HAULAGE-DC™ Technology Helps Iron Ore Mine Reduce Dust, Fuel, Water Use

NALCO Water
An Ecolab Company

CASE STUDY – MINING
CH-1492

SITUATION

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.

The iron ore mine is a 3 open pits mine with about 4 km of non-paved roads with continued transit of heavy trucks and other vehicles. During the dry season, from May to November, dust present in these roads increases traffic risk conditions and environmental concerns so the mining company has been controlling dusty conditions by spraying water on these roads every 30 minutes 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, as important quantities of water were being used, as well as fuel consumption, and resulting CO2 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.

CUSTOMER IMPACT	eROI℠	ECONOMIC RESULTS
Saving of 400 M^3 of water by day	WATER	US $26,000 per year
44,000 liters/year of Diesel saved	ENERGY	US $13,000 per year
Reduction from 13 to 3 trucks operated on daily basis	ASSETS	US $ 1,500,000 per year
Reduction of 116,600 Kg/Year of CO2 generated by trucks' engines	AIR	US $ 60099 per year

eROI is our exponential value: the combined outcomes of improved performance, operational efficiency and sustainable impact delivered through our services and programs.

PROGRAM

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 HAULAGE-DC technology for the trial. Success parameters defined were:

1. Selected trial road: "Acesso a pilha de esteril sul 4";
2. Truck velocity: 30 km/h;
3. Same truck, same water flow used for both conditions;
4. Assumption dust control is effective at both conditions. The target was to determine energy savings.

RESULTS

The results of the trial were impressive. The trial involved spraying a solution of 200 ppm of HAULAGE-DC technology in the water every 3 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.

BENEFITS OF HAULAGE-DC TECHNOLOGY

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 means less water and fuel consumption

Visibility on the roads was even better than before, allowing safer transit conditions.

CONCLUSION/SUMMARY

As a result of the implementation of HAUALGE-DC dust control technology, they have been able to reduce 77% of their use of spraying trucks, reducing the same proportion of fuel and water, and improving the condition of the treated roads.

	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	*

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