



## DEPARTMENT OF TRANSPORTATION

### Federal Railroad Administration

#### 49 CFR Part 232

[Docket No. FRA-2019-0072; Notice No. 1]

RIN 2130-AC82

### Amendments to Brake System Safety Standards Governing Operations Using an Electronic Air Brake Slip System

**AGENCY:** Federal Railroad Administration (FRA), Department of Transportation (DOT).

**ACTION:** Notice of proposed rulemaking (NPRM).

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**SUMMARY:** FRA proposes to amend its brake system safety standards to address operations using an electronic air brake slip (eABS) system, which is a system that tracks details related to individual freight car brake tests. The proposed rule would provide an alternative regulatory framework for railroads to utilize when choosing to use an eABS system, but would not require railroads to use such a system. The NPRM proposes to extend the distance certain individual rail cars may travel (from 1,500 to 2,500 miles) without stopping for brake and mechanical tests, if the cars have a valid eABS record. The NPRM also proposes to allow railroads to add or remove multiple cars from a train without conducting additional brake tests, if the train is solely made up of cars with eABS records.

**DATES:** Comments are requested no later than [INSERT DATE 60 DAYS AFTER DATE OF PUBLICATION IN THE **FEDERAL REGISTER**]. FRA will consider comments received after that date to the extent possible without incurring additional expense or delay.

**ADDRESSES:** *Comments:* Comments related to Docket No. FRA-2019-0072 may be

submitted by going to <http://www.regulations.gov> and following the online instructions for submitting comments.

*Instructions:* All submissions must include the agency name, docket number (FRA-2019-0072), and Regulation Identifier Number (RIN) for this rulemaking (2130-AC82). All comments received will be posted without change to <https://www.regulations.gov>; this includes any personal information. Please see the Privacy Act heading in the **SUPPLEMENTARY INFORMATION** section of this document for Privacy Act information related to any submitted comments or materials.

*Docket:* For access to the docket to read background documents or comments received, go to <https://www.regulations.gov> and follow the online instructions for accessing the docket.

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## **I. Executive Summary**

### **A. Purpose of Regulatory Action**

In a March 1, 2019, petition (Petition), the Association of American Railroads (AAR) asked FRA to amend the existing brake system safety standards (49 CFR part 232) to increase the mileage individual freight cars are allowed to operate between required brake tests if the cars have a valid eABS system record.<sup>1</sup> AAR requested that a car with a “valid” eABS system record<sup>2</sup> be allowed to move up to 2,500 miles between brake tests if the car had received a Class I brake test conducted by a qualified mechanical inspector (QMI), as defined in 49 CFR 232.5, and a freight car inspection performed by a designated inspector, as defined in 49 CFR 215.11, similar to the existing requirements for extended haul trains in 49 CFR 232.213. AAR requested all other cars with eABS system records (i.e., cars with Class I brake tests not performed by QMIs and/or freight car inspections not performed by designated inspectors) be allowed to

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<sup>1</sup> FRA has placed the Petition in the public docket for this rulemaking (Docket No. FRA-2019-0072) available at [www.regulations.gov](http://www.regulations.gov).

<sup>2</sup> AAR defined a “valid” eABS as an electronic record containing a car’s identification information; date, time, and location of the last Class I brake test; the identity and qualifications of the person(s) who performed the last Class I brake test; and the mileage until the equipment reaches the limit it is allowed to travel.

move up to 1,500 miles between required brake tests, as opposed to the currently allowed limit of 1,000 miles.

In its Petition, AAR also asked FRA to amend part 232 to remove the existing restrictions on “block swapping” and permit railroads to add or remove single cars or multiple cars from single or multiple locations in trains solely made up of cars with eABS system records without conducting an additional Class I brake test. This rulemaking responds to AAR’s Petition.

#### B. Major Provisions of the Regulatory Action

In response to AAR’s Petition, this NPRM proposes to amend part 232 to address operations using eABS systems. This proposed rule would provide an alternative regulatory framework to existing part 232 requirements for railroads utilizing eABS systems. As proposed, an eABS system would track detailed brake test information for individual rail cars, including each car’s identifying information; identification and qualification of the person performing the last Class I brake test on the car; the date, time, and location of that test; the distance the car can travel before its next brake test; and other information showing that the car meets the requirements of part 232.<sup>3</sup> Consistent with AAR’s Petition, FRA proposes that railroads using an eABS system would only be required to inspect individual cars before these cars exceed their prescribed mileage limits, whereas currently railroads must inspect the entire train consist before any car in that train exceeds its prescribed mileage limit. The alternative regulatory framework proposed would replace the conditions triggering the Class I, Class IA, and II inspections of entire trains under §§ 232.205, 232.207, and 232.209. However, all other requirements

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<sup>3</sup> This is similar to the existing requirements of § 232.205(e), which requires railroads to maintain records of brake tests for entire trains (as opposed to individual cars within those trains). Existing § 232.205(e) requires brake inspection records to contain the date, time, and location of a train’s Class I brake test, the identification of the qualified person(s) conducting the test, and because the record tracks the brake inspections of the train as a whole, the number of freight cars inspected. *See* § 232.205(e). However, this record is not required to be retained once the train reaches its destination. The proposed rule would require retention of this information for a period of time, allowing for more detailed insight into the effectiveness of individual brake tests.

of part 232, as well as the existing requirements of part 215, would continue to apply to cars operated under this alternative regulatory framework. For example, a car operated under proposed § 232.221 must comply with the off-air limits of § 232.205(a)(3), must not be overdue its single car air brake test under § 232.305(c), and must have received a part 215 freight car inspection when placed in a train.

In addition, consistent with AAR's Petition, for a railroad operating a train using an eABS system, FRA is proposing to extend the distance for travel between Class I brake tests from 1,500 miles to 2,500 miles for cars receiving brake tests by QMIs and freight car inspections by designated inspectors. All other cars would be permitted to move a maximum distance of 1,000 miles between Class I brake tests.

Finally, FRA is proposing to exempt trains in which all cars have valid eABS system records from those requirements to perform a Class I, Class IA, or Class II brake test that are due to adding or removing multiple blocks of cars to or from the train. When a train's consist changes en route, part 232 currently requires effective recordkeeping and a Class I brake test of the entire train. Under the proposed rule, a train consisting entirely of cars operating under an eABS system would undergo a single Class I brake test of the entire train at its initial terminal. Following set-off or pick-up, only those cars in the train lacking sufficient mileage to proceed to the subsequent destination would require a Class I brake test. However, the requirement to undergo a Class III brake test (brake pipe continuity test) would continue to apply to the train following each set-out or pick-up. In other words, under the proposed rule, an eABS system would create the conditions necessary to permit block swapping, because the timeliness of inspections would be documented in a manner that ensures accuracy and reviewability. Therefore, FRA proposes to relieve all cars operating under an eABS with sufficient remaining mileage from the requirement to undergo a Class I or Class IA brake test following the pick-up or set-off of cars.

FRA is not, however, proposing to amend part 232 to address all aspects of AAR’s Petition. FRA does not propose to extend the maximum permitted mileage of a car inspected by a qualified person (QP) (who is not QMI-qualified) from the present 1,000 miles to 1,500 miles as AAR requests because FRA has not identified sufficient safety data to justify such an extension. In addition, FRA is proposing to require railroads to maintain eABS records for one year after creation, rather than AAR’s request to permit records to be overwritten after the next Class I air brake test. Retention of eABS records for one year will provide data that can be used to measure compliance with the eABS rule, and that same data can be used by FRA and railroads to evaluate the possibility of future regulatory changes allowing additional operation flexibilities (e.g., the AAR request to extend mileage for equipment inspected by a QP, as opposed to a QMI).

C. Costs and Benefits of the Proposed Regulatory Action

FRA analyzed the economic impacts of this NPRM over a 10-year period, and estimated its cost savings, costs, and benefits. Over the 10-year period of analysis, the total cost savings range from \$128.1 million to \$259.6 million (using a 3-percent discount rate) and \$105.1 million to \$217.3 million (using a 7-percent discount rate). The annualized cost savings range from \$15.0 million to \$30.4 million (using a 3-percent discount rate) to \$15.0 million to \$30.9 million (using a 7-percent discount rate). The cost savings of this proposed rule are displayed in the table below.

**Net Cost Savings, Low Estimate, in Millions (2018 Dollars)**

<b>Section</b>	<b>Present Value 3%</b>	<b>Present Value 7%</b>	<b>Annualized 3%</b>	<b>Annualized 7%</b>
Total Cost Savings	\$ 185.6	\$ 156.6	\$ 21.8	\$ 22.3
Total New Costs	\$ 57.5	\$ 51.4	\$ 6.7	\$ 7.3
Net Cost Savings	\$ 128.1	\$ 105.1	\$ 15.0	\$ 15.0

**Net Cost Savings, High Estimate, in Millions (2018 Dollars)**

<b>Section</b>	<b>Present Value 3%</b>	<b>Present Value 7%</b>	<b>Annualized 3%</b>	<b>Annualized 7%*</b>
Total Cost Savings	\$ 286.1	\$ 241.4	\$ 33.5	\$ 34.4
Total New Costs	\$ 26.4	\$ 24.1	\$ 3.1	\$ 3.4
Net Cost Savings	\$ 259.6	\$ 217.3	\$ 30.4	\$ 30.9

\* Numbers may not tabulate due to rounding.

## **II. Background**

### **A. The Basics of Train and Freight Car Air Brake Systems**

Each train air brake system consists of three major parts: a locomotive brake valve, a brake pipe (also known as a trainline), and the individual car control valves. The locomotive brake valve adds or releases air to or from the brake pipe, which is connected by flexible air hoses between each car, and is sealed at the rear of the train by a pneumatic end-of-train (EOT) device. The locomotive brake valve's pressure changes create signals that are received by each car's air brake system via the brake pipe, and induce application or release of the brake.

When the engineer "sets the brakes," the locomotive air brake valve releases air from the brake pipe, reducing the brake pipe pressure, causing the brakes to apply. While the air pressure change usually occurs first at the front of the train, the locomotive may send a radio signal to the EOT device to command an emergency brake air pressure reduction from the other end. Similarly, when the brakes are released, the locomotive brake valve is positioned to pump air back into the brake pipe and re-stabilize the air pressure. The air brake system also applies car brakes automatically in an emergency, because a derailment typically causes a break in the brake pipe that results in a sudden loss of air pressure, causing an irretrievable, higher pressure application of the brakes.

Each individual car's air brake system can be further broken down into several major components, including an assemblage of car control valves, air reservoirs, cylinder(s), rigging, beams, and shoes. When a brake application signal is received by the car's air brake control valve, it transfers air from the auxiliary reservoir to the brake

cylinder, causing the cylinder's piston to pull the brake rigging (a series of rods and levers designed to increase the braking ratio), the brake beam, and then the brake shoe against the wheel to create the braking action. The degree of brake pipe pressure drop governs the degree of braking effort. A full-service brake occurs when the control valve balances all of the auxiliary reservoir air into the cylinder. An emergency brake application occurs when the brake pipe is reduced faster than the normal rate, which causes the control valve to add emergency reservoir air to the auxiliary reservoir air in the cylinder. This creates 15 percent more braking, and cannot be released by the locomotive without completely restoring the full pressure in the brake pipe and reservoirs.

The control valve also “charges the train” by providing sufficient air to each car's air reservoirs, which then store the air to maintain a brake application. Because each application reduces the air in the car reservoirs, and some time must elapse before those reservoirs are fully recharged, an engineer has a limited number of brake applications that can be made in a short period of time. Several brake applications in a short time interval will sharply reduce the system's braking effectiveness.

The railroad must charge the train prior to each air brake test, which may take up to six minutes per empty car air reservoir. However, numerous cars can be charged simultaneously. Taking simultaneous charging into account, a fifty-car train can be charged in approximately twenty minutes, although this time can be longer depending on factors that affect the integrity of the brake line, including environmental factors such as temperature and the amount of brake pipe leakage.

Today, in addition to the statutorily required air brakes,<sup>4</sup> railroads use distributed power locomotive units (DPUs) and dynamic brakes to aid in controlling in-train forces and to provide additional braking capability. Distributed power units are locomotives that are physically distributed at intermediate points throughout the length of a train.

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<sup>4</sup> 49 U.S.C. 20302.

These locomotives are remotely controlled from the leading locomotive. The use of DPUs permits quicker application of air brakes and localized control of in-train forces. With braking on a conventional train controlled at the head-end, it can take from several seconds (on a short train) to more than twenty seconds on a train exceeding 200 cars for the brake pipe pressure signal to propagate the length of the train.<sup>5</sup> Using DPUs, however, brake pipe signals are initiated at the remote locomotives almost simultaneously with the command of the lead locomotive, providing a more rapid and uniform air brake response.

