

Building from Scratch

WFS CONSTRUCTS NEW FACILITY IN DELAVAN, MN TO REPLACE AGING LOCATIONS



WFS

Truman, MN • 507-776-2831

Founded: 1937

Storage capacity: 28.3 million bushels at 17 locations

Annual volume: 60 million bushels

Annual revenues: \$592 million

Number of members: 2,500

Number of employees: 215

Crops handled: Corn, soybeans

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

Key personnel at Delavan:

- Harold Schnoor, location manager
- Tom Hoffmann, grain price protection service
- Kris Sonnicksen, bookkeeper

Supplier List

Aeration fans...Brock Grain Systems

Bearing sensors.....CMC Industrial

Bin sweeps Brock Grain Systems

Bucket elevators.....Schlagel, Inc.

Bulk weigh scaleC & A Scales

Catwalk.....LeMar Industries

Cleaner Intersystems

Contractor/millwrightC & D

Construction

ConveyorsSchlagel, Inc.

Distributor.....Schlagel, Inc.

Dust collection system Rolfes@

Boone

Elevator bucketsTapco, Inc.

Grain dryer Zimmerman Grain

Dryers

Grain temp systemSafe-Grain Inc.

Level indicators..... BinMaster Level

Controls

Moisture meter...Perten Instruments

Motion sensors CMC Industrial

Samplers Gamet Mfg.

Steel storage... Brock Grain Systems

Tower support system LeMar

Industries

Truck probe..... Probe-A-Load

Truck scaleRice Lake Weighing Systems



Aerial view of the WFS Delavan, MN, elevator and rail loop track completed just in time for the 2012 harvest which started about a month earlier than normal. Aerial photo by JH Photography, Spencer, IA.

When the management of WFS Cooperative, also known as Watonwan Farm Service, went looking for a potential site that could host the coop's 17th location, the eventual home of the new facility was a corn and soybean field just east of Delavan, MN.

Craig Kilian, WFS vice president of grain, says the decision to build the new facility was based on the fact that some of the coop's elevators were starting to show their age. "We thought we'd need to build something new to replace them," Kilian says.

Delavan, MN, was chosen as the location for the new grain receiving, storage, and shipping facility (507-854-3204), because it is located between two of the coop's older elevators at Winnebago and Easton, MN.

Its proximity to a main east-west line of the Canadian Pacific Railway also influenced the eventual choice of Delavan. "We wanted to locate it on a rail line and this is the place



Craig Kilian (left), WFS vice president-grain, and Stan Andringa, project manager. Ground-level photos by Jerry Perkins.

that made the most sense," Kilian says.

WFS management started thinking about the project in 2009. "That's when we knew we had to do something," according to Kilian. "It took us a while to find this site."

Feasibility studies needed to be done, and the coop also had to look closely at financing the project.

It contracted with ProExporter Network, Chelsea, MI (734-475-0454), to do a grain movement analysis, which told the coop that Delavan was a favorable site.

The coop purchased 160 acres for the site and an additional 18 acres nearby from farmers who are WFS members. WFS invested more than \$24 million to buy the land and build the facility, Kilian says.

Project Construction

C & D Elevator Construction Inc., Dolliver, IA (712-865-2791), was selected as the general contractor.

"We've had a relationship with C & D for many years," Kilian says. "We put the project out for bids, and they were awarded the project."

Other major contractors were...

- Sonnek Construction, Delavan, MN (507-854-3286), which built the office, master control center, operators office, and the dump pit building.

- Lowe Contracting Services Inc., Crawfordsville, IN (765-866-8231) for steel tank construction.

- Al Schultz Construction, Inc., New Richland, MN (507-465-8654), for concrete.

- Mathiowetz Construction Co., Sleepy Eye, MN (507-794-6953), excavation.

- Kahler Electric, Fairmont, MN (507-235-6334), electrical.



Brock Grain Systems 36-foot hopper tanks at the WFS' new Delavan facility.

- VAA, LLC, Plymouth, MN (763-559-9100), engineering.

- North Central Track Builders Inc., Mason City, IA (641-423-4023), loop track.

- Kahler Automation, Fairmont, MN (507-235-6648), scale automation system.

"We've been fortunate in that we didn't have any major cost overruns other than a few minor glitches," says Kilian.

Construction started July 1, 2011, and the coop started to accept grain at the site in September 2012.

"Harvest was at least a month early for this area," Kilian says, so not everything was done when corn started coming in.

During the fall, the coop accepted 4.4 million bushels of corn at the new elevator, making it the location with largest grain-handling volume of any WFS facility. Only corn was accepted at the new site this fall, Kilian says.

