

# Wireless Connectivity Enables Effective Communication in Open-pit Mines



Wireless broadband provides the communication backbone required by every open-pit mining operation. Fast, secure data transfer, VoIP telephony and video surveillance are all supported by a single wireless communication platform from Alvarion. Built to perform in extreme environments, Alvarion high-capacity wireless systems offer the fast, reliable and always available connectivity that is essential for efficient communication and productivity for the industry.

**Open-pit Mining Application**



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## About Alvarion

With more than 3 million units deployed in 150 countries, Alvarion is the world's leading provider of innovative wireless broadband network solutions enabling Personal Broadband to improve lifestyles and productivity with portable and mobile data, VoIP, video and other services.

Leading the market with the most widely deployed WiMAX system in the world, Alvarion is leading the market to Open WiMAX solutions with the most extensive deployments and proven product portfolio in the industry covering the full range of frequency bands with both fixed and mobile solutions. Alvarion's products enable the delivery of personal mobile broadband, business and residential broadband access, corporate VPNs, toll quality telephony, mobile base station feeding, hotspot coverage extension, community interconnection, public safety communications, and mobile voice and data.

As a wireless broadband pioneer, Alvarion has been driving and delivering innovations for over 10 years from core technology developments to creating and promoting industry standards. Leveraging its key roles in the IEEE and HiperMAN standards committees and experience in deploying OFDM-based systems, the Company's prominent work in the WiMAX Forum is focused on increasing the widespread adoption of standards-based products in the wireless broadband market and leading the entire industry to Open WiMAX solutions.

### Alvarion: Wireless Connectivity Enables Effective Communication in Open-pit Mines

The following field-proven Alvarion systems are ideal for mining operations:

BreezeACCESS®, BreezeNET®, BreezeMAX™.

## Wireless Communication Enables the "Digital" Open-pit Mine

A profitable open-pit mining operation depends on effective communication, efficiency and safety. A high-capacity wireless broadband network is the key to achieving these objectives. Wireless technology enables continuous online planning and real-time monitoring of the geological and production activities throughout the operation.

The hazards of explosives, heavy equipment and steep slopes which are often unstable make injury and loss of life a very real danger. It is vital to have a fast communication network that is reliable and always available, even in difficult terrain and harsh weather conditions, to protect the crew as well as assets on-site.

Mining has become a communication technology-dependent industry. Operations are supported by software applications accessed through a network. When a data network shuts down or becomes unavailable, safety and productivity are compromised. The entire operation must be suspended. Only wireless broadband technology enables the "digital" workplace by providing fast, secure and reliable wireless communication for all the network access and safety systems of the open-pit mine.

Today's advanced mining software requires high bandwidth. They include equipment-health diagnostics, equipment location monitoring, Doppler radar data, precision GPS data, high-resolution mapping and graphics, and video and voice communication; all being delivered over the net.

## The Alvarion Solution: the Best Platform for the Open-pit Mine

Well-known for rugged and resilient products, over 3 million Alvarion units have been deployed in more than 150 countries, on icy mountain tops, in humid rainforests, wind swept plains and obstructed and noisy cities. Alvarion products are certified to the wireless industry's strictest standards.

Alvarion products featuring point-to-multipoint NLOS (Non-Line-Of-Sight) capability offer the best coverage and greatest capacity for a cost-effective, secure and flexible solution. Over 480 square kilometers are covered per cell, delivering up to 128 Mbps data throughput. A small number of stand-alone base stations can provide full high-capacity network communication to the entire open-pit terrain and its surrounding area.



The network is easily expanded and connectivity is ensured through redundancy as base station links are relocated and new mine walls are formed.

