



March 12, 2003
Docket No. NHTSA-02-13546
U.S. DOT Dockets, Room PL-401
U.S. Department of Transportation
400 Seventh Street, SW
Washington, DC 20590

**Re: Public Citizen Comments on Event Data Recorders (EDRs),
67 FR 63493**

**Government Standards for EDRs are Needed
to Ensure Data Utility and Safety Benefits**

Public Citizen offers these comments to the agency's Request for Comments on Event Data Recorders (EDRs). We praise the agency's attention to this issue. An increasingly large number of vehicles manufactured each year have Event Data Recorder-type systems installed, and consumer demand for these systems remains high.

Given the widespread and growing use of EDRs, it would be a grave mistake for the agency to allow this opportunity for better data collection to go unrealized. In the absence of agency action, manufacturers will act opportunistically and at whim, taking away or adding categories for data collection as it suits their interest in addressing defects or in litigation. To protect consumer interests in this new technological landscape, and to enable the public to rely upon these data as a developing and crucial supplement to the agency's current data collection efforts, standardization is essential and would allow National Highway Traffic Safety Administration (NHTSA) to maximize the benefits and utility of the data collected.

We urge the agency to use the voluntary standard proceedings at Institute of Electrical and Electronics Engineers, Inc. (IEEE) as an outline of possibilities, but not to be limited in scope or requirement by decisions made by this industry-dominated panel. The list of potential attributes being developed by the group serves as a useful guide, or "menu" of options, for a binding agency standard. Yet the flaws in a voluntary approach

are legion: variability in the categories would do much to denigrate EDR's value for traffic research purposes and would place consumers at the mercy of capricious industry decisions. For these reasons, we would strongly support the development of a uniform standard that includes reporting obligations for private or government parties utilizing the data for other purposes. This historic opportunity to widen the scope of NHTSA's inquiries and data collection capacity should not be left to chance.

Below are Public Citizen's responses to the questions posed by the agency in its request for comments.

Safety

(1) Safety potential. The NHTSA EDR Working Group concluded in its August 2001 final report (section 11.1) that EDRs have the potential to improve highway safety greatly. Do you agree with this finding? What do you see as the most significant safety potential of EDRs?

While we agree that Event Data Recorders have the potential to greatly improve highway and automotive safety, Public Citizen believes that realizing the safety potential of EDR data requires the mandatory installation of the devices in all vehicles. The utility of EDR data will depend largely on NHTSA's ability to analyze a sample of crashes that accurately represents the real-world crash landscape. In addition to (1) mandating the installation of EDRs in all new vehicles, NHTSA must (2) take regulatory action to standardize a minimum set of data elements, (3) develop a template for uniform data output and (4) enable uninhibited data access.

The most significant safety potential of EDR data is to prevent needless deaths and injuries by helping NHTSA identify gaps and holes in safety performance, develop or upgrade Federal Motor Vehicle Safety Standards and better target its crash and defect investigations. A 2002 report published by the Office of the Inspector General criticizes the Office of Defect Investigation (ODI) for its unstructured method of analyzing data to determine if a potential defect exists, and for the limits upon, and poor quality of, the data used by ODI to identify defect trends.¹ Public Citizen believes that EDR data may help ODI to reduce the apparent randomness of defect investigations by providing ODI with a more sound analytical basis for conducting defect investigations.

(2) Application. EDR technology has potential safety applications for all classes of motor vehicles. Do you believe different types of EDRs should be used for different vehicle types, such as light duty vehicles, heavy trucks, intercity motor coaches, city transit buses and school buses? If so, why? If not, why not? Do you believe different types of EDRs should be used for different applications, such as private vehicles and commercial vehicles? If so, why? If not, why not?

¹ Office of the Inspector General, "Review of the Office of Defects Investigation National Highway Traffic Safety Administration," Report Number MH-2002-071.

In order to maximize the safety benefits of EDRs, NHTSA must require their installation in all new vehicles, including heavy commercial trucks. We presume that the decision to install a specific type of EDR will vary according to the data set being collected and the number of sensors needed to collect such elements. While some data elements, such as the crash pulse, changes in longitudinal and lateral velocity, stages of air bag deployment and restraint use are germane to all vehicle classes, a factor such as loading condition would be more pertinent to a vehicle class that may regularly carry heavy loads, such as commercial or light trucks. Once NHTSA clearly defines the information it wants to collect from particular vehicle classes, EDRs that meet the agency's relative performance requirements should be permitted. NHTSA should, as logic dictates, establish minimum data sets that reflect differences across vehicle classes. However, within a specific vehicle class, such as light duty vehicles, the data collected by EDRs should be very similar, if not identical and should contain a minimum set of uniform elements to enable easy comparison. Lastly, the agency should initiate different rulemaking processes for passenger vehicles and commercial trucks as the data collection, privacy and political factors vary greatly across these groups.

