance outcomes for surface water

SURFACE WATER				
ML & MPL PEPR Outcome	Leading Indicator Criteria	Measurement Criteria	Status	Supporting information
Post-mining ecosystem and landscape function is resilient, self-sustaining and indicating that the pre-mining ecosystem and landscape function will ultimately be achieved.	External peer review of rehabilitated landform design to ensure watercourse design is adequate.	Water quality in rehabilitated creeks comparable with upstream control sites.	Compliant	Appendix A, Section 2.9

7.1.10 Groundwater

Table 20 Summary of compliance outcomes for groundwater

GROUNDWATER				
ML & MPL PEPR Outcome	Leading Indicator Criteria	Measurement Criteria	Status	Supporting information
The extraction and use of groundwater does not adversely affect environmental processes or beneficial users that are reliant on that groundwater system.	Periodic review and update (recalibration) of palaeochannel drawdown predictive model (developed by SKM, 2011) (Refer PEPR section 5.15.3).	Review of borefield palaeochannel aquifer standing water levels (SWLs) against palaeochannel drawdown model predictions.	Compliant	Appendix A, Section 2.10
		Monitoring of borefield palaeochannel standing water levels (SWLs).	Compliant	Appendix A, Section 2.10
Groundwater systems outside of the extent of the mine workings are not altered by the disposal of process water in the pit.	Periodic review and update (recalibration) of the J-A regional groundwater model. Water used to predict mine area groundwater behaviour over time through life-of-mine and post-closure (levels, flows and extent); and review and refinement of groundwater management trigger levels.	Groundwater SWLs in the *mine workings zone* and outside this zone (*background zone)* do not exceed the maximum ('impact') site-specific risk register trigger levels (SSTLs) for those zones (refer to Figure 55, Table 70, Section 5.15 of the PEPR, 2015).	Non-compliant	Appendix A, Section 2.10
		Groundwater chemistry target parameters do not exceed maximum threshold site-specific trigger levels (SSTLs) as defined in Table 71, Section 15.5 of the PEPR, 2015.	Non-compliant	Appendix A, Section 2.10

7.1.11 Hazardous Materials

Table 21 Summary of compliance outcomes for hazardous materials

HAZARDOUS MATERIALS				
ML & MPL PEPR Outcome	Leading Indicator Criteria	Measurement Criteria	Status	Supporting information
Fuel and liquid chemical (hazardous materials) storage are adequately bunded to capture and prevent the migration and infiltration of any spillage or leakage to the surrounding environment in conformance with relevant EPA guidelines.	All hazardous materials storage facilities comply with SA EPA Bunding Guidelines, or to a design agreed with the SA EPA.	Records indicate that all spills are managed in accordance with Spill Response/Clean Up Procedure and Iluka *EHS Group Standard – Hazard, Incident and Emergency Classification.*	Compliant	Appendix A, Section 2.11

7.2 Compliance with non-outcome based tenement conditions

Appendix B provides as a summary of non-outcome based tenement conditions associated with ML 6315, MPL 110–111, EML 6325-6326 and EML 6330-633.

No non-compliances with non-outcomes based tenement conditions have been identified.

7.3 Rectification of non-compliances

In March 2017, Iluka provided an incident notification concerning an exceedance of a site specific trigger level (SSTL) relating to groundwater standing water levels (Table 70 of the J-A PEPR) to DPC. The exceedances continued in 2019 with additional groundwater monitoring events confirming previous findings.

As identified in Table 19 above, Iluka has identified that the following PEPR outcome has a non-compliant status:

> *'Groundwater systems outside of the extent of the mine workings are not altered by the disposal of process water in the pit'.*

The non-compliance acknowledges measurement criteria associated with both standing water levels (criteria C41 within the J-A PEPR) and groundwater chemistry (criteria C42 within the J-A PEPR) have been triggered. However, based on results to date, although exceedance of SSTLs has been identified, groundwater quality outside the mine working area has not been impacted.

Details of the non-compliance are summarised in Table 19 with further detail provided in Appendix A of the ACR.

Table 21 provides a summary of the options under current consideration to assist in further understanding the groundwater non-compliance issues identified.

Table 22 Options for further consideration to address groundwater non-compliance

Options for further consideration	Details	To address	Timing
Operational review	Continued monitoring of return water with pH dosing of the process dam (as may be required). Geochemical review of tailings management to assist in identifying any deficiencies / issues.	Groundwater quality – particularly increased metal mobilisation as identified during 2017 monitoring event.	Completed and underway. Continued monitoring of return water during operations. Geochemical review underway in 2020.
Continued review and update of site water balance and predictive water models i.e. • Paleochannel water supply model; and • Mine site groundwater model.	Full update of all water related predictive models in order to recalibrate (with operational data) and revise predicted impacts. All updated models would also include the mining of the Ambrosia deposit.	Predicted groundwater quality and water levels including mine closure and recovery scenarios. Would also assist in reviewing current SSTLs.	Completed annually. Completed in 2018 as part of upgrade project and proposed move to Ambrosia.
Review of measurement criteria suitability	Use of statistical trend analysis instead of SSTLs for establishing compliance criteria for water groundwater quality.	Suitability of SSTLs for PEPR measurement criteria.	Groundwater review report completed by external hydrogeologists to assess the suitability of proposed new criteria. New criteria to be included in revised PEPR.
Review of aquifer beneficial use	Beneficial use of the aquifer is constrained by its high salinity and the low transmissivity of the lithologies. With salinities typically greater than 10,000 mg/L (TDS), the groundwater is generally unsuitable for potable or stock use. There are no beneficial users of groundwater within 50 km of the Site.	The suitability of all groundwater PEPR outcomes and associated criteria.	Completed

Options for further consideration	Details	To address	Timing
	The suitability of the water for deep rooted woodland species (to understand potential impacts of rising SWLs).		
Installation of additional groundwater monitoring infrastructure	Installation of: • additional monitoring bores (around Jacinth); • additional regional compliance bores (around Jacinth); and • baseline monitoring bores (for Ambrosia).		Completed Ambrosia and Jacinth mine monitoring bores. Additional regional bores to be scheduled for development in 2021.

8. REHABILITATION

This section presents a summary of 2019 rehabilitation activities and anticipated clearance for 2020. Data is reported by domain and sub-domain as per the J-A PEPR Mine Closure Plan:

- Domain 1: Ooldea Road (not reported through ACR, figures displayed in this report for record only);
- Domain 2: MPL111 Airfield & Village;
- Domain 3: MPL110 Borefield & Access Road; and
- Domain 4: ML6315 Mine Site.

The disturbed and rehabilitated areas for the ACR reporting area (Domains 2, 3 & 4) are summarised in Table 22, the locations of which are displayed in Figure 2. Further detail is also provided in Appendix A.

In 2019, 69.06 ha was cleared and stripped of soil in accordance with the J-A Vegetation Clearance Procedure and 2.79 ha was disturbed to support the Atacama Exploration Project. A total area of 21.33 ha was rehabilitated at Cell 2 and Cell 3A (Figure 2).

Table 23 Disturbed and rehabilitated areas 2019

Domain	2008 - 2018		2019		2020	
	Previous Reporting Periods		Current Reporting Period		Proposed Next 12 Months	
	Disturbed (ha)	Rehab (ha)	Disturbed (ha)	Rehab (ha)	Disturbed (ha)	Rehab (ha)
Domain 1: Ooldea Rd[3]						
A Borrow Pits	93.56	59.22	-	-	-	-
B Water Points	2.77	0.20	-	-	-	-
C Ooldea Rd (actual Rd area 155 ha)	155.23	-	-	-	-	-
Subtotal	**251.56**	**59.42**	**-**	**-**	**-**	**-**
Domain 2: MPL 111 Airfield & Village						
A Airfield	40.09	-	-	-	-	-
B & C Village	10.49	1.7	-	-	-	-
Subtotal	**50.58**	**1.7**	**-**	**-**	**-**	**-**
Domain 3: MPL110 Borefield & Access Rd						
A, B, D Infrastructure	81.34	-	8.79	-	-	-
C Turkey's Nests, Bores	36.78	3.76	-	-	-	-
E Tank Farm 1	2.97	-	-	-	-	-
F EMLs, Borrow Pits	16.45	5.43	-	-	-	-
Subtotal	**137.54**	**9.19**	**8.79**	**-**	-	**-**
Domain 4: ML6315 Mine Site						
A Jacinth Pit	247.42	54	-	21.33	-	-
B Ambrosia Pit	17.85	-	39.29	-	50	-
C Tailings Storage Facility (inc. SP)	123.58	53	-	-	-	-
D Soil Stockpiles	211.32	-	20.89	-	75	-
E, F, G, H Infrastructure	143.23	1.33	0.08	-	10	-
Subtotal	**743.40**	**108**	**69.06**	**-**		**-**
Total Area	**1183.08**	**248**	**69.06**	**29.3**	**69.3**	

Small areas will vary between domains over the years as the sub-domains change, i.e. from drilling to pit or haul road.

[3] *Domain 1, Ooldea Rd data is not reported on within the PEPR, displayed here for information only*

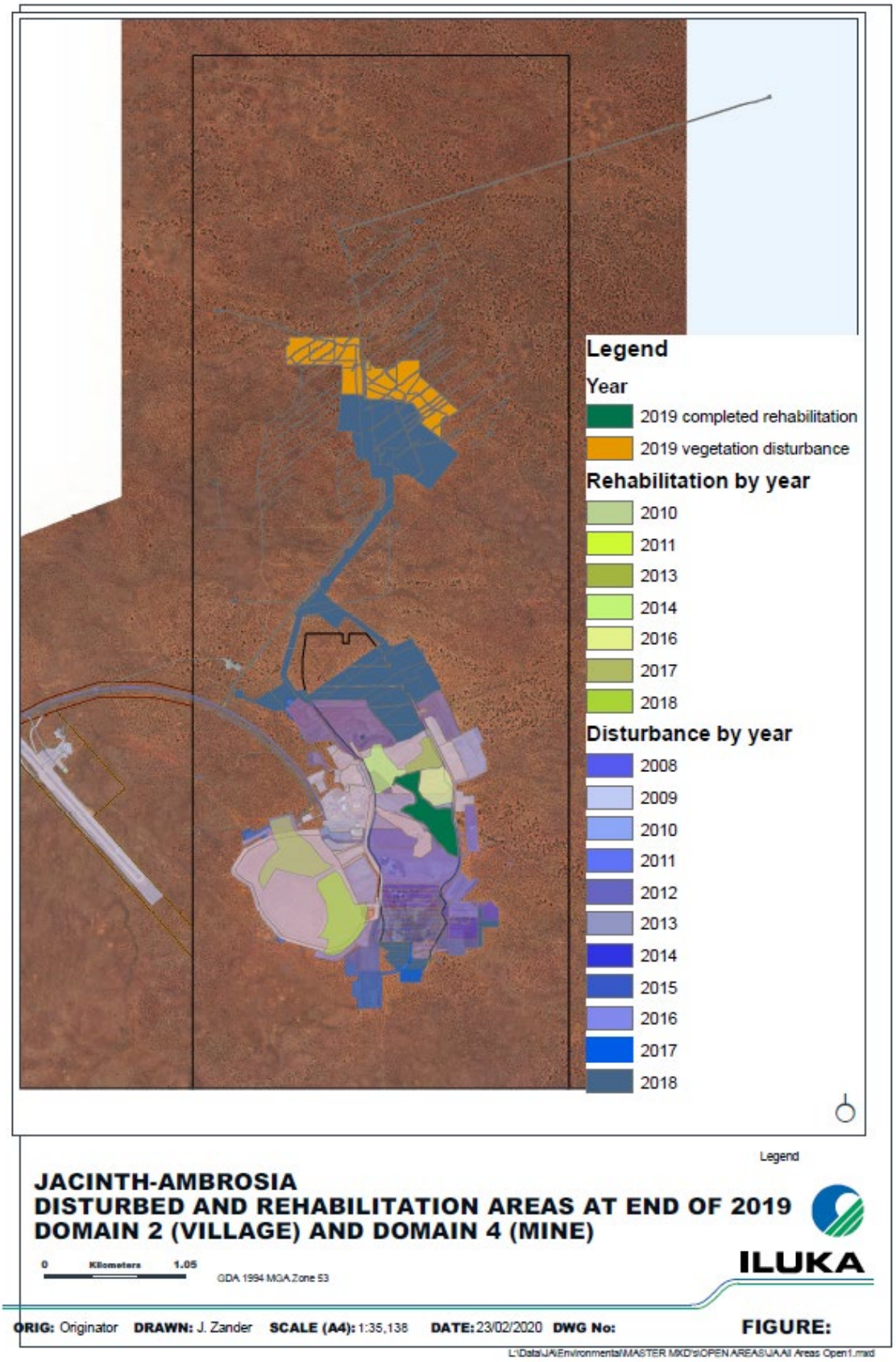

Figure 2: Disturbance and rehabilitated areas at end of 2018.

8.1 Rehabilitation Progress

In 2019, rehabilitation of an area of Cell 2 and Cell 3A was completed with 21.33 ha of topsoil and subsoil reinstated and the area ripped and seeded in April 2019. The area has been reinstated as a myall woodland and myall/mallee woodland over a creek line and associated tributaries.

Rehabilitation activities for 2020 are scheduled to include the overburden movements to the off-path tailings storage facility, to enable rehabilitation to final surface and seeding in 2021-2022. The timing and scope of these movements is dependent on trafficability of the tailings surface, and final rehabilitation activities depend on seed availability. Any delays to the rehabilitation sequence will be communicated to relevant stakeholders.

Table 24 Rehabilitation summary

Domain	Size (ha)	Progress in 2019	Planned for 2020
2 Airfield & Village			
2B, Canberra Camp	1.4	No monitoring required.	Weed control as necessary. LFA: 2011, 2012, 2015 next scheduled 2020.
2B, Contractor Camp	1.51	Weed control as necessary.	Weed control as necessary.
3 Borefield and Access Road			
3C, Borefield Turkey's Nests	3.76	Weed control.	Weed control as necessary.
3E, Tank Farm 1	3.02	No weed control was required in this area.	Weed control as necessary. LFA: Completed 2011, 2012 and 2015 next scheduled 2020.
3F, Borrow Pit, EML 6325	2.36	Very little germination has occurred in this area. No weed control was required in this area.	Weed control as necessary.
4 Mine Site			
4A, Jacinth Mine Area	32.72	Annual monitoring was conducted in 2018, which indicated the early rehabilitated sites were trending towards analogue sites. Although because of below average rainfall, plant species diversity and abundance was affected. Weed management included the treatment of wards weed and turnip weed.	Monitoring of plant growth and LFA. Weed control as necessary. Erosion management where necessary.
4C, Off-path TSF	52.77	An area of 28 ha was rehabilitated on the southern face of the Off Path TSF. This area was completed in April 2018 (Plate 1). Weed control.	LFA monitoring. Weed control. Tailings dust control (western face of the Off Path TSF) using slimes, water and trials designed for dust control.

Domain	Size (ha)	Progress in 2019	Planned for 2020
4H, water points	1.3	Photo point monitoring only.	Weed control as necessary.
Cell 2 and Cell 3A	21.33	Rehabilitation of a part of Cell 2 and Cell 3A.	LFA and weed control as necessary.

8.2 Rehabilitation Research and Monitoring Program

A summary of the Rehabilitation Monitoring Programs is provided in Table 24. All results from investigations are provided in the JARMS 2018-2019.

Table 25 Summary of J-A research and monitoring program for 2018 - 2019

Program	Aims
Research into recalcitrant species pearl bluebush *(Maireana sedifolia)*	Assess options for increasing population of pearl bluebush in rehabilitated areas: - Determine environmental cues that facilitate flowering; - Investigate genetic variability of pearl bluebush across the State as alternate seed sources; and - Establish a seed farm at J-A.
Impacts of mining dust on surrounding vegetation	Determine any changes in abundance, composition or condition of vegetation against control site or background data to identify any impacts to vegetation due to dust smothering. Determine the mechanisms of impact for the long lived species pearl bluebush.
Impacts of mounding saline groundwater on surrounding vegetation	Determine the susceptibility of various vegetation species to rising groundwater (due to mounding).
Stockpile Monitoring	Provide information on the expected: - Germination rates of vegetation species; and - Successional changes of BSC over time.
Rehabilitation Monitoring	Determine the functionality of the rehabilitated areas over time.
Cell 1 Trial	- To examine rooting requirements of myall (*Acacia papyrocarpa*), red mallee (*Eucalyptus oleosa)* and *Yorrell (E. gracilis)*; - To investigate the plant water use of J-A deep rooted species – myall, red mallee and Yorrell; and - To compare changes in soil chemical and physical characteristics as a result of disturbance. This trial concluded in September 2019 and results will be provided in the 2019 - 2020 edition of JARMS.

