INTRODUCTION
This job story focuses on eliminating build-up and blockage in coal chutes at a marine terminal in the Middle-Atlantic States. AIRMATIC Application Specialists investigated the problem and found that the Air Cannon System, which had worked successfully for over 3 years to keep the sticky, wet coal from blocking the chutes, had a number of Blasters not working and in various states of disrepair. Visual inspection of a sampling of the Air Cannons removed from the chutes indicated most, if not all, could be repaired.

Air Cannons, or air blasters, are flow-aid devices which utilize a pressure-rated reservoir of stored compressed air or nitrogen at 40 to 125 PSI, equipped with a fast-acting, high flow discharge valve which quietly supplies an instantaneous blast of air into storage or process vessels, chutes, or ducts. When strategically located, and properly oriented, the eruptive force of the blaster de-clogs, dislodges, and prevents the material build-up that chokes plant productivity and efficiency.

PROBLEM IN MORE DETAIL
The coal build-up and blockage in the Stacker-Reclaimer outlet chutes was costing the marine terminal hundreds of hours of productivity because of maintenance time spent manually air-lancing and poking to break up the recurring coal blockages. Ship-loading schedules could not be maintained. Furthermore, the manual clean-out work was dirty and dangerous, and worker safety and morale were at risk.

SOLUTION
An AIRMATIC Field Services Crew remedied the problem by removing the System’s sixteen air cannons and mounts from the transfer chutes and performing repair maintenance or rebuilding as needed. Working with Plant Personnel, it was decided that, because of chute modifications, the location of some Cannons should be changed and that on eight of the Blasters a specially designed Fan Jet Nozzle should be used to improve the air blast pattern. The other eight Air Cannons were reinstalled in their original locations and unused chute openings were patched. Finally, a new air preparation and control unit with stainless steel tubing was installed to supply the Air Cannons with clean, dry compressed air at a constant 90 PSI so as to maximize blast effectiveness.

CONCLUSION
As this case study shows, the nagging problems that this marine terminal suffered for years could have been eliminated by instituting a program of regular maintenance repair. The Customer agreed that it would have been advisable to bring in our Application Specialists during the decision to modify the chutes which could and did affect the effectiveness of the Air Cannon flow-aid System. Most importantly, the build-up and blockage problems were eliminated resulting in the end to manual labor for chute cleaning, ship-loading schedules being maintained, and worker safety and morale improved.

For more information on Air Cannon Systems and other products and services provided by AIRMATIC INC, click here.