Take Two

AG PARTNERS REPLACES TERMINAL WITH A NEARLY IDENTICAL COPY AFTER EXPLOSION

Ag Partners LLC
Alton, IA • 712-756-5460

Founded: 1997
Storage capacity: 43.3 million bushels at 20 locations
Annual volume: 63 million bushels
Annual revenues: $375 million
Number of employees: 250
Crops handled: Corn, soybeans
Services: Grain handling and merchandising, feed, agronomy, energy

Key personnel at Alton:
- Bill Lyster, special projects manager
- Cain Bachman, location leader
- Ken Van Donslear, marketing service representative

Supplier List

Aeration system .. Rolfes@Boone
Bearing sensors ... 4B Components Ltd.
Bin sweeps ..... Hall Industries
Bucket elevators .... Schlagel Inc.
Bulk weigh scale ..... C&A Scales
Catwalk .. LeMar Industries Corp.
Cleaners ..... Intersystems
Concrete tank builder .. Younglove Construction LLC
Contractor ... Younglove Construction LLC
Control system ... Mike's Electronics Inc.
Conveyors .. Tramco Inc., Schlagel Inc.
Distributor ..... Schlagel Inc.
Dust collection system ... AIRLANCO
Elevator buckets ..... Tapco Inc.
Engineering ... Younglove Construction LLC
Grain temperature system .. Rolfes@Boone, Mike's Electronics
Leg belting .. Goodyear Conveyor Belting
Level indicators ... BinMaster Level Controls
Magnets .. Bunting Magnetics Co.
Manlift .. Schumacher Elevator Co.
Millwright ... Younglove Construction LLC
Motion sensors .. 4B Components Ltd.
Motors ..... WWE
Roof system ..... Diathon
Samplers ..... Intersystems
Scalpers ..... Mohawk
Speed reducers ..... Dodge
Tower support system ... Royal Iron

Aerial view of the 1.1-million-bushel replacement grain elevator and adjacent flat storage for Ag Partners LLC along the Union Pacific Railroad at Alton, IA. Aerial photo by JH Photography, Spencer, IA.

Sometimes you can't argue with success, even in the face of disaster.

That was the case after a July 9, 2008 explosion that largely destroyed a 10-year-old slipform concrete terminal elevator operated by Ag Partners LLC, along a Union Pacific main line at Alton, IA. Ag Partners is a joint venture between locally-owned Albert City Elevators/MFC, a 13-location cooperative, and Cargill Inc.

Bill Lyster (left), special projects manager for Ag Partners LLC, and Dave Toel, project manager for Younglove Construction LLC, which served as general contractor and millwright on the project. Photos by Ed Zdrojewski.

The 2008 explosion injured one person and essentially wiped out the 1.1-million-bushel elevator, as well as damaging an endwall and about one-fifth of the roof of an adjacent 4-million-bushel flat storage building. All that survived of the main elevator was a 7,000-bph Zimmerman tower dryer and a 10,000-bph wet leg. The cause of the blast officially is still undetermined, but it did an estimated $15 million in damage, including structure, equipment, grain inventory, and business interruption.

"What we've rebuilt here is almost exactly the same elevator," says Special Projects Manager Bill Lyster, who has been with Ag Partners since it was founded in 1997. "The devastation was so complete that it was not feasible to repair what was left."

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Ground level view of Ag Partners' Alton terminal, which was rebuilt from scratch with the exception of the grain dryer in foreground following a 2008 explosion.

Mike's Electronics Inc. supplied control systems for the entire elevator, which can be operated from several workstations.

Minor Design Changes

For the rebuild, Ag Partners contracted with Younglove Construction, LLC, Sioux City, IA (712-277-3906).

"Younglove did an exceptional job both in quality and also in providing the manpower necessary to have this ready prior to the 2009 harvest," Lyster says.

Due to insurance-related issues, construction on the rebuild did not begin until November 2008. The venture began loading trains out of the rebuilt facility in mid-July 2009.

