

Case Study

Fleet RFID Solutions

Knight Hawk Coal Company implemented a robust, reliable RFID-based automated system with customized weigh scale software.

Knight Hawk Coal Company, based in Percy, Illinois, operates seven coal mine sites in southern Illinois.

Coal is mined, loaded on large trucks, weighed at an automatic scale, then transported to a dock loading location and transferred onto barges. A large fleet of 18-wheel trucks/trailers, up to 140 in number, is utilized and the trailers are filled by a load-out belt scale or a silo scale. There may be as many as 30-40 trucks on site waiting for load-out. Each load takes less than one minute, but consists of nearly 25 tons of coal.

Planned expansion of Knight Hawk's production capacity, primarily at the largest mine site, Prairie Eagle, required a new system with a much higher degree of automation. The system also required remote access of production data from the central office.

The original system was working, but was becoming increasingly unreliable and handled a much smaller capacity:

- ▶ Served just 2 mine locations
- ▶ Capacity of 20-40 loads per day

The increased production growth plan required a substantial upgrade to a system that could handle:

- ▶ 7 mine sites
- ▶ More than 600 loads per day



At A Glance

Goal:

- ▶ Handle the increased production volumes via automation
- ▶ Drastically reduce input data required from drivers
- ▶ Minimize data errors with accuracy rate of > 99%
- ▶ Operate reliably in a "dirty, dusty" environment

Benefits:

- ▶ Production capacity increased dramatically
- ▶ Extremely reliable industry environment
- ▶ Minimal data entry required of drivers
- ▶ Reduced data errors resulted in accuracy greater than 99%

"The system performance has been outstanding. The observed error rate is extremely small, and all of the objectives we set for the new system have been exceeded."

Jason Thies
IT Project Manager
Knight Hawk

TRANSCORE

A bid for a highly automated scale software solution was developed and released. The winning vendor, AWS, responded with a superior solution of customized software and a robust, reliable, RFID-based automated system from TransCore.

A pilot installation at the Jordan Slurry location was implemented in April 2012. After the system proved itself, additional locations were installed. The largest site, Prairie Eagle, was installed in August 2012. Three scales were implemented in three days. The custom software provided by AWS smoothly interfaced to the existing Knight Hawk application software.

The RFID system components installed at the mine sites include Encompass® 4 readers along with eGo® window sticker tags, which are affixed to the truck windshields.

All seven mine sites are up and running. The last mine installation was completed at the Black Hawk facility in May 2013. *“The system performance has been outstanding,”* states Jason Thies, IT Project Manager at Knight Hawk. *“The observed error rate is extremely small, and all of the objectives we set for the new system have been exceeded.”*



A new dispatch application is under development at the Lone Eagle barge loading facility. Two Encompass 4 readers are being utilized to read the IDs of arriving loaded trucks at the check-in station. The trucks are then dispatched to the proper barge loading station to off load. Each barge can accommodate 60-80 truckloads of coal. The dispatcher is now able to ensure that the correct product mix is loaded on the right barge, based on order fulfillment requirements.



The data collected from the load out process at the mines is now available to all locations along with image information, all the way up to the final barge load out operation at Lone Eagle.

Knight Hawk Facility Profile			
Location	Type	Intall Date	Application
Jordan Slurry	Mine (Recovery)	April 2012	Scale out
Prairie Eagle	Mine	August 2012	Scale out
Red Hawk	Mine	July 2012	Scale out
Creek Paum	Mine	June 2012	Scale out
Hawkeye	Mine	June 2012	Scale out
Mine 21	Mine	May 2012	Scale out
Blackhawk	Mine	May 2013	Scale out
Lone Eagle	Barge Load	In process	Check-in dispatch



AWS (Advanced Weighing Systems, Inc.), located in Chippewa Falls, Wisconsin specializes in leading-edge truck scale ticketing and data collection systems for a variety of industries, including aggregate and mining, processing plants, dock facilities, refiners, and solid waste management. Founded in 1995, AWS delivers high-end automation, frequently integrating RFID systems to bulk material handling businesses, meeting their scale data collection system needs. They have successfully implemented RFID based solutions throughout North America.

For more information:
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transcore.com/rfid

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