9. EPBC REPORTING

An Environment Protection and Biodiversity Conservation (EPBC) Act referral was prepared and submitted to the then titled Department of Environment and Natural Resources (DENR), now 'DEW', for all aspects of the J-A project prior to mine approval and development. DEW subsequently advised that the project was "Not a Controlled Action" under the EPBC Act.

There was no change in the EPBC status of the J-A operation during the reporting period.

10. MANAGEMENT SYSTEM REVIEWS

A 5 year verification audit was completed by Golder and Associates in November 2016 assessing compliance of the J-A operation to the Iluka EHS Management System (EHSMS).

No further management system reviews were completed during the compliance reporting period, however management plans were internally reviewed and additional detailed review of management plans and compliance register is scheduled following completion of the PEPR amendment.

11. VERIFICATION OF UNCERTAINTIES

11.1 Uncertainties Update

During the risk assessment associated with the collation of the PEPR (2015) a number of uncertainties were highlighted for potential environmental impacts associated with J-A operations (refer J-A PEPR, Section 5.18, Table 79).

Table 25 provides a summary of these uncertainties; the commitments made to address the uncertainties and, the progress to date.

Table 26 Update on commitments to address uncertainties.

Aspect	Impact ID / Uncertainties	Commitment(s) to address uncertainties	Anticipated completion (per PEPR)	Progress
Heritage	HE1 – Potential presence of unknown, lost or hidden sites/relics within approved tenement boundaries.	Existing control – Iluka J-A Indigenous Site/Relic Discovery Procedure.	Already commenced (ongoing).	Ongoing – no change. Four heritage sites containing 17 artefacts were discovered during the reporting period. These artefacts were relocated as per the NTMA and J-A Indigenous Site/Relic Discovery Procedure.

Aspect	Impact ID / Uncertainties	Commitment(s) to address uncertainties	Anticipated completion (per PEPR)	Progress
Pest Species	PS1 – Weed introduction via uncontrolled public vehicles using haul road (public access area). Intensity of weed management by DEW in the greater Yellabinna Reserve area (outside of the tenement boundaries).	Regular monitoring of haul road for weed outbreaks. See Pest Species Management Plan for further details. Liaison with DEW.	Ongoing.	Weed mapping and management complete during the reporting period.
	PS2 – Intensity of pest animal management by DEW in the greater Yellabinna Reserve area (outside of the tenement boundaries).	Liaison with DEW.	Ongoing.	No discernible trend.
Soil	S1 – Stability of topsoil and subsoil stockpiles. Stability of rehabilitated soil surface.	Stockpile monitoring program. Annual stockpile balance. Dust deposition monitoring.	Already commenced (ongoing).	Ongoing. Stockpile balance indicates a deficit of subsoil and subsoil to be addressed by an increase in subsoil and topsoil stripping depth.
	S3 – Depth of salinity in soils where saline water used for dust suppression.	Ongoing salinity monitoring at depth of haul roads.	Already commenced (ongoing).	Results and report anticipated within 2 years of the closure of the haul roads.

Aspect	Impact ID / Uncertainties	Commitment(s) to address uncertainties	Anticipated completion (per PEPR)	Progress
	S4 – Rooting depth requirements for deep rooted plant species.	Adelaide University ARC Linkage Project (Cell 1 Trial). Refer to Jacinth-Ambrosia research and monitoring summary (JARMS), 2012 and 2014 for more information. Rehabilitation trials. Refer to JARMS (2012, 2014).	Already commenced (ongoing).	Preliminary results and report provided in 2016 – 2017 JARMS. Ongoing analysis of this area in 2019 and the trial will be ongoing to gather long-term data.
Waste Management	WD2 – Potential legacy soil contamination in areas used for storage and handling of hazardous and listed substances.	Closure soil assessments as per ASC NEPM.	At closure	Nil – at closure.
	WD2 – Potential groundwater contamination associated with on-site disposal of hydrocarbon soils.	Assessment and disposal of soils as per ASC NEPM and SA EPA guidelines.	As required.	Contaminated soil generated through 2019 managed in compliance to requirements. Refer Appendix A.
		Groundwater quality monitoring per Groundwater Management Plan.	Already commenced (ongoing).	Monitoring round completed 2019.
		Assessment of groundwater impacts as per ASC NEPM (*if/where an impact or threat to groundwater is identified*).	As required.	Not Applicable.

Aspect	Impact ID / Uncertainties	Commitment(s) to address uncertainties	Anticipated completion (per PEPR)	Progress
Native Vegetation	NV1 – Plant growth response to reconstructed soil profiles. Soil seed bank response to disturbance and stockpiling.	Adelaide University and ARC linkage project (Cell 1 Trial). Refer to Jacinth-Ambrosia research and monitoring summary (2010 - 2011) and (2012 – 2013) for more information.	Ongoing	Results and report provided in 2016 – 2017 JARMS. Final report to be provided in the next edition of JARMS.
	NV3 – Unknown how vegetation health, in particular pearl bluebush, is impacted by smothering of foliage with dust generated by project activities.	Dust monitoring program in place, which incorporates a series of transects to examine health of vegetation within proximity of mining activities.	Ongoing.	Ongoing. No plant deaths have been recorded.
Surface Water	SW1 – Impacts to downstream waterways due to temporary interruption of upstream sediment sources.	Monitoring of creeks for evidence of erosion, upstream and downstream.	Ongoing	Ongoing.
Groundwater	GW1 – Future palaeochannel aquifer demand associated with mine operations.	All potential changes in mining operations to consider demand on palaeochannel aquifer and potential implications (i.e. run scenario in model to confirm).	As required.	Borefield palaeochannel drawdown model updated in 2018. Recalibration and model update underway, to be completed early 2020.

Aspect	Impact ID / Uncertainties	Commitment(s) to address uncertainties	Anticipated completion (per PEPR)	Progress
	GW2 – Long-term impact of tailing water seepage on groundwater chemistry and geochemistry.	Routine monitoring of groundwater chemistry per Groundwater Management Plan.	Already commenced (ongoing).	Ongoing. Monitoring completed annually as required in 2019 (EP Analysis).
		Assessment of groundwater impacts as per ASC NEPM (if/where an impact or threat to groundwater is identified).	As required.	Ongoing.
	GW3 – Volume of water disposed in tails, end fate and associated mounding impacts.	Application of groundwater management and monitoring plan, active monitoring of water efficiency.	Already commenced (ongoing).	Ongoing. Operations water balance maintained during reporting period.
		Development of (J-A mine) regional groundwater model.	2016.	Completed 2016. Update completed 2019. To be included in PEPR update 2020.
Groundwater	GW3 – Adverse impact (or otherwise) of hypersaline water groundwater on vegetation.	Vegetation stress monitoring.	Already commenced (ongoing).	Ongoing. No plant deaths have been recorded. Report to be provided in the JARMS 2018-2019.
Hazardous Materials	HZ1 – Potential legacy soil contamination in areas used for storage.	Closure soil assessments as per ASC NEPM.	At closure.	Nil – at closure.

12. CHANGES TO MINING OPERATIONS AND EMERGING ENVIRONMENTAL HAZARDS

12.1 Changes to mining operations endorsed under the approved PEPR

As discussed in Section 5, on 25th June 2019 Iluka provided notification to DEM of the proposal to develop supporting infrastructure for the Jacinth-Ambrosia operation, and of a minor change to the mining sequence.

The works were not anticipated to alter the environmental risk profile described in the PEPR or require any modification of the current environmental outcomes or measurement criteria.

12.2 New or emerging environmental hazards

None identified. Groundwater exceedances are discussed in Section 7.1.10.

Appendix A PEPR Compliance outcomes summary report

Jacinth-Ambrosia Mining Operations
PEPR Compliance Outcomes Summary
For reporting period 2019

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TABLES

FIGURES

PLATES

ATTACHMENTS

1. INTRODUCTION

This report provides the supporting data demonstrating compliance (or non-compliance) with the outcomes as detailed in Jacinth-Ambrosia (J-A) Program for Environmental Protection and Rehabilitation (PEPR), Version 1.1, October 2015. The report has been prepared to accompany the Annual Compliance Report (ACR) for the 2019 reporting period.

2. COMPLIANCE WITH ENVIRONMENTAL OUTCOMES AND LEADING INDICATOR CRITERIA

Compliance summaries relevant to each PEPR outcome are provided in the following section of this report. The information provided demonstrates compliance with outcomes, leading indicator and measurement criteria (note: only measurement criteria relevant to operations have been included in the following sections).

2.1 Public Safety & Traffic

2.1.1 Summary of compliance

Table 1 provides a summary of the compliance outcomes for public safety and traffic.

Table 1 Summary of compliance outcomes for public safety and traffic

ML & MPL PEPR Outcome	Leading Indicator Criteria	Measurement Criteria	Status
No public injuries or deaths resulting from mine operations traffic or unauthorised access that could have been reasonably prevented.	Annual review of incidents related to traffic or unauthorised access.	Incident investigation concludes that any public incident that involved uncontrolled site access or mine operations traffic resulting in public injury or death was not a result of mine operations, or could not have been reasonably prevented.	Compliant
No public injuries or deaths resulting from uncontrolled fire that could have been reasonably prevented.	Annual review of incidents related to fire indicates that no fire incidents were related to (caused by) mine operations.	Fires arising from mining operations are captured in the Iluka 'Cintellate' Incident Management System and investigated to determine causality and control effectiveness, and to assess whether they could have been reasonably prevented.	Compliant

2.1.2 Measurement of compliance

Public injury or death resulting from operations traffic and/or unauthorised site access

No incidents occurred during the reporting period that involved injury or death to members of the public as a result of mine operations traffic or unauthorised site access.

Six events occurred during the reporting period where uncontrolled access to site was recorded. The incidents were associated with visitors arriving at the village requesting water, fuel or minor mechanical assistance. In all instances persons were intercepted by site personnel and no access was gained to active operational areas.

Road signage is in place indicating the pre-mine turnoff to Oak Valley and Maralinga, and there is continued engagement with the Ceduna Tourist Information Office to help communicate to people regarding prohibited access to the mine.

Public injury or death resulting from uncontrolled fire related to/caused by mine operations

No uncontrolled fires, or related public injury or deaths, related to or caused by mine operations occurred during the reporting period.

2.2 Heritage

2.2.1 Summary of compliance

Table 2 provides a summary of the compliance outcomes for heritage.

Table 2 Summary of compliance outcomes for heritage

ML and MPL PEPR Outcome	Leading Indicator Criteria	Measurement Criteria	Status
No disturbance to Aboriginal artefacts or sites of significance unless prior approval under the relevant legislation is obtained.	All heritage sites restored to pre-mining vegetation association and all artefacts restored to original position (unless agreed with the Far West Coast Aboriginal Corporation).	Demonstrate that no disturbance has occurred in areas for which heritage clearance approval has not been gained (output from GIS).	Compliant

2.2.2 Measurement of compliance

Disturbance to Aboriginal artefacts or sites of significance

As outlined in the J-A PEPR, cultural heritage surveys and clearances of mine lease tenements were undertaken prior to the commencement of mining. All areas within these tenements are therefore approved for clearance and ground disturbance during mine operations. Ad-hoc discovery of cultural heritage within lease areas, should this occur, are to be managed in accordance with the Iluka J-A Heritage Management Plan, the SA government Heritage Act requirements and the FWCAC Cultural Heritage policy.

Iluka maintained the site Vegetation and Heritage Clearance Procedure to ensure that heritage sites are not disturbed. Iluka maintained a register of clearance permits, survey records and approvals to demonstrate compliance with this outcome.

Artefacts were discovered in four locations during 2019, with a total of 17 artefacts identified. The Heritage Clearance Procedure was enacted and the artefacts were collected and stored appropriately.

No Aboriginal artefacts were restored during the reporting period and all artefact replacement will be undertaken at closure in consultation with, and at the discretion, of FWCAC.

No ground disturbance occurred outside these approved lease boundaries during the reporting period.

2.3 Pest Species

2.3.1 Summary of compliance

Table 3 provides a summary of the compliance outcomes for weed species and pest animals.

Table 3 Summary of compliance outcomes for weed species and pest animals

ML & MPL PEPR Outcome	Leading Indicator Criteria	Measurement Criteria	Status
No introduction of new weeds or plant pathogens, nor increase in abundance of existing weed species in the lease area and adjacent areas caused by mining operations.	Annual review of the pest flora survey and weed management register (comprising results of field monitoring and visual observations) considering trends that could indicate population increase or introduction of new weed species.	Weed species diversity and abundance at closure to be consistent with control sites.	Compliant
No increase in abundance of pest animal species in the lease area and adjacent areas caused by mining operations.	Annual review of register of pest animal infestation looking at trends that could indicate population increase.	Pest animal species abundance at closure to be consistent with control sites.	Compliant

2.3.2 Measurement of compliance

No introduction of new weeds or plant pathogens, nor increase in abundance of existing weed species in the lease area and adjacent areas caused by mining operations.

No new weed species was identified in the 2019 compliance reporting period. There was no evidence of any increase in the abundance of existing weed species in the lease and adjacent areas, during the reporting period.

Iluka maintained a weed management register during the reporting period based on information obtained through field weed mapping and management programs. Records are maintained within an ArcGIS database and weed management record sheets.

Field management programs were completed based on monitoring inputs, weed mapping (existing and new infestations) and the requirements of the Pest Species Management Plan, with weed management prioritised according to:

- The landscape types most prone to weed invasion are identified as the highest priority areas, this includes rehabilitation areas, soil stockpiles and areas with frequent off-site vehicle movement. All weed species will be managed in these high priority areas, regardless of weed species priority; and
- Noxious weeds and weeds listed under the *NRM Act 2004*, Weeds of National Significance (WoNS) and weed species of regional significance are given the highest management priority. This includes buffel grass, horehound, African boxthorn and ruby dock; none of which were identified within the mining lease for the reporting period. Weeds will also be managed on low priority landscape types if they occur in an area that has the potential to influence mining operations (e.g. transport corridor).

Following the completion of active rehabilitation, at the closure of project phase, weed species and abundance will be determined by conducting annual weed surveys of the watercourse monitoring sites. The weed surveys will be ongoing for a minimum of five years.

Vehicle hygiene inspections is mandatory for all vehicles travelling to/from site to ensure that there is no introduction or spread of a pest species to J-A. All records are saved and filed.

There were a total of 6 weed species recorded and managed in lease areas during the reporting period (Table 4). The most abundant weed species were long-fruited wild turnip (*Brassica tournefortii),* wards weed (*Carrichtera annua),* false sow thistle (*Reichardia* sp.) and milk thistle (*Sonchus oleraceus).* These species were more prominent in low lying areas were water pooling occurred and soil moisture was greater; which in turn were a focus for weed management. Following the previous years below average rainfall, 2019 was significantly lower than the long term average, with a total of 82.8mm recorded on site, which limited the growth of weed species.

All weed species that were managed in 2019 have previously been recorded on site and within the greater Yellabinna Regional Reserve. The distribution of the weed species managed in 2019 was predominantly focused on rehabilitation sites, stockpiles and facility infrastructure.

Table 4 outlines the weed species recorded at J-A and the immediate surrounds from 2005-2019. Figure 1 shows the known distribution of weeds in the J-A operational areas, as well as the pest species control points across the site.

