



A Rockwell Automation Company

Lakeside Packers Ltd. Walking Beam

The Client:

Lakeside Packers is a meat processing plant located near Brooks, Alberta. The processing and storage facilities have been expanded to handle 200 head per hour and 4000 per day. Lakeside supplies beef to large

food chains and other meat distributors throughout Western Canada, the United States and overseas. This facility is owned by I.B.P. Inc., one of the largest beef suppliers in the United States.

The Requirement:

The Walking Beam is a cold storage facility housed in the "Hot Box" where the sides of beef are refrigerated and sprayed to prevent shrinkage. The new Beam system is designed to allow for independent operation of all 48 rails. Load and Off Load operation of the rails is to be both manual; utilizing push button control stations, and automatic; by presetting load and unload parameters via the computer based operator interface unit (OIU). The OIU is to provide graphical representation of the system and display the overall

status of all rails in the cooler. Each rail in the system has a gate that will open to accept beef sides and a walking beam to walk the sides both on to the rail and off of the rail. The system must maintain an accurate count of the beef sides loaded on and off from the rails. Rail capacity is to handle a total of 3168 sides of beef.

The Design Solution:

An Allen-Bradley PLC 5/40 Processor was chosen to handle the task of controlling the rail loading and unloading functions via the Wonderware Operators Interface Unit (OIU). The position of each side of beef is determined via a pulse encoder interfaced to a High Speed Counter Module(1771-VHSC) and allocated to the appropriate rail. The loading of the rails is accomplished by the means of a gate which drops into position just before the side arrives and then the walking beam is indexed to move the side toward the end of the rail. Each rail can hold up to sixty-six sides and can be loaded at a rate of one per second. The unloading function is handled by walking the sides off the end of the rail where the weight of the side drops the end gate to the load the beef onto the unload chain. The operator schedules the loading and unloading as well as viewing displays depicting the status of the rails. The operations people can start and stop the chain drive and have the system skip a rail or request a particular rail from the Hot Box via push-button stations mounted on the wall.

When a rail is stopped during a load procedure, it can only be restarted from the same push button station. The particular station is indicated on the OIU. The pulse encoder module is located at the start of the rail loading beam. A limit switch at this location indicates that a side is at the encoder. Each gate has a verified pulse count from this encoder limit switch to each rail. By trapping the encoder count as the side passes through the limit switch, and adding to it the offset for the particular rail to be loaded, each side is directed to its proper destination rail. Each rail essentially has 3 discrete states; Load, Queue and Full. Load indicates rail active and sides at the encoder will be queued for rail. Queue status is when all beef sides are queued for a rail and Full indicates the rail is full or in the process of unloading during which the loading is blocked.



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System Specifications:

- Allen-Bradley PLC 5/40
- High Speed Counter Module (1771-VHSC)
- Windows 'NT' on Dell Computer
- Wonderware Graphic Software
- Forty-eight Rails, 66 sides per rail
- 256 Discrete I/O
- Three load push button stations
- Four unload push button stations

For further information or to contact a Hinz office near you, please check our website at:

www.hinz.com