



NATIONAL TRANSPORTATION SAFETY BOARD  
**Investigative Hearing**

Washington Metropolitan Area Transit Authority Metrorail train 302 that encountered heavy smoke in the tunnel between the L'Enfant Plaza Station and the Potomac River Bridge on January 12, 2015

<b>GROUP</b>	<b>B</b>
<b>EXHIBIT</b>	
<b>1</b>	

Agency / Organization

NTSB

Title

**Civil Engineering/State of Good Repair  
Working Group Factual Report**

# NATIONAL TRANSPORTATION SAFETY BOARD

Office of Research and Engineering  
Vehicle Performance Division  
Washington, D.C. 20594



04/20/2015

Civil Engineering/State of Good Repair Working Group Factual Report

Asset Management Oversight by the Federal Transit Administration and the Tri-State Oversight Committee

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## A. ACCIDENT INFORMATION

Place : Washington, DC  
Date : January 12, 2015 3:15 p.m. eastern standard time  
Vehicle : WMATA train #302 Yellow Line  
NTSB No. : DCA15FR004  
Investigator : Joe Gordon

## B. GROUP MEMBERS

Xiaohu Liu (Group Chairman)	NTSB
Randall Grooman	WMATA
Chris Nutakor	FTA
Andrew Off	WMATA
Rotimi Ogunsuyi	FTA
Paul Petersen	WMATA

## C. ACCIDENT SUMMARY

On January 12, 2015, about 3:15 p.m., Eastern Standard Time, Washington Metropolitan Area Transit Authority (WMATA) Metrorail train 302 stopped after encountering an accumulation of heavy smoke while traveling southbound in a tunnel between the L'Enfant Plaza Station and the Potomac River Bridge. After stopping, the rear car of the train was about 386 feet from the south end of the L'Enfant Plaza Station platform. The train operator contacted the Operation Control Center (OCC) and announced that the train was stopped due to heavy smoke.

A following train (train 510), stopped at the L'Enfant Plaza Station at about 3:25 p.m., and was also affected by the heavy smoke. This train stopped about 100 feet short of the south end of the platform. Passengers of both trains, as well as passengers on the station platforms, were exposed to the heavy smoke. Train 510 was evacuated while it was stopped at the station platform, where arriving WMATA Transit police officers, Metrorail/L'Enfant Plaza Station Managers and WMATA Supervisor personnel provided assistance in guiding passengers to the surface. Some passengers aboard Train 302

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began to self-evacuate as it remained in the tunnel. Emergency responders were dispatched to the scene and an evacuation of the train and station area ensued.

Both Metrorail trains involved in this incident consisted of six passenger cars and were about 450 feet in length. As a result of the smoke, 86 passengers were transported to local medical facilities for treatment. There was one passenger fatality. Initial damages were estimated by WMATA at \$120,000.00.

Atmospheric Conditions at the time of the incident were reports as rain/mist, calm winds and 37 °F ambient temperature. (Weather reported from Reagan National Airport, about 1 mile south of the tunnel portal near the Potomac River Bridge).

The parties to the investigation include the Washington Metropolitan Area Transit Authority, the Federal Transit Administration, the Tri-State Oversight Committee, the Amalgamated Transit Union 689, the International Fire Fighters Association 36, the District of Columbia Fire and EMS, the Metropolitan Police Department, and the Bureau of Alcohol, Tobacco, Firearms and Explosives.

#### **D. FEDERAL TRANSIT ADMINISTRATION**

The Federal Transit Administration (FTA) was created by the Intermodal Surface Transportation Efficiency Act (ISTEA) of 1991 to provide the states greater flexibility in the use of funds for mass transit. It is one of eleven operating administrations of the Department of Transportation (DOT). Through its grant programs, the FTA funds state transit agencies for the planning, building and operation of transit systems.

As created, the FTA did not have the statutory authority to promulgate regulations as do other modal Administrations within the DOT such as the Federal Railroad Administration. Prior to 2012, the law only provided the FTA regulatory authority in two areas: drug and alcohol use (49 CFR Part 655) and state safety oversight (49 CFR Part 659). In the aspect of asset management, the FTA issued guidelines as outlined by FTA Circular 5010.1D [Reference 1], but the FTA does not have regulating power to enforce them. In July 2012, the Moving Ahead for Progress in the 21<sup>st</sup> Century Act (MAP-21) was signed into law and took effect on October 1, 2012. In addition to providing funds for surface transportation programs for fiscal years 2013 and 2014, MAP-21 also builds on DOT's efforts to improve safety across all forms of transportation. Through reauthorizing the Federal Transit Laws codified in 49 USC Chapter 5326, MAP-21 provides the FTA the power of establishing new requirements for transit asset management by FTA grantees as well as new reporting requirements to promote accountability. In particular, the following requirements are listed in 49 USC Section 5326 / MAP-21 Section 20019 [Reference 2]:

Grantee Plans: all FTA grantees and their subrecipients will be required to develop transit asset management plans that include, at a minimum:

- Capital asset inventories and condition assessments; and
- Investment prioritization

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Reporting Requirements: each designated recipient of FTA formula funding will be required to report on:

- The condition of their system;
- Any change in condition since the last report;
- Targets set under the above performance measures; and
- Progress toward meeting those targets

The current requirements listed above do not contain specific standards that FTA grantees are required to follow. The FTA is working on establishing specific rules based on MAP-21 which include but are not limited to the following:

- Define “state of good repair”.
- Set objective standards for measuring the condition of capital assets.
- Establish performance measures for state of good repair, under which grantees will be required to set performance targets.

