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**MINING MANAGEMENT PLAN UPDATE  
(EXPLORATION)**

**FOR EL 24817  
ALICE SPRINGS PROJECT**

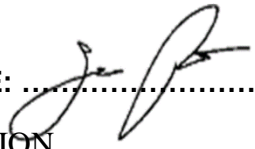
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**Reporting Year Ending 13/03/2019**

**GES Report No: 148**

	<b>Author</b>	<b>Reviewed by</b>	<b>Approved by</b>
Date			
Name	Dayna Healey & James Patterson	James Patterson	James Patterson
Signature			

I, James Patterson, Exploration Manager and Non – Executive Director declare that to the best of my knowledge the information contained in this mining management plan is true and correct and commit to undertake the works detailed in this plan in accordance with all the relevant Local, Northern Territory and Commonwealth Government legislation.

**SIGNATURE:**  .....

**DATE:** 18/02/2019

**DISTRIBUTION**

1. Northern Territory Department of Primary Industry and Resources
2. Genesis Resources Ltd

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## AMENDMENTS

<b>Section</b>	<b>Amendment</b>
General	The MMP document will be published on our website within 14 days of approval.
General	James Patterson our Exploration Manager and Non-Executive Director has endorsed the document.
General	Appendix 12: Land Access Agreement Email will not be published on our website as it is a “Confidential Agreement”.
Section 2.0 – Project details	New Tenement Expiry Date: 17/04/2020
Section 2.3.1 – RC Drilling	New date for Proposed drilling program is 3 <sup>rd</sup> quarter 2019
Section 3.3 – Flora and Fauna	Table 5: EPBC report updated on 18/02/2019
Section 3.5 - Historical, Aboriginal, Heritage Site	CLC Sacred Site Clearance Certificate expiry date 31 December 2019.
Section 4.4.1 Identified Stakeholders	Name change – Northern Territory Department of Primary Industry and Resources.
Section 6.0 –Performance Objectives	Date changed to 2019

*Information in this report that relates to exploration activity and results was compiled under the guidance of James Patterson who is a Member of the Australasian Institute of Geoscientists. Mr Patterson has sufficient experience relevant to the styles of mineralization and to the activities which are being reported to qualify as a Competent Person as defined by the JORC code, 2004. Mr Patterson consents to the release of the information compiled in this report in the form and context in which it appears.*

## 1.0. OPERATOR DETAIL

Name of operator: Genesis Resources Limited

Key contacts: James Patterson - Exploration Manager  
Dayna Healey - Tenement Manager (employed by Genesis Resources Limited).

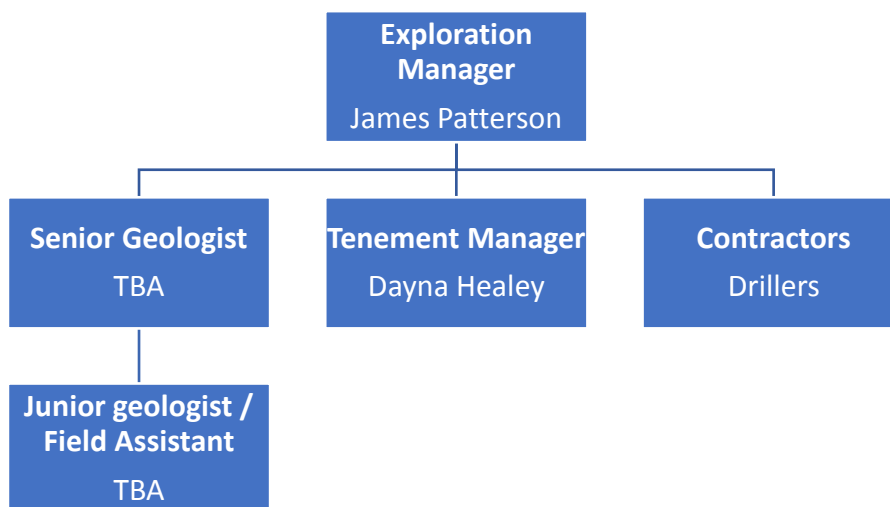
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### 1.1. Organisational Structure



**Figure 1: Genesis Resources Ltd organizational chart**

### 1.2. Workforce

The exploration team will consist of one geologist and one field assistant for the non ground disturbance field work.

Up to five people may be involved in the drilling operation including one geologist (supervisor) one field hand and three RC drill contractors.

## 2.0. PROJECT DETAIL

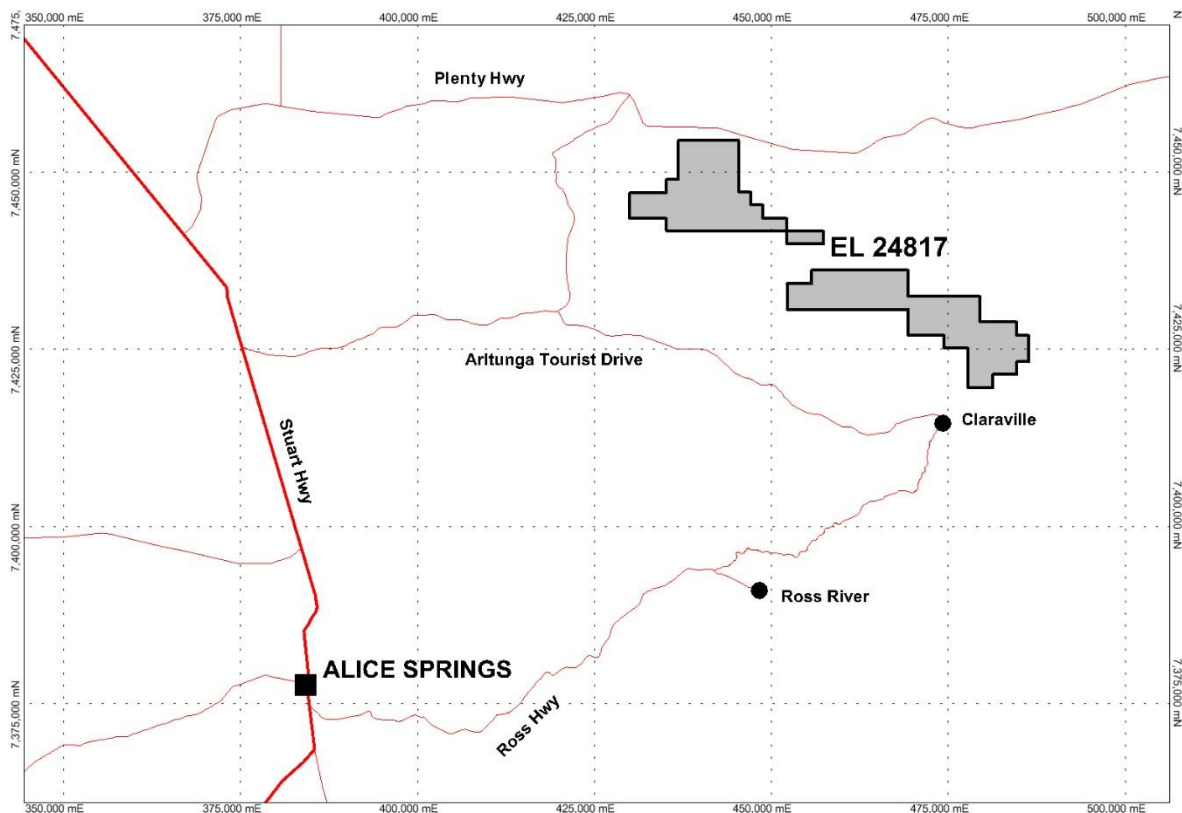
The Alice Springs Tenement is located approximately 155km northwest of Alice Springs. Due to relinquishments the tenement now comprises two separate blocks; Alice Springs North West and Alice Springs South East. The north western block of the tenement is accessible from the Plenty Highway (approximately 80km east of the Stuart Highway). The south eastern block is accessible from Arltunga and Ambalindum Station. There is no connecting track between the two portions of the tenement as the Cattlewater Pass track is impassable. Refer Figure 2: Location of Alice Springs Project EL24817. The project comprises one Exploration Licence which covers 118 graticular blocks with a total area of 372.59 square kilometers. Refer Table 1: Alice Springs Project tenement details.

