LAKE AUSTIN MINING PTY LTD

WHITE WELL GOLD PROJECT
TENEMENT M20/54

TAILINGS STORAGE FACILITY
OPERATING MANUAL

JULY 2016

DOC. NO. WW-J-RP-003_A

Lake Austin Mining Pty Ltd

ABN: 30 607 635 192

40 Murray Road North
WELSHPOOL WA 6106

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APPENDICES

1.0 INTRODUCTION

The White Well Tenement M20/54 is located approximately 30 km east of the Town of Cue, Western Australia (Figure 1). White Well is accessed from Cue along the unsealed Cue - Wondinong Road and north along the unsealed Tuckabianna Mining Centre access road.

Figure 1 – White Well Project Location Plan

The project is located on Nallan and Yarraquin pastoral stations.

Proposed open pit mining will remove a total of 7,600,000 BCM (10.7 million tonnes) of material, including 3.4 million tonnes of ore at an average grade of 0.82 g/t, over 22 months of operation. The existing pit will be extended north and south and at depth, down to 90 metres below surface.

LAM proposes to establish a gold processing plant, tailings storage facility, workshops, offices and waste rock dump. The total new disturbance area is estimated to be 97.38 ha.

Run of mine ore will be processed through a wet plant scrubbing and sizing circuit at a nominal rate of 1.8 million tonnes per annum, generating a quartz-gold concentrate approximately 15% by volume. Gold will be extracted from the concentrates using a conventional grinding and CIP/CIL cyanidation plant at a nominal processing rate of 300,000tpa.

The total water requirement for project is up to 1GL per year. Water will be abstracted from the existing pit lake and bores located on mining lease M20/54.

Tailings will be discharged into a tailings storage facility (TSF) with embankments constructed using the kaolin waste rock mined from the open pit and caprock armouring on the outer embankment batters. The design aims to optimize water return to the plant, thereby minimizing water losses through seepage, maximizing density and storage capacity.

A general site layout plan is included in Figure 2.

The proposed tailings facility has a category 2 hazard rating.

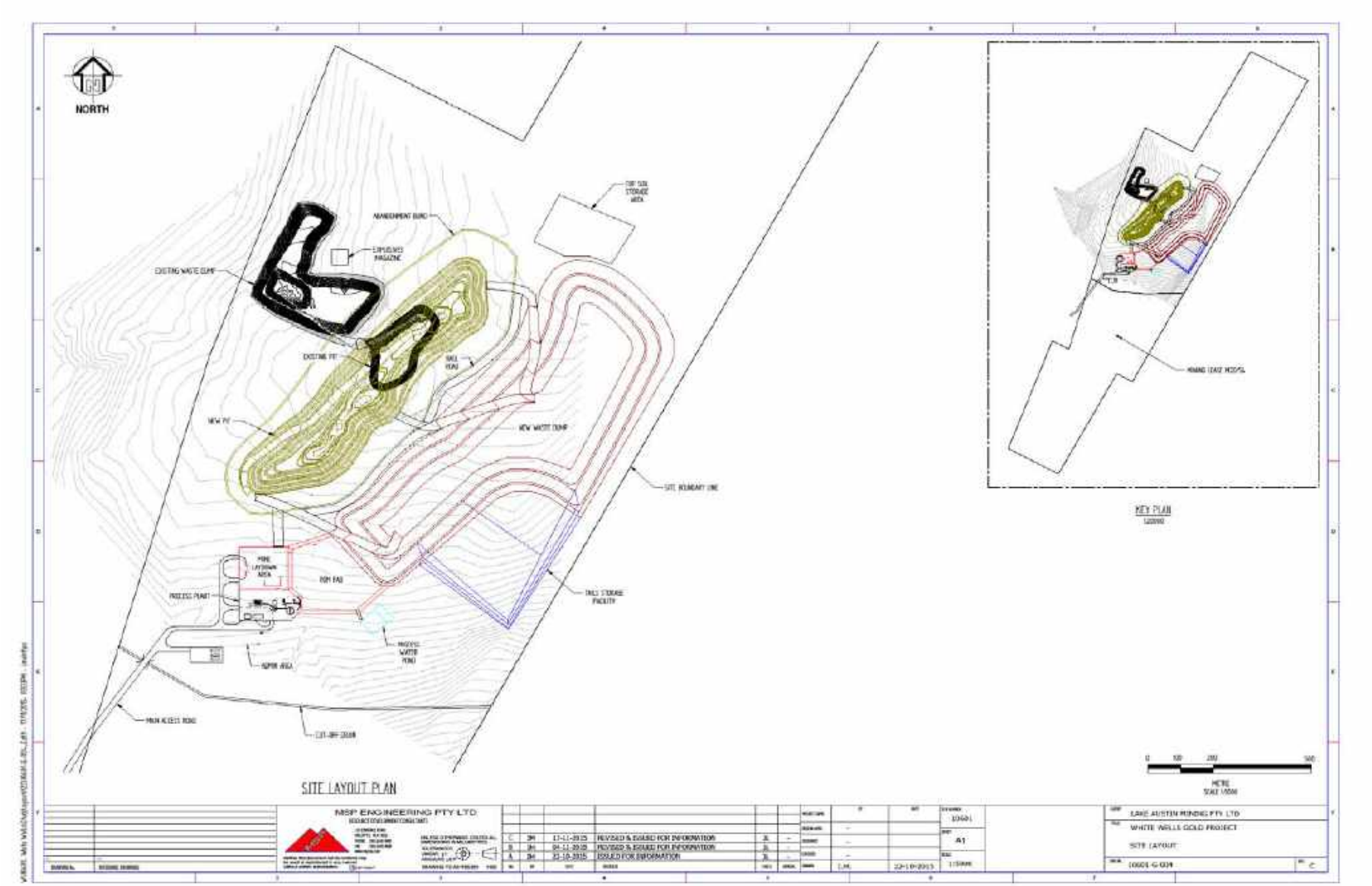
This Operating Manual has two primary purposes:

- To provide a documented procedure for the safe and efficient storage of tailings in line with the assumptions and principles adopted by the designer;
- To provide a documented process that complies with all legislation and with public expectations, and can be used as a reference during any auditing of the facility.

It is intended that this manual will enable White Well mine management and operational personnel to readily understand and implement the operational requirements as determined by the Department of Mines and Petroleum of WA (DMP) *Guidelines on the Safe Design and Operating Standards for Tailings Storages.*

This Operating Strategy has been prepared in conjunction with applications to recommence mining at the White Well Mine and is included as an appendix to the White Well Project Mining Proposal.

Figure 2 – White Well Project General Site layout Plan



2.0 DESIGN OBJECTIVES

The White Well Tailings Facility should be operated to achieve the following design objectives:

- Maximize storage capacity within the facility.
- Maximize water return from the tailings.
- Minimize water loss by seepage.
- Operate in a safe and efficient manner.
- Maintain stability of the embankment.
- Minimize risk to wildlife.

Following final detailed TSF design, and prior to construction and commissioning, LAM will carry out a detailed risk assessment plan and submit the first Design and Compliance report to DMP WA in accordance with the format included in Appendix 1. Geotechnical certification of the design report will be in accordance with the forms set out in Appendix 2 and 3.

3.0 TAILINGS STORAGE OPERATING PLAN

As described in this section 3, successful management of the White Well Tailings will be determined by:

- Deposition methodology
- Pond control and water management
- Pipeline management

3.1 Deposition Methodology

Tailings will be deposited sub-aerially from perimeter spigots installed every 10 meters with 100mm PVC pipe depositing tailings at the dam floor to ensure the dam wall is not eroded by tailings discharge. This will also optimize tailings beaching to ensure water does not lay against the dam wall. PVC pipe will be cut as the facility fills.

Tailings discharge will be rotated in sections within each cell to optimize consolidation. Discharge will be rotated in 30cm layers beginning with the lowest section of the dam continually and moving the flows around the dam to ensure beaching and settling occurs to maximize the recovery of tailings decant water.

White Well tailings will operate with a sub-minimum operational freeboard of 500mm (distance from the lowest elevation of the perimeter embankment crest and the tailings beach immediately inside the embankment).

3.2 Pond Control and Water Management

The effectiveness of the water pond will be determined by the deposition methodology and the recovery of decant water. The process of tailings deposition is aimed at ensuring the pond is positioned around the decant and maintained at the smallest practical size.

Minimizing pond size will allow a higher density of the tailings to be achieved during consolidation, thus maximizing the storage capacity of the tailings. Minimizing pond size will also decrease water loss via evaporation and seepage, which improves water efficiency of the operation, and minimizes the risk of groundwater contamination.

The size of the pond will also be influenced by evaporation, the percent solids of the tailings discharged and rainfall.

It is essential for the integrity of tailings embankment walls, that the decent pond is maintained at a maximum possible distance away.

The pond size will be monitored according to the monitoring schedule described in section 4. The hydrology of the facility will be monitored via embankment piezometers and perimeter tailings bores (section 4.3).

The decant tower will be constructed using open/porous concrete soak well liners surrounded by competent rock in the range of 20-80mm to allow for maximum water recovery to occur. Liners will be placed on a 100mm concrete pad (Appendix 4). Decant water will be returned to a process pond located at the plant via a 200mm HDPE pipe contained within an earth bund.

The TSF will have an outer toe drain surrounding the facility, with sumps at low points. This drain will collect rainfall runoff from the tailings embankments. Sumps will be emptied by mobile pumping system and water returned to the tailings area.

3.3 Pipeline Management

An access route alongside a bunded pipeline corridor from the processing plant to the tailings facility will be established along the toe of the ROM pad to accommodate the tailings delivery and return water pipelines to the tailings.

The pipelines will have scour pits and sumps periodically located along the pipeline route to contain any spillage from leaks or pipe breakages.

Tailings will be piped to the tailings facility via pipes of poly HDPE class 1C 250mm from the tails/waste pipe surrounding the top of the tailings dam with the option of diverting tailings to individual cells and areas within cells via “Y” or “T” pieces to ensure correct management of the facility.