Table 4 Weed species recorded and managed in leasehold areas 2005-2019

Weed species		Year Recorded										
Common Name	Scientific Name	2019	2018	2017	2016	2015	2014	2013	2012	2011	2010	2005-2009
ruby dock	*Acetosa vesicaria*				X		X			X	X	
cape weed	*Arcotheca calendula*	X	X						X	X	X	
wild oats	*Avena* sp.				X		X			X	X	X
oats - domestic	*Avena sativa*										X	
long-fruited wild turnip	*Brassica tournefortii*	X	X	X	X	X	X	X	X	X	X	X
brome grass	*Bromus* spp.						X	X				
wards weed	*Carrichtera annua*	X	X	X	X	X	X	X	X	X	X	X
saffron thistle	*Carthamus lanatus*							X			X	X
buffel grass	*Cenchrus ciliaris*								X		X	
fat hen	*Chenopodium album*									X	X	
paddy melon	*Citrullus* sp.											X
fleabane	*Conyza* sp.	X	X						X	X	X	X
couch	*Cynodon dactylon*										X	
common heron's bill	*Erodium cicutarium*											X
barley grass	*Hordeum* sp.									X	X	X
wild lettuce	*Lactuca serriola*										X	
rye grass	*Lolium* sp.							X		X	X	
horehound	*Marrubium vulgare*						X					
medic	*Medicago* sp.							X		X	X	
iceplant (angled)	*Mesembryanthemum aitonis*									X		
iceplant	*Mesembryanthemum crystallinum*		X	X	X	X	X			X	X	
wild radish	*Raphanus*										X	
false sowthistle	*Reichardia* sp.	X	X		X	X	X	X	X	X	X	X
London rocket	*Sisymbrium* sp.									X	X	X
milk thistle	*Sonchus oleraceus*	x	X	X	X	X	X	X	X	X	X	X
blackberry nightshade	*Solanum nigrum*										X	

Number of locations where weed species managed (this is a reflection of abundance, not an actual measure and does not apply to pre-2009 surveys): **X** = 20+ locations, X = 5-20 locations, X = <5 locations.

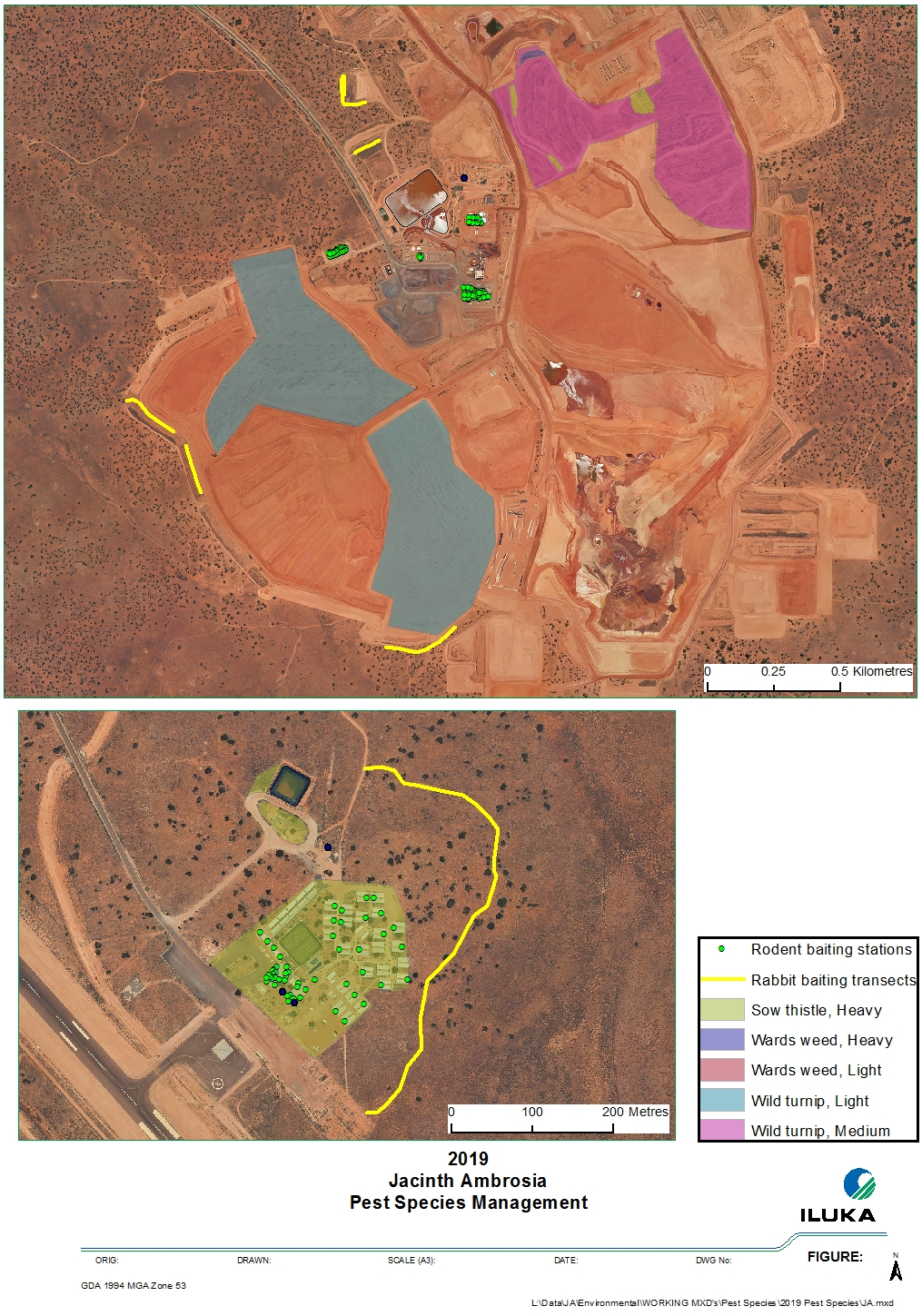

Figure 1: Distribution of weeds and pest species control points at J-A as recorded in 2019.

No increase in abundance of pest animal species in the lease area and adjacent areas caused by mining operations.

Iluka maintained records of pest animal incursions and activity through the Iluka LCC reporting system and J-A Fauna Sightings Register. Reported via the LCC system there were 5 incident reports with and 5 individual pest animal species and recorded in the fauna sightings register there were 22 events and 57 individual pest animal species recorded. Reports are on sightings of pest animal species (rabbit, fox, dog, camel and cat).

Having two consecutive years of below average rainfall there was an increase in pest animal activity around water sources across site, with limited natural water sources available. In-house routine pest control programs were completed across site during the reporting period, including rodent baiting, rabbit baiting and cat trapping. DEWNR completed their regular culling campaign in the Yellabinna Regional Reserve and late 2019 a shooter was engaged to euthanise camels found trapped in the tailings cell. Table 5 outlines the 2019 pest animal species incidents recorded via the Iluka LCC reporting system at the J-A Mine and surrounds.

Opportunistic observations of pest species as recorded in the Iluka Fauna Sightings Register are provided in Table 5. The number of one-humped camels and European rabbits observed has increased, yet feral cat and fox observations have remained steady.

Table 5 2019 pest animal species observations recorded in the fauna sightings register. [1]

Pest Species	Number of Events	Total Individuals
One-humped camel	2	14
Feral cat	5	5
Fox	4	4
European rabbit	5	5
Total	**16**	**28**

2.4 Soils

2.4.1 Summary of compliance

Table 5 provides a summary of the compliance outcomes for soil.

[1] Includes incidental observation records of pest animals recorded along the Ooldea Road on-route to site.

Table 5 Summary of compliance outcomes for soil

ML & MPL PEPR Outcome	Leading Indicator Criteria	Measurement Criteria	Status
Soil profile and function is restored and capable of supporting agreed land use.	Soil profile is restored in accordance with Table 29 Indicative soil profile (Section 3.10.4 in PEPR, 2015).	All measurement criteria relate to closure.	Compliant
	Biological soil crust recorded in rehabilitation areas.		
	Before reinstatement of soil profile, ensure the phreatic surface in tails profile is within acceptable limits i.e. >2.1m below top of tails surface in myall/mallee and myall associations and >4.5m in chenopod associations.		

2.4.2 Measurement of compliance

Soil profile and function is restored and capable of supporting agreed land use.

Soil profile restored to agreed depth and thickness

The top of each final soil profile is surveyed during the rehabilitation process to ensure the soil profile is restored in accordance with the depth and thickness stated in Table 29 Indicative soil profile Section 3.10.4 of the PEPR.

A final soil profile assessment will be carried out a minimum of three years after tailing has completed in each pit (Jacinth, Ambrosia and off-path TSF). Assessment of the post-mining soil profile will utilise similar methods to the pre-mining soil survey.

Files of survey scans of each profile restored to the Off-path TSF and Cell 2/3A during 2019 are available on request. Physical confirmation of the soil profile depth and thickness will occur after the completion of rehabilitation on the Off-path TSF and Cell 2/3A.

Biological soil crust recorded in rehabilitation areas

Landscape Function Analysis (LFA) is a proven technique that has been used in the semi-arid rangelands for many years for monitoring landscape damage and recovery (Ludwig *et al.* 1997). LFA monitoring methods are used to determine the presence of biological soil crusts in the rehabilitation areas with a minimum requirement for presence of biological soil crusts age class 2 (1 to 10% cover).

Each rehabilitated area will contain a minimum of two LFA sites for the first five years of rehabilitation works. The final LFA regime will be determined based on results of these sites.

Monitoring is carried out one, two and five years after finalisation of the rehabilitation activities at each site.

Phreatic surface in tails profile is within acceptable limits

To prevent the potential salinisation of backfilled soils from tails, it is essential to ensure that there is no hydraulic connection between a saline water table and the soil surface. Current practice to ensure adequate management of the phreatic surface in the tailings is maintained by implementing the following approved controls:

- in-pit tailings is drained to residual water content, at least at its surface;
- the phreatic surface within the tailings should be deeper than 2.1 m from the uncovered tailings surface and be maintained below that level; and
- the final soil surface should be greater than 6 m above any phreatic surface.

Test pits were excavated on the Cell 2 and Cell 3 A rehabilitation surface. Twenty four test pits were dug into tailings sand at the final profile (Figure 2). All test pits were visually inspected and photographed and confirmed that the phreatic surface was greater than 2.1 m from top of tailings surface.

No phreatic test pits showed any evidence of a phreatic surface, photos of the pits tested are shown in Plate 1 to Plate 9.

Plate 1 – Cell 2 Pit 11

Plate 2 – Cell 2 Pit 15

Plate 3 – Cell 2 Pit 19

Plate 4 – Cell 3A Pit 7

Plate 5 – Cell 3A Pit 8

Plate 6 – Cell 3A Pit 9

Plate 7 – Cell 3A Pit 1

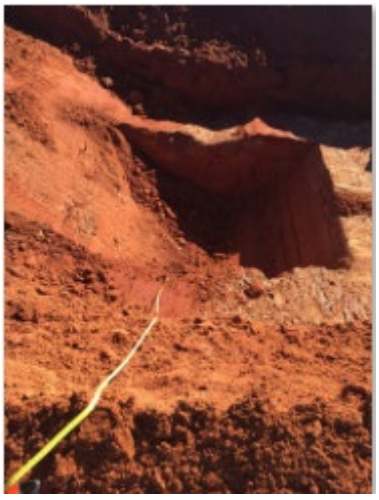

Plate 8 – Cell 3A Pit 5

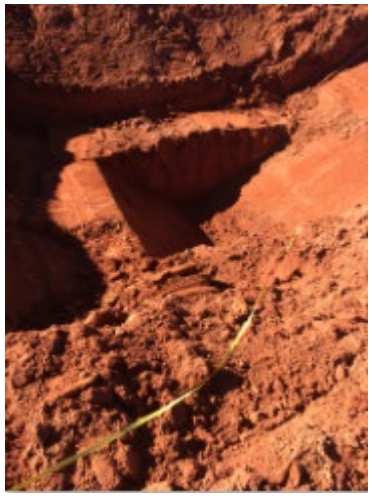

Plate 9 – Cell 3A Pit 6

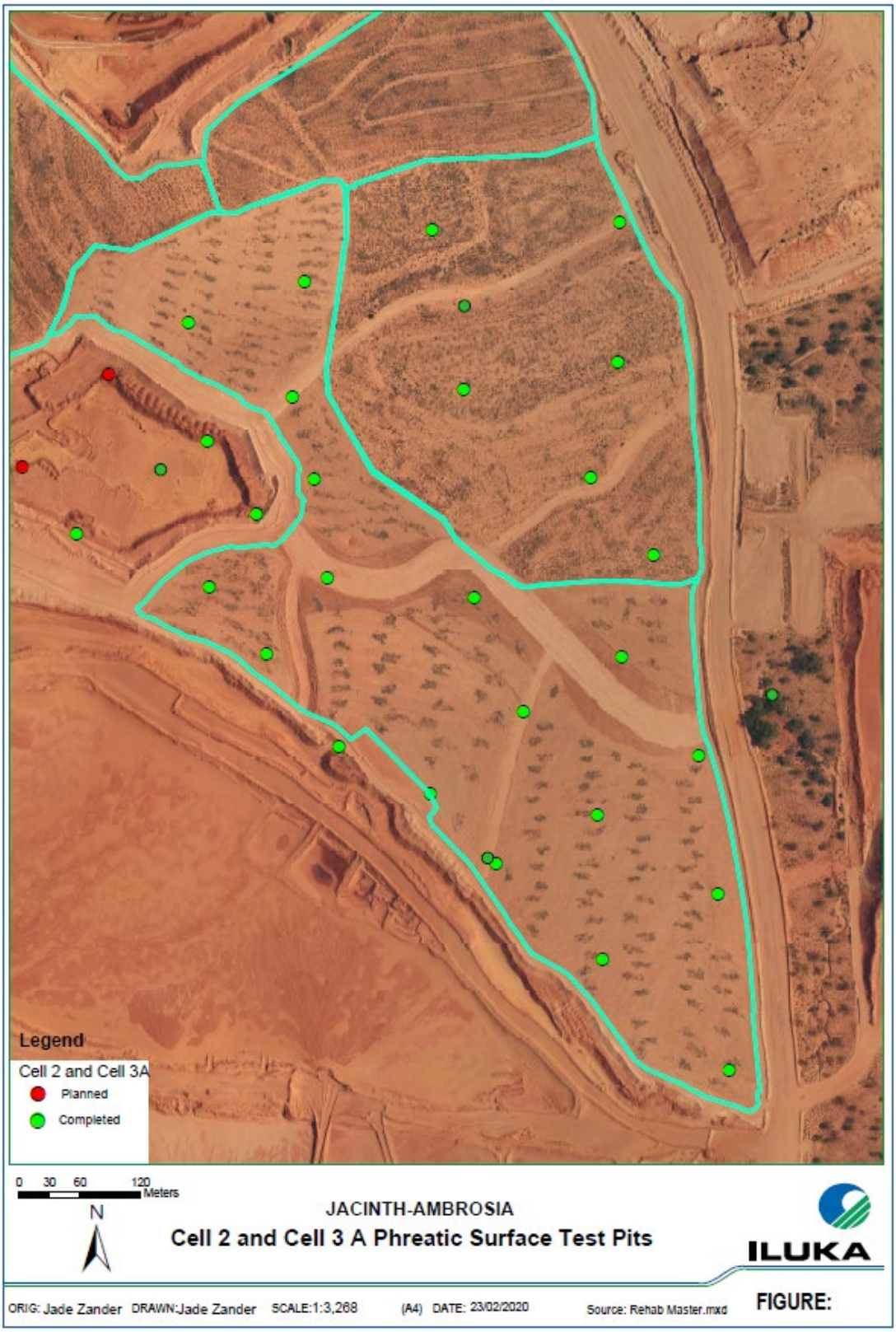

Figure 2: Cell 2 and Call 3A phreatic test pit locations.

2.5 Waste Management

2.5.1 Summary of compliance

Table 6 provides a summary of the compliance outcomes for solid waste.

Table 6 Summary of compliance outcomes for solid waste

ML & MPL PEPR Outcome	Leading Indicator Criteria	Measurement Criteria	Compliance
No demolition, industrial or solid domestic wastes (other than treated sewage) are to be disposed on site.	Site waste register contains records of all waste movements from site.	Audit and inspection records demonstrate waste correctly stored and managed in accordance with Waste Management Plan.	Compliant
		Demolition or industrial wastes disposed of at appropriately licensed facility outside the project area.	Compliant

2.5.2 Measurement of compliance

No demolition, industrial or solid domestic wastes (other than treated sewage) are to be disposed on site.

As per EPA and PEPR approval, septic biosolids were the only waste stream disposed on site. The disposal site was monitored on a regular basis to ensure compliance with EPA guidelines.

Iluka maintained a register of wastes removed from site (volume, tonnes and/or litres).

Iluka's waste contractor Ceduna Can and Bottle provide monthly waste movement reports for all waste streams and EPA Waste Transport Certificates for applicable controlled wastes (e.g. batteries, tyres, hydrocarbon-impacted soils). In addition, other contractors were responsible for removal of controlled wastes from site (e.g. septic biosolids, grease trap waste and waste oil). These contractors also provided EPA Waste Transport Certificates or Waste Tracking Forms for applicable controlled wastes.

