

# MINARA RESOURCES LIMITED

## First Public Report



### Controlling Corporation

Minara Resources Limited

### Period to which this report relates

Start

1<sup>st</sup> July 2006

End

30<sup>th</sup> June 2008

### Part 1 - Summary of assessments conducted thus far

**Table 1.1 - Description of the way in which the corporation has carried out its assessments and over what period was each assessment taken. A statement saying that the intent and key requirements of the Energy Efficiency Opportunities legislation have been met must be made.**

Minara Resources conducted Energy Efficiency Opportunities assessments from December 2007 to June 2008 and assessed approximately 90% of the company's energy usage.

At the commencement of the program, an Energy Efficiency Opportunities Committee was formed at the site, which was made up of key representatives from all relevant areas of the business, including senior management. This committee's role is to focus solely on the development and implementation of best practice strategies with regards to energy efficiency. An Energy Efficiency Management Plan was also developed and approved by the General Manager – Operations.

During the assessment process, workshops were conducted in departments across the organisation. These were attended by relevant personnel within each department. Brainstorming within these workshops resulted in a number of energy efficiency opportunities being identified within each area. All opportunities were recorded and then assessed by the Energy Efficiency Opportunities Committee. Opportunities were assessed based on the current Capital Expenditure Request (CER) procedure but expanded to ensure relevance to the EEO program. All identified opportunities are currently stored in an electronic register and maintained by the Environment Department. Opportunities are ranked, taking into account factors such as payback periods, energy savings and implementation costs. Once the ranking process is complete, the opportunities that are suitable for implementation or require further investigation can be identified. This assessment looks at the opportunity and its potential for energy savings. Following the assessment, a business case for each opportunity is prepared and presented to the Energy Efficiency Opportunities Committee. All opportunities that are identified as part of the EEO program are also assessed under the existing Business Values System. Where capital expenditure is required, projects are assessed using the existing CER process. This requires a CER document to be prepared detailing the project, its cost, benefits and payback period. CERs are reviewed by the Environment Department and submitted for approval to the Capital Review Committee and/or Board, prior to the funds being made available. Outcomes of this process are documented and recorded within the Energy Efficiency Opportunities Register, including reasoning for decisions.

Outcomes of the assessments are communicated to employees and senior management. Information about the program is included in the quarterly company newsletter and progress of the EEO program is presented at management meetings. An outline of this information is also presented to the Board during board meetings and a summary of the information will be included in the Minara Resources Limited Annual Report to ensure the requirements of the program are met.

The intent and key requirements of the EEO legislation have been met. Due to the current financial market, Minara Resources has undertaken a cost rationalisation program in order to remain financially viable, which has included reducing personnel numbers and cutting back on capital and discretionary spending. At this stage, EEO projects that require capital expenditure have been placed on hold. However, projects that have the ability to improve efficiency with relatively low cost are still being implemented. Minara Resources anticipates that when market conditions improve, projects that are currently deemed cost prohibitive may be progressed.

| Table 1.2 - Group member/business unit/key activity/site that have been assessed     | Energy use per annum in the year the assessment is completed * (GJ) (2007/2008) | Energy data accuracy (if not within $\pm 5\%$ ) ** | Reasons for not achieving data accuracy to within $\pm 5\%$ ** |
|--|---|--|--|
|  |   |  |  |
| Murrin Murrin Joint Venture  | 7,921,074   |  |  |
| <b>Total</b>   | 7,921,074   |  |  |
| <b>Total as a percentage of total energy use of the group covered by this report</b> | 100%  |  |  |

\* Energy Bandwidth may only be used if approved in the Assessment and Reporting Schedule

\*\* Data accuracy not within  $\pm 5\%$  can only be included if approved in the Assessment and Reporting Schedule

## Part 2 - Outcomes of and business response to opportunities that have been identified and evaluated for each group member, business unit, key activity or site assessed

