

# 2016

# **MINING MANAGEMENT PLAN**

# FOR

# **CHARLEY CREEK PROJECT**

# ELs 24281 25230 25657 27283 27358 27359 28154 28155 28224 28226 28434 28795 28796 28866 29789 29853 30058 30486 30487

Authorisation 0483-03 Variation 5

Compiled by P Melville Geologist Crossland Strategic Metals Limited 24 May 2016 Revised and forwarded 31 August 2016, 7 November 2016, 8 December 2016.

Signed:

Authorised Officer 8 December 2016

# **Table of Contents**

AMENDMENTS	2
1.0 OPERATOR DETAILS	3
1.1 ORGANISATIONAL STRUCTURE / CHART	4
1.2 WORKFORCE	5
2.0 PROJECT DETAILS	5
2.1 Map of Site Location and Layout	6
2.2 HISTORY OF DEVELOPMENT AND CURRENT STATUS	6
2.2 PROPOSED ACTIVITIES	
3.0 CURRENT PROJECT SITE CONDITIONS	20
4.0 ENVIRONMENTAL MANAGEMENT SYSTEM / PLAN	23
4.1 ENVIRONMENTAL POLICY AND RESPONSIBILITIES	23
4.2 STATUTORY REQUIREMENTS	
4.3 NON-STATUTORY REQUIREMENTS	
4.4 IDENTIFIED STAKEHOLDERS AND CONSULTATION	24
4.5 INDUCTION AND TRAINING	27
4.6 IDENTIFICATION OF ENVIRONMENTAL ASPECTS AND IMPACTS	
4.7 EMERGENCY PROCEDURES AND INCIDENT REPORTING	
4.8 ENVIRONMENTAL AUDITS AND INSPECTIONS	31
4.9 ENVIRONMENTAL PERFORMANCE REPORTING	
4.9.1 Water Management	
4.9.2 Invasive Species Management	
4.9.3 Flora and Fauna Management	
4.9.4 Waste Management	
4.9.5 Noise and Air Quality Management	
4.9.6 Culture and Heritage Management	
4.9.7 Kenabilitation and Environmental Performance	
4.0 IABLE: EXPLORATION REHABILITATION 2008 to 2016	
5.0 COSTING OF CLOSURE ACTIVITIES	36
6.0 PERFORMANCE OBJECTIVES	36

## AMENDMENTS

Section	Amendment
Section 2.0 Project Details	Surrender of EL 27284, 4 February 2016
	New JV Partner : Essential Mining Resources Pty Ltd (EMR)
	Transfer of EL25657 to Crossland Nickel Pty Ltd and Essential Mining
	Resources Pty Ltd. WDR Base Metals Pty Ltd (in receivership) retains
	20% interest
	Since the due date of this MMP (27 may 2016) a further two ELs have
	Been surrendered : EL28964 and EL28965 on 25 July 2016
Sections 2 and 4	Updated 7 November 2016 in accord with request of 6 October 2016
Various Sections as per	
Compliance request 24 November	Updated 8 December. Inclusion of further activities involving excavation
re. amended work program for	of 13 small test pits for sample collection
2017	

#### **1.0 OPERATOR DETAILS**

Operator Name:	Crossland Strategic Metals Limited (Crossland)
Key Contact Person/s:	Eric Vesel- Executive Director/ CEO
Postal Address:	Suite 6, 61 Robinson St. Dandenong VIC 3175
Street Address:	Level 2, 470 Collins Street, Melbourne VIC 3000, AUSTRALIA
Phone:	+60199887931, +61407007371
Fax:	+61 3 9867 8587
Email:	asxcux@gmail.com, vesel.eric@gmail.com

	Author	Reviewed by	Approved by
Date	8 December 2016	8 December 2016	8 December 2016
Name	P. Melville	Eric Vesel	Eric Vesel
Signature	P Mehnth	- The second	- The second sec

I ..... Eric Vesel, Chief Executive Officer and 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.

50 SIGNATURE:

DATE: 8 December 2016



### **1.2 WORKFORCE**

It is anticipated that the Crossland workforce will consist of the Project Geologist and two field assistants. Senior Crossland and JV personnel will be on-site from time to time. Contractors expected to be on-site will be a crew involving an Excavator and Truck (first half of 2017) and, in the second half of the year, a drilling crew for approximately 4 to 5 weeks. All personnel are normally accommodated off-site. The drill crew might establish a camp close to their area of operations.

#### 2.0 PROJECT DETAILS

Project Name:	Charley Creek
Location:	The Charley Creek project area is centred approximately 100 km WNW of Alice Springs. The pastoral leases on which the tenements are located are Amburla, Bond Springs, Derwent, Hamilton Downs, Napperby and Narwietooma. The southern boundary of the project area borders the West MacDonnell National Park.
Site Access:	Tenements are accessed via station roads and tracks from the Tanami Highway and Papunya Road
Mining Interests	ELs 24281 25230 25657 27283 27358 27359 28154 28155 28224 28226 28434 28795 28796 28866 29789 29853 30058 30486 and 30487
Title holder/s:	Title Holders : Crossland Nickel Pty Ltd. – ELs 24281, 25230, 27283, 27358, 27359, 28154, 28155, 28224, 28226 30486 and 30487 Crossland Nickel Pty Ltd/ Essential Mining Resources Pty Ltd. – ELs 28434, 28795, 28796, 28866, 29789 29853 and 30058 EL 25657 was transferred to Crossland and its partner EMR. Western Desert Base Metals P/L, a subsidiary of Western Desert Resources (in receivership) retains a 20% interest Operator: All licenses Crossland Strategic Metals Limited.

### 2.1 Map of Site Location and Layout



Figure 1 Current Exploration Licences Charley Creek Project (November 2016)

### 2.2 HISTORY OF DEVELOPMENT AND CURRENT STATUS

#### **Historical Mining/Exploration**

The district has not been intensively explored for minerals. The 1970s saw some regional investigations targeting sedimentary uranium by several junior companies as well as by some larger entities, such as Conzinc Rio Tinto Australia Exploration (CRAE) / Rio Tinto Exploration P/L. Alcoa also conducted some exploration for uranium. CRAE / Rio Tinto also explored the Mount Hay Complex for Platinum Group Elements (PGE) / nickel-copper in the 1970's and again in the mid-late 1990's.

Esso targeted the Teapot Granite for uranium in the late 1970s. Airborne surveys showed that the granite was anomalously radioactive in both U and Th.

The two licenses that formed Crossland's original project area are EL 24281, which was granted on the 7th of February 2005 and EL 25230 granted on November 15, 2006.

Crossland greatly expanded its landholdings in the region from 2010 following the discovery of significant concentrations of alluvial REE (Rare Earth Elements). As of March 31st 2016, the project comprises 21 granted licenses. Crossland's license package now covers approximately 7000 km<sup>2</sup>, across a distance of 200 km east to west.

Exploration activities by Crossland commenced in 2005 with a first pass reconnaissance survey. As part of the next phase of exploration following the granting of EL 25230, the company undertook an airborne Radiometric and Magnetic survey in two phases between August and December 2007 and January 2008. For the 2008 season, an aircore drilling programme was completed on ELs 24281 and 25230 and several months were spent conducting regional radiometric prospecting, geological mapping and rock sampling within EL 25230. The latter activities increased in intensity and continued throughout 2009 and 2010.

In 2010 a regional diamond drilling programme was undertaken on the Teapot Granite within EL 25230 and an airborne Magnetics-Radiometrics survey was completed on EL 27283. The aim of the drilling was to determine the uranium potential of the granite.

The Rare Earth potential of the region was realised in 2010 and exploration activities for these commodities commenced in the latter part of that year. Both a regional stream sediment sampling programme and sampling of sub-surface alluvium deposits involving the use of a portable hand-held motorised auger were carried out.

Activities for the 2011 season concentrated solely on the alluvial rare earth potential and included an Air Core drilling programme, which was originally proposed for 2010. As in 2008, the drilling was carried out utilising a modified Toyota Land Cruiser with a tray-mounted drill rig, and was concentrated almost exclusively within EL 25230. Drilling planned for other parts of the project area did not eventuate.