All waste movement data is entered into a Waste Movement Register. A complete summary of 2019 Iluka J-A waste movements can be made available upon request. A summary from the Waste Movement Register is provided in Attachment A.

2.6 Dust and Air Quality

2.6.1 Summary of compliance

Table 7 provides a summary of the compliance outcomes for dust and air quality.

Table 7 Summary of compliance outcomes for dust and air quality

ML & MPL PEPR Outcome	Leading Indicator Criteria	Measurement Criteria	Compliance
All fuel burning equipment is operated in accordance with the requirements of the EPA.	No criteria applicable due to low inherent risk associated with outcome.		Compliant

2.6.2 Measurement of compliance

No PEPR outcomes or assessment criteria apply to 'Dust and Air Quality'. Dust incidents involving actual or likely dust impacts to nearby undisturbed vegetation and/or rehabilitation areas are reported under Section 2.7 – Native Vegetation. Dust Incidents involving loss of topsoil and subsoil resources are reported under Section 2.4 – Soils.

2.7 Native Vegetation

2.7.1 Summary of compliance

Table 8 provides a summary of the compliance outcomes for native vegetation.

Table 8 Summary of compliance outcomes for native vegetation

ML & MPL PEPR Outcome	Leading Indicator Criteria	Measurement Criteria	Compliance
All clearance of native vegetation is authorised under appropriate legislation.	All vegetation clearance is within authorised clearance boundaries.	All vegetation clearance is within authorised clearance boundaries.	Compliant
Post-mining ecosystem and landscape function is resilient, self-sustaining and indicating that the pre-mining ecosystem and landscape function will ultimately be achieved.	-	Landscape Function Analysis indicates that rehabilitated systems are trending towards pre-disturbance landscape function based on comparison with control sites.	Compliant
No uncontrolled fires caused by mining.	This outcome is discussed in Section 2.1.		Compliant

2.7.2 Measurement of compliance

All clearance of native vegetation is authorised under appropriate legislation and within authorised boundaries

Iluka reconcile survey clearance data with an aerial photograph and calculate the difference between clearances permitted through the Vegetation Clearance Application Procedure and actual clearance as a measure of compliance.

Actual vegetation clearance totalled 69 ha in 2019 associated with mining activities including surface water management installation, overburden soil stockpiling and clearance for the Ambrosia mining sequence. Approved permits for clearance were limited to Domain 4 (ML6315), Domain 3 (CR 5957/384) and Domain 2 (CR 5957/384). The total actual clearance at J-A for the period from 2008 to 2019 is 1297 ha.

LFA monitoring was not conducted during 2019 and will instead be conducted in 2020. This is a non-conformance to the LFA standard, resulting in the following changes to the monitoring schedule:

- 2019 rehabilitation area, Cell 2 and Cell 3A: Year 1 monitoring event to be completed in Year 2 (2020), with Year 3 monitoring scheduled for 2021; and
- 2018 rehabilitation area, TSF: Year 2 monitoring event to be completed in Year 3 (2020).

The outcome commitments relating to this measurement criteria will not be affected by the delay to monitoring, and there is no anticipated impact to the ongoing management of the rehabilitation areas as monitoring and control of pest species was completed to schedule for the reporting period.

The J-A SEB reconciliation, as of 31 December 2019, is provided in Attachment B.

All vegetation clearance occurred within authorised boundaries as shown in Figure 3.

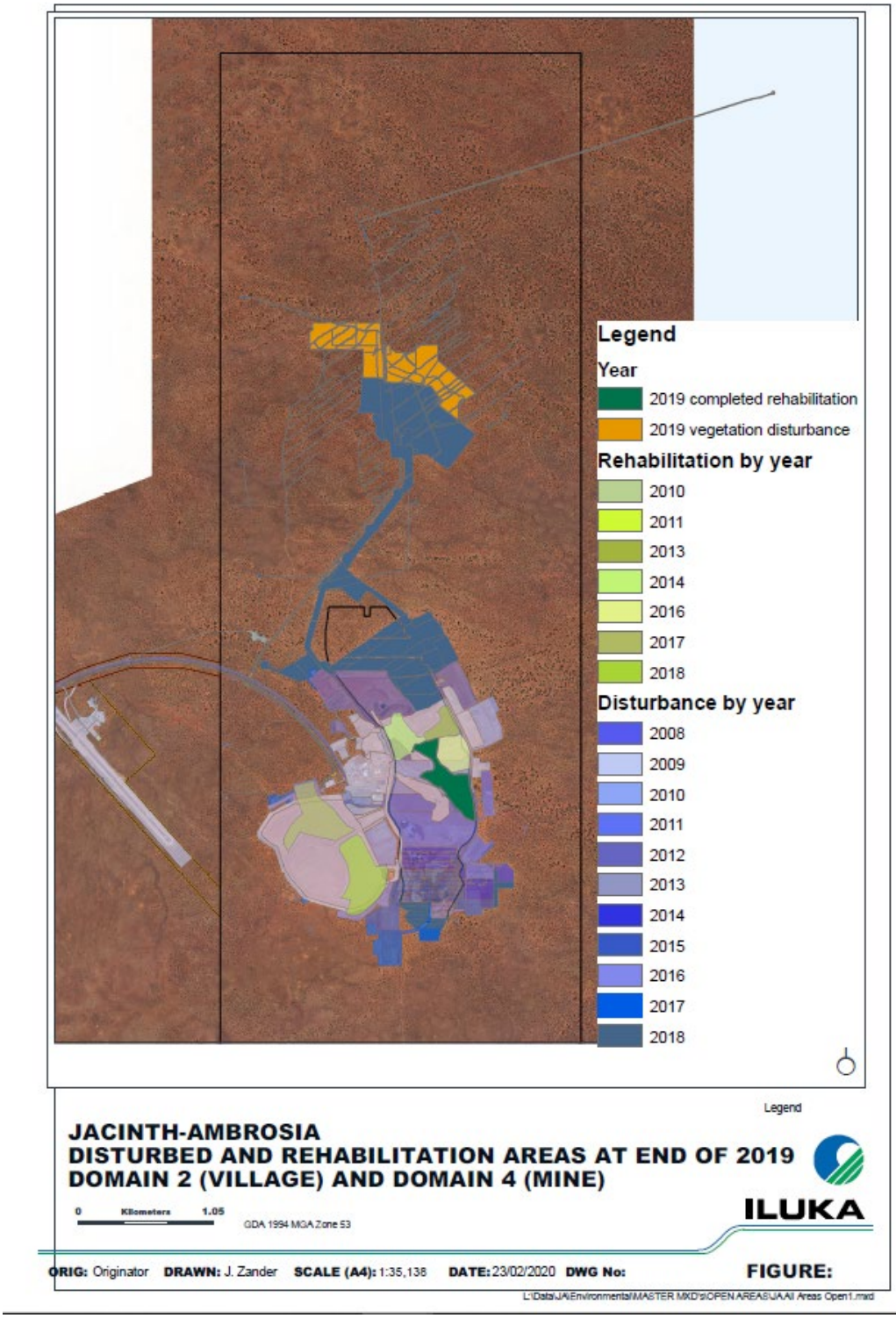

Figure 3: Disturbed and rehabilitated areas at end of 2019.

Impacts on vegetation from dust and groundwater

In addition to the reconciliation of aerial photography with clearance data, field monitoring (vegetation health transects, photopoints and dust deposition gauges) is undertaken to determine impacts on vegetation from dust or groundwater.

There were five fugitive dust incidents reported in 2019 resulting from a combination of dry conditions, strong wind gusts and cleared areas. Vegetation health monitoring to date has not recorded any plant deaths due to impacts from mining dust or ground water mounding.

Currently mallee trees are the only species that show a response to groundwater mounding (yellowing of leaves and dieback). However it is not yet known if the trees will recover over time with the attenuation of the groundwater mound. Additionally the majority of trees in areas potentially affected by groundwater mounding will be removed as the mine progresses due to mining activities.

A complete monitoring report of dust impacts and groundwater impacts report is provided in the JARMS 2018 – 2019.

2.8 Native Fauna

2.8.1 Summary of compliance

Table 9 provides a summary of the compliance outcomes for native fauna.

Table 9 Summary of compliance outcomes for native fauna

ML & MPL PEPR Outcome	Leading Indicator Criteria	Measurement Criteria	Compliance
No net adverse impacts from site operations on native fauna abundance or diversity within the lease area and adjacent areas.	Fauna monitoring results indicate fauna diversity and abundance in impact areas is comparable with control sites.	At closure, all open water storage facilities in-filled and closed. Apply C29 to measure that appropriate habitat is restored for faunal species.	Compliant
All sick and injured fauna are managed as per the requirements of the *Animal Welfare Act 1985*.	-	Records indicate compliance with the requirements of the *Animal Welfare Act 1985*, where an animal is injured as a result of mining operations.	Compliant

2.8.2 Measurement of compliance

<u>No net adverse impacts from site operations on native fauna abundance or diversity within the lease area and adjacent areas.</u>

From 2009-2017 annual fauna monitoring was completed by specialist sub consultants at J-A. The frequency of this monitoring is now biennial with specialist monitoring occurring during the 2017 reporting period.

The biennial fauna survey was scheduled for early summer 2019, however the selected contractor was unavailable for personal reasons. Rescheduling to late summer would have posed an unacceptable risk of fauna harm. The monitoring has been rescheduled for 2020, and will be completed again in 2021 to return to the biennial program.

While no survey was conducted, controls in place to minimise impacts to fauna were maintained and included:

- Conducting survey of areas prior to vegetation clearance;
- Minimising land disturbance;
- Reporting of injured wildlife; and
- Monitoring and control of pest species.

Sick and injured fauna managed per requirements of the *Animal Welfare Act 1985*.

In accordance with the Eucla Basin Fauna Management Plan and the J-A Fauna Handling Procedure, Iluka maintained records of all fauna interactions including relocations of controlled fauna such as venomous snakes, rescues, injuries, euthanisation (where required) and fauna handling. The records were maintained by the LCC process and the Fauna Sightings Register, demonstrating compliance with the *Prevention of Cruelty to Animals (Animal Welfare) Act 1985*.

Table 10 provides details of incidents during the reporting period requiring management of sick and injured fauna in accordance with the requirements of the *Prevention of Cruelty to Animals (Animal Welfare) Act 1985*.

Table 10 Management of sick and injured fauna in 2019

Detail	Records	# Individuals
Fauna euthanised (under the *Animal Welfare Act 1985*)	3	8 individuals (2 feral cats caught in a cat trap, and 6 camels trapped in the tailing cell).

2.9 Surface Water

2.9.1 Summary of compliance

Table 11 provides a summary of the compliance outcomes for surface water.

Table 11 Summary of compliance outcomes for surface water

ML & MPL PEPR Outcome	Leading Indicator Criteria	Measurement Criteria	Compliance
Post-mining ecosystem and landscape function is resilient, self-sustaining and indicating that the pre-mining ecosystem and landscape function will ultimately be achieved.	External peer review of rehabilitated landform design to ensure watercourse design is adequate.	Water quality in rehabilitated creeks comparable with upstream control sites.	Compliant

2.9.2 Measurement of compliance

Post-mining ecosystem and landscape function is resilient, self-sustaining and indicating that the pre-mining ecosystem and landscape function will ultimately be achieved.

Peer review of landform design

Prior to the implementation of creek rehabilitation earthworks, the design of the creek will receive external peer review to ensure that the design meets the channel physical parameters (gradient, width, depth, sinuosity and stream power).

Rehabilitation earthworks in the 2019 reporting period was undertaken at the former Cell 2/ Cell 3A. This off-path area includes creek and drainage features which were subject to 1000-year landform stability and evolution modelling (Landloch 2015; refer Iluka J-A PEPR) and the progressive construction of this landform reflects modelling outputs.

No surface water quality data was collected during 2019 due to limited flows in creeks.

2.10 Groundwater

2.10.1 Summary of compliance

Table 12 provides a summary of the compliance outcomes for groundwater.

Table 12 Summary of compliance outcomes for groundwater

ML & MPL PEPR Outcome	Leading Indicator Criteria	Measurement Criteria	Compliance
The extraction and use of groundwater does not adversely affect environmental processes or beneficial	Periodic review and update (recalibration) of palaeochannel drawdown predictive model (developed by	Review of borefield palaeochannel aquifer standing water levels (SWLs) against palaeochannel drawdown model predictions.	Compliant

ML & MPL PEPR Outcome	Leading Indicator Criteria	Measurement Criteria	Compliance
users that are reliant on that groundwater system.	SKM, 2011) (Refer PEPR section 5.15.3).	Monitoring of borefield palaeochannel standing water levels (SWLs).	Compliant
Groundwater systems outside of the extent of the mine workings are not altered by the disposal of process water in the pit.	Periodic review and update (recalibration) of the J-A regional groundwater model. Water used to predict mine area groundwater behaviour over time through life-of-mine and post-closure (levels, flows and extent); and review and refinement of groundwater management trigger levels.	Groundwater SWLs in the *mine workings zone* and outside this zone (*background zone)* do not exceed the maximum ('impact') site-specific risk register trigger levels (SSTLs) for those zones (refer to Figure 55, Table 70, Section 5.15 of the PEPR, 2015).	Non-compliant
		Groundwater chemistry target parameters do not exceed maximum threshold site-specific trigger levels (SSTLs) as defined in Table 71, Section 15.5 of the PEPR, 2015.	Non-compliant

2.10.2 Measurement of compliance

<u>The extraction and use of groundwater does not adversely affect environmental processes or beneficial users that are reliant on that groundwater system.</u>

Periodic review and update (recalibration) of palaeochannel drawdown predictive model

A review of the paleochannel drawdown predictive model was completed in February 2018. Further details on the results of the model update and comparison of modelled versus observed groundwater levels are detailed below. A full copy of the associated technical report was provided in the 2017 ACR submitted in 2018. The model is undergoing recalibration and migration to a different modelling program in 2020, a full copy of the associated technical report and review of the compliance to the new model will be provided in the 2020 ACR.

Monitoring of palaeochannel standing water levels (SWLs)

Monitoring of water levels in the paleochannel monitoring wells (BFMB1 to BFMB6) was completed on a monthly basis during the compliance period, with the exception of February and April. However, the gaps in available data have not impacted on the analysis of the data. The monitoring schedule is now reviewed weekly, and an automated prompt is in place to reduce risk of missed monitoring events.

Hydrographs of the SWL's at the borefield monitoring bores is shown in Figure 4. Water levels have been fairly stable throughout 2019 but show a drop from the general increasing trend evident from 2016. This change is likely due to recommencement of operations and increased drawdown on the borefield aquifer.

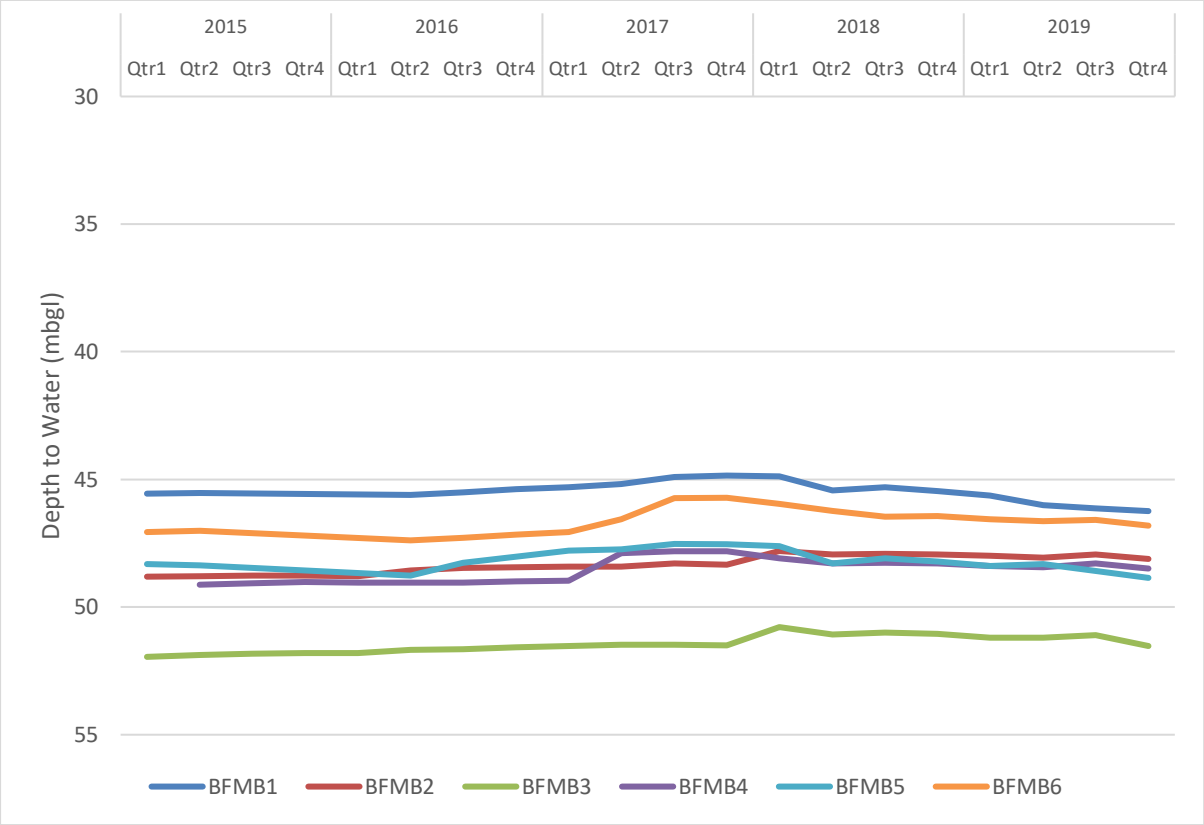

Figure 4: Standing water level (in mAHD) of borefield monitoring bores (BFMB01 to BFMB06)

Review of borefield paleochannel aquifer SWLs against paleochannel drawdown model predictions

The paleochannel model was updated in February 2018. Similar to previous observations, the model appears to overestimate drawdown at all monitoring locations, with a maximum overestimation of around 2m (at well MB01), however typically it overestimates by approximately 1m or less.

