



# McArthur River Mine - Case Study

## Dust Extraction System for Bulk Storage Shed

### Project Summary

Client	Glencore McArthur River Mine
Location	Bing Bong, NT, Australia
Application	Dust Collection System for Bulk Storage Shed
Dust Type	Zinc
Project Summary	Design, Manufacture & Install: JMS 60 F-Series Dust Collection System

At Glencore's loading facility at Bing Bong, Zinc is stored in a bulk storage shed which needs to be fully contained to protect against spillage and ensure environmental security and prevent loss of valuable product.

### Our Solution

Grydale was commissioned to design, manufacture and install a dust collection system to manage dust within the Zinc Bulk Storage Shed.

A Grydale JMS 60 F-Series Dust Collector was used to place the zinc storage shed under negative pressure. A plenum was used on either side of the access door to feed air into a common duct running back to the dust collection system.

If there is insufficient air flow entering the storage shed, the air flow meter on the dust collector turns up the Variable Speed Drive (VSD) to generate more air volume. Equally the air flow meter will turn down the VSD so the dust collector uses less kW for the same amount of volume depending on the temperature and conditions. This results in significant power savings.

The JMS 60 F-Series dust collector has a filtration efficiency of 99.99% at 0.067microns and air is exhausted via the clean air stack. Zinc dust is discharged through the hoppers to product recovery drums and then returned back to the storage facility. This not only minimises health, safety and environmental risks but also ensures that operational efficiency is maintained by recovering product.

### Client Overview

Glencore is one of the world's largest global diversified natural resource companies and is one of the biggest companies within the FTSE 100 Index. Their diversified operations comprise of over 150 mining and metallurgical sites, offshore oil production assets, farms and agricultural facilities.

Situated in the remote Gulf of Carpentaria, the McArthur River Mine (MRM) is a world-class zinc-lead mine that has been operating since 1995. MRM is one of the world's largest zinc resources and a key operation in Glencore's global portfolio. Glencore are committed to running a safe, responsible, sustainable and competitive mining operations.

### Client Challenge

MRM produces zinc, lead and silver from the open cut mine which is then processed and stored onsite before being transported to Bing Bong Loading Facility and shipped to customers all over the world.

# Technical Specification

## JMS-60 F-Series Dust Collection System

Overview	
Air Volume	90,000m <sup>3</sup> /hr
Fabrication	3mm and 5mm Mild Steel International Two Pack Paint
Filter Technical Data	
Number of High Efficiency Filters	60
Filter Cleaning Efficiency	99.99% at 0.067 micron
Total Filter Surface Area	1680m <sup>2</sup>
Filter Temperature Limit	82°C (179.6°F)
Method of Changing Filters	Via 5 Filter Doors
Estimate Filter Change Time	Two technicians x 2hrs
Centrifugal Fan	
Fan Motor	75 kW, 4 Pole, 415V, 3 Phase, 50 Hz TECO Mining Motor
Maximum Pressure Drop Across Filters	-2.2kPa *
Variable Air Flow Control	Yes
Variable Speed Drive	
Variable Speed Drive (V)	Yes - 415V
Variable Speed Drive kW	75kW
Electrical	
Electrical Control System	Local Motor Control Centre (MCC) works with on site MCC

\* Alternative centrifugal fans can be utilised to optimise air volume and pressure to suit site conditions and specific applications.

Reverse Pulse Cleaning System	
Reverse Pulse Cleaning Solenoids	16
Plant Air Attachment	Yes
Adjustable Pressure and Frequency Rate	Yes
Dust Discharge System	
Hoppers	5 x Single Hopper
Slide Gate Mechanism	Yes
Discharge	5 x Recovery Drums Discharged product is returned to storage yard for re-use
Instrumentation	
PLC	Allen Bradley
Static and Differential Pressure Gauges	Yes
Emissions Monitoring Probe	Yes - 24V
Safety Features	
Emergency Stops	2 E-Stops
Ducting	
Ducting	3mm Flanged and Galvanised
Installation	
Installation	Full Installation by Grydale Certified Technical Team

### Grydale. Experts in Dust Control

Our team has over 15 years' experience designing and manufacturing industrial dust collection and extraction solutions. We focus on adding value through a total service offering, providing ventilation design, manufacture, implementation, ongoing project management and on-site maintenance and technical support.



e: [enquiries@grydale.com.au](mailto:enquiries@grydale.com.au)  
w: [grydale.com.au](http://grydale.com.au)  
t: +61 1300 929 349

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