ARRIUM MINING

NORTH SOUTHERN MIDDLEBACK RANGE

2013 COMPLIANCE REPORT

N-SMR Mining Area

2013 Compliance Report

29 August 2014

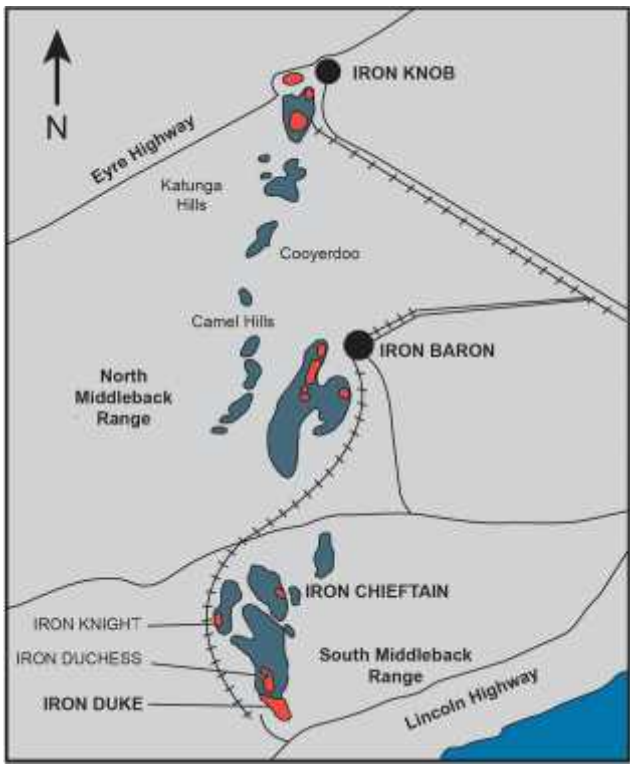
Doc.Ref: WPC-136 (Rev 0)

EXECUTIVE SUMMARY

This annual compliance report covers the reporting period 1 January to 31 December 2013 for the mining area known as the North Southern Middleback Ranges (N-SMR).

Operations within the N-SMR in 2013 include haematite mining in the Iron Chieftain and Iron Knight pits along with crushing, screening and train loading on the Iron Knight rail loading pad.

Reducing dust emissions from the Iron Knight crushing, screening and train loading pad have been the focus of considerable effort throughout 2013 following observations of impacts to vegetation adjacent to the pad.



New spray systems that deliver atomised droplets to match dust particle size, along with dust suppressant chemicals, have been installed on the crushing and screening circuits.

It is proposed to expand the Iron Chieftain mine in late 2014. A supplementary mining lease proposal was submitted for assessment on 20 June 2014.If new tenements are approved in the Iron Chieftain northern expansion area, these will be included in the consolidated Southern Middleback Range (SMR) Program for Environmental Protection and Rehabilitation (PEPR) allowing the expansion to proceed.

An intense exploration / resource definition drilling programme for areas north and south of the current Iron Chieftain pits occurred throughout 2013 and is ongoing.

Ministerial Declaration Checklist

Section	Included or N/A
Executive summary	See Executive Summary
Introduction	Section 1
Tenement number(s)	Section 1.1,1.3
Name of the mine operation	Section 1.1
General location details	Section 1.1
Name(s) of the mine owner and mine operator(s)	Section 1.1
Site Contact	Section 1.1
Registered Mine Manager, *Mines Works Inspection Act, 1920*	Section 1.1
Reference and approved date of relevant PEPR being reported against	Section 1.1
Person accepting responsibility for the report	Section 1.1
Dates of the reporting period for the report	Section 1.1
Date of preparation of the report.	Section 1.1
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2. Tenements	
Summary table of all tenements including mineral lease (ML), miscellaneous purpose license (MPL), extractive mineral lease (EML) etc.	Section 1.3
3. Other Licences, Permits, Waivers, Native Title and Agreements	
Summary table of all licences, permits, waivers, native title and other agreements relevant to the PEPR.	Section 1.4
Where applicable, provide a statement that all waivers for exempt land required for the current operation are in place in accordance with the Mining Act	N/A
4. Mining operations	
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Indicate how concerns or complaints by third parties were addressed.	Section 5
8. Compliance Summary	
Summary table of non-compliances (if relevant)	Section 6.1
9. Compliance Tables	
For **each** outcome in PEPR state if “complied”, “not complied”, or “unable to demonstrate compliance”	Section 6.2
For **each** outcome in the PEPR provide summary criteria data that supports the conclusion above	Not included
For **each** lease or licence condition (other than environmental outcomes) state if “complied”, “not complied”, or “unable to demonstrate compliance”	Section 8
For each leading indicator criterion state if any were triggered in the reporting period If triggered, **(if required)** • What actions were taken • An assessment of the effectiveness of the current control strategies or criteria	Section 6.2

Section	Included or N/A
10. Closure	Section 7
Where native vegetation has been cleared in the reporting period, the following must be included: ***(if required)***	
• a reconciliation between the approved maximum clearance in hectares,	
• the amount cleared in the reporting period,	
• the total amount cleared to date,	
• an estimated amount to be cleared in the next reporting period.	
11. Non-Outcome Based Lease Conditions	Section 8
If you have any lease conditions which do not have an outcome measurement criteria relating to it please list the compliance status and evidence against **each** condition in a summary table	
12. Rectification of Non-Compliances	Section 9
If a "not complied" is recorded, the following must be included: ***(if required)***	
• date of the incident	
• state if the incident was a Reportable Incident under Regulation 87. If so the report must also state the date the incident was initially reported to the Minister and the date the written report was provided to the Minister	
• what environmental outcome or lease condition was breached	
• if and how the noncompliance was, or is planned, to be rectified	
• what measures, if any, will be taken to prevent recurrence.	
Progress update on previous non-compliances not fully rectified at time of last report	N/A
13. Disturbance and Rehabilitation Activities	Section 10
Information on areas disturbed and current rehabilitation status	
The amount of land disturbed	
Vegetation cleared	
New measures implemented to avoid or control environmental impact	
Revegetation or rehabilitation earthworks conducted.	
Evidence (by using closure and rehabilitation criteria in the current approved PEPR) of the effectiveness of rehabilitation being progressively undertaken.	

Section	Included or N/A
Any problems or potential improvements learned from previous rehabilitation	
An assessment of risks that rehabilitation may or may not be achieved as planned	
New strategies to be undertaken to achieve rehabilitation outcomes (if required)	
14. Environment Protection and Biodiversity Conservation (EPBC) Act reporting	Section 11
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15. Audits and Reviews	Section 12
If an audit or review of any part of the operation management system was conducted during the reporting period, the following information on the audit ore review must be included: (if required)	
• when the audit ore review was undertaken	
• who undertook the audit or review	
• what aspect(s) of the management system was/were audited/reviewed	
• what issues, or recommendations for improvement, were noted	
• an assessment of the potential for any issues identified in the audit/review to lead to a noncompliance with approved environmental outcomes	
• what corrective action that has or will be taken to address any issues.	
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17. Technical Reports	Section 14
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Section	Included or N/A
18. Forward Work Plan	Section 15
Action description	
Responsibility	
Proposed Completion Date	
19. Ministerial Determination Checklist	Included here
This checklist	

Document Status

Rev No	Author	Responsible Manager
		Name
0	Geoffrey Mills Environment Assurance Manager Whyalla Mines	Craig Wilson – Mine Manager
		Matthew Reed – General Manager Operations
		Angie Smyth – Manager Stakeholder Engagement

This document has been prepared with the assistance of LBW Environmental Projects Pty Ltd, commissioned by Arrium Mining.

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Abbreviations and Definitions

Abbreviation	Definition
ANE	Ammonium Nitrate Emulsion
AOC	area of concern
BIF	Banded iron formation
BOS	Basic oxygen steelmaking
DEWNR	Department of Environment, Water and Natural Resources
DMITRE	Department for Manufacturing, Innovation, Trade, Resources and Energy
DPTI	Department of Planning, Transport and Infrastructure
DSD	Department of State Development
DSO	direct shipping ore
EML	Extractive Mineral Lease
EMS	Environmental Management System
FDR	fugitive dust ranking
GIS	Geographic Information System
GVM	gross vehicle mass
IBMA	Iron Baron Mining Area
ILUA	Indigenous Land Use Agreement
JORC	Joint Ore Reserves Committee
LFA	Landscape Function Analysis
LGO	low grade ore
LOM	life of mine
MAG TSF	Magnetite Tailings Storage Facility
MARCR	Mining and Rehabilitation Compliance Report
MARP	Mining and Rehabilitation Program
MBA	Middleback Alliance
ML	Mineral Lease
MPL	Miscellaneous Purpose Licence
N-SMR	Northern South Middleback Range
NE WRD	north-east waste rock dump
OBP	ore beneficiation plant
OMC	outcome measurement criteria
PEPR	Program for Environmental Protection and Rehabilitation
ROM	run of mine
SEB	significant environmental benefit
SE WRD	south-east waste rock dump
SMR	South Middleback Range
TSF	tailings storage facility
WBO	Whyalla Blend Ore

Abbreviation	Definition
WRD	waste rock dump
WTC	Waste transport certificate
WTF	Waste tracking form

Measurements and Symbols

Unit	Definition
BCM	bank cubic metres
CY	calendar year
ha	hectares
/hr	per hour
kL	kilolitre
kWh	kilowatt hour
m^2	square metres
m^3	cubic metre
MBCM	Bank cubic meters (millions)
mm	millimeter
Mt	Megatonne
L	litre
t	tonne
um	micrometer
/yr	per year

Glossary

bank cubic metre	A measure of volume representing a cubic metre of in-situ rock or material before it is drilled and blasted
orthorectified	Spatially corrected to remove error as a result of the earth's curvature

1 INTRODUCTION

1.1 Identification

Mine name	**North Southern Middleback Range (N-SMR)** Iron Chieftain and Iron Knight		**PEPR#** **Date Approved**	PEPR2010/0014 15 October 2010
Lease holder	OneSteel Manufacturing Pty Ltd (Arrium Mining)			
Operator	Arrium Mining			
Mining Lease approval date	Refer Section 1.3 for details			
Associated tenements	ML2662, ML2706, ML4745, ML4746, ML4747, ML2704, ML2663, ML2717, ML2718, ML2719, ML2657, ML4740, ML4741, ML4742, ML4743, ML4744, ML4770, ML4771, ML4772, ML4773, ML4774, ML4775, ML4735, ML4736, ML4737, ML4738, ML4739, MPL51, MPL52, MPL54, MPL55, MPL70, MPL123, MPL124, ML6361 and ML6362			
Approval documents	**ADP2010/00014** • WPC-051 (Rev 2)			
Ministerial Determination	Ministerial Determination (MD 009) under Regulation 86(1), (3), (4) and (7) of the *Mining Regulations 2011* (effective from 6th September 2012) determining the reporting periods and minimum information required to be provided in a Compliance Report for a Mineral Lease (ML) and any associated Miscellaneous Purposes Licence (MPL) for metallic and industrial minerals			
Site contact	Geoffrey Mills - Environment Assurance Manager Whyalla Mines			
	Email:	geoffrey.mills@arrium.com		
	Phone number: (08) 8640 4480			
Registered Mine Manager	Tariro Ruwiza – Mine Manager			
Site location details	Middleback Ranges			
Reporting period	From	1 January 2013	To	31 December 2013
Report preparation date	29 August 2014			

1.2 Executive Declaration

Executive Declaration:

This document has been prepared to fulfil the requirement under Regulation 86 for the tenements listed herein. The information contained in this report is to the best of my knowledge a true and accurate record of the mining activities and compliance status for the reporting period.

Name	Position or Agent	Signature	Date
Matthew Reed	General Manager Operations		
Agency Agreement			
Not applicable			

1.3 Tenements

Details of existing tenements in the N-SMR are provided in Table 1. Figure 1 shows the general location of the N-SMR pits and mining tenements in the context of the Southern Middleback Range (SMR). The location of Mineral Leases (MLs) and Miscellaneous Purpose Licences (MPLs) are shown in Appendix A1.

Table 1 N-SMR mining tenements

Tenement	Tenement number	Approval date	Expiry date	Forward work plan
Miscellaneous Purposes Licences (MPL)				
MPL	51	15 October 2012	14 October 2033	Arrium Mining will retain all tenements for the N-SMR Life of Mine (LOM) Although mining is almost complete in the Iron Knight pits, ancillary operations including crushing, screening, rail loading and ore stockpiling will continue until Iron Chieftain ore deposits are fully utilised (see Figure 2 for estimated N-SMR LOM) Progressive rehabilitation and closure activities will be undertaken as described in
MPL	52	15 October 2012	14 October 2033	
MPL	55	15 October 2012	14 October 2033	
MPL	123	12 October 2010	11 October 2025	
MPL	124	12 October 2010	11 October 2025	
Mineral Leases (ML) – Iron Knight				
ML	2657	1 January 1935	30 November 2029	

Tenement	Tenement number	Approval date	Expiry date	Forward work plan
ML	2663	1 January 1935	30 November 2029	approved PEPR2010/0014 A Mine Completion Report will be submitted at least three months prior to Licence relinquishment or expiry
ML	2704	1 October 1937	30 November 2029	
ML	2717	1 October 1937	30 November 2029	
ML	2718	1 October 1937	30 November 2029	
ML	2719	1 October 1937	30 November 2029	
ML	4735	12 July 1979	11 July 2029	
ML	4736	12 July 1979	11 July 2029	
ML	4737	12 July 1979	11 July 2029	
ML	4738	12 July 1979	11 July 2029	
ML	4739	12 July 1979	11 July 2029	
ML	4740	12 July 1979	11 July 2029	
ML	4741	12 July 1979	11 July 2029	
ML	4742	12 July 1979	11 July 2029	
ML	4743	12 July 1979	11 July 2029	
ML	4770	12 July 1979	11 July 2029	
ML	4771	12 July 1979	11 July 2029	
ML	4772	12 July 1979	11 July 2029	
ML	4773	12 July 1979	11 July 2029	
ML	4774	12 July 1979	11 July 2029	
ML	4775	12 July 1979	11 July 2029	
Mineral Leases (ML) – Iron Chieftain				
ML	2662	1 January 1935	30 November 2029	
ML	2706	1 October 1937	30 November 2029	
ML	4745	12 July 1979	11 July 2029	

Tenement	Tenement number	Approval date	Expiry date	Forward work plan
ML	4746	12 July 1979	11 July 2029	
ML	4747	12 July 1979	11 July 2029	
ML	6361	12 October 2010	11 October 2025	
ML	6362	12 October 2010	11 October 2025	

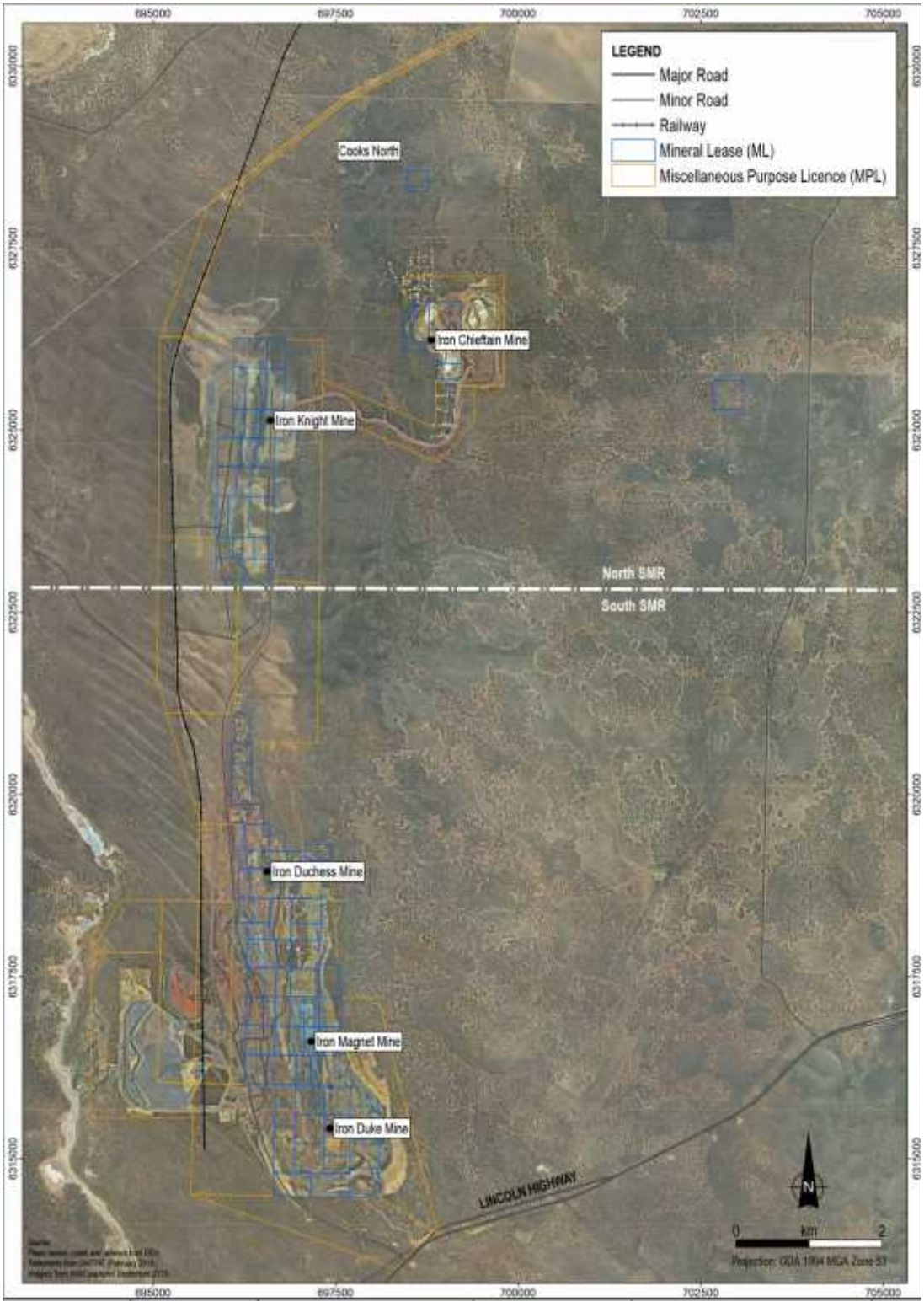


Figure 1 SMR mining area

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

Table 2 provides details of agreements and licences held for the S-SMR.