It is planned to update the paleochannel model again in 2020.

Groundwater systems outside of the extent of the mine workings are not altered by the disposal of process water in the pit.

Periodic review and update (re-calibration) of the J-A regional groundwater model.

The leading indicator requirements for this outcome requires the recalibration of the J-A regional groundwater model on a biennial basis. The model was reviewed and updated in 2018 with details to be included in the upcoming PEPR amendment.

As part of the recalibration of the model in 2018, consideration was given to the incorporation of a life-of-mine mining and tailings schedule for the Ambrosia deposit.

It is considered that Iluka are compliant against the outcome and associated leading indicator criteria (frequency) for this aspect of the PEPR.

Groundwater SWLs in the mine workings zone and mine background zone do not exceed the maximum ('impact') site-specific risk register trigger levels (SSTLs) for those zones.

Two distinct groundwater zones (the mine workings zone and the background zone) have been established on site; each with their own management trigger levels developed using the numerical groundwater modelling.

Groundwater standing water levels (SWL) within the background zone were monitored at six wells on a monthly basis with the exception of a number of locations in August 2019 (Canberra, MB11D and MBN01D) where monitoring events were missed. Within the background zone, one location (MB08D) triggered the red impact trigger value of 20 mBGL with two wells, MBN11 and MBN07 triggering the yellow "warning" trigger level of between 20 and 27.5 mBGL (see Figure 5). Trends at these wells are consistent with those trends reported in previous years.

Within the mine workings zone, SWLs were monitored at 39 wells located on a monthly basis in 2019. Although monthly SWLs for a number of wells were missed all water levels within the zone were above the safe trigger level and compliance of the outcome achieved (see Figure 6 to Figure 9).

Table 13 provides a summary of the non-compliance outcomes for groundwater SWLs within the background zone.

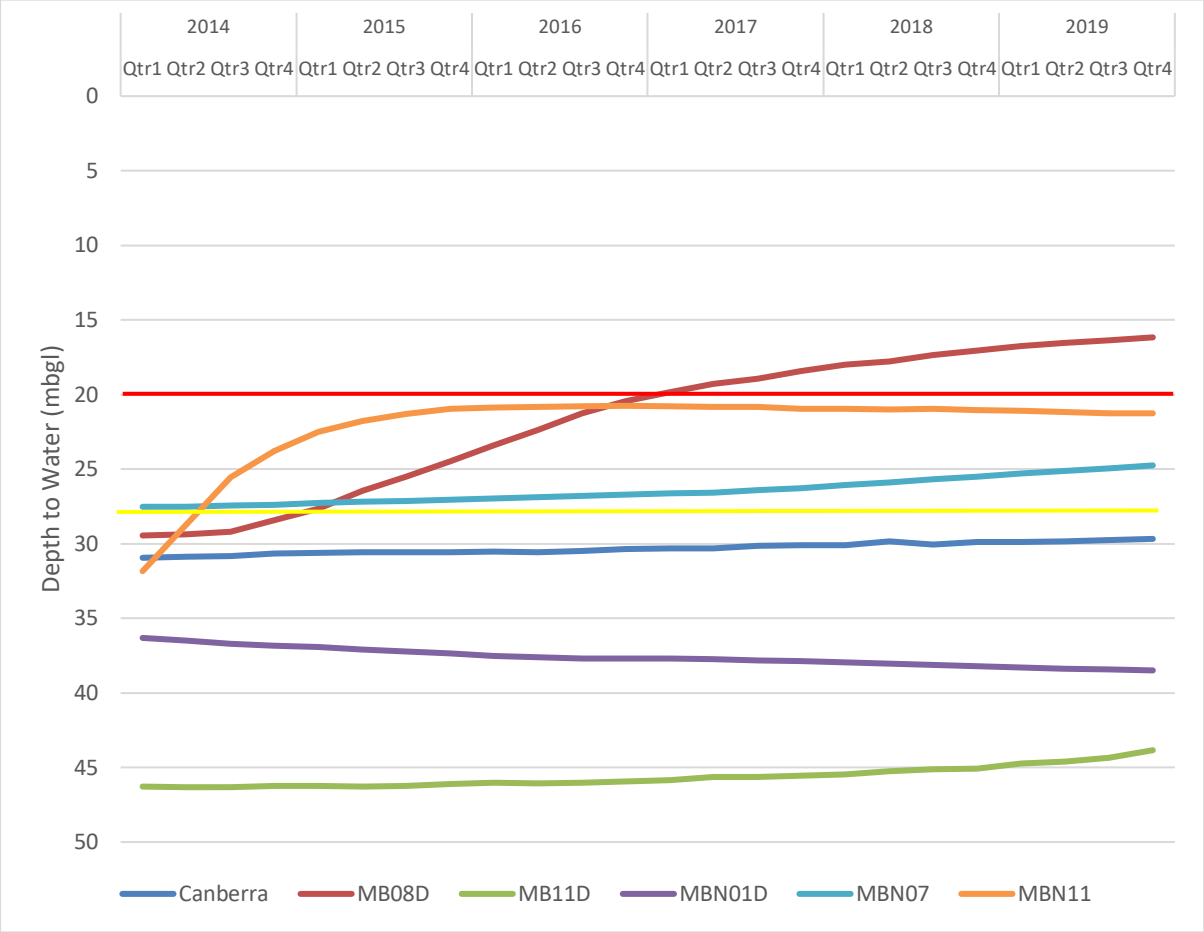

Figure 5: Depth to water level (meters below ground level) at J-A Background Zone bores.

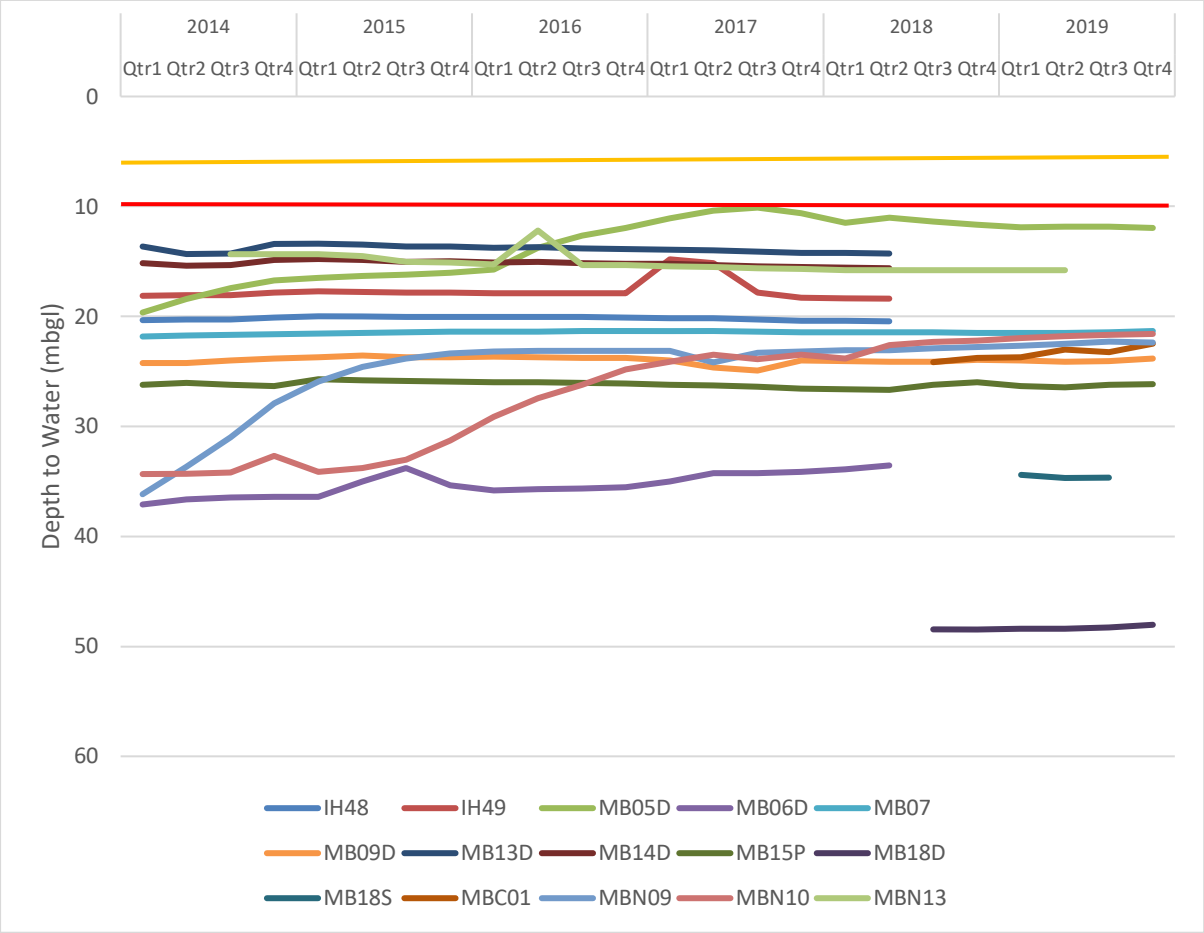

Figure 6: Depth to water level (m BGL) at mine working zone bores at Jacinth Pit North area.

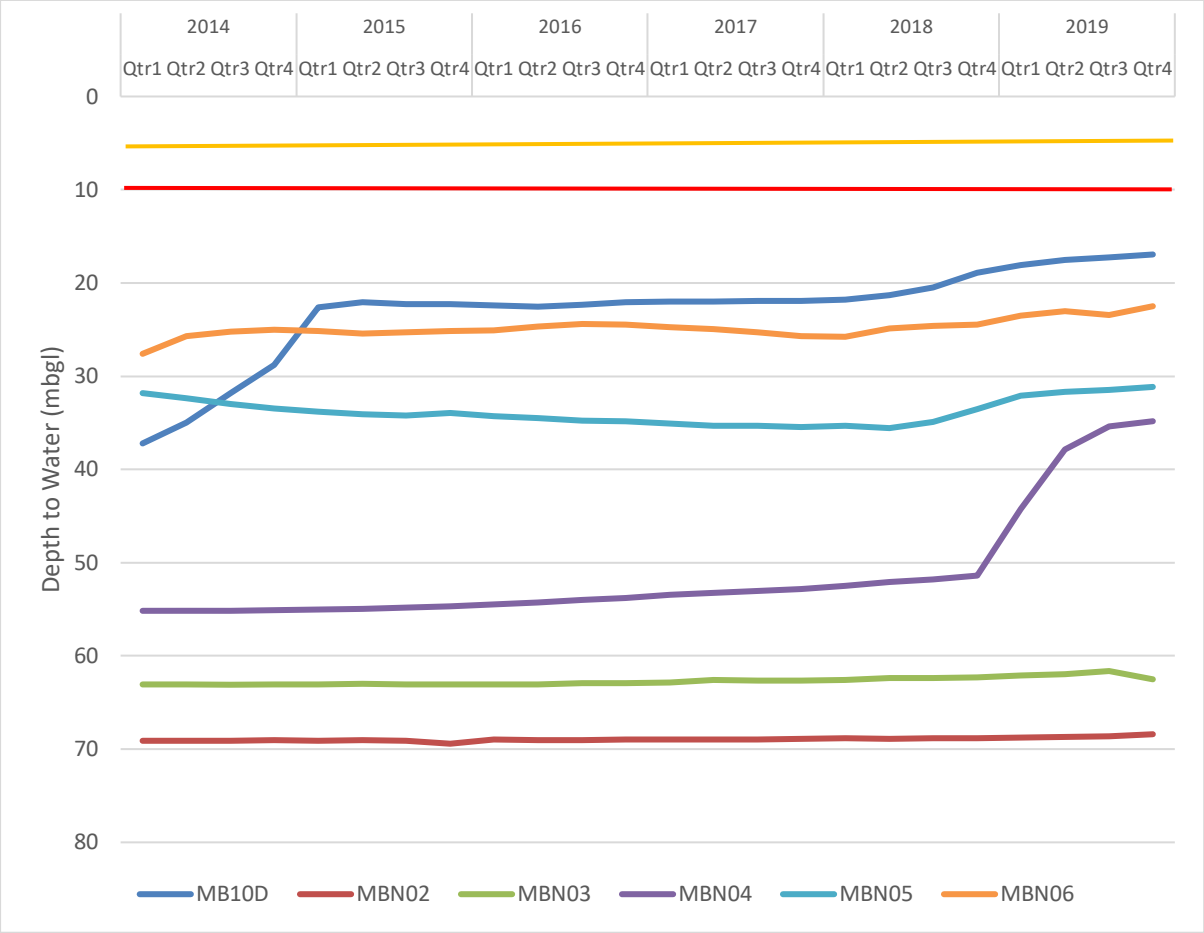

Figure 7: Depth to water level (m BGL) at mine working zone bores at Jacinth Pit South area.

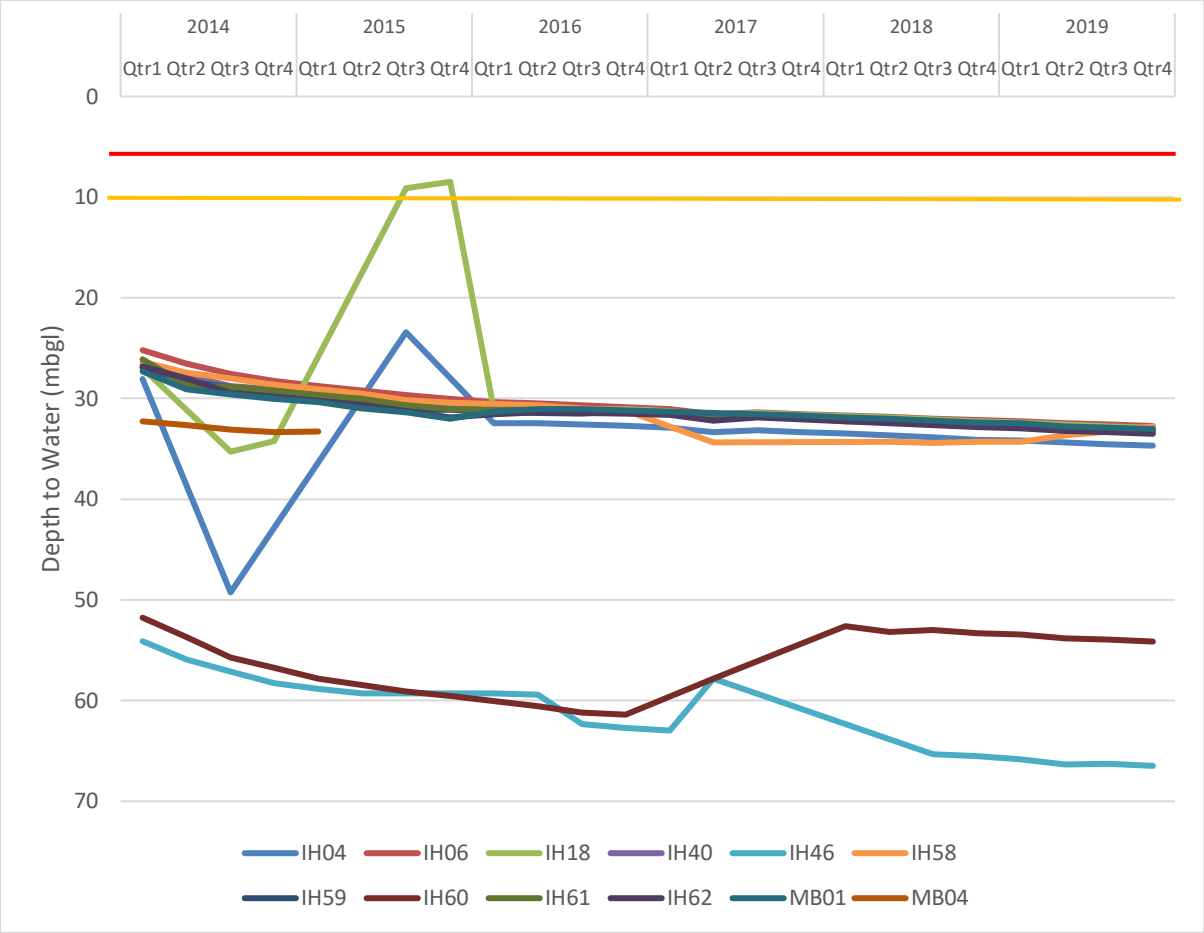

Figure 8: Depth to water level (m BGL) at mine working zone bores at Jacinth TSF South area.

