



Valé Iron Ore Facility, Brazil

Brazilian Mine Improves Air Quality by 53% with Rain Bird Products

Valé Iron Ore Facility is located in Guaíba Island Terminal, the third largest iron ore port in Brazil. Here, approximately 40 million tons of iron ore per year is delivered by railcar, off loaded into stockpiles, processed, and loaded into shipping containers for export to other countries.

THE CHALLENGE

The dust created by the activities at Guaíba Island Terminal can cause a host of problems for mining operations, such as low-visibility, equipment failure, and health problems that affect employees and nearby residents. Air quality readings at the facility often exceed the upper limits for airborne particulate matter and jeopardize long-term operations. Valé is looking for a cutting-edge sprinkler system that will provide dust control and improve air quality.



THE SOLUTION:

Design and implement an automated dust control system with the help of local Rain Bird distributor IRRICOM Intelligence. Utilize Rain Bird Central Control, which will allow Valé to monitor system performance, manage watering schedules, and update weather data for multiple field controllers from one single location.

Core Products Used:

- [Rain Bird® Central Control](#)
- [WS-PRO2 Weather Station](#)
- [1005M-DC Rain Gun](#)
- [25BPJ Impact Sprinkler](#)
- [35A-TNT Impact Sprinkler](#)
- [Falcon® 6504 Rotors](#)
- [8005 Rotors](#)
- [300BPE Valve](#)

KEY OBJECTIVES

- ✓ **Control Dust Levels**
- ✓ **Improve Air Quality**
- ✓ **Centralize Sprinkler Control**
- ✓ **Minimize Community Health Risks**



Site Report: Valé Iron Ore Facility, Brazil

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“ We showed an intelligent solution, integrating Rain Bird’s hardy agricultural Rain Guns and impact sprinklers, reliable operation with our control valves, and central operation of our central control systems, the result was the best cost benefit solution for the customer.

JOSÉ GIACOIA NETO
GENERAL MANAGER IN BRAZIL, RAIN BIRD

RESULTS:

Controlled Dust Levels and Improved Air Quality

The dust levels at Guaíba Island Terminal were regularly monitored before and after the Rain Bird sprinkler system was installed. Before the sprinkler system was installed, 67% of the air quality readings for airborne particulate matter exceeded the upper limit. After the sprinkler system was installed, the percentage of air quality readings exceeding the upper limit fell to 31%. The installation of the system had an immediate benefit on dust levels and air quality.

Centralized Sprinkler Control

Automated Central Control systems combined with weather monitoring to control airborne dust by applying the correct amount of water based on current weather conditions. By combining this technology with the proper water distribution components for various surface areas and topography, water was uniformly applied throughout the site.



APPROACH:

Install Rain Bird Central Control and WS-PRO2 Weather Station

Rain Bird Central Control manages multiple watering schedules for field controllers via a central computer. It also links with the WS-PRO2 Weather Station to update watering schedules every day based on the latest weather data.

Harness the Power of Rain Guns

Rain Guns provide a large trajectory (angle of spray) for use on large sloping stockpiles. The height of the water stream can reach 79 feet (23.7 meters). The radius of the throw can reach 182 feet (55.4 meters).

Make Use of Impact Sprinklers

Impact Sprinklers are riser-mounted for use on large sloping stockpiles. They have straight-through flow, which provides superior performance in dirty water. These sprinklers are made of brass, bronze, and stainless steel for enhanced durability.

Utilize Falcon 6504 Rotors and 8005 Rotors

These pop-up rotors have a low profile, which makes them ideal for use in areas with foot and machine traffic. Their radius of throw can reach up to 80 feet (24.7 meters). The rotors have stainless steel risers for added durability.

