



National Transportation Safety Board
Washington, D.C. 20594

Office of Railroad, Pipeline and
Hazardous Materials Investigations

Survival Factors - Technical Working Group Chairperson's
Factual Report of the Investigation – Emergency Preparedness / Emergency Response¹

Addendum # 1 - Medical and/or Pathology Data²

*Heavy Smoke Release and Multiple Train Evacuations that occurred in the WMATA Metrorail
Transit System, in and near the L'Enfant Plaza Metrorail Station,
in Washington, DC, on January 12, 2015*

Report Date: November 16, 2015

A. Accident

NTSB Accident Number: DCA 15 FR 004
Location: subway tunnel on the L-Line [Yellow], to the south of, and within,
the L'Enfant Plaza Metrorail station, Washington, DC
Date / Time: January 12, 2015 / 3:15 p.m. (EST)³
Type of Incident: heavy smoke release / multiple train evacuations
NRC⁴ Report No.: 1105481
Rail Transit Property: Washington Metropolitan Area Transit Authority (WMATA),
rail transit operation known as "Metrorail"

¹ The Survival Factors investigation exclusively addresses the emergency preparedness and emergency response, and injury causation aspects of the accident.

² This report presents supplemental data of the Survival Factors investigation that was not available for inclusion in the previously compiled Survival Factors - Technical Working Group Chairperson's Factual Report of the Investigation (dated Apr. 30, 2015), which specifically documents the medical and/or pathology information of the investigation.

³ Eastern Standard Time

⁴ National Response Center, a function of USCG, provides initial notification to specific USDOT / FRA and NTSB offices, of transportation related incidents that meet certain pre-established criteria. See <http://www.nrc.uscg.mil> for report.

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Note – photographs compiled during the investigation by the Survival Factors Technical Working Group (TWG) will be forthcoming as separate Survival Factors factual report documentation.

Select Abbreviations and Acronym Nomenclature used in this report

<	less than
>	greater than
DC-FEMS	DC Fire and Emergency Medical Services
ICD	International Classification of Disease (see [Internet] http://www.cdc.gov/nchs/icd/icd9cm.htm)
TDA	Transportation Disaster Assistance
TPD	WMATA Metro Transit Police Department
WMATA	Washington Area Metropolitan Transit Authority

B. Accident Synopsis

Please see the Survival Factors - Technical Working Group Chairperson's Factual Report of the Investigation (dated Apr. 30, 2015).

C. Survival Factors -- Technical Working Group Participants

Please see the Survival Factors - Technical Working Group Chairperson's Factual Report of the Investigation (dated Apr. 30, 2015).

D. Details of the Investigation⁵

6.0 Medical and/or Pathology Data

Information regarding individuals involved in this accident was obtained by the National Transportation Safety Board (NTSB) - Transportation Disaster Assistance (TDA) staff. This report compiles information from interviews, review of medical records including treatment⁶ and autopsy records.

6.1 Injuries / Fatality Data⁷

Based upon medical record documentation and other data reviewed, the investigation identified 91 persons who were treated at medical facilities following this accident⁸, which included:

- 84 people who were on-board Metrorail train # 302 (that was stopped in the tunnel) during the accident (i.e., 78 passengers, two WMATA TPD Officers, and four WMATA employees), and
- seven people who were not on-board train # 302 during the accident (i.e., four WMATA TPD Officers who responded to the accident and one other WMATA employee, and two firefighters who responded to the accident).

Additionally, one train passenger died as a result of the accident.

Injuries were classified according to Title 49, Code of Federal Regulations (CFR), Section 830.2, which defines serious injuries as those which:

- require hospitalization for more than 48 hours, commencing within seven days from the date the injury was received;
- result in a fracture of any bone (except fractures of fingers, toes, or nose);
- involve lacerations which cause severe hemorrhage, nerve, muscle, or tendon damage;
- involve injury to any internal organ;
- involve second or third-degree burns, or any burns affecting more than five percent of the body surface.