**Table 1: Alice Springs Project tenement details.**

Title Number	Owner	Grant Date	Expire Date	Pastoral Lease	Native Title Claim
EL 24817	Genesis Resources Ltd	18 March 2006	17 April 2020	PPL989 & PPL1124	Claimant Application – Mt Riddock Pastoral Lease Federal Court Application No: NTD61/2015 Application filed on 23/09/2015 Native Title Registrar accepted the claim application for registration on the Register of Native Title Claims on 13/11/2015

### 2.1. Map of site location and layout

**Figure 2: Location of Alice Springs Project EL24817**



Refer Appendix 1 – Alice Springs EL24817 2019 Proposed Drilling, shows the location of the 21 drill holes to be undertaken during the RC drilling program.

Refer Appendix 2: Proposed 2019 Drilling Camp Hill Prospect, Appendix 3: Alice Springs Tenement Proposed drill holes SE, Appendix 4: Diamond T Proposed drill holes, Appendix 5: Diana 8 – EM Anomaly 11 Proposed drill holes and Appendix 6: Diana 2 – EM Anomaly 6 – Proposed drilling.

## **2.2. History of Development and Current Status**

The Alice Springs tenement is in an area where isolated, small scale, historical mining has occurred and the geological setting is considered to be analogous to other areas in the region where copper, gold, iron, base metals and uranium mineralisation occurs.

A review of the available geophysical and geological data by Resource Potentials in 2009 and subsequent reconnaissance field mapping by Richard Russell in 2010 highlighted the potential of the Alice Springs project to contain copper – gold mineralisation.

Rock chip sampling completed by previous explorers and Richard Russell returned high grade copper mineralisation of up to 30% Cu over several prospect areas. The high grade copper mineralisation appears to be structurally controlled and associated with magnetite enrichment in some areas.

Based on these results a helicopter electromagnetic (HEM) survey was commissioned over two prospect areas, Camp Hill (north west tenement block) and Magnetite Hill (south east tenement block), in an effort to detect areas of possible copper and iron mineralisation and provide drill targets.

The XTEM survey over these two areas defined a number of anomalous electromagnetic responses that are considered to be prospective for copper and iron mineralisation.

A review of the acquired magnetic data from the XTEM surveys and available open file airborne datasets highlighted 36 magnetic anomalies considered prospective for iron mineralisation. These anomalies include the two known prospects, Magnetite Hill and Triple Hill, which returned maximum rock chip values of 63% Fe and 70% Fe respectively.

No work was undertaken during the previous 12 months. No rehabilitation was undertaken.

## **2.3. Proposed Exploration Activities**

### **2.3.1. RC Drilling**

A total of 21 Reverse Circulation (RC) drillholes are proposed for a total of 1880m. These holes are designed to test a number of copper – gold targets including below historic workings at Camp Hill, rock chip anomalies at Diana 2, Diana 8, Corner Post Hill and EM anomalies near Diana 2, Corner Post Hill and Diamond T. Refer Table 2: 2019 Proposed Alice Springs RC Drill Holes.

**Table 2. 2019 Proposed Alice Springs RC Drill Holes**

Prospect	Proposed ID	GDA94 East	GDA94 North	Dip	Azim	Depth (m)	Comments
Camp Hill	RC15AS01			-55	225	80	Test below shears & workings
Camp Hill	RC15AS02			-55	225	100	Test below shears & workings
Camp Hill	RC15AS03			-55	225	100	Test below shears & workings
Camp Hill	RC15AS04			-55	225	100	Test below shears & workings
Diana 2	RC15AS05			-60	150	80	Intersect mineralised Fe formation at ~ 50m
Diana 2	RC15AS06			-60	150	80	Intersect mineralised Fe formation at ~ 50m
Diana 2	RC15AS07			-60	150	80	Intersect mineralised Fe formation at ~ 50m
Diana 2	RC15AS08			-60	150	80	Test possible NE plunge of mineralisation?
Diana 8	RC15AS09			-55	130	80	Intersect shear 40m below surface
Diana 8	RC15AS10			-55	130	80	Intersect shear 40m below surface
Diana 8	RC15AS11			-55	130	80	Intersect shear 40m below surface
Diana 8	RC15AS12			-55	130	80	Test for Nth extension of shear?
Cnr Post Hill	RC15AS13			-55	210	80	Test below qz+ma vein zone
Cnr Post Hill	RC15AS14			-55	210	80	Test below qz+ma vein zone
Cnr Post Hill	RC15AS15			-55	210	100	Test below qz+go shear. Low priority
EM Anomaly 6	RC15AS16			-50	130	100	Strong NW trending EM near Diana 2
EM Anomaly 6	RC15AS17			-50	130	100	Strong NW trending EM near Diana 2
EM Anomaly 20	RC15AS18			-50	180	100	Strong E-W EM, Cadney Fault, 13% Cu in rock
EM Anomaly 20	RC15AS19			-50	180	100	Strong E-W EM, Cadney Fault, 13% Cu in rock
EM Anomaly 11	RC15AS20			-50	210	100	300m long strong EM parallel to Cadney Fault
EM Anomaly 11	RC15AS21			-50	210	100	300m long strong EM parallel to Cadney Fault
						<b>1880</b>	

The drilling program is scheduled to commence during the 3rd Quarter 2019. It is anticipated that the proposed drilling program should take 4 – 6 weeks to complete. This includes preparation of access tracks and drill pads, mobilisation of the rig to site, drilling and rehabilitation of drill sites and access. Drilling will involve the use of a 4WD truck mounted Reverse Circulation rig with up to 3 supporting vehicles.