If required, pipelines will have vents at locations as designed by the pipeline engineer and the vents will require checking periodically to confirm that their function is adequate to prevent suction to avoid collapse the pipelines.

4.0 MONITORING AND AUDITING

Requirements for a Category 2 TSF according to DMP requirements relevant to auditing and monitoring are listed below.

- Inspection and audit 12 months after commissioning by Geotechnical or Engineering specialist
- Inspection and decommissioning report by Geotechnical or Engineering specialist
- Routine daily inspection by site personnel.

4.1 Tailings Inspections

Regular inspection and appropriate remedial action if required will ensure the performance of the water return system is optimized and additional operational problems avoided.

Shift inspections will be undertaken on the White Well tailings facility at least once per shift, fulfilling the requirement for daily inspections of the facility. The proforma daily inspection log sheet is included in Appendix 5.

All inspection log sheets and reports will be filed on site and made available for internal, external and regulatory inspections.

Inspections will observe the spigot operation, the shape of the decant water pond, the quality of the decant water, the presence of wildlife or wildlife deaths and the operation of the decant water pump.

Inspections will also note:

- any changes in the tailings embankment walls or decant causeway such as slumping or cracking;
- the operational freeboard which should not exceed 500mm (around the entire perimeter);
- any cracking or leaks in pipelines

Fauna deaths will be reported immediately to management so that the Department of Mines and Petroleum and Department of Environment Regulation can be notified as required.

4.2 Geotechnical Inspections

Geotechnical inspections will be undertaken by a suitably qualified, external geotechnical engineering specialist every following the first 12 months of operation and at the Project completion and TSF decommissioning stage. Geotechnical reports will be included in the

Annual Environmental Report for the White Well project submitted to the Department of Mines and Petroleum and the Department of Environment Regulation.

4.3 Groundwater and TSF Embankment Monitoring

Surrounding the tailings facility, monitoring bores will be installed to monitor groundwater quality. Within the embankment walls of the facility, 5mm piezometers will be installed. Proposed locations of monitoring bores and piezometers are shown in Appendix 6. These will allow early detection of any embankment seepage.

The following monitoring schedule will be implemented.

Table 1 – Monitoring Schedule for TSF Monitoring Points

Monitoring point	Frequency	Analysis/assessment
Embankment piezometers	Weekly	Standing water level
Monitoring bores WMB1 - 5	Fortnightly Monthly Quarterly	Standing water level Electrical conductivity, pH and CN (on site lab) Electrical conductivity, pH and CN (NATA accredited laboratory)
Monitoring bores WMB1 – 5 Decant Water	Annually	Extended water analysis (Total Dissolved Solids, pH, Carbonate, Bicarbonate, Hydroxide, Chloride, Sulphate, Nitrate Sodium, Potassium, Calcium, Magnesium, Hardness, Iron, Manganese, Silicon, Aluminium, Arsenic, Barium, Boron, Beryllium, Cadmium, Cobalt, Copper, Lead, Mercury, Molybdenum, Nickel, Selenium, Zinc, Strontium, Titanium, Vanadium)

All water samples will be taken in accordance with AS/NZS 5667.1:1998. As specified above, samples will either be analyzed in the on-site laboratory or submitted to a NATA accredited laboratory to be analyzed in accordance with current "Standard Methods for Examination of Water and Wastewater-APHA-AWWA-WEF". Results of analysis will be provided in the Annual Environmental Report, submitted to both the Department of Environment and Conservation and the Department of Mines and Petroleum.

Bores will be constructed according to;

- Mining and Mineral Processing Series, water quality projection guidelines (2000) number 4 for the installation of mine site ground water monitoring bores, and
- Water Quality Projection Note 30 for Groundwater monitoring bores.

All bores will be constructed according to the following specifications unless otherwise required:

- Vertical
- Between 50 and 100m from the tailings embankment wall
- 3m of steel at surface, cemented with quick cement

- 160mm wide
- Slotted from ~4m to base
- Base cap
- 40m deep
- 80mm Class 9 PVC
- 1.5 – 3.2mm gravel pack to the base
- ~1m gravel plug

Groundwater quality and levels will be further determined for monitoring bores as per Department of Environment and Conservation (DEC) environmental licence conditions.

5.0 REHABILITATION

5.1 General

5.1.1 Embankments

The tailings embankments will be comprised of kaolin clay waste rock material. This material is susceptible to water erosion due to its fine particle size. To minimize risk of erosion, there will be no berms on the embankment slope, ferricrete caprock will be placed on the outside of the tailings embankments and the final surface will be deep ripped along the contour.

The deep ripping will maximize water infiltration, minimizing buildup of potentially erosive water runoff and thereby distributing water evenly down the slope. With berms absent from the slope design, there will be minimal risk of water pooling which can cause tunnelling water erosion through the kaolin clay materials. The ferricrete cap on the slope will be physically strong and will resist both wind and water erosion, while being a suitable medium for plant growth. Topsoil will be applied shortly before deep ripping and seeding to maximize the success of revegetation.

5.1.2 Tailings surface

The tailings material will be fine grained and therefore at risk to wind erosion and significant dust generation.