Presently, most mainline locomotives are equipped with dynamic brakes, a supplementary braking system that can be used to control train speed without engaging a train's air brakes. Dynamic brakes use the kinetic energy of a moving train to generate electric current at the locomotive traction motors. By engaging dynamic brakes, the normally powered traction motors on a locomotive's axles are changed to generators, and the power generated is dissipated through resistance grids, similar to what happens when a motor vehicle driver shifts a vehicle into a lower gear when descending a steep grade. The primary benefits of dynamic brakes are the ability to reduce freight car brake shoe wear and wheel overheating, and to preserve freight car auxiliary air pressure on long downgrades. Dynamic brakes are also useful to control in-train forces on continuous (but varying) downhill grades and, as a result, effective use of a locomotive's dynamic brakes leads to fuel savings by reducing the need to power or stretch brakes through grade variations.<sup>6</sup> Due to these benefits, dynamic braking is often reflected in railroads' operating rules as the preferred method of controlling a train, especially in heavy grade territory.

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<sup>5</sup> Air brake propagation is at the degraded speed of sound, accounting for friction due to pipe length and elbows, at approximately 950 feet per second for emergency braking. AAR Standard S-469, incorporated at § 232.103(l), states at a service reduction of 10 psi, the 150<sup>th</sup> cars will apply at "nominally 20 seconds or less" from the application of the first car (S-469-01 § 5.3).

<sup>6</sup> To power or stretch air brakes means to apply locomotive power against an applied brake.

Dynamic brakes, however, cannot be relied upon as a train's primary braking system for a number of reasons. First, dynamic brakes provide braking force only on powered locomotive axles and are incapable of controlling in-train forces in the same way as air brakes in undulating grade territories. Second, dynamic brakes are effective only within a certain speed range and have no capability to physically stop and hold a train. Third, dynamic brakes are not fail-safe, and can fail without warning. When dynamic brakes fail, all braking force is lost. By comparison, air brakes are designed to be fail-safe and a loss of air brake system integrity will result in an emergency brake application. For these reasons, FRA, by statute and regulation, has long considered dynamic brakes secondary devices used for supplemental braking, and not as a safety-critical device. Nonetheless, railroads rely on dynamic brakes to control train speed and to aid in controlling trains on heavy grades.

FRA's regulations do not mandate the use of dynamic brakes, but require that if the railroad operates a locomotive equipped with dynamic brakes, the railroad adopt appropriate operating rules and any locomotive engineer assigned to operate such a locomotive be informed of the operational status of the dynamic brakes on all units in the consist at the initial terminal for the train. *See* § 232.109(j). Overreliance on dynamic brakes may lead to the inability to stop a train short of an obstruction or control point, result in very long trains pushing head-end cars out of the train due to excessive buff forces, or for an engineer not being able to recover a train from an overspeed situation.

#### B. Brake Test Frequency

Part 232 includes brake system test performance and frequency requirements. A central premise of Part 232's existing inspection requirements is that the capability of rail equipment to travel to its destination is contingent on the condition of the equipment when it begins operation and on the nature of the equipment's planned operation. For rail equipment to travel extended distances between inspections, the condition and planned

operation of the equipment must be thoroughly assessed at the beginning of a train's journey through high quality inspections.

The regulations provide for five primary types of brake system tests: Class I (a complete test of the brake equipment on each car, which is required to be performed at the location where a train is originally assembled, when the consist is changed in certain ways, and when a train is off-air for more than four hours); Class IA (a test that is less stringent than a Class I inspection and is required every 1,000 miles); Class II (a less detailed test used for cars that have not received a compliant Class I test that are picked up by a train); Class III (a test that must be performed any time the brake pipe is opened to atmosphere on an operating train); and a single car air brake test (a comprehensive test used to validate the air brake effectiveness of individual cars every five years or when certain events or conditions trigger a testing requirement). Each test must be performed based on different circumstances. For instance, a train must receive a Class I brake test at its initial terminal and an intermediate test, such as a Class IA brake test, every 1,000 or, for trains designated as extended haul trains, 1,500 miles. 49 CFR 232.205, 232.207, 232.213.<sup>7</sup>

The frequency of required brake tests also depends on the qualifications of the person(s) conducting the brake tests. Brake tests may be performed by either a QP or a QMI. A QP is a person who has received instruction and training necessary to perform one or more functions required by part 232. 49 CFR 232.5. In the context of this rulemaking, a QP generally would be a conductor or a brakeman assigned to operate a train who has also received training to perform a limited pre-departure inspection under

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<sup>7</sup> One exception to these mileage limits is for trains operating with electronically controlled pneumatic (ECP) brake systems. In 2008, FRA issued a final rule that allows such trains to travel up to 3,500 miles between brake tests. *See* 49 CFR 232.607(b). FRA noted that this relief was provided in large part based on the ECP brake system's self-monitoring and data reporting capabilities—capabilities not present in traditional air brake systems. Another exception is granted for a unit or cycle train, which may travel in a continuous loop up to 3,000 miles, although such trains must receive a Class IA brake test. 49 CFR 232.205(a)(4). *See* 85 FR 2494, 2495-2496 (Jan. 15, 2020) for a more detailed discussion of the different types of brake system tests.

appendix D to part 215,<sup>8</sup> and required brake tests. A QMI, however, is a QP who has received additional instruction and training that includes “hands-on” experience in “troubleshooting, inspection, testing, maintenance or repair of specific train brake components and systems for which the person is assigned responsibility.” *Id.* As defined in § 232.5, a QMI must understand what is required to repair and maintain properly the safety-critical brake components for which the person is assigned responsibility. Further, a QMI’s primary responsibilities must include work troubleshooting, inspecting, testing, maintaining or repairing brake components and systems. A QMI is also typically a designated inspector under part 215, and in the context of this rulemaking, would generally be a carman or a machinist.<sup>9</sup>

Part 232 generally requires a train to undergo a brake test every 1,000 miles unless the train has a Class I air brake test performed by a QMI and an initial terminal part 215 freight car inspection performed by an inspector designated under § 215.11, and is designated as an extended haul train under § 232.213. With certain exceptions, if a train that does not meet the requirements for an extended haul train (e.g., if a QP performs the train’s Class I brake test), part 232 limits the train’s movement to 1,000 miles between brake tests.<sup>10</sup>

The mileage-based test requirements, which are based, in part, on historical agreements among all stakeholders (i.e., railroads, labor organizations, and FRA) and railroad accident/incident data,<sup>11</sup> serve an important role in each freight train’s safe operation. Together with other requirements of part 232 designed to ensure the integrity

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<sup>8</sup> An “Appendix D Inspection” is an inspection designed to identify “imminently hazardous conditions . . . likely to cause an accident or casualty before a train arrives at its destination.” These conditions include conditions “readily discoverable by a train crew.” *See* 49 CFR part 215, appendix D.

<sup>9</sup> Section 232.5 defines a QMI as a QP with certain additional experience and assigned responsibilities. Accordingly, by definition, a QMI is also a QP. The section-by-section analysis of proposed § 232.211, below, contains a more detailed discussion of the differences between QMIs and QPs, but in this NPRM, FRA uses the term QP to refer only to individuals who do not meet the additional requirements of a QMI.

<sup>10</sup> *See* fn. 3, *supra*.

<sup>11</sup> *See e.g.*, 66 FR 4104, 4107-4108.

of a train's brake system throughout its journey, the mileage limits are designed to ensure that a train's brake system, including all mechanical components, remains safely intact. 66 FR 4104 (Jan. 17, 2001).

Federal statute authorizes FRA to amend the regulations for installing, inspecting, maintaining, and repairing power and train brakes only for the purpose of achieving safety. 49 U.S.C. 20302(d)(2). As such, FRA can increase the mileage permitted between brake tests only when supported by sufficient data demonstrating that doing so is in the interest of safety. FRA last addressed the mileage limits between brake tests in a rulemaking in 2001, and prior to that in a notice of proposed rulemaking in 1982, adopted as a final rule that same year. 47 FR 7286 (Feb. 18, 1982); 47 FR 36792 (Aug. 23, 1982); and 66 FR 4104 (Jan. 17, 2001).

FRA's 2001 final rule permitted "extended haul trains" to move up to 1,500 miles between brake tests, while other trains remained subject to the 1,000-mile limit. 49 CFR 232.213. To qualify as an extended haul train under § 232.213, the train must be designated in writing to FRA, receive at its initial terminal a freight car inspection under part 215 by an inspector designated under § 215.11 and a Class I air brake test by a QMI, as defined in § 232.5, and must otherwise comply with parts 215 and 232. Since 2006, FRA has, in certain circumstances, granted conditional waivers from the 1,500-mile limitation.<sup>12</sup> Such waivers have permitted trains to operate up to 1,800 miles between brake tests provided that the qualifications under § 232.213 for extended haul trains continue to be met (including the performance of Class I brake tests by QMIs and part 215 freight car inspections by designated inspectors). In addition, FRA required the railroads operating under the waivers to provide certain data, including data comparing defects identified on trains operating under the waivers as compared to typical 1,500-mile extended haul trains.

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<sup>12</sup> See FRA docket numbers FRA-2006-24812, FRA-2014-0070, and FRA-2015-0036.

Those data, along with the service history of railroads operating trains under the waivers, demonstrate that trains meeting the existing requirements for extended haul trains (i.e., Class I brake tests performed by QMIs and freight car inspections performed by designated inspectors) can operate at least as safely at longer distances between brake tests as at distances currently allowed by the regulations. Generally, the data garnered from these waivers demonstrates that trains inspected by QMIs and designated inspectors that travel up to 1,800 miles experience the same number of brake anomalies and defects as extended haul trains limited to 1,500 miles.<sup>13</sup> The service history, with no reportable accidents caused by brake systems defects on trains operating under the waivers providing for extended mileage, suggests that a train with a thoroughly-inspected brake system is capable of traveling longer distances than allowed by the regulations without developing a significant defect en route.

Allowing trains to move longer distances between Class I brake tests will reduce the number of tests required to be conducted. As discussed in Section II.F below, a reduced number of tests may effectively lower the incidence of employee injuries by reducing employees' exposure to risks arising from working in close proximity to movable equipment. Reducing the number of required brake tests may have additional benefits. These include environmental benefits, as locomotives will spend less idle time awaiting or undergoing brake tests, and economic benefits, as railroads may be able to allocate certain resources more efficiently (e.g., additional labor resources previously devoted to brake tests are freed up to perform other duties). Certain reallocations may have the potential to improve safety, such as through increasing specialization of safety

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<sup>13</sup> As an added condition to ensure the safety of operations conducted under these waivers, FRA required the QMIs inspecting these waiver trains to have access to wayside detection data to assist in their inspections. This summary data, which measures conditions such as wheel impact loads, stiffness of railcar trucks and bearing temperatures, enables properly trained QMIs to focus their inspections on areas needing attention. When used as part of a comprehensive inspection by a QMI, the data provides a greater opportunity to detect brake and other defects and other potential areas of concern.

inspection functions. Reducing the number and frequency of brake tests, however, makes the quality and comprehensiveness of the remaining tests critical. As FRA has stated before, for brake equipment to travel extended distances between brake tests, the conditions and planned operation of the equipment must be assessed thoroughly at the beginning of the equipment's journey through high quality inspections. 66 FR at 4117.

### C. Block Swapping

Part 232 currently requires a Class I brake test be performed if multiple individual cars or blocks of cars are added to or removed from a train's consist. This is commonly referred to as "block swapping." Existing part 232 permits the addition or removal of a single car or a solid block of cars from a train without the performance of a brake test on the entire train. 49 CFR 232.205(a)(5)(i) through (ii). With certain exceptions, however, any single car or solid block of cars from a single, previous train must receive a Class I brake test at the location where the car or cars are added to a train unless the car or cars have "previously received a Class I brake test and have remained continuously and consecutively coupled together with the train line remaining connected," and have not been off-air for more than four hours. 49 CFR 232.205(b). The rationale underlying this rule is that when cars added to a train are known to have passed a thorough brake test without a subsequent opportunity for degradation of their brake systems, there is little cause for concern that the added cars will cause any significant reduction in the train's braking effectiveness. However, when cars without proper brake tests are added to a train, the brake health of the entire train may become compromised.

When a Class I air brake test is performed, § 232.205(e) requires a valid written or electronic record of the brake test. This record is commonly referred to as a "brake slip" and, because a Class I brake test must be performed at the location where the train is originally assembled (the "initial terminal"), it serves as proof that at the initial terminal for the train, the brake pipe and each of the individual cars in that train were inspected

and found to be effective. Because the brake slip applies to the train as a whole and does not track the individual cars in a train, a subsequent change to the consist renders the initial brake slip inaccurate, often necessitating handwritten changes in addition to the brake slip. Each change to a train consist, however, increases the likelihood of an inaccurate brake slip and decreases the traceability of brake system tests.