It is estimated that less than 10km of new access tracks will need to be established to the proposed areas of drilling. Where possible access will be via existing station tracks to dams and along fence lines with new tracks to be established along the shortest possible route from the fence line to the drilling area. Several of the routes will follow drill access tracks previously established by Oneva Exploration during 2002 – 2003. Table 3 shows the RC drilling proposed track lengths. Zip files containing XL table with proposed track lengths for each prospect and the mapinfo files where lodged with the previous MMP Update.

**Table 3. RC Drilling proposed track lengths.**

Prospect	Proposed Access Track Length (km)
Camp Hill	2.37
Diana 2	1.24
Diana 8	2.06
Corner Post Hill	0.06
EM Anomaly 11	0.37
Diamond T	1.19
<b>TOTAL</b>	<b>7.29</b>



Drill pads will be approximately 10m x 15m in size to allow sufficient space for the drill rig, support vehicles and sump. It is estimated that total area required for pads will be approximately 0.3 hectares.

All personnel involved in the drilling program will be accommodated at the Gemtree Caravan Park on the Plenty Highway.

### **2.3.2. Reconnaissance mapping and rockchip sampling**

If time and budget permit after completion of the drilling program further reconnaissance field mapping and rock chip sampling may be undertaken on additional prospect areas. This mapping program would be carried out by a single crew comprising one geologist and one field assistant using a single light vehicle. All access would be along existing station tracks where possible and by foot in areas where no tracks exist. Rock chip samples would be collected from selected surface outcrops. The crew would be accommodated at the Gemtree Caravan Park.

## **3.0. CURRENT PROJECT SITE CONDITIONS**

The project area lies within the MacDonnell Ranges Bioregion which is made up of two sections, one to the northeast of Alice Springs (East MacDonnell Ranges), and another to the southwest (West MacDonnell Ranges). The West MacDonnell Ranges refer to the ranges west of Alice Springs and include the Chewings, Heavitree, Idirriki and Mereenie Ranges. The East MacDonnell Ranges, where the project area lies, to the east of Alice Springs, include the Fergusson, Cavenaugh, Amarata Harts and Georgina Ranges.

### **3.1. Geology**

The Ranges are dominated by two geological units; sedimentary rocks of the Amadeus Basin and metamorphic rocks characteristic of the Arunta Block. The project area lies within the crystalline ranges (Arunta metamorphics and granites) that incorporate the northern and north-eastern ranges including the Chewings and Harts ranges. They provide a diverse range of landforms and habitat types, from high, mostly east-west running, ridge tops, to steep south-facing gorges which frequently support moist environments, and in some cases, permanent water. The extensive folding and faulting and erosion of the ranges have led to the formation of many gaps and gorges and the development of piedmont and alluvial plains.

The copper – gold prospects are located within the high grade metamorphics of the early Proterozoic Strangways Complex (quartzofeldspathic gneiss, migmatite, biotite gneiss; some garnet-biotite gneiss, amphibolite, mafic granulite, felsic granulite, sillimanite gneiss, actinolite-quartz calc-silicate rock, muscovite-biotite schist - amphibolite). The outcrop in the northern part of the licence (Joker Flat Block – Camp Hill & other copper occurrences) consists of quartzfeldspathic gneiss – Garnet bearing mafic and felsic granulite.

To the south of the Joker Flat Block and running NW-SE is the Cadney Fault Block. This zone is comprised of quartz-feldspar-amphibolite-biotite gneiss.

The Strangways Complex consists of highly contorted volcanic sediments and igneous intrusions. They have been regionally metamorphosed to amphibolite-granulite facies and have been deformed by at least three major orogenies. The rock types include mafic felsic and polytite granulites and gneisses calc-silicate rocks and charnockite.

The known copper – gold mineralisation within the licence is confined to the Strangways Complex and occurs in the eastern and southern sections of the tenement.

The central part of the Exploration Licence area is hosted by the Ongeva Granulite (interlayered mafic granulite, felsic granulite, quartzofeldspathic gneiss with some migmatite, rare cordierite gneiss, sillimanite gneiss, biotite gneiss and rare granitoid).

Cadney Metamorphic rocks cover the eastern and western portion of the project area. These are mainly composed of calc-silicate rock, marble, sillimanite and biotite gneiss; minor quartzofeldspathic gneiss, felsic granulite, mafic granulite, garnet-biotite gneiss, quartzite and amphibolite

Soils vary from skeletal gravely sands on the slopes and ranges to deeper alluvial sediments in the larger valleys and fringing plains. N.T. Land Information System NRETA maps indicate that rudosols which are shallow soils with only minor organic matter accumulation on the surface and weathered parent material are predominant in the Project area. Minor occurrences of hydrosols, which occupy depressions or areas of water accumulation and tenosols, soils with a peaty, humose, or melanic horizon are mapped in the northern part of the tenement.

### 3.2. Hydrology

The project area has intermittent internal drainage. Harts Range (Mt Johnstone) is a water divide between the tributaries of the Hale River drainage that flows south-east and the Anamarra and Ongeva Creeks that drain to the north.

There are no water bores within the boundaries of EL 24817. There are however a number of bores in the immediate area surrounding the Tenement. All of these bores are within the Mt Riddock Pastoral Lease. Details are shown in Table 4: Location of Bores.

**Table 4: Location of Bores**

<b>Bore Name</b>	<b>GDA94 East</b>	<b>GDA94 North</b>	<b>Pastoral Lease</b>
No. 2 Bore	433600	7456300	Mt Riddock
West Bore	431360	7453290	Mt Riddock
10 Mile Bore	448780	7454480	Mt Riddock
14 Mile Bore	446290	7455250	Mt Riddock
Blackfellow's Bones Bore	447060	7449020	Mt Riddock

We have been in contact with the owner of Mount Riddock Station, Steven Cadzow, asking for his approval to establish a temporary washdown facility at Blackfellows Bones Bore. The bore would also be used as a source for water for industrial use (hole clearing and dust suppression if

required). A simple 10m x 5m pad would be established with washdown water channeled into a lined sump that would be temporarily fenced to prevent access to cattle. After completion of the drilling program the sump will be allowed to dry and then be backfilled with a cap of at least 1m of clean compacted soil.

