

National Transportation Safety Board

Office of Research and Engineering

Washington, DC 20594



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MEDICAL

Specialist's Factual Report

January 16, 2023

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A. ACCIDENT

Location: Camden, New Jersey
Date: October 14, 2022
Time: About 2121 local time

B. MEDICAL SPECIALIST

Specialist Turan Kayagil, MD, FACEP
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C. DETAILS OF THE INVESTIGATION

1.0 Purpose

This investigation was performed to evaluate the fatally injured 53-year-old male contractor employee (contractor A), fatally injured 55-year-old male contractor employee (contractor B), and uninjured 55-year-old male transit train operator (train operator) for potentially impairing medical conditions and substances.

2.0 Methods

Autopsy reports, toxicology reports, and emergency medical services (EMS) records pertaining to contractor A and contractor B were reviewed, as were occupational health records and United States Department of Transportation (DOT) post-accident drug and alcohol testing reports pertaining to the train operator. Selected National Transportation Safety Board (NTSB) investigator reports and relevant regulation and medical literature were also reviewed. According to the NTSB investigator in charge, neither contractor was subject to DOT drug and alcohol testing requirements.

D. FACTUAL INFORMATION

1.0 Contractor A

1.1 Autopsy

The Gloucester, Camden, and Salem County Office of the Medical Examiner, Sewell, New Jersey, performed contractor A's autopsy on October 15, 2022. According to contractor A's autopsy report, his cause of death was multiple injuries and his manner of death was accident. His autopsy identified obesity (height approximately 69 inches, estimated weight 250 pounds) and mild coronary artery

disease (with maximum 30% stenosis). The remainder of the autopsy, including of the heart, did not identify significant natural disease.

1.2 Toxicology

At the request of the Office of the Medical Examiner, NMS Labs performed toxicological testing of postmortem heart blood from contractor A.¹ This testing detected fentanyl at 7.7 ng/mL.

Fentanyl is an opioid drug that has central nervous system depressant effects. It may be used medicinally as a powerful prescription painkiller, or illicitly by users seeking a euphoric effect. Fentanyl used medicinally may be administered by injection, as a skin patch, by mouth, under the tongue, inside the cheek, or as a nasal spray. Fentanyl used illicitly may be injected, snorted, smoked, ingested, or taken under the tongue or inside the cheek. Illicit fentanyl may be sold alone or may be an adulterant in other illicit drugs. Fentanyl is a Schedule II controlled substance under federal law, with a high potential for abuse and dependence. Fentanyl can cause drowsiness, confusion, and dizziness. Fentanyl medication typically carries a warning that it may impair the mental or physical abilities required for the performance of potentially dangerous activities.^{2,3} Fentanyl may cause significant cognitive and psychomotor impairment even in the absence of marked sedation.⁴ Interpretation of fentanyl concentrations in postmortem blood is complicated by multiple factors including the drug's complex pharmacokinetics and potential for postmortem redistribution.⁵⁻⁸

¹ The NMS Labs toxicology report listed tested-for substances as: ethanol, methanol, acetone, isopropanol, amphetamines, barbiturates, benzodiazepines, buprenorphine/metabolite, cannabinoids, cocaine/metabolites, fentanyl/acetyl fentanyl/norfentanyl, methadone/metabolite, methamphetamine/MDMA, opiates, oxycodone/oxymorphone, and phencyclidine.

² Drug Enforcement Administration. Fentanyl. Drug Fact Sheets. <https://www.dea.gov/factsheets/fentanyl>. Updated October 2, 2023. Accessed November 24, 2023.

³ National Institutes of Health National Library of Medicine. Actiq. DailyMed. <https://dailymed.nlm.nih.gov/dailymed/drugInfo.cfm?setid=90b94524-f913-48b3-3771-7b2fcffd888a>. Updated November 30, 2022. Accessed November 24, 2023.

⁴ Schneider U, Bevilacqua C, Jacobs R, et al. Effects of fentanyl and low doses of alcohol on neuropsychological performance in healthy subjects. *Neuropsychobiology*. 1999;39(1):38-43. doi:10.1159/000026558.

⁵ Olson KN, Luckenbill K, Thompson J, Middleton O, et al. Postmortem redistribution of fentanyl in blood. *Am J Clin Pathol*. 2010;133(3):447-453. doi:10.1309/AJCP4X5VHFSOERFT.

⁶ Palmer RB. Fentanyl in postmortem forensic toxicology. *Clin Toxicol (Phila)*. 2010;48(8):771-84. doi:10.3109/15563650.2010.525514.

⁷ Krinsky CS, Lathrop SL, Zumwalt R. An examination of the postmortem redistribution of fentanyl and interlaboratory variability. *J Forensic Sci*. 2014;59(5):1275-1279. doi:10.1111/1556-4029.12381.

⁸ Baselt RC. *Disposition of Toxic Drugs and Chemicals in Man*. 11th ed. Biomedical Publications; 2017.

As of the accident date, fentanyl was not included in the scope of DOT drug testing, and was not among the DOT tested-for opioids.⁹ In October 2023, the United States Department of Health and Human Services (HHS) Substance Abuse and Mental Health Services Administration (SAMHSA) published a Federal Register notice that its Drug Testing Advisory Board would meet to discuss the addition of fentanyl to the HHS urine and oral fluid drug testing panels.¹⁰ This meeting took place December 5, 2023.¹¹ The Federal Register notice of the meeting solicited public comments by January 4, 2024, on the addition of fentanyl to the HHS panel, and noted, "Fentanyl accounts for a large proportion of overdose deaths in the United States and is therefore an important public safety concern. Furthermore, fentanyl is increasingly used as a stand-alone substance of abuse, not in conjunction with heroin and other substances."¹⁰ If fentanyl is added to HHS drug testing, DOT will be required to carry out rulemaking to add fentanyl to DOT drug testing.¹²

1.3 EMS Records

EMS records documented that contractor A appeared obviously dead upon initial EMS assessment. Absence of heart activity was confirmed and he was pronounced dead. No resuscitative medications were administered.

2.0 Contractor B

2.1 Autopsy

The Gloucester, Camden, and Salem County Office of the Medical Examiner, Sewell, New Jersey, performed contractor B's autopsy on October 15, 2022. According to contractor B's autopsy report, his cause of death was multiple injuries and his manner of death was accident. His autopsy identified obesity (height approximately 67 inches, estimated weight 220 pounds), mild coronary artery disease (with maximum 35% stenosis), and a 1.5 cm atrial septal defect of the heart. The remainder of the autopsy, including of the heart, did not identify significant natural disease.

2.2 Toxicology

At the request of the Office of the Medical Examiner, NMS Labs performed toxicological testing of postmortem heart blood from contractor B.¹ This testing detected fentanyl at 1.7 ng/mL. Fentanyl is described in section D.1.2 above.

⁹ [49 Code of Federal Regulations Part 40, Subpart F](#)

¹⁰ [88 FR 71582](#). Correction at [88 FR 80323](#).

¹¹ Additional information about this meeting is available on the SAMHSA website at <https://www.samhsa.gov/meetings/dtab-meeting-december-2023>.

¹² See the [Omnibus Transportation Employee Testing Act of 1991](#) and the [Fighting Opioids in Transportation Act](#).

2.3 EMS Records

EMS records documented that contractor B appeared obviously dead upon initial EMS assessment. Absence of heart activity was confirmed and he was pronounced dead. No resuscitative medications were administered.

3.0 Train Operator

3.1 Occupational Health Records

The train operator underwent periodic occupational medical fitness evaluations for his employer.¹³ These evaluations consisted of a medical history report (including medical conditions and medications) completed by the train operator and a physical examination (including vital signs, a general physical examination, and vision and hearing testing) completed by a third-party occupational health service medical provider. The last such evaluation before the accident was on October 8, 2021, at which time the train operator was determined to be physically qualified to operate high-speed trains. No medical restrictions were noted. His vision testing was completed with corrective lenses.

3.2 Post-Accident Drug and Alcohol Testing

The train operator underwent DOT post-accident urine drug testing. According to records of this testing, the urine specimen was collected at 2310 on the accident date. According to the laboratory report of this testing, no tested-for substances were detected.¹⁴

The train operator also underwent DOT post-accident alcohol breath testing. According to records of this testing, it was performed at 2304 on the accident date and was negative.

E. SUMMARY OF MEDICAL FACTS

1.0 Contractor A

According to the 53-year-old male contractor A's autopsy report, his cause of death was multiple injuries and his manner of death was accident. His autopsy identified obesity and mild coronary artery disease. The remainder of his autopsy did not identify significant natural disease. His postmortem toxicology testing identified

¹³ There are no federally required medical fitness standards for transit train operators.

¹⁴ Tested-for substances on DOT urine drug testing are marijuana metabolites, cocaine metabolites, amphetamines, opioids, and phencyclidine (PCP), in accordance with [49 Code of Federal Regulations § 40.82](#), as detailed at [49 Code of Federal Regulations § 40.85](#).

fentanyl in heart blood at 7.7 ng/mL. Fentanyl was not administered to him after the accident, nor was any other drug.

2.0 Contractor B

According to the 55-year-old male contractor B's autopsy report, his cause of death was multiple injuries and his manner of death was accident. His autopsy identified obesity, mild coronary artery disease, and an atrial septal defect. The remainder of his autopsy did not identify significant natural disease. His postmortem toxicology testing identified fentanyl in heart blood at 1.7 ng/mL. Fentanyl was not administered to him after the accident, nor was any other drug.

3.0 Train Operator

Although there are no federally required medical fitness standards for transit train operators, the train operator underwent periodic occupational medical fitness evaluations for his employer. These evaluations consisted of a medical history report completed by the train operator and a physical examination completed by a third-party occupational health service medical provider. The last such evaluation before the accident was on October 8, 2021, at which time the train operator was determined to be physically qualified to operate high-speed trains. After the accident, the train operator underwent United States Department of Transportation (DOT) urine drug and alcohol breath tests, which did not detect any tested-for substances.

Submitted by:

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