In 2012 exploration activities included Air Core drilling and the collection of alluvium samples. A total of 98 holes were drilled. Existing access was used for the programme. Ten locations were selected for the collection of alluvium samples; this was carried out using pick and shovel. An airborne radiometric-magnetic survey was flown late 2012 and early 2013 to cover ELs 27358 (part), 28154, 28155 and 25657.

Between November 2013 and January 2014 aircore drilling was completed within ELs 24281, 25230, 25657, 27283, 27358, and 29853. A total of 148 holes totalling 2070.5 metres were completed. There has been no further disturbance work completed on the project site to date (December 2016).

Environmental and pre-feasibility Scoping Studies for the project commenced in November 2012. The environmental studies, carried out by GHD Consultants were completed in early 2014. The environmental work centred on the gathering of baseline flora/fauna and hydrology data for the eventual production of a preliminary EIS document. The Scoping Study document was compiled by MSP Engineering; that study dealt principally with the costing analysis of the project, which included the mining, concentrating and metallurgical aspects of the project. In addition, meetings were held with senior officers of NRITAS in Alice Springs to discuss the likely impact of Crossland's activities upon Sites of Botanical Significance at the request of NTDME and NTEPA. NRITAS did not express any concerns with the planned activities of the exploration programme.

In September 2013, GHD released two draft reports to Crossland covering their surveys and studies on the Flora and Fauna of the project area. Also, during September 2013 a specialized survey targeting the Slaters Skink (*Egernia slateri*) was undertaken over a period of 5 days. Copies of these reports have been provided to DME.

Rehabilitation of the 2013-2014 programme drill sites was completed in March 2014 and a photo database was forwarded to Compliance. It has been noted that there were concerns by DME relating to the condition of several drill hole collars, although these collars were rehabilitated as depicted in photos.

Another site inspection was made by DME in March 2016. Certain minor matters were raised which have been rectified using hand held tools by Crossland's on-site personnel. A report on these activities and future monitoring plans is in preparation. Repairs were hampered due to surface water following heavy winter rains. Following a further communication from Compliance in October 2016, further inspections of the subject sites has taken place since – and photographs taken.

Any on-going rehabilitation areas and future substantial disturbance will be rehabilitated and monitored. Additional monitoring will be carried out after periods of prolonged heavy rains.

## Table 1. All Drilling and Associated Activities 2008-2015 Inclusive

Mining Interests (i.e. titles)	EL24281	EL25230	EL27358	EL28155
Number of holes drilled - Diamond core	None	15	0	0
Number of holes drilled – Air Core	86 #	936	30	14
Number of holes drilled – Auger (Bobcat mounted)	0	65	0	0
Maximum depth of holes (m) – Diamond core	n/a	186.5	n/a	n/a
Maximum depth of holes (m) – Air Core	106	129	30	6
Maximum depth of holes (m) – Auger	n/a	9 (av. 2)	n/a	n/a
Number of drill pads cleared (Length: 50 x Width: 50 m)	n/a	15 (3.75ha)	n/a	n/a
Number of sumps cleared (Length: 3 x Width: 2 x Depth: 1.5 m)	n/a	28 (0.034 ha)*	n/a	n/a
Length of track cleared (Kilometres: x Width: m)	n/a	8.5 x 3	n/a	n/a
Length of track driven /stick raked (Not cleared or "prepared"). (Kilometres: x Width: m)	2.6 x 3	127 x 3	1.6 x 3	All holes on existing access
Number of costeans excavated (Length: x Width: x Depth: m)	n/a	n/a	None	None
Total sites where large sample collected – no excavations. (Length: x Width: x Depth: m)	None	10 sites**	None	None
Camp area/s cleared (hectares)	None	Two camps x 0.5 ha each (no clearing)	None	None
Total area substantial disturbance (hectares)	None	6.334 ha	None	None
Total area driven/stick-raked (hectares)	1.58 ha	38.1 ha	0.48 ha	n/a
Drill holes capped / plugged /backfilled	82	931	21	14
Total area requiring rehabilitation (hectares)	None	None	None	n/a

# Original EL

\*Some sites had two shallow sumps

\*\*Surficial scrapes with hand implements

Mining Interests (i.e. titles)	EL28434	EL25657	EL27283	29853
Number of holes drilled - Diamond core	None	None	None	None
Number of holes drilled – Air Core	41	38	9	4
Number of holes drilled – Auger (Bobcat mounted)	None	None	None	None
Maximum depth of holes (m) – Diamond core	n/a	n/a	n/a	n/a
Maximum depth of holes (m) – Air Core	20	28	73.3	60
Maximum depth of holes (m) – Auger	n/a	n/a	n/a	n/a
Number of drill pads cleared (Length: 50 x Width: 50 m)	n/a	n/a	n/a	n/a
Number of sumps cleared (Length: 3 x Width: 2 x Depth: 1.5 m)	n/a	n/a	n/a	n/a
Length of track cleared (Kilometres: x Width: m)	n/a	n/a	n/a	n/a
Length of track driven /stick raked (Not cleared or "prepared"). (Kilometres: x Width: m)	All Holes on existing track	18.8 x 3	All Holes on existing track	4.1 x 3
Number of costeans excavated (Length: x Width: x Depth: m)	n/a	n/a	n/a	n/a
Total sites where large sample collected – no excavations. (Length: x Width: x Depth: m)	None	None	None	None
Camp area/s cleared (hectares)	None	None	None	None
Total area substantial disturbance (hectares)	None	None	None	None
Total area driven/stick- raked (hectares)	None	5.64 ha	None	1.23
Drill holes capped / plugged /backfilled	41	38	9	4
Total area requiring rehabilitation (hectares)	None	None	None	None

# Table 1 (cont). All Drilling Activities 2008-2015 Inclusive

## **2.2 PROPOSED ACTIVITIES**

# Table 2. 2017 Planned Activities : Aircore Resource Drilling

Mining Interests	EL25230	EL25657	EL27283	EL27358
What time of the year will exploration occur?	August-Sept	August-Sept	August-Sept	August-Sept
How long is exploration expected to occur?	4 days	1 day	1 day	1 day
Type of drilling (i.e. RAB, RC, Diamond, Air Core)	Aircore	Aircore	Aircore	Aircore
Target commodity	REE	REE	REE	REE
Is drilling likely to encounter radioactive material?	No	No	No	No
Number of proposed drill holes (preliminary)	40	5	10	15
Planned maximum depth of holes (m)	12	12	12	12
Number of drill pads.	None	None	None	None
Is drilling likely to encounter groundwater? (Y, N, unsure)	Ν	Ν	Ν	Ν
Number of sumps	None	None	None	None
Length of line / track clearing (Kilometres: Width: 3.0 m)	Use existing access - station tracks / fencelines	Use existing access - station tracks / fencelines	Use existing access - station tracks / fencelines	Use existing access - station tracks / fencelines
Will topsoil be removed for rehabilitation purposes?	No	No	No	No
Previous disturbance yet to be rehabilitated on title (ha) if known	None	None	None	None
Camp(Length: x Width: m)	n/a	n/a	n/a	n/a
Total area to be disturbed (ha)	none	none	none	none
Other:				

Mining Interests	EL28155	EL28224	EL28434	EL30487
What time of the year will exploration occur?	August-Sept	August-Sept	August-Sept	August-Sept
How long is exploration expected to occur?	1 day	1 day	1 day	2 days
Type of drilling (i.e. RAB, RC, Diamond, Air Core)	Aircore	Aircore	Aircore	Aircore
Target commodity	REE	REE	REE	REE
Is drilling likely to encounter radioactive material?	No	No	No	No
Number of proposed drill holes	4	8	6	10
Planned maximum depth of holes (m)	12	12	12	12
Number of drill pads.	None	None	None	None
Is drilling likely to encounter groundwater? (Y, N, unsure)	N	Ν	Ν	Ν
Number of sumps	None	None	None	None
Length of line / track clearing (Kilometres: Width: 3.0 m)	Use existing access - station tracks / fencelines	Use existing access - station tracks / fencelines	Use existing access - station tracks / fencelines	Use existing access - station tracks / fencelines
Will topsoil be removed for rehabilitation purposes?	No	No	No	No
Previous disturbance yet to be rehabilitated on title (ha) if known	None	None	None	None
Camp(Length: x Width: m)	n/a	n/a	n/a	n/a
Total area to be disturbed (ha)	none	none	none	none
Other:				

