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DEPARTMENT OF TRANSPORTATION

Federal Transit Administration

[Safety Advisory 16-2]

Contact Rail (Third Rail) System Hazards

AGENCY: Federal Transit Administration (FTA), Department of Transportation (DOT)

ACTION: Notice of Safety Advisory

SUMMARY: The Federal Transit Administration (FTA) issued Safety Advisory 16-2 regarding contact rail system hazards on rail fixed guideway public transportation systems (RFGPTSs). A letter to the Managers of State Safety Oversight (SSO) programs with RFGPTSs that use a contact rail system, was also issued requesting data and information on contact rail system hazards occurring during calendar year 2015. Safety Advisory 16-2 and the accompanying letter are available in their entirety on the FTA public website at <http://www.fta.dot.gov/tso.html>.

DATES: FTA is asking the managers of the SSO programs to submit the requested data and information 90 days from issuance of the advisory.

FOR FURTHER INFORMATION CONTACT: For program matters,

Sam Shelton, Office of System Safety, telephone (202) 366-0815 or Sam.Shelton@dot.gov. For legal matters, Scott Biehl, Senior Counsel, telephone (202) 366-0826 or Scott.Biehl@dot.gov.

SUPPLEMENTARY INFORMATION: Nationwide, 13 RFGPTS operate and maintain contact rail traction power electrification (TPE) systems to power trains that move millions of daily passengers in some of the nation's largest cities. Recently, the FTA has investigated several safety events related to failures of contact rail TPE systems, including:

- Smoke events caused by arcing insulators and traction power cable fires;
- An explosion caused by a flashover on porcelain insulators;
- A high-intensity fire caused by an electrical short circuit that resulted in the total loss of a traction power substation and major service disruptions;
- Damage to electrical propulsion equipment on dozens of railcars caused by spiking voltage that significantly impacted passenger service; and
- Poor track conditions exacerbated by electrolysis and corrosion from stray current, which degraded anchor bolts and fasteners to the point of failure in a tunnel.

The FTA finds sufficient evidence that each SSOA with an RFGPTS operating and maintaining a contact rail TPE system should investigate potential hazards associated with these systems through its hazard management program specified at 49 CFR § 659.31. Further, in accordance with its authority at 49 CFR § 659.39(d) to periodically request program information from the SSOAs,¹ the FTA asks these SSOAs to collect the information requested below.

- 1) A brief description of the RFGPTS contact rail TPE system and components.
- 2) A brief description regarding any major changes or upgrades to the contact rail TPE system made over the last 10 years and whether the traction power cables were also upgraded.
- 3) A brief description of the RFGPTS preventive maintenance program in place to determine the insulation integrity of traction power feeder cables (i.e., meggering,

¹ Please note, on March 16, 2016, FTA issued a final rule for State Safety Oversight that will eventually replace the longstanding regulations at 49 CFR Part 659. See, 81 Fed.Reg. 14230-62. SSOAs and RFGPTSs must continue to comply with 49 CFR Part 659, however, until they come into compliance with the new regulations, which have been codified at 49 CFR Part 674.

hipot testing, metering or other testing program). If such a program does not exist, or has been modified or eliminated, please explain in the response.

- 4) The approximate percentage of traction power feeder cables used by the RFGPTS that are low smoke and zero halogen emission cables. Please specify the type and manufacturer.
- 5) A brief description of the construction and installation processes used to manage potential impacts of vibration, friction, rubbing, etc. on traction power cables, and whether protective matting is used for cables lying along the ballast and tunnel invert.
- 6) A listing of any corrective action plans (CAPs) required and approved by the SSOA related to the traction power electrification system since calendar year 2012 and their status, to include both open and closed CAPs.
- 7) A copy of the RFGPTS inspection, testing, and maintenance program manual for its contact rail TPE system.
- 8) The RFGPTS definition of “arcing insulator.”
- 9) The following safety event information for calendar year 2015:
 - a. The total number of times a fire department responded to smoke conditions at the RFGPTS related to the contact rail TPE system;
 - b. The total number of smoke/fire events related to the contact rail TPE system that resulted in evacuations for fire/life safety reasons at the RFGPTS; and

c. The total number of fatalities and injuries and the total amount of property damage at the RFGPTS resulting from smoke/fire events related to the contact rail TPE system.

10) A description of any hazards, issues, or concerns related to the contact rail TPE system reported to, identified and/or investigated by the SSOA during calendar year 2015.

The cooperation of the rail transit industry would be very helpful in developing a better understanding of contact rail system hazards, and in due course, a strategy for mitigating the safety risks created by these hazards.

Issued in Washington, DC this 12th day of May, 2016

Carolyn Flowers
Acting Administrator

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