Shipping South

RAY-CARROLL COUNTY GRAIN GROWERS ADDS SHUTTLE LOADER

Ray Carroll County Grain Growers, Inc.
Richmond, MO • 800-722-4407

Founded: 1931
Storage capacity: 25 million bushels at 11 locations
Annual volume: 50 million bushels
Number of members: 4,815
Number of employees: 137
Crops handled: Corn, soybeans, hard red winter wheat, sorghum
Services: Grain handling and merchandising, fuel, oil products, fertilizer, feed, crop insurance

Key personnel:
- Mike Nordwald, general manager
- Tim Phillips, operations manager
- Josh Riley, Corder location manager
- Frank McCloud, Corder grain superintendent

Supplier List

Aeration fans.....The GSI Group/AIRLANCO
Bag filter.....CAMCORP, Inc.
Bearing sensors..... CMC Industrial Electronics Ltd.
Bin sweeps.....The GSI Group
Bucket elevators..... The GSI Group
Bulk weigh scale.....Vigen Construction, Inc./Meier Sales
Catwalks/tower support system..... Warrior Mfg., LLC
Cleaner.....Magik Kleener
Concrete tank builder.....Vigen Construction, Inc.
Control system....CompuWeigh Corp.
Conveyors.....Hi Roller Conveyors
Distributor.....Schlagel, Inc.
Elevator buckets.... Maxi-Lift, Inc./4B Components Ltd.
Fall protection.....Vigen Construction, Inc.
General contractor..... Ray Carroll County Grain Growers, Inc.
Grain dryer..... Zimmerman Grain Dryers
Grain temp. system...Tri-States Grain Conditioning, Inc.
Level indicators..... BinMaster Level Controls/4B Components Ltd.
Manlift.....Schumacher Elevator Company
Millwright....Vigen Construction, Inc./Ray Carroll County Grain Growers, Inc./RSG Millwrights, Inc.
Moisture meter..... DICKEY-john Corp.
Samplers..... Intersystems
Steel storage.....The GSI Group
Structural engineer.....VAA, LLC
Truck probe.....Gamet Manufacturing, Inc.
Truck scale.....Fairbanks Scales
Temporary storage system.....Union Iron

Ray Carroll County Grain Growers new shuttle rail-loading facility in Corder, MO can store up to 4.44 million bushels of grain with receiving capacity of 60,000 bph and shipping capacity of 80,000 bph. Photo courtesy of Vigen Construction Inc.

In 2010, Ray Carroll County Grain Growers began a major company-wide expansion of its grain handling and storage capacities.

It added steel storage at Hardin (2010) and at its joint venture rail terminal at Slater (2010), and concrete storage at Carrollton (2011).

At the same time, the west central Missouri-based cooperative, with seven facilities, started searching for a greenfield site in northwest Missouri for a new rail-loading shuttle terminal.

In 2012, Ray Carroll purchased an 100-acre site north of Corder, MO to build a 4.44-million-bushel concrete, steel and temporary storage facility with a 8,700-foot loop track. "Having a shuttle loader brings a lot of value to Ray Carroll members/owners," says Corder Location Manager Josh Riley.

"Sitting on a Kansas City Southern main line, our grain is shipped to southern markets in states such as Oklahoma and Arkansas, as well as far away as Mexico," he explains.

The Corder elevator (660-394-8888) also brings convenience to Ray Carroll members, says Riley, who has been with the cooperative for seven years, most recently as superintendent at the Slater terminal.

"Before we built the shuttle loader, a lot of producers in the area utilized on-farm stor-

From left, Josh Riley, Corder location manager, and Frank McCloud, Corder grain superintendent. Photos by Alex Lord.

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age rather than deal with lines at the elevator," he says. "Now during harvest, we can get our customers in and out in five minutes."

Construction on the 4.44-million-bushel facility was started in July 2012 and was completed in September 2013.

Ray Carroll served as its own general contractor on the project. "By serving as our own general contractor, we could control what we wanted to do with the project," he adds.

Vigen Construction, East Grand Forks, MN (218-773-1159), built the concrete elevator and workhouse, which features four storage tanks and housing for a bulk weigh scale for rail loadout.

"Vigen has built a few of our other concrete elevators for us," Riley says, "and we have been impressed with their work."

One of the three Schlagel electric rotary distributors.