In the 2001 final rule, FRA discussed the possibility of multiple consist changes without the requirement for a new Class I brake test. In that rule, FRA expressed concern that unlimited additions and removals of cars from trains would blur the distinction between a limited change in the train's consist and the assembly (or classification) of an entirely new train. If the distinction between the original train and new train were blurred, FRA concluded that the circumstances under which a Class I brake test would be required would also be blurred, potentially resulting in newly assembled trains never receiving Class I brake tests. Class I brake tests are intended to be comprehensive inspections of the brake equipment of each car in an assembled train and to ensure that a train's brakes are in proper working condition and capable of traveling to the train's destination with minimal problems en route. Accordingly, ensuring all equipment in a train receives a proper Class I brake test is critical. 66 FR 4104 at 4119. FRA concluded that if railroads were allowed to change a train consist substantially without the requirement for a new brake test, trains would not be required to receive comprehensive brake tests at their initial terminal. Second, FRA noted that if cars are permitted to be moved in and out of trains at will, Class IA brake tests, which rely upon the mileage of the most restrictive car, would likewise be impossible to track. *Id.*

#### D. AAR Petition

In its Petition, available in the docket to this rulemaking, AAR notes its member railroads developed a prototype eABS system to track brake tests of freight cars, and AAR asserts that the information that "can be obtained from the eABS exceeds" the

existing regulatory requirements of part 232. An eABS system electronically tracks detailed brake test information for individual rail cars and the distance individual rail cars travel between brake tests. For cars with a valid eABS, AAR requests that FRA permit each individual freight car to move the maximum mileage permitted by the qualification of the car's inspector, regardless of the distance cars may be moved without an initial (Class I) or intermediate (Class IA) brake test. AAR also requests that FRA provide flexibility to railroads adding or removing cars with valid eABS systems in and out of trains made up of solely of cars with a valid eABS.

Under the existing requirements, a train's allowed travel distance is limited to the distance the car in the train with the highest mileage is allowed to travel before becoming due for its next brake test. § 232.207(a) ("The most restrictive car or block of cars in the train shall determine the location of [the Class I or IA brake] test."). In its Petition, AAR requests that FRA propose to require an intermediate brake test not on the entire train, but only on each car whose mileage exceeds the permitted amount. Adoption of this recommendation would allow movement up to 1,500 miles between Class I and Class IA brake tests performed by a QP or up to 2,500 miles between such tests if each car brake test is conducted by a QMI. AAR also requests FRA propose that each car operating under an eABS be exempt from the additional brake tests required when one or more blocks of cars with valid brake tests are added to or removed from a train (known as "block swapping," discussed further below).

In its Petition, AAR posits that eABS systems have the potential to eliminate the stated safety concerns that form the basis for the block swapping restriction. According to AAR, a properly designed and implemented system tracking each car's individual brake test record would provide increased information accuracy and confidence in tracking brake tests. AAR asserts that because an eABS system would track brake test information for each car (as opposed to whole trains), reclassification of the cars in a train

(i.e., changing the position of individual cars or adding or removing single or multiple cars from a consist) would no longer hold the potential to result in a railroad avoiding or delaying brake tests for individual cars. AAR also states that the ability to block swap cars without the constraints of additional required brake tests would allow for the movement of a greater number of cars with fewer train stops, increasing rail network efficiency and reducing railroad employees' exposure to safety hazards that may result in injuries from actions related to the performance of required brake tests, such as climbing cars in order to engage and disengage handbrakes. In its Petition, AAR also presents proposals and supporting data regarding eABS systems, information protection, eABS system integrity maintenance, and availability of records requirements. A more detailed description of AAR's Petition and the supporting data provided is included below in the Section-by-Section Analysis. FRA requests comment on AAR's Petition and on FRA's proposals in this NPRM.

#### E. Technological Improvements

FRA has long recognized the relationship between a train brake system's effectiveness and integrity and the mileage traveled between brake tests. *E.g.*, 47 FR 7286 (Feb. 18, 1982). Since FRA last addressed the mileage limits between brake tests in 2001, technological improvements have increased the reliability of, and monitoring capability for, key brake system components. As AAR notes in a separate petition for rulemaking requesting a change in the number of hours a train may be permitted to remain off-air between brake tests, welded brake piping and fittings and ferrule-clamped air hoses (instead of the previously used grip-type fittings now prohibited by interchange rules) have reduced the severity of brake pipe leaks in standing trains. FRA Docket Number FRA-2018-0093. In that same petition, AAR also notes continuous improvements in car control valves, increased compliance with Federal biannual yard air systems inspection requirements, and the installation of oil and contaminant separators in

most locomotives to keep compressed air clean. AAR also asserts that improvements in air leakage reduction reduce each brake system's exposure to such contaminants, helping to reduce wear and preserve its effective lifespan.

According to AAR, improvements in other brake system components have continued to increase overall brake system lifespan and reliability. For example, AAR contends that brake shoe composition improvements have reduced stopping distances, smoothed brake applications, and reduced brake shoe and car wheel wear. Dynamic and blended braking, in which applications of the air brake are replaced or greatly supplemented by motors converting mechanical energy to electricity, are in widespread use. As a result, AAR contends that frequency of use of trains' air brake systems, and therefore the long-term rate of wear on those systems, has been reduced. AAR has provided additional justification, in the form of a presentation available in the docket, titled "QMI versus QP Air Brake Inspections," further detailing both technological improvements and changes to industry standards to retire obsolete components.

AAR also notes that wayside detectors implemented along railroad track include sensors designed to recognize and alert railroads of conditions associated with mechanical defects. Wayside detectors most commonly collect information on the physical measurements and impact load of individual car wheels, and the temperature of individual car components including wheels, axles, and bearings. High temperatures can be indicative of a locked or sticking brake, while low temperatures may indicate that a car's brake system is inoperative.<sup>14</sup>

FRA notes that although significant advancements have been made to air brake system technologies in recent years, and many obsolete components have been retired

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<sup>14</sup> For a description of various wayside detector implementations and their potential uses, see *An Implementation Guide for Wayside Detector Systems*, from FRA's Office of Research, Development, and Technology available at [https://railroads.dot.gov/sites/fra.dot.gov/files/fra\\_net/18667/Wayside%20Detector%20Implementation%20Guide.pdf](https://railroads.dot.gov/sites/fra.dot.gov/files/fra_net/18667/Wayside%20Detector%20Implementation%20Guide.pdf).

from the system population, many components remain essentially unchanged over the years. FRA seeks comment on the impact technological advancements have had on the reliability and durability of specific components of train air brake systems and those systems as a whole. FRA also seeks comment on how any existing or expected future technological advancements may impact the proposals in this NPRM.

#### F. Supporting Data

The number of accidents caused by brake system failures that FRA considers to be identifiable through the conduct of brake tests has historically been a small proportion of all reported accidents, injuries, and fatalities. Between 1976 and 1980, there were 1,168 accidents identified as attributable to brake-related causes, resulting in no fatalities and 62 injuries.<sup>15</sup> 47 FR at 7288 (Feb. 18, 1982). By comparison, during the same period, there were a total of 50,078 accidents reported to FRA, resulting in 62 fatalities and 5,114 injuries. *Id.*<sup>16</sup>

As Table 1 below shows, the number of reportable accidents and injuries attributable to brake-related causes has declined significantly over time, while fatalities remain relatively rare.<sup>17</sup> For example, between 2014 and 2018 the number of accidents

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<sup>15</sup> Accident reports may be amended for five years from the initial report, in order to reflect updated information. As a result, current FRA accident statistics for the period show 1,175 accidents and 63 injuries due to brake-related causes. Although there was one reported fatality, FRA previously reviewed the report and concluded that power brake failure was not the primary cause of the fatality. *See* 47 FR 7283 at 7288 (Feb. 18, 1982).

<sup>16</sup> FRA notes that the 2001 final rule published data on brake-related incidents from 1994 to 1998 that included brake-related human-factor caused accidents (e.g., train handling and improper use of brakes). 66 FR 4108. In developing this proposed rule, which would impact the frequency and tracking of brake tests, FRA has assessed only causes considered to be a result of defects that likely could have been identified by effective brake tests (*see* footnote 11).

<sup>17</sup> The only reported fatalities since 1999 occurred in an accident in Granite Canyon, Wyoming on October 14, 2018, discussed below. Although FRA concluded that brake-related component malfunction was a contributing cause of the accident, additional causes that could not have been identified by brake testing or pre-departure inspections also contributed to the accident, including the failure of an EOT device to activate. Moreover, FRA notes that the report of 91 injuries during the period of 1994-1998 is overstated. On reviewing the accident reports from this period, FRA has concluded that 61 of the reported injuries resulted from human error that could not have been identified by brake tests. The 61 reported injuries resulted from a single accident, Railroad Accident No. 295963, that took place on June 17, 1995. The railroad reported that a flatcar of railroad ties rolled away 5 miles unsecured during a switching operation and struck an excursion train head-on. During switching operations, the car air brake system remains uncharged with air, and securement is by handbrakes or chocks/skates under the wheels of the car. The proximate cause of the accident was human error for not properly securing the flatcar.

attributable to brake-related causes, and particularly brake-related causes that are the result of defects that likely could have been identified by effective brake tests, declined to 158 accidents. Reported injuries have also declined significantly.

TABLE 1—ACCIDENTS RELATED TO BRAKE SYSTEMS FAILURES RESULTING FROM DEFECTS POTENTIALLY IDENTIFIABLE BY INSPECTION<sup>18</sup>

Years	Number of Accidents	Injuries	Fatalities
1984-1988	318	21	0
1989-1993	236	27	0
1994-1998	184	91	1
1999-2003	198	9	0
2004-2008	212	9	0
2009-2013	159	0	0
2014-2018	158	7	2
Total	1,465	163	3

Since 1994, FRA has received fewer than 200 accident reports in each five-year period attributable to brake-related causes (aside from 2004-2008), and fewer than ten reported injuries.<sup>19</sup> This amounts to fewer than 40 accident reports per year and fewer than two reported injuries per year that are related to causes that could have been

<sup>18</sup> For these accident statistics, FRA used the following cause codes: Air hose uncoupled or burst (E00C and E00L), Hydraulic hose uncoupled or burst (E01C), Broken brake pipe or connections (E02C and E02L), Obstructed brake pipe (E03C and E03L), Other brake component damage (E04C and E04L), Brake valve malfunction /undesired emergency (E05C and E05L), Brake valve malfunction / stuck brake (E06C and E06CL), Rigging down or dragging (E07C), Hand brake broken or defective (E08C and E08L), Other brake defects (E09C and E09L), Hand brake link and/or connect defect (E0HC and E0HL), and Failure to release hand brakes on car(s), railroad employee (H019). The numbers reported above are current as of February 2020. FRA believes accidents using these cause codes are the result of defects that could be identified by effective brake tests.

<sup>19</sup> Under 49 CFR part 225, railroads are required to report certain accidents or incidents to FRA including (1) highway-rail grade crossings accidents, (2) rail equipment accidents resulting in damages above a current reporting threshold; and (3) death, injury, and occupational illnesses that arise from an event or exposure arising from the operation of a railroad that is a discernable cause of the resulting condition or a significant aggravation to a pre-existing accident or incident. 49 CFR 225.19.

identified in the course of an effective brake test. By contrast, FRA has typically received between 11,000 and 23,000 accident reports per year over the same period. Given the relief granted in the 1982 final rule, and in the 2001 final rule for extended haul trains, the trend of diminishing brake-caused reportable accidents leads FRA to conclude that the relief provided by those rules did not adversely impact safety and the proposed regulatory relief is possible without adversely impacting safety.

AAR provided data with its Petition that it says demonstrates that the rate of brake-related or other defects observed in trains that travel greater than 1,500 miles between brake tests is not greater than the rate observed for trains that travel less than 1,500 miles between such tests. This data is from certain operations with trains traveling up to 1,680 miles and 1,702 miles between brake tests under waivers granted to Union Pacific Railroad (UP) and BNSF Railway (BNSF), respectively (*see* Docket Nos. FRA-2015-0036 and FRA-2006-24812; and FRA-2019-0072-0001, Appendix B). FRA generally agrees with AAR that this data shows that the increased mileage allowed under the waivers does not impact the safe operation of the trains. FRA notes, however, that both waivers require QMIs to conduct the required brake tests and designated inspectors to conduct the required freight car inspections on trains subject to the waivers. Out of 7,827 UP trains operated 1,500 to 1,680 miles between brake inspections between November 2015 and June 2018, there were two reportable accidents, neither of which was caused by a defect in the air brake system. According to AAR, of 15,480 BNSF trains operated 1,500 to 1,702 miles between inspections from July 2015 to June 2018, there was only one accident, which was caused by a broken car axle. FRA recognizes that such accident rates suggest that the extension of miles traveled between brake tests likely would not increase the rate of accidents due to causes the brake test would be expected to detect.

AAR also provided wayside detection data related to operations under the BNSF 1,702-mile waiver, and to Canadian National Railway (CN) operations in Canada. This wayside detection data includes a comparison of wheel impact load detector anomaly data from trains operating under the BNSF waiver and traveling over 1,500, but not exceeding 1,702 miles (waiver trains) versus trains traveling 1,500 miles or less (non-waiver trains). CN provided data from detectors of stuck brakes (i.e., indications of increased wheel temperature due to increased friction). *See* Docket No. FRA-2019-0072-0001, Appendix C. The subject CN trains included trains traveling in Canada for distances between brake testing exceeding the maximum of 1,702 miles permitted for the longest distance in a waiver issued for any train in the United States. AAR concluded that the CN data showed that longer trip miles were associated with fewer stuck brake defects detected and asserted that, overall, the data provided suggests that there is little or no correlation between mileage traveled and additional defects.

