ASGCO® Solves Southwest Coal Fired Power Plant Rail Car Dump Transfer Point Problems

CHALLENGE:

After the material was dumped it went through a series of grizzly bars, then through all of the chute work below on 4 different levels. With the existing design the material was off-center loading which was pushing the belt to one side and causing the material to spill and wear the belt unevenly. They also had internal deflector plates installed at the bottom of the chutes to try to guide the material, but it wasn't working and they were wearing out. The chute needed to be re-designed to center the material flow onto the belt.

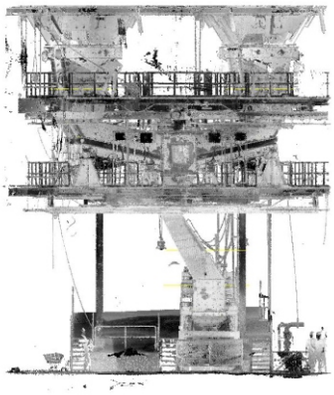
SOLUTION/

Part of the project was to replace the grizzly bars, along with four of the chutes, exactly as they were originally designed. The lower portions had to be re-designed to solve the off-center loading issue. ASGCO® engineers performed an on-site Point Cloud Laser Scanning survey to provide accurate measurements of the existing transfers. Then a 3-DEM® simulation was developed to validate that the flow would fall onto the center of the belt through the new chutes.

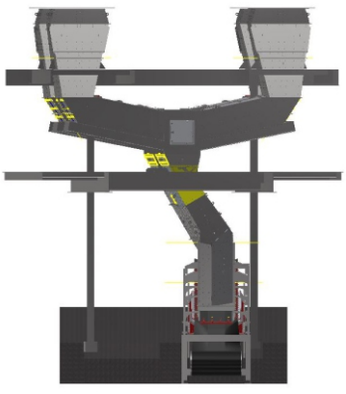
RESULTS/

Since it was coal and various sized material, the simulation process took several weeks to complete. We scanned it, designed it, detailed it, fabricated the chutes and delivered it all before the shutdown deadline. The project was installed with no issues and the material flow is center loading onto the belt. The customer is extremely happy. No spillage and everything is center loading.

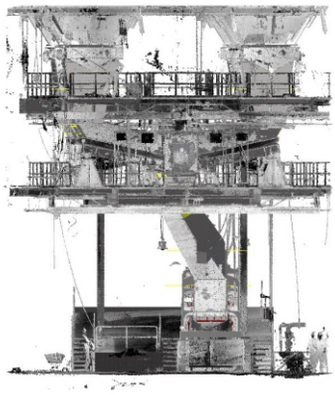
Point Cloud Scan of conveyor.



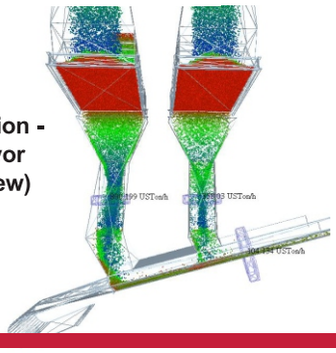
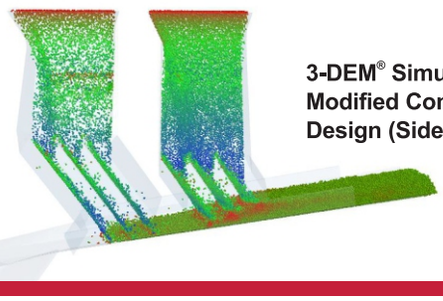
Model of conveyor.



Model overlaid into Point Cloud Scan



3-DEM® Simulation - Original Conveyor Design (Side View)



3-DEM® Simulation - Modified Conveyor Design (Side View)