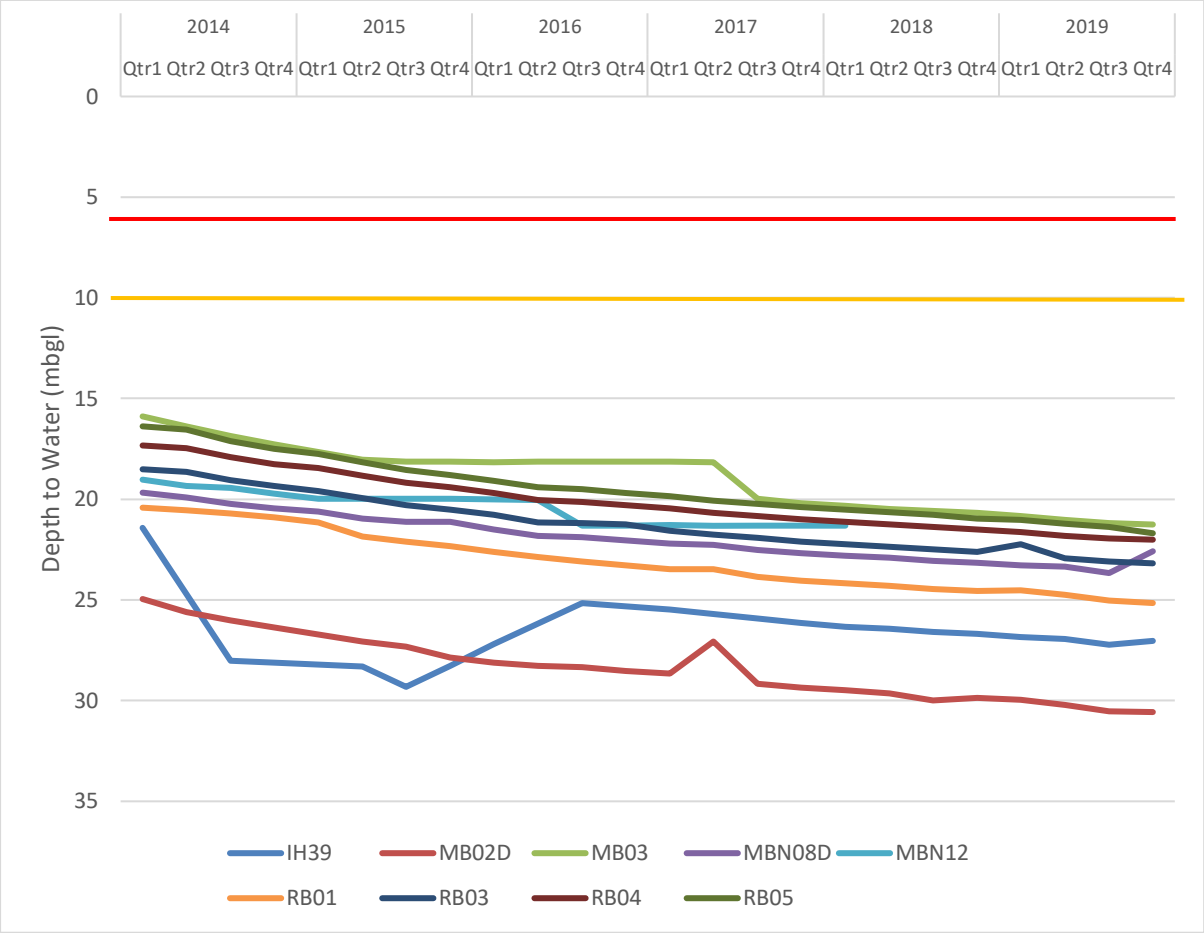

Figure 9: Depth to water level (m BGL) at mine working zone bores at Jacinth TSF North area.

Table 13: Summary of non-compliance outcomes for groundwater SWLs at Jacinth Ambrosia Mine.

Well ID No & location	Observations	SSTL triggered
MBN11; West	Slight increasing trend	Yellow
MBN07; North	Slight increasing trend	Yellow
MB08D; West	Increasing trend since 2014, rate of increase steady	Red

Groundwater chemistry target parameters do not exceed maximum threshold site-specific trigger levels (SSTLs)

First reported in the J-A 2015 Annual Compliance Report, Iluka have exceeded several parameters against hydrogeochemical site-specific trigger levels (SSTLs) currently defined in the J-A PEPR (Table 71).

In 2019, there were continued exceedances of hydrogeochemical SSTLs as detailed below in Table 14 with full details provided in Attachment C.

The SSTLs were triggered on 108 occasions resulting in a non-compliant outcome. Despite being identified as non-compliance with the PEPR, the groundwater geochemistry results do not indicate any impact to groundwater quality outside the mine working area (LWC, 2018). It should also be noted that 11 of these non-compliant results were from recently installed background monitoring wells for the Ambrosia deposit, where there is no impact from mining activity and the results are thereby indicative of background water quality. A map showing the location of the monitoring wells with results above the SSTLs is shown below in Figure 10, noting that these are only the wells in which exceedances were recorded and the colour gradient shows the number of analytes breached; details on specific analytes for each well are below in Table 14.

A review of measurement criteria suitability is currently being undertaken in consultation with Department for Energy and Mining (DEM).

Figure 10 Groundwater Chemistry SSTLs Exceedences

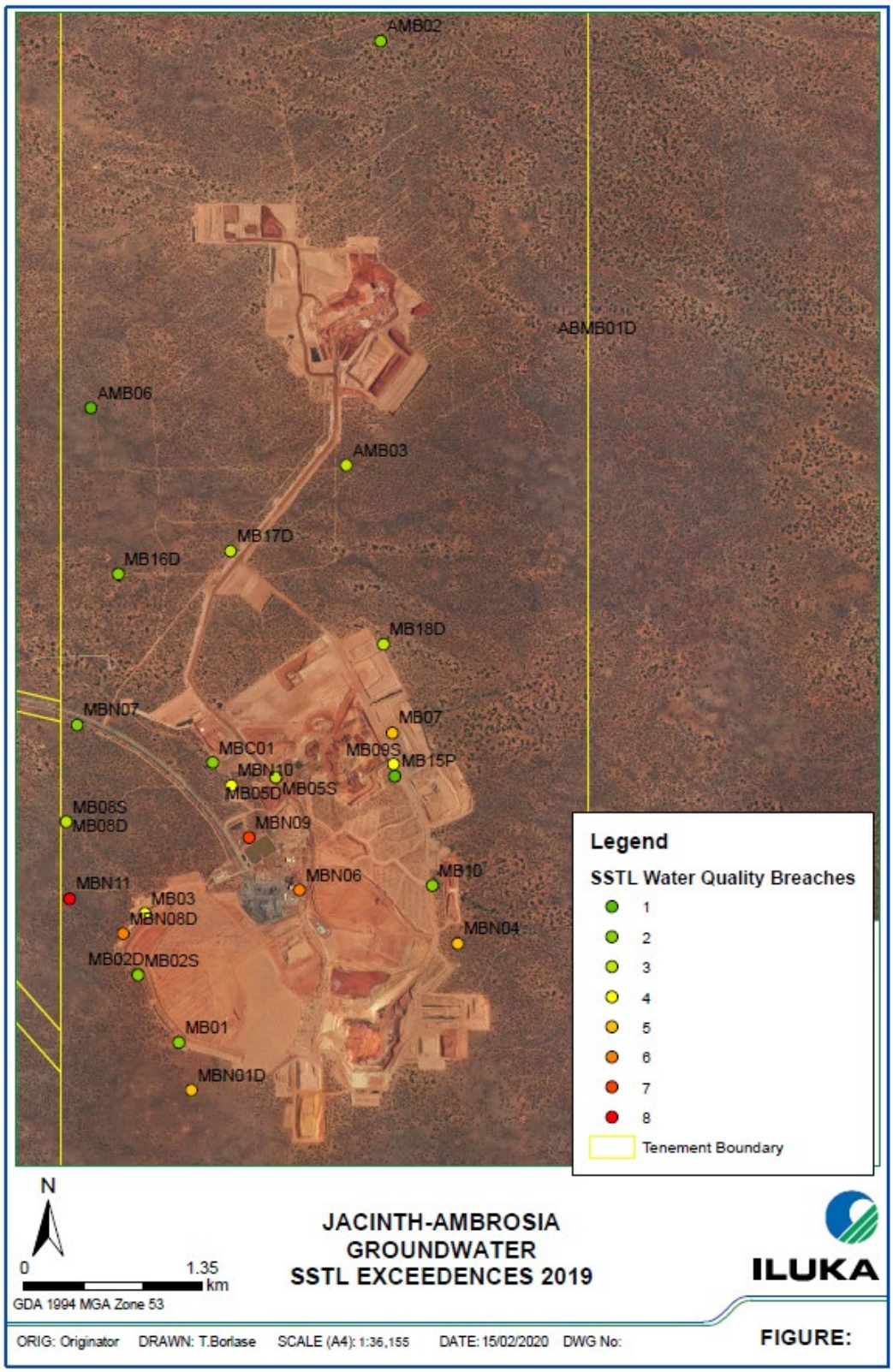

Table 14: Summary of J-A 2019 geochemistry trigger levels, results and exceedances

Dissolved chemical species	SSTL (mg/L)	Sample Range (mg/L)	Location of Exceedance
Aluminium	0.4	0.01-70	MB01; MB02D; MB02S; MB03; MB05D; MB05S; MB07; MB08D; MB09D; MB09S; MBC01; MBN01D; MBN04; MBN08D; MBN09; MNB10; MNB11.
Antimony	0.01	<0.001 to 0.005	
Arsenic	0.18	0.002 – 0.019	
Boron	26	3 – 18	
Ammonia	5.0	0.11 – 12	AMB01D; AMB02; AMB03; MB10D; MB18D.
Cadmium	0.028	0.0001 to 0.0047	
Calcium	1,300	70 – 1300	
Chromium	0.097	0.001 – 0.066	
Cobalt	0.06	0.001 – 0.82	MB08D; MB09D; MB10D, MBC01; MBN01D; MBN11, MBN03, MBN06, MBN04; MBN08D, MBN09, MBN11; MBN10.
Copper	0.016	0.001 - 0.24	MB02D, MB02S, MB03, MB05D, MB07, MB08S, MB09D, MBN01D, MBN04, MBN07, MBN08D, MBN09, MBN10 MBN11
Fluoride	6	0.1 – 7.9	MBC01
Iron	54	0.02 – 140	AMB03
Lead	0.014	0.002 – 0.033	MB03; MBN06; MBN07; MBN09; MBN11
Manganese	20	0.018 – 41	AMB01D; AMB01S; AMB03; AMB06; MB16D; MB17D

Dissolved chemical species	SSTL (mg/L)	Sample Range (mg/L)	Location of Exceedance
Mercury	0.0014	0.00005 – 0.00072	
Molybdenum	0.04	0.001 – 0.036	
Nickel	0.4	0.002 – 1.5	MB09D; MBN01D; MBN04; MBN06; MBN11
Nitrate nitrogen (NO3-N)	0.11	0.005 – 7	MB01, MB02D; MB02S; MB03; MB05D; MB05S; MB07; MB08S; MB09S; MB15P; MBN01D; MBN03; MBN04; MBN06; MBN08D; MBN09; MBN10; MBN11
Selenium	0.02	0.002- 0.037	MB08S, MBN11
Thorium	0.004	0.001 – 0.0057	MB07; MBN06; MBN11
Total Organic Carbon	250	2 – 610	MB17D; MB18D
Uranium	0.01	0.0006 – 0.017	AMB02; AMB06; MB05S; MB07, MB09D, MB16D; MB17D; MB18D; MBN08D, MBN09; MBN11
Zinc	0.6	0.001 – 0.89	MB09D, MBN06; MBN08D; MBN09; MBN11

2.11 Hazardous Materials

2.11.1 Summary of compliance

Table 15 provides a summary of the compliance outcomes for hazardous materials.

Table 15 Summary of compliance outcomes for hazardous materials

ML & MPL PEPR Outcome	Leading Indicator Criteria	Measurement Criteria	Compliance
Fuel and liquid chemical (hazardous materials) storage are adequately bunded to capture and prevent the migration and infiltration of any spillage or leakage to the surrounding environment in conformance with relevant EPA guidelines.	All hazardous materials storage facilities comply with SA EPA Bunding Guidelines, or to a design agreed with the SA EPA.	Records indicate that all spills are managed in accordance with Spill Response/Clean Up Procedure and Iluka *EHS Group Standard – Hazard, Incident and Emergency Classification.*	Compliant

2.11.2 Measurement of compliance

Hazardous materials storage facilities are in conformance with relevant EPA guidelines

All storage facilities comply with SA EPA Bunding Guidelines

Routine inspection and maintenance of existing facilities is undertaken to ensure continued compliance. Preventative inspections of storage facilities and operational areas were undertaken throughout 2019 and included:

- Planned Workplace Inspections – combined environmental and OH&S inspection assessing appropriate storage, access to MSDS and emergency response preparedness (e.g. fire control equipment, spill kits). Copies of Planned Workplace Inspection Reports can be made available on request; and
- Monthly Hydrocarbon & Chemical Storage Audits – Monitoring conformance of storage facilities to EPA and AS1940-2004 (Storage and Handling of Flammable & Combustible Liquids) requirements (refer to example, Attachment E).

Spill management and reporting

The management and reporting of all storage related incidents and/or spills are in accordance with the Iluka Eucla Basin Hazardous Material Management Plan and Iluka Incident Reporting and Investigation Standard (STD1354).

For purposes of this PEPR outcome spill and storage management protocols apply to hydrocarbons, chemicals, saline water (other than approved for dust suppression), effluent and hazardous and listed wastes. All incidents relating to spills and the inadequate/inappropriate storage of said hazardous materials are reported via the LCC system. A total of 39 incidents of this nature occurred in the reporting period (Table 16).

Table 16 Summary of hazardous material events reported in 2019

Incident Type	# Incidents
Chemical spill	2
Effluent spill	5
Hydrocarbon spill	30
Inappropriate/incorrect storage	2
Total	**39**

Consistent with historical trends, minor volume hydrocarbon leaks and spills accounted for the majority of events. These were typically associated with mechanical/hydraulic failures on plant and surface mobile equipment. In cases where impacts to soil occurred, the contaminated material was recovered for in-skip bioremediation or off-site disposal as contaminated soil listed waste (intermediate landfill cover, or Low Level Contaminated Waste Soil).

The two chemical spills involved a chemical (bitumen emulsion) dust suppressant, Dust-a-Side, where extended exposure to direct sunlight had degraded the IBC plastics. While this chemical is not listed as a hazardous material per its SDS, it was collected and disposed of as per the manufacturers recommendations.

Routine workforce awareness training on hazardous materials management and spill response was provided to personnel during the reporting period. Training records are kept and personnel are provided refresher training every two years.

New chemicals, requested for use on site, were assessed by Environmental and OHS Specialists in accordance with the J-A Chemical Approval Procedure. Registers of hazardous substances and chemicals were maintained electronically via ChemAlert.

