

Florida Bulldog LNG trains Henson 8 22 18 quote photo

Despite 'disaster risk,' trains haul hazardous gas cargo in South Florida

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A FLORIDA EAST COAST LOCOMOTIVE WITH AN LNG TENDER CAR

About the same time Florida East Coast Railway (FEC) executives were convincing Florida's east coast cities and counties to back its idea of privately owned passenger trains traversing downtowns and densely populated neighborhoods, it quietly sought and won permission to haul extremely flammable liquefied natural gas along the same tracks.

Liquefied natural gas (LNG) is a hazardous material that had never been transported by railroad in the continental United States, according to the Federal Railroad Administration, which provides permits for LNG transportation.

The FEC began transporting LNG for profit last year. In South Florida, that includes tracks from its affiliated Hialeah Rail Yard LNG supply terminal in Medley to PortMiami and to Port Everglades for commercial export. Some of that track is also used by Brightline, the intercity passenger railroad operated by FEC subsidiary All Aboard Florida.

In the first six months of 2018, FEC transported 148.7 million cubic feet of LNG from Hialeah Yard to Port Everglades bound for Grand Bahama Island or Barbados, according to U.S. Department of Energy records. No LNG was shipped out of PortMiami during the same period.



FRED MILLAR

Fred Millar, an Arlington, VA-based chemical disaster expert and independent consultant, is appalled that the federal government is allowing FEC to transport LNG along the east coast of Florida.

"The disaster risk with LNG is considered a high-risk situation that has never been allowed to happen until now," said Millar. "People are being kept in the dark about this enormous risk. A vapor cloud could travel a couple of miles and someone starts their car and the whole place blows up. Some people will die before they can get out."

Federal Railroad Administration spokeswoman Desiree French, however, said that FEC has been safely "transporting LNG shipments for over a year and has had no issues with any of the shipments." FEC's regulatory approval "allows it to transport LNG over its entire system," including 351 miles of mainline track from Miami to Jacksonville.

French also noted that LNG has been moved safely for decades by trucks and ships in thermos-like intermodal portable tanks. “From a surface transportation standpoint, hazardous materials moving by rail are statistically much safer than moving the material by highway,” she said.

Chilled natural gas

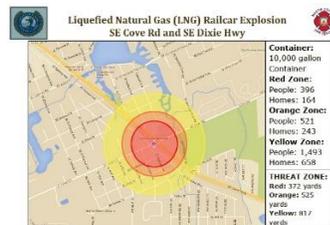
Liquefied natural gas (LNG) is just what the name suggests – natural gas that has been chilled to minus 260 degrees F at which temperature it becomes a liquid. The liquid is pumped into specialized temporary cryogenic containers that keep it chilled and stable when stored or transported.

LNG is regarded as a cleaner, more efficient fuel that is both environmentally friendly and widely available. It can be warmed to make natural gas used for cooking and heating, or to generate electricity. LNG is also cheaper than diesel, and can fuel both some locomotives and cruise ships. Last year, FEC converted its 24 locomotive fleet to LNG.

The downside is what happens if an LNG container is punctured during shipment.

In December 2015, Martin County Fire Rescue conducted a “[vulnerability analysis](#)” of FEC’s transportation of LNG. It used Environmental Protection Agency software to predict what could happen on a typical afternoon if a train crash punctured a four-inch hole in a single LNG container car that led to an explosion.

If an accident occurred at the intersection of tracks at Southeast Cove Road and Southeast Dixie Highway in Stuart, 2,410 people would be affected, Fire Rescue Chief Dan Wouters said in a PowerPoint presentation to the county commission. Of that total, nearly 400 would experience life-threatening



injuries or death.

Such a nightmare scenario has gone unexamined by first responders farther south. A spokesman for Broward County Emergency Management said it has not made its own assessment of the impact of a disastrous LNG accident. Miami-Dade County Emergency Management does not appear to have addressed the issue either, and authorities there did not return phone calls seeking comment.

Booming LNG market

LNG, predominantly methane, is a byproduct of fracking. Railroads are hoping to fill the gap left by declining transport of coal and oil, as well as a booming market for LNG. The primary markets for LNG are Caribbean countries, India, China and Japan. LNG is shipped from plants to ports, where the containers are loaded on freighters for its final voyage.

While the gas is nontoxic, a spill or puncture of a container during a train derailment can be deadly. The liquid expands rapidly when it vaporizes and can burst into flames when it hits the air. It burns at extremely high temperatures and cannot be extinguished, according to a report to Congress from 2004.

“The proposed transportation of LNG by rail is a new opportunity for railroads and a new challenge for safety regulators,” stated Karl Alexy, staff director, of the Federal Railroad Administration’s Hazardous Material Division in 2017. “We know any release of LNG in a non-controlled environment is dangerous, but the transportation of large quantities of LNG in a single train present unique safety risks.”

An FEC spokesman declined to be interviewed about the production or transportation of LNG at the direction of its new owner, the Mexican transportation firm Grupo Mexico Transportes.



HIALEAH RAIL YARD'S 100,000-GALLON-PER-DAY LNG PRODUCTION FACILITY.

FEC began shipments of LNG soon after receiving a [March 13, 2017 letter of authorization](#) from the railroad agency. Last November, FEC touted its success in Jacksonville at an annual industry convention that pushes natural gas as a cost saving as a “solution to high horsepower equipment operators.”