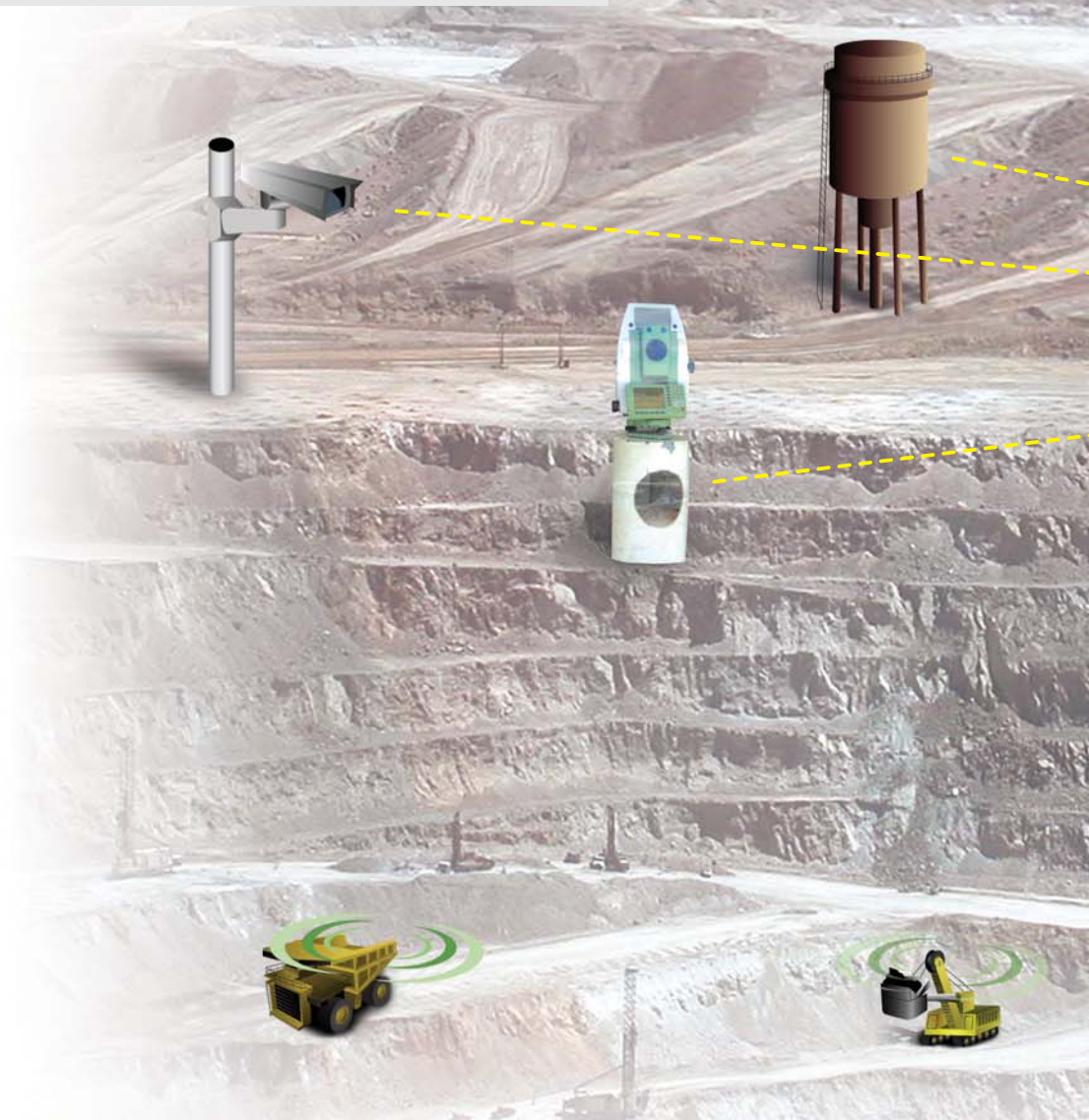
Serving mobile users is a key benefit of the Alvarion wireless network solution. Access to mining applications, network data and VoIP telephony are available to vehicles moving throughout the mine and remote on-site offices for complete connectivity to the workforce.

The Alvarion solution offers cost-efficiency through reliability and easy deployment. A mining operation has a low tolerance for installation re-trials and network malfunctions. The Alvarion solution is easy to deploy the first time out, provides uptime of nearly 100% over time and offers a proven 11 year MTBF (Mean Time Between Failure) rate. It is the secure and reliable network you can depend on.

Critical mining operations worldwide rely on the Alvarion solution for wireless connectivity, from the world's largest open-pit mine in Chile to the most remote sites in Botswana, Africa. This is the ultimate network platform for the open-pit mining industry, offered by the market leader of wireless broadband communication.

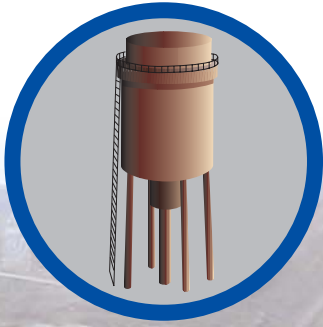
# Alvarion Wireless Broadband

Enables Efficient Communication  
in Open-pit Mines



## Structure Stability Monitoring

Safety is a major concern as pit slopes and benches are being shaped with the use of explosives and heavy equipment. Wireless broadband enables data from Doppler radar systems to be streamed directly to headquarters in real time. An alarm is immediately sounded should there be an unexpected slump or collapse in the pit wall, keeping workers out of danger.



### Remote Control

Water levels and operations at remote pump houses are monitored from headquarters, saving manual effort while ensuring continued operation.



### Video Surveillance and Monitoring

Video cameras are the most practical and efficient way to visually monitor overall activity in large pit operations, particularly around the use of explosives. Wireless broadband enables video images to be streamed to the control room in real time.



### On-site Office Solution

Work crews using small vehicles can connect to VoIP and access mining applications while on site.



### Vehicle Dispatch

Wireless communication improves productivity through easy control and monitoring of trucks and tractors. Vehicles are assigned using the Dispatch software for quick and efficient deployment.



## GPS Positioning

Maintain accurate positioning by accessing real-time online 3D geological maps. This enables cross-checking of the reported physical GPS location to ensure collection of the appropriate material.



## Real Time Geological Data

Real-time geological data is a major asset in the constant-shaping pit mine structure. Alvarion wireless communication supports large volume files, making it easy to send on-site test results to headquarters for analysis. This saves travel time and makes updates faster.