

## LAKE LINDSAY DRAGLINE

### STRUCTURAL ENGINEERING AWARD 2010 - INFRASTRUCTURE + MINING (QLD-NT)

Bucyrus Australia



#### Design

The Lake Lindsay Dragline is a 5,600 tonne electric walking dragline, the first fully AC (alternating current) conventional drive dragline built in Australia and the second in the world. The dragline's bucket has the capacity to remove 168 tonnes of overburden from the mine and its combined drive systems for the hoist, drag, swing and walking motions have more than 37,500 applied horsepower. The dragline walks itself around the pit using two shoes each more than 21m long and 4m wide, and can dig to a depth of more than 50m as well as dumping spoil more than 50m high.

#### Innovation in the use of steel

Using AC drives to power the dragline will result in improved energy efficiency, as well as the equipment being less expensive to operate, quieter and easier to maintain.

The Bucyrus 8750 AC was selected following a detailed evaluation of more than twenty different combinations of dragline types and configurations. The AC option has

fewer components and a modular design that will require less maintenance, leading to reduced maintenance downtime.

#### Practicality in fabrication + erection

Bucyrus International was responsible for the design drawings, with the majority of fabrication work done in Brisbane, with fabricators in Gladstone and Mackay assisting on the project. Work was carried out to a strict timetable, scheduling various parts of the machine, involving steel sections, forgings, and castings, to allow fabrication offsite. Components were then delivered and assembled on site.

The project required about 3,500 tonnes of XLERPLATE® steel.



#### Sustainability

Due to the use of an AC gearbox, the dragline will have significant structural, operating, maintenance and safety improvements, resulting in a product which requires less energy to run and is economical in terms of construction and running costs.

#### Project team

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|-----------------------------|--|
| <b>Structural Engineer:</b> | Bucyrus  |
| <b>Architect:</b>           | Bucyrus  |
| <b>Building Contractor:</b> | Bucyrus  |
| <b>Steel Fabricators:</b>   | G&S Engineering<br>RCR Mining<br>Sun Engineering |
| <b>Steel Detailer:</b>      | Bucyrus  |

