



# engenium

smart project delivery

## Demonstrated Capabilities

- Multi-Disciplinary Engineering Design
- Project Management
- Brownfield Plant Modification
- Bulk Solids Handling

## Power Station Chute Replacement Engineering Design and Documentation

### Project Location

New South Wales, Australia

### Scope

Engenium was engaged as a sub-contractor to provide the Engineering Design and Documentation for the replacement of a process critical coal discharge chute, including increasing internal wear lining performance and the improvement of access required for inspection and maintenance activities.

### Business Objective

The power station's inspection and maintenance records demonstrated recurring issues that had led to unplanned and longer than expected outages. These included excessive wear of wear liners, ceramic tiles and parent plate further complicated by a significant lack of adequate access for repair, replacement, and inspection. A major part of the scope of works of this project was to improve the wear performance of the chutes and improve access for inspection and maintenance. The works were carried out under tight time restrictions and plant shutdown conditions.

### Challenges to Overcome

Existing documentation and drawings of the plant and associated structure were inaccurate. Installation was complicated due to limited access and available time windows. This was further complicated by a multi-storey congested installation envelope to work within, for the removal of the existing chute and installation of the new replacement chute.

### Smarts

Engenium completed a Point Cloud Survey of the area to accurately identify and locate all existing plant and structure, and successfully eliminated collisions with undocumented structures. Industry leading 3D Laser Scanning (High Definition Surveying) resulted in accurate, rapid and complete survey data, providing an extensive 10m x 5m x 4m volumetric point cloud. Once interpreted The point cloud provided the multi-storey installation envelope and the realisation of a Clash-Free Model. This model was then used for virtual inspection and client acceptance before fabrication commenced. The Clash-Free Model also enabled process flows to be calculated, determining which wear lining material was best for each locations abrasion and impact conditions. The model was also instrumental in communicating and determining the location of new and additional access points specifically designed to simplify maintenance activities, minimise manual handling and significantly reduce plant outages.

### Project Outcome

The redesigned trouser leg chutes were installed without issue (clash-free) and no on-site modifications were required. The client was pleased with the outcome of the project. The power station now has safer access for maintenance and inspection of chutes, enabling many years of reliable operation into the future.

# Delivering Value. Delivering Results.