

A fresh approach

How two railroads and a shipper put perishables traffic back on the menu

by Roy Blanchard



fine wine is finicky. It doesn't like to be jostled, stored in hot places, or exposed to bright light. That's one reason Washington state winemaker Chateau Ste. Michelle sends a million cases a year to East Coast markets in boxcars via the Produce Railexpress with Union Pacific, CSX, and a shipper called Railex.

That's right: boxcars. But not just any boxcars in any freight train. These are new 64-foot mechanical refrigerator cars weighing in at more than 90,000 pounds each and running in solid, non-stop unit trains at passenger-train speeds. With nearly 7,000 cubic feet of interior space and with the capacity to haul 200,000 pounds, each of these cars can carry the load of three or four trucks, depending on whether it's wine, salad ingredients, melons, or veggies. Temperatures are monitored and set by satellite from the mechanical desk at UP's Harriman Dispatch Center in Omaha, Neb. The iceman cometh not.

These food and drink unit trains are guaranteed to make the one-way trip in five days, matching or beating single-driver truck transit times for the 3,000-mile trips from the Railex hubs in California and Washington to its distribution center in Rotterdam, N.Y. Although the year-round service was initially designed for 55-car trains, advances in A.C. traction and distributed power have removed train length limits. Railex can thus scale train sizes to meet customer requirements.

Railex started with one train a week from Wallula, Wash., in October 2006, then opened a similar California warehouse in Delano (pronounced Del-A-no), 30 miles north of Bakersfield a year later with a weekly train. Delano added a second train in June 2009, and in September 2009, Railex put on a second Wallula train, bringing the total number of weekly trains to four. Trains are loaded in a day and unloaded in a day, making two round trips a month a reality and playing a major part in making rail transportation competitive and attractive once again to perishables producers and distributors.

This is big business, too. When railroads dominated the west-to-east fresh perishables business, as many as 800 cars a day moved out of California. With traffic limited to five months, car supply was a challenge, which UP and Southern Pacific met by creating the Pacific Fruit Express with its yellow wooden iceboxes on



Eastbound Railex train ZDLSK3-05, with 67 loads and 8,048 tons, rolls near Kennard, Neb., on Aug. 8, 2009. Tom Haley



Frontier crews couple the units to the train, make the initial air test, and take the slack.

Delano trains depart Wednesdays and Fridays late in the day to ensure maximum opportunities for local packers to reach their Eastern customers in a timely fashion. Wednesday's train operates as ZDLSK3 (Z-train, DeLano to SelKirk on Day 3 of the work week); the Friday train gets the same name with a "5" to designate the day of the week. The Wallula job runs as the ZWASKP on Thursdays, departing at 8 a.m. and doubling up with the Wednesday Delano train at Green River, Wyo.

John Rebensdorf, UP's vice president of network planning and operations, says the Delano train could grow to 100 cars. UP runs 65 percent of its trains with distributed power and wants more than 90 percent to run that way. The Wallula train runs three by two (three units up front with two pushing in a "three-by-two" configuration) because of the grades in Oregon's Blue Mountains. The Delano train uses three units up front, but could use distributed power in the three-by-two configuration if the train gets longer.

Jim Rawlinson, director of transportation services for the Portland Division, says the Wallula train often arrives at Green River, cuts off the head-end power, shoves that train up against the Delano train, and heads east three by two. It's a long way since the Ice Age of railroading and its solid yellow trains that needed ice and suffered delays as blocks were swapped and cars reclassified. Instead we have the ZDLSK3.

The streets of Bakersfield

It's 5 p.m. in Bakersfield, Calif., on a hot August Wednesday, when UP engineer Mike Scalzo and conductor Ruben Perez sign on for the evening's Railex train of 32 reefers. The scheduled departure time for the 3,828-ton train is 7 p.m. sharp from Railex's California termi-

nal. The train, loaded with carrots, table grapes, melons, and lemons, has a scheduled time of 72 hours to reach the CSX interchange at Chicago's Barr Yard. I will ride with the crew and Fresno Manager of Operating Practices Greg Peterson as far as Roseville Yard, 15 miles east of Sacramento and 257 rail miles from Delano. The schedule calls for a leisurely nine hours.

Our train is officially the ZDLSK3-19, a high priority "Z-train" on the 19th day of the month. We have priority over opposing traffic, so we'll beat the scheduled time, given the 70-mph track speed for most of the route. We have two limits on our speed, however: A heat restriction will knock 10 mph off our pace until 9 p.m., owing to temperatures over 90 degrees; then there's the matter of train size.

UP braking rules will cost us another 10 mph due to the relatively short train length. Thus we are down to a maximum of 50 mph on this beautiful single-track, straight-as-an-arrow main line.