Table 2 Agreement and licences - N-SMR

Licence, permit or agreement	Regulatory authority or other	Supporting documents	Associated ML, MPL, ML lease condition or outcome measurement criteria
Middleback Ranges SA ILUA: SI2013/002	National Native Title Tribunal	Extract from Register of Indigenous Land Use Agreements	Aboriginal Heritage
EPA Licence #17122 (Mineral works)	Environment Protection Authority	Licence held at Environment Assurance and copies at work sites	Unauthorised damage under the *Environment Protection Act 1993* (EP Act)
EPA Licence #13109 (Railway Operations)	Environment Protection Authority	Licence held at Environment Assurance and copies at work sites	Air quality

2 MINING OPERATIONS

2.1 Ore Reserves and Mine Life

2.1.1 Iron Chieftain resource

The Iron Chieftain resource was updated in 2013 to the JORC 2004 code and reported in the Iron Chieftain Resource Report 2013 document.

Table 3 shows the current known reserve and resource in the Iron Chieftain area.

Table 3 Iron Chieftain total resource and reserve, ending June 2014 (Fe>47%)

Ore reserves	Mass (Mt)	Mineral resources	Mass (Mt)	Estimated mine life Years
Proved	-	Measured	-	
Probable	8.6	Indicated	23.50	5
		Inferred	10.86	(until early 2018)
Total	**8.6**		**34.36**	

2.1.2 Iron Knight

Iron Knight consists of the Knight North and Knight South pits. The Knight South pit is not currently operating.

The Knight North deposit is being mined by open pit mining. Cut-back (widening of open pit) mining entails drill, blast, load and haul to recover ore. Ore is stockpiled and crushed and screened using mobile processing plants. Low grade ore (LGO) and waste materials are stockpiled.

The Knight North pit is almost completed, with minimal economic reserves remaining. Rehabilitation of completed waste rock dumps (WRD) is being undertaken and further rehabilitation works are planned.

Table 4 shows the current known reserve (updated in 2013 to the JORC 2004 code) and resource in the Iron Knight area.

Table 4 Iron Knight North total resource and reserve, ending June 2014 (Fe >47%)

Ore reserves	Mass (Mt)	Mineral resources	Mass (Mt)	Estimated mine life Years
Proved	0.289	Measured	0.71-	1
Probable	0.05	Indicated	0.14	(until early 2015)
		Inferred	0.001	
Total	**0.339**		**0.851**	

2.1.3 Production rate and products

The N-SMR (SMR NORTH – Area 1) contribution to the Middleback Ranges operations is described in the life of mine (LOM) graphical representation of the material movements, see Figure 2.

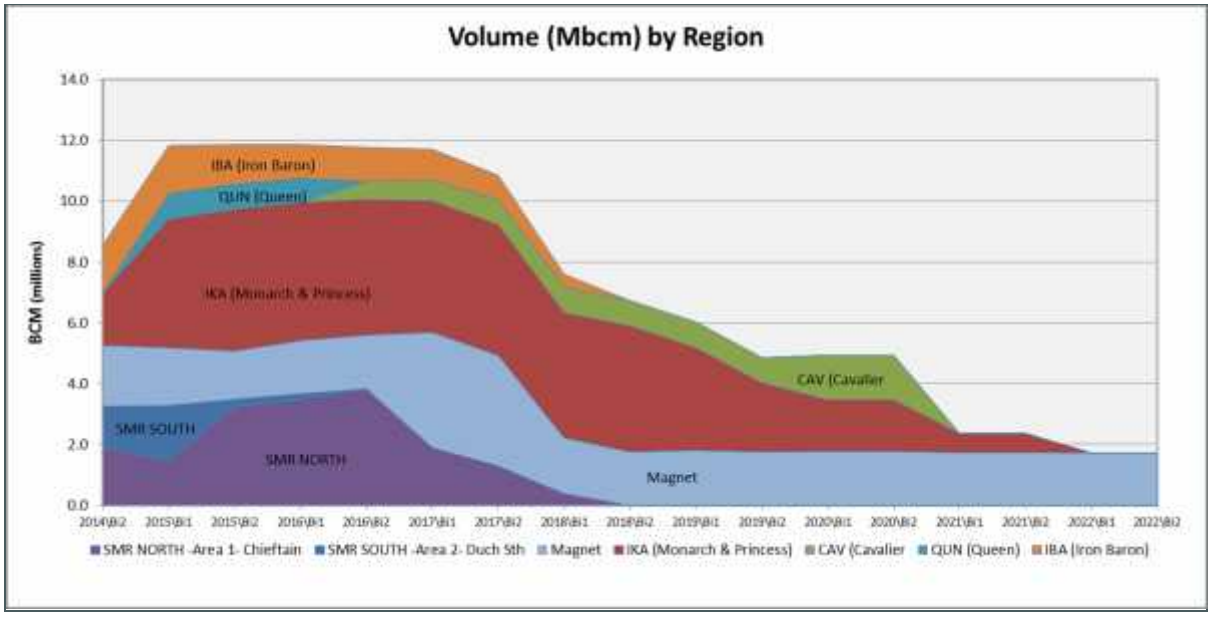


Figure 2 Current LOM material movements by region

Production quantities in bank cubic metres (BCM) and tonnes are presented in Table 5 and Table 6.

Table 5 Production summary in BCMs for the Iron Chieftain (Fe≥55%)

	Ore volume (BCM)	Waste volume (BCM)	Total volume (BCM)
Stage a	1,234,488	2,531,784	3,766,272
Stage b	112,944	1,055,400	1,168,344
Stage c	186,616	969,928	1,156,544
Stage d	1,025,448	7,436,244	8,461,692
Stage e	381,012	1,903,248	2,284,260
Total	**2,940,508**	**13,896,604**	**16,837,112**

Table 6 Production summary in tonnes for the Iron Chieftain (Fe≥55%)

	Ore (t)	Waste (t)	Total (t)
Stage a	4,505,737	6,684,280	11,190,017
Stage b	412,246	2,721,442	3,133,688
Stage c	681,148	2,736,812	3,417,960
Stage d	3,742,885	20,457,295	24,200,180
Stage e	1,390,694	5,412,606	6,803,300
Total	**10,732,710**	**38,012,435**	**48,745,145**

2.2 Exploration

During 2011 a low level heli-aero magnetic radiometric survey was undertaken and resulted in the identification of further extents of banded iron formation (BIF) outcrops along the sides of the range to the north and south of Iron Chieftain. The presence of BIF outcrops also suggested further haematite presence below and an exploration drilling program was therefore developed. Figure 3 shows the airborne magnetic radio-metric surveys carried out in the N-SMR region. The dark red colour depicts the highest magnetic response.

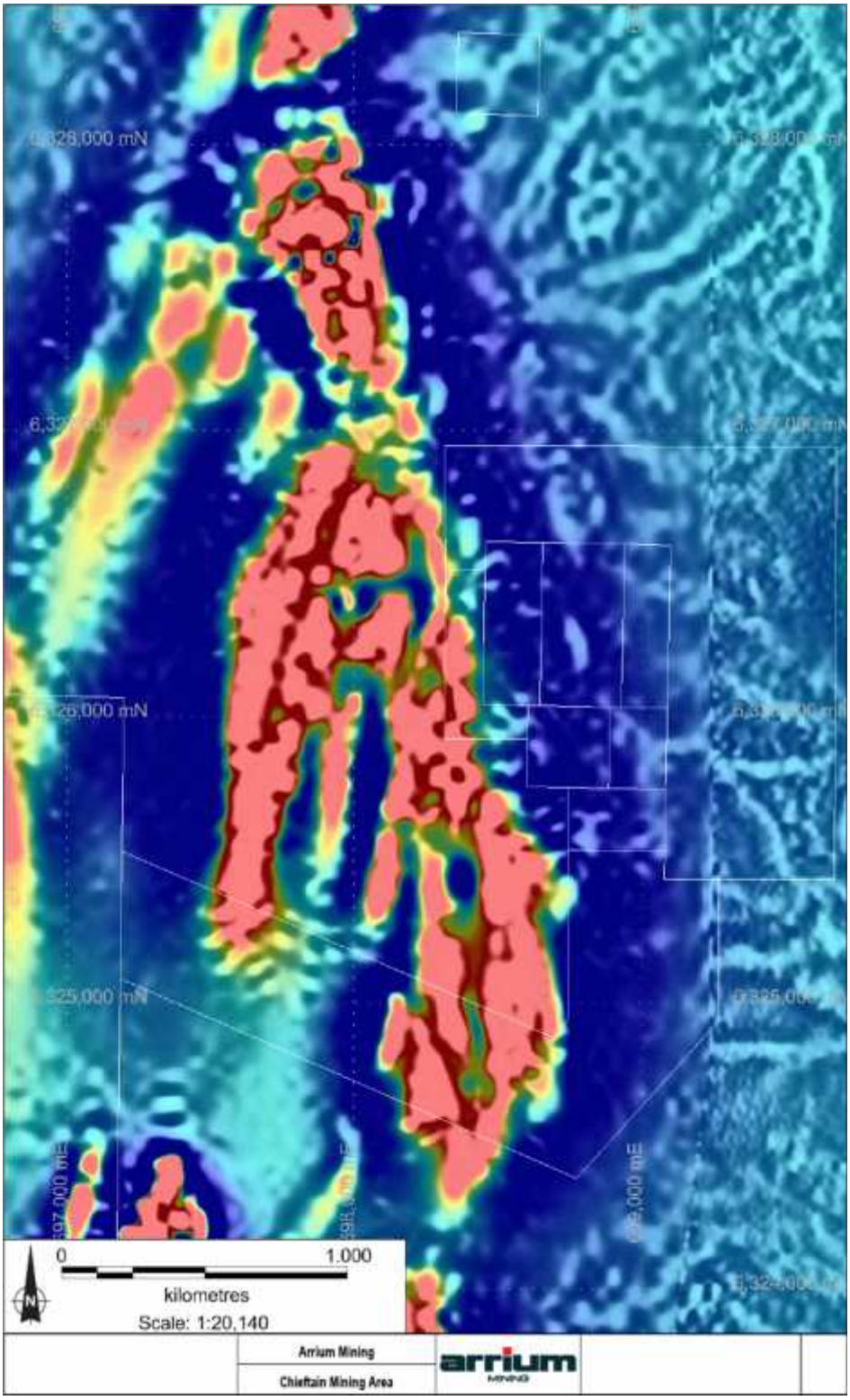


Figure 3 Iron Chieftain region heli-aero magnetic result

The current Iron Chieftain exploration programme is summarised by Table 7 and shown in Figure 4. Further exploration programmes will be developed within the mineral leases to further delineate the extents of the resource.

Current drilling results indicate the resource is closed at depth, but recent geophysical surveys identify potential continuation of the resource to both the north and south of the current exploration program and potential mineralisation on the western faces of the same section of the ranges. Non-intrusive field surveys are being carried out with grab samples to identify potential drilling targets in the near future.

Table 7 Summary of exploration drilling at Iron Chieftain

Summary of current northern drilling program	Tenement ID	Holes drilled	Metre drilled
Infill reverse circulation drilling to better understand the direction and controls of mineralisation of the northern extension of the resource	ML2662	20	2096
	ML2690	4	430
	ML2706	11	1192
	ML4745	14	1710
	ML4746	1	88
	ML4747	16	1786
	ML6362	15	1696
		81	**8998**

Figure 4 Chieftain North exploration drilling program (2014 to 2015)

2.3 Ore Mining

The volumes of ore mined, and ore to be mined, in the N-SMR is provided in Table 8. Ore stockpile volumes as at December 2013 is provided in Table 9.

Table 8 Ore mining in the N-SMR

Ore mined Mine life (BCM)		Reporting period Ore mined (BCM)	Next reporting period Ore to be mined (BCM)	End of reporting period Current ore stockpile
2011	486,892	1,356,805	Not available	See Table 9
2012	870,473			
2013	1,356,805			
Reason(s) for variations from previous report		Ore to be mined not previously reported		

Table 9 Iron Knight ROM stockpiles as at December 2013

Whyalla blended ore	Low grade ore	Magnetite	Other
881,719	7,383,354	0	0

2.4 Overburden / Waste

Volumes of overburden for the N-SMR are provided in Table 10.

Table 10 Overburden mined in the N-SMR

Overburden mined Mine life (BCM)		Reporting period Overburden mined (BCM)	Next reporting period Overburden to be mined (BCM)
2011	1,589,626	4,579,678	2,464,687
2012	3,839,564		
2013	4,579,678		
Reasons for variation from previous report		Overburden mined not previously reported	

2.5 Ore Processing

No processing of ore is undertaken in the N-SMR, see Table 11.

Table 11 Ore processing in the N-SMR

Ore processed Mine life (BCM)	Reporting period Ore processed (BCM)	Next reporting period Ore to be processed (BCM)
Not applicable (note that all mined ore is crushed and screened)	Not applicable (note that all mined ore is crushed and screened)	Not applicable (note that all mined ore is crushed and screened)

2.6 Concentrate

No concentrate is generated in the N-SMR, see Table 12.

Table 12 Concentrate exports from the N-SMR

Concentrate exported Mine life (t)	Reporting period Concentrate exported (t)	Next reporting period Concentrate to be exported (t)	end of reporting period Concentrate stockpiles (t)
Not applicable Direct shipping ore (DSO)	Not applicable Direct shipping ore (DSO)	Not applicable Direct shipping ore (DSO)	Not applicable Direct shipping ore (DSO)

3 VOLUNTARY INFORMATION

3.1 Project Footprint on ML

Figure 5 shows the N-SMR current configuration (active pits and WRDs).

