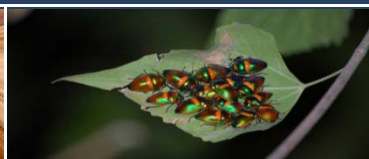




Chapter 5 EIS Development



Sherwin Iron (NT) Pty Ltd
Sherwin Creek Iron Ore Project
Environmental Impact Statement



2013



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5 EIS Development

5.1 List of Persons and Agency Consulted During EIS Development

Key stakeholder groups engaged as part of the consultation are provided in Table 5-1 below.

Table 5-1 Stakeholders Engaged through Consultation Process

Stakeholder Group	Organisation / Group
Traditional Aboriginal Owners and Representatives	Alawa and Mumbaliya (Namumardidi) traditional owners
	Northern Land Council
Local Communities	Badawarrka
	Jilkminggan
	Minyerri
	Urapunga
	Ngukurr
Northern Territory Government	Department of Lands, Planning and the Environment
	Department of Mines and Energy
	Environmental Protection Authority
Local Government	Roper Gulf Shire
Pastoral (Cattle) Industry	Mt McMinn
	Big River
	Lonesome Dove
	Numul Numul
	Flying Fox
	Moroak Stations
	Cattlemen's Association
Non-government Organisations	Environment Centre of the Northern Territory
	Yugal Mangi
	Alawa Corporation

5.2 Persons Involved in Development of the EIS

EcOz Environmental Services (EcOz) is a locally owned environmental consulting business providing services to industry, communities and government in northern, western and central Australia. The company was established in the Northern Territory in 1990. EcOz provides a broad range of environmental services to a diverse range of local, national and international clients. EcOz have bioregional expertise in the wet/dry tropics and the arid zones of Australia, and can provide a wide range of additional services and expertise

from national resources. EcOz work closely with their clients to provide rigorous and practical solutions to environmental problems whilst maintaining integrity in environmental practice.

Persons involved in the preparation of this EIS, including relevant sub-consultants are listed in Table 5-2 below.

Table 5-2. Persons and Associated Expertise Contributing to the EIS

Name	Organisation	Position	Tasks
Ray Hall	EcOz Environmental Services	Director and Principal	Project development; document review
Jeff Richardson	EcOz Environmental Services	Principal Consultant	Risk Analysis; document review
Justine Shailes	EcOz Environmental Services	Senior Environmental Consultant	Project management; Environment Management Plan; document review
Mike Welch	EcOz Environmental Services	Senior Environmental Consultant	Water, Hydrogeology
Chris Brady	EcOz Environmental Services	Senior Environmental Consultant	Biodiversity; document review
Tom Reilly	EcOz Environmental Services	Senior Environmental Consultant	Fauna surveys
Will Riddell	EcOz Environmental Services	Environmental Consultant	Biodiversity; Energy; Groundwater bore construction
Narelle Walkom	EcOz Environmental Services	Environmental Consultant	Noise and vibration; Air/Dust management; Waste management
Ian Brown	EcOz Environmental Services	Environmental Consultant	Rehabilitation and mine closure; Pest and weed management; Aquatic fauna surveys and reporting; Biting insect management
Casey Hawkey	EcOz Environmental Services	Environmental Consultant	Terrestrial and aquatic fauna surveys and reporting; Biting insect management; Environmental monitoring bore construction
Jyoti Maggu	EcOz Environmental Services	Environmental Consultant	Fauna surveys; Flora reporting
Keith Munson	EcOz Environmental Services	Environmental Consultant	GIS mapping; Transport
Emma Smith	EcOz Environmental Services	Environmental Consultant	Land resources and acid mine drainage
David van den Hoek	EcOz Environmental Services	Environmental Consultant	Flora surveys
Dane Trembath	EcOz Environmental Services	Environmental Consultant	Biodiversity
Helen Dwyer	EcOz Environmental	Environmental Consultant	Soil; Water; Groundwater

Name	Organisation	Position	Tasks
	Services		bore construction
Alice Parawa	EcOz Environmental Services	Administration Manager	Project administration
Carel van der Westhuizen	Pendragon Environmental Solutions	Principal Hydrogeologist	Ground water modelling, acid mine drainage management
Edgardo Alarcon Leon	Pendragon Environmental Solutions	Senior Geochemist and Hydrogeologist	Acid mine drainage management, Hydrogeology
Howard Smith	Sherwin	Heritage Liaison Officer	Historical and cultural heritage; Socio-economics; Community Consultation
Jwalit Parikh	HSE Australia	Occupational Hygiene and Environmental Risk Manager	Baseline reports for dust and noise
Michael van Itallie	ADG		Erosion and Sediment Control Plan
Kyle Armstrong	Specialised Zoological	Senior Zoologist	Bat call analysis
Graham Brown		Entomologist	Short Range Endemic (SRE) invertebrate report
David Wilson	Aquagreen	Aquatic Ecologist	Aquatic fauna surveys
Karen Martin-Stone	Earth Sea Heritage Surveys	Archaeologist	Archaeology
Richard Woolfe	Earth Sea Heritage Surveys	Senior Archaeologist	Archaeology

5.3 Further information and technical information

Various studies have been undertaken to support the development of the EIS and there are plans for ongoing work throughout continued planning and then construction and operations.