# Table 2 (cont.) 2017 Planned Activities Aircore Resource Drilling

Mining Interests	EL25230	EL27358	EL28155	EL25657
What time of the year will exploration occur?	August-Sept	August-Sept	August-Sept	August-Sept
How long is exploration expected to occur?	4 days	1 day	1 day	1 day
Type of drilling (i.e. RAB, RC, Diamond, Air Core)	PW core	PW core	PW core	PW core
Target commodity	REE	REE	REE	REE
Is drilling likely to encounter radioactive material?	No	No	No	No
Number of proposed drill holes (preliminary)	16	8	4	5
Planned maximum depth of holes (m)	12	12	12	12
Number of drill pads.	16	8	4	5
Size of pads (length m x width m) – surficial clear only; no excavations	25x20	25x20	25x20	25x20
Is drilling likely to encounter groundwater? (Y, N, unsure)	N	Ν	Ν	Ν
Number of sumps	No in-ground sumps	No in-ground sumps	No in-ground sumps	No in-ground sumps
Length of line / track clearing (Kilometres: Width: 3.0 m)	Use existing access - station tracks / fencelines	Use existing access - station tracks / fencelines	Use existing access - station tracks / fencelines	Use existing access - station tracks / fencelines
Will topsoil be removed for rehabilitation purposes?	No	No	No	No
Previous disturbance yet to be rehabilitated on title (ha) if known	None	None	None	None
Camp(Length: x Width: m)	n/a	n/a	n/a	n/a
Total area to be disturbed (ha)	0.8	0.4	0.2	0.45
Other:				

# Table 3. 2017 Planned Activities : PW Core Drilling (Twinning)

## Table 4. 2017 Planned Activities : RC Probe Holes and Water Bore

Mining Interests	ELs 27359, 28795, 28796, 28866 and 30058
What time of the year will exploration occur?	September
How long is exploration expected to occur?	20 days
Type of drilling (i.e. RAB, RC, Diamond, Air Core)	RC
Target commodity	Water
Is drilling likely to encounter radioactive material?	No
Number of proposed drill holes (preliminary)	10 including Bore
Planned maximum depth of holes (m)	200
Number of drill pads.	10
Size of pads (length m x width m) – surficial clear only; no excavations	25x20
Is drilling likely to encounter groundwater? (Y, N, unsure)	Y
Number of sumps	n/a
Length of line / track clearing (Kilometres: Width: 3.0 m)	Plan on using existing access - station tracks / fencelines
Will topsoil be removed for rehabilitation purposes?	Νο
Previous disturbance yet to be rehabilitated on title (ha) if known	None
Camp(Length: x Width: m)	n/a
Total area to be disturbed (ha)	0.5
Other:	

## Table 5. 2017 Planned Activities : Test Pits

Mining Interests	ELs 24281, 25230, 27358 and 28434
What time of the year will exploration occur?	March
How long is exploration expected to occur?	5 days
Type of drilling (i.e. RAB, RC, Diamond, Air Core)	n/a
Target commodity	REE
Is drilling likely to encounter radioactive material?	n/a
Number of proposed test pits	13
Planned dimensions of pits (m)	3m long, 0.7m wide, 4m deep (8.4m³)
Number of drill pads.	n/a
Size of pads (length m x width m) – surficial clear only; no excavations	n/a
Is drilling likely to encounter groundwater? (Y, N, unsure)	n/a
Number of sumps	n/a
Length of line / track clearing (Kilometres: Width: 3.0 m)	Most pits are on existing access. No access tracks will be constructed
Will topsoil be removed for rehabilitation purposes?	Yes.
Previous disturbance yet to be rehabilitated on titles (ha) if known	None
Camp(Length: x Width: m)	n/a
Total area to be disturbed (m <sup>2</sup> )	27 square metres
Other:	

# Summary of Proposed Works 2017

Now that the new JV has been established, there has been only minimal changes in the drilling strategy from the previous MMP.

A map has been produced to illustrate areas where drilling is planned to take place; see **Figures 2a, 2b and 2c** on the following pages. Six areas have been named in various parts of the project area; it is intended to Aircore drill within these areas. At this stage the number of holes/area is tentatively listed as per Tables 2 and 3. The precise locations have not yet been determined, and CLC have notified Crossland that sacred site surveys will need to be updated before hole locations can be approved. Therefore, the exact locations of additional drill holes are subject to the sacred site surveys and cannot be more precisely defined at this time.

Aircore will be utilised to drill out some zones where higher REE grades have been discovered in previous drilling programs; this will provide fresh samples for analysis. There is also the intention to drill in some untested areas as well as extend some existing drill traverses in more established areas. Approximately 1200 metres has been allocated for both these programs. Holes will be about 12 metres in depth.

It is anticipated that the shallow-hole PQ/ PW size core drilling will take place principally within the area designated 'Cattle Creek' and could involve the two or three licences, which the boundary of this area covers. These will be "twinned" holes to duplicate Aircore holes that have provided higher grade REE samples. The core method provides a much more reliable sample. The proposed number of holes is thirty three (33) with approximate 12 m depths. About 400 m of coring has been allocated. Above ground portable sumps will be used for this method of drilling so no site preparation other than clearing of the drill pad is required.

The water drilling program is designated as a specific area on the map. This specified area covers five licences; see Table 4. Further interpretation of airborne EM data, as well as sacred site surveys are required to accurately pinpoint the position of the holes. Conventional RC drilling will be used as "probe" holes to determine the presence of an aquifer that will provide sufficient water. If significant water is located then the RC hole(s) will be cemented off. It is intended that a dedicated water bore rig will drill one location. A consultant Hydrologist will assess the results.

Additionally, in the early part of 2017, it is planned to acquire samples from small excavations within four ELs (as per **Table 5 and Figure 3**). These samples will be sent off-site for test work.

TESTPIT_NO	EAST_GDA94z53(m)	NORTH_GDA94z53(m)
TP1	289,900	7,394,900
TP2	292,908	7,400,176
TP3	294,064	7,399,735
TP4	294,700	7,396,000
TP5	315,536	7,391,700
TP6	317,081	7,391,342
TP7	350,308	7,398,476
TP8	272,280	7,401,909
TP9	281,330	7,399,067
TP10	282,601	7,398,752
TP11	285,236	7,399,253
TP12	282,142	7,401,999
TP13	289,290	7,401,866

#### **Table 5: Proposed Locations of Test Pits**

The test pits will be completed by Excavator and the material transported by truck. The topsoil will be removed for later re-spreading. 20% of the material removed (approximately 3 tonnes) will be loaded in the tipper as 'sample' using excavator bucket-loads using "fractional shovelling" methodology. The remaining material will be placed back into the excavation immediately after the sample has been loaded and removed from the site. The remaining 80% will be adequate to completely re-fill the excavation. Topsoil will be re-spread before departure from the site.





