



EcOz  
Environmental  
Services

**WesternDesert**  
RESOURCES

# Chapter 12

## Draft EIS Development

Western Desert Resources Limited  
Roper Bar Iron Ore Project



2012



# Document Control Record

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# 12 EIS Development

## 12.1 List of Persons and Agency Consulted During EIS Development

Key stakeholder groups engaged as part of the consultation are provided in Table 12-1.

**Table 12-1 Stakeholders Engaged through Consultation Process**

| Stakeholder Group   | Organisation / Group   |
|---|--|
| <b>Independent statutory groups</b>                               | Northern Land Council  |
|   | Northern Territory Seafood Council   |
|   | Northern Territory Land Corporation  |
|   | Aboriginal Areas Protection Authority                                      |
|   | Minerals Council of Australia – Northern Territory                         |
|   | Power and Water Corporation  |
| <b>Commonwealth Government</b>                                    | Department of Families, Housing, Community Services and Indigenous Affairs |
| <b>Northern Territory Government agencies and representatives</b> | Natural Resources, Environment, The Arts and Sport (NRETAS)                |
|   | Department of Resources  |
|   | Department of the Chief Minister   |
|   | Minister for Natural Resources, Environment and Heritage                   |
|   | Minister for Resources   |
|   | NT Health  |
|   | Minyerri School  |
|   | Borroloola School  |
|   | Numbulwar School   |
|   | Northern Territory Police  |
|   | Malarndirri McCarthy MLA,  |
|   | Kezia Purick MLA,  |
|   | <b>Local Government</b>  |
| <b>Communities, events, groups and businesses</b>                 | Indigenous landowners and traditional owners                               |
|   | Land holders   |
|   | Communities of Borroloola, Minyerri, Ngukurr and Numbulwar                 |
|   | Yugul Mangi Aboriginal Development Corporation                             |
|   | Mabunji Aboriginal Corporation   |
|   | Numbulwar Numbirrindi Homelands Resource Centre                            |
|   | Alawa Aboriginal Corporation   |

|                         |   |
|-------------------------|---|
|                         | Katherine Show  |
|                         | Limmen Bight Fishing Club   |
|                         | Cairns Industries   |
|                         | Local store managers  |
|                         | Sunrise Health Services   |
|                         | Amateur Fishermen's Association of the Northern Territory (AFANT) |
|                         | <b>Media</b>  |
| ABC Northern Territory  |   |
| Northern Territory News |   |

## 12.2 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 12-2.

**Table 12-2 Persons and Associated Expertise Contributing to the EIS**

| Name                      | Organisation                | Position                       | Tasks  |
|---------------------------|-----------------------------|--------------------------------|--|
| <b>Ray Hall</b>           | EcOz Environmental Services | Director and Principal         | Project development; document review                             |
| <b>Jeff Richardson</b>    | EcOz Environmental Services | Senior Environmental Scientist | Risk Analysis; project management; document review               |
| <b>Justine Shailes</b>    | EcOz Environmental Services | Senior Environmental Scientist | Project management; Environment Management Plan; document review |
| <b>Mike Welch</b>         | EcOz Environmental Services | Senior Environmental Scientist | Surface and ground water resources                               |
| <b>Ann Grattidge</b>      | EcOz Environmental Services | Senior Environmental Scientist | Flora and fauna surveys and reporting                            |
| <b>Tom Reilly</b>         | EcOz Environmental Services | Senior Environmental Scientist | Fauna surveys and reporting                                      |
| <b>Kristina Entwistle</b> | EcOz Environmental Services | Senior Environmental Scientist | Marine issues; air, noise and vibration                          |
| <b>David van den Hoek</b> | EcOz Environmental Services | Environmental Scientist        | Flora and fauna surveys and reporting; weed and pest management  |
| <b>Glen Ewers</b>         | EcOz Environmental Services | Environmental Scientist        | Fauna surveys and reporting                                      |
| <b>Ian Brown</b>          | EcOz Environmental Services | Environmental Scientist        | Aquatic fauna; water management, waste management                |
| <b>Casey Hawkey</b>       | EcOz Environmental Services | Environmental Scientist        | Transport; biting insect management                              |
| <b>Jyoti Choudhary</b>    | EcOz Environmental          | Environmental Scientist        | Digital data requests; GIS                                       |

