

Power Station Floor Re-supported

INDUSTRY

Industrial

STRUCTURE

Power Station

PROBLEM

Ground Subsidence

LOCATION

NSW, Australia

DURATION / YEAR

4 days / 2015

TECHNOLOGY

Uretek Deep Injection

BUSINESS UNIT

Mainmark Australia



Summary

A mains pipe had ruptured 3m under the concrete floor of the Bayswater #2 Power Station, causing cracks to open up and fines to be washed away from the cooling water circulation system under the floor slabs. A lack of floor support had been created, preventing the entry of the 60 tonne cranes required for the power station's routine maintenance program.

Mainmark rectified the situation quickly and economically with Uretek Deep-Injection of expanding structural resins to fill voids and compact the subbase, consolidating the area and under-sealing the floor.

Objectives

The objectives were to investigate the extent of the problem, to consolidate the foundation ground and to re-confirm full support of the concrete floor without raising it.

Solution

To establish the extent of the washout, 16mm Ø holes were drilled through the 200mm thick reinforced concrete floor on a 2.5m to 3.5m grid across an area of 25m by 35m, where extruded fines/sand was visually observed and where ground penetrating radar scans indicated voids.

Boroscope inspections through the holes revealed a large amount of fill material had been washed out. Substantial cracks had opened up both between cooling water circulation channel inspection pits and the underside of the floor.

Uretek Deep-Injection of expanding structural resin was carried out across the affected area via tubes through the concrete floor at 2m to 3m centres. Injection was continued until full re-support of all sections of the floor was confirmed and until resin was observed to have sealed all cracks that had opened in the cooling water system inspection pits.

There was no excavation, little noise, no water and no mess created by this process. Minimal additional weight was added to the foundation ground. The material used is impermeable, is not brittle and will not break up. There was no interruption to the work of the power station and vehicles were able to drive over the area just 30 minutes after the Mainmark work was completed.

Without interruption to the operations of the power station, the reinforced concrete floor was fully re-supported and under-sealed against further erosion. The restoration of floor bearing capacity enabled resumption of the heavy crane traffic required for the power station's regular maintenance program.

Above, right: Gaps between water circulation system inspection pits and the floor slabs were sealed by sub-floor injections of structural resins.