FRA, however, does not reach the same conclusion as AAR based on the data provided. While wayside detection data provides indications of possible defects, a QMI follow-up inspection is generally required to verify that a defect actually exists. Moreover, the accuracy of wayside detection data would better serve this analysis if AAR could provide a measurement of false positives/false negatives of wayside detection indications versus actual defects detected and repaired by QMIs. In light of these shortcomings, FRA seeks comment on the accuracy and predictive value of the wayside detection data provided by AAR in support of its Petition. For example, FRA seeks comment and data on the extent to which wayside detector indications are already being utilized to accurately identify and/or predict brake defects. Two railroads are presently conducting hot/cold wheel wayside detector waivers<sup>20</sup> that could provide preliminary

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<sup>20</sup> AAR-Union Pacific, at Docket No. FRA-2016-0018; and BNSF Railway, at Docket No. FRA-2018-0049.

information on the efficacy of wayside detection to provide indications of defects. FRA also seeks comment and data on potential ways wayside detection data could be factored into determinations of rail equipment's overall brake health and on alternative sources of data or methodologies that could be employed to determine the effect of Class I brake tests on defects more accurately.

AAR also provided monthly data from 2017 on the number of brake system-related defects and bad-ordered cars discovered in outbound inspection data compiled for certain Class I railroad yards in Birmingham, Alabama; Elkhart, Indiana; Kirk, Indiana; and Symington, Manitoba, Canada. *See* Docket Number FRA-2017-0130-0001, Attachment 3. According to AAR's data, over 500,000 cars were inspected at each yard in the United States and more than one million cars inspected at the Canadian yard. Notably, in Canada there is no limit on the miles trains or individual rail cars may travel between brake inspections.<sup>21</sup> The resulting inspection data shows a difference that is not statistically significant in the defect and bad order rates between the cars found in the U.S. and Canada. However, this data is of limited use in the context of this rulemaking because it is not clear whether these locations are truly representative of the global population of railcars. FRA believes that comparison of these numbers to a true national sample of car repair billing records could help to illuminate the usefulness of this data to the analysis. Alternatively, absent a true national sample, a smaller sample size could be used provided an analysis of any potential sampling bias is conducted and provided any such potential bias is effectively mitigated. In addition, it is also not clear whether the cars were inspected by QMIs or QPs, or their Canadian equivalents. FRA requests that AAR provide information clarifying the distance these trains traveled, the qualifications of the individual inspectors who inspected the subject equipment, and either an analysis

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<sup>21</sup> *See* Transport Canada, Train Brake Rules, TC O-0-165, published November 17, 2017.

comparing the existing data to a true national sample of car repair billing records, or other appropriate analysis that identifies and mitigates any potential sampling bias.

In further support of its Petition, AAR and some of its member railroads have provided data (available in the docket) purporting to show no significant difference in the critical incident rate discovered between inspections conducted by QPs and inspections conducted by QMIs. FRA disagrees with AAR's findings, because the data does not indicate how inspections conducted by individuals qualified as QMIs (who are typically designated mechanical employees) were distinguished from individuals qualified only as QPs (who are typically train crew members).<sup>22</sup> Currently, there is no requirement for railroads to differentiate between QMI and QP inspections in their records, other than for extended haul trains and trains operated under certain waivers, and QMIs meet the regulatory criteria to be designated as QPs. Accordingly, the methodology described by UP for eliminating QMI inspections would not have removed from the data any inspections conducted by more highly-qualified QMIs who were acting in their capacity as QPs. If a clear delineation between QP and QMI inspections can be made in this data so that the resulting data does not commingle the two types of inspections, the data could potentially be more compelling.

In addition, the AAR data is from two unnamed Class I railroads, one of which AAR indicates operates in the eastern United States while the other AAR indicates operates in the western United States. FRA cannot determine from the information provided whether the data is generally representative of the industry for variables that can affect braking equipment, such as weather, general equipment conditions, or geography. Relatedly, UP provided data it stated showed that QP-only inspections resulted in bad orders for cars (orders to send a car for repairs) for less than 0.2% of car trips. FRA notes

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<sup>22</sup> See Section II.B. Brake Test Frequency for a more detailed discussion of the differences between QMIs and QPs. See also the section-by-section analysis of proposed § 232.211, below, also contains a discussion of the differences between QMIs and QPs.

that the methodology described by UP also fails to distinguish QMI-trained inspectors from QPs, resulting in the commingling of data. In addition, FRA notes that the data cannot be interpreted without contextual information about the true defect rate.

In sum, given the shortcomings of the data related to QP inspections as described above, FRA finds that it does not have sufficient data to consider allowing an extension of the mileage permitted between brake tests when those tests are performed by QPs due to the requirements of 49 U.S.C. 20302(d)(2). When trains undergo comprehensive Class I brake tests by QMIs and freight car inspections by designated inspectors, however, FRA finds that a mileage extension up to 2,500 miles between brake tests may be justified at this time. FRA's finding is based on the data discussed above gathered through the ongoing waivers permitting certain trains to travel up to 1,702 miles between brake tests and preliminary data from separate, newer waivers involving trains inspected by QMIs and designated inspectors and traveling up to 2,600 miles between brake tests. *See* docket numbers FRA-2016-0018 and FRA-2018-0049. Although data from each of these waivers is preliminary, coupled with FRA's and industry's experience operating trains equipped with electronically controlled pneumatic (ECP) brakes up to 5,000 miles between brake tests,<sup>23</sup> FRA finds that an incremental increase in mileage on non-ECP brake trains inspected by QMIs and designated inspectors may be justified.

Finally, AAR provides results of its analysis of FRA data on employee incidents that it concludes show that from 2015 to 2017 there were 277 employee injuries related to the use of handbrakes, and an additional 200 injuries associated with getting on or off standing equipment or related activities. Over the three-year period, this amounts to 159

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<sup>23</sup> FRA's regulations allow trains equipped with ECP brakes and operating in ECP brake mode to travel up to 3,500 miles between Class I brake tests. 49 CFR 232.607. FRA has additionally authorized railroads to operate trains in ECP brake mode up to 5,000 miles between brake tests with QMI inspections. *See* Docket No. FRA-2009-0088. Although ECP brake control valves are designed to electronically operate and self-report defective brake components in real time, the brake pipe, brake cylinders, and foundational brake rigging of an ECP brake system are the same components that make up traditional air brake systems. Successful operation of trains with ECP brakes demonstrates that these components can safely operate at extended distances between brake tests.

annual employee injuries. Citing this data, AAR asserts that “the reduction of unnecessary brake tests, including any additional train stops and car handling, will in turn reduce exposure to risk of injury from walking on track, as well as from applying and releasing handbrakes and climbing on and off railcars to do so.”

FRA finds that AAR’s conclusion may overestimate injuries related to brake testing to the extent that some of the injuries may have occurred during activities not performed for the purpose of conducting brake tests. AAR’s estimate, however, demonstrates that there may be opportunity to reduce the incidence of employee injury through a reduction in the frequency of required brake tests. FRA concludes from this information that the proposed rule would likely reduce the number of employee injuries related to brake tests, but FRA cannot estimate the reduction in incidence of employee injury that would result without more information.

#### G. Safety Improvements

Because the overall reliability of brake systems has increased through technological and operational improvements and no measurable decrease in safety resulted from the increase in allowed mileage in 2001, FRA believes that reducing the frequency or extent of brake tests as proposed in this rule may be warranted. This would have the benefit of reducing the risk of injury for employees charged with inspection and testing duties. Increasing overall brake system reliability results in decreasing the expected number of defects discovered during a brake test. FRA expects the flexibility proposed in this NPRM would have the potential to increase the overall quality of brake tests, because the flexibility provided incentivizes the increased use of more-qualified inspectors, QMIs, and the data collection and retention requirements permit FRA and the railroad industry to analyze the effectiveness of brake tests closely to discover best practices and areas for improvement. FRA also recognizes the potential that added

flexibility in the reallocation of resources could result in increased safety through such channels as increasing specialization in safety inspection functions.

FRA expects data generated by eABS systems may provide information useful to further maintain safe car brake systems, and may promote railroad safety generally by encouraging the use of eABS systems and therefore identifying and resolving potential brake problems before brakes fail. For example, electronic tracking of factors that are correlated with brake system defects such as car age and load weight, train length, locomotive power, quantity, and distribution, and applicable routes and terrain, may lead to identification of defects without a brake test.

### **III. Section-by-Section Analysis**

Unless otherwise noted, all section references below refer to sections in title 49 of the Code of Federal Regulations (CFR). FRA seeks comments on all proposals made in this NPRM.

#### *Section 232.5 Definitions*

FRA proposes to add to this section definitions for the following terms:

“*Electronic air brake slip*” or “*eABS*,” and “*eABS system*.” The terms “*Electronic air brake slip*” or “*eABS*” are intended to refer to the record that must be stored for the car in order for the railroad to avail itself of the relief granted in the proposed rule. The term “*eABS system*” would describe the electronic system that stores the record.

#### *Sections 232.205, 232.207, and 232.209 Class I Brake Test-Initial Terminal Inspection, Class IA Brake Tests – 1,000-Mile Inspection, and Class II Brake Tests – Intermediate Inspection*

Under the proposed rule, FRA would provide railroads an option to comply with new § 232.221 in lieu of §§ 232.205, 232.207, and 232.209.<sup>24</sup> Specifically, FRA

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<sup>24</sup> Sections 232.205, 232.207, and 232.209 set forth the requirements for Class I, Class IA, and Class II brake tests, respectively.

proposes to revise each of these sections to reference § 232.221 as an alternative means of compliance. Proposed § 232.221 (discussed in more detail below) would set forth the proposed requirements for operations using an eABS system and would also specify the conditions under which proposed §§ 232.205, 232.207, and 232.209 would apply.

*Section 232.221                      Electronic Air Brake Slip (eABS) System Requirements*

Proposed § 232.221 would set forth the requirements for eABS systems and railroad operations under those systems. As proposed, this section would allow railroads to move cars with a compliant eABS up to either 1,000 or 2,500 miles between brake tests provided certain conditions are met. FRA intends the proposed requirements of this section (e.g., automatic tracking of individual car's mileage, testing prior to exceeding the permitted mileage, and recordkeeping) to support the ability of an eABS system to ensure that cars operated under this proposed rule would be appropriately inspected with the parameters of the rule.

Proposed paragraph (a)

If a railroad has implemented an eABS system and is operating a train using the eABS system, proposed paragraph (a) would allow the railroad to move an individual freight car in that train up to 1,000 miles between brake tests provided certain conditions are met. First, proposed paragraph (a)(1) would require that the mileage the car travels since its last Class I brake test be automatically tracked in the eABS system. Second, consistent with AAR's petition, proposed paragraph (a)(2) would require the car to be moved only as part of a train consist consisting entirely of cars being operated under proposed § 232.221. Third, proposed paragraph (a)(3) would require the eABS system to retain a record of the car's Class I brake test containing certain required information.

The alternative framework outlined in paragraph (a) replaces the conditions that trigger Class I, Class IA, and Class II inspections of entire trains under §§ 232.205, 232.207, and 232.209. As proposed, any car that meets the requirements of paragraph (a)

may be moved up to 1,000 miles between Class I air brake inspections, whether that car moves in one train or multiple trains. Although this reframing of brake test requirements from the level of the train to the individual car is a major departure from historical practice, it reflects the recognition that a Class I brake test is at the core a detailed, visual inspection of the functioning of the brake systems of the cars that compose the train. This shift, from a single, whole-train inspection to timely inspections of individual cars in a train's consist on a separately-tracked basis, is possible due to technological improvements in the ability to track large amounts of information reliably.

Paragraph (a)(3)'s proposed brake test record requirement is based on AAR's Petition, and follows current Class I brake test recordkeeping requirements and industry practices. FRA proposes to require the eABS records contain the following additional information to preserve existing requirements and industry practices and to facilitate effective oversight: (1) identification and railroad affiliation of the person creating the eABS record and inputting the record into the eABS system (the "author" of the record); (2) identification and railroad affiliation of the person who performed the brake test, if different from the author; (3) record creation date and time; and (4) a certification that the requirements of §§ 232.205(a)(3) and 232.305(c) have been met. FRA expects that, for railroads utilizing eABS systems, the individual putting the record of a brake test into the eABS system may not be the individual who conducted the test. FRA also expects that many eABS systems would be interoperable, or alternately, that many railroads would elect to utilize jointly a single eABS system. This may result in one railroad conducting the brake test and reporting information to another railroad for creation of the record. Because the author of the record in either case may be less likely to have firsthand knowledge of the brake test, it is important to ensure that the record identifies, in separate fields, the name and railroad affiliation of the author of the record, and the name and railroad affiliation of the person who performed the last Class I brake test. *See* proposed

paragraphs (a)(3)(i) through (ii) and (vi). FRA recognizes that industry practice varies in the identification of railroad employees, with some railroads providing for the use of employee names and others requiring the use of employee identification numbers. Under the proposed rule, any effective method of identification is permitted.

