

BEEF PACKING PLANT

MONFORT BEEF - CACTUS, TX

Monfort Beef, a division of ConAgra, specializes in the processing of meat. This facility provides an assortment of grades of boxed beef for the consumer market, and ships it to wholesale, retail distributors, and high-volume end users.

The Cactus facility was built in the early 1970s, with the AS/RS section constructed during the late 70s. The 4-aisle AS/RS has a warehouse capacity of 2,744 pallets. The AS/RS control system was installed in 1985.

The primary goal for the upgrade was to modernize and improve the functionality and capacity of Monfort's distribution operations, and thereby increase the amount of product that could be processed and shipped daily from the site. A secondary goal was to have the flexibility to meet future business growth.

Problem

Warehouse operation controls were outdated and unsupported. The Conco cranes were old and caused a weekly cumulative downtime that exceeded 20 hours. There was no backup or replacement for the main circuit board of the Repete computer system.

System Flow

During the day, orders are downloaded from the host computer to the HP9000 control system. Using various GUI screens on PCs connected to the AS/RS control system, operators manipulate the orders, group them, allocate product, assign, and activate orders. When an order is activated, the system delivers the required pallets to designated output stands for picking.

Individual boxes of processed beef are released from the sortation system and conveyed to one of two Goldco palletizers. After boxes are scanned at the palletizer input, the palletizer assembles them into pallets of 4 or 5 layers of the same product for a full pallet of 24 (4 layers) or 30 (5 layers).

Once pallets exit the palletizer, they're scanned at the palletizer output and moved along the input conveyor to one of four crane aisles for storage. When pallets reach the aisle, they're placed on the aisle infeed P&D. The system determines the particular storage location within the aisle by

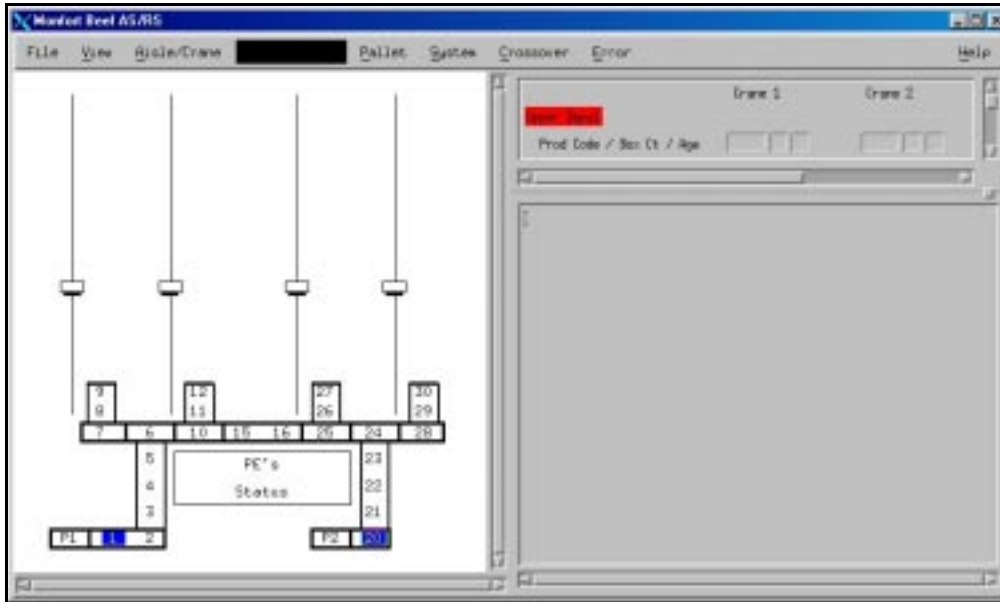
choosing the location it can reach the quickest from the infeed P&D.

Product is removed from the AS/RS when operators allocate and activate orders. This action prompts the system to automatically select, retrieve, and deliver specific pallets to output stands (upper and lower) and fork truck stands in the correct order. As each pallet is delivered to the output stand, picking instructions appear on the operator terminal at the stand. The assignment of orders to a particular output stand correlates to the dock door where the order is loaded.

RETROTECH Solution

- Replace existing AS/RS control system with a control system consisting of a single HP9000 with mirrored disks running the HP-UX operating system, new software, host interface, and GUI user interface. A second HP9000 serves as a cold backup.
- Retrofit of all cranes to include: Allen-Bradley (A-B) PLC system, control enclosures, SEW Eurodrive motor controls, Spectra Position ICS 5000 horizontal and vertical positioning systems, SICK ISD 230 communications system, riding platform assembly, base assembly, horizontal, vertical, and shuttle drive systems, lifting assembly, and carriage sensors. In addition, repair masts and guide tubes, replace and adjust top guide rollers, and replace existing conduit and wiring.
- Add emergency stop buttons (connecting to cranes) in the control room.
- Install QuickPanel touchscreen control terminal on each crane.
- Replace the rail in aisles with 80# ASCE rail.
- Replace relay logic conveyor controllers with A-B SLC-5/05 PLC controller and I/O system.
- Replace existing palletizers and slave board dispensers.
- Furnish tracking on conveyors to eliminate camera use when storing pallets from pickup P&D.
- Replace lift tables at AS/RS input/output and add lift bars.
- Install 3 new printers to run reports.

- Program-specific conveyor sections to shut down when not in use to reduce wear on components.
- Install Laserdata 9000 barcode scanners (at palletizer input and output) to interface with conveyor SLC-5/05.
- Install Eason micro-terminals at each upper and lower output stand and forklift stand.
- Provide Spanish translations of selected conveyor operations and maintenance procedures that simplify the understanding of documentation.



The CEX Screen, shown above, gives an overview of the AS/RS material handling system; giving a pictorial representation of the system layout/operations. Operators use this screen to access detailed system information and view pallet movement into and out of the AS/RS in real time.

The RETROTECH Advantage

Using state-of-the-art, non-proprietary components and designs in the upgrade gives Monfort Beef self-sufficiency in its operation. By performing the upgrade “live,” downtime and customer inconvenience is minimized.

- Updated warehouse operation controls allow faster order processing, additional computer interfaces, and better database structure.
- Upgraded AS/RS computer control system contains a second HP9000 that gives Monfort Beef a much-needed backup system.
- The HP and PLC source code allows for future modification.
- The principal operator X-window based screens provide graphical monitoring of the conveyor system, cranes, and diagnostic/load information.
- The new horizontal and vertical positioning and drive systems optimize crane movement, which significantly increases performance and reliability.
- New onboard crane controls give maintenance personnel better tracking, maintenance, and error troubleshooting capability.

Monfort Beef now has the flexibility to meet its changing demands and accommodate future business growth. Choosing RETROTECH's AS/RS Modernization approach increased the reliability, flexibility, and productivity of this facility's operation in the most cost-effective manner.

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