Specific work undertaken includes:

- Vegetation surveys and mapping including fine scale vegetation mapping (1:25,000 scale) and habitat characterisation. A vegetation survey was carried out over five days in the early dry season (May 2012) to maximise access across Deposit C and detect ephemeral plant species. A targeted flora survey for threatened flora species was undertaken in September 2013 in Deposit C. Vegetation surveys were conducted by EcOz Ecologists. Detail is provided within Appendix H2
- Terrestrial Fauna Surveys - A series of fauna surveys were conducted across eight separate locations from May-July 2011 and during May 2012. A standard fauna survey was carried out across four sites east of Deposit C in July 2011, while a separate survey occurred across six sites within Deposit C in May 2012. Fauna surveys were undertaken in surrounding areas, including mineral deposits X and W, to inform possible future mining activities and provide a regional perspective of fauna assemblages. Sites were selected to assess a range of habitat types including the predominant open woodland habitat and habitat regarded to potentially support higher biodiversity values such as rocky ridges and gullies. A total of 56 sites were surveyed using standard NT fauna survey methodology. All surveys were carried out by EcOz ecologists and further information is available in Appendix H1

- Bat species were assessed as a component of the fauna surveys using an Anabat SD1 Bat Detector. Recorded bat calls were sent to a bat expert (Kyle Armstrong, Specialised Zoological) for analysis and identification. Bat survey results are presented in Appendix H1
- Aquatic fauna surveys were conducted at 11 sites, including five sites in June 2011 and six sites in May 2012. Surveys occurred across a portion of the middle and upper reaches of the Roper River catchment, including the Hodgson River and Sherwin Creek. Survey sites were selected to span a broad variety of wetland habitat types, both within the proposed disturbance area and the wider catchment, to capture a regional perspective on aquatic fauna. Aquatic fauna surveys were carried out by EcOz ecologists with assistance from David Wilson (Aquagreen -aquatic specialist). Further information is available in Appendix H3
- Macroinvertebrate sampling was carried out in conjunction with the aquatic fauna survey. Sampling was undertaken in accordance with the NT 'AusRivAS' (Australian Rivers Assessment Scheme) User Manual (Lamche 2007). Macroinvertebrates were identified in a laboratory with the majority of taxa identified to family level and some identified to class or order. Further detail is available in Appendix H3
- A short-range endemic (SRE) invertebrate survey was conducted within Deposit C in July 2013 and involved diurnal and nocturnal hand searching of six sites. Results from this survey are presented in Appendix H1
- Camera traps were set up at an isolated billabong along Sherwin Creek during September and October 2013. The primary aim of this survey technique was to determine presence of Gouldian Finch (*Erythrura gouldiae*). Several vertebrate fauna were recorded and the results of this survey are presented in Appendix H1.
- A Water Management Plan (Appendix F1) has been developed based on available baseline surface water quality data for Sherwin Creek. Two water samples were collected at adjacent sites within Deposit C in May 2012
- Groundwater field studies were undertaken in September-October 2013, which involved drilling and initial water quality sampling of ten groundwater bores. This baseline monitoring facilitated an assessment of baseline groundwater occurrence and quality within the project area and results are presented in the Groundwater Report (Appendix F2)
- A total of 2 541 samples from drill holes within Deposit C were assessed for their chemical content, using acid base accounting methods. An Acid Mine Drainage / Potentially Acid Forming (AMD/PAF) Management Plan has been developed by Pendragon Environmental Services and is presented in Appendix G
- Risks to the social environment have been assessed following discussion with key regional stakeholders. The Social Management Plan (Appendix K) Plan highlights the risk and benefits to social activities and structures that are likely to result from the Sherwin Creek Iron Ore Project
- Ambient environmental dust monitoring data was collected from four locations within the mine deposit over a one month period from July to August 2013. Samples were analysed in a laboratory by HSE Australia and the results have informed the development of Appendix M- Environmental Dust Monitoring Data
- A 12 month baseline adult mosquito monitoring program was initiated in August 2013 in line with the recommendations outlined in the Guidelines for Preventing Mosquito Breeding Sites Associated with Mining Sites (Whelan and Warchot 2005). The initial trapping event occurred across four sites within Deposit C. Background information, results, monitoring methodology and biting insect management are outlined in Appendix N - Biting Insect Management Plan

- An archaeological and heritage assessment of Deposit C was undertaken by Earth Sea Heritage Surveys from 15-22 July 2013. This assessment is presented in Appendix O- Archaeological Survey Report
- Ambient environmental noise measurement data was collected from two locations within the mine deposit from July 17 to August 31 2013. This data was analysed by HSE Australia and has provided information for the development of Appendix P – Environmental Noise Baseline Data
- A soil survey across the Sherwin Creek Iron Ore Project area was undertaken from 12-14 August 2013. Twelve soil test pits were excavated within the project area. Pits were excavated to a depth of at least 2m with field tests and laboratory analyses undertaken on the samples collected from each pit. Results from this survey are presented in Appendix Q- Soil Report.

A full list of supporting appendices is presented in Table 5-3 below.

Table 5-3 Appendices List

Report	Appendix
NTEPA EIS Guidelines	A
Cross Reference Doc	B
Commitments	C
Environmental Management Plan	D
Erosion and Sediment Control Plan	E
Water Management Plan	F1
Groundwater Report	F2
AMD Assessment Report	G
Terrestrial Fauna Report	H1
Flora Report	H2
Aquatic Fauna Report	H3
Pest and Weed Management Plan	I
Rehabilitation and Mine Closure Plan	J
Provisional Social Impact Management Plan	K1
Economic and Social Impact Assessment	K2
Stakeholder Consultation Report	K3
Traffic Management Plan	L
Environmental Dust Monitoring Data	M
Biting Insect Management Plan	N
Archaeological Survey Report	O1
AAPA certificate	O2
Cultural Heritage Management Plan	O3
Environmental Noise Baseline Data	P
Soil Survey Report	Q
Greenhouse Gas Emissions Report	R