

Industrial Wi-Fi 6

Mesh for Mining
Site Connectivity



CONNECTING YOUR WORLD

Introduction

A leading quarrying and mining company in the UAE, with reserves over 4.5 billion tonnes and a commitment to operational excellence, embarked on a digital transformation journey. Their goal: to enable reliable, site-wide wireless connectivity, powering seamless IoT integration and smart operations. In partnership with Covansys Technologies, system integrator, and powered by Wavesight's Wi-Fi 6 mesh and long-range radios, a groundbreaking wireless network was deployed to support secure, high-speed data for mission-critical processes.

About the Client

- One of the world's largest mining and quarrying firms, headquartered in the UAE.
- Operates multiple remote sites with high production volume and custom mineral dispatch.
- Progressive adoption of digital and IoT technologies for industrial automation.

The Challenge

- **Remote, Large-Scale Operations:** Mining sites spanning several kilometers, with operational zones beyond easy reach of wired infrastructure.
- **Long-Distance Connectivity Gaps:** The need to connect a remote site over a 4 km radius to a main fiber termination point 5 miles (about 8 km) away.
- **IoT and Device Enablement:** Seamless, secure wireless coverage required to support large-scale deployment of IoT devices for monitoring, safety, and automation.

Solution Overview

Wireless Technology Deployed

- **Dragonfly Wi-Fi 6 Mesh Network:** Covansys deployed Wavesight's Dragonfly Wi-Fi 6 mesh nodes across the mining site, creating a robust, self-healing wireless network covering a 4km radius for high-density IoT connectivity.
- **Firefly Point-to-Point (PtP) Radios:** Firefly PtP radios established a high-capacity wireless link reaching the fiber termination point 5 miles away, maintaining up to 500 Mbps throughput in challenging terrain.
- **Optimized Antenna Placement:** Expert placement of external antennas maximized signal strength and coverage, ensuring reliable connectivity across the operational zone.

Results & Benefits

- **Complete Wireless Coverage:** The mining site now has dependable Wi-Fi for all staff, vehicles, and IoT devices across a vast, previously unconnected area.
- **Seamless Industrial IoT Integration:** Real-time data from sensors, equipment, and environmental monitoring is now accessible company-wide, supporting smarter, safer operations.
- **High Throughput, Low Latency:** Up to 500 Mbps sustained speed using Firefly PtP radios ensures that even data-intensive applications run reliably at distance.
- **Enhanced Safety & Efficiency:** Improved communications, predictive maintenance, and instant alerts have streamlined workflows and heightened on-site safety.

Why Wavesight?

- **Industrial-Grade Solutions:** Wavesight's Dragonfly (Wi-Fi 6 mesh) and Firefly (PtP radios) are proven for harsh, outdoor, large-scale deployments.
- **Trusted Integration Partner:** Covansys's expertise ensured tailored design, flawless implementation, and smooth operation on-site.
- **Future-Proof Infrastructure:** The wireless backbone is built for expansion, supporting more IoT, real-time video, and automation as needs grow.