



ON SCHEDULE ARRIVAL

HOW ONE MANUFACTURER KEPT A HECTIC RUNWAY RENOVATION ON SCHEDULE

BACKGROUND

The world's busiest passenger airport – Hartsfield-Jackson International Airport in Atlanta – serves more than 85 million air travelers annually and logged more than 976,300 flights, including takeoffs and landings, in 2006. Maintaining efficiency and on-time flight performance in an airport that size is essential to the total operations. Consequently, Atlanta authorized a \$5.4-billion, 10-year development program, including funds to modernize current airport facilities. Plans called for the addition of a fifth runway to the airport – which opened in May 2006 – as well as the complete renovation of an existing runway. The 10,000-foot-long, 150-foot-wide runway (Runway 8R-26L) withstood more than three decades of continual wear. The Kiewit Company of Omaha, NE, was hired to remove more than three miles of concrete, repave the run-

way to thicknesses of 20-25 inches, and add a 4,500-foot taxiway nearby, and was given a 60-day deadline to complete the work.

THE PROBLEMS

Kiewit was responsible for processing the runway's sub-grade, installing drainage, laying an asphalt bond-breaker, and slipform paving the surface. Restriping the runway and installing a new lighting system were also part of the project. Because of the continual demand for materials and the 24-hour-a-day work schedule, Kiewit needed a high-capacity storage solution installed on-site. As a result, the company purchased 14 silos to provide a combined 16,800-bbl. on-site capacity for the materials. Some 60 loads of low-alkali cement arrived to the runway each day, as well as 20 to 25 loads of fly ash. The company then needed a reliable, cost-

effective method to transfer cement and fly ash at capacities of up to 130 tons per hour from the silos to the batch plant. Equipment was also needed to efficiently unload materials received from the delivery trailers.

THE SOLUTION

York, Neb.-based Cyclonaire Corporation, a manufacturer of bulk material handling systems specializing in pneumatic conveying, had previously worked with The Kiewit Co. in time-critical projects. In order to load material from the silos and transfer it to the batch plant more than 220 feet away, three Cyclonaire HC-150 Conveyors were installed – one for fly ash, two for cement. The Cyclonaire HC Series is a high-capacity, vacuum-loaded, semi-dense phase pressure conveyor. It is ideal for powdered materials that are abrasive and fluidizable. Medium-pressure blower air is used to drive a venturi that generates a vacuum for material loading. It then pressure-conveys the material at intermediate line velocities for less abrasive wear and particle degradation.

At each of the three designated unloading areas, Cyclonaire Turbo-Inductors were installed to provide efficient unloading apart from the storage facilities. Cyclonaire Turbo-Inductors

assist unloading bulk materials from pneumatic trailers and railcars at high rates and over long distances. The self-contained systems work by allowing an increase in convey line diameter and adding higher volumes of air to convey the bulk materials faster. Discharge time during completion of the Atlanta runway project was typically 20 minutes per truck, allowing for a delivery rate of 72 trucks daily.

THE ADVANTAGES

The configuration of the project allowed for one HC-150 Conveyor to draw material from each group of silos for maximum multi-source efficiency. Powder was conveyed up to 130 tons per hour during peak demand. In all, about 60,000 tons of cement powder were required for the entire project, plus 25,000 tons of fly ash. The effectiveness of the Cyclonaire units helped keep the project on schedule.



A PLC control panel shown in the foreground provided automatic cycling and condition monitoring for operating the HC systems.

SUMMARY

Work on the entire project finished Nov. 6 – six days ahead of schedule. The 8R-26L Runway is essential to the on-time performance at the Atlanta airport. The airport fell to No. 31 out of 31 major airports nationally for on-time flight arrival and departure, while the project was underway. The replaced 8R-26L Runway – plus the new runway and three others at the airport – will undoubtedly improve on-time performance in subsequent aviation reports.

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