

Central Kansas Terminal

MKC LEADS JOINT VENTURE TO BUILD A RAIL LOADER

MKC

Moundridge, KS • 620-345-6328

Founded: 1918

Storage capacity: 40 million bushels at 26 locations

Annual volume: 60 million bushels

Annual revenues: \$500 million

Number of members: 8,000+

Number of employees: 300

Crops handled: Corn, soybeans, hard red winter wheat, sorghum

Services: Grain handling and merchandising, agronomy, petroleum, feed

Key personnel at Canton:

- Erik Lange, VP-southern region
- Brett Briscoe, location manager
- Daniel Pohlman, superintendent
- Emily Jackson, scale operator

Supplier List

Aeration fans.....AIRLANCO

Aeration system North American Equipment Co. Inc.

Bucket elevators..... Union Iron

Bulk weigh scale....Vigen/C&A Scales

Bulk weigh scale controls... Cultura Technologies Inc.

Cleaners..... InterSystems

Contractor... Vigen Construction Inc.

Control system..... Kasa Controls & Automation

Conveyors (belt)....Hi Roller Conveyors

Conveyors (drag) Union Iron

Design engineer....Vigen Construction Inc.

Distributor.....Schlagel Inc.

Electrical contractor..... Kansas Electric Inc.

Elevator buckets Maxi-Lift Inc.

Fall protection Fall Protection Systems Corp.

Grain temperature system .. Tri-States Grain Conditioning Inc.

Hazard monitoring system.... CMC Industrial Electronics

Level indicators..... BinMaster, Endress & Hauser

Magnets ... Industrial Magnetism Inc.

Manlift.....Schumacher Elevator Co.

Millwright....Vigen Construction Inc.

Roof systemKooiker Roofing & Insulation

Samplers InterSystems

Structural engineering .. VAA, LLC

Truck probe Gamet Mfg. Inc.

Truck scales.....Mettler Toledo, LLC

Truck scale software..... Cultura Technologies Inc.



Producers Ag LLC's new 1.1-million-bushel slipform concrete elevator outside of Canton, KS nearing completion in November 2014. Aerial Photo by Steve Brown Photography, Wichita, KS.

A new rail terminal elevator on U.S. Highway 56 near Canton, KS (620-350-8199) has been loading unit trains on the Union Pacific Railroad since December 2014.

“We did a study of the grain markets for central Kansas, and we found that we needed more storage along the Highway 56 corridor,” says Erik Lange, vice president-northern region for MKC, Moundridge, a 10-year veteran at the coop. “Canton is a strategic location between other terminal markets and close to a lot of our member-owners.”

He adds that the location in central Kansas serves as both a rail and truck market, central to major flour milling operations



in Hutchinson, Salina, and Wichita, KS, as well as several nearby ethanol plants.

According to Lange, MKC is the operating partner in Producers Ag LLC, a joint venture with CHS that built the \$21 million terminal. MKC leases the terminal to Team Marketing Alliance, LLC which includes three other local Kansas cooperatives:

- Cooperative Grain & Supply, Hillsboro.
- Halstead Cooperative, Halstead.
- Central Prairie Cooperative, Sterling.

The venture took competitive bids and awarded the construction contract to Vigen Construction, Inc., Grand Forks, ND (218-773-1159). “Vigen offered an excellent design



Brett Briscoe (left), location manager, and Erik Lange, vice president-southern region, both with Mid Kansas Cooperative Association, the facility's managing partner.

for handling both truck and rail traffic,” Lange notes.

Other major players on the project included:

- VAA, LLC, Plymouth, MN (763-559-9100), which served as structural engineer and performed site/civil engineering and loop track design.

- Kansas Electric, Newton, KS (316-283-4750), which served as electrical contractor

- Kasa Controls & Automation, Salina, KS (800-755-5272), which supplied the automation systems.

- Ameritrack, El Dorado, KS (316-321-3816), which built the facility’s 8,100-foot loop track.

Construction on the facility began in August 2013 following a month of weather-related delays, and the terminal was essentially complete by December 2014.

Storage Facilities

Vigen constructed a 1.1-million-bushel slipform concrete grain elevator that consists of eight 124,000-bushel tanks plus five interstices, three truck loadout bins, and one shipping bin. The big tanks are 40 feet in diameter



A truck driver moves onto a Mettler Toledo outbound scale after delivering grain. Also visible is the inbound scale and an Apollo truck probe. Ground-level photos by Ed Zdrojewski.

and 131 feet tall, and all of them are equipped with KanalSystem floors with center sumps for air-assisted unloading.