Receiving and Storage

Incoming trucks are weighed on a 70-foot-by-10-foot Fairbanks pitless scale and sampled by a Gamet Apollo truck probe. A CompuWeigh RFID SmartTruck traffic system with LED message boards direct trucks to one of two 1,000-bushel mechanical dump pits. Each of the pits feeds its own GSI drag conveyor, one rated at 20,000-bph, and the other at 40,000-bph that also can be used to unload railcars when needed.

Both drags feed their own 20,000-bph GSI leg equipped with a single row of 20x8 Maxi-Lift low profile CC-MAX buckets on a 22-inch belt. From the legs, grain is directed to one of three Schlagel nine-duct rotary distributors, two running at 20,000-bph and one at 40,000-bph. Grain then moves to concrete storage via two 20,000-bph GSI overhead drag conveyors or to the facility's two steel storage tanks via 20,000-bph overhead Hi Roller enclosed belt conveyors. Each set of these conveyors are supported by a 100-foot-tall Warrior tower and a 200-foot Warrior catwalk.

Concrete storage includes six 140-foot-tall tanks. Four of the tanks are 36 feet in diameter and hold 110,000 bushels each, with three interstice bins in the workhouse. The concrete tanks utilize two 50-hp AIRLANCO centrifugal fans that power KanalSystem® floors for 1/10 cfm aeration and unloading. Each of these four tanks is equipped with a three-cable Tri-States Grain Conditioning temperature monitoring system and 4B Components level indicators.

Two larger concrete tanks adjacent to the workhouse are 72 feet in diameter and 140 feet tall. Each holds 455,000 bushels. The tanks are equipped with a 12-cable Tri-States temperature system and 4B Components level indicators. After gravity loadout, GSI X-Series™ 16-inch 10,000 bph bin sweeps equipped with a floor-mounted track system are used for final cleanout. Aeration for each tank is provided by four 50-hp AIRLANCO centrifugal fans at 1/10 cfm.

Steel storage consists of two 480,000-bushel GSI 40-Series™ corrugated steel tanks. Each stands 105 feet in diameter, and are 56 feet tall at the eave and 84 feet tall at the peak with outside stiffeners. Aeration for each tank is provided by four 50-hp GSI centrifugal fans at 1/7 cfm. The tanks are also equipped with a 24-cable Tri-States temperature system and 4B Components level indicators. Each tank utilizes a GSI X-Series bin sweep at 10,000-bph for final cleanout. The steel tanks utilize 20,000-bph Hi Roller enclosed belt conveyors for reclaim.

In addition to the upright storage, the elevator is in the process of adding two Union Iron Temp Stor ground pile systems for the fall 2014 harvest. The piles will be 270 feet in diameter and hold 1 million bushels each. They will be filled by 40,000-bph Hi Roller enclosed belt conveyors running out to Union Iron 100-foot-tall center fill towers. A sidedraw spout from one of the concrete tanks will be the source of grain for the piles. They will have four-foot perforated steel walls and lime-based floors.

Drying and Loadout

Wet grain is sent to a Zimmerman tower dryer via a 10,000-bph GSI wet leg equipped with 13x7 4B CCS low profile buckets on a 14-inch belt. The propane-fired dryer runs at 6,000 bph and returns grain to storage through one of the two receiving legs.

All grain destined for loadout empties from the concrete tanks onto 60,000-bph Hi Roller belt conveyors. The conveyors feed a 40,000-bph GSI loadout leg equipped with two rows of 20x8 Maxi-Lift low profile CC-MAX buckets on a 44-inch belt, and they also may feed the two receiving legs for increased capacity. Grain that needs to be cleaned runs through a 40,000-bph Magik Kleener gravity screener positioned atop the concrete workhouse.

The legs feed either a truck screenings bin equipped with an overhead spout or a Vigen-constructed bulk weigh scale utilizing a CompuWeigh control system for rail loadout with RF tag reader. The bulk weigh scale can load railcars at 80,000-bph and has a 10,000-bushel upper garner. It also is equipped with Intersystems samplers.

During rail loadout, up to 120 railcars can be held on a loop track that circles the south side of the property. Workers are protected by a Vigen trolley-type fall protection system that is partially covered and spans the length of five railcars.

For unit-trains up to 50 railcars, the elevator utilizes its own locomotive to move the string, while Kansas City Southern locomotives stay on-site for 100-car unit trains, says Riley.

"We can load 100-car trains in a seven-hour shift and meet the railway's 16-hour deadlines," he adds.

Stowage inspectors utilize a Seedburo Equipment camera system to inspect railcars, before they are filled.

Alex Lord, associate editor

40,000-bph Magik Kleener gravity screener.