

Post-Tornado Rebuild

TEXAS COOPERATIVE REPLACES FLATTENED ELEVATOR WITH JUMPFORM CONCRETE



Planter's Grain Cooperative
Odem, TX • 361-368-4111

Founded: 1946

Storage capacity: 9 million bushels at seven locations

Annual volume: 8-9 million bushels

Annual revenues: \$50-60 million

Number of members: 250

Number of employees: 16

Crops handled: Sorghum, corn

Services: Grain handling and merchandising, Cenex-brand fuels

Key personnel:

- Brian McCuistion, general manager
- Cheryl Hulsey, CFO
- Jason Lee, operations manager
- Freddy Gomez, Sinton superintendent

Supplier List

- Aeration fans**.....Twin City Fan & Blower
Aeration system.....Atlas Metal Works Inc.
Bucket elevators.....Schlagel Inc.
Catwalks LeMar Industries Corp.
Concrete silosHoffmann Inc.
Contractorin-house
Control system.....Champion Technologies Inc.
ConveyorsSchlagel Inc.
Distributor.....Schlagel Inc.
Elevator buckets Maxi-Lift Inc.
Engineering LNV Inc., Temsco Industries Inc.
Grain dryer Brock Grain Systems
Millwright.....E. F. Erwin Inc.
Steel storage... Brock Grain Systems
Tower support systemLeMar Industries Corp.
Truck scales.....Bastrop Scales Inc.



Planter's Grain Cooperative's newly rebuilt 2.7-million-bushel grain elevator adjacent to U.S. Highway 181 between Sinton and Taft, TX. Aerial photo by Red Wing Aerial Photography, courtesy of Hoffmann Inc., which constructed the jumpform concrete silos.

What was a 2.16-million-bushel all-steel tank grain elevator along U.S. Highway 181 between Sinton and Taft, TX, is now a 2.7-million-bushel elevator comprised mostly of concrete jumpform silos.

The board of directors of Planter's Grain Cooperative (361-528-3300) made that decision after a tornado flattened most of the 34-year-old elevator on May 20, 2012. All that remained standing after the storm was a single 90-foot-diameter, 490,000-bushel steel tank. It withstood the storm because it was the only tank that contained any grain with nearly 500,000 bushels of sorghum inside – all of which was recovered. But despite surviving the storm, the board decided to tear down the tank as well.

“Our insurance company was professional and accommodating, which enabled us to move quickly on a decision to go with concrete storage,” says General Manager Brian McCuistion, who came to Planter's Grain eight years ago from a ConAgra grain complex in Clovis, NM.

“It was a matter of cost per bushel vs. life expectancy,” he continues, noting that the maximum life expectancy that can be expected from a steel tank in the salt-laden winds off the nearby Gulf of Mexico is 30 or 35 years. On the other hand, a well-built concrete silo can last 60 or 70 years in the Texas Coastal Bend.

Planning the Rebuild

The cooperative acted as its own general contractor for rebuilding the elevator. After a bidding process, the coop selected E. F. Erwin Inc., El Campo, TX (979-541-3287).

“Erwin has a long history of working with us,” McCuistion comments, “but the biggest reason we selected them is that they work with Hoffmann Inc. (Muscatine, IA/563-263-4733) on jumpform concrete projects. We really liked what we saw in the leadership at Hoffmann. They're a professional bunch.”

Sharing the engineering duties were LNV Inc., Corpus Christi, TX (361-883-1984), and Temsco Industries Inc., Alice, TX (361-



General Manager Brian McCuistion in the facility's scalehouse. Ground-level photos by Ed Zdrojewski.

668-8800). Champion Technologies Inc., Houston, TX (281-537-7366), supplied and programmed the facility's automation systems.

After an August 2012 groundbreaking, the rebuilt elevator was ready for service in the summer of 2014.

Concrete Construction

One reason for the length of the rebuild was the extensive site preparation required. After the old steel tank foundations were removed, the heavy clay soil conditions required the installation of 50-foot-deep cast auger pilings on four-foot centers. "We had to go deep to find soil suitable to hold up the concrete silos," McCuistion says.

The four jumpform silos Hoffmann constructed are 90 feet in diameter and 124 feet tall holding 650,000 bushels each. The flat-bottom tanks are equipped with 8-foot-wide-x-10-foot-tall galvanized Bobcat doors to eliminate the need for sweep augers. There are no grain temperature cables, but plans call for adding them later.

New propane-fired 4,000-bph Brock tower dryer already in use as of August 2014.



Hoffmann Inc. equipped one of the four 650,000-bushel silos with a spiral staircase for easier climbing. All four silos have Bobcat doors as shown.

A set of four 100-hp Twin City fans with an Atlas Metal Works aeration control system provide a minimum of 1/10 cfm per bushel of aeration through in-floor tunnels in a 4F pattern.

The facility has no manlift, but Hoffmann Inc. designed, fabricated, and installed spiral stairs on one of the four silos. A straight-run ladder also was installed on a second silo opposite the spiral stairs. Both the spiral stairs and ladder meet the applicable OSHA standards.

In addition to the concrete silos, Planter's Grain put up two 100,000-bushel Brock corrugated steel wet tanks standing 48 feet in diameter and 60 feet tall at the eaves that hold grain for drying.

Grain Handling

Incoming trucks and wagons are weighed on a pair of 60-foot split Bastrop dump-through scales adjacent to a new steel-frame, single-story scalehouse. Trucks are hand-sampled for now, until an automated probe can be installed.

The 1,000-bushel mechanical receiving pits beneath the scales feed a pair of Schlager 20,000-bph conveyors running to 20,000-bph Schlager legs outfitted with Maxi-Lift 20x8 CC-MAX heavy-duty buckets mounted on 22-inch belts.

The legs deposit grain into a six-hole Schlager double swing-type distributor, which in turn, sends grain to storage via a series of 40,000-bph overhead Schlager drag conveyors.

The silos empty onto a series of 5,000-bph Schlager drag conveyors in below-



A pair of 20,000-bph Schlager receiving legs lift grain up to a six-hole Schlager swing-type distributor. Also visible is a 5,000-bushel Brock surge tank for loading trucks.

ground tunnels leading back to the receiving legs. The distributor also can send grain via gravity spout to a 5,000-bph overhead Brock surge tank directly over one of the two receiving pit/scales for truck loadout. No railcars are loaded at Sinton. Most of the facility's grain is shipped by truck to local feedlots, the port of Corpus Christi, TX or to a rail terminal for shipments to Mexico.

The facility also includes a 4,000-bph propane-fired Brock tower dryer, serviced by a pair of Schlager 5,000-bph wet and dry legs. McCuistion comments that the Brock product was the preferred selection of the contractor but notes that the dryer has performed "very well" so far.

The Champion automation system runs all elevator functions through an Allen-Bradley PLC 100 system. Operators can utilize workstations in the scalehouse and in an electrical room adjacent to the dryer.

Ed Zdrojewski, editor