Consistent with AAR's Petition, and for the reasons explained in more detail below, proposed paragraph (a)(3)(vii) would require the eABS to identify the qualifications of the person conducting each car's Class I brake test (i.e., whether the person who conducted the brake test is a QP or QMI as defined in § 232.5). The proposed requirement to record the qualifications of individuals performing the brake tests is intended to ensure that only individuals possessing sufficient knowledge and ability do so, and that the specific qualifications of each person are known. As discussed below, the recording of this qualification information will also permit the collection of information on which to determine more accurately the relative benefit to safety of inspections by a QMI compared to inspections by a QP. Such information is necessary to conclude whether a future extension of the miles traveled between brake tests would be appropriate where an inspection was conducted by a QP.

Consistent with AAR's petition, proposed paragraph (a)(3)(viii) would require an eABS record to contain an "accurate calculation of the mileage remaining until the next Class I brake test is required." Further description of such a calculation has been proposed as part of paragraph (h). Proposed paragraph (a)(3)(ix)'s requirement that railroads record adherence to existing off-air requirements and existing single car air brake testing timeframes is intended to reinforce the requirement for continued compliance with those rules, even under the alternative regulatory framework of § 232.221. FRA notes it made changes to these requirements in a recent final rule that extends the time-off-air limits and provides additional flexibility as to the frequency of single car air brake tests. 85 FR 80544 (Dec. 11, 2020). The requirements in this

paragraph complement the changes in that final rule. Since added flexibilities in the timing and frequency of air brake tests have been implemented, timely adherence to the revised requirements as well as all other brake inspection and testing requirements will take on greater importance.

FRA notes that proposed paragraph (a)(3)(v)'s requirement that the eABS include the date and time of the last Class I brake test may provide sufficient information that the car has not triggered a testing requirement based on time-off-air, because each Class I test requires that a car be placed on a source of air during testing. Similarly, because operation of a train requires a locomotive to provide air to each car in the train, the time of each car's most recent arrival and/or departure in a train may likewise serve as sufficient information. For this reason, proposed paragraph (a)(3)(ix) does not require an eABS to contain specific information showing that a car has met the off-air requirements of § 232.205(a)(3) if the maximum time the car has been off air can be determined from other information on the eABS record. Accordingly, as proposed, specific information showing that a car has not been off air in excess of the time allowed by § 232.205(a)(3) would not be required except where it cannot be determined from the other required information on the eABS (e.g., time and location of the last Class I brake test) whether or not the car has been off air for more than 24 hours. FRA expects that railroads will be able to track time-off-air by reference to this or other information commonly maintained in the railroad industry or required by regulation. FRA requests comment on whether the proposed provisions are sufficient to track individual cars' time-off-air or if a separate record keeping requirement for time-off-air as part of the eABS is necessary.

FRA expects that for a significant majority of cars, information based on the most recently recorded arrival and departure of a car may be included in the eABS to provide sufficient information for this proposed recordkeeping requirement. This is based on AAR's assertion that the proposal in its Petition would result in higher car utilization

rates. AAR also states that the large majority of freight cars use Automatic Equipment Identification (“AEI”) tags that already facilitate automatic recording of arrival and departure data. Accordingly, FRA considers that the burden of this requirement will not be significant.

#### Proposed paragraph (b)

Consistent with AAR’s petition, proposed paragraph (b) would allow a railroad to move individual freight cars up to 2,500 miles between Class I brake tests if they meet the requirements of paragraph (a) and meet certain additional conditions designed to ensure the cars remain in proper condition for the extended mileage. First, proposed paragraphs (b)(1) and (2) would require the cars to have their part 215 inspections performed by designated inspectors as defined in § 215.11 and their Class I brake tests performed by QMIs as defined in § 232.5. The proposed requirements mirror the existing requirements applicable to extended haul trains. 49 CFR 232.213. As noted in the 2001 final rule that first allowed for extended haul trains, greater distances provide a greater risk of brake failure, and therefore it is important to ensure high quality inspections are performed prior to extended haul trips. Such inspections must be performed by individuals who can identify defective conditions, have the knowledge and experience to know how a particular defective condition affects other parts of the brake system or mechanical components, and have an understanding of what might have caused a particular defective condition to arise.

As noted earlier in section II.B of this preamble, part 232 requires only that a QP receive the instruction and training required to perform the specific brake test function that the QP will perform under part 232. §§ 232.5 and 232.203. For the purpose of a Class I brake test under § 232.205, a QP is expected to be able to identify those observable defects that would cause the train or any car in the train to fail the test. For example, a QP would be expected to have the training necessary to identify whether

brake rigging is unsecured, binding or fouling, and engaged or released under appropriate conditions. In general, a QP is unlikely to be qualified as a designated inspector for purposes of the pre-departure inspection under part 215. As a result, a QP would only perform a limited pre-departure inspection focused on apparent safety hazards (i.e., an Appendix D inspection). 49 CFR 215.13; appendix D to 49 CFR part 215.

As also discussed in section II.B above, to meet the requirements for designation as a QMI, a QP must additionally have primary, “hands-on” responsibility for troubleshooting, inspecting, testing, maintaining, or repairing of specific train brake components and systems. This required, additional experience is intended to ensure that such individuals provide a high-quality train air brake inspection. 66 FR at 4104. In addition, a QMI is generally qualified as a designated inspector for purposes of a pre-departure inspection. Such inspectors are required by regulation to determine whether each car inspected is in compliance with part 215. As a result, QMIs generally possess the additional experience and responsibility to identify a wider range of mechanical defects and equipment conditions that may adversely affect safety. For example, a QMI must be able to recognize not only the presence of unsafe conditions, but also will, through experience, be able to recognize indications of developing conditions that could become safety defects.

In the absence of convincing data for inspections by QPs comparable to that available for inspections by QMIs, FRA proposes to maintain the current mileage between inspections for cars inspected by QPs. Because cars operating under an eABS would be permitted to be added to or removed from a train without limitation, FRA expects that a larger number of cars would be operated closer to the maximum permitted distance between inspections. FRA notes that the requirement to record each inspector’s qualification would provide an opportunity to establish more firmly the comparable safety benefit of inspections by QPs and QMIs. Should data and experience demonstrate

a continued safety benefit to the use of QMIs, FRA expects that the significant extension of mileage afforded for inspections by QMIs would result in a corresponding increase in the proportion of QMI inspections. FRA seeks comments on proposed paragraph (b), as well as information and data that may affect this proposal.

#### Proposed paragraph (c)

This proposed paragraph would allow, in certain circumstances, a car that does not have an eABS record meeting the requirements of paragraph (a) to move under the provisions of proposed § 232.211. Proposed paragraph (c) operates in conjunction with proposed paragraph (d), which sets conditions on the movement of trains with eABS cars. However, proposed paragraph (c) not only applies in the event of a disruption in communication with the eABS system but also to other events leading to a delay in the recording of eABS information prior to a train movement (e.g., including both delays in the creation of a new eABS and delays in the update of mileage remaining under proposed paragraph (a)(3)(viii)). The AAR Petition did not request provisions for flexibility in the event of eABS system disruption. However, some flexibility may be necessary to facilitate adoption of electronic recordkeeping, to promote interoperability of eABS systems, and to permit railroads to better adapt recordkeeping under eABS to existing business practices. FRA requests comment on the issue of providing appropriate flexibility in recordkeeping under an eABS system while maintaining timely and accurate records.

To perfect a car movement under proposed paragraph (c), the railroad must enter an eABS record for the car into its system as soon as practicable after departure from one location, but no later than the time at which the car departs any further location in a new train. This means proposed paragraph (c) would permit a railroad to convert a train with a Class I brake test under § 232.205 into an eABS train at a subsequent location, provided that the train consist has remained intact prior to entering records for the cars in the eABS

system and a record of all necessary car information is available. However, a railroad would not be permitted under the proposed rule to convert subsequently an eABS train to a train operating under a § 232.205 brake slip without complying with both rules at the initial terminal.

A railroad could split an eABS train at a location without requiring compliance with the proposed requirement to enter the eABS record before departure. Under present policy, FRA considers the splitting of a train to be the classification of two new trains, of which one may continue if it has mileage remaining on its brake test. Under the framework of eABS, FRA does not consider the splitting of a train to create a new train because any train movement that occurs after the splitting of the train remains dependent upon each individual car's mileage since its last qualifying brake test, and would be contemporaneous with a train movement of the original train had the split not occurred.

FRA notes that operation under proposed paragraph (c) obligates a railroad to perfect the train movement by entering accurate eABS records including the remaining allowable mileage within the proposed limits. This is intended to prevent a railroad from using the flexibility provided in paragraph (c) to avoid the requirements of § 232.205. FRA seeks comment on the effects of this proposal.

#### Proposed paragraph (d)

Current regulations for Class I and Class IA brake tests explicitly apply to trains, and the Class I brake test applies separately both to trains and to individual cars traveling in a train. Proposed paragraph (d) clarifies the conditions under which an eABS train is exempted from the requirement to undergo these tests. Specifically, proposed paragraph (d) specifies that a train may move the number of miles that the most restrictive car in the train is authorized to move, provided: (1) a record is maintained in the cab of the controlling locomotive that includes certain information for each car in the train; and (2) the record is updated at each location where the consist is changed to reflect those

changes. Proposed paragraph (d) further provides that in the event of a disruption of communication between a train and the eABS system, the train's further movement is limited to the mileage the most restrictive car in the train is permitted to move under either paragraph (a) or (b).

Taken together, proposed paragraphs (c) and (d) would allow movement of a train, regardless of whether the eABS for each car is fully up-to-date, if the railroad performs a Class I brake test on each added car requiring such test and timely and accurately records each test. Otherwise, such a train would be required to undergo a new Class I brake test for the entire train under the requirements of part 232. Similarly, where the eABS system fails to recalculate accurately a car's available mileage between stops or fails to capture information about compliance with time-off-air requirements, the error may be corrected through an amended record to restore the validity of the eABS. Such records must be placed in the eABS system as soon as practicable after departure of the car in a train, but no later than the time at which the car departs a location in any subsequent train.

Existing § 232.205(e) requires each railroad to ensure subsequent crews are notified about prior Class I brake test information. While such information may be provided to the locomotive engineer by any written or electronic means determined appropriate by the railroad, it must be retained in the controlling locomotive's cab and contain certain prescribed data. The prescribed data is sufficient for a railroad to create an accurate eABS for each car in the train at a later time, should conditions prevent communication with the eABS system. It is essential for train crews to be notified of relevant train brake test information. Because each car would have its own eABS record, proposed paragraph (d) would require a written or electronic record of all such information for each car in a train be placed in the cab of the controlling locomotive.

To allow the possibility of manually updating the cab record (e.g., in the event of a communications failure), proposed paragraph (d) does not require that the cab record be modified for every car at every location. This applies in particular to information on remaining mileage and compliance with time-off-air requirements, which have the potential to vary for every car at every location. Instead, a cab record would need only to be updated as to consist changes. An accurate cab record must note the removal of any cars set off from the train, and add all required information for any cars picked up.

In conjunction with proposed paragraph (c), movement under the proposed rule would be permitted based upon this cab record. The railroad would remain responsible for ensuring that no car exceeds its permitted mileage, and that each car picked up as part of a train operated under the proposed rule is in compliance with paragraphs (a), (b), or (c) of this section. FRA expects that most railroads would choose to update the cab record electronically wherever possible in order to minimize compliance risk, promote convenience, and maintain the proposed flexibility in paragraphs (c) and (d) to continue operations during periods of disruption. However, under proposed paragraphs (c) and (d), FRA expects that some railroads for which participation in an eABS system would be impractical would be able to interchange with railroads participating in an eABS system with minimal burden. FRA seeks comment on the proposed paragraph with respect to the likelihood of Class III railroads and other small entities to participate in an eABS system.

Proposed paragraph (e)

For trains consisting entirely of cars operating under an eABS, proposed paragraph (e) removes the restriction on block swapping, or setting off and picking up more than one car or a solid block of cars at a single location. FRA expects that real-time, accurate tracking of brake tests and testing at the car level, as eABS systems are designed to do, would enable railroads to ensure that cars are tested in a timely manner. The current requirements for block swapping help ensure that any cars that trains pick up

en route are in proper condition for continued movement, and help ensure accurate monitoring and recordkeeping functions. At least some brake tests triggered by current block swapping requirements are unnecessary so long as cars picked up en route have had valid brake tests and freight car inspections already performed, and the tests therefore expose railroad employees to potentially unnecessary workplace hazards associated with the stopping, securing, inspecting, and classifying of trains to minimal safety benefit.

