

# **Locomotive Event Recorders**

## **Seeking a Balance of Safety and Privacy in the Real World of Railroad Operations**

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**Brotherhood of Locomotive Engineers  
June 4, 2003**

# **Locomotive Engineers' Perspective**

## **History**

**Paper tapes (speed tapes)**

**8-track magnetic tape event recorder**

**Microprocessor solid state event recorder**

# Today's 49 CFR Part 229.5 requirements

**Event recorder means a device, designed to resist tampering...**

**train speed**

**direction of motion**

**time**

**distance**

**throttle position**

**brake applications and operations (including train brake, independent brake, and, if so equipped, dynamic brake applications and operations)**

**cab signal aspect(s),**

**48 hours of data**

# Today's Solid State Event Recorders

- **Eliminated many recording and memory storage problems.**
- **Can record many elements.**

**Some examples:**

# Microprocessor event recorder elements

**Time**

**Date**

**Speed**

**Distance**

**Traction Motor Current**

**Brake Pipe**

**Brake Cylinder**

**Equalizing Reservoir**

**DB**

**Throttle**

**Bell**

**Horn**

**Bail**

**Reverser**

**PCS**

**EIE**

**Sand**

**Wheel Sand**

**EOT Pressure**

**EOT Events**

**ATC**

**Cab Signal**

**Generator Field**

**Alerter Reset**

# More recordable events

**Alerter Magna Valve**  
**Cab Signal Magna Valve**  
**Engine run**

**ATCS Stop**

**Speed Control**  
**(Cruise control)**  
**Oil Pressure**  
**Oil Temp**

**Water Temp**  
**Air Temp**  
**Main Gen**  
**Volts**  
**Main Gen**  
**Amps**

**LSL**  
**Wheel Slip**

# **So... how is all of this data used?**

- **Accident investigation (NTSB, FRA, Railroads)**
- **Disciplinary action against locomotive engineers and other crew members (Railroads)**
- **Certification and de-certification action under 49 CFR Part 240 (Railroads as required by FRA)**
- **Operational monitoring observations and unannounced operating rules compliance tests (Railroads and as permitted by FRA)**

# **More uses of locomotive event recorder data**

- **Locomotive systems monitoring (Railroads)**
- **Locomotive performance reporting (Railroads)**
- **Locomotive engineer performance measured in real time or near real time via remote download of data (Railroads)**

# **NTSB Recommendation for New Data**

**As a result of the Silver Springs, MD collision of MARC and Amtrak trains on February 16, 1996 the NTSB issued recommendation R-97-9 to the Federal Railroad Administration.**

**“Amend 49 CFR Part 229, to require the recording of train crewmember’s voice communications for exclusive use in accident investigation and with appropriate limitations on the public release of such recordings.”**

# Rail Safety Advisory Committee (RSAC) on Event Recorders

## Purpose

To Enhance rail safety through any appropriate revision of and/or addition to existing event recorder requirements to improve accident investigation, reconstruction, and analysis methodologies. **To consider, and as appropriate act upon, NTSB recommendation for locomotive cab voice recorders. (Response to R-97-9)**

# Voice Recorders

- **Meeting with industry partners to discuss concerns.**
- **Determined there was a significant lack of protection from disclosure of data to the public (no protection as found in aviation).**
- **Major differences between use of the locomotive event recorder data as compared to digital flight data recorders and cockpit voice recorders**

# Voice Recorders

**There are significant operational differences between railroads and aviation.**

- **Survivors and eye witnesses**

- **Locomotive event recorders provide a great deal of information**

- **Data may come from other sources such as, taped radio conversations, signal recordings, reenactment, and simulation**

# **BLE Concerns About Privacy and Fairness**

- **Protection from personal or criminal liability**
- **Protection from misuse or improper interpretation of the data**
- **Protection from public disclosure of data**

# Present use of video recording by railroads

- **Video recording is being used to record the locomotive engineer's view to the front of the locomotive**
- **Purpose is to observe highway-rail crossings and the data is used only for crossing accidents**
- **Informal agreement has been reached by labor and management on one railroad to exclude video and audio data from any use other than accident and crossing investigation. This is a step in the right direction. Concerns remain when "tampering" is supported with circumstantial evidence.**

# **NTSB Initiative: Surface Vehicle Recordings and Transcripts**

**Recent action by the NTSB to amend the statute and provide for confidentiality of recordings is found in Chapter 11, 49 USC 1114 (d)(1).**

**“The Board may not disclose publicly any part of a surface vehicle voice or video recording or transcript of oral communications by or among drivers, train employees, or other operating employees responsible for the movement and direction of the vehicle or vessel, or between such operating employees and company communication center, related to an accident investigated by the Board. However, the Board shall make public any part of a transcript or any written depiction of visual information that the Board decides is relevant to the accident—”**

# **BLE concerns**

- **Once installed, railroads may continue to use data from voice and video recordings for purposes beyond NTSB or FRA requested accident investigation.**
- **The possible safety benefits derived from continuous monitoring of locomotive cab occupants does not balance with the harm to individuals who have a reasonable expectation to privacy in their workplace.**

# **Locomotive Cab Environment**

- **Crew members occupy the cab of a locomotive up to 12 hours or more per day, day after day.**
- **Much of the time they are not moving. Conversation or behavior while stopped is seldom, if ever, safety critical.**
- **When moving, locomotive cab sound levels can be significant.**
- **Voice or video data may be misinterpreted.**

# What Locomotive Cab Occupants Need

- **Statutory requirement that voice or video recorder data be used for accident investigation only.**
- **Immunity for the crew from criminal, civil, or disciplinary action by recipients of this data.**
- **Assurance that no data is being recorded while the locomotive is stopped.**
- **No live feed of video or voice recorder data.**
- **An erase feature available to the crew with appropriate conditions for use.**

# **Is this position a show stopper?**

**It does not need to be.**

**Railroads have stated that the federal government should not require them to have event recorders and restrict them from using the data for their own purposes.**

# Middle Ground

- **Should railroads choose or be required to install video or voice recorders, such recordings should be used only for accident investigation at the request of FRA, NTSB, or by agreement.**
- **Restrict video recording to the engineer's view outside of the locomotive and hand movement of controls.**
- **Allow for an erase feature to recording devices that can be activated by the crew at the end of a duty tour, provided no FRA or NTSB reportable accident has occurred.**