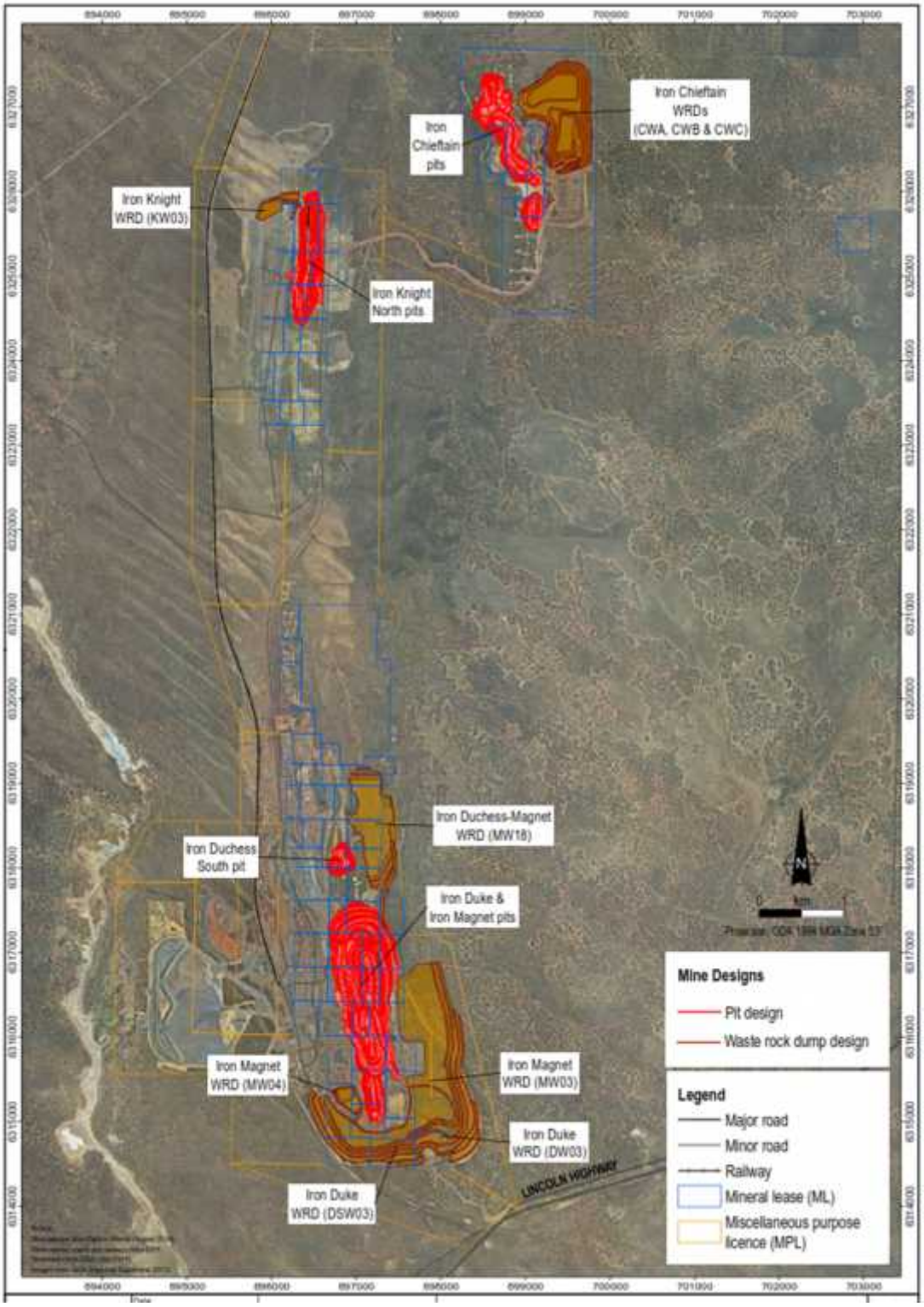


Figure 5 N-SMR current configuration

3.2 Mining Inventory

Equipment types currently in use across Arrium Mining's N-SMR operations are provided in Table 13, Table 14 and Table 15.

Table 13 N-SMR equipment - Haul truck types

Type	Make	Model	Capacity (t)	Gross vehicle mass (GVM) (t)
Haul truck	Caterpillar	785	136	250
	Komatsu	HD1500	144	250
	Caterpillar	777	97	165
	Komatsu	HD785	91	166
	Cat	769	36	71
	Kenworth	C510	200	300
Road train	Kenworth	C510	200	300

Source: Arrium Mining 2014

Table 14 N-SMR equipment - Excavators

Type	Make	Model	Weight (t)
Excavator	Komatsu	PC4000	392
	Komatsu	PC2000	195
	Hitachi	EX2600	254
	Hitachi	EX2500	248
	Hitachi	EX1900	192
	Komatsu	PC1250	110

Source: Arrium Mining 2014

Table 15 N-SMR equipment - Ancillary equipment

Type	Make	Model
Track type tractor	Komatsu	D375
	Caterpillar	D10
	Caterpillar	D9
Motor grader	Komatsu	GD825
	Caterpillar	16
	Caterpillar	14
Drill	DML	DML60
	Cubex/Sandvik	QXR1120/DR580
	Gardner Denver	GD5000
	Atlas Copco	D65
Wheel loader	Caterpillar	993
	Caterpillar	992
	Caterpillar	990
	Caterpillar	988
	Komatsu	WA900
	Komatsu	WA600
	Komatsu	WA500
Water cart	Caterpillar	777 (80,000 L)
	Komatsu	HD785 (80,000 L)
	Komatsu	HD405 (40,000 L)

Source: Arrium Mining 2014

3.3 Open pit dimensions (final pit shell)

The final concept for site layout for each pit in the S-SMR is shown in Figure 6 and Figure 7.

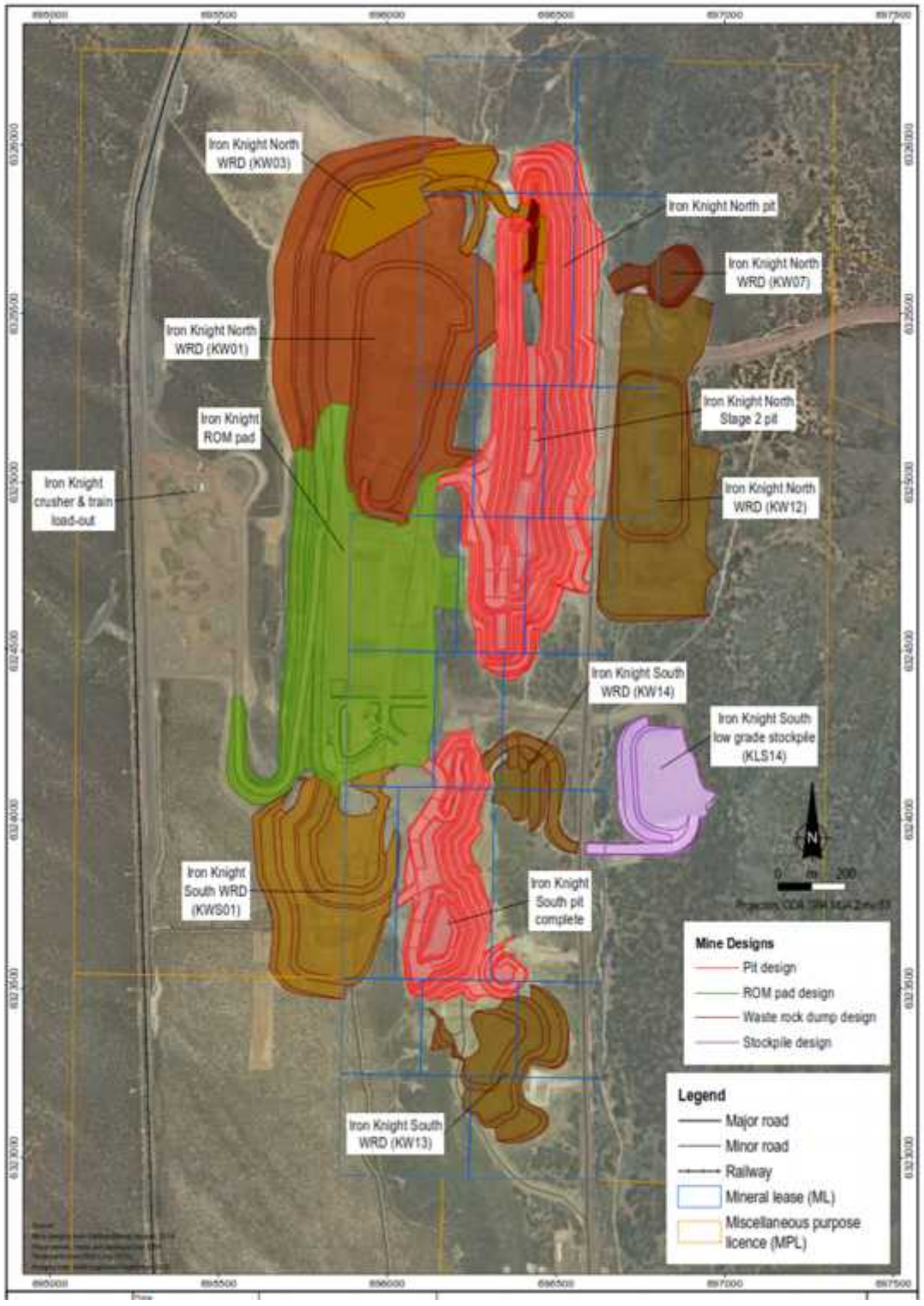


Figure 6 Iron Knight final site layout (planned)

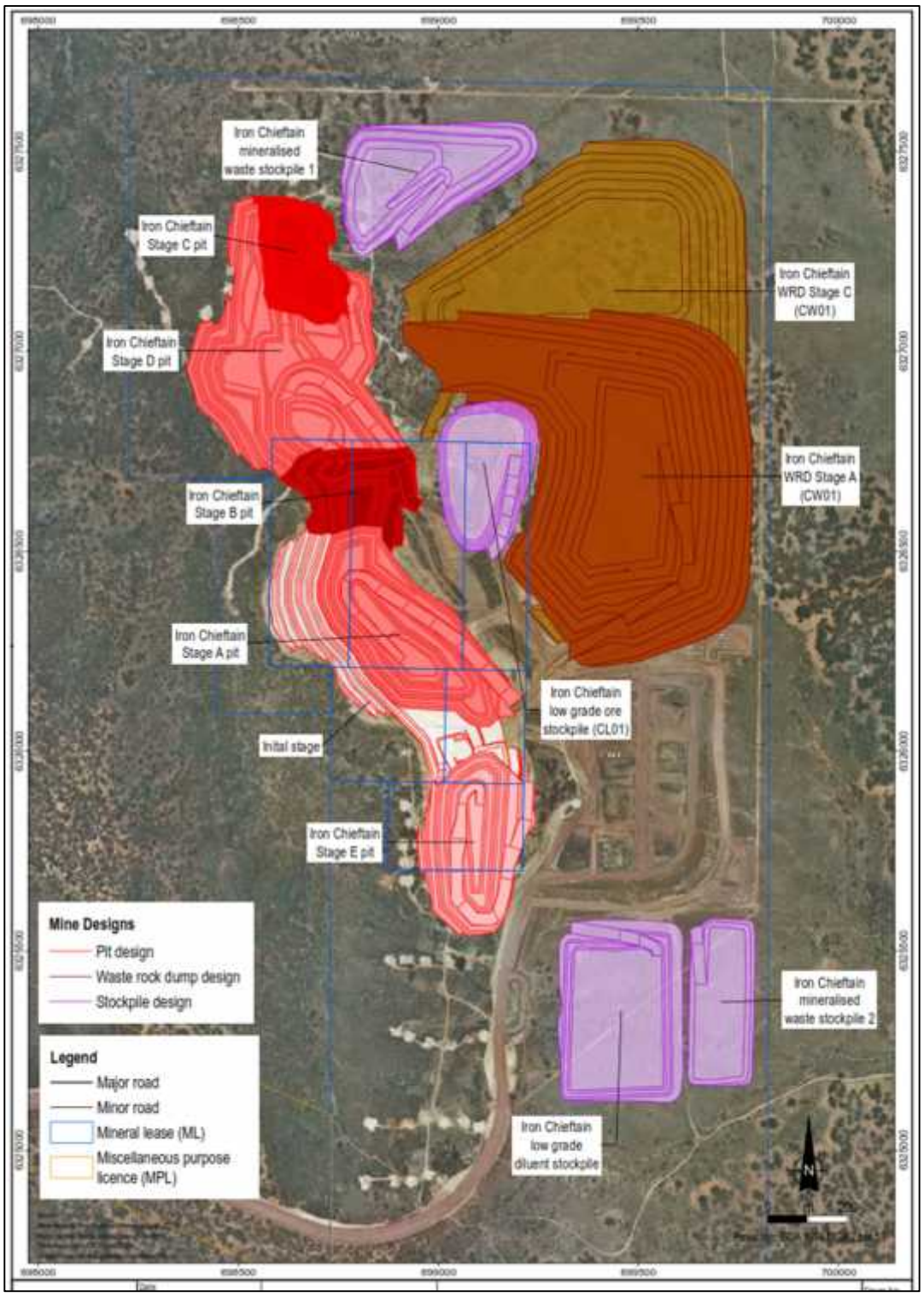


Figure 7 Iron Chieftain final site layout (planned)

3.4 Processing method

3.4.1 Processing plant

Processing of ore from the N-SMR is done in the S-SMR. No processing facilities operate within the N-SMR.

3.4.2 ROM pad/s

The S-SMR ROM pad is used for storage and blending of ore products from the N-SMR.

3.4.3 Crushing and screening

Near-pit mobile crushers are in use at Iron Knight and Iron Chieftain. Crushing and screening facilities are in place to produce lump and fines product which are then loaded onto rail wagons at the siding by front-end loaders.

3.4.4 Product transport

The crushed DSO material is loaded into trains and transported from the Iron Knight siding to Whyalla Port for blending and exporting. Transport of LGO from N-SMR to the ore beneficiation plant (OBP) in the S-SMR is via internal haul road.

3.5 Operating Hours

3.5.1 Modes and hours of operation

The N-SMR operates on a continuous 24 hours a day, seven days a week basis, with two 12-hour shifts every 24 hours.

3.6 Tailings and Waste Rock

3.6.1 Tailings storage facility

No tailings are stored or managed within the N-SMR.

3.6.2 Waste Rock Storage

WRDs are designed and managed in accordance with the strategy set out in PEPR2011/019.

3.7 Electrical consumption and power source

Recent power usage draws for the N-SMR operations, which occurs through a main feed line for Iron Knight (feeding crushing and screening operations and ancillary power for the Knight and Chieftain operations) is summarised in Table 16.

Table 16 Measured power usage for SMR operations for Financial Year 2014

Month/Year	Iron Knight feed line (kWh)	Comments (where applicable)
July 2013	134,468	
August 2013	191,413	
September 2013	189,423	
October 2013	245,884	Second crusher commissioned at Iron Knight
November 2013	247,774	
December 2013	248,649	
January 2014	284,662	
February 2014	256,345	
March 2014	328,326	
April 2014	288,656	
May 2014	297,713	
June 2014	345,472	

3.8 Water Usage

3.8.1 Water supply infrastructure and use

Arrium Mining has a total water allowance of 156 m³/hr approved by SA Water, to meet water requirements for mining operations in the Middleback Ranges.

The potable water supplied to both mining and processing at SMR comes through SA Water Whyalla.

Average usage of SA Water resource is 10 m³/hr for drinking, drills, Ammonium Nitrate Emulsion (ANE) mixing, OBP 'top up' and ablutions/ showers.

The SMR has four fresh water storage tanks containing potable water and three for process water (dust suppression).

The average water use in the SMR in winter for dust suppression is 120 m³/hr over 16 operating hours per day. In summer that rises to 200 m³/hr over 18 operating hours per day. The SA Water resource is not used for dust suppression.

When operating, the magnetite concentrator uses 330 kL/hr and the OBP uses 90 kL/hr, both of which are in the S-SMR. Process water for the magnetite concentrator and the OBP is obtained from a combination of pit water, reclaimed water from the TSF, with top up, as required, from SA Water supply.

Pit water is regularly monitored and controlled and used for mining activities. Iron Duke and Knight North pits accumulate water which is drawn, using mobile dewatering pumps, to locally situated standpipes at an average rate of 350 kL per day, predominantly for dust suppression.

3.8.2 Water saving dust suppression trial

Dust suppression initiatives are continuously being trialled and considered by Arrium Mining to alleviate the demand for water as a dust suppressant.

The principle objectives of new trials are to:

- establish a viable treatment of post-blasted surfaces in the pit prior to load and haul activities, in order to minimise release of fugitive dust at source. The treatment is designed to stabilise the release of fugitive dust during loading, haulage, tipping, placement and prior to physical encapsulation
- establish the volume of water that can be saved if the trial succeeds.

New trials are expected to be completed during June 2014 with the results and recommendations being available shortly thereafter.

3.9 Accommodation

There are no camp facilities in the S-SMR. Accommodation is sought in nearby townships, predominantly in Whyalla, but also in Iron Knob, Cleve and Arno Bay.

3.10 Environmental Research Information

Arrium Mining is sponsoring a PhD study into the range, status and preferred habitat of the Sandhill Dunnart within the Ironstone Hill Conservation Park adjacent to the SMR. The PhD research document will become available in late 2014, or on completion.

See Section 14 for a list of technical reports generated during the reporting period.

3.11 Community or Wider Environment Support Activities

3.11.1 Community sponsorship and support

Arrium Mining and its employees pride themselves on physically or financially supporting regional and local activities from providing education and sponsorships through to charity fundraising events, all of which require personal commitment and the dedication of individuals.

Arrium Mining's Community Support Program continues to assist communities by supporting ongoing and sustainable initiatives that provide:

- welfare help for the less advantaged
- local youth with a range of opportunities to assist in their development for the future
- significant benefit to local communities usually in the way of major events or new or improved community facilities.

Junior development, particularly in relation to sport, has been a recent focus with Arrium Mining now supporting numerous programs run by local sporting associations including:

- the Whyalla Hockey Association's Hockey in Schools program

- the Whyalla Tennis Association's Hot Shots program
- Whyalla Baseball Association's T-ball league
- Ardrossan Netball Club's junior development program
- other sporting bodies including the Ardrossan Netball, Bowling and Hockey Associations and the Coober Pedy Football Club juniors.