Attachment A – Waste Movement Register Extract 2019

Volumes of waste (in m^3) removed offsite in 2019 from Jacinth Ambrosia for disposal or recycling.

2019	Fluoro Tubes	General Waste	Mixed Recycling	Paper Cardboard	Scrap Metal	Timber	Waste Oil
Jan		89	60		12	15	5
Feb		96	33			15	5
Mar		124	40		10	15	7
Apr		134	40			15	8.2
May		194	40		10	43	7
Jun		115	20		10	15	10
Jul		170	40		80	30	7
Aug		197	40		10		14
Sep		173	40		20	20	10
Oct	0.05	149	40	13	21	30	6.5
Nov		246	52	20	36	30	7
Dec		162	35		15	15	8
	0.05	**1849**	**480**	**33**	**224**	**243**	**94.7**

Attachment B – Significant Environmental Benefit - 2019

Attachment C – Groundwater Monitoring Results Summary

Attachment D - Example monthly hydrocarbon & chemical audit - 2019

ILUKA

Cintellate No:

ILUKA RESOURCES LIMITED
MONTHLY INSPECTION CHECKLIST - JA HYDROCARBON STORES

Date: 7/10/19

ITEM	STANDARD AS1940:2017	ITEM CONFORMS TO STANDARD			Placent in outdoor workshop	Placement in bulk storage in shed of workshop	Iluka Maintenance container	NON CONFORMANCE IDENTIFIED / COMMENTS
A	**INTENDED USE - MINOR STORAGE CRITERIA (AS1940 Table 2.1 & Section 2.3)**	N/A	NO	YES				
1	<250 litres of Flammable liquids	N/A	0	1	1	1	1	
2	<5000 litres of Combustable liquids	N/A	0	1	0	0	1	
3	No chemicals	N/A	0	1	1	1	1	
4	Adequately ventilated - completely open or one open wall & one vent or two vents in two opposing walls (Section 4.5.4)	N/A	0	1	1	1	0	Not sure that there is adequate ventilation @ Iluka.
5	Packages kept closed	N/A	0	1	1	1	1	
B	**MANDATORY SIGNAGE FOR STORAGE AREAS > MINOR STORAGE (AS1940 Section 2.3.6 and 3.9)**							
1	DANGER - NO SMOKING, NO NAKED FLAMES (sign required at entrance to storage area)	N/A	0	1	1	1	1	
2	For flammable liquids, a Class label and subsidiary risk label (if any); (sign required at entrance to storage area)	N/A	0	1	NA	NA	NA	
3	COMBUSTABLE LIQUID (sign required at entrance to storage area)	N/A	0	1	1	1	1	
4	WARNING - RESTRICTED AREA, AUTHORIZEDPERSONNEL ONLY (sign required at entrance to the premises)	N/A	0	1	1	0	1	
5	Emergency Contacts - Title & Phone numbers (sign required at entrance to the premises)	N/A	0	1	0	0	1	
6	Name and address of occupier - Iluka, Plac. (sign required at entrannce to the premises)	N/A	0	1	1	1	1	
7	Layout diagram showing the location of fixed fire protection facilities (where installed), the drainage system and 'Emergency Stop' switches. (sign required at entrance to the premises)	N/A	0	1	0	0	0	
8	In minor storage areas where flammable liquids are decanted, a sign bearing the following words shall be displayed DANGER - FLAMMABLE LIQUIDS - NO SMOKING - KEEP FIRE AWAY	N/A	0	1	NA	NA	N/A	
9	Signs to comply with AS 1319. Class signs shall conform to AS 1216 and be minimum of 250 mm sq. Other signs shall have lettering at least 50 mm high and or pictographs.	N/A	0	1	1	1	1	
C	**FIRE REQUIREMENTS (AS1940, Section 2.3.6, Table 11.3, Section 11.13.7)**							
1	Powder extinguisher x 1 (required for all areas with combustable / flammable liquid <100m³)	N/A	0	1	0	0	1	Plac. extinguisher required x 1
2	Foam extinguishers x 2 within 10 m (Only required for areas with combustible / flammable liquid between 10 - 100m³)	N/A	0	1	0	0	N/A	" " " x 2.
3	Area around fire extinguishers is clear	N/A	0	1	0	0	1	
4	Fire extinuishers within test date	N/A	0	1	0	0	1	due Oct 19.
5	Signage for for extinguishers	N/A	0	1	0	0	1	
6	No vehicles left running whilst parked in or near to the storage area (section 3.11)	N/A	0	1	1	1	1	
D	**SAFETY REQUIREMENTS (AS1940 Section 4.6, 4.7)**							
1	Eye wash facilities complying with AS 4775 within 10 mtrs (but not nearer than 2 m)	N/A	0	1	0	0	1	Plac. > 10 M.
2	Eye wash working and within test date	N/A	0	1	1	1	1	
3	Water for washing hands within 10 mtrs (but not nearer than 2 m)	N/A	0	1	1	1	1	
4	A safety shower shall be installed where liquid exceeds 2000L or identified through risk assessment	N/A	0	1	1	1	1	Plac. Safety shower @ entrance to workshop.
5	First aid kit available in clean location (inside office is ok)	N/A	0	1	1	1	1	
6	During the hours of operation, sufficient lighting shall be provided in work areas	N/A	0	1	1	1	1	
E	**HOUSEKEEPING & SPILLAGE**							

ILUKA | Cintellate No:

ILUKA RESOURCES LIMITED
MONTHLY INSPECTION CHECKLIST - JA HYDROCARBON STORES

Date: 7/10/19

ITEM	STANDARD AS1940:2017	ITEM CONFORMS TO STANDARD			Piacentini - outdoor workshop	Piacentini - bulk storage N side of workshop	Iluka Maintenance container	NON CONFORMANCE IDENTIFIED / COMMENTS
1	Hydrocarbon store clean and tidy inside and around	N/A	0	1	1	1	1	
2	No visible leaks	N/A	0	1	1	1	1	
3	No evidence of spills	N/A	0	1	1	1	1	
4	Drums, containers and hoses within store area	N/A	0	1	1	1	1	
5	Material safety data sheets (MSDSs), describing the properties of the liquids being kept or handled in the installation and the appropriate first aid measures for them, shall be readily accessible.	N/A	0	1	1	1	1	MSDS available on ChemAlert
6	Spill kit stokced up and labelled	N/A	0	1	1	0	1	Spill kit needs labelling.
7	Portable electrical devices shall not be taken into a hazardous area (e.g. torches, rechargeable power tools, pagers, phones and cameras)	N/A	0	1	1	1	1	
8	Vegetation that could become a fire hazard shall be kept short.	N/A	0	1	1	1	1	
9	Bunds shall be maintained so as to retain their designated capacity and in a condition which will prevent the escape of liquid from the compound.	N/A	0	1	1	1	1	
10	Clear access to area (Section 4.6)	N/A	0	1	1	1	1	
11	Packages on pallets shall not be stacked more than three high unless purpose-built racking or a suitable restraint is provided.	N/A	0	1	1	1	1	
12	IBCs are stored at least 1 m from the bund or edge of the store, unless splash shields or baffles constructed from compatible, non-combustible materials are used.	N/A	0	1	NA		NA	
13	IBCs are not sticked more than 2 high unless purpose-built racking is provided	N/A	0	1	1	1	1	
14	IBCs are protrected from punctures I.e. nails in pallets	N/A	0	1	1	1	NA	
15	Wastes not accumulated and removed regularly by specialist hazardous waste disposal contractor. Waste also to comply with storage requirements as above (Section 12.4)	N/A	0	1	1	1	1	Check Piac. transport are licenced to transport. haz. material

	outdorr bay	Piac - bulk storage	Iluka
TOTAL SCORE:	0	0	0
MAXIMUM POSSIBLE SCORE:	41		
PERCENT CONFORMANCE SCORE:	0.0%	0.0%	0.0%

INSPECTION CONDUCTED BY:

Name: Sara Avory | Sign: | Date: 7/10/19.

INSTRUCTIONS

1) Write NA, 1 or 2 in space provided for each location - Exact sea container, Exact outdoor bund, Iluka sea container

2) Write details of any non conformances in space provided

3) Write name, date and signature in the space provided

4) Communicate inspection findings to Area Supervisor for corrective actions to be issued. Also communicate positive findings

5) Enter data into Cintellate as an "Inspection & Audit". Assign actions to relevent persons using Cintellate

6) Make sure you followup on actions next month to make sure actinos are being completed within a reasonable time frame.

Appendix B Assessment of compliance with non-outcomes based tenement conditions

COMPLIANCE WITH NON-OUTCOME BASED TENEMENT CONDITIONS

Tables 1 – 4 below detail the compliance with non-outcomes based conditions of the ML, EML and MPLs.

Table 1 Non outcome based lease conditions – Mining Lease 6315

Condition Number and Requirement	Comment
FIRST SCHEDULE	
1. Mining operations authorised by this lease must be only for the recovery of Heavy Mineral sands.	Acknowledged. Approved PEPR (Version 1.1, October 2015) details commodity to be mined. Table 8 of Annual compliance report (ACR) summarises material extracted from operations.
2. The Lessee must keep accurate records of the quantity, value and manner of disposition of all minerals mined and, whenever required to do so, submit the records for inspection by any person authorised by the Director of Mines.	Approved PEPR (Version 1.1, October 2015) details commodity to be mined. Table 8 of Annual compliance report (ACR) summarises material extracted from operations. Information available as required in the event Iluka is asked to submit records for inspection.
3. The Lessee must not conduct any mining operations on the land until a, Mining and Rehabilitation Program (MARP) has been approved by the Minister following referral to, and assessment and endorsement by the Minister for Environment and Conservation.	The approved PEPR (Version 1.1, October 2015) addresses this requirement.
4. The MARP must comply with the requirements of guidelines approved by the Director of Mines and include environmental outcomes and criteria that are developed in consultation with relevant stakeholders.	The approved PEPR (Version 1.1, October 2015) addresses this requirement. The approved PEPR was prepared in accordance with Ministerial Determination 005 with outcomes and criteria included in Section 5 of the document.
5. The Lessee agrees to the approved MARP being made available for public inspection.	Acknowledged. No specific evidence provided to demonstrate.
6. The Lessee must demonstrate upon request and to the Director of Mines, the Lessee's capability and competence to comply with the requirements of the Mining Act, 1971, the conditions of this lease, and the MARP.	Acknowledged. No request received to date therefore no evidence provided to demonstrate.
7. The Lessee must provide to the Director of Mines a Mining and Rehabilitation Compliance Report (MARCR) on operations carried out on the lease and compliance with the approved MARP. The MARCR must be submitted every year, within 2 months after the anniversary of the date the lease was granted, or at some other time agreed with the Director of Mines in accordance with guidelines approved by the Director of Mines. The lessee agrees to the MARCR being made available for public inspection.	MARCR prepared and submitted annually (since commencement of operations) in accordance with the requirement The 2019 ACR is demonstrated evidence of compliance with this lease condition.

Condition Number and Requirement	Comment
8. The Lessee must, if requested by the Director of Mines, undertake an independent audit of achievement of the environmental and/or closure outcomes in the MARP, by an independent expert approved, in writing, by the Director of Mines. The written audit report will be made available to the public, in a manner and form as determined by the Director of Mines.	Acknowledged. No request for audit to date therefore no evidence provided to demonstrate.
9. Prior to lease relinquishment, the Lessee must provide to the Minister and the Minister for Environment and Conservation a satisfactory Mine Completion Report which demonstrates achievement of the closure criteria as specified in the current MARP. The Lessee must undertake an independent audit of achievement of the closure outcomes detailed in the Report, by an independent expert approved by the Director of Mines and the Minister for Environment and Conservation. The audit will be made available to the public, in a manner and form as determined by the Director of Mines and the Minister for Environment and Conservation.	Acknowledged. Mine Completion Report will be prepared in accordance with the requirement prior to relinquishment. Not required to date therefore no evidence provided to demonstrate.
10. The Lessee must, prior to commencing operations under this lease and for the duration of the lease: (a) maintain public liability insurance to cover all operations under the lease (including sudden and accidental pollution) in the name of the lessee for a sum of not less than $50 million or such greater sum as specified by the Director of Mines, and make such amendments to the terms and conditions of the insurance as the Director of Mines may require (b) effect and maintain compulsory third party insurance in respect of all motor vehicles used in relation to this lease (c) effect and maintain any other policy of insurance required by law. A copy of the cover note of certificate of currency for the insurances must be provided to the Director of Mines upon request. If requested by the Director of Mines, the lessee must engage an independent and reputable risk assessor to prepare a risk assessment report detailing the public liability risks arising out of the conduct of mining operations on the lease, and recommending the level of amount of public liability cover (in respect of any one occurrence) that should be effected and maintained by the lessee. In preparing the risk assessment report, the assessor must consult with the landowner and the Director of Mines. In specifying the level of insurance required, the Director of Mines accepts no liability for the completeness, adequacy of the sum insured, the limit of liability, the scoped coverage, the conditions or exclusions of the insurance in respect of how the lessee may or may not respond to any loss, damage or liability.	Acknowledged. Information provided as required with submission of ACR.
11. The Lessee must report any non-compliant criteria that demonstrate a breach of the environmental outcomes to be achieved (as detailed in the MARP) to the Director of Mines.	Refer to 2019 ACR for further details.
12. A report must be provided after the Lessee becomes aware of the non- compliance, within five business days or such time period as specified in the MARP.	Refer to 2019 ACR for further details.

Condition Number and Requirement	Comment
13. The Lessee must, before commencing operations under this lease, lodge a bond in accordance with section 62 of the *Mining Act, 1971* of such an amount of the surety as determined from time to time by the Minister, to cover the full cost of rehabilitation liability assessed by an independent third party at any time.	Bond was lodged as required prior to commencement of operations. No specific evidence provided to demonstrate.
14. In requesting a review of the bond, the Minister may request that written quotes from a third party are obtained by the lessee for the cost of rehabilitating the site to the requirements specified in the approved MARP.	Acknowledged. No request for review of the bond has been received to date therefore no evidence provided to demonstrate.
15. The Lessee must meet all the charges and costs in obtaining and maintaining the Bond.	Acknowledged. No specific evidence provided to demonstrate. Bond maintained in accordance with requirements. Evidence can be provided as requested.
16. The Lessee must abide by the National Parks and Wildlife Act 1972 and its associated Regulations and Plans of Management (both amended and subsequent) adopted under Section 38 of the National Parks and Wildlife Act 1972 for the Yellabinna Regional Reserve and the Nullarbor 'Regional Reserve.	Section 5 of the approved PEPR (Version 1.1, October 2015) addresses this requirement.
SECOND SCHEDULE	
All conditions in the Second Schedule are outcome based and discussed in detail in the main document.	

Table 2 Non outcome based lease conditions – Extractive Mineral Lease 6316

Condition Number and Requirement	Comment
FIRST SCHEDULE	
1. Mining operations authorised by this lease must be only for the recovery of Extractive Minerals.	Acknowledged. Approved PEPR (Version 1.1, October 2015) details commodity to be mined. Table 8 of Annual compliance report (ACR) summarises material extracted from operations.
2. The Lessee must keep accurate records of the quantity, value and manner of disposition of all minerals mined and, whenever required to do so, submit the records for inspection by any person authorised by the Director of Mines.	Approved PEPR (Version 1.1, October 2015) details commodity to be mined. Table 8 of Annual compliance report (ACR) summarises. Information available as required in the event Iluka is asked to submit records for inspection.
3. The Lessee must not conduct any mining operations on the land until a, Mining and Rehabilitation Program (MARP) has been approved by the Minister following referral to, and assessment and endorsement by the Minister for Environment and Conservation.	The approved PEPR (Version 1.1, October 2015) addresses this requirement.