### 3.3. Flora and Fauna

Spinifex and acacias, particularly mulga, occur throughout the bioregion.

A total of 53 threatened species within the MacDonnell Ranges Bioregions are reported. Among them, the species that are listed on Table 5 are potentially occurring within the Project area. Refer Table 5: List of threatened species with potential to occur in a 10km radius of the proposed drill sites.

A detailed report regarding flora and fauna of the Macdonnell Ranges Bioregions is attached in Appendix 8.

A report under the title “Great MacDonnell Ranges-Sites of conservation significance” downloaded from the Northern Territory Government Department of Natural Resources web site is attached as Appendix 9.

**Table 5: List of threatened species with potential to occur in a 10km radius of the proposed drill sites. CE=Critically Endangered, Vu=Vulnerable, EN=Endangered. Information obtained from the EPBC Act Protected Matters Report, 18/02/2019 and from the Threatened animals and Threatened plants - nt.gv.au.**

Group	taxons	Common Name	EPBC Report	NT level	National
Bird	<i>Erythrotriorchis radiatus</i>	Red Goshawk [942]	VU	VU	
Bird	<i>Rostratula australis</i>	Australian Painted Snipe [77037]	EN	VU	
Bird	<i>Polytelis alexandrae</i>	Princess Parrot [758]	VU	VU	
Bird	<i>Rostratula benghalensis</i> (sensu lato)	Painted Snipe [889]	EN	VU	
Bird	<i>Calidris ferruginea</i>	Curlew Sandpiper [856]	CE	VU	
Mammal	<i>Macrotis lagotis</i>	Greater Bilby [282]	VU	VU	
Mammal	<i>Zyzomys pendunculatus</i>	Central rock-rat [68]	EN	EN	
Mammal	<i>Petrogale lateralis</i>	Black Footed Rock Wallaby [66649]	VU		Listed
Reptile	<i>Liopholis slateri</i>	Slater’s Skink [83163]	EN	VU	
Plants	<i>Macrozamia macdonnellii</i>	MacDonnell Ranges cycad [11843]	VU		Listed

#### 3.3.1 Weeds Management

##### Prevention in the Natural Environment

Prevention is the most effective method of dealing with weeds. Early detection and eradication are crucial to reduce its potential environmental and economic impacts. It is much easier to treat weeds when present in small numbers than when they are well established.

Early detection and eradication requires an awareness and understanding of the factors that favour the establishment and spread of weeds, and applying appropriate management practices that can prevent or reduce the risks. The spread of most weeds occurs through similar pathways, such as the movement of goods, animals and vehicles contaminated with weed seeds.

It is important to reduce the risk of the environment becoming vulnerable to invasion by exotic species by encouraging beneficial vegetation growth and by avoiding disturbance as much as possible.

Measures for weed prevention in the landscape include:

- Minimise the disturbance of desirable plants along trails, roads, and waterways.
- Maintain desired plant communities through good management.
- Monitor high-risk areas such as transportation corridors and bare ground.
- Revegetate disturbed sites with desired plants.

We need to be aware of new infestations and report potential new weeds or new outbreaks to the local council, or to the Northern Territory weed management agencies.

#### A. Objectives and targets

Implement weed control activities to reduce the chance of weed infestation by washing down vehicles before entering the tenement. The target is to enter the tenement with clean vehicles so as no seeds can contaminate the area.

#### B. Prevent the introduction and spread of weeds

Measures that will be implemented by Genesis Resources employees to prevent the introduction and limit the spread of weeds include:

- appropriate standards of hygiene with the inspection of earthmoving equipment entering site and the provision of adequate vehicle wash down facilities. The washdown area will be located on the landholder's land, but not on the Project site. Mr Steve Cadzow has given his written permission for us to use his bore water for the purpose of cleaning vehicles when entering his property, Mount Riddock Station. The washdown site will be located at Blackfellow's Bones Bore (refer Table 3: Location of Bores).

-use only established access roads to prevent further spread;

- minimise the introduction and spread of feral animals that may be further spreading weeds on or off site; and

- education and awareness of weed related matters for employees and contractors.

### c) Prioritise weed control activities

Weed control activities should be prioritised to maximise the use of the resources allocated and to take advantage of timing in relation to burning, seeding and growth periods of weed species (plant life cycle). Examples of specific factors to consider when prioritising weed control efforts for individual areas of infestation include:

- proximity to roads/tracks (e.g. infestations close to tracks get high priority);
- phase of invasion (e.g. early stages can be controlled more easily, so get high priority);
- size of infestation (e.g. smaller infestations can be controlled more easily); proximity to drainage lines/waterways (e.g. infestations close to drainage lines more likely to spread);
- susceptibility to wind dispersal as well as prevailing wind direction (e.g. weeds growing in elevated areas or weeds with light seeds more likely to disperse); and
- proximity to lease boundary (e.g. weeds close to boundary get higher priority).

### d) Outline weed control methods – How to manage the situation

Weeds can be controlled by chemical (i.e. herbicide), physical removal (i.e. hand pulling and the use of machinery), biological and/or land management (i.e. use of fire and cattle grazing) methods. Optimal methods vary from one species to another and may change over time with weed research and/or new chemical products.

### e) Other considerations

Resources to be dedicated to weed control in the following year amount to approximately \$5,000. The follow up will be undertaken by Genesis on site employees or by contractors depended on staff availability.

One week will be set aside for these activities, involving one geologist and one field hand in a 4WD vehicle. The employees will be staying at the GemTree Caravan Park.

Weed control activities will be undertaken after the wet season has finished (second quarter of the year) when it is the optimal timing of weed control.

Once weeds are controlled in an area, the area will be recolonised by locally sourced native plant stock. This will aid in reducing the degree of re-infestation from adjacent areas. Genesis will undertake active revegetation with native plant species.

## **3.4. Current Land Use**

Predominant land uses in the East Macdonnell Ranges are cattle grazing and tourism. The project area occurs within pastoral leases that are primarily used for cattle.

A Native Title Claimant Application – Mt Riddock Pastoral Lease has been lodged.

Federal Court Application No: NTD61/2015. The Application was filed on 23/09/2015. The Native Title Registrar accepted the claim application for registration on the Register of Native Title Claims on 13/11/2015.

### 3.5. Historical, Aboriginal, Heritage Sites

An Authority Certificate for Exploration Licence EL24817 was issued by the Aboriginal Areas Protection Authority (AAPA) on the 29<sup>th</sup> June 2012 (Ref: 2011/15328). A single sacred site (refer to Table 6: Details of registered sacred site, AAPA search result) was identified in the south eastern tenement block and is covered by a Restricted Work Area (RWA). No work is planned in this south eastern tenement block during 2019.