| Name                            | Organisation                      | Position                                | Tasks   |
|---------------------------------|-----------------------------------|---|---|
|                                 | Services                          |   | mapping; weed management plan                 |
| <b>Keith Munson</b>             | EcOz Environmental Services       | Environmental Scientist                 | GIS mapping                                   |
| <b>Emma Smith</b>               | EcOz Environmental Services       | Environmental Scientist                 | Land resources and acid mine drainage         |
| <b>Alice Parawa</b>             | EcOz Environmental Services       | Administration Manager                  | Project administration                        |
| <b>Carel van der Westhuizen</b> | Pendragon Environmental Solutions | Principal Hydrogeologist                | Ground water modelling, acid mine drainage    |
| <b>Edgardo Alarcon</b>          | Pendragon Environmental Solutions | Senior Geochemist                       | Ground water modelling, acid mine drainage    |
| <b>Chris Brock</b>              | Brock Environmental               | Consulting Botanist                     | Flora surveys and vegetation mapping          |
| <b>Dr Kyle Armstrong</b>        | Specialised Zoological Services   | Consulting Fauna Specialist             | Bat call analysis                             |
| <b>Alistair Cameron</b>         | Alistair Cameron Consulting       | Aquatic Ecologist                       | Macroinvertebrate identification and analysis |
| <b>Alex Dudley</b>              | Alex Dudley                       | Field Ecologist                         | Field survey assistance                       |
| <b>Ian Munro</b>                | Ian Munro Consulting              | Remote Community Development Consultant | Offsets                                       |
| <b>Dave Wilson</b>              | Aquagreen                         | Consulting Scientist                    | Aquatic survey                                |
| <b>Greg Hookey</b>              | Golder Associates                 | Manager, Water Services                 | Surface water hydrology                       |
| <b>Matt Goode</b>               | Golder Associates                 | Senior Hydrologist and Team Leader      | Surface water hydrology                       |
| <b>Alan Puhlovich</b>           | Golder Associates                 | Engineer                                | Surface water hydrology                       |
| <b>Amanda Wild</b>              | Rowland                           | Group Manager, Stakeholder Engagement   | Stakeholder engagement                        |
| <b>Jana Marschall</b>           | Rowland                           | Manager, Stakeholder Engagement         | Stakeholder engagement                        |
| <b>Sarah Coffey</b>             | Rowland                           | Senior Consultant                       | Stakeholder engagement                        |
| <b>Dr John Prince</b>           | Social compass                    | Director                                | Social impact assessment                      |
| <b>Dr Silvano Jung</b>          | Ellengowan Enterprises            | Consulting Archaeologist                | Archaeological survey                         |
| <b>Brad Comley</b>              | VDM Consulting                    | Manager, Water                          | Sediment and erosion control                  |
| <b>Joe McDonald</b>             | VDM Consulting                    | Water Engineer                          | Sediment and erosion control                  |
| <b>Sasho Temelkoski</b>         | VDM Consulting                    | Manager, Acoustics                      | Noise and vibration                           |
| <b>Octavio Alarcon</b>          | VDM Consulting                    | Acoustic Engineer                       | Noise and vibration                           |
| <b>Mariya Otten-Andrew</b>      | VDM Consulting                    | Traffic Engineer                        | Traffic Engineering                           |