Only formal diagnoses present in the medical record and related to the accident events are included in the tables in this report. When records included codes from the International Classification of Disease, Version 9 (ICD-9), the standard diagnostic codes used by hospitals to bill for healthcare in the United States, these are included in parentheses. No attempt was made to add additional codes or diagnoses. Non-injury diagnoses such as pre-existing co-morbid diseases (like high blood pressure or diabetes), complications of hospitalization (such as

⁵ this report contains the data content of § 6.0 of the SF - Technical Working Group Chairperson's Factual Report of the Investigation (dated April 30, 2015), which was not available for inclusion in that report.

⁶ medical records of people that were treated by local medical facilities were requested under NTSB subpoena authority, the data of which remains confidential to the investigation.

⁷ this report section was updated to reflect the most recent data documented to the investigation (e.g., the count of persons that were transported for medical treatment).

⁸ the investigation recognizes that there may be additional persons involved in the accident, who were not identified to the investigation through the TDA data tabulation / medical record collection process, but who also sought treatment through their own medical care provider, and thus these persons would not be cited in this data tabulation.

pneumonia, blood clots, or urinary tract infections), and psychological trauma were not included. In each case, the outcome of the event is described as: fatal, released from the emergency department, admitted < 48 hours or > 48 hours. Finally, a determination of level of severity according to the above criteria was made and was recorded as the "NTSB Injury Severity" – fatal, serious, minor, or none.

6.1.1 Occupant Injuries

Table 1 describes the documented injuries of 85 occupants of Metrorail train # 302 (that was stopped in the tunnel).

6.1.2 Non-Occupant Injuries

Table 2 describes the documented injuries of seven people that were not on-board Metrorail train # 302 (that was stopped in the tunnel).

6.1.3 WMATA Injury Reports

In addition, according to WMATA, 35 employees reported injuries as a result of this accident.⁹

6.2 Injury Criteria Tabulation – 49 CFR 830.2

From medical data obtained in the investigation (see § 6.1.1, and § 6.1.2), a tabulation was compiled, which is based on injury criteria of the International Civil Aviation Organization (ICAO), which the NTSB uses in accident reports for all transportation modes, as described in 49 CFR 830.2.¹⁰ This data are summarized in Table 3.

E. Authorship

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⁹ the investigation notes that not all of the WMATA employees may have sought medical treatment at the hospital facilities identified in this report, thus the data of the tabulations may not cite data of the WMATA employees.

¹⁰ Title 49 CFR 830.2 defines a fatal injury as: any injury that results in death within 30 days of the accident. A serious injury as: an injury which requires hospitalization for more than 48 hours commencing within seven days from the date the injury was received; results in a fracture of any bone (except simple fractures of the fingers, toes, or nose); causes severe hemorrhages, nerve, muscle, or tendon damage; involves any internal organ; or involves second or third degree burns, or any burns affecting more than 5 percent of the body surface.

Human Performance and Survival Factors Division (RPH-40)

Supervisory review: // s // Date Nov. 16, 2015

Robert J. Beaton, Ph.D., CPE

Chief, Human Performance and Survival Factors Division (RPH-40)

– End of this Report Section –

List of Tables¹¹

1. Occupant Injuries
2. Non-Occupant Injuries
3. Injury Criteria Tabulation – 49 CFR 830.2

Table 1. Occupant Injuries¹²

	Role	Age	Sex	Diagnoses (ICD9)	Outcome	NTSB Severity Level
1	Passenger	61	F	Exposure to smoke; Acute Respiratory Failure	Deceased	Fatal
2	Passenger	42	F	Exposure to smoke (508.2)	Released	Minor
3	Passenger	69	F	Inhalation of smoke (508.2); foot sprain, left	Released	Minor
4	Passenger	36	M	Respiratory condition due to smoke inhalation (508.2); Edema of larynx (478.2)	Admitted <48 hours	Serious
5	Passenger	55	M	Respiratory condition due to smoke inhalation (508.2)	Admitted <48 hours	Minor
6	Passenger	53	M	Asthma Exacerbation; Inhalation of smoke (508.2)	Admitted <48 hours	Minor
7	Passenger	33	M	Respiratory condition due to smoke inhalation (508.2); Chest pain NEC (786.59)	Released	Minor
8	Passenger	35	M	Respiratory condition due to smoke inhalation (508.2)	Released	Minor

¹¹ data of this Table sourced entirely from the reviewed medical records.¹² see List of Select Abbreviations (page 2) for abbreviations used in the Tabulations of this report

