

The mine's eye

Within a company, efficiency is achieved with good communication and good organization. Société Le Nickel (SLN) of ERAMET group wanted to improve its production efficiency with the use of modern technologies. It decided to call Logimine to install a high performance communication and tracking system in their mining centers of Kouaoua and Thio.

Report on the Kouaoua mining center in New Caledonia.

Minimizing downtime, reducing the use of machines, optimizing maintenance ... All these issues come into consideration when attempting to increase a mine's profitability. This is why a few years ago SLN decided to find an efficient dispatch system for its Thio and Kouaoua sites. The Caledonian metallurgist needed a modern control solution to improve its mining operations. The invitation to tender was sent out in 2008 and the contract finally fell to a French company, Logimine S.A.S., a fleet management specialist able to deliver rational and efficient system. «*Logimine offered a solution that suited both our needs and the sites' topography*», explains Vincent Périn, Operation Engineer at Kouaoua.

The dispatch system combines radio and internet based technologies. Since its successful implementation, SLN managers can now control, in real time, every step of the production line: from the position of every vehicle, the mining operations speed and so on, up to the mine's profitability.

To achieve this result, Logimine first dedicated one of its engineers to work on the sites to equip the production vehicles: some 50 ton and 10 ton trucks, loaders and excavators. Each of these vehicles now has a touch color screen display through which information related to the activity is collected, stored and instantly forwarded to the control center located at Doniambo. The name of the vehicle, its position and destination, loading type etc. are processed by Logimine's Primary Command Center 4 (PCC4) software.

A simple internet address and access code allows access to collected data on the entire SLN network.



Furthermore, to improve on-site communication, loaders and trucks now have the same language. When two vehicles, designed to work together are within five or less meters apart, their on-board display units connect to each other. For example, the loader sends out essential data to its digital receiver such as product type to load as well as its origin, nature and destination. At the same time, the truck sends out payload data to the loader. Thus, the loader operator has all the necessary information in hand to decide when to stop loading.

Rationalize, analyze and share

The process goes beyond the exchange of mere «basic» information gathering. The Logimine' system interfaces with production vehicles equipped with GPS and radio antennae. It establishes loading time, distance, vehicle time traveled and speed etc., and transmits the cycle data from the loading site to the port or dump site. This real-time data is extremely valuable to analyze productivity for a day, a week or a month. Trucks equipped with a weight indicator can also send and receive instant load data.



Streamlining production also involves reducing maintenance and refueling time. The dispatcher, who can see the position of each vehicle in real time, can organize daily activities more efficiently and better coordinate maintenance operations. For example, when a driver announces by radio that his fuel tank is almost empty, the 'control tower' of the PCC4 dispatch software responds straight away by indicating the best time to get to the pump. The same level of efficiency applies in the event of a breakdown. If there is an engine failure, the state of the vehicle displayed on the dispatcher's and technicians' screens changes its color to red.



Vincent Périn, Operations Engineer

All information is shared at the same time, by anyone who has access to the PCC4 software, including mechanics specialists. «*The software aims to streamline the use of our fleet and improve productivity*», says Vincent Périn, «*It also offers the valuable advantage of easing the internal communication process: Information is shared, in a transparent way and the production chain becomes more fluid*».

Former vehicle operator, Jules Passil is one of three dispatchers officially assigned to the geolocation 'control tower'. He sits in front of his two computer screens and must ensure that all is operating well on the mining sites during his shift. «*In the morning, the activity is kept up,*» he explains.

«*First, we evaluate the situation with the shift leader who decides which vehicles are to be used. Then, I assign the trucks to different loaders so that everyone knows what to do and where to go.*» Jules is also in charge of telling vehicle operators the best time to fuel up.

He relays the shift leader's instructions to the field workers and is responsible for reporting any malfunction or incident so that solutions are dealt with as soon as possible.



For Jules and his dispatcher colleagues, his redefined job position is certainly a promotion because it involves new responsibilities, such as:

- Ensuring that his colleagues have started their day on time and have correctly entered the information required for the software to run properly.
- Entering data, when necessary.
- Optimizing daily productivity and making decisions to constantly improve the work carried out on site.

During the first phase of the implementation process, both dispatch systems (the old system and Logimine system) had to run in parallel. Dispatchers

found the old system much more cumbersome. The old system was finally abandoned when it broke down. Today, dispatchers say that they are extremely satisfied with the Logimine' solution.

It is not over!

Even if the geolocation and operation management system prove to be efficient, Logimine still had to add new modules to the software. «*One of the implementation phases was the establishment of an interface with the geologists to enable us to acquire data on deposits - stock and level for example - and data on the stocks at the seashore, included ore information,*» says the Kouaoua Operation Engineer.

The overall integrated mine management system allows better control of the ore supply chain. Loaders now have weight indicators, mobile equipment has a projected schedule of their activities and dispatch is automated.

Since 2009, Logimine has equipped four SLN sites with its advanced automatic dispatch and mobile to mobile communication systems, and by the end of 2010, it had installed RTK base stations enabling centimeter tracking of land surveys.

SLN is satisfied with the 1.6 million dollars investment dedicated to the development of this geolocation software in Kouaoua and Thio mine centres. Due to the positive performance of Logimine, SLN decided to extend the project to Tiébaghi mine sites in 2012.

Logimine has started working in Tiébaghi to install a complete automatic dispatch system and an RTK tracking solution for loaders. It will also equip excavators with new embedded geological cartography to show the different materials being loaded and enable better floor control, moving boom and bucket positions.

As a result of this successful relationship with SLN, Logimine, who already has offices in Nimes (France) and Montreal (Canada), opened a new office in New Caledonia in August 2012.

Objective: What does SLN represent in Logimine activity?

Bruno Laforgue: *SLN is an important customer mainly because of its place in the market. Our preferred targets are quarries that can accommodate our system which passes entirely through the internet. Surface mines with significant yield are few in the world. The SLN sites are amongst them. Therefore, we are lucky to be able to provide SLN with our fleet management system.*

Was the set up complicated?



B. L.: *We faced two main difficulties. The first one was technical: We usually use VHF radio models but, for New Caledonia, the regulators apply a system too complicated to obtain a fast frequency. Therefore, we opted for UHF technology, which was quite new to us. We had to do extra work to import CE certified radios, which extended the deadlines. The second problem was administrative given the complexity of local customs. We export products all over the world but it is in New Caledonia that we had most difficulties! Once these issues were resolved, everything happened very quickly.*

What is Logimine's history and what is its ambitions?

B. L.: *I created Logimine in 1990. The company first worked in Africa before settling in France in 1997. From the outset, our ambition was to be amongst the world leaders in mine and quarry operation management. Over time, we have proven ourselves and now we are among the world's top three or four within the dozen companies that exist in this niche market. To advance to a leadership position, we have major distinctive advantages: We control the design, manufacturing and integration of our software and hardware, and from the pricing point of view, we remain competitive. We also have the ability to adapt to clients' requirements. For example, SLN had specific requests that we incorporated into the PCC4 software.*

info@logimine.com

www.logimine.com

Logimine NC

Lot 16 lotissement
R. UNGER NAÏA
98880 LA FOA
New Caledonia
t/f: +687 44 17 86
m: +687 73 27 22

Logimine S.A.S.

44 bis rue de Générac
30900 Nîmes
France
t:+33 4 66 38 66 48
f:+33 4 66 38 66 49

Logimine Inc.

6300 Avenue du Parc suite
300A, Montreal, QC H2V 4H8
Canada
t/f: +1 514 380 2245