

NATIONAL TRANSPORTATION SAFETY BOARD

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



November 6, 2015

Addendum, Civil Engineering/State of Good Repair Working Group Factual Report, Tunnel Structure

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 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. FACTUAL INFORMATION SUPPLEMENTAL TO THE GROUP FACTUAL REPORT

An Investigative Hearing was held on June 23 and 24, 2015. Additional factual information was provided during and after the hearing. Those items that are relevant to the group factual report are listed below.

- In addition to regularly scheduled tunnel inspections, WMATA also relies on other sources for the report of water leakage in tunnels. Examples include track inspection, train operators, station managers and passengers [Reference 1].
- The most recent leak repair work in the vicinity of the arcing incident site (L-route Track L2 between Chain Marker (CM) 69+00 and CM 71+00) prior to the accident was performed on July 29, 2013 [Reference 2].
- An open work order existed at the time of the accident concerning water conditions in the vicinity of the arcing incident site (L-route Track L2 between CM 68+00 and CM 72+00). This work order was created on May 19, 2014 but was not executed until after the accident, on February 6, 2015 [Reference 2]. Please note that the group factual report used the date February 7, 2015 for the same repair work but the work actually started one day earlier.
- WMATA has performed studies on water intrusion in underground structures in the past. Three reports were provided that studied water intrusion issues in underground tunnels and stations of the Red and Orange lines and proposed remedies [References 3 through 5].

A Technical Review Meeting was held on October 7 and 8, 2015. Based on the comments collected at the meeting, the following correction is made to the group factual report:

- The Chain Marker (CM) 0+00 is located at the Gallery Place Station (group factual report page 3).

E. REFERENCES

1. NTSB Investigative Hearing Transcript, Day 1 (June 23, 2015).
2. Work Order Details, WMATA.
3. Water Intrusion in Underground Structures Final Report, Mueser Rutledge Consulting Engineers, 1988.
4. Tunnel Leakage – Red Line Tunnels Interim Report, WMATA Water Intrusion Consultant Board, 2002.
5. Hydrogeologic Controls on Ground-Water Discharge to the Washington METRO Subway Tunnel Near the Medical Center Station and Crossover, Montgomery County, Maryland, U.S. Geological Survey, 2004.

Xiaohu Liu, Group Chairman