RADIOS CRITICAL TO SAFETY ON MINE SITE

Customer
Vale New Caledonia

Industry
Minerals and energy

Technology Partner
Avionics

Need
- TETRA radio fleet for workers on Vale's nickel mine

Benefits
- Improved safety
- Operational efficiency
- Durability
- Excellent coverage
- Data transfer capability
- Log reporting

"Three years ago, radios were burning up my team's time. There were almost three full time equivalents (FTEs) to look after only half the current fleet… Today it's a 1.5 FTE equivalent."

Kamel Azzoug, IT manager, Vale New Caledonia

Vale's Goro mine in New Caledonia is one of three nickel mining companies on the island, and at full capacity is capable of producing 60,000 tonnes of nickel each year in the form of nickel oxide.

Called the Deep South plant, the industrial complex includes a mine, hydrometallurgical plant, refinery, auxiliaries and leaching dam as well as the second largest port in New Caledonia. The entire area of the project covers approximately 1,900 hectares.

With 3,000 workers spread throughout this area, Vale has a fleet of more than 1,000 TETRA radios for communication between locations and workers.

"After the PCS (process control system (ie automation)) – without which we can't operate at all – the radio is the most important thing," says Kamel Azzoug, IT manager at Vale.

LACK OF COMMUNICATION SLOWS BUSINESS

Primarily, the radios provide greater safety to workers by keeping communication open between teams onsite.

Improved safety: "Safety is the first critical requirement of the business," Azzoug explains. A lack of communication becomes a safety issue, especially if the security and safety teams cannot communicate.

For Azzoug, safety comes down to three factors:

"Firstly, some functions such as geology or environment activities could leave people completely isolated because of the very large area and location of the mine. It's in the middle of nowhere, without full GSM [global mobile communications] coverage. If someone has been injured, radios are the main way of communicating. Second, we must also be able to contact people at all times and workers must always be aware of what's going on. For example, they may need to move because of certain operations or to know that a truck is arriving. Finally, we must be able to give instructions such as the go-ahead for operations."

All Motorola radios onsite at the Goro nickel mine are intrinsically safe, that is, they are designed for use in hazardous areas where there is a risk due to the presence of explosive gases and/or dusts.

While the man-down functionality is not currently in place, Vale are looking to activate or add this feature to their fleet. This function would enable Vale to identify workers who have fallen or had an accident. On detecting a lack of movement, a horizontal tilt or both, the radio's motion sensor dispatches a notification to the appropriate response group to ensure that the worker is safe.

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Operational efficiency: Working radios are critical for ensuring maximum productivity on the site.

"After a few hours of system downtime, some activities have to operate with a workaround with some impact on production. After 24 hours, there will be an impact on the business. If we can't communicate in a timely manner this will significantly reduce or stop some of the activities at the plant."

Azzoug can now focus on plans for long term and future developments, which "definitely wasn't the case before. Three years ago, radios were burning up my team's time. There were almost three full time equivalents (FTEs) to look after only half the current fleet, and the service was not stable. Today it's a 1.5 FTE equivalent and I am not spending my time on them."

Durability: The radios themselves receive some rough treatment, especially at the port. But Azzoug reports a low turnover of repairs, and that very few radios have to be replaced due to an inability to repair the damage.

Excellent coverage: Coverage with the TETRA radios and network on the mine site is excellent, "as good as the telecom coverage", says Azzoug.

Data transfer capability: The TETRA network is capable of greater data throughput. Currently Vale use the radios for data transfer of job tickets to the trucks, but there is capacity to do more.

"We are looking to increase our rates of data transfer, with the increased mobility that we have," says Azzoug.

Log reporting: Using a basic level of log reporting, Azzoug can determine if a particular radio has been used. Another future development under consideration is a console, which would provide a real-time inventory of radio location and usage.

Enabling others: Vale even had cause to lend the radios to the French army who worked on the island recently, so that soldiers were able to communicate effectively with each other.

Azzoug adds that the relationship with Motorola Solutions is a "long-term partnership. I really can say that Motorola is one of the top three of my partner relationships, and I have 50-60 other service providers to deal with. I feel that the customer is worth more than just money to Motorola. It's a very good partnership."

Avionics is the channel partner organisation in Noumea, which works with Motorola to meet Vale's needs on the ground:

"Avionics is a great third party," says Azzoug. "They are the link between us and Motorola, facilitating the activities onsite. We help push each other in order to improve each feature. We don't always agree at first, but we need to challenge each other to do better and grow as businesses. It's a very honest relationship. Avionics will spot the wrong decision. They will tell us what is not compliant and help reinforce how to do things properly. Avionics does not cut corners, but it's still cost-effective."

"They are professional, customer-oriented, and go above and beyond what they are contracted to do. They recognise the need to have the radios up all the time."