	Role	Age	Sex	Diagnoses (ICD9)	Outcome	NTSB Severity Level
9	Passenger	30	M	Respiratory condition due to smoke inhalation (508.2)	Released	Minor
10	Passenger	25	M	Inhalation of smoke (508.2)	Released	Minor
11	Passenger	30	M	Smoke Inhalation	Released	Minor
12	Passenger	22	F	Respiratory condition due to smoke inhalation (508.2); Chest pain NEC (786.59); Backache NOS (724.5); Malaise and Fatigue (780.79)	Released	Minor
13	Passenger	50	M	Smoke Inhalation	Released	Minor
14	Passenger	32	F	Respiratory condition due to smoke inhalation (508.2)	Released	Minor
15	Passenger	47	M	Respiratory condition due to smoke inhalation (508.2)	Released	Minor
16	Passenger	29	M	Smoke Inhalation	Released	Minor
17	Passenger	19	F	Respiratory condition due to smoke inhalation (508.2); Shortness of breath (786.06)	Released	Minor
18	Passenger	26	M	Smoke Inhalation	Released	Minor
19	Passenger	56	M	Respiratory condition due to smoke inhalation (508.2)	Released	Minor
20	Passenger	49	M	Inhalation of smoke	Released	Minor
21	Passenger	42	F	Smoke Inhalation	Released	Minor
22	Passenger	33	F	Smoke inhalation (987.9)	Released	Minor
23	Passenger	49	M	Inhalation of smoke (508.2)	Released	Minor
24	Passenger	22	F	Inhalation of smoke (508.2)	Released	Minor
25	Passenger	31	F	Inhalation of smoke (508.2)	Released	Minor
26	Passenger	55	M	Inhalation of smoke (508.2)	Released	Minor
27	Passenger	53	M	Inhalation of smoke (508.2)	Released	Minor
28	Passenger	53	F	Smoke inhalation (987.9)	Released	Minor
29	Passenger	33	F	Dyspnea (786.09)	Released	Minor
30	Passenger	47	M	Smoke inhalation (987.9)	Released	Minor

	Role	Age	Sex	Diagnoses (ICD9)	Outcome	NTSB Severity Level
31	Passenger	28	M	Smoke inhalation (987.9)	Released	Minor
32	Passenger	53	M	Inhalation of smoke (508.2)	Released	Minor
33	Passenger	24	M	Inhalation of smoke (508.2)	Released	Minor
34	Passenger	30	M	Inhalation of smoke (508.2)	Released	Minor
35	Passenger	65	M	Inhalation of smoke (508.2)	Released	Minor
36	Passenger	53	F	Smoke inhalation (987.9); Atrial Fibrillation (427.31)	Admitted <48 hours	Minor
37	Passenger	55	M	Smoke inhalation (987.9)	Admitted <48 hours	Minor
38	Passenger	45	M	Smoke inhalation (987.9)	Released	Minor
39	Passenger	52	M	Smoke inhalation (987.9)	Released	Minor
40	Passenger	71	F	Inhalation of smoke (508.2)	Released	Minor
41	Passenger	62	F	Dyspnea (786.09); Inhalation of smoke (508.2)	Admitted <48 hours	Minor
42	Passenger	39	M	Smoke inhalation (987.9)	Released	Minor
43	Passenger	31	M	Inhalation of smoke (508.2)	Released	Minor
44	Passenger	51	M	Inhalation of smoke (508.2)	Released	Minor
45	Passenger	42	F	Inhalation of smoke (508.2)	Released	Minor
46	Passenger	36	M	Inhalation of smoke (508.2); Accident due to PVC fumes from fire in non-private dwelling (E891.1); Hypotension (796.3)	Admitted >48 hours	Serious
47	Passenger	49	M	Inhalation of smoke (508.2)	Released	Minor
48	Passenger	24	M	Smoke inhalation (987.9)	Released	Minor
49	Passenger	52	M	Inhalation of smoke (508.2)	Admitted <48 hours	Minor
50	Passenger	24	M	Inhalation of smoke (508.2)	Released	Minor
51	Passenger	31	F	Smoke inhalation (987.9); Asthma exacerbation (493.92); Hyponatremia (276.1)	Admitted >48 hours	Serious
52	Passenger	36	M	Inhalation of smoke (508.2)	Released	Minor