Crossland Strategic Metals Limited - Charley Creek Project MMP 2016





#### Figure 2c Enlargement Eastern Area of Charley Creek Project



Crossland Strategic Metals Limited - Charley Creek Project MMP 2016



Crossland Strategic Metals Limited - Charley Creek Project MMP 2016

CHARLEY CREEK PROJECT 2016MMP PROPOSED TEST PIT ACTIVITY

## 3.0 CURRENT PROJECT SITE CONDITIONS

Site Conditions	Description
	The project area, which extends east to west for approximately 200 kilometres, (from Bond Springs Station), skirts the northern foothills of the MacDonnell Ranges and extends northwards into the Burt Plain. The southern extent of the project area adjoins the boundary of the West MacDonnell Ranges National Park.
	The majority of the Charley Creek ELs are located on the Hermannsburg 1:250000 scale geological map sheet (SF 53-13). Exceptions include the most eastern, western and northern portions of the project which are located on Alice Springs (SF53-14), Mount Liebig (SF 52-16) and the Napperby (SF 53-9) 1:250000 geological map sheets respectively.
	The project lies within the Central Province of the Arunta Block on the southern margin of the North Australian Craton. The southern margin is marked by a high strain zone, the Redbank Thrust Zone, which contains several mapped units. Most of the Central Province is granulite facies metamorphic grade with some retrograde zones of amphibolite facies.
	The oldest exposed rocks exposed are the Adla Granulite which belongs to the Strangways Metamorphic Complex (1820 - 1780 Ma). Also present are units of the Narwietooma Metamorphic Complex, which includes the Mt Hay Granulite and the laterally equivalent Bunghara Metamorphics and Illyabba Metamorphics (+1780 Ma).
Geology and Landform	The Teapot Granite Complex (1140 Ma) outcrops mainly within EL 25230, forming a part of the foothills of the MacDonnell Ranges. The complex intrudes the older mesoproterozoic gneissic basement of the Madderns Yard Metamorphic Complex (1650-1680 Ma), which is represented in this location by the Glen Helen Metamorphics. The granite was the initial focus of Crossland's exploration activities.
	Present throughout the project are Quaternary and to a lesser degree Tertiary sediments. The underlying Tertiary sediments comprise sands, clays, siltstone, and conglomerate with some lignitic horizons. Important aquifers are located in these sediments. The Quaternary sediments are characterised by shallow alluvial fans of coarse gravels, sandy ephemeral creek deposits, sand and clay with a surficial covering of aeolian silts and sand +/- minor calcrete and carbonate deposits. The degree of cover formed by these sediments is highly variable. Crossland's main area of activity is now confined to these alluvial areas.
	The foothills country, which is principally in EL 25230, average around 800 m ASL; the plains country immediately to the north is around 600 m ASL. Rock outcrops form the majority of topographic relief, being composed of granite, gneiss and schist. Flat sand covered country stretches into the Burt Plain.
	Mount Hay's summit is 1,252 m ASL and is the highest point within the bounds of the Charley Creek Project area. Other notable high peaks in the region are Mount Zeil (1,531m), Mount Sonder (1,380m) & Mount Razorback (1,274m), all within the MacDonnell Ranges National Park.
	In the foreseeable future, Crossland will be confining its assessment operations (i.e. drilling and sampling) to specific zones within the broad area covered by the alluvial fans Beneath the soil cover, variable depths of alluvium are present.
	Within the area of most interest to Crossland, the alluvium overlies metamorphic rocks and possibly granite. The Saprolitic horizon has

	<ul> <li>elevated concentrations of REE and therefore represents an additional exploration target. Historical holes drilled north of Hamilton Downs homestead and elsewhere in the west of the project area intersected up to 100 m of alluvium.</li> <li>Soil types consist of Kandosols (massive earths), Rudosols (Loams), Tenosols (Sands), Calcarosols (Loams) and Vertosols (cracking clay) (See Appendix 035). In the deeper alluvial areas, A, B and C soil horizons are encountered.</li> </ul>		
	The West MacDonnell Ranges are drained by broad creeks with rocky and sandy channels in their headwaters. These creeks form outwash channels at the base of the range and these in turn create broad complex channel systems as they drain further northwards onto the Burt Plain. The drainage divide between north-flowing (Halleem Creek) and south- flowing streams (Crawford, Redbank, and Breaden Creeks) bisects the western part of the project area. Elsewhere all streams drain to the north, such as Derwent, Dashwood and Charley Creeks and the Amburla and Hamilton drainage systems.		
Hydrology	None of the above mentioned creeks contain water for large periods of time; they represent flash drainage systems. No work has or is planned to be carried out in the near vicinity of any of these drainage systems, apart from the installation of hydrological monitoring equipment and sample sites as part of the surface hydrology study.		
	There are a number of bores in the region that draw water from both the outwash formations adjacent to the base of the ranges and the aquifers that underlie the Burt Plain. As part of the pre-feasibility, a detailed Hydrological study was undertaken and a report prepared (GHD). That report recommended a drilling program to assess the regional water resources. The GHD report included a data collation of all NRETAS Registered water bores in the region. Maps showing the locations of these bores are contained in the abovementioned report.		
	As per this MMP, Crossland is proposing a drilling program to locate a water supply. The locations of the holes will be determined following an 'in-house' interpretation of airborne EM data. That work is currently being carried out.		
	Flora comprises Triodia low hummock grassland, Astrebla low tussock grassland, Acacia low open woodland, Eucalyptus low open woodland and Melaleuca low woodland. Grasses, spinifex and mulga are widespread. Watercourses in places were lined with eucalypt.		
	Along the base of the ranges and further north into the plains country there is a mix of open grassland and areas where thicker woodlands comprising small trees predominate, including ironwood, beefwood etc. Scattered larger trees are present including Desert Oak and Bloodwood. Large eucalypts line stream channels such as Charley Creek.		
Flora	Known introduced vegetation species that are endemic throughout the region are Calotrope, Saffron and Mexican Poppy. There are also local infestations of introduced species as at Narwietooma Homestead, and include Athel, Mimosa and Khaki (information supplied by pastoralist at Narwietooma).		
	In 2012-2013, Crossland's consultants GHD completed baseline flora and fauna surveys for the Charley Creek project. This baseline survey is more accurate and detailed than the data contained on government websites. The GHD flora report was previously supplied to DME.		

	Crossland has consulted with the Northern Territory Department of Land Resource Management – Flora and Fauna Division; who has informed Crossland that our current practice for track clearing and drilling appears unlikely to adversely impact overall biodiversity values at this stage. Crossland will continue such actions as weed quarantine, avoiding any impacts on large trees, erosion and other actions as outlined in this document. Crossland notes the timing of GHD field survey was after a prolonged period without rainfall. As part of the developing EIS it is Crossland's intention to complete an additional survey after a period with greater rainfall as this would likely identify more species present. A search was completed re. the 22 recently affected species. In regards to the NT, only one plant species is affected. The project area list of relevant species is unchanged
	The region is stocked with cattle. Camels are commonly encountered. Rabbit and mouse plagues have been experienced. Feral animals predominate. Native wildlife populations are represented although these animals are rarely seen.
	No significant habitats are known to exist or have been identified within or near work areas.
	A search of the EPBC Act Register of Threatened Species has identified several fauna, which may exist in the region. These are in the endangered (1 mammal) and vulnerable (1 reptile and 3 mammals) categories. The fauna in question are the Southern Marsupial Mole, the Great Desert Skink, Mulgara, Greater Bilby and Black Footed Rock Wallaby respectively. If habitats of these species are known or identified within the tenements then these areas will be avoided.
Fauna	A full account of Fauna encountered is outlined in the accompanying GHD draft Fauna report located as Appendix 027.
	Crossland has consulted with the Department of Land Resource Management – Flora and Fauna Division. DLRM informed Crossland that our current practice for track clearing and drilling appears unlikely to adversely impact overall biodiversity values. It was however noted that some threatened species such as the Slaters Skink ( <i>Egernia slateri</i> ) have very restricted habitats which should be avoided.
	GHD performed a targeted survey in September 2013 for the Slaters Skink ( <i>Egernia slateri</i> ). The results of this survey found no presence of the skink. This report has also been included with a previous MMP.
	A search was completed re. the 22 recently affected species. In regards to the NT, twenty fauma species are affected. : 1 land snail, 6 mammals and 13 birds. The project area list of relevant animal species is unchanged.
Land Use	The tenements fall within areas utilized for grazing cattle (see Appendix 034). The Tanami Highway traverses the tenements. The southern margins of EL's 25230, 28155 and 28154 border the West MacDonnell Ranges National Park. Traditional land use areas straddle EL's 28434 and 25657 and lie west of EL 27283.