While the rebuilt elevator is largely a copy of the old one, some changes were incorporated for improved safety and efficiency, Lyster says:

• A state-of-the-art 4B Components hazard monitoring system has been installed on all moving equipment such as legs and conveyors. The system includes bearing, motion, and belt alignment sensors.

• All of the replacement Schlagel legs are equipped with explosion relief panels.

• All of the tanks include new Hall Industries bin sweep models designed to empty out the tanks without any need for personnel to enter the tanks.

• The elevator has an improved AIRLANCO cyclone dust control system and a Heck & Sons dust suppression system, as well.

Grain Storage

Other design specifications are unchanged from the original elevator.

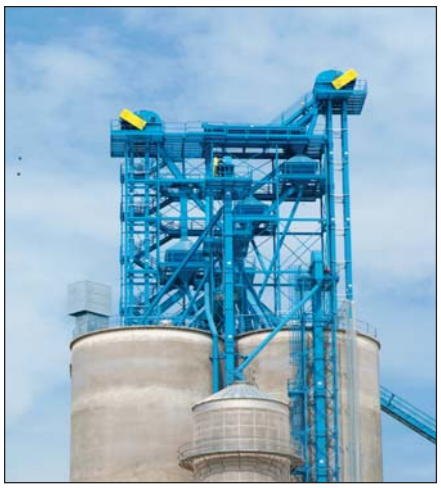
The slipform concrete structure ►

The facility's 60,000-bph bulk weigh loadout scale from C&A Scales is housed inside the slip, in order to protect it and workers from harsh weather much of the year.

consists of six large tanks and five interstices.

The large tanks stand 40 feet in diameter and 140 feet tall, holding 140,000 bushels each. The flat-bottom tanks are equipped with four-cable Rolfes@Boone grain temperature monitoring systems (through Mike's Electronics) and BinMaster high-level sensors.

A set of two 30-hp Rolfes@Boone centrifugal fans provide 1/10 cfm per bushel worth of aeration.



Rooftop structures on top of the slipform concrete elevator include head sections of three Schlagel legs, three Intersystems cleaners, and a Schlagel double distributor.

New 15,000-bph Tramco drag conveyor in a below-ground tunnel feeds grain back to a loadout leg. ►

Grain Handling

Incoming grain haulers utilize an existing truck scale and probe, which were undamaged in the explosion.

The rebuilt elevator has three mechanical receiving pits, two holding 1,000 bushels and the other 450 bushels.

The pits feed three Schlagel legs, two of which can double as rail-loading loadout legs. Two receive at 15,000 bph and are outfitted with 18x8 CC-HD Tapco heavy-duty buckets mounted on a 20-inch Goodyear belt—of these, one is dedicated to the adjacent flat storage. The other is a 20,000-bph receiving leg and is outfitted with Tapco CC-HD 20x8 buckets mounted on a 22-inch Goodyear belt.

Receiving legs feed into a 14-hole Schalgel electronic rotary double distributor. From there, a series of 15,000-bph Tramco and Schlagel drag conveyors take grain out to storage.

Tanks empty onto 15,000- and 30,000-bph Tramco drag conveyors located in below-ground tunnels leading back to the 30,000-bph leg.

The elevator utilizes a 60,000-bph bulk weigh loadout scale from C&A Scales for rail loading. The bulkweigher is housed inside the slip for protection against northwest Iowa's frequently harsh weather. The bulkweigher is controlled by a John Deere Agris OneWeigh control system and receives input from an RF tag reader supplied and maintained by C&A Scales.

The rebuild also included enclosed truck receiving pits and a dedicated 15,000-bph Schlagel leg and sidewall on the flat storage at right.

A three-car-length trolley system from Fall Protection Systems protects workers on top of railcars.

"We've loaded seven 100-car unit trains on the Union Pacific since July 15," Lyster says. "In every case, we've done it under the 15-hour railroad limit, in some cases as fast as 12 hours."

In addition to all of the work from Younglove, the venture hired Bouma & Co. Construction, Orange City, IA (712-737-3380), to rebuild the damaged sidewall and about 20% of the roof of the adjacent flat storage building.

Ed Zdrojewski, editor