

Cowal Gold Mine

Project Report - New South Wales

Holcim's promise of strong operational capability, technical support, and an overall focused team led to a major contract being won for (mobile plant) concrete supply required for the development of a large open cut gold mine.

Key design criteria

The initial development for the Cowal mine site and pre-operations generated numerous technical challenges. Such complexities were highlighted by the 2.5m deep and approximately 1000m³ and 900m³ in-ground footings necessary for the Sagmill and Ballmill respectively. Such a large depth and mass required careful planning, mix design and placement to control the potential for high temperature gradients to develop. Large temperature differentials between the surface, concrete core and the ambient temperatures would make thermal cracking a possibility. These concerns led to Holcim's contract to monitor the temperature of each pour in the Sag and Ballmill slabs and each lift of the pedestals.

Solutions developed

The temperature monitoring was achieved by the use of two DT50s in each pour, monitoring high and low positions, thick and thin sections. The requirement prior to stripping was that the temperature difference between the surface probes (150mm below surface) and ambient temperature should be < 20°C for a minimum of 10 consecutive hours. The in situ insulation on the structures was achieved by use of 75mm thick styrene panels on both walls and 2 micron black plastic over the styrene on the surface.

Quality assurance of the project included:

- use of chilled mix water (4 – 12°C)
- frequent testing to ensure correct slump
- technical supervision to guarantee correct concrete practices were being followed - particularly with respect to adequate and correct concrete vibration.

Post pour activities pursued included the close monitoring of the in situ thermocouple readings to certify that temperature generation was as planned.

Results achieved

The effective communication between Aker Kvaerner, the Clough Seymour Whyte joint venture and Holcim for the Sagmill and Ballmill footing pours is indicative of how the overall Lake Cowal Project is being successfully managed.



Location	Lake Cowal, Central West NSW
Client	Barrick Gold
Contractor	Clough Seymour Whyte Venture
Engineer	Aker Kvaerner
Products supplied	Approximately 30,00m ³ concrete
Commencement	October 2004
Completion	July 2005