Historical, Aboriginal, Heritage Sites	CLC and AAPA clearances have identified all aboriginal sacred sites and other designated areas; these have been excluded from exploration. The CLC conducts on-going work programme clearances over newly granted ground in company with traditional owners. Sacred sites and other No-Go areas and/or RWAs have been identified during these clearances.
	Yearly meetings to discuss on-going work programmes are organized by the CLC.
	We have consulted the Territory and Commonwealth Department of Sustainability, Environment, Water, Population and Communities websites in regard to the presence of non-aboriginal heritage sites. The registers do not list any non-aboriginal heritage sites on Crossland's ELs.
	As previously requested by DME documents regarding NRETAS Heritage searches were supplied. It is noted this register search was completed through the NT Department of Lands, Planning and the Environment website which was directed to www.ntlis.nt.gov.au/. Crossland completed searches of the individual pastoral leases which are covered by the company's licences. This did not produce any results. The Appendix previously provided is a complete search of the Macdonnell Shire.

### 4.0 ENVIRONMENTAL MANAGEMENT SYSTEM / PLAN

Crossland is continuing to revise and update its set of guidelines/documents that deal with environmental issues likely to be met with in the exploration context. The procedures and advice set out in these documents will be managed by the senior person on Crossland's exploration projects. Personnel on the project are aware of all environmental aspects covered by the company's plan.

Both Crossland and DME documents are available for reference / use by Crossland's employees and contractors.

### 4.1 ENVIRONMENTAL POLICY AND RESPONSIBILITIES

Crossland's policy is to conduct its exploration activities in a sustainable way so that there is minimal impact to both the physical and social environment. Appendix 010 is Crossland's statement on environmental responsibility, 'A *Guideline to Responsible Environmental Management*'.

Crossland designates their Project Manager for the Charley Creek Project to ensure the implementation of their environmental policy. When this person is to leave the site for any reason (ie. scheduled breaks); the project manager will designate another company representative to ensure compliance with the policy in their absence.

To date Crossland has performed rehabilitation as best is reasonably practicable to return drill sites to their natural state. For the current level of exploration as proposed within this document Crossland has assessed the potential environmental and social impacts as minimal for the purpose of major environmental and social studies. An inspection in October 2013 of Crossland's past work within the project area by a team from the Directorate of Mining Compliance of the Department of Mines and Energy commended Crossland's efforts. If and when Crossland seeks to engage more advanced stage exploration, the company will re-evaluate the potential environmental and social impacts and act accordingly to perform further studies.

Crossland has an established procedure whereby any chance finds of archaeological sites, artefacts or cultural items are reported to the senior Crossland representative. The Crossland official will then pass the information onto the relevant person(s) and or organization(s). The proposed drilling programmes for 2015 lie within the flat plains country adjacent to and north of the McDonnell Ranges. These plains are covered by pastoral leases. Crossland anticipates the chance find of archaeological sites, artefacts or cultural items to be low in these areas. Previously, Crossland has engaged both the CLC and AAPA who have outlined areas of cultural

significance. As per regulatory agreements with these organizations Crossland does not engage in exploration within these areas.

## 4.2 STATUTORY REQUIREMENTS

- Aboriginal Land Rights (Northern Territory) Act
- Atomic Energy Act
- Bushfires Act
- Code of Practice for Safe Transport of Radioactive Materials 2001
- Code of Practice Radiation Protection and Radioactive Waste Management in Mining and Processing (Mining and Processing Code)
- Dangerous Goods Act
- Environment Protection and Biodiversity Conservation Act
- Environmental Offences and Penalties Act
- Heritage Conservation Act
- Mining Management Act
- Mining Management Regulations
- Mining Management Plan Authorisation Requirements
- Minerals Titles Act
- NT Aboriginal Sacred Sites Act
- Parks and Wildlife Service NT various legislation
- Native Title Act
- Pipelines Act
- Radioactive Ores and Concentrates (Packaging and Transport) Act (NT)
- Soil Conservation and land Utilisation Act
- Territory Parks and Wildlife Conservation Act
- Work Health and Safety Act and Regulations (National Uniform Legislation)
- Waste Management and Pollution Control Act
- Water Act
- Weeds Management Act
- Reporting requirements:
  - o NTDME Annual Technical Reports and Mining Management Plan
  - o NT Worksafe Risk Management Plan and monthly employment/ injury and safety statistics
  - o DME and NT Worksafe Radiation Management Plan
  - o CLC Work Programmes and Submissions

### 4.3 NON-STATUTORY REQUIREMENTS

Continuing communication with land holders, the CLC, AAPA and Traditional Owners relating to land access, land care, exploration activities and movements. Crossland will consult the following when required: DME Advisory Notes, NT Erosion and Sediment Control Guidelines – Linear Developments, NT Land Clearing Guidelines and NT Sites of Conservation Significance.

### 4.4 IDENTIFIED STAKEHOLDERS AND CONSULTATION

- Aboriginal Traditional Owners.
- AAPA
- Amburla Station (including Milton Park Outstation)
- Bond Springs Station
- Central Land Council
- Derwent Station
- Hamilton Downs Station
- Napperby Station
- Narwietooma Station

- NT National Parks and Wildlife are responsible for the protection of the adjacent West MacDonnell National Park, which has a common boundary with project ELs
- NT DME
- NT WorkSafe
- NT Bushfires Council

Crossland's process of consultation with landowners (pastoralists) has involved:

- Initial notification of the landowner by letter as part of the application procedure
- Contact the landowner prior to entering the land following grant of title.
- Arrange face-to face initial meetings with affected landowners to explain the company's exploration objectives and the likely activities that these will involve.
- Seek advice from landowner regarding their expectations relating to Crossland's activities. Take note and obey any specific requests from the landowner eg. in relation to access restrictions and any other special conditions required.
- Seek advice from landowners regarding flora and fauna, especially relating to threatened, endangered etc. native species. Advice on endemic weed types and feral animals.
- Seek advice from landowners regarding knowledge of conservation or heritage sites.
- Update landowners regularly of our movements and proposed exploration activities.
- Utilise landowners property and equipment where required so that landowners have direct knowledge of
  personnel movements and disturbance activities carried out by Crossland. Crossland has utilised two
  pastoral company's properties to house staff and has also utilised pastoral company's equipment and
  personnel to carry out upgrading of existing station roads, scrapes for drill rig access and clearing of drill
  sites, rehabilitation and various minor works.

In relation to aboriginal Traditional Owners and Organisations:

- A consultative process with Aboriginal organisations (CLC and AAPA) and Traditional Owners was
  initially instigated by Crossland in relation to working on the relevant pastoral leases. To date, this has
  been the only land tenure type on which Crossland has been working on in the region. The affected
  pastoralists were initially advised of this action by Crossland.
- Crossland employs Traditional Owners who are recognised as having ownership links to the ELs where much of the exploration activities have taken place. Crossland management has regular contact with these individuals who ensure that Crossland acts in an appropriate manner with respect to Aboriginal traditions.
- Crossland also has an agreement in place with the CLC and Traditional Owners who have ownership links to ELs where Crossland is or will be working. Crossland currently pays compensation to several groups via the CLC when eligible expenditure is incurred.
- Crossland management attends Work Programme meetings when organised by the CLC.
- Crossland originally commenced consultations with AAPA prior to the commencement of substantial disturbance activities, before entering the Exploration Agreement with CLC. As a result, AAPA made several visits to the relevant ELs and has carried out sacred site clearances in those areas requested by Crossland. Since 2009, additional clearances have been managed by CLC.

Crossland has maintained good relationships with all parties that have a direct interest in the land.

A letter from the Pastoralist giving permission for Crossland to carry out the stated activities on the subject land is reproduced on the following page.

Crossland Strategic Metals Limited GPO Box 2437 Darwin NT 0801

Att.: Mr. G. Eupene

#### PERMISSION TO ACCESS PASTORAL LAND, MACDONNELL SHIRE OWNED BY ANTHONY AND PAMELA DAVIS

The undersigned give permission for Crossland Strategic Metals Limited to undertake exploration and more advanced activities on the Perpetual Pastoral Leases which are held

FRACHING Ð by us. No ---<>

These Pastoral Leases are located to the northwest of Alice Springs and comprise:

- NT Portion 241 Derwent
- NT Portion 719 Glen Helen
- NT Portion 727 Narwietooma
- NT Portion 4423 Hamilton Downs
- NT Portion 4443 Amburla

Crossiand Strategic Metals Limited have supplied a Mining Management Plan, which contains details of their proposed activities on the subject land. Discussions with Crossland management regarding these activities is ongoing.