3.11.2 Community improvement program

Arrium Mining has been actively involved in improving the visual appearance of east Whyalla via the Community Improvement Program including:

- significant financial contribution to the Whyalla City Council to assist with the major overhaul of the Surf Life Saving Club building
- labour and funding contributions to assist Council and Stuart High School students with the planting of 500 native plants and trees on Hummock Hill during the period 2012 to 2013 as part of the Hummock Hill restoration project.

Arrium Mining also made a significant donation to the City Plaza Business Association to assist with improvements in the City Plaza in 2012 – 2013.

3.11.3 Youth opportunities

In August 2013 OneSteel Whyalla Steelworks and Arrium Mining became the major sponsor for the inaugural Whyalla Science and Engineering Challenge in Whyalla. The program is designed to encourage more high school students to study maths and science at senior levels to raise awareness of careers in science and engineering. Aside from providing significant levels of funding in order to stage the event, OneSteel and Arrium released several staff members to assist with the set-up and delivery of the challenge, as well as donating a unique trophy featuring a polished sliver of railway track. This design represented a high-quality example of local science and engineering and symbolised a small part of a larger journey for the competing students.

3.11.4 Employees giving back

A large number of employees actively volunteer within the community, helping give back in their own time. A recent survey found that nearly 70% of respondents actively volunteer, with the majority of these giving their time to assist local sporting clubs.

Since undertaking the survey, Arrium Mining have been looking at ways that we can assist these employees and their organisations in their volunteering efforts. This commenced in 2012 as Arrium Mining began actively promoting volunteering opportunities to the workforce to encourage more support behind community activities. This was seen as an ideal first step, particularly given more than a third of survey respondents said their organisation would benefit most from having more volunteers.

One of the first initiatives was the overhaul of the Whyalla Basketball Association stadium with Arrium Mining employees and contractors donating countless hours of their time to help remove existing flooring in

preparation for the laying of a new one. Close to 60 local residents volunteered their time to help renew the community asset, with almost half of those being employed by OneSteel and Arrium Mining.

For snapshot of Arrium Mining's Community Support Program activities and achievement in the period July 2012 – December 2013 see Figure 8.

3.12 Community Engagement Activities

3.12.1 Community Consultation

Arrium Mining continues to have regular contact with key community representatives who provide feedback on mining operations and how these are seen from a community perspective. Regular contact is through:

- phone calls, face-to-face meetings and email exchanges
- regular Environment Consultation Group (ECG) meetings, which are attended by a cross-section of the Whyalla community
- six-monthly meetings with landholders who are located near Arrium Mining's operations
- regular community forums and open days in Iron Knob
- dust forums with interested residents in Whyalla.

3.12.2 Indigenous Consultation

Arrium Mining meets regularly with the Barngarla community representatives regarding developments in the Indigenous Land Use Agreement (ILUA) area.

The ILUA between OneSteel (Arrium Mining) and the Barngarla Native Title Claimants sets out clear heritage clearance protocols for both parties and includes protocols for notifications concerning proposed changes and developments within the ILUA area.

3.12.3 Middleback Alliance

Middleback Alliance is a cooperative framework for sustainable land management across the SMR and surrounding areas, refer to Appendix B1.

Middleback Alliance is directed by three major landholders in the region (Ecological Horizons, Natural Resources Eyre Peninsula and Arrium Mining).

By sharing resources and cooperatively delivering a works program across land boundaries, the Middleback Alliance delivers improved and sustainable land management outcomes. Achievements for 2013 include:

- removal of 1700 feral goats regionally including 1000 from the Middleback Ranges
- baiting (feral animal control)
- discovery of the Black-naped snake not previously recorded on the Eyre Peninsula (DEWNR 2014)
- continued monitoring (trapping and micro-chipping) of nationally threatened Sandhill Dunnarts

- survey and monitoring of at least 18 active mallefowl nests (DEWNR 2013)
- other works included pest plant control and erosion mitigation on property owned by Arrium Mining, known as ‘Uplands’.

Further information about the Middleback Alliance is available in Appendix B1.

COMMUNITY SUPPORT PROGRAM

Every year we give back to the communities in which we operate through both financial and in-kind support. Here we provide a small snapshot of the numerous ways this program has provided assistance over the past 18 months:

① Ardrossan Area School's Academic Awards
We continued to support these awards, with Arrium Mining employee Chris Kuhndt pictured congratulating students Mitchell Bockmann (Year 11), Teagan Loveridge (Year 10) and Samuel Lodge (Year 12) on their achievements.

② & ③ The Smith Family's Christmas Appeal
Employee Carla Markadonatos, left, helped deliver presents as part of the appeal in Whyalla. She is pictured with The Smith Family's Jeremy Head. *Photo courtesy ofWhyalla News.* Employees Shayne Daniell, left, and Matt Stanton delivering presents as part of the appeal.

④ Coober Pedy Area School's Week of Science
The Coober Pedy Industry Alliance enabled this event to take place in Coober Pedy. Student Ayla Forman, left, is pictured learning all about science from Dr Rob Morrison.

⑤ Blast Furnace bell donation
Locals and tourists can now view this piece of Whyalla Steelworks history which was donated to Tanderra's Steelcap Museum, with assistance from Bob Keil, John Scott and Steel City Crane Hire.

⑥ Magnetite Project Safe Day Initiative
The project team raised money for charity for every safe day worked. This provided an increased focus on safety while also benefiting the community.

⑦ Whyalla Carols in the Park
We continued our naming-rights support of this excellent community event, ensuring it remains free for everyone to enjoy. *Photo courtesy of Whyalla News.*

⑧ Whyalla Science & Engineering Challenge
We came on board as a major supporter of this new event, aimed at promoting science and engineering to the region's youth.

⑨ Sci-World
We were once again major sponsors of Whyalla's SciWorld event, aiming to teach children science in a fun and exciting way.

⑩ Youth Opportunities
We partnered with the program in Whyalla to help young people make positive choices for their future.

⑪ Hummock Hill upgrade
We worked with Whyalla City Council to breathe new life into this iconic landmark. *Photo courtesy of Whyalla News.*

⑫ Hot Shots program
We commenced a partnership with the Whyalla Junior Tennis Association to get more youth involved in tennis.

⑬ Steel Products tree planting
Whyalla Town Primary School students helped plant trees at our Steel Products department as part of our dust reduction program. Pictured helping are Sarah Wallace, Hamish Wallace, OneSteel Site Services Controller Kristen King, Brayden Woolford, Daniel Dempsey and Thomas Schultz.

⑭ Whyalla Christmas Appeal
OneSteel's Sean Kelly and the Salvation Army's Shirley Gabb celebrated our increased support of this worthy cause, helping the disadvantaged at Christmas. *Photo courtesy of Whyalla News.*

⑮ Whyalla Art Prize
We once again supported the event's youth categories. Arrium Mining General Manager Operations, Matt Reed, left, is pictured with Whyalla winner, Olivia White, and her winning piece.

⑯ Hockey in Schools program
We continued to be major supporters of this program, aimed at getting more youth involved in hockey. *Photo courtesy of Whyalla News.*

Source: Arrium Mining and Materials 2013

Figure 8 OneSteel Whyalla Steelworks and Arrium Mining Community Support Program – July 2012 to December 2013

4 PROJECT VARIATIONS

Table 17 Description of changes to N-SMR mining operations

Description of change to mining operation	Date project variation submitted to DMITRE or other Regulatory Agency	Document reference number	Date regulatory authority endorsement received	Forward work plan
Iron Chieftain pit extension and WRD design changes • merge main (primary) pit with secondary southern pit • extension of the merged pit marginally northwards • WRD design height lifted 45 meters to accommodate 3.1 M LCM of extra waste material • additional vegetation clearance (6.2 ha)	7 June 2013	WPC-104 (Rev 0)	Endorsement not required for minor change	Implement pit and WRD design changes described in WPC-104 (Rev 0)
Planned application for supplementary tenements to extend Iron Chieftain pit beyond current tenement boundaries	Supplementary Tenements Application (submitted 20 June 2014)	WPC-123 (Rev 1)	Assessment currently in progress	Submit tenement proposal and obtain offer of new tenements supplementary to existing tenements in Iron Chieftain Include proposed tenements and associated activities in the consolidated SMR PEPR planned for submission in September 2014
Inclusion of N-SMR operations into the consolidated SMR PEPR	Planned submission September 2014	WPC-108	Not applicable (not yet submitted)	N-SMR operations will be covered by the approved SMR PEPR (N-SMR PEPR will be superseded)

5 COMPLAINTS

No complaints were received in relation to N-SMR mining operations during the reporting period, see Table 18.

Table 18 Complaints register - N-SMR (1 January to 31 December 2013)

Complaint reference	Complaint type	Was the complaint a result of a PEPR non-compliance?	Resolution date	Forward work plan
No complaints received in relation to N-SMR mining operations in the period 1 January to 31 December 2013				

6 COMPLIANCE

6.1 Compliance summary

A summary of compliance items is provided in Table 19.

Table 19 Compliance summary - N-SMR (1 January to 31 December 2013)

Licence/Permit/Tenement	Type of non-compliance	Brief description	Status	Section of report for further detail
PEPR2010/0014 ML6361: Condition #5	Lease condition	Six monthly vegetation dust impact report MI191 (Arrium Mining 2013b) recorded multiple deaths of plant species *Phebalium bullatum* which was possibly attributed to dust deposition from the Iron Knight crushing and screening operations	Currently being rectified	See details provided in Section 6.2 and the Forward Work Plan 2014 Summary, Section 15

See Appendix C for further information regarding possible impact of dust deposition on vegetation in the N-SMR.

6.2 Compliance with Outcomes

An overview of compliance against outcomes and associated measurement criteria for S-SMR is provided in Table 20.

Table 20 Compliance with Environmental Outcomes

Outcome	Lease condition number	Outcome measurement criteria (OMC)	OMC compliance status	Leading indicator	Leading indicator status	Leading indicator actions summary	Evidence	Forward work plan
No unauthorised clearance of native vegetation	ML6361: Condition #5	Total area cleared is not to exceed the area of the approved clearance footprint.	Compliant	Any vegetation clearance outside of the approved footprint	Compliant		Geographic Information Systems (GIS) area calculations against the September 2013 orthorectified aerial image show that clearance within the approval area = 303.34 ha compared to 335.7ha approved for clearance. Significant variations to the N-SMR PEPR 2010/0014 footprint have been approved through Minor Change Notifications to DSD: • WPC–104 (Rev 0) (May 2013)	N/A
Ongoing feral animal control (Threat abatement)	ML6361: Condition #6	Demonstration of participation in Alliance of landowner's maintenance of feral animal control	Compliant				Arrium continues to participate in regional feral animal control through the Middleback Alliance of Land	

Outcome	Lease condition number	Outcome measurement criteria (OMC)	OMC compliance status	Leading indicator	Leading indicator status	Leading indicator actions summary	Evidence	Forward work plan
		programmes.					Managers (MBA). MBA control programs include fox and cat baiting, rabbit warren ripping and goat mustering and destruction (see Appendix B1).	
No new incursions of declared weed species, nor increase in abundance of existing weed species	ML6361: Condition #6 MPL123: Condition #3	Records show that the draft pest plant and animal strategy is complete and implemented	Compliant	A single incursion of a declared weed species	Compliant		The Pest Plant and Animal Control Strategy (QP50_62) has been implemented and exists on the controlled Arrium intranet website Weed audit identified Onion Weed along the rail line plus, Wards' Weed, Saffron Thistle and Horehound near Iron Chieftain. Control measures have been implemented, none are declared noxious and all were present prior to mining operations	
Adequate topsoil stripped during construction stockpiled and maintained until required for	ML6361: Condition #7	Topsoil and grubbed material managed as per PEPR2010/0014	Compliant				Topsoil and grubbed material has been stripped and stored to comply with N-SMR PEPR 2010/0014 and	

Outcome	Lease condition number	Outcome measurement criteria (OMC)	OMC compliance status	Leading indicator	Leading indicator status	Leading indicator actions summary	Evidence	Forward work plan
remediation							in accordance with Arrium Mining Topsoil Management Plan (QP50_66)	
No significant impacts on fauna living near the mining operations	ML6361: Condition #4	No more than six road traffic related deaths of any one species in a calendar year	Compliant	More than three road traffic related deaths of any one species in a six month period	Compliant		Three incidents of vehicles colliding with kangaroos were recorded in the reporting period	
No contamination or erosion of natural drainage channels	ML6361 Condition #5	No visual iron ore siltation beyond ML and MPL boundaries No operational induced gully erosion exceeding 300mm deep or 2m in length Inspection record maintained of silt traps, culverts and drainage channels	Compliant	Iron ore siltation evident >50m downstream of rail lines, haul roads or hard stand pads. Gully erosion 200mm deep or 1m in length greater than the natural gully erosion that existed prior to the development	Compliant		Storm water infrastructure audit conducted in September 2013 indicated that all silt traps were working well Note: A very heavy rainfall event on February 14 washed out stormwater silt traps and will be reported in detail in the 2014 compliance report	
No interruptions to natural drainage channels	ML6361 Condition #8	Blocked drains reported, corrective action identified and	Compliant	If a drain blocks more than once in a calendar year,	Compliant		Inspection records demonstrate that no culverts have been	

Outcome	Lease condition number	Outcome measurement criteria (OMC)	OMC compliance status	Leading indicator	Leading indicator status	Leading indicator actions summary	Evidence	Forward work plan
		allocated. Blockage cleared within 7 days Demonstration that the flow of water in natural drainage channels has not been blocked more than once in a calendar year and any blockage is cleared within 7 days		investigate the cause, report and implement corrective actions			blocked in the 2013 calendar year	
No adverse affect to groundwater	ML6361: Condition #8	All fuel and oil is to be stored in accordance with EPA bunding guidelines HWE PM1602-10 Oil Management and Spill Response Arrium Mining QP 29_06 Incident Reporting	Compliant	A non-compliant incident report	Compliant		Audit reports demonstrate that all fuel and oil is stored in compliance to EPA bunding guidelines	
Final mound profiles that are similar to natural topographic features	ML6361: Condition #1	WRD developed and remediated in accordance with PEPR2010/00014 Proposed Chieftain WRD Development and Rehabilitation Plan Final remediation of WRD in accordance with PEPR2010/00014 Chieftain Development	Compliant	Remediation not progressing in accordance with PEPR2010/00014	Triggered	Minor change notifications submitted and approved	Although the Chieftain WRD has not been developed and remediated in accordance with PEPR2010/00014, WRD development is in accordance with Minor Change Notifications • WPC-104 (Rev 0)	

Outcome	Lease condition number	Outcome measurement criteria (OMC)	OMC compliance status	Leading indicator	Leading indicator status	Leading indicator actions summary	Evidence	Forward work plan
		and Rehabilitation Plan not more than two years after second lift has been completed					May 2013 • WPC-129, March 2014 28.01 ha of the Iron Knight WRDs were remediated during 2013	
Provide soil cover to remediated WRD slopes sufficient to allow regeneration by local native flora	ML6361: Condition #7	WRD developed and remediated as per PEPR2010/00014 Proposed Chieftain WRD Development and Rehabilitation Plan Final remediation of WRD as per PEPR2010/00014 Chieftain Development and Rehabilitation Plan not more than 2 years after final lift has been completed Land Function Analysis (LFA) to show a trend of improvement over a 10 year period after final remediation is completed Final (10 year) remediation report to be submitted to DSD	Compliant	No vegetation cover two years after completion of remediation work	Not applicable at this stage		Although the Chieftain WRD has not been developed and remediated as per PEPR 2010/0014, WRD development is in accordance with minor change notifications: • WPC-104 (Rev 0) May 2013 Baseline LFA has been collected on the 29 ha of remediated Iron Knight WRD area	

Outcome	Lease condition number	Outcome measurement criteria (OMC)	OMC compliance status	Leading indicator	Leading indicator status	Leading indicator actions summary	Evidence	Forward work plan
		Include analysis results in annual report						
No dust related vegetation deaths 100 m or more from mining operations boundaries	ML6361: Condition #5	Progressive photo-point records of the condition of flora communities within 100m of mine operations boundaries, at the start of operations, and at six monthly intervals to record vegetation density and deaths if any occur Dust deposition gauge data – compare to established baselines	Not Compliant	An individual plant death or partial dieback on individual trees within 100 m of mining operations boundaries	Triggered	Investigations of incident leading to redesign, installation and implementation of crushing and screening dust suppression system at Iron Knight ROM Pad.	Six monthly vegetation dust impact report MI191 recorded multiple deaths of plant species *Phebalium bullatum* which may have been attributed to dust deposition from the Iron Knight crushing and screening operations	Redesign, installation and implementation of crushing and screening dust suppression system at Iron Knight ROM Pad
Any complaints from the general public, or neighbouring landholders due to dust emissions directed to Arrium Mining, are investigated, responsibly managed and responded to		Complaints and concerns responded to within one calendar week Track the number of dust related complaints through monthly Arrium Mining reports	Compliant	More than two complaints from of dust emissions from neighbours in any six-month period	Compliant	Extensive investigation by internal resources and investigation report by external experts	No dust related complaints received in relation to N-SMR operations. Dust related complaints received in relation to SMR operations are detailed in S-SMR 2013 Compliance Report (Doc. Ref: WPC135, Rev 0)	

Outcome	Lease condition number	Outcome measurement criteria (OMC)	OMC compliance status	Leading indicator	Leading indicator status	Leading indicator actions summary	Evidence	Forward work plan
Collect, store, recycle and dispose of all wastes in an approved manner No breaches of EPA waste policies and applicable guidelines	ML6361 Condition #10	Records show that all wastes have been disposed of in the approved manner (WTF's WTC's, tracking data, cart notes etc.)	Compliant	One incident report of inappropriate waste disposal in a month	Compliant		General and recycle wastes are removed from site by a licensed contractor. WTF for listed waste are subject to Regulatory compliance audits, as per schedule	
No public injuries or death resulting from unauthorised entry to the site	ML6361: Condition #2 MPL123: Condition #1	Number of incidences of unauthorised access, signage not being in place, access gates left unlocked, locks or fences being willfully damaged	Compliant	Any incident	Compliant		No incidents of unauthorised access or injuries were recorded within the reporting period	
No disturbance to Aboriginal or European artefacts or sites of significance is to occur unless prior regulatory approval is obtained	ML6361: Condition #3 MPL123: Condition #2	Number of incidences of unauthorised disturbance to Aboriginal or European artefacts or sites	Compliant	Any Incident	Compliant		No incidents of disturbance of sites were recorded within the reporting period	

7 CLOSURE

Activities associated with rehabilitation in the N-SMR during 2013 is summarised in Table 21. See Section 10 for information for planned rehabilitation in other closure domains.

