



GTE

Greater Engineering™



Integrated Control Systems for Greenfields Gold Mine

Project Background

Client: Goldfields Based Junior Miner
Date: Dec 18 - Feb 20
Location: Coolgardie

Background

A new greenfields gold mine required a fully integrated and robust control system to support critical plant operations. GTE Group was appointed to deliver a turnkey automation solution covering the design, development, and commissioning of control and communications systems for various site assets, including a SAG mill, ball mill, leaching tanks, process water systems, reagent distribution and power generation infrastructure.

Challenges

Launching a greenfields mining operation comes with the complexity of designing control systems from the ground up—without the benefit of prior site history or legacy infrastructure. The mine needed:

- A comprehensive control philosophy for plant-wide operations and accompanying piping and instrumentation diagrams (P&IDs)
- Seamless integration of processing equipment (SAG mill, ball mill, conveyors, pumps) with the site's power station
- A reliable, scalable communications architecture
- On-time commissioning to align with broader construction and operational timelines

The Solution

GTE Group delivered a full-scope control systems and communications package, including:

- **Control Philosophy:** Developed detailed control strategies and drafted the accompanying P&ID's to reflect that control strategy.
- **Communications Design:** Design of all site communications infrastructure and network topology.
- **Hardware Specification and Procurement** Design of the control system hardware architecture for robust system performance and procured all of the specified equipment.
 - ControlLogix PLCs were selected for reliable, high-performance logic control that is easily maintainable.
 - SCADA system built using CitectSCADA 2018 for intuitive plant visualisation and operator control.
- **Control System Implementation:**
 - Developed site PLC and SCADA programming standards from scratch
 - Programmed logic for all site equipment in a single site PLC and integrated data from various vendor packages
 - Developed entire site SCADA system using best practice ASM standards
- **Commissioning:** Full system commissioning was carried out safely, efficiently, and in alignment with the client's project schedule to take the plant into full production. Extensive site support was provided once in production to ensure continuity and optimisation of operations.

Results and Impact

The project resulted in seamless integration across all plant systems, which now operate through a centralised and intuitive SCADA interface. GTE's reliable PLC logic ensures enhanced process control, enabling optimal equipment performance while minimising the need for operator intervention. Importantly, the project was delivered on time and without compromising safety or quality. As a result, the client achieved full operational readiness, commencing production on schedule with confidence in the system's performance and long-term reliability.

Project Outcome

GTE Group's involvement in this greenfields gold mine resulted in the successful commissioning of a fully integrated control and communications system. The project highlights GTE's capability to deliver end-to-end automation solutions that align with mining industry demands for safety, efficiency, and reliability.