No sacred sites were identified within the north western tenement block where Genesis has proposed exploration activity during 2019.

**Table 6: Details of registered sacred site, AAPA search result**

Map Sequence	Geographical descriptions	Site status	MGA Easting	MGA Northing	Type
5851-5	An area known as Cattlewater Pass in rocky country to the north east of the Garden Pastoral lease	40	461471	7431244	Registered Sacred site

A Central Land Council (CLC) sacred site Clearance Certificate application was lodged on the 4<sup>th</sup> February 2014. CLC issued a sacred site Clearance Certificate on the 6 February 2015, SSCC No. C2014-38-B. The expiry date is the 31 December 2019.

## 4.0. ENVIRONMENTAL MANAGEMENT SYSTEM PLAN

### 4.1. Environmental Policy and Responsibilities:

The company is committed to achieving the highest performance in occupational health and safety with the aim of creating and maintaining a safe and healthy working environment throughout its work sites.

The company has set a target of zero lost time injuries for its officers and contractors engaged in exploration activities at the Alice Springs project.

Genesis have set the following targets for environmental performance:

- Avoid any disturbance of sites of cultural significance to traditional owners.
- Have 0% introduction of weed species and pests.
- Have 0% of oil spills.

- 100% of hazardous materials and dangerous goods to be removed from site within 6 months after drilling completed.
- All waste to be removed from the drilling site within 6 months.
- Rehabilitation of drill holes, drill sites and access tracks to be finalised within 6 months after completion of the drilling program to prevent erosion.
- Ensure damage to native vegetation and fauna habitat is kept to a minimal level.

Genesis Resources Ltd is responsible for all Environmental Management at the site. The person responsible for implementing safety management at the Project is the company's Exploration Manager, James Patterson.

#### **4.2. Statutory Requirements**

Current applicable legislation permits and conditions under which the project has been operated are:

- Mining Management Act,
  - Mining Management Regulations,
  - Mineral Titles Act,
  - Weeds Management Act,
  - Bushfires Act,
  - Heritage Act,
  - NT Aboriginal Sacred Sites Act,
  - Native Title Act,
  - Aboriginal Land Rights (Northern Territory) Act,
  - Environment Protection & Biodiversity Conservation Act,
  - Soil Conservation and Land Utilization Act
  - Work Health and Safety Act (National Uniform Legislation) Act 2011,
  - Radioactive Ores and Concentrates (Packaging and Transport) Act (NT),
  - Code of Practice for Safe Transport of Radioactive Materials 2001,
  - Code of Practice for Radiation Protection and Radioactive Waste Management in Mining and Mineral Processing,
  - Reporting requirements such as those for; production statistics; employment/injury and safety statistics; frequency of water quality reporting,
  - Lease conditions,
  - Authorisation conditions
- Waste Management and Pollution Control Act  
 Soil Conservation and Land Utilization Act  
 Territory Parks and Wildlife Conservation Act & the Dangerous Goods Act.

Genesis Resources Ltd also note that on 1 July 2011, new Plant Health Regulations were introduced into the NT due to the quarantine risk posed to the NT with the movement of machinery and equipment.

### 4.3. Non-Statutory Requirements

A Sacred Site Clearance Certificate was issued on the 6 February 2015, SSCC No. C2014-38-B.

Genesis were advised by the National Native Title Tribunal on the 8 December 2015 of a Claimant Application – Mt Riddock Pastoral Lease. Federal Court Application No: NTD61/2015 The Application was filed on 23/09/2015. The Native Title Registrar accepted the claim application for registration on the Register of Native Title Claims on 13/11/2015.

Genesis will fulfil its obligations to follow Environmental Management Plans for the project and maintain communication with relevant stakeholders during the life of the exploration project.

### 4.4. Identified Stakeholders and Consultations

#### 4.4.1. Identified Stakeholders

Genesis Resources Limited, NT WorkSafe, Northern Territory Department of Primary Industry and Resources, Central Land Council as Native Title Representative under the Native Title Act and pastoral leases landowner. Refer to Table 7: Pastoral lease landowner details.

**Table 7: Pastoral leases landowner details**

NT Protion / Section No	Property name	Name of owners	Address/email/phone
2453 / PPL 989	Mount Riddock	Steven Cadzow Family Trust (Steven Cadzow)	PMB 43, Alice Springs, NT 0871
724 / PPL 1124	Ambalindum	Hewitt Cattle Australia	Craig Young – General Manager Cattle Mort and Maurita Preston– Station Manager

#### 4.4.2. Consultation

The traditional aboriginal owners and the managers of the effected pastoral leases will be consulted and fully informed of the company’s exploration activities and its rehabilitation and environmental process.

Contact will be made via phone or face to face with managers of pastoral leases regularly to update on the program and notify them of any change to circumstances.

At least two days prior to commencing drilling the company will notify NRETAS Water Advisory and Regulatory Officer (wateradvisorysouth@nt.gov.au or ph: 08 8951 9215).

Genesis Resoucrs Ltd are aware that this is not a requirement under the *Mining Management Act*. It is a requirement for water well drilling under the *Water Act*.

No drilling of water bores is planned.



## **4.5. Induction and Training**

Genesis are aware that as the operator we take full responsibility for all environmental and safety management on site.

The company has in place a generic induction process which can be adapted (or altered) to suit specific project needs. For the Project, the initial induction process would focus on remote area safety, vehicle safety and drill rig safety.

Standard operating procedures and inductions are in place for the following:

- Field communication & search and rescue;
- Emergency evacuation procedure and
- Vehicle induction

Various consultants will be employed and the company will ensure that they will provide their safety procedures. An induction to drill rig safety is always conducted at the commencement of a drill program and generally delivered by the rig supervisor or the most senior drill operator. All site personnel are required to participate in an induction before commencing work.

Environmental topics to be covered in induction include but are not limited to: Threatened plants and animals (identification, actions, responsibilities), weeds (identification, responsibilities), erosion minimisation, vegetation clearing minimisation techniques, emergency responses to spills or accidents, hazardous substances, location of first aid, fire extinguishers, bush fire safety, stop work events such as heavy rain, sacred sites, health and safety topics such as heat stress, dehydration and fatigue.

Appropriate manuals and training will be provided where required.

Identification, assessment, management and control of risks will be the subject of daily toolbox meetings between all site personnel. The results of these discussions will be passed to the Operator.

The contractor supervisor, to ensure risk minimisation, will conduct audits of sites of potential hazards daily.