Table 21 Rehabilitation and environmental activities in the N-SMR - 2013

Closure domain	Previous reporting period		Current reporting period		Forecast over next reporting period		Outcome	Outcome measurement criteria	Description of progressive rehabilitation works and evidence	Associated lease status	Forward work plan
	Disturbed (ha)	Rehabilitated ha	Disturbed (ha)	Rehabilitated (ha)	Disturbed (ha)	Rehabilitated (ha)					
KW01	Nil		1.2	28.01	16		Final mound profiles that are similar to natural topographic features	Final remediation of WRD as per PEPR2010/00014 , not more than two years after second lift has been completed	Rehabilitation of closed WRD sections has progressed during 2013 Slopes have been pushed down to 20 degree slope angles applied with topsoil and seeded with local native species to encourage swift regeneration of the slopes Baseline LFA data has been collected		Continue to rehabilitate WRD sections as they become available and monitor response of rehabilitated areas

8 NON-OUTCOME BASED LEASE CONDITIONS

A review of compliance against non-outcome based lease conditions for N-SMR is provided in Table 22.

Table 22 Compliance against non-outcome based lease conditions for N-SMR - 2013

Lease condition	Compliance status	Evidence	Forward work plan
Mining operations authorised by this Lease must only be for the recovery of Iron Ore	Compliant		Continue to implement and comply with PEPR2010/00014, applicable Legislation, Regulations and Licence Conditions
The Lessee must not commence or undertake any mining operations on the land until a Mining and Rehabilitation Program (MARP) has been approved by the Minister and a bond has been paid in accordance with Section 62 of the Mining Act 1971	Compliant	Letter issued by PIRSA (NOW DSD) on 15 October 2010 (Ref: MO6331.01-V05; C2010/01263 0003221/EL) stating that the program for N-SMR, Version WPC-051 Rev 2 as submitted 15 October 2010 has been approved as Mining and Rehabilitation Program No. ADP2010/00014 in accordance with Regulation 42(b)(1) under the *Mining Act 1971*	Continue to implement and comply with PEPR2010/00014, applicable Legislation, Regulations and Licence Conditions
The Lessee must prepare a MARP that complied with the requirements of guidelines approved by the Director of Mines and include environmental outcomes and criteria that are developed in consultation with relevant stakeholders	Compliant	Letter issued by PIRSA (NOW DSD) on 15 October 2010 (Ref: MO6331.01-V05; C2010/01263 0003221/EL) stating that the program for N-SMR, Version WPC-051 Rev 2 as submitted 15 October 2010 has been approved as Mining and Rehabilitation Program No. ADP2010/00014 in accordance with Regulation 42(b)(1) under the *Mining Act 1971*	Continue to implement and comply with PEPR2010/00014, applicable Legislation, Regulations and Licence Conditions
The criteria included in the MARP must demonstrate clear and unambiguous	Compliant	Environmental outcomes and measurement criteria are specified in Section 7 approved	Continue to implement and comply with PEPR2010/00014, applicable

Lease condition	Compliance status	Evidence	Forward work plan
achievement of the environmental and mine closure outcomes specified in the Second Schedule by: • Including the specific parameters to be measure and monitored by the Lessee • Specifying the locations that the parameters will be measured or how these locations will be determined • Clearly stating the acceptable values for demonstrating achievement of the outcome, with consideration of any inherent errors of measurement • Specifying the frequency of monitoring by the Lessee • Identifying what background or control data are to be used of specify how it will be acquired (if necessary)		PEPR2010/0014 Closure outcomes and measurement criteria are specified in Section 8 of approved PEPR2010/0014	Legislation, Regulations and Licence Conditions
The Lessee must review the Mining and Rehabilitation Program (MARP) on request of the Director of Mines within a time specified in the request and submit the revised MARP for approval to the Director of Mines	Compliant	Compliance with Direction from Chief Inspector of Mines to amend approved MARP No. ADP2010/00014 within six months of the date of PIRSA approval letter (Ref: MO6331.01-V05; C2010/01263 0003221/EL)	Continue to implement and comply with PEPR2010/00014, applicable Legislation, Regulations and Licence Conditions or any request from the Director of Mines to amend the approved PEPR
The Lessee agrees to the approved MARP being made available for public inspection	Compliant		Continue to implement and comply with PEPR2010/00014, applicable Legislation, Regulations and Licence Conditions
The Lessee must provide information as requested by and to the satisfaction of the Director of Mines, on the Lessee's capability and competence to comply with the requirements of	Compliant	See Section 5of 2007 SMR MARP (Doc. Ref: 06-0066-04-2102691A) which demonstrates Arrium Mining capability and competence to comply with all requirements, licence conditions and the	Continue to implement and comply with PEPR2013/006, applicable Legislation, Regulations and Licence Conditions

Lease condition	Compliance status	Evidence	Forward work plan
the Mining Act 1971, the conditions of this Lease, and the MARP in accordance with approved guidelines or as otherwise specified by the Director of Mines		approved PEPR EPA Sustainability Licence #13109	Maintain and implement ISO14001 Environmental Management System Maintain commitment to: • maintaining and improving environmental compliance • Environmental sustainability • Respectful relationships with the EPA, local community and other stakeholders
The Lessee must provide to the Director of Mines a Mining and Rehabilitation Compliance Report (MARCR) on operations carried out on the Lease and compliance with the approved MARP. The MARCR must be submitted every year, within 2 months after the anniversary of the date the Lease was granted, or at some other time agreed with the Director of Mines in accordance with guidelines approved by the Director of Mines. The Lessee agrees to the MARCR being made available for public inspection	Compliant	Submission of Compliance Reports: • N-SMR 2013 Compliance Report (Doc Ref: WPC-136) • N-SMR 2012 Mining and Rehabilitation Compliance Report (MARCR) (Doc. Ref: WPC-116, Rev 0) Annual compliance reports submitted in accordance with: • PEPR2010/00014 • Section 3.4.3.9 of the Minerals Regulatory Guidelines MG12	
The Lessee must if requested by the Director of Mines, undertake an independent audit of achievement of the environmental outcomes in the MARP, by an independent expert approved by the Director of Mines and submit the audit to the Director of Mines. The lessee agrees to the audit being made available for public inspection	Compliant	No request received by the Minister	
At least 3 months prior to Lease relinquishment or expiry, the Lessee must provide to the	Not relevant	This phase of operations is yet to commence	

Lease condition	Compliance status	Evidence	Forward work plan
Minister a Mine Completion Report prepared in consultation with the landowner and in accordance with guidelines approved by the Director of Mines, which demonstrates achievement of the closure criteria as specified in the current MARP			
The Lessee must prior to commencing operations under this Lease and for the duration of the lease maintain public liability insurance to cover all operations under the Lease (including sudden and accidental pollution) in the name of the Lessee for a sum not less than $20 million or such greater sum as specified by the Director of Mines, and make such amendments to the terms and conditions of the insurance as the Director of Mines may require	Compliant	Public liability insurance maintained to a value stipulated by the Director of Mines not less than $20 million	
A copy of the cover note of certificate of currency for the insurance must be provided to the Director of Mines upon request	Compliant	Certificate of Currency can be made available upon request	
If requested by the Director of Mines, the Lessee must engage an independent and reputable risk assessor to prepare a risk assessment report detailing the public liability risks arising out of the conduct of operations on the Lease, and recommending the level of amount of public liability cover (in respect of any one occurrence) that should be effected and maintained by the Lessee. In preparing the risk assessment report, the assessor must consult with the landowner and the Director of Mines	Not relevant	No such request has been received from the Director of Mines to date	Comply with any request from the Director of Mines to engage an independent and reputable risk assessor to prepare a risk assessment report detailing the public liability risks arising out of the conduct of operations on the Lease

Lease condition	Compliance status	Evidence	Forward work plan
In specifying the level of insurance required, the Director of Mines accepts no liability for the completeness, adequacy of the sum insured, the limit of liability, the scoped coverage, the conditions or exclusions of the insurance in respect of how the Lessee may or may not respond to any loss, damage or liability	Unable to determine compliance		
The Lessee must report any non-compliance with these conditions and approved MARP to the Director of Mines. A verbal notification must be provided within 24 hours, after the Lessee becomes aware of the non-compliance. A written report must be provided within 3 calendar days or such time period as approved by the Director of Mines	Not relevant	No non-compliances recorded to date	Verbally report any non-compliance with Licence Conditions to the Director of Mines within 24 hours of becoming aware of the non-compliance Provide a written report to the Director of Mines of any non-compliance with Licence Conditions within 3 days of becoming aware of the non-compliance
In requesting a review of the bond required under the *Mining Act 1971* the Minister may request that written quotes from an independent third party approved by the Minister are obtained by the Lessee for the cost of rehabilitating the site to the requirements specified in the approved MARP	Not relevant	The Minister has made no request for independent quotes for rehabilitation costs to date	Continue to implement and comply with PEPR2010/00014, applicable Legislation, Regulations and Licence Conditions or any request from the Director of Mines to obtain written quotes from an independent third party specifying the cost of rehabilitating the site Continue to maintain an up-to-date Closure and Rehabilitation Budget Estimate (See Section 8.9 in PEPR2010/00014)
The Lessee must meet all the charges and costs in obtaining and maintaining the Bond	Compliant		

9 RECTIFICATION OF NON-COMPLIANCE

Details of actions associated with non-compliances in 2013 for N-SMR is provided in Table 23.

Table 23 Rectification of non-compliances N-SMR

Tenement	Date of incident	Detected by operator	Reportable under Regulation 87?	Date initially reported to Minister	Date written report to Minister	Non-compliance	Status	Further work plan
Various	December 2013	December 2013	Not reported	Not reported	Not reported	Six monthly vegetation dust impact report MI191 (Arrium Mining 2013a) recorded multiple deaths of plant species *Phebalium bullatum* which may have been attributed to dust deposition from the Iron Knight crushing and screening operations	Currently being rectified Action #: N-SMR 2013-01	Redesign, installation and implementation of crushing and screening dust suppression system at Iron Knight ROM Pad Recent dust control improvement measures will be monitored for effectiveness

10 DISTURBANCE AND REHABILITATION

Areas of disturbance, areas that have been rehabilitated in the N-SMR (as at 31 December 2013) and areas anticipated to be disturbed in calendar year (CY) 2014 are outlined in Table 24. See Appendix A2 for a map showing vegetation clearance areas.

Table 24 Disturbance and rehabilitation N-SMR (2013)

Domain	Pit name	Clearance 1 January to 31 December 2013		Proposed next twelve months	
		Disturbed (ha)	Rehabilitated (ha)	Disturbed (ha)	Rehabilitated (ha)
Iron Knight west side	Iron Knight	1.2	28.01		
Iron Knight pipeline	Iron Knight	0.5			
Chieftain North pit	Iron Chieftain	6.2			
Chieftain haul road	Iron Chieftain	0.3			
Low grade ore stockpile	Iron Chieftain	4.5			
Rom pad and ramp	Iron Chieftain	0.247			
Chieftain Go-line	Iron Chieftain	1.66			
Northern expansion area	Iron Chieftain			116.2	

Arrium Mining's Significant Environmental Benefit (SEB) credit ledger to June 2014 is provided in Table 25.

Table 25 Arrium Mining Significant Environmental Benefit (SEB) credit ledger to June 2014

Arrium Mining – Middleback Ranges SEB Credit Ledger						
Description	**Reference**	**Area disturbed (ha)**	**Date**	**Offset ratio**	**SEB area (ha)**	**Credit (ha)**
Whyalla Conservation Park			2003			972
Ironstone Hill Conservation Park (Shirrocoe)			2007			19,900
TOTAL SEB CREDIT						**20,872**
SMR Project Magnet	SMR MARP 2007	356.65	2007	various	3,188.64	17,683.36
Trans-shipment pad and spurline	NVC2007/3063/010 07WLB06139	0.9	2007	10:1	9	17,674.36
BOS slag dumps	NVC 07WLB07865	10	2007	4:1	40	17,634.36
Rail passing loops	NVC2008/3164/850	1.275	2008	various	5.95	17,628.41
N-SMR (Chieftain–Knight)	N-SMR MARP 2010	335.7	2010	various	2,641.08	14,987.33
Iron Baron ore beneficiation plant (OBP)	Iron Baron Construction MARP (Jan) 2011	17	2011	8:1	136	14,851.33
NE WRD extension	SMR MARP 2007 Addendum 2011	56	2011	10:1	560	14,291.33
SE WRD extension	SMR MARP 2007 Addendum 2011	132	2011	10:1	1320	12,971.33
Iron Baron OBP (update)	Iron Baron Construction MARP 2011 (update)	8.48	2011	various	32.12	12,939.21
Iron Baron OBP surplus (credit)	WPC-056 approved 30 ha for construction, (17+ 8.48 = 25.48 used = 4.52 remaining)	4.52	2011	8:1	36.16	12,903.05
SMR access road realignment	PIRSA Notification 2011	6	2011	10:1	60	12,843.05
SMR workshop extension	Letter to PIRSA re MPL 34 activity 16/7/10	5	2011	10:1	50	12,793.05
N-SMR (Chieftain–Knight) update	WPC-081 SMR minor mine adjustments_PIRSA_7-10-11	35.29	2011	various	286.52	12,506.53
IBMA WRDs	IBMA PEPR WPC-059 (*Eucalyptus Oleosa*)	36	2011	8:1	288	12,218.53
IBMA WRDs	IBMA PEPR WPC-059 (*Casuarina pauper*)	1.4	2011	6:1	8.4	12,210.13
IBMA extension to Little Baron pit	IBMA PEPR WPC-059	0.2	2011	4:1	0.08	12,210.05
IBMA LGO temp out-of-spec	IBMA PEPR WPC-059	2.3	2011	2:1	4.6	12,205.45

Arrium Mining – Middleback Ranges SEB Credit Ledger						
Description	**Reference**	**Area disturbed (ha)**	**Date**	**Offset ratio**	**SEB area (ha)**	**Credit (ha)**
IBMA surplus (credit)	IBMA PEPR WPC-059	10.9	2011	8:1	87.2	12,118.25
Iron Chieftain go-line adjustment	MPL 34_Iron Chieftain Go-Line_VCCA	0.28	2011	2:1	0.56	12,117.69
IBMA surplus (credit)	IBMA PEPR WPC-083 (credit reduced from 059)	-0.9	2012	8:1	-7.2	12,124.89
IBMA out-of-spec LGO stockpile	IBMA PEPR WPC-083	6.4	2012	2:1	12.8	12,112.09
Reclamation of LGO dumps PC and IBDU07	IBMA PEPR WPC-083	6	2012	2:1	12	12,100.09
IBMA boundary fence	IBMA PEPR WPC-083	2.4	2012	8:1	19.2	12,080.89
IBMA WRDs	IBMA PEPR WPC-083 (*Eucalyptus Oleosa*) Increase to WPC-059 line 19; 36+13.9=49.9	13.9	2012	8:1	111.2	11,969.69
Whyalla Steelworks Ports project rail construction	NVC 12NRM0198	2.2	2012	4:1	8.8	11,960.89
Whyalla Steelworks Ports project rail construction	NVC 12NRM0298	8.8	2012	4:1	35.2	11,925.69
Iron Baron OBP surplus (credit)	Reference line 15 (4.52 ha credit minus 1.74, Lucas workshops reference MI 165 = 2.78 ha remaining)	0	2012	8:1	0	11,925.69
Iron Princess groundwater monitoring wells	IKMA PEPR WPC-084	1	2012	8:1	8	11,917.69
Whyalla Steelworks Ports project rail construction	NVC 12NRMO875	7.2	2012	4:1	28.8	11,888.89
Iron Knob Phase 1 operations	IKMA PEPR WPC-088	75.1	2012	various	515.5	11,373.39
Iron Knob Phase 2 operations	IKMA Phase 2 PEPR WPC-103	258.67	2014	Various	1,969.66	9,403.73
Iron Chieftain extension	Iron Chieftain Supplementary Tenement Proposal WPC-123	116.2	2014	Various	920.6	8,483.13
TOTAL		**1,516.87**			**12,388.87**	**8,483.13**

11 ENVIRONMENT PROTECTION AND BIODIVERSITY CONSERVATION ACT REPORTING

No tenements in the N-SMR mining area are subject to an approval under the Commonwealth *Environment Protection and Biodiversity Conservation (EPBC) Act 1999*, therefore no report has been provided to demonstrate compliance with this legislation.