## **E. REVIEW OF WMATA BY FTA**

The law [49 U.S.C. Section 5307] requires the FTA to conduct a review of its grant recipient at least once every 3 years. The most recent FTA review of WMATA was completed in December 2014. The review [Reference 3] was conducted by Qi Tech, LLC and assisted by AdSTM, Inc., both contractors of the FTA. The review focused on WMATA’s compliance with Federal requirements in 17 areas. The review process includes a pre-review assessment, a review scoping meeting, and an on-site visit to WMATA. The review scoping meeting was conducted with the FTA Region III Office that governs the District of Columbia (and the states of Delaware, Maryland, Pennsylvania, Virginia and West Virginia) on May 15, 2014. At that review scoping meeting, necessary files were retained by the Regional Office and were sent to the review team later. After the review team reviewed the documents, a review package was sent to WMATA advising it of the information and issues that would be requested and discussed during the site visit. The site visit to WMATA occurred on October 6-9, 2014. Discussions and review of documents were held during the site visit, as well as a tour of WMATA’s transit facilities to view related FTA-funded projects. The final report of the review was completed on December 10, 2014.

Among the 17 areas reviewed, deficiencies were found in the following three areas:

- Financial Management and Financial Capacity
- Title VI, which prohibits discrimination on the basis of race, color, and national origin in programs and activities receiving federal financial assistance
- Drug-Free Workplace/Drug and Alcohol Program

None of the above deficiencies are in the area of asset management and no deficiencies were found in the other 14 areas covered by the review. In the area of Maintenance, the basic requirement listed by the review is as follows:

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- Grantees and subrecipients must keep federally funded vehicles, equipment and facilities in good operating condition. Grantees and subrecipients must keep Americans with Disability Act (ADA) accessibility features on all vehicles, equipment and facilities in good operating order.

The finding in the area of Maintenance is as follows:

- During this Triennial Review of WMATA, no deficiencies were found with the FTA requirements for Maintenance

In the detailed Review Package [Reference 4], there were 7 questions in the area of Maintenance that were answered by the reviewer. In answering these questions, the reviewer reported not being aware of “any deferments in preventative maintenance”, “any service interruptions due to inadequate maintenance”, or “any safety incidents related to maintenance”. The reviewer also indicated that there were no issues identified in the area of Maintenance in the previous FTA review (conducted in 2011), and that maintenance was rated a “low” risk by FTA Regional Office in its annual Grantee Oversight Assessment. There were also 15 additional questions on the Maintenance subject in the Review Package that were answered by the grantee and reviewed by the reviewer. In evaluating WMATA’s response to these questions, the reviewer found no issues in the maintenance program of FTA funded facilities in the areas of documentation, record keeping, preventive maintenance schedule, or the reporting process. In particular, it was stated that there was no deferred scheduled maintenance such as preventive inspections.

## **F. TRI-STATE OVERSIGHT COMMITTEE**

The Tri-State Oversight Committee (TOC) was established in 1997 by a Memorandum of Understanding (MOU) between the Virginia Department of Rail and Public Transportation, the Maryland Department of Transportation and the District of Columbia Department of Transportation. The TOC is the FTA-designated State Safety Oversight Agency for WMATA, as required by FTA regulation governing State Safety Oversight (49 CFR Part 659).

As required by FTA regulations, each state safety oversight agency is to develop and implement a system safety program standard. When the program standard is approved by the FTA, the oversight agency will require the rail transit agency to develop and implement a written System Safety Program Plan (SSPP) and a Security and Emergency Preparedness Plan (SEPP). The current version of the TOC’s Program Standard and Procedures is dated August 2014 [Reference 5]. The current version of the WMATA’s SSPP is dated January 2014 [Reference 6]. The FTA regulations do not provide state safety oversight agencies with the authority to enforce their findings with fines, civil actions or other penalties.

## **G. REVIEW AND AUDITS OF WMATA REQUIRED BY TOC**

In accordance with FTA regulations (49 CFR Part 659.29), the TOC’s Program Standard and Procedures establish a Triennial On-site Safety and Security Review

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process, through which a series of reviews are conducted throughout a three-year period. This process was designed to “provide TOC with a more unified, continuous view of WMATA operations, as well as to spread out associated administrative burdens.” The key objectives of the review are as follows:

- Determine if the SSPP is being followed.
- Determine if the SEPP is being followed.
- Determine if hazards are being identified in a timely manner.
- Determine the effectiveness of WMATA’s internal safety and security review process.