Toward the end of the mine life, kaolin waste rock will be stockpiled aside the tailings facility for use in tailings capping after the tailings are decommissioned and sufficiently consolidated.

Water erosion within the kaolin clay on the tailings surface will be a significantly lower risk than on tailings embankments and waste rock dump slopes due to the slope <5°, however, revegetation of the tailings surface will be important to minimize long term wind

erosion of the kaolin clay cap. Topsoil will be applied shortly before deep ripping and seeding to maximize the success of revegetation. Revegetation will reduce wind erosion risk significantly.

5.2 Mine (TSF) Closure Provisions

Consistent with the White Well Project Mine Closure Plan, described below following are the care and maintenance and care and maintenance commitments for the White Well TSF.

5.2.1 Land Use Objective

The final land use for the tailings closure landform will be pastoral grazing.

5.2.2 Landform Design

The final TSF surface will be configured so that there is a central collection point as shown in Figure 3. The west-east surface gradient and the central north-south V-configuration will be at nominal 2% gradient. This will enable drainage of surface water off the TSF surface down the armoured outer embankment walls. The tailings surface will be ripped on the contour.

TSF embankments will be formed continuous at a maximum of 18 degrees with no step-out berms. LAM is committed to reviewing the design for the final TSF surface with the aim to update and finalise during the next review of the Mine Closure Plan.

The ferricrete caprock is proposed to be placed at a minimum thickness of 0.5 metres on the TSF surface and embankments. The entire landform will be rehabilitated with native vegetation.

Figure 3 - TSF Cross-Sectional Diagram

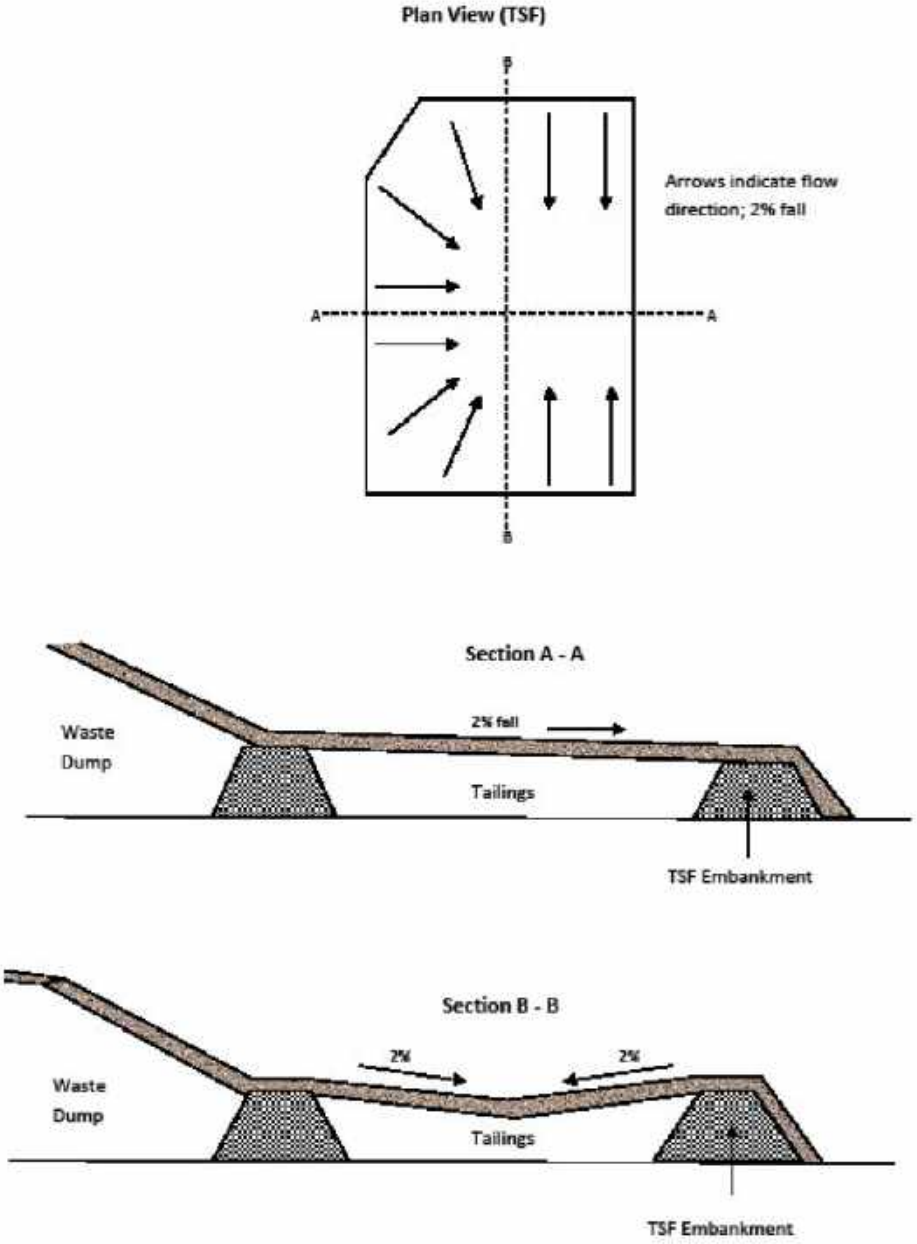


Table 2 - TSF Closure Criteria and Performance Indicators

Closure Completion Criteria	Performance Indicators
(1) No impacts on groundwater quality	Groundwater quality assessed at tailings monitoring bores as per monitoring schedule. Standing water level returned to baseline level (~25m BGL), concentration of cyanide <5mg/L
(2) Physically stable	Assessed during scheduled inspections and geotechnical inspections