After the job and safety briefings, we drive to Delano, where we find the power, a trio of high-horsepower six-axle units on the point: SD70ACe 8320, C45ACCTE 5520, and C44ACCTE 5965.

The Railex warehouse is about a mile east of the north-south main line and the train is ready. Imagine if you will a huge U-shaped track with a flat bottom. The left leg of the U is parallel to the UP main line; the right leg serves the docks with a second track parallel as an "escape" track so Frontier's ex-UP SW10 can go do other work while the cut just placed is loaded. (The Wallula warehouse is on a loop track so cars pull through the building. Frontier works that plant as well as the Rotterdam location.) The bottom of the U is two tracks wide: one to hold empties for loading, the other for building the outbound train.

At 7 p.m., with the power switch lined for the main, Scalzo gradually notches out the throttle, unleashing more than 12,000 horses. It's uncannily quiet in the cab with none of the tug you feel as the slack runs out. We're on our way.

A speed of 50 mph is not exactly burning up the railroad, but it's a stately pace, and the miles slip quickly by. As it gets darker, the lights of the towns come up, and you can see that the valley is a busy place.

Every few miles we see a town with its industrial sidings, evening shoppers out in their cars, and cozy homes aglow. After the heat restriction ends, Scalzo notches out to 60 mph. Now we have a bit of a swing on.

Though hardly a hilly railroad, the line drops from an elevation of 284 feet at Delano to 178 at Merced, with 100 feet of that drop in the 50 miles since Fresno. Even the little swales with grades of a tenth of a percent up or down are enough to keep the dynamic brake busy, and I'm amazed at how quiet it is. Speed control is almost entirely by dynamics, meaning there is no loud air-brake exhaust to drown out our voices. And with the air-conditioned cab the windows are closed so even the horn noise is muted.

South of Modesto, a metal yellow square on a stake in the ground warns us of a speed restriction ahead. We barely get clear, and we're in Modesto itself with its city-imposed, 40-mph speed restriction. Once out of Modesto, we resume our allowed 60 mph, and the railroad is ours once again.

Up to this point, we've faced little opposing traffic, but now the pace of meets picks up. It's 73 miles from Modesto to Elvas, where we turn off the Fresno Subdivision onto the Martinez Sub for the last 10 miles to Roseville's Davis Yard, and in that space, there are four meets and an overtake.

We arrive at 1:30 a.m., 2 hours and 15 minutes ahead of plan. I bid the crew and the train goodbye.

The cold truth about moving perishables by rail

The earliest mention of insulated freight cars was published in 1842. Using powdered charcoal for insulation, these cars were considered practical for long-distance shipments of butter, fresh fish, vegetables, and foods. Detroit fish dealer William Davis, with the support of meat packer George H. Hammond, tested and built refrigerator cars in the late 1860s. By about 1870, the reefer was beyond the experimental stage. Dressed beef traffic expanded greatly. Produce from California and the Deep South traveled great distances to satisfy the markets in New York, Philadelphia, and Boston. American diets improved as a result.

Railroads were not inclined to invest heavily in specialty cars, such as refrigerated cars because they often returned empty. Therefore, shippers formed private car lines to purchase and maintain their own fleets. While the meat trade was a steady year-round business, fruits and vegetables were seasonal. About 70 private refrigerator lines evolved into sizable operations. Hammond's line was the first of these; National Dispatch Line under the sponsorship of the Vermont Central came next. Every large meat packer from Cudahy to Swift had its own fleet of reefers. Beer producers such as Pabst and Anheuser-Busch owned cars boldly advertising their frothy product. Western Fruit Express, the Dairy Shippers Despatch, and the Central Fruit Transportation had corporate titles that stated their mission. Armour Car Lines of Chicago was, however, the big daddy. Organized in 1883, it grew to dominate the business. By 1900 Armour had 12,000 cars in service, controlled 17 car lines, and had its own car building plant in Kansas City. Trouble, however, was ahead.

In 1918, a U.S. Department of Agriculture employee, Mary E. Pennington, claimed that of the approximately 150,000 reefers in service, 10,000 were so poorly constructed as to be camouflaged boxcars. Most older

cars had only one inch of insulation. Many newer cars had only two inches, whereas three inches were needed. More attention to floor and roof insulation was also necessary. New cars carried five tons of ice; too many older cars in daily use carried only half that amount of ice. Shippers lost product and underloaded cars to ensure produce arrived in a saleable condition. Standards were revised in accordance with Pennington's ideas.