Yours faithfully,

7 P for A & F. Davis

10 August 2016

### **4.5 INDUCTION AND TRAINING**

All personnel who undertake work on Crossland's exploration licenses and other Crossland workplaces undergo a Safety and Environmental induction when arriving on-site (see Appendix 003). Personnel are required to sign off after the induction, acknowledging that they have received the induction and that they understand all matters contained in the documents. Personnel are encouraged to raise any issues or concerns with management at any time. Toolbox Meetings are held on-site on a weekly basis where such matters can also be raised and discussed.

Some of the environmental issues that are covered in the induction relate to:

- Driving and its possible effects on the local environment
- Fire
- Introduced vegetation species
- Rubbish, garbage, waste products and pollutants
- Adherence to the wishes and instructions of the pastoralists
- Strict adherence to instructions from AAPA and the CLC in relation to sacred and heritage sites
- Wishes of the Traditional Owners

Although Crossland is not conducting exploration for uranium, Crossland has a radiation management plan (RMP), which is covered in the induction. A copy of the Crossland RMP has been included with this document (see Appendix 011). Crossland's technical personnel have attended Radiation Safety Courses.

In the carrying out basic exploration activities, most environmental issues relate to ground disturbance. Crossland has procedures in the form of documents, which cover camp set-up and camp management (see Appendix 013), road and track making / repairing (see Appendix 014), and drill rig / drill site inspection (see Appendix 008) etc. Crossland's personnel have now gained experience in these matters, as demonstrated by the report from an inspection in October 2013 of Crossland's past work within the project area by a team from the Directorate of Mining Compliance of the Department of Mines and Energy, which commended Crossland's efforts.

# 4.6 IDENTIFICATION OF ENVIRONMENTAL ASPECTS AND IMPACTS

Aspect	Possible/Probable Impact	Risk Rating	Management measures (prevention)	Management measures (remediation)
Vehicle Operation	Fauna and Flora disturbance; weed and pest spread Dust Noise Hydrocarbon Spill Soil erosion	Low	Monitoring of vehicle use; driver training; wash downs; personnel and contractor awareness of issues. Regular vehicle maintenance. Slow driving in camp and drill areas.	Removal of contaminated soil Disposal of weeds
New tracks as access for Aircore rig.	Vegetation clearing Soil erosion Soil compaction Disturbance to drainage lines	Low	Existing Station roads tracks utilized. New access construction – Bobcat or loader with scrub rake or bucket blade up used. No topsoil disturbance, no windrows	Rehab where necessary – erosion prevention. Allow to naturally re- vegetate
Air core drill holes – on access tracks or just beside if station track.	Vegetation clearing Soil compaction Soil erosion Disturbance to drainage lines. To date very minimal impact	Low	Cleared areas kept to minimal size	Drill holes capped, sites raked over. Topsoil re- spread. Rubbish removed.
Drilling Operation – if Diamond drill or large RC.	Fluid Spills – drill fluids or hydrocarbons. Management of wastes	Low	Operating machinery contained within plastic lined bunded area. All contractor personnel must be trained in fuel transfer procedures and the use of Spill kits. Company personnel to monitor and report. Current drill programmes will not intersect radioactive material.	If spillage occurs – bag and remove all contaminated soil etc. Rehab sites. Sumps infilled.
Drilling Operation – Aircore rig. Drilling conducted along access lines. No dedicated sites prepped.	Noise and Dust. Management of wastes Soil contamination. No radioactive material will be produced from this drilling	Low	Noise and dust suppression mechanisms on drill rigs.	Drillholes plugged and backfilled with drilling material. Removal of all waste from sites

	Possible/Probable		Management	Management
Aspect	Impact	<b>Risk Rating</b>	measures	measures
	inipact		(prevention)	(remediation)
Waste Management	Pollution of local environment – flora, fauna, surface/ground water, air	Low	Proper management and disposal of non- recyclable/industrial wastes – removal from site.	Inspect all drill sites and monitor disposal procedures.
Fire	Neighboring landowners Flora and fauna Potential injury to personnel. Loss/damage to equipment and infrastructure	Low to Moderate	Induction document covers Crossland's policy on fires in Project Area. (Fires only in designated area with fire break in containment, no fires at drill rig etc).	Back burning if necessary to protect personnel, equipment or infrastructure– Contact / warn / cooperate with landowners. Contact authorities / Bushfire Council
Cultural or Heritage Sites	Discovery of Cultural or Heritage Sites/ Damage of Cultural or Heritage sites	Low	Invasive work is limited to cleared areas by the CLC and/or AAPA.	Reporting of any finding to senior personnel who will notify Crossland management
**Hydrocarbons	Pollution of environment	Low	Proper storage. Bunding	Clean up spills, bag contaminated material. Take to appropriate waste management site.
***Invasive Species	Damage to environment	Low	In the case of weeds, ensure that vehicles have washdown before entering site.	Identify infestation and remove where feasible.

\*\* There are no company fuel storage facilities on Crossland's exploration licenses.

\*\*\* Certain weed species are endemic. The species are recorded elsewhere in this document.

Crossland utilises the Risk Matrix illustrated below to assist in evaluating risk for its various activities.



#### 4.7 EMERGENCY PROCEDURES AND INCIDENT REPORTING

Environmental incidents / emergencies likely to occur in the workplace in which Crossland conducts its exploration activities would be principally associated with hydrocarbon spillage (fuel transfer during drilling programmes) and wild fire. Crossland is no longer exploring for uranium at Charley Creek, however the company will retain its procedures and incident reporting regarding radioactive material, as well as its RMP. Given the type and style of mineralization now being targeted, and based on the previous year's experience, radioactive mineralization will not be intersected by drilling or excavation.

The Project Geologist is the most senior person on-site and is responsible for emergency procedures and incident reporting. When the Project Manager has to leave the site for any reason (ie. scheduled breaks), the Project Geologist will designate another company representative to ensure compliance with the policy in their absence.

All hydrocarbons are currently stored off-site (i.e. off the company's tenements) at Milton Park homestead. Diesel fuel is contained in a purpose built tank at the homestead; the tank is owned by the fuel supplier (AusFuel). The only fuelling operations on-site are likely to be associated with drilling operations. This would involve transfer of fuel from a support vehicle with a purpose built tank to the drill rig. Amounts of fuel involved are small.

In the case of a scenario where a fuel spillage occurs, the Emergency Procedure Crossland would adopt is to:

- Contain any spills
- Notify persons affected and eliminate source of emergency if possible
- Report incidents to appropriate statutory authorities and Crossland management
- Rectify problem
- Prepare Incident Report

Neither Crossland nor its contractors have been responsible for any fuel spillage.

Fire could become a major environmental issue. Large scale wildfires were experienced in the Alice Springs region in 2011 and 2012.

Reporting of all fires will involve alerting the pastoralist and if necessary to implement procedures to protect life and property. If land owners cannot be contacted then the appropriate authorities will be alerted. Neither Crossland nor its contractors have been responsible for any fires.

Incident reporting requirements are legislated under the Mining Management Act – Section 29, whereby the operator must report to the relevant Authority a serious accident or critical incident, which may be followed by an

investigation. Failure to comply with these terms may result in penalties as outlined under the Mining Management Act. All environmental incidents will be recorded in a Site Register

Crossland's obligations to report incidents or accidents under the Mining Management Act are summarised as follows:

- The Operator (Crossland) must report the serious accident or critical incident as soon as practicable after the Operator for a mining site becomes aware of the occurrence of a serious accident or critical incident on the site.
- The Operator must notify the Chief Executive, Department of Primary Industry and Resources of the occurrence of an environmental incident or accident. If the Operator gives oral notification the operator must also give the Chief Executive written confirmation of the occurrence as soon as practicable after the notification
- The Operator must investigate serious accident. If a serious accident occurs on a mining site, the operator for the site must:
  - o carry out an investigation to determine, if possible, the cause of the serious accident; and
  - give the Chief Executive a written report about the serious accident that includes information on remedial actions taken or to be taken and recommendations for the prevention of the occurrence of further similar accidents.