Group member/business unit/key activity/site >0.5 PJ name: **Murrin Murrin Joint Venture**

| Table 1.3<br>Status of Opportunities |                              | Number of Opportunities | Estimated energy savings per annum by payback period (GJ) |               | Total estimated energy savings per annum (GJ) | *Accuracy range (%) |
|--------------------------------------|------------------------------|-------------------------|---|---------------|---|---------------------|
|                                      |                              |                         | 0 – < 2 years   | 2 – ≤ 4 years |   |                     |
| Outcomes of assessment               | Identified (accuracy ≤ ±30%) | 14                      | 305,497   | 9152          | 314,649                                       | 5-30%               |
|                                      | Identified (accuracy > ±30%) | 0                       | 0   | 0             | 0   | N/A                 |
|                                      | **Total Identified           | 14                      | 305,497   | 9152          | 314,649                                       | 5-30%               |
| ***Business Response                 | Under Investigation          | 8                       | 26,514  | 6334          | 32,848  | 10-30%              |
|                                      | To be Implemented            | 1                       | 1247  | 0             | 1247  | 20%                 |
|                                      | Implementation Commenced     | 1                       | 7726  | 0             | 7726  | 30%                 |
|                                      | Implemented                  | 4                       | 270,010   | 2818          | 272,828                                       | 5-30%               |
|                                      | Not to be Implemented        | 0                       | 0   | 0             | 0   | N/A                 |

\*The accuracy range for projected or actual costs, benefits and energy savings.

\*\*You must ensure that this row is the sum of the two rows above it.

\*\*\* The data contained in each row of the business response area must total to the data contained in the 'Total Identified' row.

**Note:** An opportunity is any potential change to a system, activity or piece of equipment that:

- is identified during an EEO assessment;
- is consistent with legal requirements such as OHS, and
- may result in energy savings projects with payback periods of 4 years or less.

## Details of at least three significant opportunities found through EEO assessments

Details must include a brief description of the opportunity and may optionally include details of the costs of implementation, energy/dollar savings and any other benefits (such as greenhouse reductions).

**Table 1.4**

### Opportunity 1

#### Reduction of Steam Consumption in the High-Pressure-Acid-Leach (HPAL) Autoclaves.

This project involves altering the operating philosophy of the pre-heaters and flash vessels associated with the HPAL autoclaves, in an attempt to reduce steam consumption in this area.

The 2<sup>nd</sup> stage pre-heater discharge temperature set-point has been lowered. This reduces the quantity of steam injected into the 1<sup>st</sup> stage flash and the amount of steam vented from the pre-heater. This temperature control has also been automated.

The 2<sup>nd</sup> stage flash pressure set-point has been lowered so that it no longer requires regular steam addition.

Venting and pressure control set-points have been separated so that venting and steam addition is not occurring in the flash vessels at the same time. This reduces the steam vented from the flash vessels.

These changes, on initial investigation, appear to have reduced steam addition to each operating autoclave by approximately 2 tonnes/hour.

This project incurred no capital cost and has the potential to save the business about 225,000 GJ in natural gas consumption per annum.

**This project has been implemented.**

### Opportunity 2 \*

#### Lowering Dilution of Reduction Process Liquor.

This project involves reducing the acid generation in the sulphide leach autoclaves by recycling a small proportion of the nickel powder. This reduces to zero the water addition necessary to prevent double-salt formation in the solvent extraction area.

The water addition represented about 10-15% of the total process liquor flow (4-6m<sup>3</sup>/hr). By removing the dilution, it has reduced the steam requirement to heat the 4-6m<sup>3</sup>/hr of liquor up to 200°C. It has also removed the requirement to boil off this additional liquor in the ammonium sulphate plant, post-reduction.

This project cost approximately \$100,000 to implement and has saved the business about 45,000 GJ in natural gas consumption per annum.

**This project has been implemented.**

**Opportunity 3\***Installation of Solar Panel Systems at Glenorn, Yundamindra and Minara Stations.

This project involves the installation of solar panel systems at the Pastoral stations to remove the requirement for diesel generator power.

A 12kW inverter was installed at both Minara and Yundamindra stations and a 20kW unit was installed at Glenorn.

Additional energy saving modifications were also carried out at the stations, including the elimination of 32 V lights at Yundamindra and Glenorn and replacing them with 240 V energy efficient globes, changing the cool room motor at Glenorn to a more energy efficient model and installing a solar pump for water pumping and converting the power supply from three-phase to single-phase at Yundamindra.

This project required a capital expenditure of \$373,000 and has reduced diesel consumption at the Pastoral stations by around 73 kL per annum resulting in a reduction in diesel fuel costs by approximately \$91,000 per annum and a reduction in energy usage by 2818 GJ per annum.

**This project has been implemented.**

If there are less than three significant opportunities, provide details of those identified.

\*\*If no significant opportunities have been identified in the assessment, a statement to this effect.

**Part 4 – Declaration**

The information included in this report has been reviewed and noted by the board of directors and is to the best of my knowledge, correct and in accordance with the *Energy Efficiency Opportunities Act 2006* and *Energy Efficiency Opportunities Regulations 2006*.



Peter Johnston –Managing Director & CEO