Closure Completion Criteria	Performance Indicators
	No significant dust generation No significant water erosion
(3) Rehabilitation sustainable and functional	Assessed during annual rehabilitation assessments Vegetation diversity in species and form representing a low woodland over low scrub Vegetation self-supporting, with germination of secondary generations of plants Free of weed species that may have an adverse effect on land use or ecosystem function
(4) All structures removed	Assessed during annual inspection Decant, all pipes and other structures removed or buried and surveyed.
(5) No risk to wildlife or people	Assessed during scheduled inspections As described above in points 1 and 2

5.2.3 Progressive Rehabilitation Schedule

Ferricrete will be placed at 0.7m depth on the outside of the tailings embankments to minimise erosion risks posed by the kaolin clay material used to form the embankments. Application will be made in the final stages of embankment construction. Following this, topsoil will be applied, shortly before the area is ripped on the contour and seeded.

5.2.4 Closure Material Sources

Caprock and topsoil stockpiles will be located to the north of the waste rock dump and along the outer boundary of the active waste dump. From these stockpiles, 65,000m^3 is allocated to the capping of the tailings facility, sufficient for a 0.5m deep cover. 56,000m^3 caprock is allocated to the capping of tailings embankments to 0.7m depth. This material will be sourced from the tailings trench (keyway) and the initial strip of the pit, then temporarily stored until the tailings construction is ready for the caprock to be placed on the embankment slope.

5.2.5 Decommissioning Tasks

Decommissioning tasks will be conducted as follows.

- Removal of exposed decant structure, pipe network and spigots.

- Following drying and consolidation, caprock waste rock will be successively dumped over the tailings facility.
- Topsoil will be applied over caprock shortly before deep ripping.
- Ripping will be conducted along contour, to maximise water penetration and minimise runoff. Seeding will be spread during ripping.

Seed will be selected to target a vegetation community representative of low woodland of Acacia aneura over low scrub of local Eremophila species, Ptilotus obvatus, Maireana triptera, Acacia ramulosa.

5.2.6 Strategic Framework for Mine Closure

The strategic framework for the White Well Mine TSF Closure Plan will be in line with the Closure Monitoring and Maintenance commitments described below.

Performance Monitoring and Maintenance

- Ongoing monitoring of tailings monitoring bores (post closure monitoring schedule).
- Ongoing monitoring of revegetation and stability (post closure monitoring schedule).
- Ongoing weed control (if required).

Unexpected Closure

The closure design will not differ if the tailings facility is decommissioned before the end of operational life, unless pit stripping has not yielded sufficient caprock. In this circumstance, kaolin clay may be recovered from the waste rock dump and moved to the tailings to construct a 0.5m deep cap. Topsoil allocated for tailings rehabilitation will not be jeopardised by unexpected closure.

The use of kaolin clay waste rock from the waste rock would have implications for the final closure design of the waste rock dump. This is discussed separately below.

Care and Maintenance

Upon temporary cessation of operations, the tailings facility will be managed under the site Care and Maintenance Plan, approved by the Department of Mines and Petroleum (DMP) and Department of Environment Regulation (DER). This plan will detail environmental monitoring and maintenance requirements.

Key management issues through care and maintenance will be seepage management and physical stability.

Environmental monitoring of piezometers, tailings bores and tailings inspection schedule should continue unchanged from project operation unless stated specifically in the Care and Maintenance Plan, agreed to by the DMP and DER.

Stability of embankments will be enforced against erosion by the ferricrete cap, established during the construction of the facility. Throughout care and maintenance, the embankments will be inspected for any signs of erosion or slumping and the embankment wall piezometers will continue to be monitored. Stability of the tailings surface may be compromised by saltation and subsequent dust generation. If this is observed, dust suppressing agents will be investigated and applied to affected areas.

6.0 EMERGENCY ACTION PLAN

The key risks and remedial actions are described in Table 3.

