



National Transportation Safety Board

Railroad Accident Brief

Locomotive Engineer Has Seizure While Operating Train

Accident No.:	DCA14FR010
Location:	Arden, Nevada
Date:	August 7, 2014
Time:	3:10 a.m. Pacific daylight time
Railroad:	Union Pacific Railroad
Property damage:	\$188,000
Injuries:	0
Fatalities:	0
Type of accident:	Collision with building and derailment

The Accident

On August 7, 2014, about 03:10 a.m. Pacific daylight time, Union Pacific Railroad (UP) local train LUM41-06 traveled into a Ken's Foods, Inc., warehouse, ran through the end-of-track bumping post, and then collided with the inside wall while switching cars.¹ The train consisted of 3 locomotives and 14 loaded tank cars. Three Ken's Foods employees were in the warehouse at the time. Estimated damages were \$188,000 and there were no injuries.

When the train crew first arrived at Ken's Foods, they had to pull out six empty tank cars from each of the two tracks to spot the loaded tank cars for unloading.² The loaded tank cars had to be placed in a specific order; however, while spotting the loaded cars, the engineer failed to stop the train before it went through a bumping post and struck the rear inside wall of the building, derailing one of the cars. The engineer said that he was unable to remember anything after a four-car count distance was communicated by the brakeman and he told his supervisor that he had possibly blacked out.³ The engineer had a history of seizures.⁴

The train crew came on duty at the Arden yard on August 6, 2014, at 5:45 p.m. While there, they switched the train's tank cars in preparation for delivery to the Ken's Foods facility. The crew arrived at the Ken's Foods warehouse about 3:00 a.m. The engineer operated the train

¹ All times referenced in this report are Pacific daylight time. A *local train* is a work designation that primarily includes the switching of freight cars at nearby industries.

² *Spotting* is a switching movement where a car is placed at a specific location.

³ A *car count distance* is communicated to give an estimated distance left to travel before stopping, which in this case would have been about 240 feet.

⁴ A *seizure* is abnormal behavior caused by sudden abnormal electrical activity in the brain.

in a shoving movement while the conductor was on the ground near the middle of the train and the brakeman was providing movement instructions to the engineer from a position at the warehouse. The crew was communicating by radio and had been using them while they switched cars in the yard prior to the incident. No radio problems were reported.

The train moved back 255 feet on level terrain into the warehouse. During this movement, event recorder data showed that the engineer had several oscillating locomotive throttle adjustments while traveling at speeds of 1 to 3 mph with the air brakes set.⁵ These oscillating throttle adjustments are normally not seen during typical locomotive operation, and they continued past the point where the train should have stopped. Event recorder data just prior to and during the time of the accident is shown in figure 1. The oscillating throttle adjustments are circled in red.



Revised: 5 August 2015

National Transportation Safety Board

Figure 1. Event data recorder readings.

The train continued moving inside the warehouse, striking the bumping post. The recorder data indicated that the throttle was moved to the off position, but 5 seconds later, as the train continued to move, the throttle was moved to position four. The tank car traveled about

⁵ The tank car air brakes were already set in order to have better control over the train's movement.

30 feet past the bumping post and struck the building wall before stopping. The bumping post was destroyed, the building wall was displaced, and one car derailed. (See figure 2.)

A Ken's Foods employee witnessed the accident. The witness observed the brakeman providing movement instructions by radio. The witness stated the following:

...The alarm went off for the rail roll-up door. I went out to turn off the alarm. The rail service was coming in putting HFCS [high-fructose corn syrup] car on the track closest to the wall. I stopped to watch. The guy spotting cars was there. I heard him on his radio telling the driver that he had about 1 1/2 car lengths left to stop and to slow down. It didn't look like he was slowing down. He was going kind of fast. When he had about half a car left, I heard the guy telling him to stop. He didn't stop. I heard a loud crash, looked, and saw the cable for the harness move and the train still coming into the building. I started to see the roof shake and the wall move....



Figure 2. Tank car shoved through the bumping post (right), into the building, and through the back wall (left).

The Investigation

The engineer was hired by UP on October 13, 2003, and was certified as a remote control operator/conductor on November 4, 2003. His last certification as a conductor was on July 11, 2012. He became certified as an engineer on December 16, 2004. His engineer and conductor certifications were both due to be renewed by March 13, 2016.

In the 12 months prior to the accident, the engineer was observed for stop testing six times.⁶ The last of these tests was on July 28, 2014. No negative comments were noted on his record. On July 21, 2014, a UP manager rode with the engineer to observe his performance and rules compliance. The engineer had an overall score of 100 percent, and there were no negative comments on the engineer's record for that ride. He had three other riding tests conducted in the 12 months prior to the accident. A UP manager also reviewed data from the event recorder of a train the engineer operated on March 19, 2014. This review showed that the engineer met all expectations in the operation of the train.

There were three rules violations in the engineer's employment history. On June 10, 2009, the engineer failed to comply with a safety rule requiring adequate spacing between cars when someone has to go between cars to prepare them for coupling. Less than a week earlier, on June 4, 2009, he was cited for failing to record a complete job briefing in his journal. Also, on March 18, 2004, while employed as a conductor, he was cited for failing to line a derail for the intended route, resulting in the derailment of two cars.⁷

The engineer's work record showed that over the 10 days preceding the accident, he had taken 4 days off and had worked four daytime shifts. On two of those days he worked about 12 hours, on one day he worked 2 1/2 hours, and two days prior to the accident he worked only 30 minutes. The accident occurred about 3:10 a.m., about 9 1/2 hours after he reported for duty on August 6, 2014. Thus, the engineer would have been experiencing a circadian low and may have had some acute fatigue at the time of the accident. However, fatigue does not adequately explain the active, oscillating inputs to the throttle after the train should have stopped.

The postaccident toxicological tests for the three crewmembers of the train were negative for illicit drugs and alcohol. An air quality test within the operating cab of the lead UP locomotive was conducted; no exhaust gasses were found in the cab. No exception was taken to the train's mechanical condition and braking system.

Medical Issues

Epilepsy

Since the engineer did not remember any communication after the four-car count and had a history of seizures, the National Transportation Safety Board (NTSB) conducted an in-depth medical investigation. The engineer first completed a pre-employment medical examination on September 16, 2003. At that time, he reported a history of seizures and prior use of antiseizure medications, but reported that he was not currently taking any prescription medication. Because of his history, the UP medical director at the time requested an evaluation by the engineer's personal physician.⁸ On a form dated October 9, 2003, the primary care physician checked "No"

⁶ Title 49 *Code of Federal Regulations (CFR)* 240.127 requires railroads to examine the performance skills of engineers. This is more commonly known as efficiency testing.

⁷ A *derail* is a device designed to limit the movement of railroad rolling stock into areas where they could cause personal injury or damage to other equipment and structures. In the accident for which he was cited, the engineer failed to remove the derail from its position before allowing train movement.

⁸ Although only vision and hearing testing are required by the Federal Railroad Administration (FRA) for employees in safety-sensitive positions, railroads can require additional medical information and examinations.

to the question, “Any job modifications or restrictions advisable?” and wrote, “Doing well. Last sz [seizure] > 7 years prior and off meds x3 yrs.” The engineer was then hired as a brakeman.

The engineer was known to have epilepsy when he was hired. Epilepsy is defined by having more than one seizure without an identified, temporary cause (such as drug ingestion). Thus, persons with epilepsy are very likely to have another seizure, but it is difficult to predict when or how often. UP chose to hire the engineer based on a recommendation from a primary care physician.

On November 13, 2008, the engineer was removed from service after coworkers witnessed him have what was later determined to be a tonic-clonic seizure in the crew area of a yard.⁹ Medical records indicated that no injuries or neurologic deficits were identified, although the engineer was initially described as “mildly confused.” Discharge instructions included, “No driving or operating machinery.”

On November 18, 2008, the engineer was evaluated by the first of two neurologists. The UP personnel records include a copy of the history and physical evaluation from this neurologist which stated, “five days ago he was sleep deprived and food deprived and had a grand mal seizure. He lost consciousness. He became stiff and bit his tongue. This lasted about 2 minutes.” It continues with the details, “Current medications: None” and “Social history: he is a railroad engineer/conductor.” Recommendations included “No driving”, and the engineer was started on Keppra[®]. Keppra[®] is the brand name for levetiracetam, an antiseizure medication. It is associated with drowsiness and sometimes causes trouble with coordination; patients are warned “not to drive or operate machinery until they have gained sufficient experience on Keppra[®] to gauge whether it adversely affects their ability to drive or operate machinery.”¹⁰ The UP medical record also contains a note from a follow-up visit to this same neurologist on December 2, 2008, which reports that the engineer was using 250 milligrams of Keppra[®] twice a day and “doing well” and includes a copy of the engineer’s Keppra[®] level dated February 13, 2009.

The medical records obtained from the first neurologist contain a letter with a fax cover sheet dated February 20, 2009. The letter is from UP to the neurologist and describes the safety-sensitive nature of the engineer’s work. Included with this faxed letter is a work-release form filled out by the neurologist in which the neurologist wrote, “released to work – safety sensitive position – No driving – No working at heights – No working with dangerous machinery – must sleep 8 hours/night. No driving trains!” However, there is no evidence this work-release form was sent to UP, and it is not present in the UP medical records. There were no further visits by the engineer to the first neurologist.

⁹ *Tonic-clonic* and *grand mal* are two phrases that describe the same type of seizures where the symptoms are loss of consciousness and violent, rhythmic muscle contractions. Persons with these kinds of seizures are often described as “grunting” and “foaming at the mouth.”

¹⁰ Drugs.com. 2015. “Keppra-FDA prescribing information, side effects, and uses.” Accessed June 24, 2015. <http://www.drugs.com/pro/keppra.html>.

The next medical information in the UP record is a letter from a second neurologist dated March 25, 2009, which indicated the engineer was initially evaluated on February 26, 2009, following a seizure in 2008. The letter stated the following:

It was my clinical impression that his seizure episode was due to a combination of severe sleep deprivation and associated hypoglycemia ... I discussed in detail with the patient ways to adjust his lifestyle ... to avoid a recurrent spell. ... When the patient was seen in follow up on March 10, 2009, he had already made significant changes in his daily activities as previously recommended. ... At the present time, [the engineer] is able to return to work full duties, with no restrictions, in a safety-sensitive position.

No comment is made in this letter as to whether or not the engineer was using any medication. Although the UP medical file contains a letter from the second neurologist that describes two visits by the engineer, the neurologist's office reported it was unable to locate any records related to the engineer, despite a subpoena and multiple phone calls from the NTSB.

By April 3, 2009, the engineer had undergone a return-to-work medical evaluation by UP and was placed in full working status without restrictions, and continued to work until this accident.

Following the August 7, 2014, accident, an investigating supervisor interviewed the engineer. The following are excerpts from his note to the UP medical team:

“[The engineer] recalls all movements in detail with the exception of the final movement of 4 cars lengths to spot cars into the building. He recalls stopping for a switch for one minute which the event recorder confirms. The received instructions to move back 4 cars and then recalls nothing else following that until he crashed thru [sic.] the concrete wall of the warehouse. I questioned him and he cannot figure out why he cannot recall anything in the final 255 foot movement. I was able to gather the following from the interview and [another supervisor] was also able to get the same information out of the employee.

He says it's hard to dial in what happened as he does not recall. He mentioned blacking out. He was not tired nor did he fall asleep as he was rested.”

Over the weeks following the accident, the engineer underwent evaluations by a cardiologist and a neurologist. The cardiologist did not identify a cardiac cause of the event. The neurologist performed a series of tests including magnetic resonance imaging (MRI) and an awake electroencephalogram (EEG).¹¹ The engineer then had a 48-hour video ambulatory EEG which revealed “abnormalities in drowsiness and deeper stages of sleep specifically high amplitude sharp and slow transients emanating exclusively from the right temporal lobe.” The engineer was given a diagnosis of seizure disorder, and the antiseizure medication phenytoin

¹¹ The *EEG* is a measure of brain waves. It is a readily available test that provides evidence of how the brain functions over time. The EEG is used in the evaluation of brain disorders. Most commonly it is used to show the type and location of the activity in the brain during a seizure. http://www.emedicinehealth.com/electroencephalography_eeg/article_em.htm. Accessed August 21, 2015.

(commonly marketed with the name Dilantin[®]) was prescribed. NTSB investigators could not determine from the available medical evidence whether the engineer was taking the appropriate dose of Dilantin[®] at the correct time.

The NTSB concludes that the engineer experienced a seizure at the time of the accident, based on his history of recurrent tonic-clonic seizures (epilepsy), the clear indication of a seizure disorder on the postaccident EEG, his inability to recall events during the accident, and the oscillating movements of the throttle that continued when the train should have been stopped.

Using all of this information, UP performed a postaccident fitness-for-duty evaluation of the engineer which included a record review by an outside neurologist. UP determined that the engineer cannot be cleared to return to work as a locomotive engineer until he has been seizure free and off antiseizure medications for a minimum of 10 years. The UP medical director stated that, previously, the standard practice was to wait 6 months without a seizure and require clearance by a neurologist before a return to work. Between 2009 and 2014, this standard practice was changed to 10 years off medication and without a seizure. This practice is consistent with the Federal Motor Carrier Safety Administration (FMCSA) recommendations for commercial drivers. The NTSB concludes that there may be UP employees in safety-sensitive positions with epilepsy who were hired before 2014 using the less-stringent standard for seizures. Therefore, the NTSB recommends that UP identify and review the records of all employees in safety-sensitive positions who have any history of seizures and ensure that the current UP standard of fitness for duty is met by each employee.

The FRA requires medical certification exams triennially on railroad employees in safety-sensitive positions, including engineers.¹² However, the only required examinations are tests of visual acuity, color vision, and hearing. The FRA does not require these employees to report their medical history, provide a list of prescribed or over-the-counter medications being used, have their vital signs recorded, or undergo a physical exam. All other modes of transportation require all of these components for medical certification of similar employees.

Medical standards in each of the other modes of commercial transportation identify a broad list of specific medical conditions that are disqualifying for operators, a method for operators with those conditions to apply for a waiver or special issuance medical certification, and criteria that must be met for a waiver or special issuance to be granted, often including more frequent certification examinations for conditions that have the potential to deteriorate.¹³ For merchant mariners, these standards can be found at Title 46 *Code of Federal Regulations (CFR)* 10.215 and are further described in *Navigation and Vessel Inspection Circular (NVIC)* 04-08.¹⁴ In aviation, the standards are found in 14 *CFR* 67 and are further described in the *Guide for*

¹² Title 49 *CFR* 240.217(c).

¹³ The Federal Transit Administration does not have medical certification regulations. However, bus drivers are required to maintain a commercial driver's license, which requires a comprehensive physical examination; and many transit agencies require similar medical clearance for their rail operators.

¹⁴ United States Coast Guard, *Navigation and Vessel Inspection (NVIC)* 04-08 "Medical And Physical Evaluation Guidelines For Merchant Mariner Credentials" COMDTPUB 16700.4 (Washington, DC: United States Coast Guard, 2008).

Aviation Medical Examiners.¹⁵ For commercial drivers, the medical standards are found at 49 *CFR* 391.41, and additional recommendations are made in the *FMCSA Medical Examiner Handbook*.¹⁶ Based on these references, operators with seizures are disqualified in every other mode of commercial transportation, but they may be eligible for a waiver, shorter-term certificate, or special issuance if they meet specific criteria.

Although UP required a pre-employment physical exam, other railroads may not have this requirement or may apply different fitness-for-duty standards. The NTSB concludes that FRA medical standards for employees in safety-critical positions are not as robust as those required by the other Department of Transportation modal agencies and are inadequate to ensure the fitness for duty of railroad employees in safety-sensitive positions. The NTSB recommends that the FRA enhance its medical standards by identifying a list of medical conditions that disqualify employees for safety-sensitive positions because of the conditions' potential for negatively affecting rail safety.

Medication Use

In addition to the engineer's seizures, he was treated for chronic neck and back pain. In October 2010, the engineer applied for intermittent leave under the Family and Medical Leave Act [Title 29 *United States Code (USC)* Chapter 28, Subchapter I] (FMLA) for his "own serious medical condition." UP required additional information, and the engineer's medical file contains a copy of a form filled out by the treating physician dated October 26, 2010. The physician listed the problem as a spinal condition which required "ongoing medication management regimen with periodic therapy and possible surgical consultation." Although the form asks whether or not medications were prescribed, regulations implementing the FMLA prevent employers from asking for details of the medications being used as part of the FMLA process.¹⁷

Medical records from January 1, 2010, through September 2014 were obtained from the engineer's pain treatment physician regarding the care of his chronic back and neck pain. These records are extensive and document nearly monthly visits to the pain treatment center, as well as several visits for outpatient procedures. The medical records also documented the engineer's profession. The records indicate that the engineer was routinely prescribed high-dose opioid analgesic medication, either oxycodone or hydrocodone, throughout this period. Each time, he received 112–120 tablets with instructions to take a tablet every 4–6 hours as needed and with the limitation, "not to exceed 4 tablets per day." According to the record, the engineer obtained a new prescription on July 30, 2014, for 112 tablets of hydrocodone with the same dosing instructions.

¹⁵ Federal Aviation Administration. 2015. "Guide for Aviation Medical Examiners." Accessed June 24, 2015. http://www.faa.gov/about/office_org/headquarters_offices/avs/offices/aam/ame/guide/media/guide.pdf.

¹⁶ Federal Motor Carrier Safety Administration. 2014. "FMCSA Medical Examiner Handbook." Accessed March 18, 2014. <http://www.fmcsa.dot.gov/regulations/medical/fmcsa-medical-examiner-handbook.pdf>. Note: This page is no longer available. FMCSA is in the process of revising the handbook.

¹⁷ Title 29 *CFR* 825.306(a) and (b), 825.307, and 825.308.

Oxycodone and hydrocodone are opioid analgesics available by prescription.¹⁸ Both oxycodone and hydrocodone carry the following warning: “may impair mental and/or physical ability required for the performance of potentially hazardous tasks (for example, driving, operating heavy machinery).”¹⁹

The NTSB obtained records from the engineer’s FRA-mandated urine drug tests. The engineer underwent pre-employment drug testing in 2003, ten random tests, one reasonable cause test, and a postaccident test on the date of the accident. These urine drug tests were all negative. Based on 49 *CFR* 40.87, the routine, random urine drug testing required for railroad engineers does not include testing for either oxycodone or hydrocodone and would therefore not have identified the engineer’s use of these medications. FRA regulations require postaccident drug and alcohol testing of safety-sensitive railroad employees. A urine sample is tested first, and if there is any result above the reporting cut-off level, a blood sample is then tested. The engineer’s urine tests were negative for both hydrocodone and oxycodone. However, depending on when the drugs were taken, when the accident happened, how long it took to obtain the specimens, and how diluted the urine sample was, a person could be impaired by either of these drugs at the time of the accident and still have a negative urine drug test.

Commercial pilots, mariners, and drivers are required to report all of their medications each time they obtain medical certification. Chronic, daily opioid use is disqualifying in the aviation and marine modes. For commercial drivers, chronic opioid use is normally disqualifying but may be allowed if reviewed by a medical examiner certified by the FMCSA. Under 49 *CFR* 219.103(a)(1), railroad personnel in safety-sensitive positions may use controlled substances as long as

the treating medical practitioner or a physician designated by the railroad has made a good faith judgment, with notice of the employee’s assigned duties and on the basis of the available medical history, that use of the substance by the employee at the prescribed or authorized dosage level is consistent with the safe performance of the employee's duties.

However, the FRA regulations allow but do not require railroads to have their employees report medication use.²⁰

Since UP does not ask about medications during triennial medical examinations and could not ask the engineer what medications he had been prescribed in relation to his FMLA request, UP was unaware of what medications the engineer was prescribed since his pre-employment physical. The NTSB concludes that UP was unable to evaluate the safety hazards of the engineer’s controlled substance opioid medication use because it does not require its employees to report such medication use. The NTSB therefore recommends that UP assess the

¹⁸ Oxycodone is sold under the names Percocet®, Endocet®, Roxicodone®, and Roxicet®. Hydrocodone is sold under the names Lortab® and Norco®.

¹⁹ Federal Aviation Administration. 2014. “CAMI Toxicology Drug Information for: Hydrocodone.” Accessed December 8, 2014. <http://www.jag.camii.jccbi.gov/toxicology/DrugDetail.asp?did=73>. Federal Aviation Administration. 2014. “CAMI Toxicology Drug Information for: Oxycodone.” Accessed December 8, 2014. <http://jag.camii.jccbi.gov/toxicology/DrugDetail.asp?did=94>.

²⁰ Title 49 *CFR* 219.103(b).

safety of all medications being used by employees in safety-sensitive positions each time an employee undergoes a medical evaluation.

As stated earlier, the FRA does not require railroads to obtain medical information (such as a history of medical conditions, symptoms, or a list of current medications) or to examine employees in safety-sensitive positions other than to test their vision and hearing every 3 years (in accordance with 49 *CFR* 240.121). In contrast, all other modes of commercial transportation require operators to have comprehensive medical evaluations, including a review of medical conditions and symptoms, a medication list, and a complete physical examination at regular intervals. In addition, other modes specify medications that may not be used by operators. The engineer in this accident was medically certified at least twice (in 2010 and 2013) during the time he was prescribed opioids, but no evaluation of the hazards created by these medications was performed, and the UP medical system conformed to or exceeded the FRA's regulations. The NTSB concludes that the current FRA medical standards are insufficient to protect the rail system from safety hazards created by certain medications. Therefore, the NTSB recommends that the FRA enhance its medical standards by identifying a list of medications whose use disqualifies employees for safety-sensitive positions because of the medications' potential for negatively affecting rail safety.

The NTSB first highlighted the absence of comprehensive medical standards for train crewmembers more than 12 years before this accident. As a result of NTSB safety recommendations following the head-on collision of two freight trains in Clarkston, Michigan, in 2001 (R-02-24 through R-02-26), the FRA created a Railroad Safety Advisory Committee (RSAC) working group on medical standards.²¹ When that group could not reach consensus after several years, it was disbanded and no changes were made to medical certification standards. The NTSB investigated four additional railroad accidents between 2011 and 2013 in which medical conditions caused or contributed to the accident.²² Despite these accidents and multiple additional recommendations from the NTSB, the FRA has taken no further action to address comprehensive medical evaluations. Following the Goodwell, Oklahoma, accident, where a key component of the probable cause was the predictable deterioration of the engineer's eyesight as a result of a chronic condition, glaucoma, the NTSB issued the following safety recommendation to the FRA:

Develop medical certification regulations for employees in safety-sensitive positions that include, at a minimum, (1) a complete medical history that includes specific screening for sleep disorders, a review of current medications, and a

²¹ National Transportation Safety Board, *Collision of Two Canadian National/Illinois Central Railway Trains Near Clarkston Michigan, November 15, 2001*, RAR-02/04 (Washington, DC: National Transportation Safety Board, 2002).

²² National Transportation Safety Board, *Collision of BNSF Coal Train With the Rear End of Standing BNSF Maintenance-of-Way Equipment Train, Red Oak, Iowa, April 17, 2011*, RAR-12/02 (Washington, DC: National Transportation Safety Board, 2012). National Transportation Safety Board, *Head-On Collision of Two Union Pacific Railroad Freight Trains near Goodwell, Oklahoma, June 24, 2012*, RAR-13/02 (Washington, DC: National Transportation Safety Board, 2013). National Transportation Safety Board, *Collision of Union Pacific Railroad Freight Train with BNSF Railway Freight Train, Chaffee, Missouri, May 25, 2013*, RAR-14/02 (Washington, DC: National Transportation Safety Board, 2014). National Transportation Safety Board, *Metro-North Railroad Derailment, Bronx, New York, December 1, 2013*, RAB-14/12 (Washington, DC: National Transportation Safety Board, 2014).

thorough physical examination; (2) standardization of testing protocols across the industry; and (3) centralized oversight of certification decisions for employees who fail initial testing; and consider requiring that medical examinations be performed by those with specific training and certification in evaluating medication use and health issues related to occupational safety on railroads. (R-13-21)

The recommendation is currently classified *Open—Unacceptable Response*.

The NTSB concludes that if the FRA had implemented more comprehensive medical certification standards based on prior NTSB recommendations, UP would have been required to obtain and review the medications being used by the engineer in this accident. The NTSB therefore reiterates recommendation R-13-21 to the FRA.

Finally, the NTSB recognizes that in some cases, there are effective treatments for medical conditions that would otherwise be potentially disqualifying and some otherwise disqualifying medications may mitigate conditions so effectively that, when well-controlled, such situations do not pose a significant safety hazard. All other modes of transportation have standards that allow operators with disqualifying conditions to work as long as the medical condition remains well-controlled and medication use is routinely evaluated. The NTSB concludes that successful medical certification systems in other modes have demonstrated it is possible to develop standards that would identify employees who pose the greatest safety risks due to a medical condition while still allowing many railroad employees in safety-sensitive positions with otherwise disqualifying conditions or medications to continue to work. The NTSB therefore recommends that once disqualifying medical conditions and medications have been identified, the FRA should develop specific criteria (such as standards for medical test results) that may allow employees who have been disqualified but have been determined by a subsequent, individualized assessment to pose no increased danger to rail safety to obtain medical certification.

Probable Cause

The National Transportation Safety Board determines that the probable cause of the accident was the engineer's failure to stop train LUM41-06 before it collided with the bumping post and the inside wall of the building because he was incapacitated by a seizure. Contributing to the accident was the Federal Railroad Administration's failure to establish medical certification standards, other than hearing and vision criteria, for railroad employees in safety-sensitive positions.

New Recommendations

As a result of its investigation, the National Transportation Safety Board makes the following new safety recommendations:

To Union Pacific Railroad:

Identify and review the records of all employees in safety-sensitive positions who have any history of seizures, and ensure that the current Union Pacific Railroad standard of fitness for duty is met by each employee. (R-15-33)

Assess the safety of all medications being used by employees in safety-sensitive positions each time an employee undergoes a medical evaluation. (R-15-34)

To the Federal Railroad Administration:

Enhance your medical standards by identifying a list of medical conditions that disqualify employees for safety-sensitive positions because of the conditions' potential for negatively affecting rail safety. (R-15-35)

Enhance your medical standards by identifying a list of medications whose use disqualifies employees for safety-sensitive positions because of the medications' potential for negatively affecting rail safety. (R-15-36)

Once disqualifying medical conditions and medications have been identified, develop specific criteria (such as standards for medical test results) that may allow employees who have been disqualified but have been determined by a subsequent, individualized assessment to pose no increased danger to rail safety to obtain medical certification. (R-15-37)

Reiterated Recommendation

The National Transportation Safety Board reiterates the following safety recommendation:

To the Federal Railroad Administration:

Develop medical certification regulations for employees in safety-sensitive positions that include, at a minimum, (1) a complete medical history that includes specific screening for sleep disorders, a review of current medications, and a thorough physical examination; (2) standardization of testing protocols across the industry; and (3) centralized oversight of certification decisions for employees who fail initial testing; and consider requiring that medical examinations be performed by those with specific training and certification in evaluating medication use and health issues related to occupational safety on railroads. (R-13-21)

For more details about this accident, visit www.nts.gov/investigations/dms.html and search for NTSB accident ID DCA14FR010.

BY THE NATIONAL TRANSPORTATION SAFETY BOARD

CHRISTOPHER A. HART
Chairman

ROBERT L. SUMWALT
Member

T. BELLA DINH-ZARR
Vice Chairman

EARL F. WEENER
Member

Adopted: October 28, 2015

The NTSB has authority to investigate and establish the facts, circumstances, and cause or probable cause of a railroad accident in which there is a fatality or substantial property damage, or that involves a passenger train. (Title 49 *United States Code (USC)* Section 1131 - *General authority*)

The NTSB does not assign fault or blame for an accident or incident; rather, as specified by NTSB regulation, “accident/incident investigations are fact-finding proceedings with no formal issues and no adverse parties . . . and are not conducted for the purpose of determining the rights or liabilities of any person.” Title 49 *Code of Federal Regulations*, Section 831.4. Assignment of fault or legal liability is not relevant to the NTSB’s statutory mission to improve transportation safety by investigating accidents and incidents and issuing safety recommendations. In addition, statutory language prohibits the admission into evidence or use of any part of an NTSB report related to an accident in a civil action for damages resulting from a matter mentioned in the report. 49 *USC* 1154(b).
