



U.S. Department  
of Transportation

**Federal Railroad  
Administration**

Administrator

1200 New Jersey Avenue, SE  
Washington, DC 20590

**MAR 03 2016**

Mr. James R. Hertwig  
President and Chief Executive Officer  
Florida East Coast Railway  
7150 Philips Highway  
Jacksonville, FL 32256

Dear Mr. Hertwig:

This letter is in response to Florida East Coast Railway's (FEC) request under Title 49 Code of Federal Regulations (CFR) Section 174.63 for the Federal Railroad Administration (FRA) approval to transport liquefied natural gas (methane, refrigerated liquid (UN 1972), or LNG) by rail, in intermodal (IM) portable tanks in container-on-flatcar or trailer-on-flatcar service, from origination and destination points on the FEC network. As outlined below, it lists the next steps regarding your request.

As FEC points out in its most recent letter, FEC originally discussed its interest in moving LNG with FRA on September 3, 2014. Since then, FRA has engaged in ongoing discussions with FEC regarding its potential plans to transport LNG in IM portable tanks, including inspecting the rail cars FEC proposes to use for the transportation of LNG, and visiting the specific portions of track FEC proposes to use to transport the commodity. FEC has engaged with FRA during this period as well, providing additional details regarding its plans for LNG transport within the various documents it submitted to FRA in 2015 and 2016.

As an example of FRA and FEC's cooperative efforts, FRA has met with FEC on multiple occasions over the last year, and recently concurred with Phase One of FEC's LNG-as-a-locomotive-fuel test program. After concurring with Phase One of FEC's LNG-as-a-locomotive-fuel test program, and reviewing and evaluating the relevant information on the safety of FEC's LNG-fueled locomotive and tender, FRA concurred with FEC's proposals for limited non-revenue operation of its LNG-fueled locomotive consist over a portion of FEC's rail network.

The proposed transportation of LNG by rail is a new opportunity for railroads, and a new challenge for safety regulators. No railroad in the United States currently transports LNG. LNG is a hazardous material, with temperatures of -260 degrees Fahrenheit at atmospheric pressure. 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 presents unique safety risks.

Moving hazardous materials by rail is not new, and is one of the safest ways to move dangerous products. In fact, FRA believes it is safer to transport LNG by rail than it would be to transport the product by an alternative method. But the unique challenges posed by the rail transportation

the product by an alternative method. But the unique challenges posed by the rail transportation of LNG require us to ensure that we are doing everything we can to keep railroad employees and communities along the proposed routes safe. FEC's proposed LNG transportation routes traverse congested, highly populated areas, with frequent highway-rail grade crossings. Any LNG transported along the proposed routes would eventually share the routes with high-performance passenger trains operating at speeds of up to 110 mph. The complexity of this operating environment requires FRA to conduct a thorough evaluation of FEC's proposal to ensure public safety.

Over recent months, FRA has carefully reviewed the information FEC provided in support of its request to transport LNG by rail on its operational territory. We appreciate the documentation FEC has provided to date; however, FRA requires additional information to fully evaluate a railroad's request. A guidance document detailing the information required for FRA's consideration of FEC's request is enclosed with this letter. Although, FEC has provided much of the information listed in this guidance document, the four items listed below remain outstanding:

1. The design details of the restraint system used to secure the portable tanks to the car, including the types and number of restraints, the standard (and details in quantitative terms) to which the restraints conform, and the different direction g-forces the restraints are designed and constructed to withstand (paragraph 3 on the enclosed guidance document);
2. At least the past 5 years of accident experience data (main line, yard, grade crossing, etc.) on the proposed transportation route (paragraph 6 on the enclosed guidance document);
3. Analyses, experimental data, or other identifiable scientific data used in the design of the railcar on which the portable tanks are mounted demonstrating the car's ability to withstand normal and accident-caused abnormal forces in rail transportation (paragraph 12 on the enclosed guidance document); and
4. A detailed risk analysis of the proposed operation and appropriate mitigating measures. (Paragraph 13 on the enclosed guidance document sets forth the minimum requirements of this risk analysis.)

In addition, given the unique risks presented by FEC's proposed operation, FRA also requires that FEC take the following actions:

1. Conduct a safety analysis of the rail cars it plans to use in LNG transport. The analysis must include and demonstrate under car protection. FEC must submit the analysis to FRA for approval; and
2. Ensure each portable tank used to transport LNG is equipped with functioning GPS-based, telemetric communication equipment. The equipment must accurately measure and report the following data on each portable tank containing LNG at all times the tanks are in transportation: (a) location; (b) pressure in the tank; (c) temperature in the tank; (d) volume in the tank; and (e) any impact to a portable tank.

FRA also anticipates imposing specific additional conditions on any approval to ensure the safety of the operation. These conditions would include, but may not be limited to:

- Additional track geometry and internal rail flaw inspections;
- A maximum speed limit of any train transporting LNG;
- Pre-transport notification and training of first responders along the routes;
- Minimum two-person crew size for each train transporting LNG;
- A maximum number of portable tanks to be transported in any train;
- Train make-up requirements;
- A specifically approved schedule of LNG movements;
- Recordkeeping and accident/incident reporting requirements;
- Regular reports on what FEC learns (including, inspection results and acceptance criteria, and shipment data on a monthly basis); and
- Develop and implement a system to closely monitor and respond to excessive hold times of portable tanks in transportation.

As required of any railroad, FEC should expect, and cooperate with, frequent safety oversight and inspections from FRA safety officials.<sup>1</sup>

In addition, to reviewing the information provided by FEC, FRA has also undertaken significant work to study and more clearly understand the dangers and challenges of transporting LNG by rail such as: (1) information from the Alaska Railroad (ARR) demonstration; (2) Volpe research on crash survivability of LNG tanks proposed for use in rail transport; (3) LNG properties, hazards, and behaviors in accident conditions; and (4) analysis of accident data involving LNG and portable tanks transported by rail. As FRA continues to study the transportation of LNG by rail, in addition to the information outlined above, FRA may require a new detailed risk assessment and mitigation plan from FEC that incorporates the findings of FRA's research.

As you may know, FRA recently approved ARR's request to transport LNG later in 2016. The FRA views ARR's approval as different from a potential FEC approval, due to the significant differences between the two states and the areas through which they would be transporting the product. For example, if ARR transports LNG it will be doing so at 40 mph through mostly unpopulated areas with few highway-rail grade crossings, whereas under FEC's proposal, trains transporting LNG will pass through highly populated areas, with more frequent crossings, while sharing tracks with passenger trains traveling at 110 mph. If Alaska does transport LNG later in the year, those movements will be treated as a pilot program allowing FRA to learn from those shipments. As with FRA's own research, if FRA gathers new data from ARR that raises

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<sup>1</sup> Nothing in this letter shall be construed to alter or change any regulatory requirement FEC may have under the Federal hazardous materials regulations (49 CFR parts 171-180).

additional safety concerns, FRA may require FEC to assess and mitigate those additional risks on its own railroad.

We understand that the transportation of LNG by rail is an important business consideration for railroads and for State and local economies near import and export facilities. FRA takes the potential safety challenges associated with the transportation of LNG by rail very seriously, but remains committed to working with any railroad on a path toward the safest possible transport of this product. If FEC continues to be interested in transporting LNG, please consider the requirements laid out in this letter and guidance document, and contact FRA to schedule a meeting to discuss next steps. We look forward to hearing from FEC.

Sincerely,

A handwritten signature in black ink, appearing to read 'Karl Alexy', written in a cursive style.

Karl Alexy  
Staff Director, Hazardous Materials Division

Enclosure