All contractors will have to demonstrate they are aware of their company's safety and environmental procedures and all visitors to the site will be escorted and will wear appropriate personal protective equipment.

A Standard Operating Procedure (Emergency Evacuation Procedure) is in place for a medical emergency.

## **4.6. Identification of environmental aspects and impacts**

Refer to Table 8 for the Environmental aspects and impacts related to proposed exploration activities at the Alice Springs Project.

**Table 8: Environmental aspects and impacts related to proposed exploration activities.**

<b>Aspect</b>	<b>Impact</b>	<b>Risk Rating</b>
Clearing of tracks / drill pads / digging of sumps	Damage to native vegetation and fauna habitat Erosion of soil and increased sedimentation in watercourses Disturbance of cultural heritage sites.	Moderate
Mobilisation to site and driving between drill sites	Spread of weeds / pests Compaction of soil.	Low
Drilling	Hydrocarbon spills – contamination of soil, surface and ground water Intersection of confined aquifers Dust and noise emission – pollution and disturbance to fauna Intersection of naturally occurring radioactive minerals	Low

#### **4.6.1 Erosion and Sediment Control**

Clearing of access tracks and drill pads has the potential to damage vegetation and fauna habitats and cause erosion and compaction of soil.

- Drill pads and tracks will be prepared and cleared with a minimum of disturbance to the environment and rehabilitated to promote rapid re-vegetation and prevent erosion.
- The routes of access tracks and locations of drill pads will be chosen to avoid areas of dense vegetation and to minimise tree clearing. Track routes will be chosen after consultation with the landholder.
- Clearing will not occur within 25m of a creek or drainage line.
- Wherever possible track routes and drill pads will be sited so as to avoid steep slopes.
- When establishing tracks blade work will be kept to a minimum and as much as possible the “blade up’ method used to avoid removal of rootstock and top soil and to promote regrowth.
- Tracks and drill pads will be formed so as not to block natural drainage lines. Creek crossings will maintain the form of the natural bed of the creek. “Gully plug” material will not be used to create crossings.
- Tracks will be kept to the minimum width required for the drill rig. The formation of windrows on the track sides will be avoided as these can channel surface water flow causing serious erosion. Any windrows will be back bladed as part of site rehabilitation.
- In the event of a storm where a large amount of rain falls, vehicle movement and drilling will cease as the area will be very susceptible to compaction and erosion at this time. Drilling will only recommence when the soil has dried sufficiently to support vehicles.
- Drill pads will be sited to avoid the need for excavation if possible. If excavation is required to level a drill pad then top soil will be stockpiled for re-spreading during

rehabilitation. Any excavated material will be reformed to as close to the original land surface as possible during rehabilitation.

- Drill collars will be sited so that no drilling occurs within 25m of the bank of a creek or drainage line.
- Drill sumps will be located on the downslope side of drill pads and will be lined. Sumps will be sited at least 25m from creeks or drainage lines and so that no overflow occurs within the 25m buffer zone. Sumps will be sited away from the drip lines of any trees where possible to avoid damage to the root zone. Sumps will be dug with a slope to allow fauna to escape. On completion of drilling sumps will be allowed to dry, the lining removed and disposed of. Sumps will be backfilled and capped with at least 1m of clean, compacted soil.
- During rehabilitation of drill sites, drill samples will be emptied from their plastic bags either into the drill hole or dry sump. Sample bags will be removed from site and disposed in an approved manner after receipt of assay results.
- If drill pads or access tracks become compacted they will be ripped along contour to loosen soil during rehabilitation.

#### **4.6.2 Cultural Heritage Sites**

An Authority Certificate for Exploration Licence EL24817 was issued by the Aboriginal Areas Protection Authority (AAPA) on the 29<sup>th</sup> June 2012.

A Central Land Council (CLC) Sacred Site Clearance Certificate was issued on the 6 February 2015. SSCC No. C2014-38-B

No sacred archaeological, cultural or sacred sites were identified in the north western tenement block that is the proposed area of exploration. However if during the course of exploration activity, Genesis Resources identifies any previously unknown archaeological or historical site or object or any unknown sacred site or object, then all work within a 100m radius of that area will cease immediately and the location of the site will be reported to both the CLC and AAPA.

#### **4.6.3 Water Management**

Water for industrial use (e.g. drill hole clearing or dust suppression) will be carried on the drill rig or support vehicles. Industrial water will be sourced from Blackfellow's Bones Bore on the Mt Riddock pastoral lease which is not within the boundary of the exploration licence. Mr Steven Cadzow has approved the use of bores via email on the 19 March 2015. Drinking water will be sourced from the Gemtree Caravan Park.

Drill holes will be collared with PVC to prevent washout.

If groundwater from a single unconfined aquifer is encountered it will be channelled from the drill collar into the lined sump. Sumps will be sited so that any over flow will remain at least 25m from the banks of creeks or drainage lines.

When rehabilitating the hole, casing will be cut at a minimum depth of 0.4m below ground. If possible drill samples will be backfilled into the hole. A concrete hole plug will be placed above

the remaining casing. Compacted soil will be back filled over the hole and mounded to allow for subsidence and to prevent rainwater entering the hole.

If two or more confined aquifers are intersected the hole will be grouted and sealed to prevent water flow between aquifers. Grout plugs will be placed between aquifers and the overlying confining beds. Grout plugs will be of at least 4m thickness with 2m above and below the interface of the aquifers. The hole will then be plugged and backfilled at surface as outlined above.

#### **4.6.4 Radiation Management**

The primary focus of Genesis Resources exploration program for 2018 is copper – gold mineralisation. It is not considered likely that radioactive minerals and elements (uranium and thorium) will be intersected during the proposed RC program. Thorium occurs as a constituent of rare earth elements, monazite and zircon. There are no known occurrences of radioactive minerals within the Licence area and previous surface geochemical sampling has not returned anomalous results for radioactive minerals or elements.

However to control potential risks from naturally occurring radioactive minerals to people and the environment during drilling the following procedures will be implemented.

- Use of appropriate PPE including safety glasses, dust masks, full length clothing and gloves to minimise contact with samples. Waste PPE will be bagged and disposed of the Gemtree or Alice Springs landfill.
- Washing of hands before eating or smoking.
- Showering and change of clothing at the end of shift. Clothes to be regularly laundered.
- Use of a dust suppression system on the drill rig.
- Regular cleaning of machinery where significant build-up of mud or dust occurs. This will occur on site and this material to be contained within the lined drill sump. Equipment will also be cleaned prior to demobilisation from the work site. The drill sump will be allowed to dry and covered with at least 1m of compacted, clean soil.
- RC bulk drill samples will be bagged and stored on site until assay results are received. There is no authorised public access to the proposed areas of drilling. After assay results are received the bulk samples will be emptied from their bags into the drill hole or dry sump and covered with at least 1m of compacted clean soil. Empty sample bags will be disposed of in the Gemtree or Alice Springs landfill.
- Any groundwater encountered during drilling will be channelled into and contained within sumps at the drill site. Sumps will be site at least 25m from creeks or drainage lines and also so that any overflow will also be outside the 25m buffer zone. Sumps will be lined, water will be allowed to evaporate and the sump covered with at least 1m of compacted soil. The sump lining will be removed prior to back filling and disposed of in the Alice Springs landfill.

