CASE STUDY

Nalco Water HAULAGE-DC Technology Helped Save $5.9 Million in Reduced Dust, Fuel and Water Use at Iron Ore Mine

eROI℠ by Ecolab

BACKGROUND

One of the largest mining companies in the world, with operations, offices, exploration projects and joint ventures spread across five continents, works responsibly and is committed to sustainable development. One of their iron ore mines has three open pits with nearly 4 kilometers of non-paved roads with continuous transit of heavy trucks and other vehicles.

SITUATION

During the dry season, from May to November, dust present in these roads increases traffic risk conditions and environmental concerns to such an extent that the mining company controls dusty conditions by spraying water on the roads every 30 minutes. The company has performed this task during the dry season for several years.

Even though they were achieving a reasonable control of the dust, there still was concern about the cost, productivity, safety and even environmental effects of their dust control program.

Significant quantities of water were being used, as well as fuel consumption and resulting CO_2 generation.

The company uses Nalco Water for dust control applications at other locations, so the iron ore mine was asked to consult with one of these locations to test its dust control technology in the mine.

SOLUTION

The Nalco Water team worked with personnel to test Nalco Water Dust Control technology on one of their dusty roads. The initial goal was to achieve current results at a lower cost. Based on previous experience and road conditions, the Nalco Water representative recommended using Nalco Water **HAULAGE-DC** technology for the trial.

Success parameters defined were:

- Select trial road: "Access to Southern Barren Pile 4"
- Truck velocity: 30 km/h
- Same truck, same water flow used for both conditions
- Assume dust control is effective at both conditions

The target was to determine energy savings.

ANNUAL SAVINGS

WATER

Water savings of

300 m^3

per day

ENERGY

Reduced consumption of diesel fuel by

44,000 liters

per year

COSTS

Reduction of daily trucks saved

$1.5M

per year

AIR

Reduced CO_2 emissions from truck engines by

116,600 Kg

per year

VALUE DELIVERED

Total Cost Savings

$5.9M ANNUALLY

NALCO Water
An Ecolab Company

The trial involved spraying a solution of 200 ppm of **HAULAGE-DC** technology in the water every three hours with better visual results. Visual inspection of the roads was used to estimate the time span between when the road was sprayed and the moment when medium and high levels of dust were noticeable.

	Time to medium dust (in minutes)	Time to high dust (in minutes)
Road water spray - raw water	*22*	*30*
Road water spray - HAULAGE-DC	*217*	*

RESULTS

The results of the trial were impressive. Among the key benefits of the Nalco Water **HAULAGE-DC** program at this mine:

- Truck trips needed to control dust in the mine road were reduced from 13 with plain water to less than 4 with **HAULAGE-DC** technology.
- Fewer trips meant less water and fuel consumption
- Visibility on the roads was even better than before, allowing for safer transit conditions.

As a result of the implementation of **HAULAGE-DC** dust control technology, the plant was able to reduce 77% of their use of spraying trucks, reduce the same proportion of fuel and water, and improve the condition of the treated roads.

Dust conditions before HAULAGE-DC application (left), and after application (right).

Nalco Water, an Ecolab Company

North America: 1601 West Diehl Road • Naperville, Illinois 60563 • USA
Europe: Richtistrasse 7 • 8304 Wallisellen • Switzerland
Asia Pacific: 2 International Business Park • #02-20 The Strategy Tower 2 • Singapore 609930
Greater China: 18G • Lane 168 • Da Du He Road • Shanghai China • 200062
Latin America: Av. Francisco Matarazzo • nº 1350 • Sao Paulo – SP Brazil • CEP: 05001-100
Middle East and Africa: Street 1010, Near Container Terminal 3, Jebel Ali Free Zone, PO BOX 262015, Dubai UAE

NALCO Water
An Ecolab Company

ecolab.com/nalco-water