## 12.3 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), habitat characterisation and local assessment for the presence of weed species. Assessment of the vegetation and notable habitat along the Haul Road Corridor was conducted by mapping and targeted on-ground survey. All on ground vegetation surveys coincided with the timing for fauna assessments which were carried out during the build-up rains (Oct – Nov) or the early (Dec- Feb) to late wet season (March - April). Vegetation surveys were conducted by EcOz Ecologists. Detail is provided within Appendix D;
- Terrestrial Fauna Surveys - A series of fauna surveys were conducted for all three potential zones of impact (Mining Lease Area, Haul Road route and Coastal Port) in order to characterise habitat types and species present within the study areas. Four standard fauna surveys were conducted within the MLA, which included two surveys in the build-up period (October 2010) and two surveys in the early dry season (June 2011). This aimed to capture the main temporal differences to species assemblages at this location. Five standard fauna surveys were conducted along the proposed haul road alignment in locations that were considered to support typical habitat for the area (i.e. open woodland) and habitat regarded to potentially support higher biodiversity values (i.e. the rocky ridges and gullies). A total of 21 sites were established during these surveys, which occurred between November 2011 and February 2012. One standard fauna survey was conducted for the proposed stockpile facility and conveyor belt alignment. Seven sites were surveyed to include the main vegetation types present in areas proposed to be cleared and disturbed. The survey was conducted in late February 2012. All surveys were carried out by EcOz ecologists and further information is available in Appendix D;
- Aquatic fauna surveys were conducted at five sites in October 2011 by David Wilson (Aquagreen - aquatic specialist), with three on the Towns River, and one each on Magaranyi River and Yumanji Creek – the two major tributaries downstream of the Towns River. No surveys were conducted along the haul road route and port facility as those developments are not expected to result in significant long term disturbance of wetland or riparian zones. Results from these surveys is presented in Appendix D – Terrestrial and Aquatic Biodiversity;
- Surface Water - Mine site surface water hydrology by Golders (report as EIS appendix), Haul road surface water hydrology completed by VDM and surface water quality by EcOz;
- Groundwater - Hydrogeology and groundwater report by Pendragon Environmental Solutions (report as EIS appendix), Groundwater modelling report by RPS (appendix to above report);
- A detailed risk assessment has been undertaken (Chapter 4) and has resulted in the identification of two additional risks above what was identified with the NRETAS Draft EIS Guidelines. Acid Mine Drainage (AMD) has been found present within the ore bodies and is likely to become an issue during mining and re-alignment of a section of the Towns River is also likely and therefore poses a risk. These and other risks are presented in Chapter 4 of the EIS;
- Acid Mine Drainage - Analysis of 204 samples from drill holes on site, using acid base accounting methods – AMD Management Plan by Pendragon Environmental Services (report as EIS appendix);
- Assessment of erosion and sediment control requirements, resulting in three Erosion and Sediment Control Plans – one each for the mine site, haul road and stockyard area (VDM Consulting); these are found in Appendix L;



- Assessment of baseline noise from two locations, noise modelling and assessment of vibration potential; and greenhouse gas emission modelling has been undertaken by VDM Consulting; these are found in Chapter 7 and Appendix M);
- A 12 month baseline adult mosquito monitoring program was initiated in February 2012 by EcOz Environmental Services, in collaboration with NT Medical Entomology, background information and management is outlined in Appendix O – Biting Insect Management Plan;
- Community consultation and social impact assessments have been carried out. Appendix G – Social Impact Assessment details the assessment carried out by Social Compass, and Appendix H – Consultation Reports, supplies information on consultations undertaken with local communities and stakeholders by Rowland; and
- Two archaeological surveys (haul road and mine site) have been completed by Dr. Silvano Jung, archaeological consultant (Ellengowan Enterprises) and are presented within Appendix I and J.

A full list of supporting appendices is presented in Table 12-3 below.

**Table 12-3 Appendices List**

| <b>Report</b>                           | <b>Appendix</b> |
|---|-----------------|
| EIS Guidelines                          | A               |
| Document Cross Reference                | B               |
| Environmental Management Plans          | C               |
| Terrestrial and Aquatic Biodiversity    | D               |
| Groundwater Report                      | E               |
| Weed and Pest Management Plan           | F               |
| Social Impact Assessment                | G               |
| Consultation Reports                    | H               |
| Archaeological Report Haul Rd           | I               |
| Archaeological Report Mine Site         | J               |
| Acid Mine Drainage Management           | K               |
| Erosion and Sediment Control Plans      | L               |
| Noise Technical Report                  | M               |
| Surface Water Hydrology Report          | N               |
| Biting Insect Management Plan           | O               |
| Rehabilitation and Closure Plan         | P               |
| Commitments Table                       | Q               |
| Water Management Plan                   | R               |
| Macroinvertebrates Survey Report        | S               |
| Draft Haul Road Traffic Management Plan | T               |