12 AUDITS AND REVIEWS

Arrium Mining was subject to a re-certification audit in 2013 as part of their ISO AS/NZS 14001 certification program (certificate number C10317) with SAI Global (2013). The purpose of the audit was to determine the capability and effectiveness of Arrium Mining's management system in:

- ensuring continual compliance with customer, statutory and regulatory requirements
- meeting its specified objectives
- conformity of the management system to stated criteria.

SAI Global has recognised that the strength of Arrium Mining's Environmental Management System (EMS) has been its capacity to adapt to the changes in the business environment, and that the EMS remains effective and relevant to the needs of the organisation, despite the significant increase in mining activities.

The recertification audit undertaken in September and October included site visits to the N-SMR. No Non-conformances were raised during the audit by SAI Global. Relevant Area of Concern (AOC) items identified as part of the audit are provided in Table 26.

Table 26 Area of Concern (AOC) items arising from EMS Audits 2013 - N-SMR

Aspect audited	Date of audit	Auditor	Issues raised	Corrective action
Public Safety	30/09/2014	SAI Global	Flammable and oxidising gases were stored adjacent to each other	Flammable and oxidising gas storages were separated in accordance with Australian Standards. SAI Global's 2014 surveillance audit will close this item out

13 VERIFICATION OF UNCERTAINTIES

Assumptions of uncertainties related to N-SMR operations in 2013 are provided in Table 27.

Table 27 Uncertainties in relation to compliance for N-SMR in 2013

Description of assumption of uncertainty	Estimated date to resolve	Progress in reporting period	Confirmed	Forward work plan
Multiple deaths of plant species *Phebalium bullatum* which may be attributable to dust deposition from the Iron Knight crushing and screening operations	Ongoing	Extensive investigations and development and implementation of the Mines Fugitive Dust Ranking (FDR) standard	No	Redesign, installation and implementation of crushing and screening dust suppression system at Iron Knight ROM Pad Recent dust control improvement measures will be monitored for effectiveness

14 TECHNICAL REPORTS

A list of technical reports prepared for the N-SMR in 2013 is provided in Table 28.

Table 28 Technical reports for N-SMR in 2013

Report	Author
MI171 Biennial Flora Monitoring (February 2013)	Larry Bebbington Habitat & Land Management Consultant
MI172 Vegetation Dust Impact Inspection Report (May 2013)	Arrium Mining (Arrium Mining 2013b)
Minor Change Notification: Iron Chieftain Pit Extension and WRD Design Change, May 2013 (Doc. Ref: WPC-104, Rev 0)	Arrium Mining (Arrium Mining 2013c)
Terrain Productivity Assessment, Level 1, A Terrain Productivity Assessment, including an investigation into soil characteristics and constraints to the production of broadacre crops and the potential production issues in relation to mining dust deposition from the Iron Duke mine	Injekta Field Systems

15 FORWARD WORK PLAN

The forward work plan associated with the 2013 reporting year is provided in Table 29.

Table 29 Forward Work Plan for N-SMR 2013

Action Number	Action description	Responsible department	Proposed completion date	Compliance report reference
N-SMR 2013-01	Implement pit and WRD design changes described in WPC-104 (Rev 0)	Arrium Mine Planning team	ongoing	Section 4
N-SMR 2013-02	Submit Iron Chieftain supplementary tenement proposal and obtain offer of new tenements	Arrium Mining Regulatory Approvals Team DSD Assessment and Tenements Office Team	June 2014 submission for September 2014 offer of tenements	Section 4
N-SMR 2013-03	SMR PEPR submission (superseding N-SMR PEPR)	Arrium Mining Regulatory Approvals Team DSD Assessment Team	September 2014 submission, aiming for December 2014 approval	Section 4
N-SMR 2013-04	Redesign, installation and implementation of crushing and screening dust suppression system at Iron Knight ROM Pad Recent dust control improvement measures will be monitored for effectiveness	Arrium Mining Environmental Assurance	Implementation of design changes by mid-2014 with ongoing monitoring of performance	Section 6.2 Section 13
N-SMR 2013-05	Continue to rehabilitate KW01 WRD sections as they become available and monitor response of rehabilitated areas	Arrium Mining Environmental Assurance	ongoing	Section 7
N-SMR 2013-06	Close out of AOC raised by SAI Global: • flammable and oxidising gas storages were separated in accordance with Australian Standards. SAI Global's 2014 surveillance audit will close this item out	Arrium Mining Environmental Assurance Arrium Mining Health and Safety	September 2014 (SAI Global surveillance audit)	Section 12

Note: The Action Number is an assigned number specific to the reporting year

16 REFERENCES

Arrium Mining 2014, Mine Site – Road Design, Construction and Maintenance QP76.MO.001 (18 August 2014), unpublished company guidelines

Arrium Mining 2013, *Arrium Mining Northern – South Middleback Range Minor Change Notification: Iron Chieftain Pit Extension and WRD Design Change (March 2014),* unpublished report to DMITRE, Whyalla, South Australia

Arrium Mining 2013a, *Vegetation Dust Impact Inspection Report MI191: Middleback Ranges Mines Six Monthly Inspection (December 2013)*, unpublished company report, Whyalla, South Australia

Arrium Mining 2013b, *Vegetation Dust Impact Inspection Report MI172: Middleback Ranges Mines Six Monthly Inspection*, unpublished company report, Whyalla, South Australia

Arrium Mining 2013c, *Minor Change Notification: Iron Chieftain Pit Extension and WRD Design Change*, (*May 2013)* (Doc. Ref: WPC104, Rev 0) Arrium Mining, Whyalla, South Australia

Arrium Mining 2012, *Arrium Mining Soil Management Plan, QP50_66*, unpublished company plan

Arrium Mining 2011, Program for Environmental Protection and Rehabilitation (PEPR2010/00014)

Arrium Mining 2009, *Arrium Mining Exploration Guidelines, QP50_58*, unpublished company procedure

Arrium Mining and Materials 2013, *Our Evolving Journey: Environmental and Social Responsibility Report 2012 / 2013*, viewed 25 August 2014 <file:///I:/Jobs/2014/140497-WPC-135%202013%20SMR%20Mining%20Compliance%20Report/Refs/ArriumESR%20Report%202012-13_25Aug14.pdf>

Bebbington, L 2013, *Biennial Flora Monitoring: Arrium Whyalla Middleback Range Mines – February 2013,* unpublished report prepared for Arrium Mining, Port Lincoln, South Australia

Department for Manufacturing, Innovation, Trade, Resources and Energy 2014, *Guidelines for miners: preparation of a compliance report for non-extractive operations (Regulation 86) in South Australia, Minerals Regulatory Guidelines MG3*, Resources and Energy Group, V3, unpublished draft guidelines

Department of Environment, Water and Natural Resources 2014, *Middleback's treasures of rare animals revealed*, Media Release 12 February 2014, viewed 25 August 2014 <http://www.epnrm.sa.gov.au/Portals/4/Media/1213/Middleback%20treasures(2).pdf>

Department of Environment, Water and Natural Resources 2013, *The Middleback Alliance: A Conservation Partnership*, pamphlet, DEWNR Caring For Country, Adelaide, South Australia

Department of State Development 2014, Ministerial Determination (MD 009) under Regulation 86(1), (3), (4) and (7) of the Mining Regulations 2011 (effective from 6th September 2012) determining the reporting periods and minimum information required to be provided in a Compliance Report for a Mineral Lease (ML) and any associated Miscellaneous Purposes Licence (MPL) for metallic and industrial minerals, unpublished draft Ministerial Determination

Environment Protection Act 1993 (SA)

Injekta Field Systems, 2013, *Terrain Productivity Assessment, Level 1, A Terrain Productivity Assessment, including an investigation into soil characteristics and constraints to the production of broadacre crops and the potential production issues in relation to mining dust deposition from the Iron Duke mine*, Unpublished report prepared for Arrium Limited, Adelaide, 2013

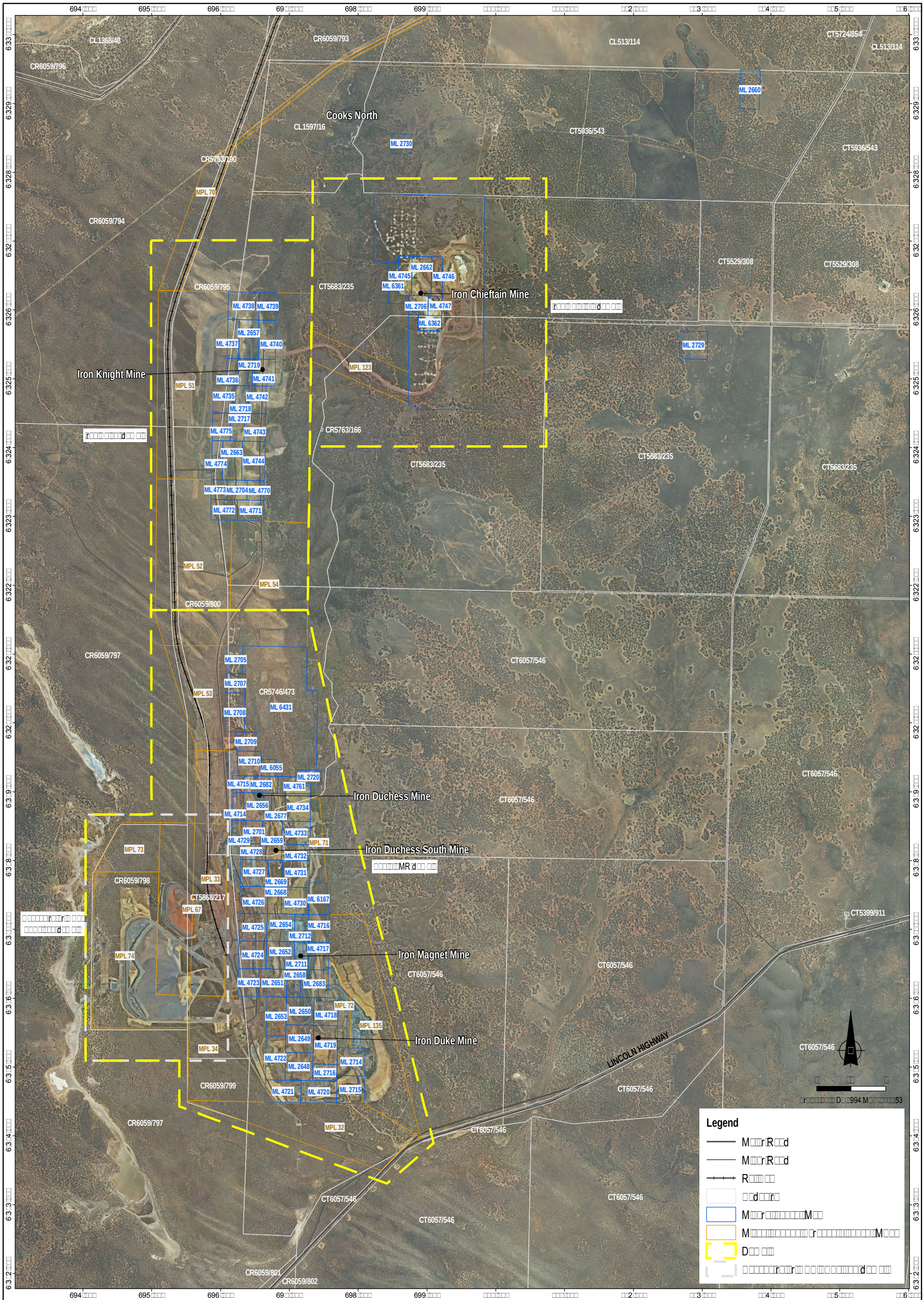
Mining Act 1971 (SA)

Appendix A

Figures

A1: South Middleback Ranges (SMR) Mining Area Tenements and cadastre boundaries

A2: Vegetation Clearance in the N-SMR to September 2013



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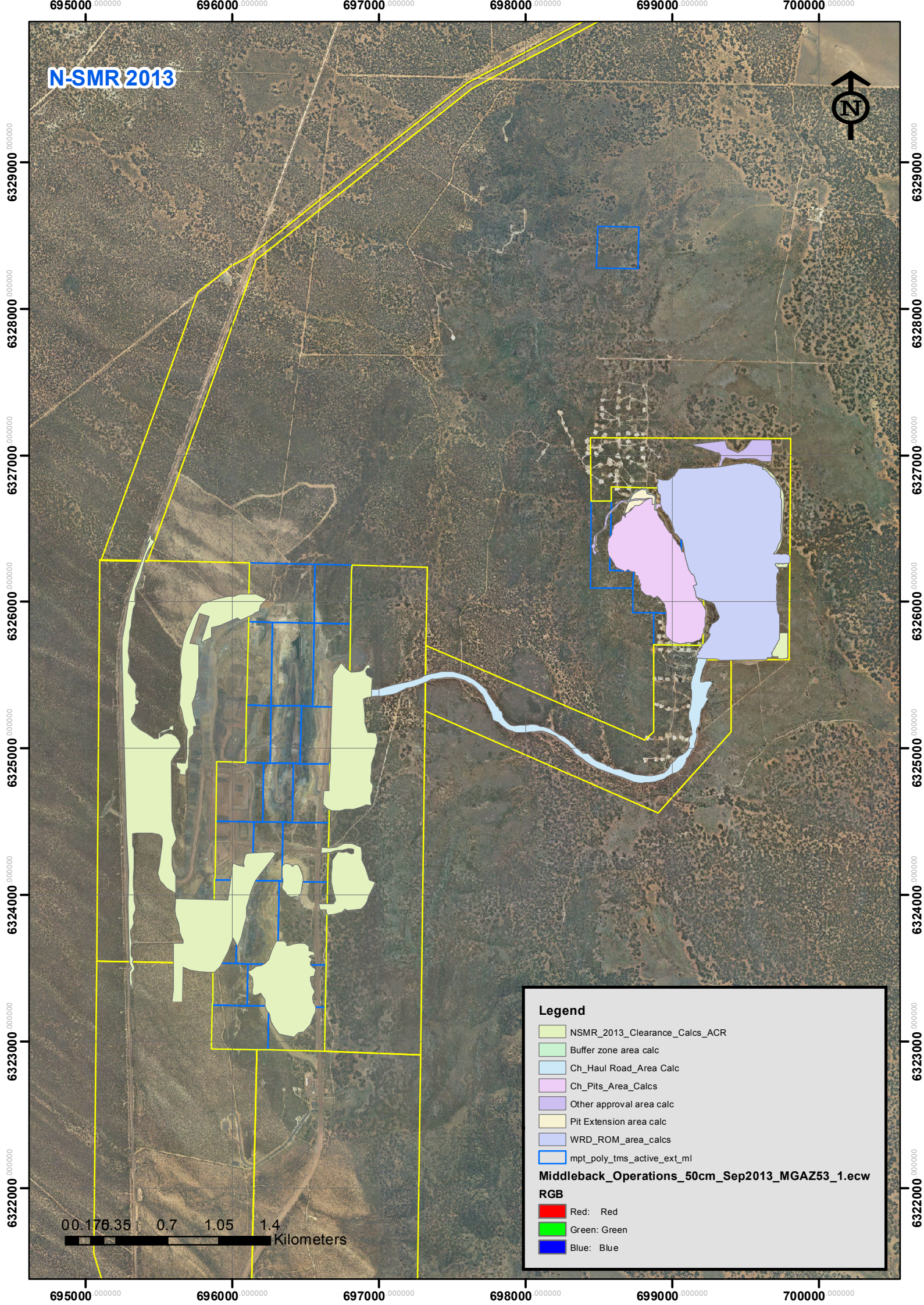
South Middleback Ranges (SMR) mining area tenements and cadastre boundaries


N-SMR 2013
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Kilometers
Legend
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Ch_Haul Road_Area Calc
Ch_Pits_Area_Calcs
Other approval area calc
Pit Extension area calc
WRD_ROM_area_calcs
mpt_poly_tms_active_ext_ml
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RGB
Red: Red
Green: Green
Blue: Blue

Appendix B

Middleback Alliance Information Brochure

B1: The Middleback Alliance : A Conservation Partnership

THE MIDDLEBACK ALLIANCE

A Conservation Partnership

What is the Middleback Alliance?