	Role	Age	Sex	Diagnoses (ICD9)	Outcome	NTSB Severity Level
53	Passenger	44	F	Inhalation of smoke (508.2)	Released	Minor
54	Passenger	24	M	Inhalation of smoke (508.2)	Released	Minor
55	Passenger	25	M	Inhalation of smoke (508.2)	Released	Minor
56	Passenger	28	F	Inhalation of smoke (508.2)	Released	Minor
57	Passenger	52	M	Inhalation of smoke (508.2)	Released	Minor
58	Passenger	46	M	Inhalation of smoke (508.2)	Released	Minor
59	Passenger	59	M	Carbon monoxide poisoning (986)	Released	Minor
60	Passenger	56	M	Smoke inhalation (987.9)	Released	Minor
61	Passenger	64	M	Inhaled smoke, cough	Released	Minor
62	Passenger	57	M	Smoke inhalation	Released	Minor
63	Passenger	21	F	Smoke inhalation	Released	Minor
64	Passenger	32	M	Inhaled smoke	Released	Minor
65	Passenger	26	F	Smoke inhalation	Released	Minor
66	Passenger	76	F	Smoke inhalation	Released	Minor
67	Passenger	17	M	Smoke inhalation exposure	Released	Minor
68	Passenger	60	M	Smoke inhalation exposure	Released	Minor
69	Passenger	24	F	Smoke inhalation exposure	Released	Minor
70	Passenger	28	F	Smoke inhalation	Released	Minor
71	Passenger	57	F	Smoke inhalation exposure	Released	Minor
72	Passenger	41	F	Smoke inhalation	Released	Minor
73	Passenger	58	F	Smoke inhalation	Released	Minor
74	Passenger	26	M	Inhaled smoke	Released	Minor
75	Passenger	36	F	Smoke inhalation exposure	Released	Minor
76	Passenger	55	F	Smoke inhalation	Released	Minor
77	Passenger	44	M	Smoke inhalation	Released	Minor
78	Passenger	39	F	Smoke inhalation exposure	Released	Minor
79	Passenger	43	F	Smoke inhalation exposure	Released	Minor
80	TPD Officer	28	F	Chest pain (786.5)	Admitted <48 hours	Minor

	Role	Age	Sex	Diagnoses (ICD9)	Outcome	NTSB Severity Level
81	TPD Officer	28	F	Inhalation of smoke (508.2)	Released	Minor
82	WMATA employee	58	M	Respiratory condition due to smoke inhalation (508.2)	Admitted <48 hours	Minor
83	WMATA employee	40	M	Inhalation of smoke (508.2)	Released	Minor
84	WMATA employee	54	M	Smoke inhalation	Released	Minor
85	WMATA off-duty employee	32	M	Inhalation of smoke (508.2)	Released	Minor

Table 2. Non-Occupant Injuries¹³

	Role	Age	Sex	Diagnoses (ICD9)	Outcome	NTSB Severity Level
1	TPD Officer	23	M	Inhalation of smoke (508.2)	Released	Minor
2	TPD Officer	27	M	Smoke inhalation without loss of consciousness (508.2)	Released	Minor
3	TPD Officer	27	M	Smoke inhalation (987.9)	Released	Minor
4	TPD Officer	29	F	Smoke inhalation (987.9)	Released	Minor
5	WMATA employee	61	F	Pneumonitis	Released	Minor
6	DC-FEMS Firefighter	53	M	Carbon monoxide exposure; headache (784.0)	Released	Minor
7*	DC-FEMS Firefighter		F	Trouble breathing, smoke inhalation	Released	Minor

*data sourced directly from DC-FEMS (Command Officer interview)

¹³ data of this Table sourced from the reviewed medical records, except as noted.

Table 3. Injury Criteria Tabulation – 49 CFR 830.2

Injury Severity	Train Passengers	WMATA Employees*	Emergency Responders**	Total
Fatal	1	0	0	1
Serious	3	0	0	3
Minor	75	11	2	88
None	0	0	0	0
Total	79	11	2	92

*this category includes the 6 WMATA TPD officers, and the 5 WMATA employees (as noted in the respective Tabulations).

**this category includes the 2 DC-FEMS firefighters (as noted in the respective Tabulations).

-- End of Report --