The written report referred to must be given within 14 days after the occurrence of the serious accident or within the period of time that is agreed between the operator and Chief Executive.

A person must not interfere with a place where a serious accident occurred unless permitted to do so by a mining officer. A person is not to be taken as interfering with a place where a serious accident occurred if the person takes an action at the place to prevent further environmental harm.

### 4.8 ENVIRONMENTAL AUDITS AND INSPECTIONS

Crossland Strategic Metals Limited as Operator of the project is responsible for ensuring that all personnel, including contractors, comply with all aspects of environmental management.

The senior Crossland representative on-site is responsible for auditing and inspection of all areas of disturbance and will direct what remediation/rehabilitation works are required to be carried out. In most instances this will be the Project Geologist, however he/she may delegate this responsibility to other qualified staff when absent from site for any length of time (ie. scheduled breaks).

Current on-site conditions require both periodic monitoring of areas of disturbance as identified during Mining Compliance inspections (2016), as well as any other areas or locations that Crossland personnel identify for any remediation works. All areas within the company's exploration licences that have been subject to disturbance activities since 2008 have had on-going monitoring and inspections by both company and department personnel. A large company database of photographs has been compiled to document the monitoring. The end result of this on-going monitoring has been that there is only very minimal remaining disturbance identified.

What has been identified and reported on (as per Compliance Inspection Report March 2016) will be attended to in the current year. On-going monitoring of these sites will be implemented following remediation until the company is satisfied that the issue has been rectified.

For the current year, further drilling operations have been proposed. For the "Resource Drilling", methods will include both shallow hole Aircore and shallow hole 'PW' coring (approx 5.5 inch diameter holes). Planned depths for all holes are to be no more than 13 metres. The latter drilling method will substitute for the method as proposed in the previous MMP, whereby a large hole drilling method was being considered (Calweld Bucket rig). The PW coring will be considerably cheaper and much less ground disturbing. It is intended to use portable above-ground sumps for the coring.

The amount of access preparation will depend upon final identification of hole locations. For the "Resource Drilling", some locations are in areas of previous drilling operations, therefore there should be fairly adequate existing access. The company has demonstrated to Compliance Inspectors that if access is required then it can construct this access so that imparts a negligible amount of disturbance to the environment. This has been done using a 'stick rake' mounted on a Bobcat. What disturbance is created is only temporary in nature. Some areas where there is minimal vegetation with open flat-lying country eg. in the Teapot-Cockroach locations, can be accessed without any need to prepare tracks.

A program of RC drilling is planned to locate a water source. A maximum of ten (10) holes are proposed with hole depths to 200 metres. Final locations will be identified using EM geophysical data. If a water source is located, then that hole will be cemented. A water boring contractor will then be brought in to establish a bore

During the drilling operation a company representative will be at the drill site at all times.

All holes and access tracks from the 2016 program will be rehabilitated where required and the locations added to the company's audit and monitoring schedules.

Where Contractors, specifically drilling companies, are involved Crossland will carry out the following :

Contractor vehicles will be inspected and checked by Crossland personnel to ensure that there is no site contamination by vehicles/equipment leaking fuels or fluids. Crossland management has directed the senior onsite person to immediately approach the contractor's representative to correct any breaches. Company personnel will be with the rig at all times when the drilling operation is being carried out.

Contractors are required to present their environmental policy and procedures manual to Crossland as part of Crossland's tendering process. This has been normal practice. Any environmental compliance breach, by Contractor (or Crossland personnel) will be reported to Crossland management.

Crossland will continue to build its photographic database of the access preparation, drilling operations and subsequent rehabilitation of sites. This activity will continue as part of the audits and monitoring program.

Washdowns of all vehicles coming on to the project area will be required. Preferably, the washdowns should take place in Alice Springs so that there is no chance of on-site contamination. Photographic evidence will be requested.

#### 4.9 ENVIRONMENTAL PERFORMANCE REPORTING

#### 4.9.1 Water Management

Water encountered in exploration drill holes is not normally analysed. Water used in the diamond core drilling process is from an external source.

Down hole water loss due to ground conditions is common in diamond drilling. If there is good water return then that water is recirculated via the sump, which is either excavated or is portable (tanks).

Excess water will be retained within the sump and allowed to either soak into the ground and / or evaporate at the conclusion of the drill hole. The sumps will then be back-filled. It is the intention to always contain drilling waters.

As listed in the proposed activities, an RC drilling program is being planned for the current year in an attempt to locate a water source. These will be conventional RC holes. If a water source is located by these 'probe holes', then Crossland will consult with the NT Department of Land Resource Management – Water Resources, in relation to constructing a bore, eventual extraction of water and licencing requirements. An appropriately compliant and licenced drilling company will be used to drill the bore.

Bores will be drilled in accordance with minimum Construction requirements for Water Bores in Australia.

#### 4.9.2 Invasive Species Management

The pastoralist at Narwietooma Station has advised that certain weed species are endemic in the area where Crossland explores. Vehicles coming into the project area e.g. those belonging to drilling contractors will require proof of washdowns carried out since their previous job. The contractor also needs to state where the vehicles have been prior to entering the project area and, if known, what weed species occurred there. Washdowns can take place at Milton Park homestead if required.

Crossland manages washdowns of its own vehicles. The facilities for this are present at Milton Park and are used as part of general vehicle maintenance as well as weed suppression. Depending on usage, vehicles are washed down on a weekly basis for heavy use and on a monthly basis for sparse use. If a vehicle has been off-track or has gathered lots of dirt or grass, it will be washed down prior to its next use, regardless of time since its previous washdown.

The most recent Department Inspection Report states that no weeds were observed during that inspection.

Feral animals are not an issue for work carried out by Crossland therefore no specific targets are set. If feral camels are encountered in the field, Crossland employees are advised to take the necessary precautions to avoid any incidents.

#### 4.9.3 Flora and Fauna Management

All exploration within the project area is within pastoral land.

Crossland endeavours to utilise existing access such as fence lines and station tracks. This greatly reduces the risk of interfering with natural habitats.

Baseline environmental studies by GHD have been completed. As mentioned previously; these reports are available attached to this document.

#### 4.9.4 Waste Management

- No rubbish or garbage will be left on any drill site or at a camp site.
- Camps previously used by Crossland personnel or contractors accumulated no refuse or industrial waste. All waste products were taken off site for disposal. If required industrial waste (including waste hydrocarbons if any) will be disposed of at the nearest appropriate facility.
- Subject to safety requirements, plastic sheeting will be placed under a diamond drill rig and any operating motors to contain spills of hydrocarbons or other fluids.
- Management of fuels is set out in the *Remote Area Camp Setup and Management* document (Appendix 013).
- No fuels are currently stored on the company's exploration licenses. All fuel supplies are stored at Milton Park homestead, which is off-site, in facilities provided by other parties.
- No hazardous substances/chemicals are currently stored on the company's exploration licenses. Any substance classed as hazardous is stored at Milton Park homestead. MSDS sheets are available. Most of these materials are the property of the pastoral company.

#### 4.9.5 Noise and Air Quality Management

There are no lasting environmental effects from engine noise or dust production. Diamond drill rigs are comparatively quiet when running and the drilling operation produces no dust. Dust may be produced by the air core rig in the upper part of each hole i.e. above the water table. There is some noise produced by the compressor on air rigs. The type of aircore machine used by Crossland contractors is relatively quiet.

It wouldn't be financially or logistically viable to suppress dust using water sprinkling on station tracks. The station owner maintains the tracks periodically (6-12 months) with a grader, which significantly reduces dust. Crossland employees abide to a strict speed limit which greatly reduces dust produced by motor vehicles. Thus

the effects of dust on fauna and flora are minimal, dust is visibly seen to settle within 2-5 minutes of a vehicle passing through and within close bounds of the tracks.

