

CASE STUDY

Koniambo Nickel Project

“Motorola’s complete communications solution has played an essential role in the establishment of our mining industrial complex in New Caledonia.”

Interview with Sylvain Picard, systems and automation manager, Koniambo Project



Koniambo Nickel Project in New Caledonia uses Motorola's first rate mix of technologies

When the Koniambo project sought an integrated communications system for their \$US3.8 billion long life nickel mine in New Caledonia, Motorola was the only company offering a complete solution. Combining wireless broadband and TETRA digital radio systems was the key.

Motorola proposed, designed, installed and commissioned a 400 MHz Dimetra IP system across three sites, a Point-to-Multipoint high performance wireless broadband network operating at 5.4Ghz for localised (last-mile) connectivity, and a PTP600 Point-to-Point high performance wireless broadband solution to interconnect the sites and support both the Dimetra IP and Point-to-Multipoint data systems.

It's a completely cost effective solution combining both technologies for data and voice communications. This is critical to the smooth running of the mine, metallurgical and power plant complex, which is a very large site.

New Caledonia, located in the southwest Pacific Ocean approximately 1200 kilometres east of Australia, has significant topographical challenges which the Motorola solution was able to overcome.

The mine is about 930 metres above sea level and is several kilometres from the plant itself, so altogether a distance of about 17 kilometres, over which is needed excellent data and radio communications.

Owned 49% by Xstrata Nickel and 51% by New Caledonian joint venture partner, Société Minière du Sud Pacifique, ("SMSP"), Koniambo will be among the world's lowest cost producers of nickel. First ore is expected to be processed in 2012 and the mine is predicted to have a life in excess of 25 years. Koniambo is the most attractive undeveloped nickel resource in the world and will be a cornerstone asset for the two shareholders.

Early construction activity commenced at the Koniambo Project in February 2007 to establish site access, construction infrastructure and utilities in advance of the main construction effort.

“Because we are in the preliminary phase it was essential to provide the contractors and our construction team with immediate access to both data and radio communications. The solution had to be simple and quick to deploy. We had a timeframe of eight months, March to October, and we finished on time,” says Sylvain.

Why Motorola?

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Since fibre optics are costly and inefficient to deploy everywhere in the construction phase the wireless coverage becomes critical. Fibre optics are used only in the key areas where it is practicable. Anything that requires cabling in the development phase of such a construction project is potentially problematic. So wireless is a very good alternative for early implementation and in areas where fibre is not suitable, such as road rework.

The three towers covering the site for the radio are also acting as the antennae for the wireless solution, therefore there is no doubling up on infrastructure, an important cost saving.

Another advantage with this kind of dual infrastructure is the very fast deployment of communication services for the users. On occasions same day service could be executed.

“With our systems a contractor or construction office can have phone and internet connection in a day. This way a contractor can be rapidly operational and focus on his work package. For instance, exchanging technical documentation, data for analysis and submitting timesheets to head office are amongst the workforce’s primary needs,” he says.

Occupational health and safety are a top priority so reliable communications are an indispensable component. Safety is the very first consideration at a mine site and communications are an essential ingredient.

Additionally the mobile radio interconnects with the base station which connects to the VoIP phone system, offering telephone services on one device.

Talking on the radio is crystal clear; it is just like talking on the main phone system. Also lots of radio features are visual to the users. To that extent it is like a mobile phone but with much better reception,

While mobile phones can work in some mines they aren’t really appropriate for Koniambo. The ruggedness of the portable radios is vital in this environment which has a fluctuating number of users.

It is anticipated that there will be from 200 up to 700 users in peak construction periods.

“There is a very high satisfaction rate from the users and actually we have had no complaints. It is a very efficient communications system with excellent performance and exceptional reliability.”

There were many challenges on the Koniambo site, not least because it is a French Overseas territory, therefore all the regulatory approvals for the site works were consistent with European regulations and the population is primarily French speaking. This created language barriers with subcontractors.

Additionally, the weather and the mountainous terrain made life difficult as far as actually installing the equipment. Sitting above the Tropic of Capricorn, the tropical rain would turn the dirt tracks to mud and even four wheel drive vehicles were of little use.

Sylvain comments that as one of the first contractors in place, Motorola did an excellent job in managing the logistics, some of which could have potentially been problematic. Along with Avionics the local distributors, they succeeded in reducing the amount of pressure often inherent in a new mine development.

While the site will eventually install fibre optics as a component of the conveyors, it won’t be for another two years or so.

The Motorola solution is a first rate mix of technologies for the early development stage of this mine and one of the strengths of Motorola. And even when there is firm infrastructure, wireless will be an excellent back up solution.