#### **4.6.5 Hazardous Materials and Dangerous Goods**

The substances and materials tabled below are those that will be used during the RC drilling program. The hazard and danger rating classifications are those given by the National

Occupational Health and Safety Commission (NOHSC) and the Australian Dangerous Goods Code (ADGC). Refer to Table 9: Identified Hazardous Materials and Dangerous Goods.

**Table 9: Identified Hazardous Materials and Dangerous Goods**

Substance/Material	NOHSC Hazard Rating	Dangerous Goods Rating	Comments
Diesel	Hazardous	Non dangerous	
Engine oil	Non - hazardous	Non dangerous	
Hydraulic oil	Non - hazardous	Non dangerous	
Liqui-pol	Non - hazardous	Non dangerous	Viscosifier
Superfoam	Non - hazardous	Non dangerous	Bio-degradable surfactant

No hazardous substances will be stored on site.

Diesel for re-fueling the drill rig will be carried in metal tanks or drums on a support vehicle. A manual or electric fuel pump and hose will be used to transfer fuel.

Engine oil, hydraulic oil and drilling fluids (Liqui-pol and Superfoam) will be carried on a support vehicle in 20 litre plastic or metal containers. No hazardous substances will be stored on site.

Support vehicles and light vehicles will be refueled from the public fuel stations at Gemtree Caravan Park or Alice Springs.

#### **4.6.6 Spills Management**

Spillage of hydrocarbons such as diesel, engine and hydraulic oils has the potential to contaminate soils and drainages.

To prevent such contamination the following procedures will be used.

- All vehicles to be serviced prior to commencement of the drilling program to minimise risk of hydrocarbon leaks. A high standard of vehicle maintenance will also be enforced during the course of the drilling program with any leaks to be repaired immediately.
- Use of plastic sheeting beneath drill rig and compressor to catch any fuel or oil spillages. This plastic sheeting will be disposed of at the Alice Springs waste facility.
- Any spills of hazardous substances will be cleaned up immediately. Spills will not be cleaned using water or sweeping which may allow contaminants to enter the natural drainage and groundwater.
- Any spills will be contained and absorbed with earth, sand or vermiculite. Contaminated soil will be shovelled into plastic bags or containers which will be sealed and clearly labelled for disposal. Contaminated soil will be disposed of at the Alice Springs waste facility.

#### **4.6.7 Waste Management**

All waste materials will be removed from site including all hydrocarbons, solid waste and food waste. Waste material will not be stored on site.

Solid waste (used PPE, empty plastic bags and containers) and food waste will be contained in plastic bags and removed to the waste facility at the Gemtree Caravan Park on a daily basis.

All plastic sample bags will be emptied and removed from site to be disposed of at the Alice Springs waste facility after completion of the drilling program.

All plastic sump linings will also be removed and disposed of at the Alice Springs waste facility at the end of the drilling program.

Hydrocarbon waste including used engine oil and hydraulic oils will be contained in metal or plastic containers and will be removed from site to the Alice Springs waste facility.

#### **4.6.8 Noise and Air Quality Management**

All drill pads are situated in areas well removed from dwellings and are not accessible to the public.

A dust suppression system will be fitted to the drill rig. If required industrial water sourced from Blackfellow's Bones Bore and carried on the rig or support vehicle will be hand sprayed over the drill pad area and sample area for dust suppression.

### **4.7. Emergency procedure and incident reporting**

#### **4.7.1. Emergency Procedures**

Part of the induction program will identify the method of contact for the Alice Springs Hospital and the person in charge will ensure that there is a method of contact via phone (satellite if necessary) and any evacuation procedures recommended. Refer to Table 10: Emergency Contacts.

**Table 10: Emergency Contacts**

<b>POLICE STATIONS</b>	<b>ADDRESS</b>	<b>PHONE</b>
Harts Range Police	Plenty Highway, Alice Springs NT 0872	(08) 8956 9772
Alice Springs Police Station	Parsons Street, Alice Springs NT 0870	(08) 8951 8822
Tennant Creek Police Station	Paterson Street, Tennant Creek NT 0860	(08) 8962 4444
<b>EMERGENCY</b>		
Alice Springs Fire Station	Lot 7728 Telegraph Tce	(08) 8951 6688
Alice Springs Hospital	Gap Road, AS 0870	(08) 8951 7777
Alice Springs RFDS	8-10 Stuart Tce, AS NT 8870	(08) 8952 1033

A comprehensive first aid kit will be available onsite and site personnel will be shown its location.

A muster point will be identified in the induction program to be used in the event of an emergency. The warden for such emergencies will be the most senior person on site.

A fire extinguisher and water pump and trailer will be available at the site if necessary. The induction program will make all staff aware of responsibilities and procedures in preventing and surviving bush fires.

#### **4.7.2. Incident Reporting**

In the case of an environmental incident (an unplanned event) that causes environmental harm, it will be dealt with immediate containment and, if necessary, an environmental consultant will be contacted.

A new requirement of The Department of Primary Industry and Resources is that all environmental incidents are to be recorded in a site register and reported to the Chief Executive Officer of the Department of Primary Industry and Resources pursuant to Section 29 of the *Mining Management Act*, regardless of its severity class.

If we give notice orally, we will provide written notice to the Chief Executive Officer no later than 48 hours after the event.

Genesis understands that when assessing an incident and making decisions about reporting on an environmental incident or serious environmental incident, we should have regard to the definition of “environment” in the MMA.

“Environment” is defined under section 4 of the MMA as follows:

*land, air, water, organisms and ecosystems on a mining site and includes:*

- (a) the well-being of humans;*
- (b) structures made or modified by humans;*
- (c) the amenity values of the site; and economic, cultural and social conditions*

Incidents that require reporting are:

- (a) Escape (by any means such as a spill or leak) of a fuel, chemical, product or residue in solid, liquid or gaseous form including fumes, smoke, vapours, contaminated water, or dust;
- (b) Emissions of noise (beyond reasonable permitted levels);
- (c) Uncontrolled or accidental fire on any land, structure or infrastructure;
- (d) Unauthorised, uncontrolled, or both, discharge of controlled waters to surface or ground waters;
- (e) Damage to a Sacred Site, Aboriginal Protected Area, other protected area, archaeological or heritage site;
- (f) Unauthorised mining, whether the activity is undertaken on or off an authorised mining site;
- (g) Unauthorised clearing of vegetation or disturbance of the ground on or off an authorised mining site; and,
- (h) Harm to human well-being.