Table 3 – Possible Emergencies and Remedial Actions

Risk	Control	Action
Blocked decant structure, with or without the danger of overtopping of embankment walls	Scheduled inspections	Upgrade decant pump or install secondary unit. Redevelop decant if necessary
Surface erosion of embankment faces with the development of significant gullies	Spigots installed with 100mm PVC pipe depositing tailings at the dam floor to ensure tailings doesn't erode embankment Scheduled inspections	Shut off section of discharge until problem is rectified. Re establishment of embankment face
Seepage from the embankment face, with or without erosion of materials	Embankment piezometers (section ref) Annual geotechnical review Scheduled inspections Containment of any contaminants in toe drain and sumps	Shut off section of discharge until problem is rectified. Empty toe drain and sumps of any seepage water
Shear failure or "breakaway" of part of the embankment face	Annual geotechnical review Scheduled inspections	Shut off section of discharge until problem is rectified. Re establishment of embankment face
Tension cracks observed on the embankment outside face or crest	Annual geotechnical review Scheduled inspections	Shut off section of discharge until problem is rectified. Re establishment of embankment face
Complete embankment failure with massive loss of contained material	Embankment piezometers (section ref) Annual geotechnical review Scheduled inspections	Cessation of tailings discharge Remediation plan to be completed - Cleanup and monitoring - Monitoring of spill site

Groundwater seepage with or without vegetation distress	Minimising ponded water. Optimising consolidation through discharge rotation (section ref) Embankment piezometers (section ref) Groundwater monitoring bores (section ref) Scheduled inspections	Groundwater recovery Ongoing monitoring
Breaks or bursts in the tailings discharge pipe line	Pipe construction and welding to certification (section ref) Pipeline bunding and sumps – (section ref) Scheduled inspections	Cessation of line use Cleanup and repair Monitoring of spill site
Leakage from the decant pond or return lines	Pipe construction and welding to certification (section ref) Pipeline bunding and sumps – (section ref) Scheduled inspections	Cessation of line use Cleanup and repair Monitoring of spill site

7.0 INCIDENT REPORTING

Spills, fauna deaths and incidents will be recorded in the LAM internal incident reporting system.

Significant spills, fauna deaths and incidents relating to the tailings facility, including major seepage, structural defects, will be reported to the Department of Mines and Petroleum and the Department of Environment Regulation as required in Works Approval and Licence documentation, as soon as possible or within 24 hours (during business days.).

The DMP incident report form (included in Appendix 7) will be submitted to the Department of Mines and Petroleum within 7 days of occurrence.

Appendix 1 – Tailings storage data sheet

Project operator			
Project name		Date	
TSF name	Commodity		
Name of data provider		Phone	
TSF centre co-ordinates (GDA 94)	m North		m East
Mining Tenement and Holder(s) details			
TSF data			
TSF status: Proposed ☐ Active ☐ Non Active ☐ Decommissioned ☐ Rehabilitated ☐ Closed ☐			
Type of TSF: [1]	Number of cells: [2]		
Hazard rating: [3]	TSF category: [4]		
Catchment area: [5]	Nearest water course:		
Date deposition started (mm/yy):	Date deposition completed (mm/yy):		
Tailings discharge method: [6]	Water recovery method: [7]		
Bottom of facility sealed or lined? Y / N	Type of seal or liner: [8]		
Depth to original groundwater level m Current groundwater level m	Original groundwater TDS/pH		mg/l
Ore process: [9]	Tailings Deposition rate: [10]		
Impoundment volume (present) m^3	Expected maximum		m^3
Mass of solids stored (present) tonnes	Expected maximum		tonnes
Above ground facilities			
Foundation soils	Foundation rocks		
Starter bund construction materials: [11]	Wall lifting by: Upstream ☐ Downstream ☐ Centre line ☐		
Wall construction method/materials:	Wall lifting material: [12] mechanically ☐ hydraulically ☐		
Present maximum wall height agl: [13] m	Expected maximum		m
Crest length (present) m	Expected maximum		m
Impoundment area (present) ha	Expected maximum		ha
Below ground (in-pit) facilities			
Initial pit depth (maximum) m	Area of pit base		ha
Thickness of tailings (present) m	Expected maximum		m
Current surface area of tailings ha	Final surface area of tailings		ha
Properties of tailings and return water			
TDS mg/l	pH	Solids content	Deposited density t/m^3
Potentially hazardous substances: [14]		WAD CN	Total CN mg/l
		Any other NPI listed substances in the TSF? [15] Y / N	

Appendix 2 – Certificate of compliance

CERTIFICATION OF COMPLIANCE

Tailings storage facility design report

For and on behalf of .....
I, ...
being a duly authorised officer of the above company and a qualified geotechnical engineer holding professional registration by a professional body, do hereby certify and confirm that the ..... tailings storage facility at the .....
mine site has been designed in accordance with the current edition of the *Tailings storage facilities in Western Australia – code of practice* issued by the Department of Mines and Petroleum, Western Australia and the design is referenced

as.....

dated .....

Signature of above person: .....

Signature of witness: .....

Name of witness: .....

Date: .....

Appendix 3 – Third party independent technical reviewer

DECLARATION BY
3RD PARTY INDEPENDENT TECHNICAL REVIEWER
Tailings storage facility design report

I,.....,
being a qualified engineer, registration number ……
(with relevant experience and competence in tailings management to verify the tailings storage facility design) holding professional registration through

☐ The Institution of Engineers Australia, or

☐ Australasian Institute of Mining and Metallurgy

being independent of the applicant, do hereby declare and confirm that I have reviewed the design report for the .....
tailings storage facility at the .....
mine site, and hereby verify that the design report provides the required information, and demonstrates the current best practice engineering investigation and analysis. The information contained in the design report meets the design, operation and closure objectives stipulated in the current edition of the Tailings storage facilities in Western Australia – code of practice issued by the Department of Mines and Petroleum, Western Australia.