Condition Number and Requirement	Comment
4. The MARP must comply with the requirements of guidelines approved by the Director of Mines and include environmental outcomes and criteria that are developed in consultation with relevant stakeholders.	The approved PEPR (Version 1.1, October 2015) addresses this requirement. The approved PEPR was prepared in accordance with Ministerial Determination 005 with outcomes and criteria included in Section 5 of the document.
5. The Lessee agrees to the approved MARP being made available for public inspection.	Acknowledged. No specific evidence provided to demonstrate.
6. The Lessee must demonstrate upon request and to the Director of Mines, the Lessee's capability and competence to comply with the requirements of the Mining Act, 1971, the conditions of this lease, and the MARP.	Acknowledged. No request received to date therefore no evidence provided to demonstrate.
7. The Lessee must provide to the Director of Mines a Mining and Rehabilitation Compliance Report (MARCR) on operations carried out on the lease and compliance with the approved MARP. The MARCR must be submitted every year, within 2 months after the anniversary of the date the lease was granted, or at some other time agreed with the Director of Mines in accordance with guidelines approved by the Director of Mines. The lessee agrees to the MARCR being made available for public inspection.	MARCR prepared and submitted annually (since commencement of operations) in accordance with the requirement The 2019 ACR is demonstrated evidence of compliance with this lease condition.
8. The Lessee must, if requested by the Director of Mines, undertake an independent audit of achievement of the environmental and/or closure outcomes in the MARP, by an independent expert approved, in writing, by the Director of Mines. The written audit report will be made available to the public, in a manner and form as determined by the Director of Mines.	Acknowledged. No request for audit to date therefore no evidence provided to demonstrate.
9. Prior to lease relinquishment, the Lessee must provide to the Minister and the Minister for Environment and Conservation a satisfactory Mine Completion Report which demonstrates achievement of the closure criteria as specified in the current MARP. The Lessee must undertake an independent audit of achievement of the closure outcomes detailed in the Report, by an independent expert approved by the Director of Mines and the Minister for Environment and Conservation. The audit will be made available to the public, in a manner and form as determined by the Director of Mines and the Minister for Environment and Conservation.	Acknowledged. Mine Completion Report will be prepared in accordance with the requirement prior to relinquishment. Not required to date therefore no evidence provided to demonstrate.

Condition Number and Requirement	Comment
10. The Lessee must, prior to commencing operations under this lease and for the duration of the lease: (a) maintain public liability insurance to cover all operations under the lease (including sudden and accidental pollution) in the name of the lessee for a sum of not less than $50 million or such greater sum as specified by the Director of Mines, and make such amendments to the terms and conditions of the insurance as the Director of Mines may require (b) effect and maintain compulsory third party insurance in respect of all motor vehicles used in relation to this lease (c) effect and maintain any other policy of insurance required by law. A copy of the cover note of certificate of currency for the insurances must be provided to the Director of Mines upon request. If requested by the Director of Mines, the lessee must engage a independent and reputable risk assessor to prepare a risk assessment report detailing the public liability risks arising out of the conduct of mining operations on the lease, and recommending the level of amount of public liability cover (in respect of any one occurrence) that should be effected and maintained by the lessee. In preparing the risk assessment report, the assessor must consult with the landowner and the Director of Mines. In specifying the level of insurance required, the Director of Mines accepts no liability for the completeness, adequacy of the sum insured, the limit of liability, the scoped coverage, the conditions or exclusions of the insurance in respect of how the lessee may or may not respond to any loss, damage or liability.	Acknowledged. Information provided as required with submission of ACR.
11. The Lessee must report any non-compliant criteria that demonstrate a breach of the environmental outcomes to be achieved (as detailed in the MARP) to the Director of Mines.	Refer to 2019 ACR for further details.
12. A report must be provided after the Lessee becomes aware of the non- compliance, within five business days or such time period as specified in the MARP.	Refer to 2019 ACR for further details.
13. The Lessee must, before commencing operations under this lease, lodge a bond in accordance with section 62 of the *Mining Act, 1971* of such an amount of the surety as determined from time to time by the Minister, to cover the full cost of rehabilitation liability assessed by an independent third party at any time.	Bond was lodged as required prior to commencement of operations. No specific evidence provided to demonstrate.
14. In requesting a review of the bond, the Minister may request that written quotes from a third party are obtained by the lessee for the cost of rehabilitating the site to the requirements specified in the approved MARP.	Acknowledged. No request for review of the bond has been received to date therefore no evidence provided to demonstrate.
15. The Lessee must meet all the charges and costs in obtaining and maintaining the Bond.	Acknowledged. No specific evidence provided to demonstrate.
16. The Lessee must abide by the *National Parks and Wildlife Act 1972* and its associated Regulations and Plans of Management (both amended and subsequent) adopted under Section 38 of the *National Parks and Wildlife Act 1972* for the Yellabinna Regional Reserve and the Nullarbor 'Regional Reserve.	Section 5 of the approved PEPR (Version 1.1, October 2015) addresses this requirement.
SECOND SCHEDULE	
All conditions in the Second Schedule are outcome based and discussed in detail in the main document.	

Table 3 Non outcome based lease conditions – Mining Purpose Licence 111 – Airstrip and Village Accommodation

Condition Number and Requirement	Comment
FIRST SCHEDULE	
1. The Miscellaneous Purposes Licence (MPL) is granted for the purpose of Airstrip and Village Accommodation specifically for use in association with the mining operation known as Jacinth-Ambrosia.	Acknowledged. Approved PEPR (Version 1.1, October 2015) details commodity to be mined.
2. If in the opinion of the Minister the scope of operations associated with this MPL have been significantly modified, the Minister may review the licence conditions of this MPL, including any bond under this MPL, and impose new licence conditions as necessary.	Acknowledged. No specific evidence required to demonstrate compliance.
3. The Licensee must not undertake any operations on the land under the MPL until a MARP related to the associated mining operations has been amended to include the MPL operations or a new MARP consistent with any existing relevant MARP has been approved by the Minister following in consultation with the Minister for Environment and Conservation.	The approved PEPR (Version 1.1, October 2015) addresses this requirement.
4. The MARP must comply with the requirements of guidelines approved by the Director of Mines and include environmental outcomes and criteria that are developed in consultation with relevant stakeholders.	The approved PEPR (Version 1.1, October 2015) addresses this requirement. The approved PEPR was prepared in accordance with Ministerial Determination 005 with outcomes and criteria included in Section 5 of the document.
5. The Licensee agrees to the approved MARP being made available for public inspection.	Acknowledged. No specific evidence provided to demonstrate.
6. The Licensee must demonstrate upon request and to the Director of Mines, the Licensee's capability and competence to comply with the requirements of the Mining Act, 1971, the conditions of this Licence, and the MARP.	Acknowledged. No request received to date therefore no evidence provided to demonstrate.
7. The Licensee must provide to the Director of Mines a Mining and Rehabilitation Compliance Report (MARCR) on operations carried out on the Licence and compliance with the approved MARP. The MARCR must be submitted every year, within 2 months after the anniversary of the date the Licence was granted, or at some other time agreed with the Director of Mines in accordance with guidelines approved by the Director of Mines. The Licensee agrees to the MARCR being made available for public inspection.	MARCR prepared and submitted annually (since commencement of operations) in accordance with the requirement The 2019 ACR is demonstrated evidence of compliance with this lease condition.
8. The Lessee must, if requested by the Director of Mines, undertake an independent audit of achievement of the environmental and/or closure outcomes in the MARP, by an independent expert approved, in writing, by the Director of Mines. The written audit report will be made available to the public, in a manner and form as determined by the Director of Mines	Acknowledged. No request for audit to date therefore no evidence provided to demonstrate.

Condition Number and Requirement	Comment
9. Prior to Licence relinquishment, the Licensee must provide to the Minister and the Minister for Environment and Conservation a satisfactory Mine Completion Report which demonstrates achievement of the closure criteria as specified in the current MARP. The Licensee must undertake an independent audit of achievement of the closure outcomes detailed in the Report, by an independent expert approved by the Director of Mines and the Minister for Environment and Conservation. The audit will be made available to the public, in a manner and form as determined by the Director of Mines and the Minister for Environment and Conservation.	Acknowledged. Mine Completion Report will be prepared in accordance with the requirement prior to relinquishment. Not required to date therefore no evidence provided to demonstrate.
10. 10. The Licensee must, prior to commencing operations under this Licence and for the duration of the Licence: (a) maintain public liability insurance to cover all operations under the Licence (including sudden and accidental pollution) in the name of the Licensee for a sum not less than $50 million or such greater sum as specified by the Director of Mines, and make such amendments to the terms and conditions of the insurance as the Director of Mines may require. (b) effect and maintain compulsory third party insurance in respect of all motor vehicles used in relation to this Licence (c) effect and maintain any other policy of insurance required by law A copy of the cover note of certificate of currency for the insurances must be provided to the Director of Mines upon request. If requested by the Director of Mines, the Licensee must engage a independent and reputable risk assessor to prepare a risk assessment report detailing the public liability risks arising out of the conduct of mining operations on the Licence, and recommending the level of amount of public liability cover (in respect of any one occurrence) that should be effected and maintained by the Licensee. In preparing the risk assessment report, the assessor must consult with the landowner and the Director of Mines. In specifying the level of insurance required, the Director of Mines accepts no liability for the completeness, adequacy of the sum insured, the limit of liability, the scoped coverage, the conditions or exclusions of the insurance in respect of how the Licensee may or may not respond to any loss, damage or liability.	Acknowledged. Information provided as required with submission of ACR.
11. The Licensee must report any non-compliant criteria that demonstrate a breach of the environmental outcomes to be achieved (as detailed in the MARP) to the Director of Mines.	Refer to 2019 ACR for further details.
12. A report must be provided after the Licensee becomes aware of the non-compliance, within five business days or such time period as specified in the MARP.	Refer to 2019 ACR for further details.
13. The Licensee must, before commencing operations under this Licence, lodge a bond in accordance with section 62 of the *Mining Act, 1971* of such an amount of the surety as determined from time to time by the Minister, to cover the full cost of rehabilitation liability assessed by an independent third party at any time.	Bond was lodged as required prior to commencement of operations. No specific evidence provided to demonstrate.

Condition Number and Requirement	Comment
14. In requesting a review of the bond, the Minister may request that written quotes from a third party are obtained by the Licensee for the cost of rehabilitating the site to the requirements specified in the approved MARP.	Acknowledged. No request for review of the bond has been received to date therefore no evidence provided to demonstrate.
15. The Licensee must meet all the charges and costs in obtaining and maintaining the Bond.	Acknowledged. No specific evidence provided to demonstrate.
16. The Licensee must abide by the *National Parks and Wildlife Act 1972* and its associated Regulations and Plans of Management (both amended and subsequent) adopted under Section 38 of the *National Parks and Wildlife Act 1972* for the Yellabinna Regional Reserve and the Nullarbor 'Regional Reserve.	Section 5 of the approved PEPR (Version 1.1, October 2015) addresses this requirement.
SECOND SCHEDULE	
All conditions in the Second Schedule are outcome based and discussed in detail in the main document.	

Table 4 Non outcome based lease conditions lease conditions – Mining Purpose Licence 110 – Borefield Pipeline and Access Road

Condition Number and Requirement	Relevant Section of PEPR
FIRST SCHEDULE	
1. The Miscellaneous Purposes License (MPL) is granted for the purpose of Borefield, Pipeline and Access road specifically for use in association with the mining operation known as Jacinth-Ambrosia.	Acknowledged. Approved PEPR (Version 1.1, October 2015) details commodity to be mined.
2. If in the opinion of the Minister the scope of operations associated with this MPL have been significantly modified, the Minister may review the licence conditions of this MPL, including any bond under this MPL, and impose new licence conditions as necessary.	Acknowledged. No specific evidence required to demonstrate compliance.
3. The Licensee must not undertake any operations on the land under the MPL until a MARP related to the associated mining operations has been amended to include the MPL operations or a new MARP consistent with any existing relevant MARP has been approved by the Minister following in consultation with the Minister for Environment and Conservation.	The approved PEPR (Version 1.1, October 2015) addresses this requirement.
4. The MARP must comply with the requirements of guidelines approved by the Director of Mines and include environmental outcomes and criteria that are developed in consultation with relevant stakeholders.	The approved PEPR (Version 1.1, October 2015) addresses this requirement. The approved PEPR was prepared in accordance with Ministerial Determination 005 with outcomes and criteria included in Section 5 of the document.
5. The Licensee agrees to the approved MARP being made available for public inspection.	Acknowledged. No specific evidence provided to demonstrate.
6. The Licensee must demonstrate upon request and to the Director of Mines, the Licensee's capability and competence to comply with the requirements of the *Mining Act, 1971*, the conditions of this Licence, and the MARP.	Acknowledged. No request received to date therefore no evidence provided to demonstrate.

Condition Number and Requirement	Relevant Section of PEPR
7. The Licensee must provide to the Director of Mines a Mining and Rehabilitation Compliance Report (MARCR) on operations carried out on the Licence and compliance with the approved MARP. The MARCR must be submitted every year, within 2 months after the anniversary of the date the Licence was granted, or at some other time agreed with the Director of Mines in accordance with guidelines approved by the Director of Mines. The Licensee agrees to the MARCR being made available for public inspection.	MARCR prepared and submitted annually (since commencement of operations) in accordance with the requirement The 2019 ACR is demonstrated evidence of compliance with this lease condition.
8. The Lessee must, if requested by the Director of Mines, undertake an independent audit of achievement of the environmental and/or closure outcomes in the MARP, by an independent expert approved, in writing, by the Director of Mines. The written audit report will be made available to the public, in a manner and form as determined by the Director of Mines	Acknowledged. No request for audit to date therefore no evidence provided to demonstrate.
9. Prior to Licence relinquishment, the Licensee must provide to the Minister and the Minister for Environment and Conservation a satisfactory Mine Completion Report which demonstrates achievement of the closure criteria as specified in the current MARP. The Licensee must undertake an independent audit of achievement of the closure outcomes detailed in the Report, by an independent expert approved by the Director of Mines and the Minister for Environment and Conservation. The audit will be made available to the public, in a manner and form as determined by the Director of Mines and the Minister for Environment and Conservation.	Acknowledged. Mine Completion Report will be prepared in accordance with the requirement prior to relinquishment. Not required to date therefore no evidence provided to demonstrate.

Condition Number and Requirement	Relevant Section of PEPR
10. The Licensee must, prior to commencing operations under this Licence and for the duration of the Licence: (a) maintain public liability insurance to cover all operations under the Licence (including sudden and accidental pollution) in the name of the Licensee for a sum not less than $50 million or such greater sum as specified by the Director of Mines, and make such amendments to the terms and conditions of the insurance as the Director of Mines may require. (b) effect and maintain compulsory third party insurance in respect of all motor vehicles used in relation to this Licence (c) effect and maintain any other policy of insurance required by law A copy of the cover note of certificate of currency for the insurances must be provided to the Director of Mines upon request. If requested by the Director of Mines, the Licensee must engage an independent and reputable risk assessor to prepare a risk assessment report detailing the public liability risks arising out of the conduct of mining operations on the Licence, and recommending the level of amount of public liability cover (in respect of any one occurrence) that should be effected and maintained by the Licensee. In preparing the risk assessment report, the assessor must consult with the landowner and the Director of Mines. In specifying the level of insurance required, the Director of Mines accepts no liability for the completeness, adequacy of the sum insured, the limit of liability, the scoped coverage, the conditions or exclusions of the insurance in respect of how the Licensee may or may not respond to any loss, damage or liability.	Acknowledged. Information provided as required with submission of ACR.
11. The Licensee must report any non-compliant criteria that demonstrate a breach of the environmental outcomes to be achieved (as detailed in the MARP) to the Director of Mines.	Refer to 2019 ACR for further details.
12. A report must be provided after the Licensee becomes aware of the non- compliance, within five business days or such time period as specified in the MARP.	Refer to 2019 ACR for further details.
13. The Licensee must, before commencing operations under this Licence, lodge a bond in accordance with section 62 of the *Mining Act, 1971* of such an amount of the surety as determined from time to time by the Minister, to cover the full cost of rehabilitation liability assessed by an independent third party at any time.	Bond was lodged as required prior to commencement of operations. No specific evidence provided to demonstrate.
14. In requesting a review of the bond, the Minister may request that written quotes from a third party are obtained by the Licensee for the cost of rehabilitating the site to the requirements specified in the approved MARP.	Acknowledged. No request for review of the bond has been received to date therefore no evidence provided to demonstrate.
15. The Licensee must meet all the charges and costs in obtaining and maintaining the Bond.	Acknowledged. No specific evidence provided to demonstrate.
16. The Licensee must abide by the *National Parks and Wildlife Act 1972* and its associated Regulations and Plans of Management (both amended and subsequent) adopted under Section 38 of the *National Parks and Wildlife Act 1972* for the Yellabinna Regional Reserve and the Nullarbor 'Regional Reserve.	Section 5 and Appendix L of the approved PEPR (Version 1.1, October 2015) addresses this requirement.
SECOND SCHEDULE	
All conditions in the Second Schedule are outcome based and discussed in detail in the main document.	