



## Houston Cement Terminal Control System Design

CLIENT - Houston Cement  
LOCATION - Houston, TX  
COMPLETED - 2001

### DESCRIPTION

Matrix PDM designed a control system for the Houston Cement terminal inventory and loading systems, to allow minimal human interaction, while automatically performing the loadout process. The terminal was designed to import and distribute 1.5 million tpa of cement.

Matrix PDM utilized an Allen-Bradley ControlLogix processor with redundant fiber ControlNet and two DeviceNet networks to achieve a 99 percent loading accuracy. The networks are divided into the inbound motor control MCC DeviceNet network and the outbound motor control DeviceNet.

The control system and equipment accurately load a 25 - 30 t capacity truck to less than 400 lb of the desired set point, within five minutes from spout drop to spout raise.

### WORK SCOPE

- Designed control system to increase accuracy and efficiency of loading, printing lading slip bills, and tracking the cement inventory within the six silos
- Calibrated control system eliminates significant manual operator controls for fast and accurate loading
- System simplified loadout method by allowing the dispatcher to monitor the HMI screens
- Designed three Wonderware HMI terminals for maintenance, troubleshooting and sequence control if needed
- Designed calibrated truck lane scales to interface with the bill of lading system and accurately monitor the loadout
- System maintains a nominal loading rate of 450 tph during the "fast fill" portion of the sequence
- Designed variable position gates and 12 silo aeration valves to maintain a specific loading rate
- Positioning gates throttle between "reduced rate feed" and "fast fill" to accurately load per each truck's capacity

### FOR MORE INFORMATION:

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