(3) Use of EDR data. NHTSA has used EDR data primarily to improve its investigations and analyses of crashes. In some cases, EDR data includes information that the agency could not otherwise obtain; e.g., which stage(s) of a multi-stage air bag deployed in a crash and when. In other cases, EDR data provide a more accurate indication of matters, e.g., level of crash severity, that have previously been estimated based on crash reconstruction programs. NHTSA includes the new or improved information from EDRs in its crash databases as appropriate. We request comments concerning how other parties, including government agencies, vehicle manufacturers, insurance companies, and researchers, are using these data. We also request comments concerning other potential uses of these data, by NHTSA and/or other parties, which are related to improving vehicle safety, either in the short term or long term.

NHTSA currently employs EDR data as part of both its routine and special crash investigation efforts. Also, the agency is already working to incorporate EDR data into the National Automotive Sampling System database. We note that the agency's current policy guidelines require the vehicle owner's written permission in order to obtain any EDR data. NHTSA must develop a better protocol which shields the privacy of individuals involved in crashes while better facilitation access to EDR data for studies using only aggregated data. Compartments within the EDR itself, or partitions in the data collected, should be developed and employed. Presently, the usefulness of EDR data is limited, but as the technology improves and the number of EDRs increases, EDRs will be of increasing utility to researchers studying the dynamics of motor vehicle crashes.

Unfortunately, the consistent lack of funding for NHTSA's data collection systems, namely the National Automotive Sampling System—Crashworthiness Data System (NASS-CDS) and the Fatality Analysis Reporting System (FARS), restricts the ability of researchers to uncover trends in motor vehicle crashes. Although originally

designed to investigate 18,000 crashes a year, NASS presently investigates only 5000 crashes annually.²

Because EDR data are currently only collected as a part of NASS, this severe lack of funding likewise restricts the availability of EDR data from this important new source. Police and municipal officials must receive the training and funding necessary to collect accurate and complete EDR data to be included in the FARS database. If the EDR program is structured to increase the scope and depth of crash investigations, EDRs will help researchers collect representative crash samples to supplement the agency's emaciated data collection systems. This is critical for effective agency decisions, and for priority-setting within the agency and by Congress.

(4) Future safety benefits. What additional safety benefits are likely from continued development, installation, collection, storage, and use of EDRs?

Public Citizen is anxious for NHTSA to harness the potential for EDR data to improve highway design, the administration of emergency medical services and to assist NHTSA in research and rulemaking efforts. In addition, the Federal Highway Administration (FHA) can use EDR data to identify and amend aspects of highway design that either cause or fail to prevent crashes, such as the inability of highway dividers to impede large sport utility vehicles. The Federal Motor Carrier Safety Administration can use EDR technology to improve commercial vehicle safety. Automatic Crash Notification Systems provide emergency medical teams with information that is critical in treating injured occupants. As a supplement to NHTSA's crash investigation and reconstruction efforts, EDR data will be critical in understanding crash causation factors and injury mechanisms at a reduced cost to the agency. When used in conjunction with the early warning database, the data may also help to uncover emerging defects, although the penetration of EDRs in the vehicle fleet would have to be substantial, and the scope of data collected extensive to reveal most defects.

The agency must harness the ability of EDRs to provide researchers with solid data on the performance of emerging technologies such as side impact and window curtain air bags in real-world crashes. Due to the relatively low penetration of emerging safety technologies into the overall vehicle fleet, NHTSA should conduct special data collection efforts to track and compare the safety performance of emerging technologies as a basis for future rulemaking.

(5) Research databases. NHTSA acquires EDR data in its Special Crash Investigations (SCI), National Automotive Sampling System Crashworthiness Data System (NASS-CDS), and Crash Injury Research and Engineering Network (CIREN) and incorporates them in its motor vehicle research databases. Have you ever used the EDR data stored in these databases? How could the presentation and/or use of EDR data be improved?

The agency must clearly flag the EDR data when they appear in agency databases, standardize the coding and data presentation formats, and ensure that the data are internet

² Vartabedian, Ralph. "Inadequate Collection and Analysis of Accident Data Prove Costly," Los Angeles Times, June 5, 2002.

accessible. Clearly identifying data obtained from EDRs within agency databases will make the utility and benefits of EDR data more evident. The homogeneity of EDR coding and data presentation is critical for crash comparisons and identifying trends in motor vehicle safety. Rather than collecting years of discordant data that may or may not be salvageable for future use, NHTSA must act quickly to protect the utility of EDR data. In order to make the data available to any interested parties, we urge NHTSA to make EDR data available on the NHTSA or National Center for Statistical Analysis Web Site.