An existing elevator in nearby Delavan was used for handling the 1.5 million bushels of soybeans that came in during harvest.

Another 550,000 bushels of corn was placed in temporary storage at the site. "Harvest came early and yields were better than expected," says Kilian of the need for utilizing the temporary storage.

"We've got a plan for expansion that will include soybeans," Kilian says.

"We're going to get up to at least 5.4 million bushels of storage for corn at some point." He adds that there is no timeline for expansion.

Master Control

The brains of the new operation are contained within the master control center, a 40-foot-by-40-foot building built by Energy Panel Structures, Inc., Graettinger, IA (800-967-2130).

Inside the building are housed the motor controls and mainframe computer for the elevator.

Stan Andringa, WFS project manager, says a touch screen mounted inside the building gives complete control of all the elevator functions.

Kahler Automation installed the programmable logic controller (PLC), which is one of three at Delavan. The other two are in the rail shed and in the receiving building.

"We can use it to move the corn around," says Kilian of the computer controls. "You don't have to go outside



All elevator functions can be controlled from a touch screen inside the master control center.

this building to do anything. I can do it all from here, or from the Truman office (where the coop has its headquarters), or from my home on a laptop."

Grain Storage

Total storage capacity built at the site is 2.845 million bushels, including two Brock Grain Systems steel tanks with a capacity of 1,330,000 bushels each. Each tank is 156 feet in diameter, with the eave height of 69.5 feet. Height to the peak is 120 feet.

The tank's stiffeners are on the inside, with a flat bottom. Brock also supplied 16-inch, zero-entry bin sweeps. The grain temperature monitoring system came from Safe-Grain, with 50 cables in each tank. There are two BinMaster SmartBob level indicators in each bin.

The tanks are aerated by six Brock 40-hp centrifugal fans, and 23 roof exhausters rated at 2 hp, and 51 roof vents. Cfm per bushel is 1/8.

Four Brock 36-foot-diameter hopper bottom tanks for wet corn and blending each with a capacity of 52,000 bushels and four loadout tanks each with a capacity of 4,400 bushels were erected by Lowe Contracting Services.

Grain Handling

Incoming grain passes over a single truck scale, and outgoing trucks are weighed on an outbound scale, both pitless, from Rice Lake Weighing Systems.

A Probe-A-Load truck probe is used on the inbound scale. The scale automation system was supplied by Kahler Automation and uses an RFID reader to identify different trucks and the load.

Inside, grain graders use a Perten AM 5200 moisture meter and grain analyzer to establish origin grades.

Trucks deliver grain to two 1,000-bushel mechanical receiving ►

pits. They feed a pair of 20,000-bph Schlagel receiving legs standing 170 and 200 feet tall, respectively. The legs are outfitted with 150- and 200-hp Toshiba motors, respectively; Dodge speed reducers; and Tapco 18x8 low-profile buckets mounted on a 20-inch belt.

The legs deposit grain into a five-hole Schlagel double electronic rotary distributor. The operator may send grain through a 20,000-bph Intersystems gravity screener mounted above the distributor.

Schlagel overhead drag conveyors move grain at 20,000 bph to the wet and dry hopper tanks and at 40,000 bph to the big tanks.

Above-ground Schlagel reclaim conveyors move grain at 40,000 bph under the big bins and 20,000 bph under the four hopper bins.

Grain Dryer

A 10,000-bph Zimmerman tower dryer, with a capacity of 10,000 bph per five points of moisture removal, is fueled by propane. It has worked very well, Kilian says. The dryer is served by 20,000-bph Schlagel wet and dry legs.

Train Loading

The facility loads railcars with a 60,000-bph C&A bulkweigher outfitted with the supplier's own automation system and a Gamet sampler. A 40,000-bph Intersystems gravity screener is mounted atop the bulk weigh scale.

The 8,200-foot single-track loop west of the elevator allows for the loading of unit trains up to 120 cars long, loading 15 cars an hour.

"A lot of the corn goes to poultry markets in Oklahoma and Arkansas," Kilian says. "Currently, we're also moving a lot of corn to Cedar Rapids (IA)."

A rigid 300-foot rail system from Fall Protection Systems protects workers atop railcars.

The 8,200 feet of loop track is heavy-duty, 115-pound rail with wood ties. North Central Track Builders Inc., Mason City, IA (641-423-4023), built the loop track.

WFS purchased a 3,000-hp locomotive with six axles to move cars on the loop.

Jerry Perkins, associate editor



WFS purchased a 3,000-hp locomotive with six axles to move cars on its rail loop and can load railcars at 60,000 bph.



A Zimmerman grain dryer has a capacity of 10,000 bph per five points of moisture removal and is fueled by propane.