I acknowledge that the Department of Mines and Petroleum may rely on this declaration.

The design report is referenced as.....

dated.....

Name of 3rd party technical reviewer: .....

Signature of 3rd party technical reviewer: .....

Date: …….....

Note: The 3rd party technical reviewer and applicant must have public liability insurance to the minimum value of [redacted]

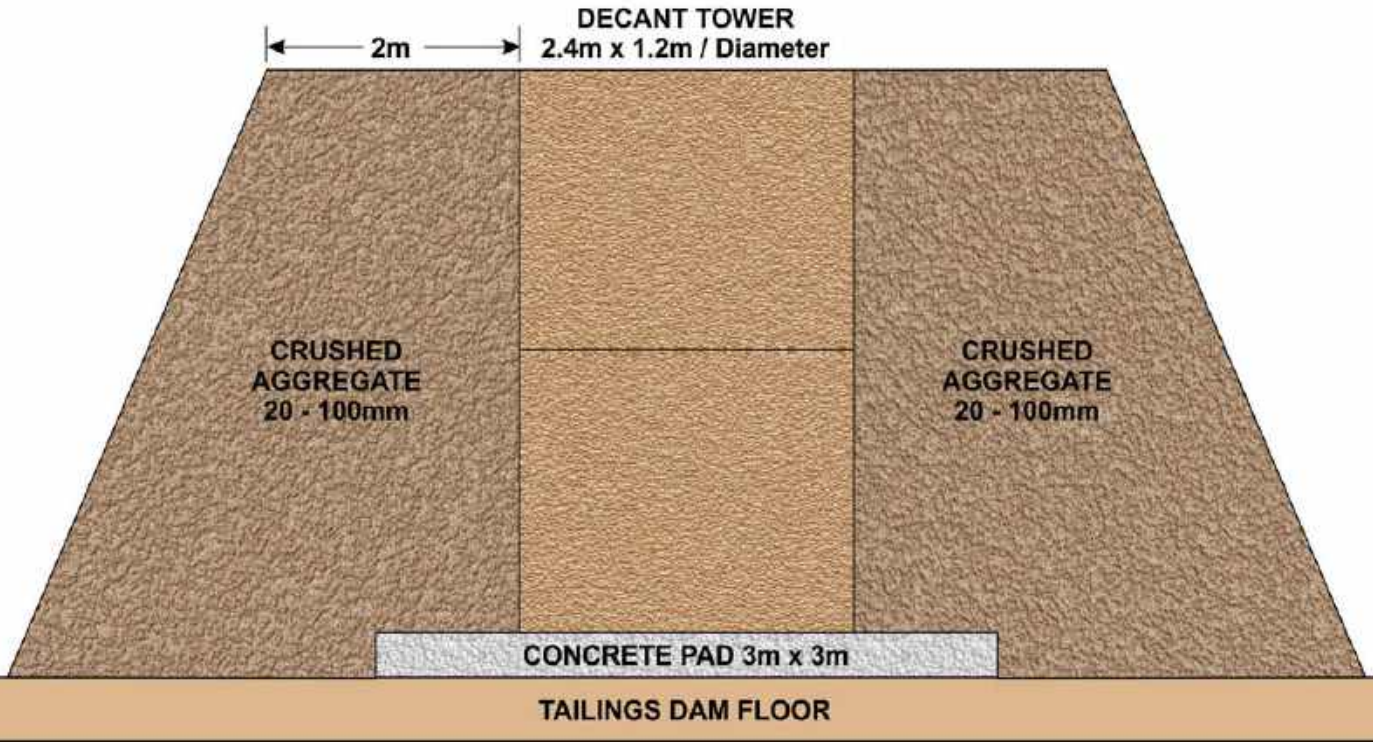
I hereby confirm my opinion that the above-mentioned 3rd party independent technical reviewer is suitably qualified with relevant experience and competence in tailings design and management, and verify that the reviewer is truly independent of the applicant.

Name of applicant: .....

Signature of applicant: .....

Date: .....

DECANT TOWER DESIGN



Appendix A Daily Inspection Sheet

White Well Tailings
Daily Inspection Sheet

Time _____
Date _____
Operator _____

		Defective yes/no	Comments
Roadways open	Condition of roads and ramps		
	Damage and erosion of sides		
Outer Perimeter	Evidence of spillage		
	Evidence of seepage		
	Presence of wet areas		
	Integrity of embankment walls		
Slurry Behavior	Slurry flow rate		
	Slurry density		
Freeboard	Pond position		
	Pond size		
	Pond depth		
	Wall freeboard		
Decant facility	Clarity of discharge fluid		
	Structural integrity of decant		
Return water storage	Available capacity		
	Return water pumps		
Tailings delivery	Deposition position		
	Condition of pipes & valves		
Fauna	Evidence of fauna access		
	Fauna deaths		
Other			

616,500 617,000 617,500 618,000

6,969,500 6,969,000

Waste Dump (Existing)