A more revolutionary change in reefer technology took off in the 1950s. At this time households still using an icebox in place of an electric refrigerator would be considered eccentric. Yet American railroads stood by the ice car and consumed millions of tons each year. By 1950, most of it was made artificially, but some was still cut from ponds and stored in huge insulated warehouses as if the Victorian Era had never ended. Unlike the conversion from steam to diesel locomotives, American railroads adopted mechanical refrigeration cautiously. By 1961, only 6,000 mechanical reefers were in service. By the mid-1970s only about 25 percent were non-ice cars. Part of this caution not to modernize the fleet can be explained by the takeover of produce shipping by motor trucks. By 1979, railroads held on to only 10 percent of the produce traffic. Why invest in expensive new cars when there seemed so little hope of a profit? Deregulation, together with a fuel crisis and strikes within the trucking industry, caused some shippers to return to the railroads. Refrigerated containers and trailers on flatcars helped return a large portion of the refrigerated food trade to the railroads. In recent years refrigerator cars made up only 2 percent of the fleet. — John H. White, retired transportation curator of the Smithsonian Institution



In the 1950s, a portable conveyor loads ice onto Pacific Fruit Express reefers in Oregon. Southern Pacific

The CSX end of the train

A week later, I board the next Wednesday's train at Buffalo for its trip into Rotterdam. The train had left Delano at 7:44 p.m. Pacific Daylight Time with 29 cars, and on Friday afternoon picked up the ZWASK's 33 Washington cars at Green River. Our 62-car train flat flew across Wyoming, Nebraska (crew change at North Platte, four hours ahead of plan), arriving at Barr Yard at 1 p.m. Sunday. The CSX crew was called for

1:30 p.m., when the unexpected happened.

A double-whammy of a locked axle on the second unit and a glitch with the end-of-train device delayed departure until 6 p.m. when the train (designated on CSX as Q09031: Q090 on the 31st) escaped from Chicago. Still, not bad. The trip plan had called for an 8 a.m. Monday Chicago arrival, so the job was still roughly nine and a half hours ahead of the original trip plan.

But fate wasn't done. Chicago congestion

cost the train a few more hours. The clock was near on midnight before Q09031 crossed CSX's Porter Sub at Willow Creek, Ind., east of Gary, to make the dash across Ohio.

It's just before noon on Monday when I meet engineer Don Notaro, conductor Mike Kucia, and Road Foreman of Engines Scott DeVeny, my host on the engine. After the requisite briefings at the Frontier Yard office, we ride a company van to the crew-change point. It's 1 p.m. when Q09031 pulls

An Express Lane train cuts across Illinois west of Union Grove. Eric Powell





A Frontier Rail switcher works to spot the train.

up. We get a short trip debriefing from the departing crew, climb aboard, and stow our stuff. Our power is a trio of SD70ACes with UP 8657 on the point, followed by CSX 4838 (the unit swapped in at Barr Yard) and UP 8323. After waiting on Amtrak, it's two toots and away we go at 1:20 p.m.

It's basically a bidirectional, two-track railroad the entire route, down from four purely directional tracks in New York Central days. The traffic density keeps the dispatchers hopping, and they do their jobs beautifully. We have meets and overtakes with a mix of trains from intermodal to unit trains of auto racks and ethanol as well as the westbound Amtrak parade. We pass six maintenance crews at work on a total of 19 miles of railroad doing everything from rail replacement to rail grinding, adding another challenge for the dispatchers.

We've been running east on Track 1 ever since MP 393 after overtaking the ethanol train that came east on Track 1 through Frontier Yard just before our train showed up. There are several "runners,"



long passing sidings that were once main-line tracks, still laid with 127-pound rail.

Soon we've crossed back to Track 2 and are running alongside the Erie Canal, and we get a good look at our train on the sun side. At MP 295 we enter the Mohawk Sub just west of Syracuse.

Beyond DeWitt, the hills start closing in, and we can see why the canal builders chose this route. It's where the Adirondacks end and the Catskills begin, and the Water Level Route is the only easy way between them. The Erie Canal joins the Mohawk River east of Herkimer, MP 225, and by Fonda, MP 186, we have the main line that we're on, the Mohawk River/Erie Canal, the CSX West Shore Route, New York State Highway 5, and Interstate 90 all within sight of one another.

Q09031 leaves the Mohawk Subdivision at Amsterdam, and enters the Selkirk Sub for the last 25 miles to the Railex warehouse in Rotterdam. In all too short a time, we're off the Selkirk Division main and stopped at the Railex derail. It's 7:25 p.m., 6 hours and 5 minutes for our trip of 275 railroad route-miles. Average speed: 46 mph.

Elapsed time from the Delano depar-

ture? Two hours short of five days, including time lost for the locomotive failure. We pull the train through the warehouse past the 14-car dock and out the other end. Railex unloads from the rear forward and four hours later, the first 14 cars are done. The entire train is ready for its empty return by noon Tuesday.

