

## Time Weighted Average Dust Levels

### Industry

Coal Fired Power

### Application

1-on-1 transfer chutes feeding coal to the power generation boilers

### Material

North American Powder River Basin Coal

### Objective

Minimize potentially hazardous coal dust

### Transfer Detail

1-on-1 transfer chutes, 48" belts; each chute transferring 1,350 tph with a 550 fpm belt speed



### Challenge

A power plant was adding North American Powder River Basin (PRB) coal to its fuel mixture. Management was concerned about the safety issues associated with the combustible nature of the PRB coal dust and wanted to take steps to minimize it. The new chute systems had to contractually deliver dust generation performance below the Occupational Safety and Health Administration (OSHA) respirable dust standard of 2.0 mg/m<sup>3</sup> on an eight hour time weighted average (TWA).



### Flexco Solution

Flexco designed new systems that utilized low-impact angles so that material is gently redirected rather than being severely impacted throughout the transfer process, thus reducing material degradation.

The material stream is encapsulated by the wear surfaces, which keeps all the fines entrained within the flow. This results in minimal dust generation for the plant.

As part of this chute project, the customer performed dust testing of the old system and the new Flexco system to verify system performance. Time weighted averages for all sample points on the new system were well below the old chutes and OSHA respirable dust standards.

### Result

Flexco arranged for an independent consultant, DMR & Associates, to determine the post-installation respirable dust values.

DMR tested two critical areas near the new chutes and determined the post-installation TWA respirable dust levels were 0.125 and 0.0758 mg/m<sup>3</sup>. Both results were significantly lower than the OSHA standard and were achieved on systems that do not have any dust collection or suppression systems.