The Middleback Alliance is a cooperative framework for sustainable land management across the southern Middleback Range and surrounding areas.

The Alliance is directed by three major landholders in the region (Ecological Horizons, Natural Resources Eyre Peninsula and Arrium Mining). Other landholders also participate.

By sharing resources and cooperatively delivering a works program across land boundaries, the Middleback Alliance delivers improved and sustainable land management outcomes. To date, 12 properties have participated over an area of more than 250,000 hectares.

Government of South Australia

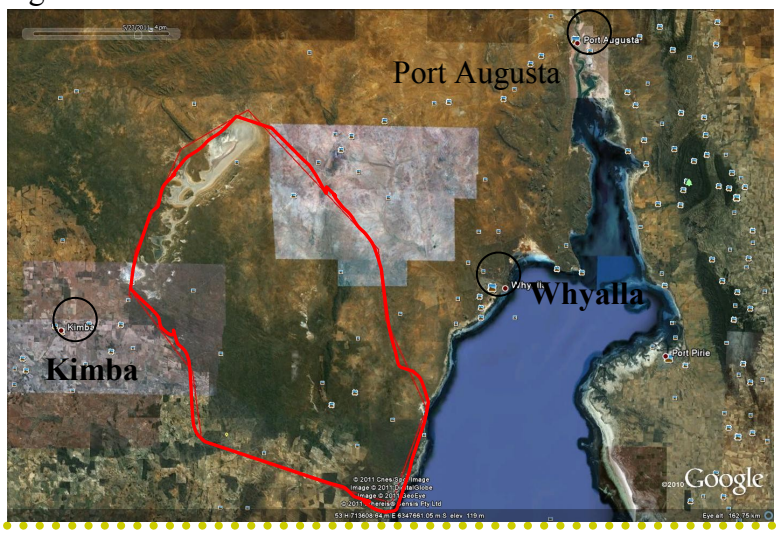
ECOLOGICAL HORIZONS

arrium MINING

CARING FOR OUR COUNTRY

Middleback Alliance Area

The Middleback Alliance area encompasses four conservation parks (Lake Gilles, Ironstone Hill, Munyeroo and Sheoak Hill), Secret Rocks nature reserve, the south Middleback Range and numerous pastoral leases and heritage agreements.



Conservation Activities

The range of activities undertaken by the Middleback Alliance include;

- fire management
- goat and fox control
- erosion and weed control,
- rabbit warren ripping
- threatened species monitoring
- rock hole and visitor management.

The Middleback Alliance receives financial and in-kind support from each partner organisation and has also received three Caring for our Country grants from the Federal Government.

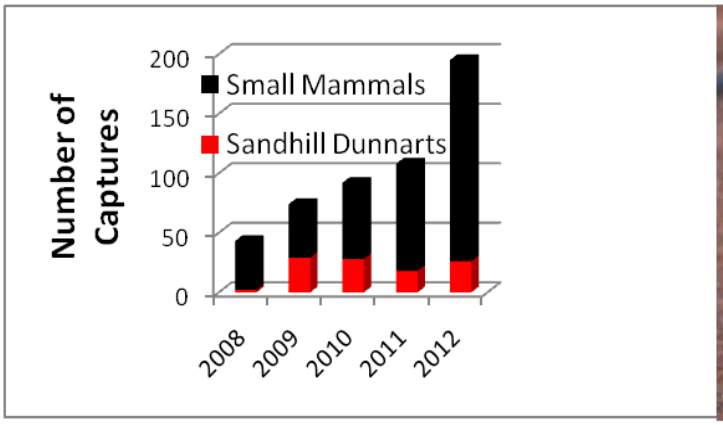
Threatened species

The Middleback Alliance has conducted surveys and monitoring of several species of national conservation significance.

These include the Chalky Wattle, Yellow Swainson Pea, Lax Bluebush, Western Grasswren, Slender-billed Thornbill, Malleefowl and Sandhill Dunnart.

Recent studies have confirmed that the region hosts one of the most robust and abundant known populations of the nationally-threatened Sandhill Dunnart.

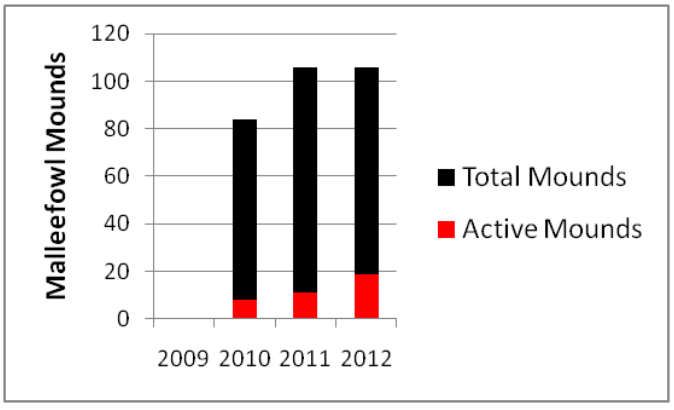
These dunnarts, which live in dense spinifex clumps on sand dunes, benefit from fire and grazing management and control of feral foxes and cats.



Sandhill Dunnarts have been captured in consistently high numbers and capture rates of other small mammals in the Middleback Alliance region have steadily increased since the inception of the project.

"The Middleback Alliance region supports one of the largest populations of Sandhill Dunnarts in Australia"

Malleefowl



The Middleback Alliance region hosts one of the largest populations of malleefowl in South Australia with at least 18 active mounds recorded in 2012. Continued surveys and successful hatching events are increasing the number of mounds located each year.

A Malleefowl chick emerging from a mound at Secret Rocks. Its chances of survival have now improved due to fox baiting .

Fire

The mallee environment is fire-adapted and many plant and animal species benefit from fire.

However, due to vegetation clearances on upper Eyre Peninsula, the Ironstone Hill/Secret Rocks area is an island of remnant vegetation where fire ecology and fire management needs to be better understood through trials and associated monitoring.

Rejuvenation of fire dependant flora and fauna habitat that historically took place on a landscape scale now requires intervention within this remnant of the bio-region.

Large-scale high-intensity fires pose a serious threat to some species and also to production and property.

By actively burning smaller areas more often, destructive large-scale wildfires can be reduced.

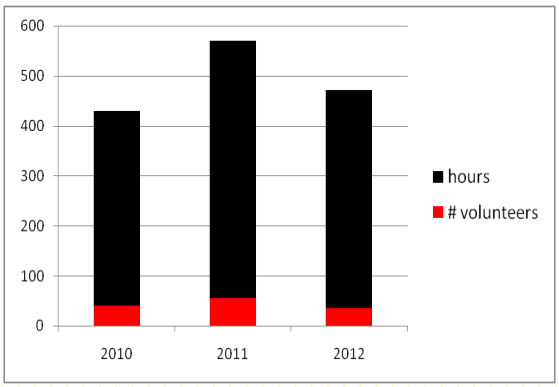
Since 2009 we have conducted 11 burns ranging in size from 1 to 680 hectares.

Several fire-dependent species of conservation concern, including the yellow swainson pea and the scarlet chested parrot, have been recorded in these regenerating areas.
We have also conducted protection burns to protect old growth mallee used by nesting Malleefowl.

The nationally vulnerable yellow swainson pea and state-listed Rare scarlet chested parrot have been recorded from regenerating control burns in the Middleback Alliance area.

Community and Volunteer Engagement

Over 35 volunteers contribute 400-500 hours to the Middleback Alliance works program each year. Volunteers monitor Malleefowl and other threatened species, control feral animals and assist with other conservation activities.



These figures do not include the considerable in-kind contribution by staff from Ecological Horizons, Natural Resources Eyre Peninsula and Arrium Mining, or James Shepherdson who removes goats free of charge.

Contractors from Port Lincoln Aboriginal Corporation spray Salvation Jane, Horehound and weeds for the Middleback Alliance.

Feral Animal Control

GOATS
Over 4,500 feral goats have been removed from the Middleback Alliance region since 2008.

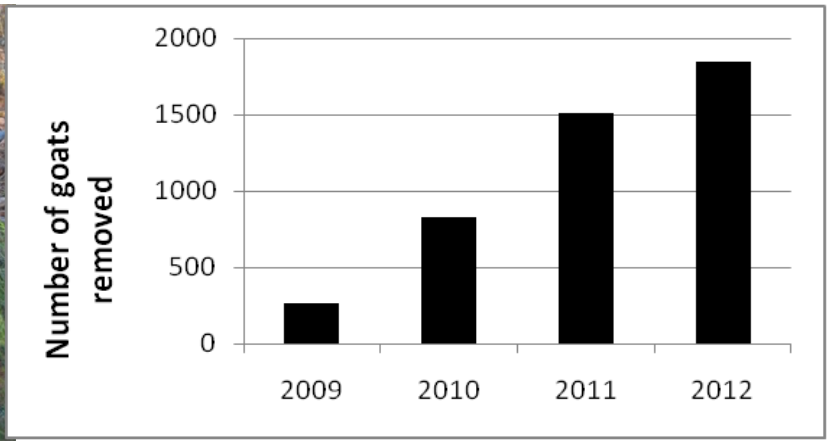
The use of radio-collared 'Judas' goats and increased participation from landholders has led to a steady increase in the numbers of goats removed.

RABBITS
The Middleback Alliance has ripped over 500 warrens on 8 properties since 2009.

Not only do rabbits limit recruitment of palatable plant species, high rabbit numbers also support predators, especially foxes and cats, that present a serious threat to wildlife.

FOXES AND CATS
Foxes are regularly controlled by 1080 meat baits, M-44 ejectors and shooting.

Trials of a range of new technologies are proposed to improve the success of cat control in the Middleback Alliance region.



'Judas' goats are fitted with GPS and VHF-equipped radiocollars that enable musterers and shooters to locate mobs in the dense scrub.

Want to know more or get involved?

An active malleefowl mound being checked and measured by volunteers

The Middleback Alliance welcomes participation from volunteers and neighbouring landholders. Landholders can choose to participate in all or only some components including feral animal control, erosion management, threatened species monitoring or control burns.

Through cooperation and cross boundary management, the Middleback Alliance is achieving region-wide benefits to both conservation and production.

If you are interested in any aspect of the Middleback Alliance program please contact us at ecological@activ8.net.au or ph. 0886481878.

Appendix C

Technical Report

C1: Arrium Mining 2013, *Vegetation Dust Impact Inspection Report MI191: Middleback Ranges Mines Six Monthly Inspection* (December 2013)

VEGETATION DUST IMPACT INSPECTION REPORT

Middleback Ranges Mines

Six Monthly Inspection

17th/23rd December 2013

Compiled by Geoff Mills
Environment Assurance Manager
Whyalla Mines

Field assistance Glen Shepherd

MI191

Index:

Background:

Monitoring of vegetation condition is required under the various MARP and PEPR approvals to assess compliance to the standard PEPR and MPL condition of '*No unapproved loss of abundance or diversity to native vegetation through clearance, dust/contaminant deposition, fire or other damage caused by mining operations on or off the tenements'.*

Dust deposition has been identified as a major threat to the health of native vegetation from the mining operations. Some species of native vegetation are much more susceptible to dust deposition impacts than others, these species have been identified as the indicator species for each area.

The various MARP and PEPR approvals have documented monitoring commitments that include biennial monitoring by external consultants and six monthly inspections using internal resources. This report is the fourth, six month inspection, report.

Baseline assessment was conducted by Native Vegetation consultant Larry Bebbington in November 2011, Refer MI146_ Mines Flora Monitoring Report (Bebbington 2011) and again in February 2013; Refer MI171_Mines Flora Monitoring Report (Bebbington 2013). To facilitate the collection of baseline data, permanent Flora and Fauna monitoring quadrats have been established along with a monitoring tool based on ecosystem function analysis (EFA) methodology specifically designed for the Middleback Range Mine sites.

Six monthly impact inspections are undertaken at the biennial flora and fauna monitoring quadrat sites as well at additional observation sites established in December 2013 Refer: Figures 1,2 & 3.

The assessment methodology takes rainfall variations into account, however some 'washing' and in particular, new growth effects that are experienced following periods of rainfall are used to monitor recovery following improvement to dust control in each area.

Inspection Methodology:

Objective:
To apply a simple visual inspection methodology to assess vegetation condition trends due to dust deposition impacts on a six monthly basis that will enable swift response to vegetation decline in the interim period between external biennial monitoring.

Methodology:
Using the existing permanent flora and fauna monitoring quadrats and the associated photo point pegs, a comparison can be made to previous inspections using the following steps.

1. Photograph the quadrat from the photo point.
2. Measure the depth of dust deposition on the ground.
3. Assess if dust staining/deposition is visible or heavy.

4. Assess if there is senescence of canopy, minor deaths or multiple deaths to indicator species.
5. Apply the impact score: Refer table 1

An impact score of 4 or higher will indicate a potential non-compliance to the DMITRE approval.

Table 1: Impact score descriptors:

0	No visible dust staining	No vegetation impact
1	Visible dust staining	No vegetation impact
2	Heavy dust staining/deposition	No vegetation impact
3	Heavy dust deposition	Some vegetation canopy die back
4	Heavy dust deposition	< 5 deaths of indicator species
5	Heavy dust deposition	Multiple deaths of indicator species

N.B.

Increase in impact score = increased impact/risk

Decrease in impact score = decreased impact/risk

Report Summary:
The reporting period from June 2013 to Dec 2013 experienced good rainfall in June – August, then little or no rain from September - December

SMR SE WRD

Visible dust staining at both the impact site and the control site are showing even less impact than in May 2013, Impact score decreased from .05 to 0. due to new growth being clean at the time of the inspection.

SMR OBP

This site, located <100m from operations has continued to decline, probably due to the passage of time but also by the very dry period. Improved dust controls in this area are desirable.

Iron Knight

The monitoring site approximately 50m west of the ROM/Rail loading pad (SMR M2) initially showed very heavy dust deposition but no vegetation impacts, however since the commencement of monitoring at this site, one small shrub species (*Phebalium bullatum)* has experienced loss of abundance. The same species is now missing from the SMR OBP site so it is suspected to be an indicator species of dust impact. The SMR M2 dust impact score increased from 3 to 4.
Recent dust control improvement measures will be monitored for effectiveness.

Iron Chieftain

A slight improvement was noted at one of the Iron Chieftain monitoring sites due to improved dust control however it was also observed that ultra fine haematite dust has now reached further south and north along a line parallel to the range. These extended dust impacts will need to be closely monitored to assess the effectiveness of further controls recently implemented.

Iron Baron

Improvements to dust control in the past six months appear to have been effective. Six months ago even the control site (IB PP6 C), 3km east of mining operations, was experiencing heavy dust deposition, however that site has now improved significantly. Dust impact score decreased at IB PP6 C from =2 to =1.

Blue bush canopy affected by dust deposition over the past twelve months or more has now lost leaves. This is probably due to the passage of time that foliage has been effected, however new growth at this stage remains clean which indicates that the plants have not being impacted by recent dust deposition.

New growth will continue to be monitored to assess the effectiveness of improved dust control.

Site: SMR M4 Impact (sand dune adjacent to access road)	
Date: 23/12/13	
Impact score: = 2	
Dust deposition depth: = 3 mm	
Indicator species: Triodia irritans	
Comments: Triodia continues to have about 50% canopy cover. Some dead. All other species appeared not to be susceptible to dust and give the photo the impression that impacts are minor. Light staining only. New growth on Spinifex. Historic death of Triodia. High number of goat tracks and browsing on *Dodonaea lobulata*, which was also water stressed.	