(6) Prevention of crashes. Several researchers have documented that the use of EDRs could have the potential to prevent crashes. Some studies of European fleets found that driver and employee awareness of an on-board EDR reduced the number of crashes by 20 to 30 percent, lowered the severity of such crashes, and decreased the associated costs. (See section 2.5.1.1 of the August 2001 NHTSA EDR Working Group final report.) These studies have generally been based on small samples and concentrated on commercial application of EDRs. We request comments on other studies of this type and on this potential benefit from EDRs, particularly for the U.S. driving population.

Public Citizen hopes that the mandatory installation of EDRs in the commercial vehicle fleet will yield crash reductions comparable to the decreases observed in the European studies.

We anticipate that, as in the studies, the biggest safety gains from influences upon driver behavior would similarly occur in the commercial trucking fleet. As some of the comments in this docket clearly indicate, the commercial trucking industry is troubled by the ability of EDRs to corroborate the figures recorded in hours of service log books. Judging by the trucking industry's intense opposition to the mandatory installation of EDRs in commercial trucks, Public Citizen suspects that the presence of EDRs in commercial vehicles could substantially improve both industry practices and commercial driver behavior, particularly as to the rampant problem of drivers who continue driving while fatigued.

(7) Possible new databases. As more and more vehicles are equipped with EDRs, more EDR crash data will be generated. Collection of these data is likely to increase as state and local officials collect these data as part of their investigations. Do you have any recommendations for storing and maintaining a national or other database? Do you believe maintaining a database would be beneficial to motor vehicle safety? Please provide specific examples.

The EDR program should strive to collect and analyze data from every motor vehicle crash resulting in a death or injury, and of towaway severity. The data collected will undoubtedly be used to complement the data collected in the NASS and FARS databases, but Public Citizen believes that it will be useful to store EDR data in a database independent of those currently employed by the agency. For example, the utility of NASS is constrained by the limited number of crashes investigated annually. Due to inconsistencies in coding and collection procedures, much of the data contained in FARS reveals little about trends in motor vehicle safety, and Public Citizen urges the

agency to review the FARS criteria. We believe that maintaining a separate storehouse of EDR data, in addition to data linked to FARS and NASS, might help corroborate conclusions drawn from other databases.

(8) Standards. What standards exist for collecting EDR data? The Society of Automotive Engineers (SAE) has a recommended practice (SAE J211) that provides guidance for collecting crash test data. Would it be possible to use this or similar standards for collecting EDR data regarding real-world crashes?

The EDR activities of The Society of Automotive Engineers (SAE) and IEEE should not delay NHTSA in taking the regulatory action necessary to standardize procedures for EDR data collection, storage, and output. Although the findings of the SAE and IEE may guide the agency in developing a government standard, relying on an industry standard alone will not yield safety benefits that are remotely comparable to those flowing from a federal requirement. Any voluntary standard will be subject to the caprice of the automobile manufacturers, and will be tailored to benefit the industry interests rather than consumers or NHTSA's interest in data collection. The agency must not relinquish this historic opportunity to protect the future of crash data collection from the predictable, self-interested whim of the automobile manufacturers.

Also, it is imperative that the agency require installation of EDRs in all new vehicles to collect enough reliable data to effectively analyze trends in vehicle crash dynamics for FMVSS improvements.

(9) Standardization. We request comments on whether there would be any safety benefits from standardizing certain aspects of EDRs, e.g., defining specific data elements such as vehicle speed, brake application, air bag deployment time, etc. Would such standardization promote further development and implementation of automatic crash notification systems or other safety devices?

The ability of NHTSA to standardize data elements, procedures for data collection, data organization, data storage, and data output will be the primary determinants of the program's effectiveness. The failure to homogenize data categories and elements within the multiple facets of the EDR program will unquestionably result in a flawed system and a squandered opportunity. In addition, standardization will prove highly cost-effective for consumer and the industry, as supplier costs are driven down by uniform requirements. Standardization would also, as NHTSA suggests, greatly enhance efforts to monitor new crash protection technologies as they emerge.

Technical Issues

(10) Data elements. The NHTSA EDR Working Group identified many data elements that could be collected by an EDR. See section 4 of the August 2001 final report. More recently, the Truck & Bus EDR Working Group generated a list of 28 data elements. What data elements should be considered for inclusion in an EDR?