Proposed paragraph (e) also permits a change in the motive power for the consist without the requirement of an additional brake test, other than the Class III test. This proposal is consistent with existing regulations that allow for changing the motive power on a consist without a Class I brake test in certain instances (*see e.g.*, § 232.205(a)(5)(iii), § 232.211(a)(1), and § 232.219). FRA does not expect that the changing of motive power as proposed would present any different safety considerations.

Proposed paragraph (f)

This proposed paragraph would establish the minimum requirements that the eABS system must meet to permit coverage under the proposed rule. The requirements address issues of record integrity, availability, retention, accuracy, and access. FRA intends for the eABS system to provide access to information to maintain a level of information and oversight comparable to current regulations. Additional provisions are designed to enable the development of an adequate body of data to determine whether additional flexibility may be provided in the future (e.g., future mileage extensions between brake tests). The proposed availability and retention requirements under this paragraph are intended to augment more limited direct data generated through FRA inspections with a supply of detailed, auditable data generated by railroads. As the relative sourcing of data shifts from FRA towards regulated entities, a heightened requirement for data integrity and availability is necessary for FRA to remain confident in the safety of railroad testing and inspection programs. While such requirements

increase the burden of compliance on participating railroads, FRA expects that the relief provided under the proposed rule would offset such burdens with substantially greater benefits.

FRA expects that participating railroads would maintain the security of the eABS system in a manner consistent with industry standards for cybersecurity. A failure to maintain the integrity or availability of records may be evidenced by events including a significant loss of data required to be retained, an unexplained loss of availability of more than 48 hours, and a pattern or practice of providing inaccurate records or a delayed response to FRA requests. Although many such instances may also reflect violations of other provisions of the proposed rule, FRA may in its discretion treat such evidence as a failure to maintain integrity or availability for purposes of assessing penalties or for suspension or revocation of a railroad's authority to operate under the proposed rule.

Consistent with AAR's Petition, proposed paragraph (f)(1) would require an eABS system to recognize a unique identifier associated with each person that authors records in an eABS system. Use of a unique identifier, combined with restrictions in the proposed rule on destruction or modification of records, is intended to provide confidence in the authorship and accuracy of the records.

Proposed paragraph (f)(2) would require an eABS system to ensure that records stored contain all the information required by paragraph (a)(3). A requirement that records be fully complete before entry into the system would help ensure that the system would not accept a partial record. FRA would consider incomplete records to be ineffective for the purpose of establishing that a car is operating under an eABS. Although FRA recognizes that certain circumstances may require the ability to make amendments to stored records (e.g., to correct identified errors in those records), as proposed, those amendments must be clearly identified and tracked. *See* proposed paragraph (g) of this section.

Paragraph (f)(3) would require a means to ensure that any individual performing inspections is identified as a QMI if he or she meets such requirements. In conjunction with paragraph (b)(3), as proposed, paragraph (f)(3) would prohibit an eABS system from identifying a QMI as a QP, even though current regulations otherwise permit a QMI to be considered a QP. As proposed, an eABS system must ensure that the qualifications of inspectors are accurately designated so that no person who does not meet the requirements of a QMI is designated as such and so that no person who does meet the requirements of a QMI is identified as a QP. This proposed requirement would increase the quality of data collected from eABS records and would provide a method for future comparative analysis between the results of inspections performed by QPs and inspections performed by QMIs.

Although FRA expects that the enhanced training and experience of QMIs result overall in higher quality brake tests, AAR has provided data with its Petition that challenges this expectation (at least as applied to some railroads). Based on that data, AAR asserts that the rate of defect discovery is the same between QMIs and QPs. As discussed in Section II.F, above, FRA disagrees with AAR's conclusion on this issue based on the information provided, but FRA finds that use of eABS systems could provide an opportunity to gather relevant data to better inform the issue and potential future regulatory action.

Proposed paragraph (f)(4) would require that records in an eABS system be made immediately available upon request to FRA and State inspectors. The proposed paragraph provides a general performance standard to replace a requirement to maintain a record in a paper format. Under current regulations, it is common practice for FRA to observe Class I brake tests, and to compare observed activities with the written brake slip to ensure the accuracy of both the brake test and brake slip. There would be reduced time and opportunity both for FRA to observe inspections and to compare submitted records to

FRA observations of the corresponding cars because the proposed rule is expected both to increase utilization of cars and to reduce total Class I brake tests. To address this expected reduction of in-person observation, it is essential that FRA inspectors are able to access eABS records quickly.

Access to inspection records may involve use of an Internet-accessible portal, a telephone hotline, electronic mail, or other effective means developed by the railroad. In very limited cases such as in areas with limited access to wireless communication, use of railroad-owned computer terminals linked to the eABS system or the use of railroad employees as intermediaries may be sufficient to meet the proposed requirement. However, widespread use of such on-site provision of records risks the curtailment of effective oversight. FRA inspectors would be required to alert railroad employees to their presence prior to obtaining records that may be pertinent to oversight, and this may impede FRA review of ordinary operations absent inspector surveillance. As such, FRA concludes that exclusive use of on-site records access is not consistent with immediate availability. Whatever the method for providing access to inspection records, the railroad may not cause undue delay which would hinder the FRA inspector's ability to provide accurate and enforceable oversight reports regarding eABS compliance.

Proposed paragraph (g)

This paragraph defines the proposed, permitted exceptions for the modification of an eABS. Although the proposed rule generally would prohibit modification of an eABS once submitted, amendments would be permitted where the amended record will supersede, but not replace, the original. This is based upon AAR's proposal in its Petition. FRA expects that common corrections of records would include an update of the time-off-air or single car testing requirements if circumstances changed for a subject car. An exception is also proposed to allow records to be updated as to mileage on the

same record, as this element of the record will change frequently, and must be accurately maintained.

#### Proposed paragraph (h)

Proposed paragraph (h) includes the minimum requirements for any methodology for calculating and reporting mileage remaining on an eABS until a car is required to receive a Class I brake test. The proposed rule would tie the tracking of mileage to movements of a train. Movements for purpose of train classification, known as switching movements, would not be required to be recorded as part of the mileage calculation. Consistent with longstanding practice and existing legal precedent, movement of a small number of cars over distances less than one mile is typically considered switching movement, while movement that crosses public highways or another railroad's tracks at grade is typically train movement, even if over short distances and within a yard. FRA requests comment upon the proposal for the calculation and tracking of mileage, and in particular seeks alternative proposals for addressing movements of short distance or low risk for which the recording and calculation of mileage may not be practical.

Proposed paragraph (h) establishes that a car's remaining mileage would be updated as soon as practicable after each car's departure in a train. To align with paragraph (c) and in recognition of the potential need for flexibility in the proposed alternative regulatory framework, proposed paragraph (h) requires as an absolute minimum that mileage be updated prior to a car's departure in a subsequent train. Departure in a subsequent train occurs after a car has been dropped off from one train and picked up in any train at a later time. FRA does not consider that a train can be subsequent to itself absent a train movement; however, a train that leaves a location and subsequently returns to that location to pick up a car would be considered a subsequent train for the purposes of this proposed rule. Accordingly, FRA would not consider the splitting of a train at any location to create a requirement under this proposed paragraph.

If a car exceeds its permitted accumulated mileage between brake tests, proposed paragraph (h)(3) would require the eABS to track this excess mileage as a negative number. FRA is proposing this provision to ensure the eABS clearly reflects instances where cars exceed their permitted mileage.

Proposed paragraph (i)

This proposed paragraph would require railroads to retain eABS records for a minimum of one year from creation. The proposed retention period would provide an adequate body of data to inform appropriate enforcement of the rule and would provide a basis to evaluate the relative quality of QP and QMI inspections, and may serve to support future safety analyses of additional potential flexibilities under the regulations. The proposed requirements under this paragraph are also intended to augment more limited, direct data generated through FRA inspections with a supply of detailed, auditable data generated by railroads. FRA seeks comment on this proposed record retention period.

Proposed paragraph (j)

This paragraph would notify railroads that operate eABS trains that FRA reserves the right to revoke, in whole or in part, their authority to operate under proposed § 232.211 if the eABS system utilized fails to meet the requirements of proposed § 232.211 or if a railroad demonstrates a record of repeated or willful noncompliance with applicable regulations. This proposed section is modeled on existing § 232.15(b)(5), which allows railroads to use automated tracking systems to track and monitor the movement of defective equipment. Existing § 232.15(b)(5) provides that if FRA finds a railroad's automated tracking system to be insecure, inaccessible, or inadequate to track and monitor defective equipment, FRA may "prohibit or revoke" a railroad's authority to use an approved automated system. When FRA adopted this provision, FRA found that the ability to monitor and prohibit the use of deficient systems was necessary in part

because no adequate automated system for tracking defective equipment then-existed on most railroads. 66 FR at 4151. FRA has enacted similar provisions applicable to electronic or automated tracking systems for single car air brake tests and the designation of extended haul trains. *See* §§ 232.303(f)(1) and 232.213(b); *see also* 66 FR at 4142 and 4175.

FRA concludes that the proposed rule merits a similar reservation of the right to revoke, in whole or in part, a railroad's authority to operate cars under an eABS system if FRA subsequently finds issues related to security, access, accuracy, or other inadequacy in properly tracking the movement of equipment using the eABS system. As with past relief granted for the use of electronic and automated tracking systems, easy availability of records that accurately reflect the testing and inspection of operating equipment is critical to ensure FRA is able to exercise its statutory obligation to oversee compliance with railroad safety requirements. With regard to eABS, FRA's ready access to accurate records is key to enabling the agency to ensure effective oversight, develop data, and support future changes such as the consideration of future regulatory relief.

The combination of proposals in this NPRM that would provide regulatory relief and additional operational flexibility for railroads operating using eABS systems place additional importance on the quality of inspections and on the accuracy of recordkeeping compared with the relief granted in the 2001 final rule discussed above. As AAR states in its Petition, the proposed rule is expected to increase freight traffic flow and reduce overall dwell time. These significant operational and economic benefits come at the cost of reduced opportunity for FRA equipment inspection, which takes place when equipment is not moving.

FRA expects the proposed rule to improve overall safety; it is not clear that the relief proposed would improve safety under all conditions due to the novelty of the AAR proposal. Such conditions are, as a result, not known with enough certainty to merit

additional and specific limitations to the proposed relief. FRA therefore considers that a reserved right to revoke the authority to operate under the proposed rule, in whole or in part, would permit FRA to act expeditiously to remedy any specific unsafe condition that may arise that may not have been considered until the enactment of a rule. Such conditions would relate to the suitability of freight equipment for safe transit, which includes not only requirement under part 232, but additionally requirements for freight cars and locomotives under parts 215 and 229, respectively. Although the principal purpose of the brake test and inspection requirement is inspection of the brake system, FRA notes that brake tests indirectly bolster compliance with parts 215 and 229 because their performance provides railroad inspection forces with an additional opportunity to observe the general condition of all tested equipment. FRA proposes that repeated or willful noncompliance with the provisions of parts 215, 229, or 232 would provide sufficient basis upon which to revoke a railroad's authority to utilize the proposed relief. Because FRA expects that the proposed rule would improve safety performance under most conditions, proposed paragraph (j) requires that FRA's Associate Administrator for Railroad Safety establish both the basis for revocation of authority and conditions under which such authority would be restored.

#### **IV. Regulatory Impact and Notices**

##### **A. Executive Orders 12866 and 13771 and DOT Regulatory Policies and Procedures**

This NPRM is a significant regulatory action in accordance with existing policies and procedures under Executive Order 12866. In addition, this proposed rule is considered an EO 13771 deregulatory action. Details on the estimated cost savings of this proposed rule can be found in the proposed rule's Regulatory Impact Analysis (RIA), which FRA has prepared and placed in the docket. The RIA details the estimated costs and cost savings that the Class I railroads are likely to see over a 10-year period.

This analysis provides low and high estimates for costs and cost savings. Cost savings would primarily come from the reduction in brake tests that would result from mileage and block-swap relief. The proposed rule would also reduce the filing of waiver renewals by Class I railroads seeking relief from mileage limitations between brake tests. Costs would primarily come from training, acquisition of hardware, and maintenance of the eABS system.

As shown in Table E-1 and Table E-2, over the 10-year period of analysis the proposed rule would result in annualized cost savings ranging between \$15.0 million to \$30.9 million (discounted at a rate of 7%) and \$15.0 million to \$30.4 million (discounted at a rate of 3%).