The on-site reviews are conducted by the TOC including its consultants or contract personnel and may include interviews of WMATA personnel, assessment of documentation, and examinations of sample operations, infrastructure, vehicles, or other units. The findings of the reviews are documented in reports and WMATA’s response is required as part of the Corrective Action Plan (CAP) process. Specifically, each finding is categorized as one of the two following forms:

- A Finding of Non-Compliance (formerly called a deficiency) refers to an instance of WMATA operating out of compliance or out of accordance with an applicable internal or external written requirement, plan, policy, rule, standard, or procedure. Findings of Non-Compliance may be safety- or security-critical in nature. If a Finding of Non-Compliance is identified, WMATA is required to develop an appropriate CAP and take action to achieve compliance with the applicable requirement.
- Finding of Compliance with Recommendation (formerly called an area of concern) refers to a condition whereby WMATA may technically be conducting business in compliance with existing WMATA, TOC, or FTA procedures or requirements; however, there may be no relevant written plan, policy, or procedure in place, or the existing plan, policy or procedure is not in accordance with industry best practices or standards (such as those by the American Public Transportation Association). Additionally, WMATA may have a resource or organizational issue preventing sufficient devotion of resources to system safety or security activities. In response to a Finding of Compliance with Recommendation, WMATA is required to formally respond in writing, and is strongly urged to develop an appropriate CAP to update relevant plans, policies, rules, and/or procedures, or to address a particular identified resource or organizational issue.

The current Triennial Safety and Security Review cycle started in April 2013 and is scheduled to complete in November 2015 [Reference 7]. The last completed Triennial Safety and Security Review was completed in October 2010 [Reference 8]. The TOC review team included representatives from the TOC and its technical consultant, Transportation Resource Associates, Inc., as well as three subcontractors: Dovetail Consulting, LS Engineering Associates Corp., and Virginkar & Associates, Inc. This review was conducted before the current version of the TOC’s Program Standard and Procedures

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went into effect. Two areas where the 2010 review process differed from the current Program Standard and Procedures are listed below:

- The 2010 review was completed in the same calendar year. The review started in May, 2010 with the review team requesting and reviewing documents. A kick-off meeting was held on June 1, 2010 followed by a four-week on-site review period. After the conclusion of the on-site period on June 25, 2010, TOC presented a draft report to WMATA for a four-week period of review. The final report was completed four weeks after that on October 8, 2010. The current Program Standard Procedures design the Triennial Safety and Security Review to be spread out over a three-year period.
- For areas of concern (equivalent to the current form of Findings of Compliance with Recommendation) found in the 2010 review, WMATA was required to develop an appropriate CAP to update relevant plans, policies, rules and/or procedures, or to address a particular identified resource or organizational issue. The current Program Standard and Procedures does not require a CAP to be developed for a Finding of Compliance with Recommendation.

The 2010 review covered 21 areas of SSPP implementation. In total it identified 34 deficiencies and 83 areas of concern. 15 of the findings were related to an existing CAP from the previous Triennial Safety and Security Review or from other audits. As of this writing all but one finding has been closed. The one finding that remains open has been granted an extension of its completion date to 10/31/2015. The detail of this finding is as follows:

- Deficiency 14E-1: Many communication technicians have not received classroom training on the 490 MHz radio system.

The Facilities and Equipment Inspections area of the 2010 review covered 5 subjects including stations, elevators and escalators, tunnels and structures, subway emergency exits and emergency equipment, and communications. The Maintenance and Inspection Programs area of the same review covered 4 subject areas including railcars and vehicle maintenance, automatic train control, traction power, and track inspection and maintenance.

TOC's Program Standard and Procedures requires that WMATA conduct internal safety and security audits of its SSPP and SEPP [Reference 5]. Specifically, WMATA is required to audit all elements of the SSPP and SEPP over a three-year period. WMATA is also required to submit to TOC reports of the audits that include the audited items, the findings and the suggested corrective actions. The Program Standard gives WMATA the option to conduct its internal audits contemporaneously with TOC's external review, however it requires that the two entities maintain their separate review processes and complete independent reports of findings and recommendations. In addition, WMATA is required to submit a safety and security audit report every year that documents all the internal audits performed during the year. As of this writing, the investigation team has not requested copies of the WMATA audit reports for review.

**H. REFERENCES**

1. FTA Circular 5010.1D, Grant Management Requirements, Federal Transit Administration, August 2012.
2. MAP-21 Section 5326, Transit Asset Management.
3. Final Report of FY2014 Triennial Review of the Washington Metropolitan Area Transit Authority, prepared for U.S. Department of Transportation Federal Transit Administration Region III, Qi Tech, LLC, December 2014.
4. Grantee Information Request and Review Package, 2014 Triennial Review of the Washington Metropolitan Area Transit Authority, Qi Tech, LLC, October 2014.
5. Tri-State Oversight Committee Program Standard and Procedures, August 2014.
6. System Safety Program Plan, WMATA, January 2014.
7. Schedule of TOC Three-Year Safety Reviews, 2013-2015, Version 6, December 2014.
8. Final Report of 2010 Triennial Safety and Security Review of the Washington Metropolitan Area Transit Authority, TOC, October 2010.

Xiaohu Liu, Group Chairman