

# Crossroads Terminal

CENTRAL VALLEY AG, ADM TEAM UP TO BUILD RAIL LOADER FOR NORTHEAST NEBRASKA



## 81-20 Grain LLC

Randolph, NE • 402-337-0063

**Founded:** 2014

**Storage capacity:** 4.5 million bushels at one location

**Number of employees:** 5

**Crops handled:** Corn, soybeans

**Services:** Grain handling and merchandising

### Key personnel:

- Chris Korth, operations manager
- Joel Endorf, merchandising manager
- Reed Stolpe, risk management consultant
- Crystal Fischer, grain accountant
- Jeff Hartman, operations
- Kevin Kalkowski, operations

### Supplier List

**Aeration system** .....AIRLANCO

**Automation system** ...Kasa Controls

**Bearing sensors** ..... CMC Industrial

**Bin sweeps** ..... Springland Mfg.

**Bucket elevators**..... InterSystems

**Bulk weigh scale** ..... C&A Scales

**Bulk weigh scale controls**... Cultura

Technologies, LLC

**Catwalks** .....Warrior Mfg. LLC

**Contractor/millwright** .... McCormick

Construction Co.

**Conveyors** ..... InterSystems

**Distributor**..... Union Iron

**Dust collection system**...CAMCORP Inc.

**Elevator buckets** ..... Maxi-Lift Inc.

**Engineering** ..... VAA LLC

**Fall protection**...Fall Protection Systems

**Grain dryer** ...Zimmerman Grain Dryers

**Grain temp system** ..... OPISystems

**Level indicators**..BinMaster Level Controls

**Magnets** ... Industrial Magnetics Inc.

**Manlift**..... PMI

**Motion sensors** ..... CMC Industrial

**Roof system** .....Kooiker Roofing

**Samplers** ..... Gamet Mfg. Inc.

**Steel storage**..... Behlen Mfg. Inc.,

Meridian Mfg. Inc.

**Temporary storage** ..... Union Iron,

LeMar Industries Corp.

**Tower support system**.....Warrior Mfg. LLC

**Truck probe** ..... Gamet Mfg. Inc.

**Truck scales**..Rice Lake Weighing Systems



*New 81-20 Grain LLC rail-loading terminal near Randolph, NE holds 4.5 million bushels of grain in a combination of concrete, steel, and temporary storage. Aerial photo by Kansas Aerial Photography, Minneapolis, KS.*



The new 4.5-million-bushel rail terminal elevator operated by 81-20 Grain LLC near Randolph, NE may be the only grain operation in North America named for a highway intersection. The joint venture complex is on the northeast corner of the two heavily-traveled U.S. highways, both of which carry a lot of grain traffic.

The two partners in the project – Central Valley Ag (CVA), York, NE and Archer Daniels Midland Co. (ADM), Decatur, IL – both had been looking for a place to build a rail loader along a Burlington Northern Santa Fe branch line in northeast Nebraska. CVA is the operating partner running the terminal, while ADM brings its merchandising muscle.

“We both recognized the need for more speed and space for crops in the area,” says Merchandiser Joel Endorf, who came to the new facility from an ADM elevator in Fremont, NE. “We had been looking at sites

*C&A bulk weigh loadout scale rated at 80,000 bph has loaded 110-car trains in as fast as 8-1/2 hours. Ground photos by Ed Zdrojewski.*



*Rice Lake 80-foot pitless inbound and outbound scales are located adjacent to the facility office, where trucks are sampled with an Apollo probe.*

about five miles apart, so it made sense to pool our capital into a single project.”

After taking bids, 81-20 Grain awarded the project to McCormick Construction Co., Greenfield, MN (877-554-4774). Operations Manager Chris Korth says McCormick had built a rail terminal for CVA three years ago in Royal, NE (*see November/December 2013 Grain Journal*), and the new facility is similar in design. Korth moved out to 81-20 from a CVA in-town elevator in Randolph.

In addition, VAA, LLC, Plymouth, MN (763-559-9100), performed structural and civil engineering on the project, and Olsen & Associates LLC, Butler, PA (724-282-4786), performed some site engineering.

Groundbreaking took place in the fall of 2013, and 81-20 began receiving grain in October 2014.

#### **Storage Mix**

McCormick, VAA, and 81-20 Grain came up with an elevator design combin-



*The entrance driveway into the 81-20 Grain terminal runs underneath the facility's loop track. In the distance is the highway intersection for which the joint venture is named.*

ing slipform concrete, corrugated steel, and temporary storage. Surrounding it all is an approximately 8,000-foot loop track with space for up to 120 jumbo covered hopper cars. Since the entire complex is built into a hillside overlooking the 81-20 intersection, the entrance driveway runs through a tunnel beneath the track.