FEC “is beginning to explore additional opportunities around the transportation of LNG as a commodity,” the trade publication [Railway Age](#) reported. “The railway is currently moving LNG containers between [New Fortress Energy’s] liquefaction plant in Hialeah to PortMiami and Port Everglades.”

New Fortress is a subsidiary of Fortress Investment Group LLC, the parent company of FEC and All Aboard Florida, which operates the Brightline passenger service that currently runs from Miami and Fort Lauderdale to West Palm Beach. The company wants to extend service to Orlando.

FEC records submitted to the Federal Railroad Administration state that the 15-mile trip from the Hialeah Yard to PortMiami passes through areas with average populations of 9,500 per square mile. The 28 miles of track from Hialeah Yard to Port Everglades have an average population of 9,150 per square mile.

‘Rigorous safety procedures’

FEC says it maintains “rigorous safety procedures” when transporting LNG that include “head-hardened, continuous welded rail, concrete ties, defect detectors and Automatic Train Control (ATC) technology, which prevents train-to-train collisions on the rail network.”

Still, not everyone is convinced that it is safe to transport LNG by rail.

Indian River County Commissioner Bob Solari wrote to the railroad administration in 2016 inquiring about the safety of transporting LNG by rail. He received a pat-on-the-head reply that safety is the agency’s top priority.

Martin County Fire Rescue conducted its safety study in 2015.

“When compared with propane, LNG is much safer,” said Martin County’s Wouters. However, Wouters said that if a train derailed and a car carrying LNG ruptured, the odorless and lighter-than-air gas would form a vapor cloud with potentially deadly explosions.

The Martin County report examined a trio of accident scenarios, showing how people in various zones around the crash site could be affected. The risk is greatest to those closest to the train. In all, the “threat zone” is nearly one mile in circumference with the red or “lethal zone” nearly a quarter of a mile surrounding the explosion.

The analysis estimated that if an LNG car exploded next to Southeast Cove Road and Southeast Dixie Highway in Stuart, it would kill or severely injure 396 people in 164 homes within the red zone – approximately two blocks around the blast.

Another 521 people in 243 homes in the orange zone, which extends out another block in all directions, would suffer “irreversible or other serious, long-lasting adverse health effects or an impaired ability to escape,” the report says. The 1,493 people in the yellow zone farthest from the blast point would experience “notable discomfort, irritation or sensory effects, but (the) effects are not disabling and are reversible.”

Vapor cloud

Adding to the risk, a vapor cloud can travel up to three miles from the accident site, putting others in danger of an explosion if the gas was ignited.

BRIGHTLINE PASSENGER TRAIN

The risk of an accident increases in areas where FEC shares tracks with Brightline passenger trains, which can travel up to 110 miles per hour. Freight trains typically travel 10 to 15 mph in highly populated or congested areas and 30 to 40 mph on long runs.

“Lower-speed freight trains and high-speed passengers trains will be on the same track and that increases the likelihood” of an accident, Wouters said.

FEC joined an Alaskan pilot project on LNG transport begun in September 2016. The Alaska experiment was in a remote area away from large cities and communities. In Florida, however, LNG runs on rails that bisect populous cities like Miami, Fort Lauderdale and Jacksonville with frequent highway-rail crossings.

Millar, who has worked as a lobbyist and environmental advocate for Friends of the Earth, said there is little oversight of LNG transport by rail and approvals happened with virtually no public debate. He said the Trump administration has overturned or gutted rules and laws that keep people safe. He suggests that communities take it upon themselves to ensure safety.

In July, *Reuters* reported that U.S. Energy Secretary Rick Perry proposed reducing the lengthy public interest review process for granting export permits to small-scale LNG producers. The “small-scale review rule” is now in the approval process, according to *Reuters*.

FEC has reported no incidents in shipping LNG, according to the Federal Railroad Administration.

Conditions for approval

The Federal Railroad Administration's letter authorizing FEC to ship LNG contains a 10-point list of conditions including a limit on the number of cars carrying LNG per train and how much liquid gas they can hold. Tracks and tankers must be inspected at least yearly and all findings must be sent to the agency for review.

"Both the shipper and the rail carrier have responsibilities to ensure safety and compliance with the hazardous materials regulations. The shipper must ensure the material is packaged and prepared for transportation correctly, and the carrier must observe all appropriate handling requirements," said railway agency spokeswoman French.

"Failure to comply with these requirements could lead to civil or criminal penalties, or both."

New Fortress Energy, which operates the Hialeah Yard LNG production plant, plans to construct similar small LNG plants nationwide, according to a July 2015 brochure.

In Florida, the company wants to add a small-scale LNG plant in Titusville, and is eyeing other proposed points of export including ports in Palm Beach, Tampa and Jacksonville. The Titusville plant is on hold. Rules governing the siting of LNG plants require they be at least a mile from airports, schools and hospitals. The proposed site is .06 miles from an airport. FEC's plunge into LNG transport expresses the vision of former CEO James Hertwig, who described his hopes for commercial exploitation in a 2015 briefing for stock analysts. As reported by [American Shipper Magazine](#), Hertwig noted the Caribbean's need for LNG due to the high cost of electricity. "I think you'll see the laws change where you can ship [LNG] to the entire Caribbean. When that happens, we see hauling these 10,000 gallon ISO [intermodal] containers, double-stacked" to ports in Jacksonville, Everglades or Miami, where they will be put on vessels" for export.

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