NHTSA must establish a minimum set of data elements that would apply to all light duty vehicles, and, separately, to all heavy trucks. Furthermore, the agency should determine these data elements that offer the greatest potential to inform researchers of developing safety issues.

(11) Amount of data. Many late-model vehicles are equipped with OEM-installed EDRs, but even among the vehicles of a given manufacturer, the type and amount of data collected vary. Do you have any recommendations for the amount of data to collect; e.g., how long before the crash occurs should the data be collected? How should the data integrity be maintained?

NHTSA must be mindful that establishing too brief of a pre-crash recording period will limit the ability of crash investigation teams to identify the entire sequence of destabilizing events leading up to a crash. The amount of data collected prior to a crash should correspond with the maximum amount of valuable information needed and available to determine crash causation and crash injury factors. Public Citizen recommends that NHTSA ascertain the pre-crash, crash, and post-crash time window that will be most helpful and inclusive for the purposes of crash causation and research based on an evaluation of real-world crash events, including driver maneuvers, cross-highway swerving and other time-consuming event scenarios.

(12) Storage and collection. Currently, data are accessed by a physical connection to the EDR unit. Manufacturers are developing wireless connections, e.g., using a wireless probe near the crashed vehicle, or by having the on-board device upload the stored data to a central location using a telecommunications link, but such devices are not in widespread production. How should data be collected and stored in a motor vehicle? What measures should be in place to control traceability of EDR data to an actual vehicle or crash, such as EDR Ids or location and date stamping?

Once EDRs are standardized and widely used, the breadth of the data collected will provide the agency with a panoramic portrait of the nation's motor vehicle crashes. The current databases provide researchers with only a peephole through which they can observe the milieu of real-world crashes. In order to effectively analyze EDR data on a national scale, the agency should standardize the methods for data collection and storage. Ideally, the information would be automatically loaded to a regional database through a wireless connection and then integrated into a national system.

It is critical that the agency protect the identity of vehicle owners, but we believe that location and date stamping, in addition to the Vehicle Identification Numbers (VIN), is necessary for crash reconstruction and investigation efforts. Partitioning of data released routinely to the public can adequately address any privacy concerns that may arise. The agency should strive for the cleanest (and most comprehensive) data set for use in its summary analyses, as it does under other current systems of data collection.

(13) Training. What training is needed for EDR data collection officials?

The agency must strive to minimize the collection procedure's vulnerability to human error. The variability in collection and coding procedures remains one the primary deficiencies of FARS. NHTSA should simplify the system by mitigating the potential for inadvertent data corruption by collection officials. To insulate the data collection process from human variability requires maximizing the role of EDRs in data collection, and minimizing the amount of data coded and recorded by collection officials. We recognize, however, that collection officials would be needed to authenticate the data collected by EDRs, and such officials would need regular, ongoing training.

Privacy Issues

The recording of information by EDRs raises a number of privacy issues. These include the question of who owns the information that has been recorded, the circumstances under which other persons may obtain that information, and the purposes for which those other persons may use that information.

The use of EDR data for statistical analysis does not involve privacy concerns, and Public Citizen believes that NHTSA should not be deterred from proceeding with rulemaking by privacy issues at this time. We recommend that the agency remain focused on the potential contributions of EDR data to the advancement of motor vehicle safety. The tension between privacy and safety is an important issue that requires initial agency proposals and can be adequately addressed by partitioning technology and other means best evaluated as a part of the rulemaking process.

Role of NHTSA

(17) Role of NHTSA. Over the past several years, NHTSA has been actively involved with EDRs, through the two working groups discussed above, as part of its crash investigations, and in research and development. Particularly since one working group has completed its work and the other is nearing completion, we request comments on what future role the agency should take related to the continued development and implementation of EDRs in motor vehicles.

NHTSA must take action that will optimize the benefits of EDR data and obviate industry attempts to displace the agency's role in laying the ground rules for this crucial new source of public data.

Public Citizen recommends that NHTSA:

- Mandate the installation of EDRs in all new vehicles;
- Standardize a minimum set of data elements according to vehicle class (*i.e.* light duty passenger vehicles and commercial trucks);
- Conduct a study to ascertain an accurate pre-crash, crash, and post-crash time window;
- Develop a model database and strict guidelines for data collection for individual states or regions;

- Train state and local government officials in the collection of EDR data for research purposes
- Create a template for uniform data output
- Enable uninhibited data access via the Internet; and
- Develop privacy protections as needed without blocking development of NHTSA's data collection capacities.