**Table E-1: Net Cost Savings (Low)**

Section	Present Value (\$)			Annualized (\$)	
	Undiscounted	3%	7%	3%	7%
<b>Cost Savings</b>					
Increased Mileage	91,641,000	79,932,000	67,672,000	9,370,000	9,635,000
Unlimited Block Swapping	121,590,000	105,551,000	88,804,000	12,374,000	12,644,000
Waiver Filing and Review	133,000	118,000	101,000	14,000	14,000
Government Waiver Review	12,000	11,000	10,000	1,000	1,000
Total Cost Savings	213,376,000	185,612,000	156,587,000	21,759,000	22,294,000
<b>New Costs</b>					
System Development and Maintenance	13,845,000	12,665,000	11,427,000	1,485,000	1,627,000
Training	6,830,000	6,830,000	6,830,000	801,000	972,000
Hardware	42,613,000	37,982,000	33,188,000	4,453,000	4,725,000
Total New Costs	63,288,000	57,477,000	51,445,000	6,738,000	7,325,000
<b>Net Cost Savings</b>	150,088,000	128,135,000	105,142,000	15,021,000	14,969,000

**Table E-2: Net Cost Savings (High)**

Section	Present Value (\$)			Annualized (\$)	
	Undiscounted	3%	7%	3%	7%
<b>Cost Savings</b>					
Increased Mileage	164,554,000	143,527,000	121,514,000	16,826,000	17,301,000
Unlimited Block Swapping	164,047,000	142,408,000	119,813,000	16,695,000	17,059,000
Waiver Filing	133,000	118,000	101,000	14,000	14,000
Government Waiver Review	12,000	11,000	10,000	1,000	1,000
Total Cost Savings	328,746,000	286,064,000	241,438,000	33,536,000	34,375,000
<b>New Costs</b>					
System Development and Maintenance	13,845,000	12,665,000	11,427,000	1,485,000	1,627,000
Training	5,126,000	5,126,000	5,126,000	601,000	730,000
Hardware	9,690,000	8,637,000	7,547,000	1,013,000	1,075,000
Total New Costs	28,661,000	26,428,000	24,100,000	3,099,000	3,432,000

<b>Net Cost Savings</b>	300,085,000	259,636,000	217,338,000	30,437,000	30,943,000
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In addition to the net cost savings, the RIA identifies non-quantified benefits that may come from issuing the proposed rule. The benefits discussed may maximize and expand freight capacity, increase equipment availability, shorten cycle times, boost on-time performance and incentive greater accountability of employees who perform brake tests.

**B. Regulatory Flexibility Act and Executive Order 13272**

The Regulatory Flexibility Act of 1980 (5 U.S.C. 601 *et seq.*) and EO 13272 (67 FR 53461, Aug. 16, 2002) require agency review of proposed and final rules to assess their impacts on small entities. An agency must prepare an Initial Regulatory Flexibility Analysis (IRFA) unless it determines and certifies that a rule, if promulgated, would not have a significant economic impact on a substantial number of small entities. FRA has not determined whether this proposed rule would have a significant economic impact on a substantial number of small entities. Therefore, FRA seeks comment on the potential small business impacts of the requirements in this NPRM. FRA prepared an IRFA, which is included as an appendix to the accompanying RIA and available in the docket for the rulemaking (FRA 2019-0072), to aid the public in commenting on the potential small business impacts of the requirements proposed in this NPRM.

**C. Paperwork Reduction Act**

FRA is submitting the information collection requirements in this proposed rule to the Office of Management and Budget (OMB) for approval under the Paperwork Reduction Act of 1995 (44 U.S.C. 3501 *et seq.*). The sections that contain the proposed and current information collection requirements and the estimated time to fulfill each requirement are as follows:

CFR Section <sup>25</sup>	Respondent universe	Total Annual responses	Average time per responses	Total annual burden hours <sup>26</sup>	Total cost equivalent <sup>27</sup>
229.27 - Annual tests	30,000 locomotives	30,000 records of tests	30 seconds	250 hours	\$18,000
232.3 - Applicability - Export, industrial, & other cars not owned by railroads-identification	708 railroads	8 cards	10 minutes	1 hour	\$72
232.7 - Waivers	708 railroads	2 petitions	160 hours	320 hours	\$23,040
232.15 - Movement of Defective Equipment - Tags/Records	1,620,000 cars	128,400 tags/records	3 minutes	5,350 hours	\$385,200
- Written Notification	1,620,000 cars	25,000 notices	3 minutes	1,250 hours	\$90,000
232.17 - Special Approval Procedure - Petitions for special approval of safety-critical revision	708 railroads	1 petition	100 hours	100 hours	\$7,200
- Petitions for special approval of pre-revenue service acceptance plan	708 railroads	1 petition	100 hours	100 hours	\$7,200
- (d) Service of petitions	708 railroads	1 petition	20 hours	20 hours	\$1,440
- (d)(2)(ii) Statement of interest	Public/railroads	4 statements	15 minutes	1 hour	\$72
-(f) Comment	Public/railroads	6 comments	4 hours	24 hours	\$1,728
232.103(f)(2)-Gen'l requirements - all train brake systems - stickers	1,200,000 cars	70,000 stickers/stencils/badge plates	10 minutes	11,667 hours	\$840,024
(n)(7) – RR Plan identifying specific locations or circumstances where equipment may be left unattended	708 railroads	1 revised plan	10 hours	10 hours	\$720
- Notification to FRA when RR develops and has plan in place or modifies existing plan	708 railroads	1 notice	30 minutes	1 hour	\$72

<sup>25</sup> Note: The burden resulting from proposed § 232.221(a)(3) is covered under § 232.205. Proposed § 232.221(d)(2) reflects a usual and customary industry procedure and, consequently, would result in no burden. The burden associated with § 232.205(c)(1)(iii) is covered under OMB Control Number 2130-0004.

<sup>26</sup> Totals may not add due to rounding.

<sup>27</sup> The dollar equivalent cost is derived from the Surface Transportation Board's Full Year Wage A&B data series using the appropriate employee group hourly wage rate that includes 75 percent overhead charges.

- Inspection of Equipment by Qualified Employee after Responder Visit	708 railroads	12 inspections/records	4 hours	48 hours	\$3,456
232.107 - Air source requirements and cold weather operations – Monitoring Plan (Subsequent Years)	10 new railroads	1 plan	40 hours	40 hours	\$2,880
- Amendments/Revisions to Plan	50 railroads/plans	10 revisions	20 hours	200 hours	\$14,400
-Recordkeeping	50 railroads/plans	1,150 records	10 minutes	192 hours	\$13,824
232.109 - Dynamic brake requirements – status/record	708 railroads	1,656,000 records	4 minutes	110,400 hours	\$7,948,800
- Inoperative dynamic brakes: repair record	30,000 locomotives	6,358 records	4 minutes	424 hours	\$30,528
- Tag bearing words “inoperative dynamic brakes”	30,000 locomotives	6,358 tags	30 seconds	53 hours	\$3,816
- Deactivated dynamic brakes (Sub. Yrs.)	8,000 locomotives	10 markings	5 minutes	1 hour	\$72
- Operating rules (Subsequent Years)	5 new	5 rules	4 hours	20 hours	\$1,440
- Amendments/Revisions	708 railroads	15 revisions	1 hour	15 hours	\$1,080
- Requests to increase 5 mph overspeed restriction	708 railroads	5 requests	30 min. + 20 hours	103 hours	\$7,416
- Knowledge criteria - locomotive engineers – Subsequent Years	5 new	5 amendments	16 hours	80 hours	\$5,760
232.111 - Train information handling	5 new	5 procedures	40 hours	200 hours	\$14,400
Sub. Yrs.- Amendments/Revisions	100 railroads	100 revisions	20 hours	2,000 hours	\$144,000
- Report requirements to train crew	708 railroads	2,112,000 reports	5 minutes	176,000 hours	\$12,672,000
232.203 - Training requirements - Tr. Prog. - Sub Yr.	15 railroads	5 programs	100 hours	500 hours	\$36,000
- Amendments to written program	708 railroads	236 revisions	8 hours	1,888 hours	\$135,936
-Training records	708 railroads	24,781 records	8 minutes	3,304 hours	\$237,888
- Training notifications	708 railroads	24,781 notices	1 minute	413 hours	\$29,736
- Efficiency test plans	708 railroads	708 copies	1 minute	12 hours	\$864

232.205 – Initial terminal inspection: Class I brake tests and notifications/records <i>(Revised/new burden currently under review with OMB)</i>	708 railroads	383,840 notices/records	45 seconds	4,798 hours	\$345,456
(c)(1)(ii)(B) - RR Development /implementation of operating rules to ensure compliant operation of train if air flow exceeds stipulated section parameters after Class I brake test is completed <i>(Revised/new burden currently under review with OMB)</i>	708 railroads	10 revised operating rules	8 hours	80 hours	\$5,760
232.207 - Class IA brake tests – Designation Lists Where Performed	708 railroads	1 list	1 hour	1 hour	\$72
Subsequent Years: Notice of Change	708 railroads	250 notices	10 minutes	42 hours	\$3,024
232.209 - Class II brake tests-intermediate “Roll-by inspection –Results to train driver	708 railroads	159,740 comments	3 seconds	133 hours	\$9,576
232.213 – Written Designation to FRA of Extended haul trains	83,000 long	250 letters	15 minutes	63 hours	\$4,536
- Notification to FRA Associate Administrator for Safety of a change in the location where an extended haul brake test is performed <i>(Revised/new burden currently under review with OMB)</i>	7 railroads	250 notices	10 minutes	42 hours	\$3,024
232.219 – Double heading and helper service: Testing/calibration/records of Helper Link devices used by locomotives (formerly under 232.219(c)(3)) <i>(Revised/new burden currently under review with OMB)</i>	2 railroads	100 records	5 minutes	8 hours	\$576
232.221 - Inspection and Testing Requirements for Cars with Electronic Air Brake Slip System (eABS) Records ( <b>New requirement</b> )	708 railroads	280,203 records and copies	90 seconds + 30 seconds	9,341 hours	\$672,552

232.303 - General requirements - single car test: Tagging of Moved Equipment	1,600,000 frgt.	5,600 tags	5 minutes	467 hours	\$33,624
- Last repair track brake test/single car test – Stenciled on Side of Equipment	1,600,000 frgt.	240,000 markings	2 minutes	8,000 hours	\$576,000
232.307 - Modification of single car air brake test procedures: Requests (includes 232.409(e))	railroads/AAR	1 request + 3 copies	20 hours + 5 minutes	20 hours	\$1,440
- Affirmation Statement on Mod. Req. To Employee Representatives	railroads/AAR	1 statement + 4 copies	30 minutes + 5 minutes	1 hour	\$72
232.309 - Repair track brake test equipment and devices used to perform single car air brake tests - Periodic calibration of devices	640 shops	5,000 records of calibrations	2 minutes	167 hours	\$12,024
232.403 - Unique Code	245 railroads	12 requests	5 minutes	1 hour	\$72
232.409 – Inspection/Tests/Records EOTs	245 railroads	447,500 recording of tests	30 seconds	3,729 hours	\$268,488
--(d)-(e) Telemetry equipment – Testing/ Calibration/Rcds/ -- Documentations of testing (paragraph (d) is a revised requirement; paragraph (e) clarifies the use of § 229.27) <i>(Revised/new burden currently under review with OMB)</i>	245 railroads	17,000 records	2 minutes	567 hours	\$40,824
---(f)(2) Annual report to FRA on radios found with frequency drift <i>(Revised/new burden currently under review with OMB)</i>	1 manufacturer	1 report	12 hours	12 hours	\$864
232.503- Process to introduce new brake technology	708 railroads	1 letter	1 hour	1 hour	\$72
- Special approval	708 railroads	1 request	3 hours	3 hours	\$216
232.505 - Pre-revenue service acceptance test plan - Submission of maintenance procedure	708 railroads	1 procedure	160 hours	160 hours	\$11,520
- Amendments to maintenance procedure	708 railroads	1 revision	40 hours	40 hours	\$2,880
- Design description	708 railroads	1 petition	67 hours	67 hours	\$4,824

- Report to FRA Assoc. Admin. for Safety	708 railroads	1 report	13 hours	13 hours	\$936
- Brake system technology testing	708 railroads	1 description	40 hours	40 hours	\$2,880
232.717(c) – Freight and passenger train car brakes – Written maintenance plan (formerly under appendix B, recodified subpart H) ( <i>Revised burden currently under review with OMB</i> )	40 railroads	40 written plans	6 hours	240 hours	\$17,280
Total	708 railroads	5,625,811 responses	N/A	343,023 hours	\$24,697,656

All estimates include the time for reviewing instructions; searching existing data sources; gathering or maintaining the needed data; and reviewing the information.

Pursuant to 44 U.S.C. 3506(c)(2)(B), FRA solicits comments concerning: whether these information collection requirements are necessary for the proper performance of the functions of FRA, including whether the information has practical utility; the accuracy of FRA’s estimates of the burden of the information collection requirements; the quality, utility, and clarity of the information to be collected; and whether the burden of collection of information on those who are to respond, including through the use of automated collection techniques or other forms of information technology, may be minimized.

Organizations and individuals desiring to submit comments on the collection of information requirements should direct them to Ms. Hodan Wells, Information Collection Clearance Officer, at 202-493-0440 or via e-mail at *Hodan.Wells@dot.gov*

OMB is required to make a decision concerning the collection of information requirements contained in this proposed rule between 30 and 60 days after publication of this document in the *Federal Register*. Therefore, a comment to OMB is best assured of having its full effect if OMB receives it within 30 days of publication. The final rule will respond to any OMB or public comments on the information collection requirements contained in this proposal.