Site: SMR M3 Impact (SMR OBP) <100m from mine operations	
Date: 17/12/13	
Impact score: = 5	
Dust deposition depth: 3mm	
Indicator species: *Triodia irritans, Phebalium bullatum*	
Comments: Multiple Triodia plants appeared to be dead, however I have noted in other areas that apparently dead Triodia sometimes reshoot after sufficient rainfall events - to be monitored in the next inspection. *Phebalium bullatum* not present. Note: *Dianella brevicauli*s in the foreground has reshot after rain Juvenile *Callitris verrucosa* on top of the dune, bitten off by goats. Lots of goat tracks.	

3.0

Site: M 1 Impact (Iron Knight ROM)	
Date: 23/12/13	
Impact score: = 2	
Dust deposition depth: 1-5 mm	
Indicator species: *Triodia irritans, Phebalium bullatum*	
Comments: Although the understory is naturally sparse, green shoots have appeared on *Triodia irritans*. New shoots also appearing on Mallee. Although Phebalium is water stressed this species remains in fair condition. Some deaths of this species were recorded adjacent to the road. Recruited *Callitris verrucosa*. One has been browsed by goats, however the rest remain in good order.	

4.0

Site: C 6 Impact (Iron Knight Nth)	
Date: 23/12/13	
Impact score: 0	
Dust deposition depth: 1-2 mm	
Indicator species: Triodia irritans	
Comments: Since the site had been decimated by fire on the 5/4/12 new regrowth is observed shooting from existing *Eucalyptus* and tall shrub root stock. Very light dust deposition noted on the underside of leaves. Significant growth has occurred since April.	

5.0

Site: SMR M2 (Iron Knight adjacent to ROM) E0695210 N6324801	
Date: 23/12/13	
Impact score: =4	
Dust deposition depth: 3-4 mm	
Indicator species: *Triodia irritans, Phebalium bullatum*	
Comments: Multiple (apparent) deaths of Phebalium bullatum, however individuals are still present. Suggest count within quadrat in next external assessment. Deaths could be attributed to a combination of very dry conditions in the first six months and increased stress from heavy dust loads. Note: Multiple *Callitris verrucosa* noted in April and June continue to grow and are in a healthy condition. New growth on Triodia and Mallee.	

6.0

Site: PP 1 Control (SE WRD)	
Date: 23/12/13	
Impact score: = 0	
Dust deposition depth: 0mm	
Indicator species: *Maireana astrotricha, Cratystylis conocephala, Rhagodia parabolica*	
Comments: The impact score decreased from 0.5 to 0 due to the very little visible dust deposition on the western side of *Cratystylis conocephala* that was observed in May 2013 having faded and is no longer visible.	

7.0

Site: PP 4 Impact (SE WRD)	
Date: 23/12/13	
Impact score: = 0	
Dust deposition depth: Trace	
Indicator species: *Cratystylis conocephala, Rhagodia parabolica*	
Comments: Impact score has decreased from 1 to 0, it was noted that there was light historical staining present with clear new growth.	

8.0

Site: IC PP7 Control (Iron Chieftain)	
Date: 23/12/13	
Impact score: =0	
Dust deposition depth: Nil	
Indicator species: *Maireana sedifolia, Rhagodia parabolica*	
Comments: Heavily impacted by past grazing pressure. However starting to show some regrowth.	

9.0

Site: IC PP6 Impact (Iron Chieftain)	
Date: 23/12/13	
Impact score: = 2	
Dust deposition depth: Nil	
Indicator species: *Maireana sedifolia, Rhagodia parabolica*	
Comments: Impact score increased from 1 to 2 due to more extensive brown dust staining. Heavy visible brown dust deposition on southern side of plants.	

10.0

Site: IC PP 8 (Iron Chieftain adjacent to WRD) E699803 N6325867	
Date: 23/12/13	
Impact score: =2	
Dust deposition depth: Trace	
Indicator species: *Maireana sedifolia*	
Comments: Blue bush remains heavily coated in red dust, still no sign of canopy senescence.	

11.0

Site: IB-OBP PP 5 Impact (Outside Iron Baron south access gate)	
Date: 17/12/13	
Impact score: = 3	
Dust deposition depth: 2-3 mm	
Indicator species: *Maireana sedifolia, Rhagodia parabolica*	
Comments: Site impact score remains at 3. Blue bush is showing partial canopy die back and new growth noticed in May is now stained. The senescence was expected due to the period of time that these plants are exposed to dust, however it is not expected that the plants will die. Senna appears less red than in May 2013: Refer to sec 16. Geijera showing new, clean growth.	

12.0

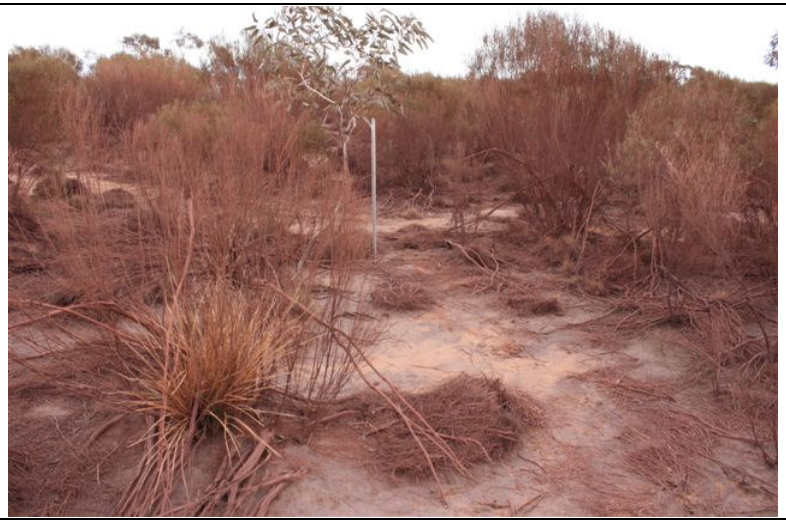
Site: IB PP 6 Control (3km east of Iron Baron OBP)	
Date: 17/12/13	
Impact score: = 1	
Dust deposition depth: Nil	
Indicator species: *Maireana sedifolia*	
Comments: Slight increase in stain since May Minor senescence noticed, possibly natural.	

13.0

Site: IB PP 7 (Observation site adjacent to Iron Queen) E703956 N6344098 (MGA84)	
Date: 17/12/13	
Impact score: =3	
Dust deposition depth:	
Indicator species: *Maireana sedifolia*	
Comments: Moderate visible staining on blue bush 3.5 km SE from IB OBP. Dust affected leaves have died and fallen off. It will be interesting to see if new growth appears without staining after rain and with improved dust control.	

14.0

Site: IB PP 8 (Observation site adjacent to highway 1.7 km from OBP ROM)	
Date: 17/12/13	
Impact score: =2	
Dust deposition depth:	
Indicator species: *Maireana sedifolia*	
Comments: Very heavy visible staining on blue bush 1.7 km SE from OBP ROM) Staining slightly consistent with May; refer to Sec.15 Some minor visible leaf shedding. New growth appearing clean on the perimeters of the plant and new growth on tall shrubs in the background is clean	

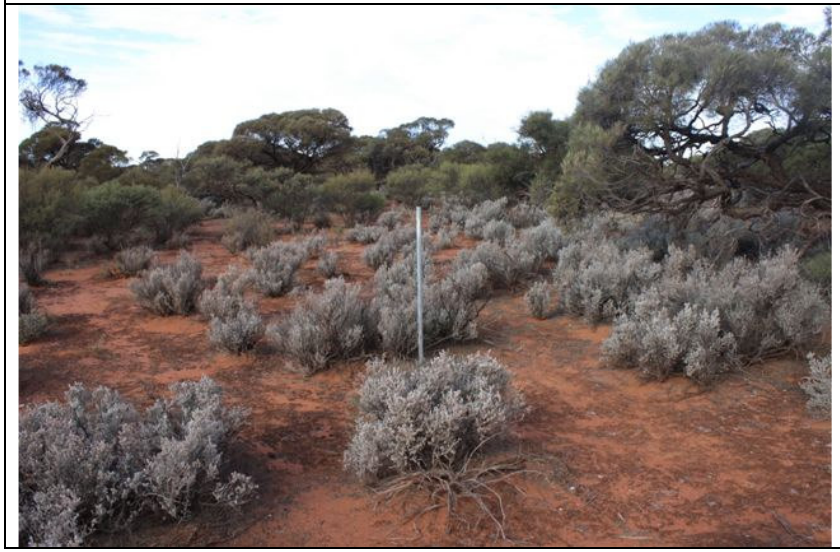
6/5/13 SMR	23/12/13
	
06/05/13 SMR OBP	**17/12/13**
	

6/5/13 Iron Knight	23/12/13
	
6/5/13 Iron Knight - nth	**23/12/13**
	

6/5/13 Iron Knight - west	23/12/13
	
6/5/13 SE WRD control	**23/12/13**
	

6/5/13 SE WRD Impact	23/12/13
	
6/5/13 Iron Chieftain control	**23/12/13**
	

6/5/13 Iron Chieftain Impact	23/12/13
	
	

6/5/13 Iron Baron Impact	17/12/13
	
6/5/13 Iron Baron control	**17/12/13**
	

6/5/13 Iron Baron – observation points	17/12/13
	
	

Figure 1: S-SMR monitoring locations

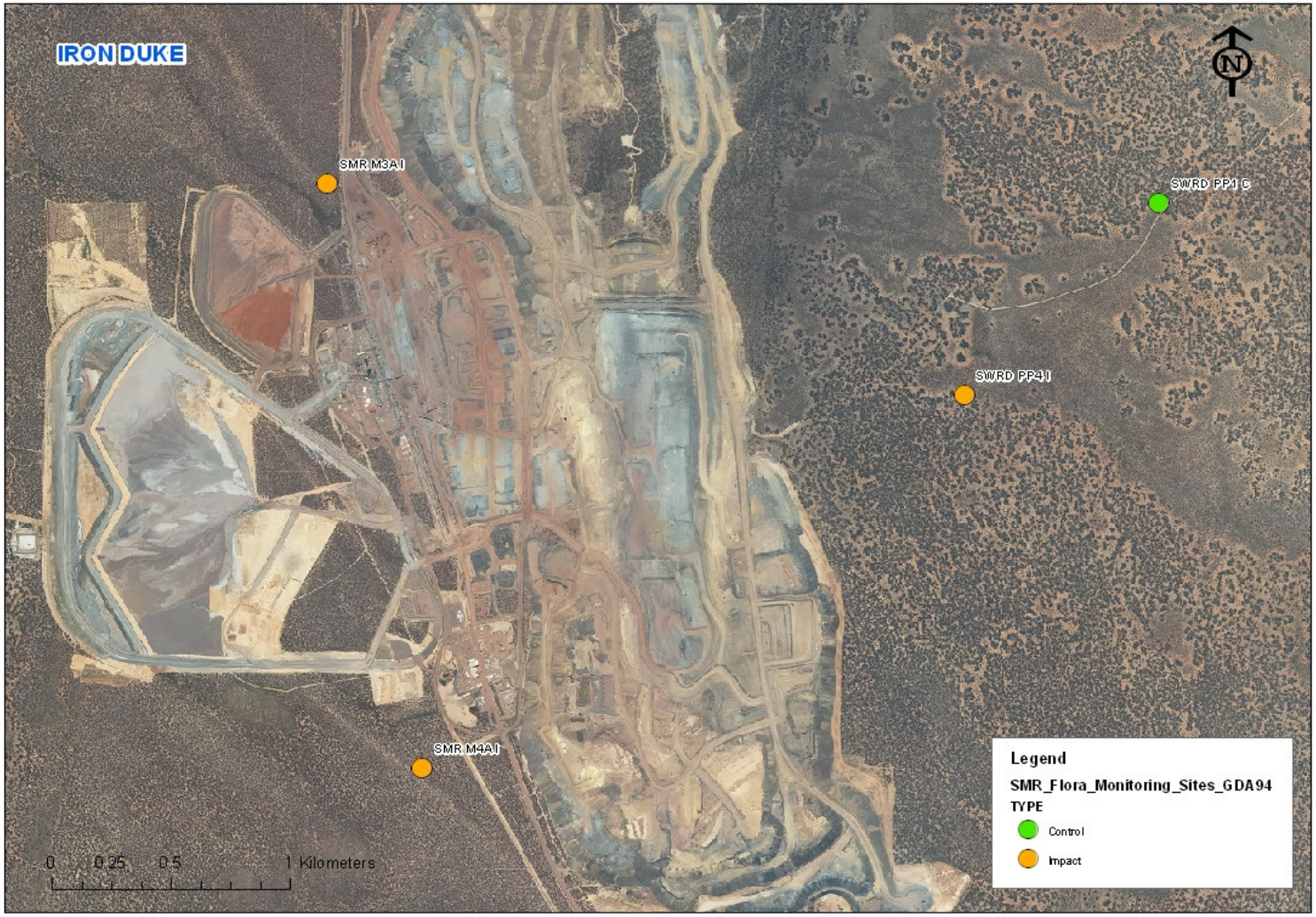


Figure 2: N-SMR monitoring locations

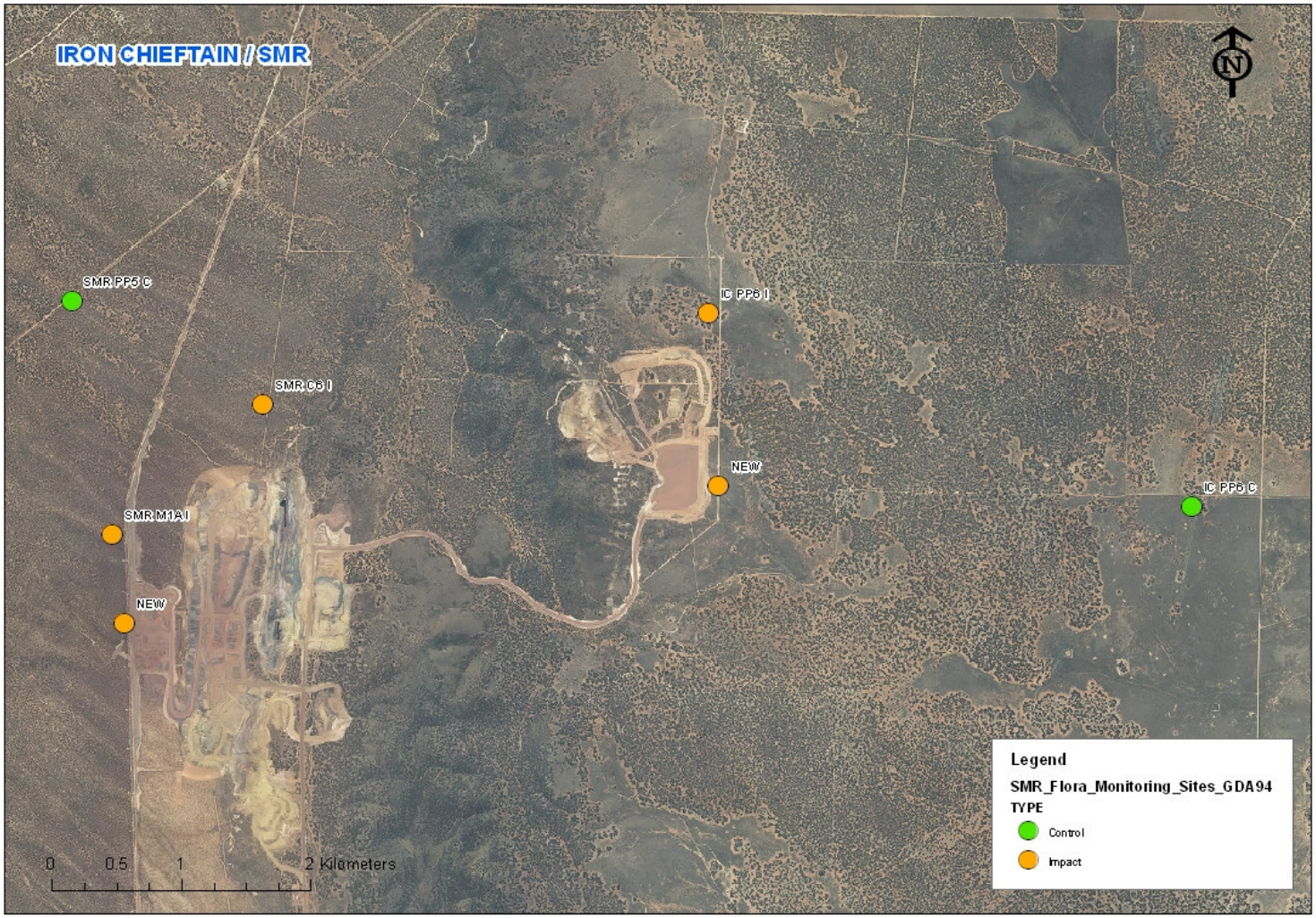


Figure 3: IBMA monitoring locations: