



National Transportation Safety Board

Washington, D.C. 20594

Safety Recommendation

Date: November 27, 2002

In reply refer to: R-02-24 through -26

Honorable Allan Rutter
Administrator
Federal Railroad Administration
1120 Vermont Avenue, N.W.
Washington, D.C. 20590

On November 15, 2001, about 5:54 a.m., eastern standard time, Canadian National/Illinois Central Railway (CN/IC) southbound train 533 and northbound train 243 collided near Clarkston, Michigan. The collision occurred on the CN/IC Holly Subdivision at a switch at the south end of a siding designated as the Andersonville siding. Train 533 had been operating in a southward direction through the siding and was traveling at 13 mph when it struck train 243. Signal 14LC at the turnout for the siding displayed a stop indication, but train 533 did not stop before proceeding onto the mainline track. Train 243 was operating northward on a proceed signal on the single main track about 30 mph when the trains collided. Both crewmembers of train 243 were fatally injured; the two crewmembers of train 533 sustained serious injuries. The total cost of the accident was approximately \$1.4 million.¹

The National Transportation Safety Board determined that the probable cause of the November 15, 2001, CN/IC accident in Clarkston, Michigan, was the train 533 crewmembers' fatigue, which was primarily due to the engineer's untreated and the conductor's insufficiently treated obstructive sleep apnea.

The Safety Board is concerned that in this case, both crewmembers of train 533 had been told by their private physicians that they had (or likely had) obstructive sleep apnea (OSA), but neither employee informed the CN/IC of his potentially incapacitating condition. Further, the CN/IC did not detect the conditions through other means, such as medical examinations.

The company physical examinations performed for the CN/IC did not include questions about sleeping disorders or other chronic problems that might cause performance-impairing fatigue.

Federal Railroad Administration (FRA) regulations require that engineers be certified as qualified locomotive engineers at least once every 3 years.² The medical examination, which is a

¹ For additional information, see forthcoming Railroad Accident Report—*Collision of Two Canadian National/Illinois Central Railway Trains near Clarkston, Michigan, November 15, 2001* (NTSB/RAR-02/04).

² See 49 Code of Federal Regulations 240.201.

prerequisite to engineer certification, focuses on specific vision and hearing acuity standards.³ FRA regulations do not provide guidance regarding general or specific medical conditions that should be considered in the course of the examination. Many railroads use questionnaire-type forms filled out by the employee in conducting these examinations.

No standard medical examination form is used in the U.S. railroad industry. The Safety Board reviewed a sample of the medical examination forms used by Class I railroads and found that the typical medical examination form does not include questions regarding sleep problems. Similar to the other railroad forms the Safety Board reviewed, the form used by the CN/IC had no questions that specifically addressed sleeping problems or disorders. The Safety Board next evaluated the medical examination forms used in other modes of transportation to determine the extent to which they request medical information about sleep disorders.

In the maritime industry, the U.S. Coast Guard published a Navigation and Vessel Inspection Circular (NVIC) in 1998 to provide guidelines for evaluating the physical condition of a merchant marine license (or document) applicant. Among other guidance, the NVIC prompts the examining physician to ask the applicant about various sleep problems, including narcolepsy and somnambulism, and any other condition that could result in performance deterioration.

A driver undergoing a physical examination for commercial motor vehicle licensing must complete the health history section of the Federal Motor Carrier Safety Administration's (FMCSA's) medical examination form, and the medical examiner is encouraged to discuss with the driver the severity of any problems the driver reports. The form's history section requests that the driver answer "yes" or "no" to a variety of medical condition questions. Any "yes" response requires further clarification by the driver, including the onset date, diagnosis, treating physician's name and address, any current limitation, and any prescribed or over-the-counter medications used regularly or recently. The history section includes a question specifically inquiring about sleep problems, asking the driver if he or she has experienced "Sleep disorders, pauses in breathing while asleep, daytime sleepiness, loud snoring."

For the aviation industry, guidance to Federal Aviation Administration Aviation Medical Examiners in the Fall 2001 Federal Air Surgeon's Bulletin notes that

[A]s for the medical certification of sleep apnea, the [Aviation Medical Examiner] should defer the case to the Regional Flight Surgeon or the [Aerospace Medicine Certification Division].... If... symptoms are persistent or [treatment is] not completely successful, we will require a Maintenance of Wakefulness Test....

The Safety Board considers that the U.S. rail industry, as well as the marine, highway, and aviation transportation modes, should take into account the serious effects that sleeping disorders could have on the performance of its employees who fulfill safety-sensitive duties. The Safety Board concluded that because the U.S. rail industry does not have a comprehensive medical examination form that includes questions about sleeping disorders, railroads may find it

³ See 49 *Code of Federal Regulations* 240.121.

difficult to identify employees at risk for fatigue impairment due to the effects of sleeping disorders. Therefore, the Safety Board believes that the FRA should develop a standard medical examination form that includes questions regarding sleep problems and require that the form be used, pursuant to 49 *Code of Federal Regulations* Part 240, to determine the medical fitness of locomotive engineers; the form should also be available for use to determine the medical fitness of other employees in safety-sensitive positions.

Aside from requiring regular engineer certification (involving medical examination), Federal regulations provide little guidance concerning when, how, or if rail employees should report medical conditions such as sleeping disorders to their railroads. No Federal regulation requires that a railroad employee notify the railroad of a medical condition, even if the employee considers that the condition could affect his or her performance. (Although not a Federal regulation, many railroads require employees in safety-sensitive positions to notify a medical official of their use of prescribed or over-the-counter medications.)

No Federal regulation for the railroad industry requires a physician to report a patient's medical conditions to his employer. Federal regulations do require locomotive engineers to report deteriorating hearing and vision to company officials whenever deterioration may occur,⁴ but neither the engineers nor their private physicians are required to report a deterioration of any other medical condition that might affect their performance. Consequently, unless the railroad employee is diagnosed with a particular condition during his company's required physical examination or voluntarily provides the railroad with medical information diagnosed by a private physician, the railroad may never learn of a safety-critical employee's potentially performance-impairing medical condition.

The CN/IC, in a letter to the Safety Board, stated:

Unfortunately, under current laws designed to protect privacy rights, the CN/IC cannot demand that a person divulge all medical issues if the person and the physician see no reason that the condition would affect the ability of the employee to perform their job. CN/IC is at the mercy of the employee and their doctor to provide us with critical information. Most often, employees afraid of losing their jobs will not voluntarily communicate protected, and/or privileged medical information.

In the rail transit industry, the Safety Board is aware of at least one company, the Southeastern Pennsylvania Transit Authority (SEPTA), which has implemented a program under which its operating employees bring medical conditions requiring the use of prescribed medications to the attention of SEPTA's medical department. Under the SEPTA program, if the employee has been prescribed a medication that may affect the employee's performance, he or she is required to report such medication use to the SEPTA medical department, using a form provided by SEPTA that must be completed by the physician. The form is primarily designed to report medication use, but it does have a section in which the physician is to provide the patient's

⁴ See 49 *Code of Federal Regulations* 240.121.

diagnosis, enabling the SEPTA medical department to determine whether the condition itself may affect the employee's performance of safety-sensitive duties.

Although the SEPTA program is a positive step with respect to ensuring that transportation systems are notified of significant medical issues affecting their personnel who fulfill safety-sensitive duties, the program's narrow focus on medications limits its value. In the case of the Clarkston accident, for example, because people with OSA typically are not prescribed medications for this condition, neither the train 533 engineer nor the conductor would likely ever have been required, under the SEPTA program, to report this condition. Therefore, had a reporting program identical to SEPTA's been implemented by the CN/IC, the railroad would have been no more likely to have been informed of the crewmembers' OSA.

Unlike U.S. regulations concerning medical reporting within the railroad industry, Canadian regulations require a physician or optometrist to immediately disclose to the company any potentially hazardous medical condition of a railroad employee that might affect the employee's performance. In September 2000, Bill C-58 of the Canadian Railway Safety Act, which concerns elements of the medical examinations for employees in safety-critical operations, became effective. The Canadian regulations, in part, require physicians and optometrists to notify the railway company's medical adviser if an employee has a medical condition that could be a threat to safe railway operations.

Had the reporting system now being used in Canada been in effect in the United States, the physicians who treated the two train 533 crewmembers would have been required to report to the CN/IC any condition that they considered posed a threat to safe railway operations. Consequently, the crewmembers' physicians might have been more likely to inform the CN/IC that the two train 533 crewmembers had (or likely had) OSA.

The Clarkston accident demonstrates that a medical condition such as OSA, which neither the employee nor the employee's physician is currently required to report to the railroad, can impair the performance of, or even incapacitate, an employee responsible for safety-sensitive duties. OSA is widely recognized as a chronic condition that can cause fatigue and excessive daytime sleepiness. Research has been conducted analyzing the impact of OSA on the health, sleep, and alertness of railroad workers.⁵ With respect to rail safety, the research found that those railroad workers with OSA indications reported that they sometimes lost concentration and might have missed track signals. In the Clarkston accident, a train engineer with indications of OSA and a conductor with less than optimally treated OSA did miss a stop signal, resulting in a fatal collision. Consequently, the Safety Board concluded that because current Federal regulations do not require railroad employees who carry out safety-sensitive duties to report to the railroad any medical condition that might result in incapacitation or significant impairment, such employees are less likely to notify their railroads about medical conditions that could negatively affect their performance of safety-critical tasks.

⁵ A. Aguirre, A. Heitmann, U. Trutschel, K. Mathews, R. Khuri, P. Gerber, and M. Moore-Ede, "Sleep Apnea as a Risk Factor in Railroad Operations." Abstract contained in *Shiftwork International Newsletter*, Vol. 14, No. 1, May 1997. The study is unpublished.

The Safety Board notes that medical conditions that might lead to incapacitation or significant impairment cover a broad range of disorders, including, for example, heart disease, seizure disorders, insulin-dependent diabetes, migraine headaches, psychiatric disorders, severe asthma, etc., as well as fatigue-related conditions such as sleeping disorders and chronic fatigue. Consequently, for a railroad to be able to proactively safeguard its operations, the railroad must be notified whenever its employees in safety-sensitive positions have any such medical condition at a level of severity likely to incapacitate or significantly affect the performance of the employee. Therefore, the Safety Board believes that the FRA should require that any medical condition that could incapacitate, or seriously impair the performance of, an employee in a safety-sensitive position be reported to the railroad in a timely manner.

Federal regulations discuss the role of a treating medical practitioner or a physician designated by the railroad in making a good faith judgment of whether employees taking prescribed or over-the-counter medications are fit to perform their assigned duties safely.⁶ These regulations allow a company to disqualify an employee from performing duties if the medical practitioner or designated railroad physician determines that the medications could affect the employee's ability to perform the job safely. However, FRA guidance regarding medical certification is limited to regulations concerning medications and minimum vision and hearing standards. (The vision and hearing minimum standards relate only to locomotive engineers.)

No FRA guidance addresses medical conditions affecting railroad employees. No regulations require the railroad's designated medical physician to disqualify an employee from performing duties because of a particular medical condition (other than those conditions that might affect vision or hearing or involve medication use), regardless of whether the condition could potentially incapacitate the employee or impair the employee's performance.

In this accident, the train 533 crewmembers were incapacitated at least in part due to the effects of the medical condition OSA, which their private physicians had either detected or strongly suspected. Neither employee provided this medical information to the CN/IC, nor did their physicians notify the CN/IC. However, under current Federal regulations, even had the CN/IC-designated medical physician been aware of the crewmembers' OSA, the CN/IC would not have been required to evaluate the crewmembers for fitness for duty because of their OSA. That is, because the train 533 crewmembers were not taking medications for OSA and because it did not affect their hearing or vision, this condition would not, under Federal law, necessarily have disqualified them from operating a train. Under current regulations, therefore, railroad companies decide for themselves if an employee's existing medical condition will be evaluated to determine whether the crewmember can safely perform his or her duties. The Safety Board concluded that limiting a railroad's required medical regulation of employees responsible for safety-sensitive duties to issues of vision, hearing, and medication use fails to address a range of medical conditions that may negatively affect employee performance.

As the Clarkston accident indicated, employees who carry out safety-sensitive duties and who have potentially incapacitating or performance-impairing medical conditions (such as OSA) may need to be medically assessed before they can be considered fit for duty. Therefore, the

⁶ See 49 *Code of Federal Regulations* 219.103.

Safety Board believes that the FRA should require that, when a railroad becomes aware that an employee in a safety-sensitive position has a potentially incapacitating or performance-impairing medical condition, the railroad prohibit that employee from performing any safety-sensitive duties until the railroad's designated physician determines that the employee can continue to work safely in a safety-sensitive position.

Therefore, the National Transportation Safety Board makes the following safety recommendations to the Federal Railroad Administration:

Develop a standard medical examination form that includes questions regarding sleep problems and require that the form be used, pursuant to 49 *Code of Federal Regulations* Part 240, to determine the medical fitness of locomotive engineers; the form should also be available for use to determine the medical fitness of other employees in safety-sensitive positions. (R-02-24)

Require that any medical condition that could incapacitate, or seriously impair the performance of, an employee in a safety-sensitive position be reported to the railroad in a timely manner. (R-02-25)

Require that, when a railroad becomes aware that an employee in a safety-sensitive position has a potentially incapacitating or performance-impairing medical condition, the railroad prohibit that employee from performing any safety-sensitive duties until the railroad's designated physician determines that the employee can continue to work safely in a safety-sensitive position. (R-02-26)

The Safety Board also issued one safety recommendation to the Canadian National Railway. In your response to the recommendations in this letter, please refer to Safety Recommendations R-02-24 through -26. If you need additional information, you may call (202) 314-6177.

Acting Chairman CARMODY and Members HAMMERSCHMIDT, GOGLIA, and BLACK concurred in these recommendations.

By: Carol J. Carmody
Acting Chairman