All environmental incidents are included within a monthly technical report. These reports also document the nature of any "substantial disturbance" including any rehabilitation works.

#### **4.8. Environmental Audits and Inspections**

No environmental audit or inspection has been undertaken to date as there has been no exploration that has impacted on the environment (only soil and rock chip sampling, an electronic survey (XTEM) and an aeromagnetic survey).

Environmental audits will be carried out by Genesis Resources. Inspection of access tracks, drill pads, sumps and the weed washdown area will be undertaken within six months and/or at the end of the following wet season to ensure that no erosion, hole failures or weed growth has occurred. Remediation will be undertaken at inspection if necessary.

Photographs of the site will be taken before track and drill site clearance, during the process and after rehabilitation as proof of minimal impact and to monitor the progress of re-vegetation. If Genesis personnel are unavailable, Low Ecological Services will be engaged to carry out inspections. Low Ecological Services (08) 8955 5222 is a Northern Territory business based in Alice Springs, directed by Bill Low, who has been working in environmental management and research in Central Australia for over 40 years. They have a detailed working knowledge of central Australian flora, fauna, landscape, soils, geology and environmental remediation.

No environmental audit or inspection has been undertaken to date.

#### **4.9. Environmental performance reporting**

Genesis Resources' goal is to prevent incidents that impact people, wildlife and the environment. When they do occur, we are committed to transparent reporting.



Genesis will, at all times, operate its facilities in compliance with applicable laws and regulations and will adopt and adhere to standards that are protective of both human health and the environment.

The Alice Springs Project, in addition to its mineral resources, is an area rich in other natural resources and plant and animal species, and we are committed to conserving and protecting biological diversity and ecosystem service.

Genesis will establish an audit program to systematically evaluate compliance of operating facilities with applicable federal, state, and local rules and regulations.

Each employee (including contractors) will be held accountable for ensuring that those employees, equipment, facilities and resources within his or her area of responsibility are managed to comply with this policy, and to minimize environmental risk.

As above, as no work has commenced to date that affects the environment, there is nothing to report at this time.

Factors for consideration for MMP update in the future:

- ♣ Results of monitoring programs will be presented e.g. water, noise, dust, weeds etc
- ♣ Pollution and waste management and minimisation progress
- ♣ Progress made against environmental targets
- ♣ Progress towards achieving re-vegetation and closure objectives

#### **4.9.1. Biological Management**

Training of site personnel about threatened flora and fauna at induction prior to drill commencement and track clearance will assist in reducing risk.

Vegetation clearance and soil disturbance will be minimised by using blade up techniques, only clearing tracks to a blade width of approximately 4m, diverting around large trees and driving on established tracks where possible.

Fauna will not be harassed during the exploration program. Induction of staff will discuss vulnerable species that potentially occur in the area so that any impact can be avoided. Vulnerable species are only likely to occur during wet periods when fauna are exploring for new country. During these periods staff will be extra vigilant and report any sightings to Parks and Wildlife.

Feral species will not be brought to site. No feeding of wildlife will be permitted on site. Weeds species will not be brought to site. Care will be taken with any wildlife noticed and a record will be kept of the species noted.

Genesis will minimise environmental impacts from weeds in the proposed drill area by cleaning vehicles and machinery at Blackfellow's Bones Bore before entering the site and before leaving washing or air hosing vehicles down.

Site personnel will endeavour to drive on established tracks as much as possible to minimise soil disturbance where weeds are prone to establish and to avoid weed seed distribution.

Staff and contractors will report any Weeds of National Significance found in the exploration zone to the Department of Land Resource Management (DLRM). Staff will remove weeds of lower impact during and after drill exploration using appropriate and effective methods which can be found in the Greening Australia Field Guide or from DLRM <http://www.lrm.nt.gov.au/weeds>.

## 5.0. EXPLORATION REHABILITATION

**Table 11: Summary of exploration rehabilitation plan**

<b>Disturbance</b>	<b>Rehabilitation Activities</b>	<b>Schedule</b>	<b>Closure Objective / Targets</b>	<b>Monitoring and Remediation</b>
<b>Drill holes</b>	Plugging with concrete plug below ground level, backfilling, and mounding	At the completion of each hole	All holes plugged and stable prior to end of program	Monitoring at the end of wet season, Remediation at inspection if necessary
<b>Drill pads</b>	fill with soil and level	After the completion of the drill program	Scarification, cover with top soil	Monitoring at the end of wet season, Remediation at inspection if necessary
<b>Sumps</b>	Refilled with soil	After the completion of the drill program	replace topsoil and scarification	Monitoring at the end of wet season, Remediation at inspection if necessary
<b>Costeans</b>	N/A			
<b>Bulk sample pits</b>	NA			
<b>Tracks / Gridlines</b>	Rehabilitated	After the completion of the drill program	All tracks will be closed, replace topsoil and scarification	Monitoring at the end of wet season, Remediation at inspection if necessary
<b>Sample bags</b>	Removed from site	At the completion of the program	Remove to approved dump site	
<b>Camp</b>	NA			

### 5.1. Costing Of Closure Activities

The following assumptions have been for the Security Calculation.

- 10 line kms of new tracks will be constructed to provide safe drill access; and
- **21 holes** will be drilled to test targets generated by exploration activities.

## 6.0. Performance Objectives

- Successfully complete exploration drilling program and possible follow up reconnaissance mapping with minimal environmental impact.
- Zero lost time injuries by implementing and maintaining best practice in occupational health and safety.
- Avoid any disturbance of sites of cultural significance to traditional owners.
- To have minimal, preferably zero impact on the environment.
- Have 0% introduction of weed species and pests.
- Have 0% of oil spills.
- 100% of hazardous materials and dangerous goods to be removed from site within 6 months after drilling completed.
- All waste to be removed from the drilling site within 6 months.
- Rehabilitation of drill holes, drill sites and access tracks to be finalised within 6 months after completion of the drilling program to prevent erosion. This will be monitored during 2020.
- Ensure damage to native vegetation and fauna habitat is kept to a minimal level.
- Advance Genesis Resources staff knowledge-awareness of Indigenous cultural and heritage values through structured programs.
- Genesis's Exploration Manager James Patterson is the person responsible for ensuring the performance objectives are completed.