

# Medupi

## Quality and reliability critical for Medupi

Eskom's Medupi is the first coal-fired power station to be built in South Africa in the last twenty-five years. Near Lephalale in Limpopo Province, Medupi is a 6 x 800MW power station and will be the largest dry-cooled coal-fired unit in the world. Eskom's main objective is to have the first phase (Unit 6) running as soon as possible. It is currently scheduled to come on line in the fourth quarter of 2012. The remaining units will be handed over at eight month intervals.

The civils contract was awarded in May 2008 and construction began two months later. Concrete requirements are expected to exceed 350 000m<sup>3</sup>. The main challenge was to deliver the volumes of concrete while managing the heat of hydration in the mass pours, many structures being essentially monolithic. The turbine hall is a good example with its raft foundation for the turbine up to 4m deep. The pour had to be completed without interruption to avoid having cold joints.

The concrete was mainly pumped because of the congested nature of the site where bases were being poured for a huge number of structures. Seven to eight pumps were in use fed by a fleet of 39 truckmixers: a load of concrete was delivered to a pour point every four minutes! Dura-Pozz<sup>®</sup> Pro classified fly ash from Ash Resources contributed to highly effective pumpable mix designs, featuring

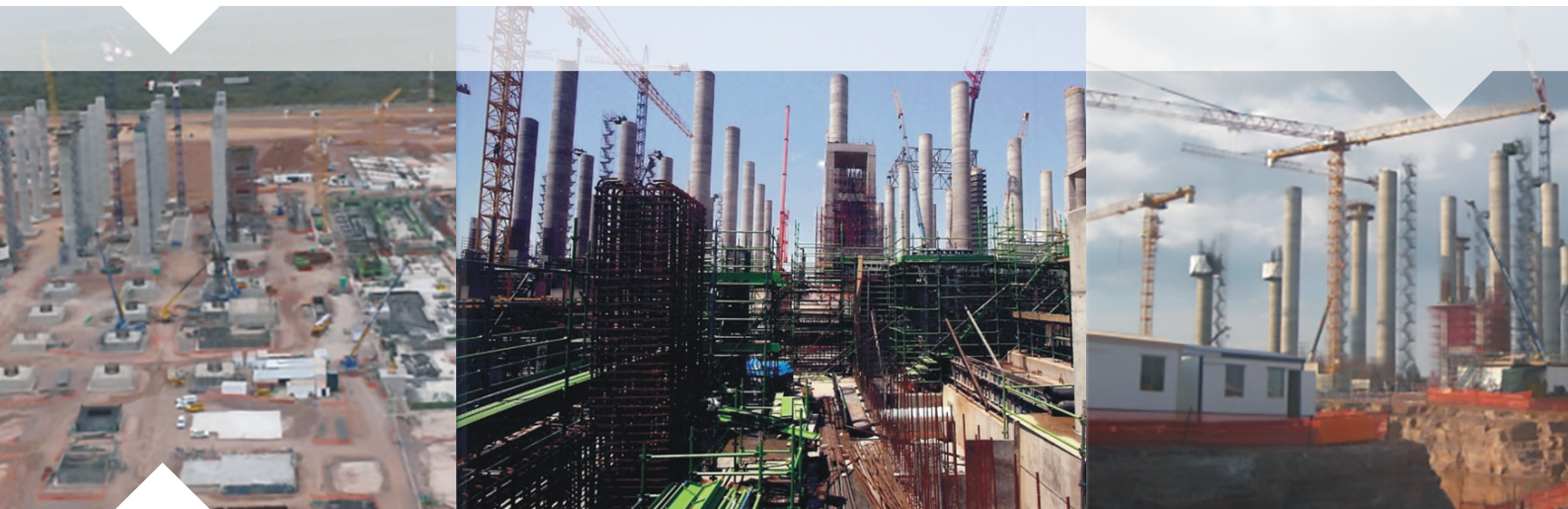
excellent workability and good flow through the congested reinforcing without segregation or settlement.

The concrete designs are tightly specified and most are based on a 70/30 CEM I/Dura-Pozz<sup>®</sup> Pro cementitious mix. The use of fly ash is standard for controlling the heat of hydration: not only contributing to lower temperatures but the peak temperatures also occur at a later age. The use of a 60/40 mix was approved to help control temperatures in the larger mass pours. In addition, DuraPozz<sup>®</sup> played a key role in optimising the mixes to meet very tight shrinkage specifications and creating a denser, more impermeable concrete that resists abrasion and chemical ingress - important factors when designing for a 50-year lifespan facility with minimum maintenance.

Consistent quality and absolute reliability of supply were of paramount importance with all material requirements.

When deciding on a cementitious extender, only the classified fly ash, DuraPozz<sup>®</sup> Pro from Ash Resources, could comply. A project of the magnitude of Medupi on a tight timeline simply cannot afford to run out of fly ash or have quality problems. Ash Resources is supplying by road from their Matla plant, a trip of 450km and, should it be necessary, has effective backup supply arrangements in place from its other facilities.

Dura-Pozz<sup>®</sup> Pro classified fly ash contributed to highly effective mix designs at Medupi.



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