Precise timing and intermodal train speeds make the process a success for Railex and the railroads alike. On both railroads, the Railex train has priority, and that was evident from the way the meets were handled and the crew changes made. Every train we met was either on a second main or took a siding for us. The work crews on CSX were ready for us, and we passed gangs non-stop in all cases but one where the gang was strung out over several miles. Crew changes mostly took place in minutes. That's how this train has been running for several years with such high trip-plan compliance.

Behind the scenes

How do they do it so fast? The key element is job organization, attention to detail, and consistency. Railex General Manager Bill Collins says full-time staff is kept at a level to keep the Rotterdam operation going seven days a week. He also contracts for teams of up to 42 men and women to go into the cars (averaging three people per car in a 14-car block) on arrival and move the goods onto forklifts for movement to storage or directly into loads by customer.

Before the train arrives, Collins sorts the consist into unloading "waves," roughly arranged as to customer priority for the goods on board. He prints out a list of the cars, their contents, and the customers, and color-codes the list accordingly. Dunnage in the form of plywood sheets, 2-by-6 framing lumber, air bags, and gray foam pads of varying length and width are reloaded into the cars they come out of, as Washington and

California have different loading patterns and thus different dunnage requirements.

The ARMN 110723, for example, was loaded with 93 tons of wine, and was the 40th car in "my" train on CSX. Cases were separated horizontally with plywood panels and vertically with reusable airbags and foam padding. This car, the ninth car in Collins' "red" wave, holds 5,172 cases of wine. The unloading team will assist the forklift drivers (Rotterdam has 40 pallet jacks and 25 forklifts, all battery-powered) who will then scurry (see the videos at www.railexusa.com) to the "ambient room" that will keep the wine at the required 55 degrees, and where the cases will be assembled into truckloads by customer.

Why do they do it so fast? Two reasons: inventory management and equipment economics. Only a third of the goods on a given train are in Railex's own account, enough to maintain a basic inventory to meet customers' needs. Between 60 percent and 70 percent of the other two-thirds of the goods go directly cross-dock into waiting trucks, stopping only to be arranged by customer, truck bay, and pallet.

Railex fees include five to seven days free storage so customers don't have to take every item off every car directly for distribution points and stores. That's why Rotterdam has a dozen storage rooms at temperatures from just above freezing to "ambient," 55 degrees Fahrenheit. These rooms in turn feed 41 truck doors, each of which has a code number that is matched to the customer's pallet.

As each block is made empty, the switching crew pulls from the west end of the building, shoves over to the outbound track, and builds the next train west. As soon as all the empties (and in this case, two loaded cars of imported wine, Stonyfield yogurt, and Florida oranges going to Washington) are coupled and air hoses laced, Frontier ties on the road power and makes the initial terminal brake test. All the CSX crew need do is open the derail protecting the main and go.



UP power at the Rotterdam, N.Y., warehouse. Two photos: Jim Shaughnessy

Could the train run faster, making it competitive with team drivers? The trip plans seem to be slower than the actual operating patterns, and that's to the good. But can trains beat the plan every time without fail? After having ridden parts of the trip, I'm not sure. Slow orders, meets, engine failures, and other problems always happen. As one insider puts it, "Railroading is an outdoor sport" — things go wrong.

However, it's careful planning and attention to detail that minimize opportunities for unexpected problems. The Railex train is in line with suppliers and customers who want to keep inventories moving faster and want to burn less fuel to do it.

The Railex train that is filled by local trucks at origin and fills local trucks at destination combines the best of intermodal, unit, and merchandise trains: truck to the railroad, non-stop rail between distant points, and truck distribution to the end user. Whether this train is "winning the war" against trucked perishables is tough to say, but it's a start. There is still a virtual wall of reefer trucks

on I-80 across Nebraska.

Yet in 2008, UP handled 12 percent more carloads of fresh and frozen foods systemwide than it did in 2000. Moreover, the rate of growth of the franchise is accelerating. Total 2008 food and refrigerated revenues represented 22 percent of UP's entire \$3.4 billion agricultural products revenue, roughly \$750 million.

Out on the railroad, you sense that UP and CSX are doing the right things to get this business back. And Railex is rapidly building a back-haul base, adding revenue without adding new trains. It's really Railroading 101: doing the same thing the same way every day with no surprises. Even when the unexpected happens, life goes on.

What could be simpler? It's time to open that bottle of Chateau Ste. Michelle 2007 Chardonnay and hoist a glass to the good folks who make it all work. **I**



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A westbound Railex train cycles back on CSX rails for another load. Matt Martin