#### D. Federalism Implications

Executive Order (EO) 13132, “Federalism” (64 FR 43255, Aug. 10, 1999), requires FRA to develop an accountable process to ensure “meaningful and timely input by State and local officials in the development of regulatory policies that have federalism implications.” “Policies that have federalism implications” are defined in EO 13132 to include regulations that have “substantial direct effects on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government.” Under EO 13132, the agency may not issue a regulation with federalism implications that imposes substantial direct compliance costs and that is not required by statute, unless the Federal Government provides the funds necessary to pay the direct compliance costs incurred by State and local governments, or the agency consults with State and local government officials early in the process of developing the regulation. Where a regulation has federalism implications and preempts State law, the agency seeks to consult with State and local officials in the process of developing the regulation. FRA has analyzed this NPRM in accordance with the principles and criteria contained in EO 13132. This NPRM establishes an optional alternative to current Federal regulation that reduces certain obligations of railroads to perform brake tests. FRA has determined that this proposed rule has no federalism implications, other than the possible preemption of State laws under 49 U.S.C. 20106. Therefore, the consultation and funding requirements of EO 13132 do not apply, and preparation of a federalism summary impact statement for the proposed rule is not required.

#### E. Environmental Impact

FRA has evaluated this proposed rule in accordance with the National Environmental Policy Act (NEPA) (42 U.S.C. 4321 *et seq.*), FRA’s regulations implementing NEPA, and other environmental statutes, Executive Orders, and related

regulatory requirements. FRA has determined that the proposed rule is categorically excluded from detailed environmental review under 23 CFR 771.116(c)(15). FRA has also evaluated this rule under 23 CFR 771.116(b) to determine whether the proposed rule would involve unusual circumstances including significant environmental impacts; substantial controversy on environmental grounds; significant impact on certain Federally protected properties; or inconsistencies with any Federal, State, or local law, requirement, or administrative determination related to the environmental aspects of the action. FRA has determined that no unusual circumstances exist with respect to this proposed rule that might trigger the need for a more detailed environmental review. As a result, FRA finds that the proposed rule is not a major Federal action significantly affecting the quality of the human environment.

#### F. Energy Impact

EO 13211 requires Federal agencies to prepare a Statement of Energy Effects for any “significant energy action.” 66 FR 28355 (May 22, 2001). FRA has evaluated this proposed rule in accordance with EO 13211 and determined that this proposed rule is not a “significant energy action” within the meaning of EO 13211.

EO 13783, “Promoting Energy Independence and Economic Growth,” requires Federal agencies to review regulations to determine whether they potentially burden the development or use of domestically produced energy resources, with particular attention to oil, natural gas, coal, and nuclear energy resources. 82 FR 16093 (March 31, 2017). FRA determined this proposed rule will not potentially burden the development or use of domestically produced energy resources.

#### G. Unfunded Mandates Reform Act of 1995

Under Section 201 of the Unfunded Mandates Reform Act of 1995 (Pub. L. 104-4, 2 U.S.C. 1531 *et seq.*), each Federal agency “shall, unless otherwise prohibited by law, assess the effects of Federal regulatory actions on State, local, and tribal governments,

and the private sector (other than to the extent that such regulations incorporate requirements specifically set forth in law).” Section 202 of the Unfunded Mandates Reform Act (2 U.S.C. 1532) further requires that before promulgating any general notice of proposed rulemaking that is likely to result in the promulgation of any rule that includes any Federal mandate that may result in expenditure by State, local, and tribal governments, in the aggregate, or by the private sector, of \$100,000,000 or more (adjusted annually for inflation) in any 1 year, and before promulgating any final rule for which a general notice of proposed rulemaking was published, the agency shall prepare a written statement detailing the effect on State, local, and tribal governments and the private sector. This proposed rule would not result in the expenditure, in the aggregate, of \$100,000,000 or more (adjusted annually for inflation) in any one year, and thus preparation of such a statement is not required.

#### H. Privacy Act

In accordance with 5 U.S.C. 553(c), DOT solicits comments from the public to better inform its rulemaking process. DOT posts these comments, without edit, to [www.regulations.gov](http://www.regulations.gov), as described in the system of records notice, DOT/ALL-14 FDMS, accessible through [www.dot.gov/privacy](http://www.dot.gov/privacy). In order to facilitate comment tracking and response, we encourage commenters to provide their name, or the name of their organization; however, submission of names is completely optional. Whether or not commenters identify themselves, all timely comments will be fully considered. If you wish to provide comments containing proprietary or confidential information, please contact the agency for alternate submission instructions.

## List of Subjects in 49 CFR Part 232

**Power brakes, Railroad safety, Reporting and recordkeeping requirements.**

### The Proposed Rule

For the reasons discussed in the preamble, FRA proposes to amend part 232 of chapter II, subtitle B of title 49, Code of Federal Regulations as follows:

#### **PART 232— BRAKE SYSTEM SAFETY STANDARDS FOR FREIGHT AND OTHER NON-PASSENGER TRAINS AND EQUIPMENT; END-OF-TRAIN DEVICES**

1. The authority citation for part 232 continues to read as follows:

**Authority:** 49 U.S.C. 20102-20103, 20107, 20133, 20141, 20301-20303, 20306, 21301-21302, 21304; 28 U.S.C. 2461, note; and 49 CFR 1.89.

2. Amend § 232.5 by adding the definitions for “eABS system” and “Electronic air brake slip” or “eABS” in alphabetical order to read as follows:

#### **§ 232.5 Definitions.**

\* \* \* \* \*

*eABS system* means an electronic record keeping system used to track individual cars and air brake tests that meets the requirements of § 232.221.

\* \* \* \* \*

*Electronic air brake slip* or *eABS* means the record of inspection, contained in an eABS system.

\* \* \* \* \*

3. Amend § 232.205 by revising the introductory texts of paragraphs (a) and (b) to read as follows:

#### **§ 232.205 Class I brake test – initial terminal inspection.**

- (a) Except as provided in § 232.221, each train and each car in the train shall receive a Class I brake test as described in paragraph (c) of this section by a qualified

person, as defined in § 232.5, at the following points:

\* \* \* \* \*

(b) Except as provided in §§ 232.209 and 232.221, each car and each solid block of cars added to a train shall receive a Class I brake test as described in paragraph (c) of this section at the location where it is added to a train unless:

\* \* \* \* \*

4. Amend § 232.207 by revising the first sentence of paragraph (a) to read as follows:

**§ 232.207 Class IA brake tests – 1,000-mile inspection.**

(a) Except as provided in §§ 232.213 and 232.221, each train shall receive a Class IA brake test performed by a qualified person, as defined in § 232.5, at a location that is not more than 1,000 miles from the point where any car in the train last received a Class I or Class IA brake test. \* \* \* \* \*

5. Amend § 232.209 by revising paragraph (a) introductory text to read as follows:

**§ 232.209 Class II brake tests – intermediate inspection.**

(a) Except as provided in § 232.221, at a location other than the initial terminal of a train, a Class II brake test shall be performed by a qualified person, as defined in § 232.5, on the following equipment when added to a train:

\* \* \* \* \*

6. Add § 232.221 to subpart C to read as follows:

**§ 232.221 Inspection and testing requirements for cars with electronic air brake slip system (eABS) records.**

(a) A railroad may move a car for a cumulative distance not exceeding 1,000 miles between the brake tests described in §§ 232.205 through 232.209 if the car meets the following requirements:

(1) The mileage since the car's most recent Class I brake test is automatically tracked in an eABS system;

(2) The car is only moved as part of a train consisting solely of cars operated pursuant to this section; and

(3) A record is retained in the eABS system that includes the following information:

(i) Identification and railroad affiliation of the author of the record;

(ii) A unique identifier exclusively associated with the author of the record;

(iii) The date, time, and location the record was created;

(iv) The reporting mark and car number;

(v) The date, time, and location of the most recent Class I brake test;

(vi) The identification and railroad affiliation of the person who conducted the most recent Class I brake test, if different than the author of the record;

(vii) Identification of the person who conducted the Class I brake test as a "qualified person", or a "qualified mechanical inspector", as defined in § 232.5;

(viii) An accurate calculation of the mileage remaining until the next Class I brake test is required; and

(ix) Information certifying that the car has met the requirements of § 232.205(a)(3) (if that cannot be determined by the information otherwise required by this paragraph) and is in compliance with § 232.305(c).

(b) A railroad may move a car for a cumulative distance not exceeding 2,500 miles between the brake tests described in §§ 232.205 through 232.209 if the car meets the requirements of paragraph (a) of this section and the following requirements:

(1) A designated inspector as defined in § 215.11 of this chapter inspects the car in accordance with § 215.13 of this chapter at the location at which the car is first authorized to move under this paragraph; and

(2) The Class I brake test that is the basis for the permitted mileage is performed by a qualified mechanical inspector as defined in § 232.5.

(c) A car that does not have a record meeting the requirements of paragraph (a)(3) of this section prior to a train movement may otherwise be operated under this section if the following requirements are met:

(1) The car meets the requirements of paragraph (a)(2) of this section and, if applicable, paragraphs (b)(1) and (2) of this section; and

(2) A record meeting the requirements of paragraph (a)(3) of this section is entered into the eABS system as soon as practicable after departure of the car in a train, but no later than the time at which the car departs in any subsequent train.

(d) A train meeting the following requirements may be operated under this section for a cumulative distance not exceeding the mileage permitted for the most restrictive car in the train between the brake tests described in §§ 232.205 through 232.207:

(1) A written or electronic record is maintained in the cab of the controlling locomotive that includes the following information for each car:

(i) Its location in the train;

(ii) The reporting mark and car number;

(iii) The date, time, and location of its most recent Class I or IA brake test;

(iv) The identification and qualification of the person who performed the test (qualified person or qualified mechanical inspector, as defined in § 232.5); and

(v) An accurate calculation of the mileage remaining under paragraph (a) or (b) of this section, as applicable;

(2) The copy of this cab record must be updated at each location to reflect changes in the train consist; and

(3) In the event of disruption of communication with the eABS system, a train is permitted to move based upon the mileage permitted to the most restrictive car as reported in the cab record.

(e) Notwithstanding §§ 232.205 through 232.209, a Class I, Class IA, or Class II brake test is not required to be performed at the following locations for a train consisting solely of cars operated under this section:

(1) A location where one or more cars are removed from any location in the train;

(2) A location where any car meeting the requirements of paragraph (a) or (b) of this section is added to a train; or

(3) A location where the motive power for the train consist is changed.

(f) The eABS system must maintain the integrity and availability of records, including but not limited to:

(1) Recognition of a unique identifier associated with each person that authors records in the eABS system, with provisions to ensure that records containing such identifier accurately reflect that the individual associated with the identifier authored the record;

(2) Implementation of means to ensure that stored records contain all information required in paragraph (a)(3) of this section;

(3) Implementation of means to ensure that each record containing the statements described in paragraph (a)(3) of this section identifies as a qualified mechanical inspector any person performing a Class I brake test who meets the criteria for a qualified mechanical inspector, as defined in § 232.5;

(4) Accessibility for FRA review and monitoring at any time. Records in the eABS system must be made immediately available upon request to FRA and State inspectors under part 212 of this chapter for inspection and copying for no less than 30 days after entry or last amendment; and

(5) Procedures to minimize the effect of breakdown or malfunction, including redundant storage of records, and means to communicate and record the information required by paragraph (a)(3) of this section when access to the eABS system is unavailable.

(g) Records in the eABS system may only be modified for the following purposes:

(1) Correction of records, provided the eABS system stores amended records separately from the original records and the amended record clearly identifies the information being amended; and

(2) To update the calculation of mileage remaining until the next Class I brake test is required.

(h) An accurate calculation of the mileage remaining under paragraph (a) or (b) of this section must, at minimum:

(1) Be based upon the number of miles the car has traveled as part of a train;

(2) Be updated for the car as soon as practicable after departure of the car in a train, but no later than the time at which the car departs in any subsequent train; and

(3) Be inclusive of any excess mileage accumulated between brake tests.

Such excess mileage shall be reported as a negative number.

(i) The eABS system must retain records for a minimum of one year from the records' creation.

(j) FRA's Associate Administrator for Railroad Safety may revoke a railroad's authority to utilize the provisions of this section, in whole or in part, if:

(i) FRA finds that the railroad's eABS system or the records contained in the railroad's eABS system are not properly secure, are inaccessible to FRA or the railroad's employees, or fail to adequately track and monitor the movement of equipment operating pursuant to this section; or

(ii) The railroad demonstrates a record of repeated or willful noncompliance with the provisions of this part or parts 215 and 229 of this chapter.

(2) Revocation may be limited to specific locations, equipment, environmental conditions, train routes, employees, or eABS systems.

(3) FRA will record such a determination in writing, state the basis for such action, establish conditions of revocation, including a specific period of suspension or conditions for the restoration of the authority to utilize the provisions of this section, and provide a copy of the document to the railroad.

Issued in Washington, D.C.

**Quintin C. Kendall,**

*Deputy Administrator.*

[FR Doc. 2020-28870 Filed: 1/14/2021 8:45 am; Publication Date: 1/15/2021]