Each tank also has three Tri-States Grain Conditioning grain temperature cables and BinMaster level indicators. Two of the eight tanks have a pair of AIRLANCO 40-hp centrifugal fans supplying 1/7 cfm per bushel of aeration allowing those tanks to hold wetter grain, in addition to power the Kanal-System floors. The rest of the upright tanks operate with a single AIRLANCO 50-hp centrifugal fan supplying 1/10 cfm per bushel.

The Producers Ag terminal also operates a pair of 1.1-million-bushel LeMar temporary storage piles measuring 500 feet long by 150 feet wide. They have four-foot perforated steel sidewalls, compacted dirt floors, and ten 10-hp AIRLANCO axial fans each. Both are

loaded with 25,000-bph conveyors with double drive-over pit supplied by LeMar Industries and unloaded by operators on front-end loaders.

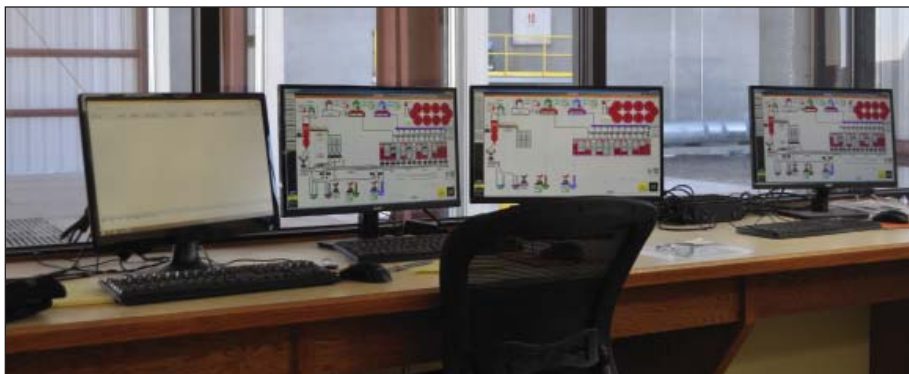
Grain Movement

Incoming truckers identify themselves at a remote Gamet Apollo probe station using RFID cards, part of a Cultura oneWeigh® scale automation system. From there, they proceed to a 12-foot-by-80-foot METTLER TOLEDO pitless inbound scale for weighing. Their weight is captured and they are directed where to dump. After depositing their load, drivers return to an adjacent outbound scale for tare weight and receive their scale ticket from a scale-side printer.

Trucks deposit grain into one of three mechanical receiving pits, two holding 1,200 bushels and the third 600 bushels. All three pits feed 20,000-bph Union Iron legs equipped with 20x8 Maxi-Lift Tiger-Tuff buckets mounted on 22-inch Goodyear belts.

Grain can be routed through two 25,000-bph InterSystems gravity screeners for the receiving legs, before it is deposited into a Schlagel 13-duct triple rotary distributor. From there, grain travels via a pair of 20,000-bph Union Iron drag conveyors out to storage. A 40,000 bph InterSystems gravity screener is used on the shipping leg.

At this point, there is no grain dryer. Location Manager Brett Briscoe says a dryer may be added later depending on market demands.



These workstations allow operator to control all functions of the elevator through an automation system supplied by Kasa Controls & Automation.



Roof structures include two InterSystems 25,000-bph and one 40,000-bph gravity screeners and a 13-duct Schlagel rotary triple distributor.

The upright storage tanks empty onto a 60,000-bph Hi Roller enclosed belt conveyors in a below-ground 11-ft.-wide-by-8-ft.-tall tunnel. These run back to a 40,000-bph Union Iron loadout leg outfitted with two rows of Maxi-Lift Tiger-Tuff 20x8 buckets on a 44-inch Goodyear belt. The other



Two 1.1-million-bushel LeMar temporary storage piles, one holding wheat and the other corn in November 2014.

receiving legs can be diverted to loadout service as needed.

Railcars are loaded with an 80,000-bph bulk weigh loadout scale fabricated by Vigen with C&A Scales electronics. It is under the control of a Cultura one-Weigh[®] automation system. Workers atop railcars during loadout operations are protected by a 360-foot Fall Protection Systems Corp. trolley unit.

Automation for Safety

Facility operations at Canton are under control of a Kasa Level 4 Automation system providing such features as remote access, hazard monitoring, historical data tracking for alarms, power monitors, bin temperature cable

monitoring, and aeration control.

Hazard monitoring is viewable from a centralized location with real time and historical trending. This means, for example, if bearings are overheating repeatedly, preventive maintenance can be scheduled before they fail.

The system also does not allow legs and conveyors to run when the dust collection system is off, reducing the chance for a dust explosion. And equipment status such as amperage or gate positions can be viewed multiple places throughout the facility and through remote dial-in inside terminal control locations instead of having to go outside.

Ed Zdrojewski, editor