Open Pit (Existing)

Open Pit (Proposed)

Waste Dump (Proposed)

Haul Road

TSF 1

TSF 2

Legend

Monitoring_bore_Locations

Type

Monitoring Bore

Piezometer

0 100 200 300 400 m

Notes:
1. Coordinate System: GDA 94 MGA Zone 50.
2. Software: ArcGIS 10.3

N

Location Plan

CUE

4DGeotechnics pty ltd

White Well Project

Tailing Storage Facility

Monitoring Bore Locations

DRAWN	VBJ	DATE	18/01/2016
CHECKED	IHL	DATE	18/01/2016
SCALE	1:5,000		A3
PROJECT No.	4DG036400	FIGURE No.	19

Department of Minerals and Energy

Tailings Storage Facility or Evaporation Pond Incident Report Form

INSPECTORATE	COLLIE KARRATHA KALGOORLIE PERTH
STORAGE DATA	Name of Mine: ..... Phone No: ..... Name of person completing report: ..... Name of Facility: ..... Storage area: ..... (m^2) Date and time of incident: ..... Incident location (draw sketch on next page): ..... Facility type: ☐Tailings storage ☐ Evaporation Pond ☐Other Status: ☐Operational ☐ Decommissioned Date decommissioned: Layout: ☐ *Ring-dyke (Paddock)* ☐ *Sidehill* ☐ *Cross-valley* ☐*Other* Discharge method: ☐ *End of pipe* ☐ *Single spigot* ☐ *Multi-spigot* ☐*Other* Water recovery: ☐ *Gravity decant* ☐ *Pumped decant* ☐ *Pump on pontoon* ☐*Other* Type of tailings stored: ☐*Gold* ☐*Nickel* ☐*Lead/Zinc/Copper* ☐ *Iron ore* ☐*Alumina* ☐ *Mineral sand* ☐ *Other (Name)* ..... Annual production rate: Mtpa Water quality: pH ..... TDS ..... mg/l Known hazardous chemicals: .....
WALL FAILURE INCIDENTS (tick more if required)	Embankment failure dimensions: [LxWxH (m)] (L measured along crest) Failure mode: ☐*Wall sliding* ☐ *Sliding through foundation* ☐ *Wall erosion by rain/pipe failure* ☐ *Piping* ☐*Overtopping* ☐ *Other* Describe failure event (eg initiation point, sequence of events, etc): .....
Water issues in the vicinity before wall failure occurring	Seepage/leakage through: ☐Embankment☐ Foundation ☐Buried pipes ☐Other (describe): ..... Estimated quantity: ..... (litres/sec) ☐*Moist/damp or* ☐*Wet only* Control methods: (describe) ..... Rainfall in the previous 72 hours: .....(mm) Downstream ponding adjacent to failure? Yes / No Upstream pond located: ☐ *Against failure wall* ☐*Away from failure wall & Distance: .... (m)* ☐ *Other (describe)* ..... Freeboard behind crest: To top of tailings: ..... (m) To top of water: ..... (m)
Foundation soil/ rock types, weathering, etc	Describe foundation geology in immediate failure area: ....
Construction details of wall that failed	Construction completion date: ..... Overall embankment height: .....(m) and slope angle in failure area: ..... (deg.) Wall designed by: ☐ *Experience* ☐ *Geotechnical methods* ☐*None* Embankment construction materials and methods: .... Date of most recent geotechnical review: ..... By: .....
OTHER INCIDENTS	☐ Pipe failure ☐ Return water pond overflow ☐ Overtopping with no wall failure ☐Other (describe)
RESULTS OF THE INCIDENT	Type material released: ☐ Tailings ☐ Saline water ☐Other (describe) ..... Duration of release: ☐ <1 hour; ☐ 1 to 2 hours; ☐2 to 6 hours; ☐ 6 to 24 hours; ☐ > 24 hours Amount or volume of material released: ..... t, m^3, bcm Released material contained? Yes/No Area affected: ..... m^2/Ha. Maximum distances travelled by (a) tailings material: .....(km); (b) water: ..... (km)
ENVIRONMENTAL DAMAGE (list adverse effects; flora/fauna deaths, water pollution etc)	Describe environmental impact and downstream facilities that are affected .....
MONITORING DETAILS (eg visual, EDM, piezometers, frequency of monitoring, etc)	Signs of failure observed or monitored prior to failure? Yes / No ..... Monitoring methods used: .... Summarise observations or monitoring results: ....

Department of Minerals and Energy

Tailings Storage Facility or Evaporation Pond Incident Report Form

Sketch plan of facility showing extent of failure area

Show the following on the above sketch plan:

- Extent of embankment and tailings material failure as appropriate
- All access ways into underground mines (eg shafts, declines, sink holes, intake and exhaust rises, etc)
- All tailings storage facilities
- Evaporation ponds, water storage facilities (including thickeners)
- Open pits, waste dumps
- Offices, accommodation, etc
- Roads, airfields
- Buildings (e.g. mill, concentrator, workshops, etc) and fuel storage areas
- Direction of surface drainage flow
- Indicate True North direction and approximate scale

Additional comments:

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