Crossland employees are advised to use higher gears when possible to reduce engines revving highly. We attempt to keep all noise created to a minimum.

Crossland don't excessively use any of the tracks. One or two vehicles will go out to the drill rig each day and back again. Aircore rigs make very little noise when operating.

#### 4.9.6 Culture and Heritage Management

There is ongoing contact and dialogue with the Traditional Owners, Central Land Council and the AAPA over cultural and heritage issues. The latter have conducted site surveys and have identified certain locations/areas within the project area that have cultural significance. Crossland employs some Traditional Owners of the land on which the company explores.

All employees of Crossland and all contractors will be made aware of the location of culturally sensitive and 'No-Go' sites and areas. If required contractors, such as earthmoving contractors, will be accompanied by a Crossland representative when performing their work duties to ensure that no such sites are entered. There are no Cultural or Heritage sites in close proximity to Crossland drilling operations.

#### 4.9.7 Rehabilitation and Environmental Performance

For all disturbance work performed to date, there has been rehabilitation of all diamond drill holes and sites and all Air Core holes and sites. There are no plans to re-enter the 2010 diamond drilling areas.

Strict compliance with rehab procedures and statutory regulations are adhered to, as is evidenced by regular inspections by Mining Officers, due to the proximity of the project to Alice Springs. Minor erosion of 2013 drill tracks put in with 980 loader where noted by Mining Officers in 2016 has been able to be repaired with hand tools.

It is standard procedure to backfill and tidy up drill sites once sampling of holes (which may be after drilling) is completed. All Aircore holes are backfilled and plugged. All sites have been cleaned up, raked over and excess sample removed.

Most access to date has been constructed using a Bobcat with scrub/stick-rake hired from local pastoralists. This tool allows access to be constructed without disturbance to the soil and merely removal of shrubs. Substantial trees are generally avoided. This technique has proved extremely successful in encouraging regrowth and has been described as "exemplary" by inspecting officers. Some of the drilling programmes have not required access for the drill due to the nature of the country; for example, in 2012. In the 2013 drill programme, the pastoralist used a 980 loader for some of the track construction and a bobcat for others. The 980 tracks were somewhat deeper cut than the bobcat tracks due to the size of the machine, and have resulted in windrows and some erosion, noted by Mining Officers in their March 2016 inspection. These were not serious and have been remedied using shovels and mattocks. In future Crossland will strive to clear tracks with its preferred method of Bobcat flitted with stick rake if this is practicable.

There have been no issues regarding the environmental performance of Aircore drilling contractors.

The level of activities conducted to date have in no way affected water, vegetation or fauna. All activities were low key. All personnel were accommodated at Milton Park homestead. There have been no camps established on the project since 2010.

There have been no complaints made to Crossland from Pastoralists, Traditional Owners or the Land Council relating to environmental performance. Several points were raised by an inspection team from DME resulting from a visit in November 2010. Crossland is satisfied that these issues were dealt with. DME have conducted further site visits in October 2013, July 2015 and March 2016.. Some minor issues have been raised as a result of these inspections, and Crossland has dealt with these.

Crossland employees are encouraged to be on the lookout for any deterioration in rehabilitation or instances of unrehabilitated tracks when travelling through the exploration areas, and any deterioration is remedied as it is noted. Crossland has now occupied the Charley Creek site almost continuously since 2007, and this monitoring is ongoing.

Soil management is unnecessary as the Bobcat and loader used to clear tracks removed debris above the soil cover. The topsoil is not disturbed in this process.

Crossland is no longer exploring for uranium on its Charley Creek project area. The samples produced from the Aircore drilling are not radioactive. At this stage Crossland has discontinued its radiation monitoring of personnel using TLD badges.

#### 4.0 TABLE: EXPLORATION REHABILITATION 2008 TO 2016

Disturbance	Rehabilitation Activities	Schedule (Timing)	Closure Objectives / Targets	Monitoring Techniques
Drill holes - Aircore	Air Core – all holes plugged and backfilled	After completion of drilling programmes	All holes/sites completely rehabbed by the end March 2014.	Rehab report (with photos) was provided to DME by end of April 2014. Some further monitoring recommended by DME. Ongoing monitoring while traversing the area.
Drill sites–Diamond core	All sites from 2010 programme rehabilitated. See attached Crossland Environmental Report (April 2011) and DoR inspection report 2010	Rehab complete by April 2011	All sites rehabilitated	Return to Sites in early 2017 and report. Take photos
Sumps	Infilled at time of site rehab	Rehab complete by April 2011	All sumps rehabilitated	Return to Sites in early 2017 and report. Take photos
Costeans	N/A			
Sample pits/ trenches	N/A			
Tracks / Gridlines	Cleared scrapes have been left to revegetate naturally. Results to date indicate that this is successful. See photos from previous MMP and recent Departmental inspection report	Ongoing	If not successful will scarify	Every 6-12 months. Take photos of selected areas for comparison. Ongoing monitoring when traversing the area.
Sample bags	All bags collected from drill sites	Complete January 2014	All bags collected and taken back to homestead base	N/A
Camp	No action taken	N/A	Land returned to natural state.	Sites have been inspected. Photo of drillers camp illustrates zero impact. See Crossland Environmental Report (April 2011)

## 5.0 COSTING OF CLOSURE ACTIVITIES

Accompanying this MMP is the Security Calculation sheet for the current years proposed program.

Closure costs are included.

#### 6.0 PERFORMANCE OBJECTIVES

Crossland has produced an environmental policy document, which has been designed to cover all the environmental and social aspects of its operations. The document is titled 'Protecting the Environment' and states that the company will 'conduct exploration activities in ways that create minimal disturbance to the environment and people'.

Additional documents relating to environmental issues have been provided with a previous MMP as Appendices.

Crossland will continue close cooperation and dialogue with all interested parties including Pastoralists, Traditional Owners, Land Councils and other 'Interested Parties'.

Crossland will also continue to improve on its monitoring of company and contractor work practices. Documentation will be continually reviewed and upgraded where necessary.

Ongoing continual improvement of environmental management issues is key in Crossland's' approach to exploration.

Track clearing is monitored for regrowth. This has to be carried out at time intervals necessary to provide data for the calculation of percentage regrowth of grass and shrubbery cleared by Crossland. Within a year timeframe it is expected that between 75 and 100% regrowth should have taken place, relative to the cleared area surroundings. Note: where practical tracks are all cleared with a stick rake mounted on a bobcat and as a result, no topsoil and negligible vegetation is disturbed. In areas of thicker vegetation a loader may be used, but this would be with bucket above the soil surface again resulting in no topsoil disturbance.

Targets set for aircore sites are: plugging the drill hole immediately after drilling, removal of sample bags from site, general site clean-up and removal of survey pegs and flagging tape. Sample bags are to be removed as soon as possible, generally on the day of drilling or within a week of the hole being drilled if required. Note: all sample is retained for analytical purposes and therefore the bags have to be collected. Removal of flagging tape and survey pegs is to be completed immediately after the drill programme is complete. Timeframe for this is up to 2 months. Note, as aircore sites are located on the same tracks mentioned in the track clearing above, the same procedures are used to measure percentage vegetation regrowth on an aircore drill site.

Targets set for Diamond Drill hole sites are; plugging and capping of the hole immediately after hole is drilled. Site is cleared up immediately once drill rig has moved to its next site. All sumps are filled in at the end of the drill programme, which takes a maximum of 2 days. Once the drill programme is complete and sites have been rehabilitated, all sites are monitored for vegetation regrowth. Note: the same procedures are used as previously mentioned in the track clearing regrowth monitoring.

Crossland sees it vital that all on site personnel are monitored. Each member of staff is monitored for their environmental awareness, vehicle handling, awareness for hydrocarbon management, fire management, flora and fauna considerations and waste disposal. As a result, performance outcomes meet Crossland's requirements for managing the minimal impact of environmental issues.

All of the above is the responsibility of the on-site Project Geologist as well as Crossland management.