The slipform concrete portion of the facility consists of eight 100,000-bushel tanks in two rows running north and south, plus three interstice bins. The east side is dedicated to dry grain being held for the right market signals, while wet grain is stored on the west side. ►



*Four slipform concrete wet tanks empty onto a 15,000-bph InterSystems above-ground conveyor running out to a 10,000-bph Zimmerman dryer. The tanks are equipped with an AIRLANCO Airauger aeration/unloading system.*

The concrete tanks stand 36 feet in diameter and 130 feet tall. They have three-cable OPISystems digital temperature monitoring systems, BinMaster level indicators, and AIRLANCO Airauger aeration/unloading systems. One AIRLANCO 50-hp centrifugal fan per tank provides 1/10 cfm per bushel for aeration on corn. The east side tanks also have sidedraw spouts.

Immediately to the south of the slipform tanks are a pair of Behlen 550,000-bushel corrugated steel tanks

standing 92 feet in diameter, 89 feet tall at the eaves, and 111 feet tall at the peaks.

The flat-bottom tanks have outside stiffeners, 14-inch Springland sweep augers, 15-cable OPISystems digital temperature monitoring systems, and BinMaster level indicators. A set of four 20-hp AIRLANCO centrifugal fans provide up to 1/10 cfm per bushel of aeration.

Endorf notes that the concrete tanks' durability allows for fast unloading and provides ideal storage and handling space, while the steel tanks' lower cost per bushel in the mix provides increased ability to segregate, fast rail loading capability as needed, and the ability to have more total storage capacity than going 100% concrete.

In addition to the upright storage, the facility also includes a round Union Iron Temp Stor temporary storage system with center fill tower holding 1.5 million bushels and an oval-shaped LeMar bunker holding another 1.3 million.

The round pile is roughly 320 feet in diameter with a concrete floor and 4-foot perforated steel sidewalls, with a set of 14 10-hp AIRLANCO axial fans supplying air to hold the tarp in place. A 40,000-bph overhead InterSystems belt conveyor carries grain out to the pile, which empties onto another 40,000-bph below-ground belt running back to the receiving legs.

The LeMar bunker measures 642 feet long x 153 feet wide, with a lime floor, 4-foot sidewall, and ten 10-hp AIRLANCO axial fans. The bunker is filled with a portable driveover pit and conveyor and emptied with front-end loaders.

### **Grain Handling**

Incoming grain trucks are routed to inbound and outbound 80-foot Rice Lake pitless truck scales. The inbound scale is equipped with an Apollo truck probe. Korth says that at this point, 81-20 Grain has opted not to automate the scales, but that could be an option in the future.

From weighing and grading, trucks are sent on to one of two 1,500-bushel mechanical receiving pits. Each pit feeds a 20,000-bph InterSystems leg outfitted with a single row of Maxi-Lift 20x8 Tiger Tuff buckets mounted on a 22-inch belt. The legs are enclosed in a Warrior center tower with switchback



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stairs, with a footprint of 20 feet x 20 feet and standing 218 feet tall.

The legs, in turn, deposit grain into one of two Union Iron eight-hole distributors, one rotary and one swing-type. The operator has the option of sending grain through a 20,000-bph

Baasch & Sons Mohawk cleaner and/or an InterSystems 20,000-bph gravity screener.

A set of 20,000-bph InterSystems enclosed belt conveyors carry grain out to steel storage via a 12-foot-x-10-foot Warrior box bridge supported by 8-foot-

x-12-foot-x-130-foot Warrior towers.

The steel tanks empty onto above-ground 40,000-bph InterSystems belts, while the concrete tanks are reclaimed through 60,000-bph below-ground InterSystems belts.

The concrete tanks being used for wet storage also empty onto an above-ground 15,000-bph InterSystems drag conveyor running to a 15,000-bph dry leg feeding a 10,000-bph Zimmerman propane-fired tower dryer. From there, another 15,000-bph dry leg takes grain to the top of the concrete silos and back into the grain handling system.

Grain for loadout is sent up a 60,000-bph InterSystems shipping leg equipped with three rows of 20x8 TigerTuff buckets on a 64-inch belt.

From there, grain is run through a 80,000-bph C&A Scales bulkweigher outlined with a oneWeigh™ control system from Cultura Technologies and a Gamet spout sampler. Workers atop railcars are protected by a Fall Protection Systems trolley system running the length of five railcars.

*Ed Zdrojewski, editor*