

Brazilian Iron Ore Mine Uses Rain Bird Products to Automate Dust Suppression

Solutions
Report:
**Mining
Industry**



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-Sergio Horta, director of IRRICOM

Increasing Safety and Profitability Through Intelligent Dust Suppression

Uncontrolled dust levels at mines can create health, environmental, and safety concerns for workers and the surrounding community. Mines can face the temporary closure of an operation due to poor visibility levels and incur fines when dust is left uncontrolled. Dust control activities consume a large amount of water. When water trucks are the primary dust control method, rising labor and fuel costs are also a concern for mining operators.

In order to reduce the need for expensive and inefficient water trucks, the new iron ore Minas Gerais mining complex installed an automated dust control system. Minas Gerais used XLR Series Water Jets and SiteControl to provide more effective dust control, water savings, and increased the overall safety of the site. The local Rain Bird distributor, IRRICOM, designed and installed the new system, which included complex integrations with a variety of sensors to automate operation.

LOCATION:	
Minas Gerais, Brazil	
RAIN BIRD PRODUCTS USED:	
XLR Series Water Jets	
EFB-CP Series Valves	
SiteControl with Smart Sensors Module	
Flow Sensors	
LDI/SDI Two-Wire Decoder Interface	
MI Remote Interface for Site Control	
Automatic Screen Filters	
RESULTS:	
Reduced Operating Expenses	
<ul style="list-style-type: none">• Reduced reliance on Water Trucks• Savings on labor, maintenance, and management• Reduction in overall water usage	
Increased Site Safety	
<ul style="list-style-type: none">• Automated, even dust suppression Created a more consistent safer working environment	





CHALLENGE:

Controlling Dust While Maximizing Profit



SOLUTION:

XLR Series Water Jets

“The XLR proved to be the best solution for a wide range of applications at the site due to its adjustable angle and arc and long throw distance,” said Sergio Horta, director of IRRICOM. The XLR has an adjustable nozzle trajectory of 15–45 degrees and a radius of 81–177 feet. It is capable of wetting large, sloping stockpiles and can reach into tall railway cars and haul-truck beds.



RESULT:

Reduction in Operating Expenses

The XLR reduces the need for the water truck, thus saving on fuel and labor costs while delivering more effective dust control. “Dust control requires precise and uniform water application and reliable equipment,” Sergio added. “The project at this iron ore mining complex challenged us to provide a versatile and flexible solution.”

CHALLENGE:

Reduce Risk and Increase Safety

SOLUTION:

Centralized Water Management

SiteControl, a central control system for a single contiguous site, was chosen for the Minas Gerais complex. SiteControl uses decoders to control the operation of the valves, and flow and weather sensors to automate the system. It also integrates with traffic sensors and other third-party sensors at the mining complex.

RESULT:

Increased Site Safety

Automation with SiteControl saved water by turning on the XLR only when dust levels and environmental conditions, which are monitored by sensors, warrant its use. The system has reduced labor and fuel costs because it has replaced most of the water trucks previously used to control dust.



SiteControl Central Control System



Rain Bird XLR Water Jet



XLR Long Range Water jets